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ABSTRACT

The thesis explores the history of changes in agriculture policy and extension so as to inform the more effective delivery of future activity in these areas. Social and sustainability concepts are given particular attention due to their growing popularity in current agriculture initiatives. The questions framing the thesis address: what influences have shaped agriculture policy and how do these affect the development of extension models? and what is required to develop effective agriculture extension policies and programs that specify social and sustainability outcomes?

The thesis achieves the above by observing a history of ideas relating to adult education in general and more specifically agricultural extension, including an account of the main movements in which they have been significant. A contemporary example of how policy directs program delivery to achieve social outcomes involving learning is provided through the NAVIGATOR® case study, developed and implemented in partnership with the South Australian wine industry. The case study leads to an investigation into the historical origins and application of selection of terms commonly used in agricultural extension to gain a greater understanding of the adoption of new language into this field of study. This is followed by a more in-depth examination of the social capital and sustainability concepts, touted as preferred outcomes for modern agricultural programs.

Key features identified by the study include the confusion surrounding the language used and the role of the political economy in directing agriculture initiatives. I conclude that, if the social outcomes implicit in many modern agricultural policies and programs related to the concept of sustainable development are to be achieved, more weight must be given to the tradition of social science that emphasizes inquisitive and collectivist understandings of the dynamics of change. In obtaining clarification on the language used and what is to be achieved, the tendency for programs to lead to government ‘rhetoric’ when scrutinised may be avoided.
AUTHOR’S STATEMENT

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution to Katherine Boon and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying, subject to the provisions of the Copyright Act 1968.

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I would like to extend a sincere thank you to my supervisors Associate Professor Neville Hicks and Dr Ian Nuberg. Both provided me with a great deal of guidance and demonstrated to me the value of observing past events to understand present day activities, while also continuing to encourage me to complete this thesis.

A special thank you needs to go to Dr Patricia Murray, who encouraged me to undertake this research, while working with me on NAVIGATOR® and continued to support me early on in my studies as my supervisor. She spent many hours with me, providing insight into the social sciences and its connections with agriculture and rural Australia. I would also like to thank Dr Jocelyn Davies who was also involved in supervising me in the early years of this research.

A number of other people also assisted me in shaping the NAVIGATOR® program. John Cornish provided me with the opportunity to develop and implement NAVIGATOR®. Without his vision and willingness to experiment with new approaches to educating primary producers, this research would not have occurred. My colleagues, Bob Peake and Bill Panagiotopoulos, and the winery and producer facilitators, contributed their extensive experience in working with producers and provided frank advice on the ideas in deciding what form NAVIGATOR® would take, and supported its delivery. All the participants of NAVIGATOR® brought with them a willingness to engage with the program and continued enthusiasm to work and share their experiences with their peers. All of those above provided many enjoyable experiences and learning opportunities through my interactions with them, and as a consequence were a source of motivation to complete this work.

Last, but not least, to my family and husband Gerard, who patiently supported me for many years to complete this work along with our best friend, Pablo.
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<td>Agriculture Advancing Australia</td>
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<tr>
<td>AKIS</td>
<td>Agricultural Knowledge and Information Systems</td>
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<td>ARMCANZ</td>
<td>Agriculture and Resource Ministers Council of Australia and New Zealand</td>
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<td>ATO</td>
<td>Australian Tax Office</td>
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<td>BRS</td>
<td>Bureau of Rural Sciences</td>
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<td>CoAG</td>
<td>Council of Australian Governments</td>
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<tr>
<td>CRLRA</td>
<td>Centre for Research and Learning in Regional Australia</td>
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<tr>
<td>CSIR</td>
<td>Commonwealth Scientific and Industrial Research</td>
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<tr>
<td>CSIRO</td>
<td>Commonwealth Scientific and Industrial Research Organisation</td>
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<tr>
<td>CVCB</td>
<td>Cooperative Venture for Capacity Building for Innovation in Rural Industries</td>
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<tr>
<td>DAFF</td>
<td>Department of Agriculture, Fisheries and Forestry</td>
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<td>EEC</td>
<td>European Economic Community</td>
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<tr>
<td>ESD</td>
<td>Ecologically Sustainable Development</td>
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<td>FAO</td>
<td>Food and Agriculture Organisation of the United Nations</td>
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<td>FFL</td>
<td>Farmer First and Last</td>
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<td>FPR</td>
<td>Farmer Participatory Research</td>
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<td>FSR</td>
<td>Farming Systems Research</td>
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<td>FSR/D</td>
<td>Farming Systems Research and Development</td>
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<td>FSR/E</td>
<td>Farming Systems Research and Extension</td>
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<td>GATT</td>
<td>General Agreement on Tariffs and Trade</td>
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<td>GST</td>
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<td>HACCP</td>
<td>Hazard Analysis Critical Control Point</td>
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<td>IRRI</td>
<td>International Rice Research Institute</td>
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<td>ITK</td>
<td>Indigenous Technical Knowledge</td>
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<td>LGU</td>
<td>Land-Grant University System</td>
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<td>MDB</td>
<td>Murray Darling Basin</td>
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<td>NFF</td>
<td>National Farmers Federation</td>
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<td>NGO</td>
<td>Non-Government Organisations</td>
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<td>NCP</td>
<td>National Competition Policy</td>
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<td>NIRS</td>
<td>Near Infra Red Spectrometry</td>
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<tr>
<td>NSESND</td>
<td>National Strategy for Ecologically Sustainable Development</td>
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<td>NHT</td>
<td>Natural Heritage Trust</td>
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<td>NLP</td>
<td>National Landcare Programme</td>
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<tr>
<td>NRM</td>
<td>Natural Resource Management</td>
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<td>NSESND</td>
<td>National Strategy for Ecologically Sustainable Development</td>
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<td>NSW</td>
<td>New South Wales</td>
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<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>NT</td>
<td>Northern Territory</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>OFR</td>
<td>On-Farm Research</td>
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<td>PAR</td>
<td>Participatory Action Research</td>
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<td>PIRSA</td>
<td>Primary Industries and Resources South Australia</td>
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<td>PMP</td>
<td>Property Management Planning</td>
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<td>PRA</td>
<td>Participatory Rural Appraisal</td>
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<td>Qld</td>
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<td>RAS</td>
<td>Rural Adjustment Scheme</td>
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<td>RDC</td>
<td>Research and Development Corporation</td>
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<td>RDI</td>
<td>Regulated Deficit Irrigation</td>
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<td>RGIC</td>
<td>Riverland Grape Industry Committee</td>
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<td>RIRDC</td>
<td>Rural Industry and Research and Development Corporation</td>
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<td>RPF</td>
<td>Resource Poor Farmers</td>
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<td>RRA</td>
<td>Rapid Rural Appraisal</td>
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<td>RSSA</td>
<td>Rural Solutions SA</td>
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<td>SA</td>
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<td>SCRAM</td>
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<td>T&amp;V</td>
<td>Training and Visit Organisational System</td>
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<td>TI</td>
<td>Technological Innovation</td>
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<td>TOT</td>
<td>Transfer of Technology model</td>
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<td>UNCED</td>
<td>United Nations Conference on Environment and Development</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organisation</td>
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<td>VEW</td>
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1 INTRODUCTION

Agriculture in Australia has contributed significantly to rural communities and the national economy since the early 1800s.\(^1\) Over time there has been a number of changes to the way it is structured in response to the increasing complexity around what it seeks to obtain through a balance of social, economic and environmental considerations. In the kaleidoscope of activity surrounding agriculture, agricultural extension has played a central role in assisting producers with the adoption of new innovations and improved farm management practices to support the broader objectives of agriculture.

Traditionally, support for primary producers globally was offered through universities, agricultural colleges and by government employees. The focus of learning was production based and usually driven by government directives. Over time, consideration for the economic, natural resource management, environment and social aspects of farming have emerged. Producer and community driven approaches have variously been incorporated, sometimes in ‘partnership’ with government, but with industry bodies and the private sector having more of a role in producer education at other times.

Changes in the approach to agricultural extension have occurred concurrently with an increase in the privatisation of government services. This has put agriculture in a similar light to other businesses within globalising national economies. Free educational and training support services to primary producers have been restricted or removed by governments, especially those provided on a one-to-one basis. Group based approaches and financial incentives that develop primary producers’ farm management and market awareness skills have been employed when governments have thought this would produce greater impact for dollars spent and be more likely to achieve state and national economic goals.

The historical influences of change in agriculture have been accompanied by the incorporation of new language in its policies and extension programs in an attempt to articulate desired outcomes. My awareness of issues surrounding various interpretations of new language in agriculture emerged through my experience in developing the NAVIGATOR® program for Primary Industries and Resources South Australia (PIRSA). This program sought to develop producers’ skills and capabilities to better manage change and encourage leadership in light of reduced government services. The focus on social outcomes involving learning differed from past approaches that usually involved the adoption of specific information or practices that were technically related. The change in approach

---

1 Agriculture is taken to encompass primary producers of horticulture and broad acre farming and pastoralism, their farming land, and the broader industry that primary producers work within.

Although natural resource management (NRM) and environment are often used interchangeably, I interpret NRM in the context of agricultural development to mean the management of natural resources for the purposes of production, usually at a local level although is now being extended beyond the farm gate. The ‘environment’ is more holistic including soil, land, water, biodiversity/ecology, and atmospheric considerations at a local, catchment level and beyond.
meant that a whole suite of new language needed to be interpreted. In trying to unpack what was required for the programs development, I obtained a curiosity as to what leads governments to adopt new language and subsequent approaches into their activities. The continuing noise around sustainability added to this curiosity and provoked my interest in this thesis. The following questions were devised to frame the enquiry:

- What influences have shaped agriculture policy and how do these affect the development of extension models?
- What is required to develop effective agriculture extension policies and programs that specify social and sustainability outcomes?

I have approached the task of answering the research questions by exploring the history of change in the language, objectives and approaches to agriculture policy and extension in Australia and overseas. Focal issues on what causes change have included the shifting orthodoxies in the political economy and how language is interpreted and implemented between government policy and program development and implementation. An understanding and analysis of this history enables solutions to be devised that can inform the development of future agriculture initiatives. Although the international context is often considered the purpose is to provide recommendations for future developments in the Australian context.

Chapter Two explores the history of ideas surrounding the development of adult education theory, concepts and its main movements. The thesis begins here because agricultural extension involves adult learning. An understanding of the development of ideas in this field of study is compared later against those in agriculture extension to determine if an exchange of ideas had occurred. The chapter explores what has influenced theory development and how adult learning and education have been approached. It does this by observing its main theoretical contributors in American Pragmatism, Humanism and Marxist Adult Education. A review of early learning models, contributions to the Adult Education Movement, and a selection of theories and concepts current in this field of study is then examined.

Chapter Three explores the developments of agricultural extension’s most significant models and theories and how past policies have contributed to changes in these from its inception in the 1800s through to the 1970s. Specific attention is given to developments towards the Extension Movement in the 1880s and the succeeding definitions of ‘agricultural extension’. These provide an international context to the formation of Australian agricultural extension. The remainder of the chapter outlines the first model of extension (Transfer of Technology) and the instigators for a change in focus towards the individual in the 1960s that led to formation of the Diffusion of Innovations model. A selection of models from the 1970s concerned with equity; rural life, organisational structures, and agro-ecosystems complete this chapter.

Chapter Four builds on the account provided in Chapter Three. It demonstrates the broadening of agricultural extension beyond production concerns from the 1980s to the present. Topics such as national goals and farming income, the
inclusion of the social sciences, increased producer participation, and the systems and sustainability movements are explored. A focus back on the Australian scene is given through an overview of current theories and models for agricultural extension.

**Chapter Five** outlines my research involving the NAVIGATOR® program, developed in partnership with the South Australian wine industry in a climate of changing government policy and support for agriculture extension activities. This case study is an example of an extension model that aimed to deliver on new policy objectives that demanded social outcomes involving learning. It aimed to obtain ‘cultural change’ and develop industries leadership and market responsive abilities. The chapter outlines the rationale for the development of a program of this type and clarification around the language of ‘cultural change’. This is followed by a description of the research framework and development of the NAVIGATOR® process designed to encourage self-directed learning outcomes to improve participant’s confidence in decision making and extend their networks. The engagement of industry and training of facilitators, along with the monitoring and evaluation approaches used are also discussed. The chapter concludes by considering the commercial potential of the program as a result of the introduction of competition-based policies.

**Chapter Six** presents and discusses the findings from the research in Chapter Five including the types of projects undertaken by the participants, the development of their skills and capabilities to meet the outcomes for the project (strategic planning, developing networks and confidence, and learning), the effect and difficulties of facilitation and commercialisation of the project. Conclusions are drawn on whether the project objectives were obtained. The findings highlight the complexities involved in introducing social outcomes involving learning into programs areas that traditionally are technically focussed. The development of industry leaders, demands in facilitation, the tensions between government and the participants’ objectives, and issues in commercialising government services are also explored.

**Chapter Seven** investigates the historical origins and application of a selection of terms commonly used in agricultural extension through a bibliographic analysis. The research into capacity building, cultural change, participation, self reliance, social capital and sustainability support the investigation to gain a greater understanding of the adoption of new language into agriculture initiatives. Comparisons between the terms in the global and Australian contexts are provided.

**Chapter Eight** provides a more in-depth analysis of social capital due to its increasing popularity, particularly in community development studies. Its use in Chapter Five as a desirable outcome and measure of ‘cultural change’ also demanded a closer look at what it contains and can offer future agriculture initiatives. The chapter investigates the theoretical contributors of Pierre Bourdieu, James Coleman and Robert Putnam. This material introduces a discussion of governments’ interest in the concept, the negative effects of social capital, the debate surrounding what it is and contains, and how it is measured.
**Chapter Nine** builds on Chapter Eight by providing a more in-depth analysis of the sustainability concept. The chapter begins by exploring its development and various forms. A look at how sustainability is utilised in the broader global and Australian contexts and farming contexts is observed. It concludes by offering areas where improvements can be made to ensure it is obtained covering areas such as government, society and farming.

**Chapter Ten** shows how the detail of Chapters Two to Nine addresses the questions posed at the beginning of the thesis. It identifies the influence of adult education in supporting the adoption of new approaches in agriculture extension. Trends in the political economy are also viewed as a main influence directing agricultural initiatives observed in the globalisation of markets to meet national economic goals, and environmental and social concerns. The effects of these agriculture policies and extension approaches are discussed in providing possible solutions for more effective social and sustainability outcomes. These include consideration for other influences beyond economics that impact on peoples lives, clarity in the language being used, development of policies that suit the desired outcomes, changes to organisations, allowing time for change to take place, improved theory and program development and monitoring and evaluation approaches. I conclude that, if the social outcomes implicit in many modern agricultural extension programs are to be achieved; more weight must be given to the tradition of the social sciences that emphasizes inquisitive and collectivist understandings of the dynamics of change.
2 DEVELOPMENT OF ADULT EDUCATION 
THEORY AND CONCEPTS

Adult education, like agricultural extension, has collated ideas from various established academic disciplines. Prior to its arrival, and for sometime after, the way in which adults were taught to learn was based on a model that evolved between the seventh and twelfth centuries that contained a set of beliefs with assumptions on how to teach children to learn. This pedagogy primarily used various ‘transmittal techniques’ and relied upon the experience of the teacher in conjunction with various learning aids. Since the teacher was responsible for all aspects of a students learning, the learner was dependent upon the teacher.\(^1\)

From the late 1700s, educations predominant ideas responded to various social concerns, particularly in North-west Europe, North America and parts of the southern hemisphere. The French Revolution, for example, with its demands of “equality, fraternity and liberty”, provoked the early developments of what is now considered to be ‘radical adult education’ that infiltrated across Europe. In the early-1800s political activism in France, Germany and the United Kingdom touted “education for the people and in the interests of the people”. Education aimed to remove inequalities formed by the negative effects of industrialisation for all people. A sociological and political outlook was retained, with emancipation (to generate an improved world) and compensation (education without schooling) as its core ideals to construct an enlightened, responsible and rational modern society.\(^2\)

In the mid- to late-1800s the term ‘adult education’ emerged from the United Kingdom, in the context of advocacy for a shared literary and scientific culture through the University Extension Movement and philanthropically funded

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working men’s colleges. New ideas about how adults could be encouraged to learn followed, and began appearing across the world.³

In North America, education was generally non-ideological and non-political, to the extent that it aimed to remove learning inequalities by offering all immigrants to North America the same opportunities to access education, so as to produce ‘Americans’. The result was a focus on individual learning and humanistic psychology.⁴

By the 1930s adult education was generally considered to include four main types of education: (1) continuation education (education from adolescence to adulthood); (2) corrective education (compensating adults for earlier education deficiencies); (3) functional-group education (addressing specific issues within a group); and (4) folk schools or people’s colleges (resident institutions originating in Denmark concerned with social, economic, aesthetic and historical factors of their environment). It also included other activities such as university extension, women’s clubs, libraries and museums.⁵

In the southern hemisphere (excluding Australia and New Zealand) efforts were concentrated on economic development and the lessening of poverty from the mid-1940s, with practices orientated towards survival. After the 1970s, both Europe and North America shifted towards more work-related forms of education, while the southern hemisphere generally retained its original focus.⁶

Australia’s progress in adult education was similar to the United Kingdom and Canada in adopting a class-based model. A liberal view was taken, focussing on the advancement and self-development of individuals, mostly males, through working-class institutions. Marxist approaches, discussed in more detail later, were also adopted in Australia as in France, Italy, Germany, Canada and the United States through the Labour College Movement. However, approaches to advance the working class were opposed by organisations such as the Worker’s Educational Association (WEA), which were government funded and focussed on liberal education, tying education back to the issue of hegemony.⁷

³ Titmus (1996:9); Westwood (1996:61-62)
⁴ Finger and Asún (2001:98-100)
⁷ Westwood (1996:62-63)
The development of adult education has involved contributions from a range of disciplines. The effect of some of that pluralism is evident in the evolving agricultural and rural development programs. Therefore this chapter investigates the changes in adult education by observing the ideas from the various contributors to the development of adult education theory and models. This approach provides context for the later account in the thesis, of development and change in education methods and theory in agriculture and rural development.8

2.1 Foundation of Adult Education Theory

The American philosopher of education John Dewey (1859-1952), ‘cross-fertilized’ a range of fields of study with his own practical experience in education.9 Influenced by anthropology through the work of Franz Boas,10 Dewey devised the concept of ‘plasticity’ which he described as being an ongoing developmental process where humans learn from their experiences.11 He emphasised that learning should start with everyday experiences that can be used as grounds for further learning. In learning through experience, people ‘humanised their environment’ by altering it to meet their needs. Dewey termed this transformation ‘development’ or ‘growth’, which he visualised as an iterative process (refer Figure 2.1) of people becoming ‘habituated (observation)’ through their ‘experiences’ in a particular environment to create ‘habits (reflection)’ on how things are perceived. These habits are later converted into ‘actions’. Essentially described as a process of problem-solving, the types of habits held by a particular culture would dictate their capacity to learn or transform their

8 Tight (2000:149)
Malcolm Tight has worked in several universities in the United Kingdom focusing on post-compulsory education policy and practice and relations between adult and organisational learning. He is currently a Professor of Higher Education in the Department of Educational Research at Lancaster University. His research interests are in higher and post-compulsory education including such areas as the: history and meaning of higher education; alternative modes of study; the role of learning in adult life; and patterns of participation (Tight 2000; Lancaster University (2007) Malcolm Tight. http://www.lancs.ac.uk/fss/edres/staff/tight/index.htm, Accessed 13 July 2007).


10 Boas (1858-1942) was born in Germany and migrated to the USA. Initially interested in geography, he later founded ‘modern cultural anthropology’ and made a significant contribution to the fieldwork methodology in this area. He was also interested in psychology which he applied to cultures. Examples of his works include: Primitive Art (1927); The Mind of a Primitive Man (1911); and Race, Language and Culture (1940) (Scott and Marshall 2005:40-41).

environment to meet their needs. The role of education was seen to provide each person with the opportunity to be able to acquire the same ‘habits’, in order to obtain what Dewey termed ‘basic industrial intelligence’.12

Dewey held a long-term view on education, strongly linked morality to experience, and did not make a distinction13 “between the individual and the species, as there is no real difference between learning, development and growth”.14 His reading of T.H. Green helped him to tie the model of peoples’ ‘growth’, through successive cycles of action, experience, observation and action, to a democratic model of politics as shared practical experience.15 However,
Dewey’s reading of Kant made him wary of the threat to democracy lurking in institutionalised forms of capitalism.16

Dewey viewed himself as an experimentalist but his ideas about adult education placed him within the school of American Pragmatism, whose theories he broadened out to include Humanist and Marxist ideas, which all attempted to ‘humanise industrial development’.17

### 2.1.1 *American Pragmatism: learning, interacting, problem solving*

Pragmatism was first summarised by William James in his publication, *Pragmatism* (1907). It is associated with the Chicago School of Sociology and emphases ‘experiential learning’ and ‘symbolic interactionism’. Considered to be the intellectual core of adult education, it involves the process of individual and collective problem-solving. Other well known contributors to the theoretical perspective include Dewey, Charles Sanders Pierce, and George Mead.18

Experiential learning centres on an individual’s experiences in life and work. That focus is the keystone of Dewey’s learning cycle, which “implies learning by doing as well as a practical understanding of the world”: the learner’s experience determines both teaching and learning aspects. In the 1920s a Danish immigrant to America, Eduard Lindeman (1885-1953), made some minor modifications to Dewey’s ideas giving them a greater social context when incorporating them into adult education, along with some methodological tools from the Danish Folk School Movement. Lindeman also delved into agricultural extension work in America along with works on community, community organisation, working with

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16 Pappas (1998); Ryan (1995)

17 Ryan (1995); Finger and Asún (2001:2, 29)

18 Finger and Asún (2001:29); Scott and Marshall (2005:517)
groups, social education and democratic living up to the 1950s. Other contributors to this approach, who are given more consideration later, include: American Kurt Lewin who devised the ‘action research’ model; David Kolb, who popularised experiential learning; and Chris Argyris and Donald Schön, with their proposed ‘theory in action’.

Symbolic Interactionism evolved from the works of social psychologist George Herbert Mead (1863-1931), who viewed “every person as a social construction.” By this, Mead proposed that personal behaviour was shaped through interactions with society. Following Mead, Herbert Blumer devised the theory of ‘symbolic interactionism’ in 1937, proposing that human interactions were based on symbolism - the meanings people have for symbols and how they are interpreted through interactions. British Sociologist of religion Peter Jarvis (b.1937) used Blumer’s theory to place adult learning within a social context in an attempt to assist people in making adjustments to society in order to make them feel more ‘individual’. Later in the 1980s, Jack Mezirow, known for devising the theories of ‘perspective transformation’ and ‘transformative learning’, applied symbolic interactionism to the area of community development (discussed later).

2.1.2 Humanism: self-direction and personal growth

Humanist ideas focus on ‘human interests and dignity’, which have ebbed and flowed over the centuries. In the 1960s it re-entered adult education with an emphasis on the capacity of an individual’s personal growth, which is what made humans unique from other species. American psychologist Carl Rogers (1902-1987) argued that if people can maintain their authentic (or ‘true’) self, they are able to act rationally and responsibly. He proposed that meaningful learning, needed to be ‘self-initiated’ (or ‘self-directed’) and to involve the whole person. His perspective on adult education as an avenue for social change was underpinned by the key assumptions that: humans are active and free; they have an inner drive for self-development; and their environment dictates how, or if, self-development will occur.


The concept of ‘self-directed learning’, in existence since classical antiquity, is defined as involving responsibility for determining the learning goals, methods to be used, location of resources, and evaluation of progress resides with the learner. An academic analysis of self-directed learning was undertaken in the United States during the late 1800s, and again in the 1960s by Cyril O. Houle who studied the reasons why people participate in learning. However the active promotion of self-directed learning came later in the 1970s and 1980s through Alan Tough, a Canadian student of Houle’s. Tough believed that a significant amount of learning for individuals occurred outside of formal institutions in learning projects. These ideas have made self-directed learning popular in fields such as rural and community development and agriculture, as will be shown in the following chapters.

2.1.3 Marxist Adult Education: social transformation

German philosopher Karl Marx (1818-1883) focussed on social transformation with a view to creating a classless society through the removal of capitalism. His ideas were incorporated into adult learning at the same time as Humanism to form the Marxist Adult Education school of thought, which centred on the removal of inequalities through education.

‘Self-directed learning’ is defined as being when adults direct their own learning rather than teachers directing what will be taught and how it will be taught (Foley 1995:43). Self-directed or self-initiated learning is sometimes referred to as ‘independent’ learning (Tight 2000:101). Self-directed learning: empowers individual learners; can occur within any person and learning situation; does not necessarily occur in isolation of other learning experiences; learners can transfer learning to other situations; can involve various activities and resources; teachers can have effective roles; educational institutions are finding ways to incorporate this type of learning (Hiemstra, R. (1996) Self-directed Learning. In Tuijnman, A.C. (ed.) International Encyclopedia of Adult Education and Training. Elsevier, Oxford, p.428).

Carl Rogers’s publication’s span from the 1960 to the 1980s. His most significant works occurred in the later decade. The most complete statement of Rogers’s theory is contained in his 1951 publication Client Centered Therapy (Boeree 2006).

Karl Marx studied law and undertook his PhD in philosophy. He later became interested in politics and economics while employed as a journalist. Marx wrote numerous publications relating to philosophical, political, economic and social issues, some of which he co-authored with Engels. His opinions on communism helped lay the foundations for many communist regimes in the 1900s. Marx’s view on agriculture was that it was no different to any other industry and that it would be “transformed into an industrialised mode, or system, of production” as it was subject to the same “laws of capitalist development”. He did not distinguish rural cultures and problems as different from those that were urban. However, as Mann and Dickinson discuss in their paper on the Obstacles to the Development of a Capitalist Agriculture (1978), Marx’s capitalist production involves the relationship between
The ideas of Antonio Gramsci, a socialist and later communist militant in Italy around 1910, have been suggested as an earlier contributor to this school. Gramsci was interested in the social transformation of Western Europe and strongly advocated the importance of “ideological struggles in the revolutionary process”. He tied together the concept of hegemony with education (as Frank Vanclay did in the 1990s for Australian agriculture extension - discussed in Chapter Four), suggesting that it reinforced the most powerful social groups, and thus derived the concept of ‘ideological hegemony’. Gramsci is considered to be a contributor to the ‘theory of radical adult education’ along with the well known 20th century Brazilian philosopher and educator Paulo Freire (1921-1997). Although they held similar views, Gramsci rejected some of the Marxist ideals. Freire’s views on adult education set him apart from other adult learning theorists of the time, giving him recognition for incorporating Marx’s ideas into adult education from the mid-1900s.26

Freire was primarily concerned with the liberation of oppressed peoples in Latin America by educating them towards an understanding of their oppression, which he describes in Pedagogy of the Oppressed as ‘critical consciousness’.27 He tightly linked the education style at the time (the Pedagogy Model) to political interests, which led him to describe education as a process similar to that of ‘banking’:28 rendering the learner vulnerable to the ideas being taught, and often reflecting the dominant culture and therefore political interests. He claimed that this kind of education could not be neutral and restricted social transformation. Freire proposed that education could either domesticate or liberate people. Educators needed to choose between the learner and the goals of their employers for production time and labour time, where capitalism favours a reduced production time. The difficulty for agriculture is in reducing the production time as it is determined by nature and therefore not easily drawn into capitalism. Attempts to shorten production times have been done through such things as yield modifications and technology advances (Stanford University (2006); Lockie, S. (2001) Rural Sociological Perspectives and Problems: a potted history. In Lockie, S. and Bourke, L. (eds.) Rurality Bites. Pluto Press Australia, Annandale, pp.18-19; Mann, S.A. and Dickinson, J.M. (1978) Obstacles to the Development of a Capitalist Agriculture. Journal of Peasant Studies. Vol.5(40), pp.466-81).


Gramsci was born in Sardinia in 1891. He undertook a critique of Manifesto Marxism and economism (Westwood 1996:63). He describes ‘hegemony’ as being “a social condition in which all aspects of social reality are dominated by or supportive of a single class” (Mayo 1999:35). Louis Althuseer later developed an alternative version of Marxism in the 1970s based on Gramsci’s ideas, stressing the ideological and political roles while retreatting from the economic aspects (Westwood 1996:63).


Pedagogy of the Oppressed was written in Spanish and Portuguese in the late 1960s and was not released in English until 1973.

28 Freire (1973:45-46) had described education similar to that of depositing money in a bank – “Education thus becomes an act of depositing, in which the students are the depositaries and the teacher is the depositor. Instead of communicating, the teacher issues communiqués and ‘makes deposits’ which the students patiently receive, memorise and repeat. This is the ‘banking’ concept of education, in which the scope of action allowed to the students extends only as far as receiving, filing, and sorting the deposits”.

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(often at odds with liberating people) and to trust in people’s ability to reason and search for information. 29

French political scientist and adult educator Matthias Finger and Spanish educator José Asún reflected Freire’s view in the early 2000s, commenting that education was

“shaped by vested interests…[education] either reproduces inequalities – and as such, is an instrument of domination – or critically analyses the forces perpetuating such inequalities, and contributes to fighting against them”. 30

Freire believed that using the two elements of ‘action’ and ‘reflection’ would produce social transformation. He asserts that this involves ‘conscientization’ - a process in which people construct and make sense of their experiences - in relation to individual emancipation; and ‘praxis’ - the process where the learner is distanced from her ‘world of action’ or ‘reality’ so as to be able to reflect on it in a critical way. As well as being associated with Critical Pedagogy (a derivative of critical theory), 31 his work is the best example of ideas from a developing country being implemented into the industrial world, although not always successfully. 32


30 Finger and Asún (2001:76-7)

Matthias Finger has published predominantly on social issues including ecology, development, management, adult education and the peace movement. He holds PhD’s in political science and adult education. José Manuel Asún is a Spanish educator and has had several roles in UNESCO and with the Spanish Government (Finger and Asún 2001).

31 Critical Pedagogy and Critical Theory - During the 1960s and 1970s an extended critique of education revolved around the complaint that social and ethical issues were not being addressed in teaching and learning. Freire was an avid promoter of these ideas, which fuelled thoughts around ‘critical pedagogy’, a derivative of ‘critical theory’. Critical theory involved the process of theoretical and ethical reflection, with particular emphasis on hegemonic interests. It was derived from German Marxist intellectuals at the University of Frankfurt in the 1930s, who tried to gain a politico-cultural understanding of Fascism (see explanation below). Further contributions were made to critical theory in the 1980s by other Frankfurt followers in America, and by the German philosopher Jürgen Habermas, who “tried to locate emancipatory potential within language and discourse”. His “attempt to outline rational theory of emancipation, conceived as a cognitive consciousness-raising process among socially interacting individuals”, was used as the basis for critical pedagogy by educational philosophers (Foley 1995:45); Mayo (1999:13-17, 58); Finger and Asún (2001:2, 77-79); Mjoset, L. (2004) Theory: conceptions in the social sciences. In Smelser, N.J. and Baltes, P.B. (eds.) International Encyclopedia of the Social and Behavioural Sciences. Elsevier, Oxford, pp.15641-47; Crotty (1998:63)

The transformation of critical theory ideas into critical pedagogy led to renewed analysis of issues surrounding social difference, justice, and transformation. Concerning itself more with theory rather than with practical application, critical pedagogy was not promoted until the late 1980s and is now known as ‘critical adult education’ (Mayo 1999:58; Finger and Asún 2001:2, 77-79).

Fascism was derived from the extreme right-wing Nationalist Movement in Italy which held the view of totalitarian principles and organisation. It has come to include any “similar nationalist and authoritarian movement”; and “any system of extreme right-wing or authoritarian views” (Hughes et al 1995:406).

2.2 Early Learning Models

The Action Research and Action Learning models are the two most recognised models used in the early development of adult education. Both emerged from organisational management to address problem-solving concerns.

2.2.1 Action Research

Jacob Levy Moreno (1898-1974) was the first person to use the terms ‘interaction research’ and ‘action research’. However Kurt Lewin (1890-1947), whose work emerged after Moreno, is considered to be the founder of action research in English-speaking countries. Lewin, a German immigrant to America, was influential in founding American social psychology. In his research on social influence, he devised the term ‘group dynamics’ which “characterise[d] the study of changes in group life”.

Lewin applied Dewey’s experiential learning ideas to organisational problem-solving in the 1930s to develop the Action-research or Action-reflection Learning Model. The model assumed that knowledge could be created and learnt, and aimed to improve practice rather than produce knowledge. In cases where obstacles to making improvements in an environment, context or condition existed, changes to a practice could be suggested or initiated. The aim was to instigate change not just within the individual, but also within organisations and societies. It was thought that a better working environment and improved productivity could be obtained by achieving a change in practice by involving

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J.L. Moreno was born in Vienna and moved to America in 1925. A ‘physician, social philosopher and poet, Moreno was the inventor of the concepts of ‘sociometry’, ‘psychodrama’, ‘sociodrama’, ‘role play’ and group psychotherapy. He had an ‘actionist’ view of action research”. Moreno’s wife, Zerka T. Moreno, promoted psychodrama after her husbands’ death. Spontaneity is central to the Morenoan philosophy, and in 1990 the Moreno Institute was founded in San José (Cherry 1999:5; Unknown Author:2006).

The term ‘group dynamics’ was commonly used from the 1930s to the 1950s. Over time its original definition “to characterise the study of changes in group life” devised by Lewin, was relaxed and it came to be known as the study of small groups consisting of three to thirty people. Moreno is also credited to undertaking sociometric work on small groups, as is Helen Jennings, Elton Mayo, William F. Whyte, Ronald Lippitt, Ralph White, Paul Schilder, Samuel Slavson and Trigant Burrow. Extensive work on small groups occurred after WWII and up until the 1980s. In the late 1990s it appeared to have regained momentum particularly in the area of social psychology (Fraser 2003:350; Deutsch 1968:265; Homans, G.C. (1968) Groups. In Sills, D. (ed.) International Encyclopaedia of the Social Sciences. Vol.6, Macmillian Company and the Free Press, USA, p.259).
employees in finding solutions to problems that affect them within their organisation.  

Like Dewey’s model, Lewin’s Action Research model has four elements (see Figure 2.2 with Dewey’s model shown in italics). It begins with the ‘here and now experience’ (i.e. ‘concrete experience’ or identified problem that needs solving) and moves onto collecting information about the experience (i.e. ‘observations and reflections’). This information is then analysed (i.e. formulation of abstract concepts and generalisations); and the conclusions fed back to those involved in finding a solution to the problem, in order to instigate a behaviour change and to begin new experiences (i.e. testing implications of concepts in new situations). The next significant learning model (Action Learning) didn’t appear until after World War Two, when adult education began to expand significantly.

**Figure 2.2  Lewin’s Action Research Model**  

**NOTE:**  
This figure is included on page 15 of the print copy of the thesis held in the University of Adelaide Library.

### 2.2.2  Action Learning

In 1945 Reg Revans proposed the ‘Action Learning’ model, which was trialled in 1952 with British coal mine managers while he was working for the English Coal Board to help them solve their problems. Despite its early developments Action Learning wasn’t popularised until the 1980s and some concern that its original principles were not being upheld were expressed by Revans. Described as a

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Figure 2.2 adapted from Kolb (1984:21).

personal development program focusing on management education, Action Learning aimed to “develop a way of functioning such that learning is a natural consequence of your [an individual] taking action in the real world”. This was achieved by encouraging people in a ‘learning set’ to solve their own problems by linking learning to actions, rather than enlisting the services of experts. 

Revans makes no reference to the theoretical background to his work, beyond asserting that Action Learning is not new. He attributes his ideas to the prior works of Aristotle, Buddha, Sophocles and Saint James, whom he calls ‘action reflectors’ and prior proponents of ‘learning by doing’. He describes his ideas behind Action Learning as “depending upon the re-interpretation of old and familiar ideas, rather than upon the acquisition of new cognitive knowledge”, so as to be able to keep up with change. In order to describe this, he proposed the formula of \( L = P + Q \) where: learning (\( L \)) is a function of programmed knowledge (\( P \)), being traditional instruction usually administered by experts; and questioning insight (\( Q \)), usually deployed by leaders, is where action learning resides. Although Revans placed emphasis on people solving their own problems earlier, this formula proposes that knowledge resides with ‘experts’ and ‘leaders’ rather than the participants themselves.

In his 1983 publication *The ABC of Action Learning*, Revans listed nineteen assumptions that underlie Action Learning and three key objectives which must be incorporated into a program:

“(a) to make useful progress upon the treatment of some problem or opportunity in the real world.

(b) to give nominated managers (and many others within the operational fields of the problems or opportunities on which they will work) sufficient scope, variable but sustained, to learn for themselves, and in the company of colleagues, how to best approach ill-structured challenges to which nobody can, at the outset, suggest any satisfactory response; and

(c) to encourage teachers and others in ‘management development’ to perceive their missions afresh; they should no longer try to ‘teach’ managers anything about how to manage, but should see themselves as having to contrive, with senior managements, the conditions in which all managers, including those at the top, learn with and from each other in the pursuit of their common and everyday duties.”

Action Learning uses a variety of learning strategies in order to develop peoples’ attitudes, knowledge and skills through the implementation of planned changes. Revans described this by utilising the scientific intellectual structure involving five stages and relating it to personal relationships as shown in Table 2.1. Here Revans defines the ‘element of grammar’ as modelling awareness or influence of self (first person), companions (second person), and third parties or external world.
This may also be defined as ‘apparent human process’ where the process of learning (changing self), advising or being advised (changing others), and deciding by taking action (action changing the external world) occurs. All three levels usually happen together, as activities commonly involve more than one person. By combining the three levels, the ‘empowerment’ of employees is encouraged, which, in turn, fosters an environment for increased learning and allows organisations to be assisted through change.41

Table 2.1  The Prime Idea of Action Learning

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Today the terms Action Learning and Action Research are commonly used across a variety of fields, including agricultural extension and rural development. Concerns have been expressed that the primary purpose of Action Research has been degraded; and that Action Learning has become a ‘buzz word’ (as Revans complained in the 1980s).42 The popularity of their use, particularly since the introduction of facilitation-based approaches to learning, warrants a closer look at their similarities and differences.

2.2.3  Comparing Action Research and Action Learning

Action Learning is similar to Action Research in that it originates out of organisational problem-solving; contains a learning structure, though not as rigid as for Action Research; and looks to make change on a broader scale. The main difference between Revans’s Action Learning and Lewin’s Action Research is that, Action Research aims to improve practice at a collective level while Action Learning seeks to change individual behaviour through personal development.

A more recent comparison of the two models shows that in general terms, Action Research is defined as a social process with the intention of improvement through

41 Revans (1983:12-8); Bunning (1986); Mwaluko and Ryan (2000:393, 396) Table 2.1 is taken from Revans (1983).
a cyclical progression of planning, acting, observing and reflecting (reviewing of action) through systematic enquiry involving action and research in a continuing spiral of cycles (see Figure 2.3). Its methodology is identified as having specific aims: (1) action, to encourage change in a community, organisation, program or intervention; (2) research, to increase the researcher and/or client’s, and/or wider community’s knowledge and understanding; and (3) promoting self sufficiency by increasing people’s capacity to help themselves. The process of problem-solving often includes groups of individuals who exchange ideas on a commonly pursued topic, but it can also include people external to an organisation, such as mentors.43

In Action Learning it is assumed that ‘empowerment’ of an individual will occur.44 There are currently considered to be four de facto schools of thought underpinning its practice: (1) scientific (based on Revans’s work); (2) experiential (based on Kolb’s experiential learning cycle), (3) critical reflection (based on Jack Mezirow’s work) and; (4) Tacit (involving incidental learning). The first three are similar in relation to the role of the facilitator; they use strategies to help people learn; and have the same cycle of problem framing, action, reflection on action, concluding, and reframing. The Tacit approach differs by not deliberately incorporating learning from experience in its programs.45 A more detailed


44 Mwaluko and Ryan (2000:398)

45 Marsick and O’Neil (1999:160-64, 171)
summary of the differences between the various approaches may be viewed in Appendix A.

Action Research and Action Learning both assume that learning will occur from active experience.\(^{46}\) In general, the distinction between the two is that for Action Research, research is a form of learning itself but is more systematic and rigorous with outcomes usually being made public. Action Learning, on the other hand, does not have research as its primary aim, and learning outcomes are in most cases for the individual or learning group, not for public display or benefit. There is a belief that Action Research has evolved out of Action Learning\(^{47}\) although, historically, Lewin’s Action Research appeared earlier as evidenced above.

Both models are commonly referred to in agricultural extension and rural development in Australia. In this context a cross over between the two approaches exists. The desired outcomes of Action Learning, including the development of knowledge, attitudes and skills described by Revans, are said to be achieved through the use of the Action Research cycle like that shown in Figure 2.3. Here the participants undertake ‘plan’, ‘do’ (experience), ‘act’ and ‘review’ stages to achieve individual learning outcomes and broader community and national benefits. In that sense, Action Learning and Action Research have become the one solution to solve a range of concerns.

The modifications to the Action Research and Action Learning cycle described in this section have followed the momentum that adult education obtained from the early to mid-1900s globally, as people became more interested in how adults learn.

### 2.3 Adult Education Movement

The continued awareness of ‘self-initiated’ and ‘continuing learning’ and the ideologies surrounding ‘human potential’ and ‘empowerment’, combined to form an international Adult Education Movement in the 1970s and 1980s.\(^{48}\) A Community Education Movement also appeared during this time, beginning in Michigan with the Mott-funded Community School Movement. This resulted in the resurfacing of radicalism and the issues surrounding knowledge, power and state intervention. A revived acknowledgement of the autonomy of the adult

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\(^{46}\) Cherry (1999:7); Kember (2000:35)

\(^{47}\) Kember (2000:35); Marsick and O’Neil (1999:171); Kember (2000:35)


America experienced its own Adult Education Movement in the early part of the 1900s after the Great War. In 1926 the American Association for Adult Education was formed to provide national coordination for the movement, and undertook social science research through community surveys to identify educational opportunities for adults and psychological experiments to define an adults educatability (Lindeman 1931:465).
learner also reappeared with its underlying assumptions of equality in terms of race, class, gender and democratic decision-making.\(^{49}\)

The recognition of cogitative functioning was also demonstrated by moving away from IQ based models to determine adult intelligence. This change was borne out of the realisation that academic intelligence was related to abstract and theoretical tasks; while cognitive functioning or practical intelligence, often referred to as ‘expertise’, was regarded as the foundation skill associated with every day tasks.\(^{50}\)

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) played a significant role in adult education during the 1970s by combining American Pragmatism, Humanism and Marxist Adult Education ideas into a framework.\(^{51}\) The concept of ‘lifelong education’, originating from the Nordic countries in the mid-1800s, was also promoted by UNESCO who suggested that education was for everyone throughout their life.\(^{52}\) Lifelong learning aimed to build upon and influence existing education providers, extend beyond formal education providers, and held a belief that individuals can become self-directing and see value in education for their entire life. Since no standard model exists for lifelong learning, it has been suggested that it may be more of an ideal than a concept. Despite this, it regained popularity in the mid-1990s through its incorporation in the OECD’s Centre for Educational Research and Innovation policies.\(^{53}\) The concept of ‘permanent education’ emerged at a similar time, from the Council of Europe, and later became the basis of UNESCO’s *éducation permanente*, which aimed to “create a society where everybody is learning all the time” in order to keep pace with development.\(^{54}\)

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The Mott-funded Community School Movement has been defined as “an educational and community development process for the development of human potential and participation in the local decision making process” (Cunningham 1996:55 after Kerensky, V.M. (1989) *The Sovereign New Perspectives on People, Power and Public Education*. Kendall/Hunt, Dubuque, Iowa, p.63). Equality is assumed in relation to race, gender, class and in democratic decision making. ‘Community-based education’ does not separate culture and community “it is linked to community development and the empowerment of communities” especially for those that are poor (Cunningham 1996:55).


51 Finger and Asún (2001)


UNESCO views lifelong education as a solution to helping societies: (1) keep up with change; (2) understand science and technology in order to use, integrate profit and maintain control of them; (3) make sense of the information and how to use it in a meaningful way; and (4) gain more civic and political education to be involved in change and development (Finger and Asún 2001:23-24).


54 Finger and Asún (2001:19-24); Tight (2000:35)
Other concepts appearing in the 1970s included ‘recurrent education’ - the cyclic recurrence of education over an individual’s lifetime - devised by the OECD, and ‘learning society’ which linked lifelong learning, recurrent learning, post-industrial society and information society. Although no standard definition of lifelong learning exists, it suggests productive learning for all people in society through all forms of learning. Links between education and the economy can be noted for the concepts of lifelong education, learning society and learning organisation at the individual (investment in future), organisation (investment in organisation survival) and society (to support national policy) levels.\textsuperscript{55}

More critical approaches to adult education were adopted globally during the 1980s, primarily due to the influence of Freire’s ideas from the 1960s. Various participatory approaches were introduced along with further distinctions between adult and children’s educational approaches; and a focus on experience for learning (Dewey’s legacy). These changes occurred in conjunction with an increased emphasis on the democratisation of education, and the notion that knowledge could be used as a commodity to achieve economic advances by keeping pace with technological developments.\textsuperscript{56}

The above objectives can result in tensions in adult education and learning with the first suggesting individual choice in what and how learning should occur, and the second insisting that education should occur for the benefit of business and the economy. This has led to continuous discussion in how to best achieve adult education and learning in attempts to balance individual, community, regional and national interests.

\textbf{2.3.1 Increased Participatory Approaches}

Inspired by Marxism, Participatory Action Research (PAR) was developed in Africa and Asia in the late 1970s and into the 1980s. It followed a lack of progress from the United Nations Development Decade in dealing with underdevelopment and poverty in developing countries during the 1960s, which promoted the western model of civilisation. PAR was concerned with ‘self-reliant (or alternative) development’, so that people could control their own development rather than relying on outside aid. By starting at a local level and using appropriate technologies to make developmental advancements, it assisted people in understanding the effects of colonisation on their endogenous knowledge, and how to harness or recapture this knowledge. Here PAR differs from Action Learning (discussed earlier) by endeavouring to solve a group’s collective mutually defined need, rather than an individual need. The ideas surrounding another development’ have continued to be encouraged. In Australia, PAR was first trialled with Aboriginal groups in 1990.\textsuperscript{57}

\textsuperscript{56} Westwood (1996:64); Tight (1996:10)

The United Nations (UN) Development Decade contributed to the expansion of education internationally through UNESCO and other agencies of the UN including FO, ILO and WHO by expanding their general education services and their vocational, technical and professional
Educational approaches that involved more participation for the development of an individual were also encouraged by others. Ivan Illich and Paul Goodman introduced the idea of ‘learning webs for convivial society’, consisting of voluntary learning networks to replace what Illich believed was ‘oppressive institutionalised education’. John Holt, Kohl Kozl, Henry Serle, and Postman and Wingartner made related contributions during this time in relation to institutionalised teaching methods. Most of these commentators and activists thought that these more participatory based approaches to learning would produce “a more just society”.

2.3.2 Rise of Andragogy

Building on Carl Rogers’ ideas, Malcolm Knowles, aligned with the Humanism school of thought, promoted ‘self-directed’ learning and popularised the Andragogy Model. Initially developed after World War One in Yugoslavia and later used in the Netherlands during the 1950s, the model emphasised that adult learning was different from that of children and therefore pedagogy. However, Knowles’ interpretation of the model diverged from that of the Yugoslavian adult educators in reflecting the American culture of individualism and self-achievement, thus giving an identity to adult education in the United States.

In 1970 Knowles discussed the differences between the Andragogy and Pedagogy Models in his publication *The Modern Practice of Adult Education: andragogy versus pedagogy*. A summary of the basic human needs required to motivate behaviour and some ‘principles of teaching’ to meet the needs of the adult learner were also mentioned. In this publication Knowles describes the ‘critical assumptions’ that underlie the Andragogy Model and differentiate it from pedagogy (a more detailed comparison is provided in Appendix B):

- **Self Concept.** Adults have a concept of themselves as being a self-directed and independent. Therefore they are responsible for their decisions and therefore their lives, which are supported by society with the added expectation that they are to be productive.

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Foley (1995:41) outlines the following authors as contributors to the changes in education. Ivan Illich (born in Vienna and later immigrated to America) and Paul Goodman (1911-1972) introduced voluntary learning networks to replace ‘oppressive institutionalized education’. John Holt introduced ideas for more practical, creative and participatory classroom teaching. Kohl Kozol and Henry Serle introduced ‘libratory classrooms’. Postman and Wingartner’s devised open-ended-question curriculum.


60 Knowles (1970)

Knowles (1970:81-85) identified the basic needs of an adult from a psychological point of view to be: physical (being comfortable), growth, security (psychological and physical), new experiences, affection and recognition.
• **Experience.** Adults have a greater ‘volume’ and different ‘kinds’ of experience that has been accumulated over time and can be used as a resource for further learning.

• **Readiness to Learn.** An adult’s readiness to learn is linked to their social role and the developmental tasks associated with this. They have a generalised and abstract thought process, and will tend to switch off to information that they do not see as relevant, interesting or stimulating.

• **Orientation to Learning.** Learning is based on knowledge that can be applied to a situation and for problem-solving to deal with life situations.\(^61\)

Later, in *Teaching the Adult Learner: a neglected species* (1990), Knowles added to his Andragogy Model two more key assumptions:

• **Need to know.** Usually adults have a purpose for wanting to learn and as a result they will question why they need to learn something before they undertake to learn it.

• **Motivation.** Adults are motivated more by internal pressures to build self-esteem, competence, knowledge and quality of life, rather than external motivators such as better jobs, promotions and higher salaries.\(^62\)

Knowles’ interest in the differences between adult and children’s learning occurred as part of a debate on the topic in the 1980s. Canadians Donald Brundage and Dorothy Mackeracher held the view that learning for adults and children may be similar in terms of their mental and physiological processes as these are based on biological structures that do not differ between the two. They propose that the disparity in the way in which learning occurs may be due to the difference in the social, psychological, developmental, and situational characteristics of adults and children.\(^63\) In either case, learning was seen to be usually a permanent change. In children this involves the development of knowledge, values, skills or strategies, referred to as being “formed (acquiring, accumulating, discovering, integrating)”. In adults they are “transforming (modifying, relearning, updating, replacing)”.\(^64\)

In 1990, Knowles summed up his commentary in saying that adults differed from children in that they have a concept of being responsible for their self, life, and

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\(^{62}\) Knowles (1990:63, 57); Malouf (1994)

\(^{63}\) Brundage and Mackeracher (1980:11)

Dorothy Mackeracher has been involved in adult education in universities and the community since undertaking her PhD in adult education at Toronto University in the early 1980s. She has produced publications on adult learning and the adult learning principles. Her research interests have included aging, learning, development, women’s issues, professional education, counselling, literacy and basic education. She is currently a Professor Emeritus in Education at the University of New Brunswick (University of New Brunswick (2006) *Dorothy Mackeracher*. University of New Brunswick, http://www.unbf.ca/education/undergraduate/adult/teaching.html, Accessed 26 May 2006). No information could be found on Donald Brundage.

\(^{64}\) Brundage & Mackeracher (1980:5)
direction – all of which are significant for learning. Following this, discussion around adult and children’s learning continued (e.g. Brookfield 1996; Titmus 1996; Dinmore 1997; and Tight 2000), with part of the problem being in defining an ‘adult’. However, in most situations age was seen to be the base criterion.

Knowles’ aim in focussing on adult learning through his ‘new’ Andragogy model was to produce independent learners by assisting them in discovering and becoming interested in their needs. Brundage and Mackeracher commented that Andragogy could also include an analysis of the teacher’s behaviour in assisting adults in their learning activities. Knowles argues that, although Andragogy is defined as being the “art and science of helping adults to learn”, with pedagogy being its equivalent for children, he sees it relating more to helping human beings in general. He remarked that this is due to some adult characteristics entering a child’s life as it matures. Later in the 1990s, Foley added that it is not always evident when an adult is ready to undergo self-directed learning. This being the case, a combination of the models may be required to satisfy the learner’s needs.

### 2.3.3 Adult Learning Principles

Work undertaken by Rogers in the 1960s, and Knowles in the 1970s to 1980s, helped to influence the development of a series of ‘adult learning principles’ to guide the practice of adult education. These are described by Griff Foley as being a concept of adult education

> “that is shaped by humanistic psychology, but which is also influenced by cognitive psychology and by research into teaching and learning, ...and guide adult educators when they work with learners”.

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65 Knowles (1990:57)

Various interpretations exist including a stage in an individual’s life cycle, status in society, social sub-set, or set of ideals and values (eg. adulthood). It is generally agreed that an ‘adult’ is defined legally in industrialised countries. In developing countries, classification is based on local cultural traditions in a physical or biological sense (Tight 2000:13-14; Brundage and Mackeracher 1980:11; Dinmore 1997; Titmus 1996:11).

67 Knowles (1990:64, 79)
68 Brundage & Mackeracher (1980:6)
69 Knowles (1970:38-9)
70 Foley (1995:43)
71 Knowles (1990:64)

Griff Foley is an Associate Professor of Education at Sydney’s University of Technology in the Centre for Popular Education of which he was the founding Director. He has been involved in public adult education since the 1960s in Australia, Africa and Fiji. Foley has been influenced by: history and sociology; retains some of the Marxist ideals; and is interested in how people learn in emancipary struggle, particularly for incidental or informal learning. He has written numerous publications and conducted research relating to adult education in
Brundage and Mackeracher identified 36 adult learning principles for individuals from a survey they conducted in 1980 for the Ministry of Education in Ontario. In *Adult Learning Principles and their Application to Program Planning*, they discussed the implications for teaching and program planning for each of these principles.⁷⁴

In the mid-1980s Stephen Brookfield, an American Humanist, outlined six principles that were necessary to facilitate learning. Following Knowles, these principles provided a social context to adult learning:

- **Voluntary participation.** The learner should define their own needs, pace of learning and how they are to learn.
- **Mutual respect.** Facilitator must respect the learner.
- **Collaborative spirit** should exist between the facilitator and learner, and the facilitator needs to adjust to the learner’s needs.
- **Action and reflection** in a psychological context.
- **Critical thinking** is achieved by reflecting on personal experiences and can lead into personal growth and development resulting in a more critical thinker.
- **Self-directed learning** where “adult learners develop, grow and become more self-actualised”.⁷⁵

### 2.3.4 Experiential Learning: transforming experience

The idea of learning based on experience has been considered by many people over the centuries dating back to Aristotle. In more recent times, Dewey greatly influenced the ideas of experiential learning, along with children’s educators such as Maria Montessori, Kurt Huhn and A.S. Neil who helped shape experiential learning for adults. Other significant contributors included Carl Rogers, Abraham Maslow, UNESCO, Paulo Freire and Mao Tse-tung.⁷⁶ However modern ‘experiential learning’ is usually associated with American David Kolb of Pragmatism ideals, who strongly advocated its ideas.⁷⁷

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⁷⁵ Foley (1999:48); Finger and Asún (2001:72-73)
⁷⁶ Andresen *et al* (2000:228-31)
⁷⁷ Finger and Asún (2001); Brookfield (1996:377)
In 1984 Kolb introduced his ‘learning style theory’ of experiential learning in *Experiential Learning: experience as the source of learning and development*, which linked theory to practice and cross-bred ideas from the works of Dewey, Lewin and Jean Piaget. 78 Piaget, a French developmental psychologist, focussed on cogitative development processes primarily in children. He proposed that intelligence was determined by experience and that developmental processes in humans result from an individual’s interaction with his (or her) environment. Kolb saw the applicability of Piaget’s theories in shaping the basic learning processes of adults.79

Foley summarised Kolb’s theory in 1999 to include the following propositions.

1. People’s primary mode of adaptation to the world is learning.
2. Learning involves two basic processes: grasping (prehension); transformation.
3. People learn in four ways [i.e. learning styles]: through immediate concrete experience (apprehension) (the effective mode); through observation and reflection (the perpetual mode); through abstract conceptualisation (comprehension) (the symbolic or thinking mode); through active experimentation (the behavioural mode).
4. Effective learning is cyclical (beginning with concrete experience) and holistic (involving all four learning modes).
5. Learning is developmental. People go through three stages in their learning: acquisition – birth to adolescence; specialisation – midlife, adulthood; integration – later life.
6. Learning is social. The sort of life experience people have shapes the way they learn. People are likely to develop one mode of learning more than another: they develop dominant learning styles. People’s education and occupation particularly influence their learning styles.
7. Learning is interactive. It involves ‘interactions between individuals with their biological potentialities and the society with its symbols, tools and other cultural artefacts’.
8. Learning is a dialectical process. It involves people acting on and reacting to their environment.”80

In summary, Kolb described learning as being “the process whereby knowledge is created through the transformation of experience”.81

Since the 1980s, John Heron remarked on the ethics of facilitation on experiential learning. Comments in relation to gender issues have also been expressed. For

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78 Kolb (1984:ix)
David Kolb has produced several publications mostly involving organisational psychology during the 1970s and into the mid-1990s.

79 Kolb (1984:4-12, 23-25)
Kolb (1984:24-25) outlines the four major stages described by Piaget as contributing to cogitative growth. These include: sensory motor stage (0-2 years); representational stage (2-6 years) where the internalization of actions begins; concrete operations stage (7-11 years) being a symbolic developmental stage where children rely on “concepts and theories to select and give shape to [their] experiences”; and formal operations (12-15 years) move to symbolic processes of representational logic where hypothetical deductive reasoning can occur.

80 Foley (1999:42-3)

81 Kolb (1984:25-38)
example, Marilyn Peterson spoke of the contributions of feminist pedagogy to understanding what constitutes learning; while Dale Spencer “questioned the many accepted truths and the gender-specific (male) evidence on which research findings are often predicated”. There are now considered to be three models of experiential learning: (1) Kolb’s model; (2) Susan Weil and Ian McGill’s model which uses a “‘village’ metaphor to categorise the varieties and diverse contexts of experienced based learning”; and (3) Bould and Walker’s model involving three reflection stages which are associated with experiential learning activities being undertaken.

Brookfield has cautioned that relying solely on the experience of the learner can have some pitfalls. He remarks that experience is not neutral but shaped by culture; and the extended time over which experience is gained does not necessarily mean it has a greater “richness or intensity”, as developed habitual patterns can block critical insight. The reliance on a learner’s knowledge to be able to solve agricultural sustainability issues has also come into question in agricultural extension and is given more attention in Chapter Nine.

2.3.5 Theory-in-Action

American Pragmatists Chris Argyris (b.1923) and Donald Schön (1930-1997) also used Lewin’s Action Research model for managers in organisations. Combined with experiential learning, they produced the idea of ‘theory-in-action’ incorporating the ‘double-loop learning’, or ‘reflection-in-action’ cycle (Figures 2.4 and 2.5). They take a step beyond Dewey’s learning through experience by proposing that theory could also be developed by critically reflecting on what is already known (i.e. theory-in-action). This would prevent the need to undertake all the steps in the learning cycle as demonstrated in Figure 2.4, allowing the participants to move onto the next cycle of the process (Figure 2.5). In this situation a facilitator acts as a mentor or coach to assist individuals in “reflecting on their theories-in-action” in order to transform their thinking into actions. Argyris and Schön were also responsible for promoting the concept of a ‘learning organisation’ which suggests that for an organisation to benefit through learning, interactions at the individual, group and system level along with the outside environment must occur.


84 Brookfield (1996:377)


Figure 2.4 is adapted from Finger and Asún (2001:46).

Figure 2.5 is adapted from Foley (1999:13).
2.4 Current Influences, Theories and Concepts

Despite advances since the 1800s, adult education has been criticised widely for being uncohesive in both its language and practice. For example, Brookfield (1996) commented that

“there is no universal understanding [of adult learning]….Judged by epistemological, communicative, and critically analytic criteria, theory development in adult learning is weak and is hindered by the persistence of myths that are etched deeply into adult educators’ minds.”

Titmus (2000) had remarked there was a lack of “uniformity of concept, purpose, or principle”, and the increasing range of activities being brought into the area of study have caused it to become fragmented. Tight (2000) agreed, saying that the “field of adult education and training remains broad, fractured and amorphous, differentially understood, labelled and defined in different countries and by different interests”. He suggests that adult education has come to encompass the age and status of the learning, and participatory learning “for its own sake not for credit…adult education is as much a movement as a set of institutions”, it is linked to liberalisation; and may include all types and forms of education for adults.

Several concerns still hover around adult education, including its values, purpose and make up; replacement or use in conjunction with the term ‘continuing education’; and identification of when people are ready to learn. The role of politics has also come into question in Australia, Canada and America, due to the directive nature on what should or needs to be learnt, which is said to be in conflict with the highly promoted ‘self-directed’ learning approaches. Often education and training is not considered to be adult education. Until the late-1990s in Australia, for example, a large proportion of education and training
conducted by government departments or agencies in agricultural extension, health education and the public sector workforce were rarely regarded as adult education. In the 2000s some headway had been made in agriculture with programs making use of such things as the adult education principles in extension training programs.

Adult education has come to operate within and between the realms of economics, politics, and cultures. The increased globalisation of capitalism since the 1980s has resulted in a move away from emancipatory and collective social concerns (i.e. the ‘common good’) towards an individualised and commodity focus, regarded as an avenue for improving the economics of nations - as Illich had foreseen in the 1970s. Finger and Asún judge that the consequence has been ‘privatised’ and ‘instrumentalised’ learning. This has resulted in adult education being marketed to cater for individual goals of self-empowerment so people can adapt to “economic, social and cultural life changes” (and in the process, increase individuals’ and organisations’ competitiveness).

Mayo proposed that the marketed approach to adult education is underpinned by neo-liberal ideology, which supports capitalism by concerning itself with economic development and public policy. This has meant that programs are developed with the intention of achieving flexibility and adaptability, so that skills can be learnt and re-learnt, often at the expense of socially based concerns. Australian governments support these neo-liberalist ideals by increasing investment to enhance ‘human capital’ (i.e. the skills and knowledge required for enhanced productivity) so as to improve international competitiveness. This is evidenced by the substantial increase in the focus on business - and market based - training from the early 1980s, as the economy continued to become more

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Continuing education is often referred to as occurring after basic training. It is broader than adult education and politically neutral (Usher et al 1997; Tight 2000:63-64).

90 Westwood (1996:65)

91 Van der Kamp (1996:565); Mayo (1999); Finger and Asún (2001); Foley (1999)

92 Finger and Asún (2001:124, 130)

‘Privatisation’ is taken to mean the provision of individual and personal education previously provided by public funds which has been handed over to the private sector and NGO’s.

‘Instrumentalisation’ is where learning is a means to contribute to a company’s economic growth and to be in the labour market, or survival in the economy (Finger and Asún 2001:125-29).

93 Mayo (1999:1-3)

Peter Mayo is an Associate Professor at the University of Malta, Faculty of Education. His interests are in the sociology of education and adult and continuing education. He has published several books on adult education, including various works on Gramsci and Freire. He is the editor for Canadian and European journals on education (Mayo 1999; University of Malta (2006) Peter Mayo. University of Malta, www.educ.um.edu.mt/mayo/mayopub.pdf, Accessed 30 June 2006).
globalised, to complement the growth in Australia’s trade agreements dating back to the 1950s (more detail provided in Appendix C and Appendix D). These changes in Australia and overseas have converted education from a public good into a consumption good, so as to meet marketplace ideologies. The decrease in public spending and increase in privatisation, user charges, cost recovery policies and indirect taxation, collectively limit access to social services such as health and education and reduce choice (promoted by capitalism) through the decline in real income. For developing countries it increases poverty due to a lack of industrialisation. The unequal distribution of education resulting from these factors politicises education – in individual, rather than collective, categories. The consequent process of capitalist reorganisation in which policymakers and intellectuals promote “simplistic technical solutions to complex social problems”, increases the problems in trying to implement socially based programs in adult education in the areas of agriculture and rural development. A practical example which tries to address these problems is explored in my own research, reported in Chapters Five and Six.

In light of the difficulties facing adult education, Finger and Asún’s *Adult Education at the Crossroads: learning our way out*, proposes four possible scenarios for its continuation:

1. ‘business school scenario’ (the result of privatisation of education, replacing university adult education programs);
2. ‘risk group scenario’ (publicly funded education for those unable to maintain speed with industrialisation);
3. ‘leisure society scenario’ (learning for leisure - prominent in the 1970s and gave rise to continuing education); and
4. ‘social ecological responsibility’. They suggest that signs of the last scenario are occurring in developing countries, but adult education will need to “redefine its identity in light of today’s new societal challenges without abandoning its commitment to social change and social action…this will be a scenario of participatory democracy, citizens’ reassumption of responsibility, community and empowerment.”

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94 Caldwell (1996:752); Tight (2000:74-77); Hale, P. and Ashton, P. (2002) *Raising the Nation: a history of Commonwealth Departments of Agriculture, Fisheries and Forestry 1901-2001.* Department of Agriculture, Fisheries and Forestry – Australia, Canberra. The focus on education in relation to productivity saw the concept of ‘human capital’ rise out of the economics discipline within the 1960s. It held the idea “that people spend on themselves in diverse ways, not only for the sake of present enjoyments but also for the sake of future pecuniary and non-pecuniary returns”. In education ‘human capital’ came to be interpreted as being the skills and knowledge required for a worker to enhance their productivity (Tight 2000:74-77).

95 Mayo (1999:1-3)
96 Van der Kamp (1996:565)
97 Foley (1999:5) Foley’s view on the existing process of capitalist reorganisation sees “policy makers and many intellectuals, …promoting simplistic technical solutions to complex social problems” (Foley 1999:5).
98 Finger and Asún (2001:134-6)
99 Finger and Asún (2001:136)
Foley has suggested that, although learned behaviour is established through the relationships of economic, political and cultural domination of capitalism, it can be reversed.\textsuperscript{100} However, if adult education theory and practices are to be liberated a critique of capitalism must occur, because its increasing demands on labour and the environment cannot be maintained. He proposes that a move towards a more socialist and democratic society is required.\textsuperscript{101}

Mayo has remarked that an emancipatory vision that “reflects the will to contribute to the creation of a world” needs to be maintained in adult education.\textsuperscript{102} Brookfield has commented that in order for progress to be made in obtaining a greater focus in adult education, future research into adult learning needs to address the following: clarity around the term ‘learning’; understanding of the interaction between emotion and cognition; improved understanding of adult learning as a socially embedded and constructed phenomenon; understanding of cross-cultural perspectives; understanding the role of gender; inclusion of spiritual and significant personal learning into instrumental skill development; increased credibility to learning from the ‘inside’ of a person; solidification of qualitative studies; increased integration of research on adult development and cognition; and a greater understanding of learning at the adult and other life stages.\textsuperscript{103} A selection of some current theories that may help in moving towards more cohesive adult education, by reviving its social cause in the current context, is discussed below.

### 2.4.1 Foley’s Learning in Struggle Framework

In 1999 Griff Foley published \textit{Learning in Social Action: a contribution to understanding informal education}. It suggests that an understanding of ‘emancipatory’ or ‘popular struggle’ is needed if adult education is to be a liberated from economical, political and cultural domination. Foley believes that the liberation campaign will require an appreciation of how people learn through their interactions and experiences (informal and incidental learning) while engaging in social activities (e.g. family, workplace, community, social or environmental movements), in order to alleviate situations where they are restricted or oppressed (emancipatory struggle).\textsuperscript{104}

\textsuperscript{100} Foley (1999:5-6, 139)
\textsuperscript{101} Foley (1999:139-40)
\textsuperscript{102} Mayo (1999:5)
\textsuperscript{103} Brookfield (1996:379-80)
\textsuperscript{104} Foley (1999) defines ‘struggle’ as being a situation in which people are trying to take control of their lives where they feel they are being dominated. This can be in an activist or oppressive situation.

The concept of informal education came into existence along with non-formal and formal education in the 1960s and 1970s. Informal and non-formal education resulted from problems in developing countries, and is now also used in industrialised countries for ‘community education’. The concept of formal education differs in that it is seen to be institutionalised education sponsored by the state for their purposes (Tight 2000:68-70).
These ideas set Foley apart from other Anglo-American adult education theorists who concentrate their research predominately within institutions and centre their activities on “individual learners, educational technique and course provision” provided by professionals. In more recent times these approaches have been criticised for representing adult education as being value-neutral and technical, consequently a shift from a focus on the political economy which supported this viewpoint is being replaced with a positivist ideology of systematic observation and experiment.\textsuperscript{105}

Foley trusts that observing past and present struggles can promote a greater understanding of incidental learning by throwing light on the way people think and act, allowing real “emancipatory education and politics of our time”.\textsuperscript{106} He proposes that an understanding of the complexities involved in learning struggles may be achieved through an analytical framework similar to that devised by Sonia Alverez’s work on the Brazilian Women’s Movement in the 1990s. The framework connects “a rich contextualized analysis of [a] social movement activity [to an] analysis of adult learning” by setting learning and education, and their relationships, against an analysis of the political economy, micro-politics, ideology and discourse (or discursive practices) that are present. The framework assumes that “domination and resistance to it are universal and that while domination has an ideological dimension it originates in economic and political relationships”.\textsuperscript{107}

\subsection*{2.4.2 Transformative Theories}

Two theories of note in this area include Mayo’s Theory of Transformative Adult Education, which has political considerations like Foley’s, and Mezirow’s theory of transformative learning with its focus on experience.

\textit{Mayo’s Theory of Transformative Adult Education}

Mayo’s Theory of Transformative Adult Education

“recognises the political nature of all educational interventions. … calls for socially transformative adult education initiatives that focus, in J.E. Thomas’s words, ‘upon change at the roots of systems’ and therefore not on the symptoms of what are perceived as structurally determined forms of oppression”.\textsuperscript{108}

The theory is based on a framework for ‘radical adult education’ constructed from Gramsci’s analysis of dominant culture and power relations in the wider society; and Freire’s focus on popular culture and power dynamics in pedagogical encounters in relation to the current mainstream adult education systems. Mayo suggests that the ideas around the various components within the framework can provide a foundation on which to build a basis for a theory of transformative adult education. He describes these ideas as including:

\begin{itemize}
  \item \textsuperscript{105} Foley (1999:2, 13, 133, 143); Scott and Marshall (2005:506)
  \item \textsuperscript{106} Foley (1999:3, 143)
  \item \textsuperscript{107} Foley (1999:9, 132)
  \item \textsuperscript{108} Mayo (1999:24)
\end{itemize}
Commitment in relation to organisers’ and educators’ recognition, understanding and role in forms of oppression and alliances to obtain social change.

Agency in relation to cultural terrain of contestation and prefiguring democratic and social relations.

Social movements in relation to global capital, class politics and counter-hegemonic activity.

Adult educators’ role in learning and unlearning, cultural capital and habitus.

Cultural production with a focus on cultural studies so as to be inclusive of various cultures.

History, so as to give context to traditions and beliefs.\textsuperscript{109}

Although Mayo proposes the theory as a way forward for adult education, he thinks it is more likely to work in social movements, or an alliance of movements, rather than on its own.\textsuperscript{110} His focus on “change at the roots of systems” has relevance to agriculture, where more bottom-up, producer-participatory approaches are advocated in preference to government directed top-down approaches. Discussion on these points is given more attention in the following chapters.

\textit{Mezirow’s Theory of Transformative Learning}

Jack Mezirow’s (b.1923) work in American community development was recognised in the 1980s to early-1990s. His most noted works include his theories in ‘perspective transformation’ and ‘transformative learning’. Mezirow’s Theory of Transformative Learning, derived by building on Jürgen Habermas’s critical theory, took into consideration the ideas of ‘critical reflection’ in order to explain “how adult learners make sense or meaning of their experience, the dynamics involved in modifying meanings, and the way the structures of meaning themselves undergo changes when learners find them to be dysfunctional.” Although Mezirow’s ideas have been adopted globally, they are criticised for focusing too much on the transformation of an individual.

\textit{2.4.3 Finger and Asún’s Theory of ‘Learning Our Way Out’}

In \textit{Adult Education at the Crossroads} (2001), Matthias Finger and José Asún proposed the theory of learning our way out. Their theory attempts to merge the perspective of de-industrialisation with endogenous knowledge creation, by

\textsuperscript{109} Mayo (1999:126-51)
\textsuperscript{110} Mayo (1999:175)
\textsuperscript{111} Brookfield (1996:376); Finger and Asún (2001:53-59)

‘Perspective transformation’ is where “adults come to recognise and reframe their culturally induced dependency roles and relationships’. ‘Critical reflection’ generally involves the interrelated processes of: “(a) adult question and then replace or reframe an assumption that … has been uncritically accepted as representing commonsense wisdom; (b) … adults take an alternative perspective on ideas, actions, forms of reasoning and ideologies previously taken for granted; (c) … adults come to recognise the hegemonic aspects of dominant cultural values and to understand how self-evident renderings of the ‘natural’ state of the world actually bolster the power and self-interest of unrepresentative minorities” (Brookfield 1996:376).
relying on people’s capacity to control their own learning. They suggest that this perspective on adult education allows for the theory to remain true to earlier historical ideals and theories of adult education; and stands as a counter to privatisation and instrumentalisation.\(^{112}\) It would achieve this by developing alternatives to de-industrialisation at the local level allowing people to “reconstruct some sort of personal, social, cultural and ecological integrity” and result in the development of “sustainable communities and societies in a social action perspective”.\(^{113}\)

The authors note that, although previous theories have originated with the idea of humanising development, criticism of industrial development has not occurred. In practice, therefore learning our way out of the ‘vicious cycle’ (of increasing industrial development and its negative social and environmental consequences) has to be done in the context of those things seen to be counterproductive to achieving an adult education that provides social equality, justice and preservation of the environment. This means addressing issues such as turbo-capitalism (economic trend of development to 'free-trade'), and the erosion of traditional politics to the privatisation of state and public funds including the instrumentalisation of the remaining public functions. The separation of social and cultural life, which can result in degraded communities and society, and ecological degradation also needs attention.\(^{114}\) Each of these phenomena has been a font of recent concern to primary producers and agro-politicians, alike.

Finger and Asún proposed that to achieve ‘sustainable communities’ in industrialised countries, these worrying phenomena can be restrained by:

- raising *awareness* of the lack of connection between development and social justice;
- gaining *conceptual clarification* to find ways and means to reduce the acceleration of the vicious cycle; and
- developing alternatives at the economic, ecological, political, and cultural levels (*praxis*).

They view Participatory Action Research (PAR) as an avenue to address these pressures on adult education and to achieve sustainable communities (see Figure 2.6). But they acknowledge that for “highly institutionalised and highly industrialised societies” PAR can be limiting, when compared with developing countries that are less institutionalised and therefore less formal.\(^{115}\) Since

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\(^{112}\) Instrumentalisation, within the context of adult education, is viewed as being connected to the “‘economisation of social life’. Learning is seen predominately in the perspective of its supposed contribution to the economic growth of companies and one’s chances to participate in the labour market, or more generally one’s ability to survive in the global economy.” (Finger and Asún 2001:130)

\(^{113}\) Finger and Asún (2001:136-48)

\(^{114}\) Finger and Asún (2001:102, 149-59)

\(^{115}\) Usher et al (1997:2) describe ‘postmodernity’ as involving the “growth of service sector employment, ‘post’-industrial social formations and post-Fordist models of production. A revitalized and reconfigured capital accumulation based on globalization and the progressive integration of national economies through market mechanisms is its most predominant socio-economic feature.”

Finger and Asún (2001:139-50, 172, 179)
institutionalisation preserves and increases power to those benefiting from industrial development, the primary challenge for developing countries will be to encourage the de-institutionalisation of learning. Finger and Asún remark that addressing the issue of organisational and institutional change is paramount because,

“if adult education wants to connect back to its social agenda and become relevant again, it has to clarify not only the perspective of what social change means today, but – even more so – the (learning) process of getting there. … the practice of learning our way out is contingent upon the ability to relate individual and collective learning to institutional and organisational transformation, and the future of adult education is contingent upon the ability to make this link on a conceptual and theoretical level.”\textsuperscript{116}

Achieving that transformation would require

“rethink[ing] the relationship between learning and organisations;…gain[ing] a better understanding of the dynamics of institutions and power (interests and actor strategies); and …develop ways and means of overcoming vested interests and power organisations and institutions by (adult) learning.”\textsuperscript{117}

\textit{Figure 2.6  Finger and Asún’s model of ‘learning our way out’}

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NOTE: \\
This figure is included on page 35 of the print copy of the thesis held in the University of Adelaide Library. \\
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The authors propose that future research in adult education must emphasise the relationships between learning, power and organisational change.\textsuperscript{118} Although their reference point is developing countries, their ideas apply to industrialised nations, especially in relation to environmental and social sustainability issues to achieve balance between government and community objectives.

\textsuperscript{116}  Finger and Asún (2001:169-71)  
\textsuperscript{117}  Finger and Asún (2001:177)  
\textsuperscript{118}  Finger and Asún (2001:179)
2.5 Conclusion

Adult education has a diverse background. Since its emergence in the 1800s it has drawn on many disciplines across the world to mould its theories and practices, most notably in Europe, North America and the developing countries of the southern hemisphere. Its foundations are predominately attributable to American Pragmatist John Dewey who introduced experiential learning and the learning cycle in the early 1900s, which has re-emerged in various forms to the present (Table 2.2). Other ideas of significant influence have came from the Humanist ‘self-directed’ approach to learning from Carl Rogers and the Marxist Adult Education liberatory ideas involving social transformation through the works of Paulo Freire.

Table 2.2 Summary of Selected Historical Developments in Adult Education

<table>
<thead>
<tr>
<th>Period</th>
<th>Event</th>
</tr>
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| 1990s on | • Debate over language and concepts  
| | • Education privatised  
| | • Social transformation theories emerge internationally |
| 1980s | • Debate on adult and children’s education  
| | • Democratising of education  
| | • Kolb popularises experiential learning and learning styles  
| | • Argyris and Schön double loop learning, theory in action  
| | • Jarvis’s adult education in a social context  
| | • Mezirow’s theory of perspective transformation  
| | • Adult learning principles  
| | • Brookfield’s community learning |
| 1970s | • Adult Education Movement  
| | • éducation permanente  
| | • UNESCO’s combines American Pragmatism, Humanism and Marxist Adult Education ideas to form an education framework  
| | • Andragogy  
| | • Knowles and Tough popularise self-directed learning  
| | • Self-reliant or alternative education |
| 1960s | • Humanism - Carl Rogers proposes self-directed learning  
| | • Marxist Adult Education - Paulo Freire devises critical consciousness, ‘conscientization’ and ‘praxis’  
| | • Jürgen Habermas devises critical pedagogy |
| 1940s | • Revans’s action learning |
| 1930s | • Lewin’s action research |
| Early 1900s | • Gramsci’s hegemonic education  
| | • American Pragmatism - Dewey devises experiential learning and the learning cycle |

In more recent times, calls for more socially based approaches to learning, with their core values for the collective good, are again being expressed amidst a debate on adult education’s language and concepts. This has been in response to concerns regarding the privatisation of adult education and concentration on
individual learning to achieve competitive commercial outcomes in a world
globalising since the 1960s.

The analysis of adult education in this chapter reveals the complexities involved
in trying to define the form adult education should take, given the number of
disciplines that have contributed to the field of study and the range of situations in
which it is used. The following two chapters build on this contextual account by
observing the influence of the field of study of adult education in agriculture and
rural development programs and how these changes have evolved with
government policies globally.
3 EARLY DEVELOPMENTS IN AGRICULTURAL EXTENSION

The agricultural revolution began some 10-12 000 years ago with the domestication of plants and animals in the Middle East. Since this time, advancements in food and fibre production have significantly changed societies by increasing income and population growth. The economic and social outcomes as a result of these changes have led it to be considered within the broader context of rural development.

Primary producers have assisted agriculture development by sharing information to improve farm management and practices. In traditional agriculture, innovations occurred spontaneously between producers, villages and across continents without the intervention of development, or agricultural extension programs. The adoption of maize and cassava across the African continent in less than 450 years, and the cultivation and trading of spices and other commodities across the globe serve as examples.

In the 1840s, the sharing and imparting information through the application of scientific information and institutionalisation of agricultural research emerged from Britain (as did the coining of the term ‘adult education’, outlined in Chapter Two). Developed from rural sociology, with a focus on fostering change, scientific information was disseminated to rural people away from the university and became known as ‘university extension’ or ‘extension of the university’. Support for this approach, emerged from struggles occurring over the United Kingdom’s Central Labour College, which saw philanthropy establish working

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men’s colleges. In supporting the working class (i.e. the respectable skilled and organised white ‘English’ male) through colleges, nationhood ideals could be promoted and consensus built through “shared literary and scientific culture into which the working class would be inducted”.  

By the middle of the nineteenth century more organised extension services and publicly funded rural extension had begun. Lectures in extension were occurring at the University of Cambridge and later at the London and Oxford Universities by 1873. In the 1880s the universities’ work expanded beyond the campus and came to be known as the Extension Movement.

This chapter complements the previous chapter in adult education by observing the historical developments agricultural extension in Australia and overseas. To provide an Australian context for the material developed later in the thesis, it begins with an overview of the development of Australian agriculture to include extension. This is followed by an investigation into how the definition of extension has evolved through time internationally. The remainder of the chapter provides an overview of the most prominent extension theories and models from the 1880s to the present, including examples from industrialised (usually concerned with the production of a single crop and increasing yields); and developing countries (concerned with yield stability, particularly in areas with risky conditions).

### 3.1 The Beginning of Extension in Australia

Initial attempts to grow food upon colonisation of Australia in 1788 were frustrated by inadequate tools, unexpected environmental conditions and ‘infertile’ soils. Eventually, more ‘fertile’ soil and valuable timber sources were found in alluvial areas, such as the Hawkesbury River near Sydney, and settlement proceeded across the country.

Relance on exports began with the first shipment of wool to England from Tasmania in 1819. By the 1840s the impact of overseas markets began to take effect with a crash in wool prices due to political uncertainty in England. Following this period, the rising urban population created a demand for manufacturing industries such as textiles and clothing, metal and building

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7 van den Ban and Hawkins (1988:8)


Wheat and grapevines were one of the first crops attempted in the Sydney area. However, the successful production of barley and wheat around Sydney did not occur until 1790 (Ashton 1988:65). More details pertaining to the development of agriculture in Australia and the most significant global occurrences relating to this area of study are provided in Appendix C.
materials as well as food, wine and tobacco (greater detail provided in Appendix C). The focus on agricultural expansion meant that little had been done to support production and environmental concerns. Although some states had tried to address drought and soil fertility by establishing Agriculture Societies and Boards of Agriculture during the early to mid 1800s.

Following on from the developments of institutionalised rural education in England, the Agriculture and Technical Education Committee in South Australia suggested the establishment of an agriculture college and farms in 1875. By 1881 Australia’s first Agriculture College was built at Roseworthy in South Australia, followed by Dookie College (Victoria in 1885), and the Hawkesbury (NSW) and Gatton colleges (Queensland) in 1897. The development of these institutions preceded initiatives in the United States of America, where the Federal Government granted land to build agricultural experiment stations and learning institutions in the early 1900s - now operating as universities maintaining ‘state-based or advisory services’.

The establishment of Australian state departments of agriculture in the early 1880s resulted from the recognition of the flow-on effects of the economic benefits and social aspects associated with agriculture. The publication of scientific research though state government department journals and responses to producer queries followed in the 1890s.

The Commonwealth Government, concerned with improving the efficiencies of primary production, proposed in the 1910s that Australia’s newly-federated states (1901) should manage producer education through the agriculture colleges and experimental farms. The Commonwealth would maintain a focus on research. This approach saw a number of research institutes established both by the

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10 Hale and Ashton (2002:18); Bromby (1989:iii, 14); Spenneman (2000:176-77) Tasmania and NSW formed Agriculture Societies in the early 1800s, while Victoria formed the first Board of Agriculture in 1859. The literature suggests that the New South Wales Agriculture Society and Victorian Board of Agriculture began as government initiatives. It could not be ascertained whether the Tasmanian Agriculture Societies were formed by government, producer’s, or the Tasmanian rural community in general.


In the newly formed New South Wales Department of Agriculture (1890) for example, scientists were to educate producers about their research and answer their queries (Spennemann 2000:175).
Commonwealth and universities in the early 1900s. From 1915 to the depression (1930s), the Commonwealth shifted its focus from technological advancements to social and political change. Its chief motivation was to establish more overseas markets for Australia’s exports and settlement of rural areas through initiatives such as the Soldier Settlement and Migration Schemes - including irrigation settlements such as the Murray Irrigation Area - which continued to the 1960s.13

Issues surrounding natural resource allocation began to be addressed in 1917, beginning with a tri-state agreement on the Murray River to form the River Murray Commission. The degrading effect of farming from past practices was also acknowledged as the Commonwealth began to fund research into soil deficiencies and conservation in the 1920s, and state soil boards were established in the 1930s. In the 1940s the Commonwealth took control of extension and offered grants to improve production efficiencies as exposure to the world markets grew.14

By the 1950s producer organisations were becoming more involved in the formation of government policies concerning agriculture and how the funds collected from their industry levies were to be spent.15 In 1979 the National Farmers Federation was established as “the single national voice for Australian agriculture”.16

Through these developments, Australia’s interpretation of extension was viewed in a similar light to that of its overseas counterparts as shown in the remainder of this chapter.

13 Soldier Settlement Schemes were introduced by the Commonwealth Government with the aim of: limiting social dislocation due to the increase in population from returned soldiers; rewarding soldiers for their service to Australia; populating rural areas; and improving the nation’s productive capacity. These schemes were not well planned and problems arose in the lack of farming skills and experience; land holdings were often too small and in marginal areas; settlers lacked capital; transportation of produce was difficult; and markets were not well established. Similar experiences were found with the Rural Migrant Settlement Scheme which assisted British migrants to settle in Australia, and Irrigation Settlement Schemes. This resulted in governments losing interest in ‘closer settlement schemes’ as the states often had to write off the debt incurred by them (Ashton 1988; Bromby 1989; Wadham 1967; Clarkson 1971; Hale and Ashton 2002).


The National Farmers Federation (NFF) represents over 100 000 farmers by dealing with national issues that affect more than one state or commodity. These issues can be in the areas of: “the economy, industrial relations, trade, business investment and costs”; and the environment and rural community interests. The Federation is composed of state farm organisations, commodity councils, and friends of NFF including state and national bodies with similar aims to the NFF (National Farmers Federation 2006:5).
3.2 Defining Agricultural Extension

Early definitions of agricultural extension described it as having a research focus, where the results were passed onto producers as recommendations.17 This view persisted into the 1950s and 1960s, most notably in countries where research, extension and education were incorporated within universities. The approach of simply transferring research findings to producers (i.e. the Transfer of Technology model, discussed later) was made easier by focussing on those who could readily adopt new technologies, known as the ‘early adopters’.18

In 1956, Dutchman J.M.A. Penders proposed that technology and farm management should remain central objectives for extension, but should also include marketing as a continuation of the production process as the broader social and economic aspects were dependent on these.19 Extension workers were also encouraged to work alongside the rural population, enabling them to be informed of the interrelated factors of farm life (social, economic and technological). In balancing the various facets of farming the advisor could adapt subject matter and teaching methods to suit the producer’s needs. Consequently, extension needed to be appraised to determine how it influenced external factors.20 In the same period, Hogewind emphasised the psychological aspects of

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17 Rolls et al (1986:6-7) provide evidence of these early descriptions of extension: “[extension was] an integral part of, or at least necessary adjunct to, a knowledge generating (research) service which spans the identification of needs and problems, the generating and testing of new or improved technologies and the dissemination of relevant, reliable information (ever firm recommendations) to the potential users.”


The United States Land Grant University system (LGU) provides an example of where research, extension and education occurred within universities. This approach had its clones and successors in the majority of industrialised countries. In the United States the LGU is comprised of the Land-Grant Universities (established 1863), state agricultural experiment stations (formed in 1888), and extension services (formed in 1915). These are now incorporated within the United States Department of Agriculture, Agricultural Research Service (Buttel, F.H. and Busch, L. (1988) The Public Agricultural Research System at the Crossroads. Agricultural History. Vol.62, pp.303-18).

19 Penders (1956:15-16)

Penders comments on his positioning of extension was set out in Methods and Program Planning in Extension, a publication for rural extension students at the International Agricultural Centre in Wageningen. At the time this publication was written he was the Inspector of the Agriculture Extension Services in the Netherlands. By the early 1960s he was the Director of Agricultural Advisory Services at the Ministry of Agriculture and Fisheries (Penders 1956:15-16; Penders, J.M.A., Mauder, A.H. and Read, H. (1962) Report of the Overseas Visitors. In Australian Agriculture Extension Conference 1962: reviews, papers and reports. CSIRO, Melbourne, pp.342-63). No other information could be found relating to Penders or his work.

20 Penders (1956:16-17, 27) identified external factors such as “improved living conditions, the satisfaction derived from increased knowledge, self-confidence and independence of the rural population, development of leadership, etc”. (Penders 1956:27)
the role of extension in changing producer’s attitudes, which did not gain wider acceptance until the latter part of the century.21

A decade later, Saville emphasised the need to utilise people’s own knowledge and resources.22 This thinking reflected American Pragmatism ideas of individual problem solving from the early 1920s. Aspects of Humanism ideals, focussing on personal development in the 1960s, also feature in parallel with the notions of self-help becoming more recognised in the general field of adult education through Carl Rogers’s work on self-directed learning (refer Chapter Two). Saville also mentions leadership but relates it to having broader ‘civic’ and community benefits, where Penders’ tied it to more individual benefits.

Nearly 20 years later, Cernea et al redefined extension as a ‘communicative process’ to achieve ‘economic change’.23 Their interpretation was narrower in scope than that proposed by earlier authors in excluding the broader social aspects of farming. It did however, emphasize the technology of production as a means to achieve economic gains, which complemented the globalisation of capitalism line that was gaining ground in the 1980s. It does however imply that greater participation and producer’s indigenous technical knowledge and experience should be valued by referring to “messages communicated both ways”. This harks back to Dewey’s ideas of greater participation in education in the early 1900s (but not seriously implemented until the 1980s and 1990s as will be seen in the following chapter); and the Humanist ideals of self-directed learning in the 1960s. However, in this definition the producer does not appear to communicate directly with the researcher; rather, the extension agent is the conduit between the researcher and the producer.

A couple of years later (1986) Bunting defined an extension person as being an active participant who synthesises, interprets knowledge and processes it into forms and options which are useful and acceptable. His broader view of the role


At the time of this publication Hogewind was the Director of State Psychological Service in the Section for Social Psychology, The Hague. No other information could be found relating to Hogewind.


23 Cernea et al (1984:143-54) presented at the World Bank and UNDP Symposium on the Training and Visit System in Asia in 1984, that the ‘transfer and diffusion of new agricultural technologies is, to a large extent, a cultural communication process intended to result in economic change. The extension service is the organizational vehicle of technology transfer and is designed to be an effective carrier of messages communicated both ways.”

of extension reincorporated the social aspects of farming and introduced the idea of ‘systems thinking’. Dutchman Niels Röling built on Buntings systems thinking ideas in 1988 and described the science of extension: being one component of a larger system, which included research, education and the utilisers (i.e. producers). He defined ‘extension science’ as “encompassing the body of knowledge which has accumulated as a result of research into, and experience with, extension”. As for Penders, Hogewind and Bunting, the producers are given more recognition as ‘the utilisers’ and their ‘experience with extension’; but Röling does not discuss their contribution in this description. Additionally, the focus still appears to remain on the production aspects of farming and it is not obvious that the social or even economic factors are considered.

Farrington noted, in the mid-1990s, that input into producer decision making is ‘multidirectional’ rather than a unilaterial flow between researcher and producer, as producers gain ideas and practices from a range of sources: private commercial, voluntary sectors, producers own innovations, and the public sector.

Later in 2000, Röling and Annemarie Wagemakers proposed that extension science might be better labelled as “‘extension communication and innovation studies’, to reflect a more constructionist perspective on science”. They say that such studies “cannot be considered a discipline. Innovation, including the transition to sustainable agriculture, cannot be understood by focussing only on extension communication, but requires taking account of intentionality, culture, power, technology development, institutions, policies, and, of course, epistemology”. This definition broadens Röling’s 1988 description by taking a more holistic approach to the influences on farming. Röling and Wagemakers refer to this as ‘sustainable agriculture’, the aspects of which are discussed in more detail in Chapters Four and Nine.

Today there is no definition of extension that is accepted by all who undertake the practice. Globally, it has different meanings to various people and the practice has multiple labels not unlike the debate surrounding adult education discussed earlier in Chapter Two. It is agreed that it involves the use of communication to assist
people in decision making, and is now broader in its outlook than in the past. It may include: individuals or communities; adult education processes; public and private sector activities; assist in skill and resource improvements; attitude change; and/or human resource development in order to initiate change.  

The changing views of extension have led researchers and governments to question how producers and rural communities are approached. The following sections consider some of the most prominent theories and models used globally that reflect these changes in thinking from the Extension Movement through to the end of the 1970s.

### 3.3 Transfer of Technology

The most prominent theoretical model used in agricultural extension from the Extension Movement to the end of the 1950s was the Transfer of Technology (TOT). Developed in universities in Britain, TOT became incorporated into departments of agriculture across the world. Its intent was to disseminate technological information to producers, to remove perceived barriers that limited productivity and to improve economic returns. Sometimes referred to as a ‘linear adoption model’, the information being transferred was based on new technologies developed within universities or research stations with the knowledge gained from these disseminated to producers (Figure 3.1).

![Figure 3.1 Transfer of Technology Model](image)

The model held two key assumptions: the best farm managers could never achieve the best possible level of production; and some producers would be more productive than others within a certain location, even with access to similar resources. Holding these assumptions true, producers whose skills were less well developed would aim to improve their farm management, moving them towards the leading, or resource-rich, producers. The model persisted until the 1960s,

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30 Hoare (1986:139, 141)
when a change in focus in extension occurred that led to variations of it being developed.

### 3.4 A Change in Focus

In the 1960s, government agricultural extension policies across the world turned towards a focus on Individual Modernism.  

The incorporation of individualism into extension was evidenced by a shift in focus from the macro-consequences (i.e. broader social concerns) of developed technologies and rural sociology, towards micro-level extension methods employing individual and interpersonal communication. Ideas and techniques were adopted from social psychology, communication, education, marketing and advertising. Greater support was offered to the ‘early adopters’ or ‘progressive producers’, who were seen to be better equipped to meet the demands of national food supply, and production of commodities for export in the face of rapidly expanding economic growth in an increasingly globalised world. Australia was not an exception to this view, as shown by its pursuit of overseas trade agreements and new markets; continued emphasis on research; encouragement of more intensive farming; and implementation of rural reconstruction schemes to encourage economies of scale and increased productivity (more detail provided in Appendix C).

Scientific knowledge was presumed to be the best vehicle to achieve change by removing perceived barriers which limited productivity. To improve the individual’s situation, innovative ideas to advance agriculture in the areas of

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Benvenuti (1962) described Individual Modernism as being the “predisposition to seek solutions to developments in personal life by means of scientific knowledge and the help of available modern technology”. Olshan (1981) held a different view, interpreting modernisation to include the ‘perception of choice’, and proposed “that it was not associated with particular technologies, types of social organisation, or beliefs and values. ‘Individual modernity’ therefore can be interpreted as the degree of freedom that an individual has to exercise choice towards an intrinsic goal of personal satisfaction; and the ‘modernity of culture’ is the extent to which an individual’s freedom of choice is collectively expressed by the community to which he or she belongs. An implicit assumption in this definition is the individual’s right to choose not to behave in a manner consistent with what others perceive as rational economic development.”

The *Oxford Dictionary of Sociology* defines Modernism, Modernisation and Modernity in the following way. ‘Modernism’ is characterised as a period of time between the late nineteenth century and the Second World War. It describes a range of changes in areas such as the arts, literature, ideological, science and technology. ‘Modernisation’ is therefore the “process of becoming modern” but it is also referred to as being the popular theories devised as alternatives to Marxism of the 1960s, mostly from the United States. ‘Modernity’ deals with the social relations from the late nineteenth century through democratic and industrial revolutions (Scott, J. and Marshall, G. (2005) *Oxford Dictionary of Sociology*. Oxford University Press, Oxford, pp.421-23).

32 Röling (1988:22)

economics and production were encouraged and new models in extension were devised. The Diffusion of Innovations was the first theoretical model to try to meet these new requirements.

### 3.4.1 Diffusion of Innovations

Everett Rogers (1931-2004) introduced the idea of Diffusion of Innovations in America in 1962, emphasising the adoption of behaviour in the individual. He assumed that ideas or innovations diffuse into people’s lives as they go about their daily activities and emerge as ‘cultural change’. Hence the adopter of the innovation is learning from his or her experience, with knowledge being accumulated during the adoption of the technology. The diffusion of information was perceived to occur by filtering through social systems along the path of least resistance.\(^{34}\)

Although the Diffusion model is described as a ‘linear adoption model’ (see Figure 3.2),\(^{35}\) it differed from TOT in including extension as the conduit between the researcher and producer and, as eluded to earlier, informal learning between producers. The theoretical background or genesis of ideas in the literature is not obvious. The focus on a producers experience and capacity for abstract thinking (i.e. problem-solving – considered an important attribute of innovators, usually expressed as a conceptual skill or managerial aptitude) suggests influences from American Pragmatism.\(^{36}\)

![Figure 3.2 Diffusion of Innovations Path](image)

Since the primary factor limiting modernisation was seen to be the flow of information, Rogers identified four things that must occur in order for the diffusion of an innovation to take place: (1) an innovation or new idea must exist; (2) it needs to be communicated to people who don’t know about it; (3) consideration needs to be given to the social system into which the innovation is communicated and; (4) time, which is determined for an individual by the

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\(^{34}\) Frank and Chamala (1992:122-23); Röling (1988:27)


\(^{35}\) Black (2000:493)

\(^{36}\) Rogers (1962); Frank and Chamala (1992:123)
adoption process and includes awareness, interest, evaluation, trial and then adoption.\textsuperscript{37}

Rapid economic growth in the early to mid-1960s was coupled with a large resistance to change as traditional cultures were forced to adjust to the expanding economic environment. This became a concern for social scientists who became more involved in agricultural activities as time progressed (refer Chapter Four). By the 1970s and into the 1980s the principles underlying the Diffusion of Innovation principles, which were compatible with national growth strategies in the 1960s, were questioned as to their effectiveness with resource-poor producers. This led to a new suite of models being formed in an attempt to close the equity gap between resource-rich and -poor producers.\textsuperscript{38}

The model has however, continued to persist into the 2000s. Gerber and Hoffmann for example, discuss how the diffusion of ideas is integrated into social systems to become normal practice (Figure 3.3).\textsuperscript{39} This movement of ideas is often more generally described in recent times as the ‘trickle-down effect’: the transfer of ideas or innovations from the early adopters through to more risk adverse producers.

\textit{Figure 3.3} \hspace{1em} \textbf{Phases in the Diffusion Process}

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\includegraphics[width=\textwidth]{phases.png}
\caption{Phases in the Diffusion Process}
\end{figure}

\textbf{NOTE:}
This figure is included on page 48 of the print copy of the thesis held in the University of Adelaide Library.

\textsuperscript{37} Rogers (1962); Frank and Chamala (1992:123)
\textsuperscript{38} Frank and Chamala (1992:122, 124); Röling (1988:25-26)
Rogers also raised concerns and later revised the assumptions underlying the model.
3.5 Closing the Equity Gap

Ideas surrounding modernisation had been reformulated prior to the 1970s, giving more attention to the perception of choice. Extension was linked to specific capital investments in many countries (e.g. irrigation infrastructure), to enable producers to maximise their inputs and make best use of technological information.  

In the 1970s the rate of increase in agricultural production, internationally, was low at 2.6 percent annum, and rural development project performance was shown to be poor. Extension began to include ‘integrated rural development projects’ as concerns increased for resource-poor or subsistence producers, predominately in developing countries. This group of producers were seen to have greater diversity, complexity and higher potential for risk in their operations, which were not being addressed by the TOT and Diffusion of Innovation models. Consequently, the equity gap was widened, benefiting those that were resource-rich.  

International development agencies concerned with the plight of the poor emphasised the need for non-formal adult educational activities that provided local level agricultural extension programs. These inequality concerns reflected the Marxist Adult Education ideals concerned with social transformation, promoted by Freire in the 1960s (see Chapter Two). However, the progression of new ideas for rural development by sociology and social anthropology had taken a back seat to the multi-disciplinary, technical work in agricultural economics and agronomy. This led to the challenge of how to get extension to concentrate on the smaller producers and groups, rather than those who were more progressive.

40 Farrington (1995:538)


Chambers and Ghildyal (1985:3) define a resource-poor family as being “one whose resources of land, water, labour and capital do not currently permit a decent and secure family livelihood”.


The term ‘nonformal’ education was coined in the late 1960s in relation to ‘out-of-school’ education activities concerned with vocational and community development programs (La Belle and Ward 1996).

Empirical evidence from the 1950s and 1960s had suggested that useful information could be obtained from producers, resulting in an increased respect for knowledge within farming communities. Rural sociologists proposed that agricultural professionals needed to support change in producers, particularly for those who were resource poor. This required an understanding of the social, socio-psychological and cultural traits which determined behaviour, as well as the economic and technical dimensions. Action-research (devised by Lewin in the 1930s – see Chapter Two) was suggested as an avenue to try to bring together the work of scientists and extension practitioners, but the 1960s focus on the individual prevailed, nonetheless. 44

The effort to achieve equality amongst producers was hampered by a lack of understanding that the methods being used, acted as deterrents for the diffusion of ideas and practices.45 However, extension agencies employed the rationale that inequality occurred from a lack of adoption of innovations, which were the fault of ignorant producers or dissatisfaction with the explanation or content of information; or of barriers to the flow of information.46 Chambers and Ghildyal suggested - as Hodgewind had in the 1950s - that a change in attitude of the extension agent, not the producer, was required. A maintenance of the status quo would continue to increase inequality: benefit accrued to those producers who knew how to acquire new information and resources, but those who needed the most assistance were harder to reach.47

To overcome the problem, extension needed to come to terms with the idea that resource-poor producers, particularly those in developing countries, viewed their “profitability in terms of return per labour day worked, whereas the technology developed by research scientists is usually based on increase in yield per unit area”.48 Additionally, their highest priority was food for themselves, they preferred cash for produce sales, had poorly controlled and unfavourable environments, were more diversified and concerned with minimising risk.49 This meant that, often, trials conducted on research stations were not suited to resource-poor producers’ conditions as the researchers focussed on production rather than sustainability; and no consultation with producers, to determine the

46 Frank and Chamala (1992:122-23); Chambers and Ghildyal (1985:6)
47 Chambers and Ghildyal (1985:6); Frank and Chamala (1992:122); Röling (1988:27)
48 Hoare (1986:141)
49 Chambers and Ghildyal (1985:8)
research topics, was performed.  

Hence, non-adoption was a result of the developed technologies not meeting resource-poor farmer’s needs and conditions, as they are more complex than for those who are resource-rich who were able to adopt the recommendations with less risk.

The problem was further compounded by the majority of extension approaches following the ‘centre-periphery extension model’. These were often implemented in developing counties, being transferred from industrial nations after their own agricultural development. Consequently, these approaches were generally untested and unsuitable to developing countries and, by way of remedy, it was suggested that extension services should be improved and provide more advice.

Despite the calls for change, the TOT model and its modified versions remained prominent in extension, globally, chiefly because they were

“deeply embedded in the thinking of many professions and disciplines around the world part of the structure of centralised knowledge in which power, prestige and professional skills are concentrated in well-informed ‘cores’ or centres”.

Additionally, scientists, who were usually urban based, only associated with producers who were resource-rich and supported their research, and TOT appeared to be ‘proved’ by increasing production during the Green Revolution.


The Centre-Periphery Model involves farmers as the receiver of information. Limited consultation is undertaken with farmers on their problems, as they are at the periphery of the government agencies who “develop and diffuse innovations” (Wickramasinghe 1981:15). The TOT model and Diffusion of Innovations would be included as Centre-Periphery Models.

53 Chambers and Ghildyal (1985:4, 8)


The TOT method has proven to be successful in the United States where resource-poor farmers were not able to adopt technologies developed on research stations and sold their farms to move to the cities. Hence, the issues surrounding millions of resource poor farmers did not need to be addressed (Chambers and Ghildyal 1985:8-9).

The Green Revolution occurred in the 1960s and 1970s in response to global famine. It promoted the idea that poverty and hunger could be solved by increasing production of staple cereal crops though multiple crops being grown in a year. Generally producers who were resource-rich were targeted, which matched the research station conditions and therefore a greater chance of adoption would be achieved. As a result, the economic and social benefits of the research could be demonstrated, as was shown in irrigated wheat crops in northwest India. However in later years, the poor distribution of the increased yields has resulted in hunger
In the mid-1970s the United Nations Food and Agriculture Organisation (FAO) sought solutions to involve small scale producers in rural development and found that autonomous and sustainable small-producer organisations usually consisted of informal groups of eight to fifteen members with similar backgrounds, common interests and similar resource bases. They focussed on common problems to all group members and where outsiders were involved, they allowed the group members to ‘learn by doing’. Trials of small producer organisations developed in Bangkok (1973) later led to the formation of the Small Farmers Development Program implemented in Nepal in 1975, and expanded throughout Asia in the 1980s.

By the end of the 1970s the limitations of the TOT and diffusion models used during the Green Revolution were recognised as contributors to widening the equity gap. This modified how extension (or change agents) viewed producer adoption, and led extension to question why producers do not uptake practices when the benefits of the knowledge and technology being offered were seen to be obvious. These changes in thinking coincided with a revival in adult education (Chapter Two), and were accompanied by an acknowledgement of the importance of the family unit and broader issues of economic and farm sustainability. The emphasis of agricultural economists also changed to a greater focus on various

55 The FAO was formed in response to historical concerns regarding food and international hunger following on from discussions held at the League of Nations. In 1933 economists convening the League of Nations in London identified “that agricultural overproduction, particularly of food, was the primary cause of the economic crisis”. On 11 September 1935 in Geneva, Australian nutritionists Stanley Bruce and Frank L. McDougall convinced the General Assembly of the League of Nations to proceed with linking agriculture to health through food. Building on these discussions the International Agrarian Centre - founded at the International Agrarian Conference - sought to fight Economic Malthusianism up to the second world war. Roosevelt and Churchill issued the Atlantic Charter on 14 August 1941 stating ‘freedom from hunger’ as its first liberty, with Roosevelt’s 1939 Agricultural Adjustment Act being extended globally. Roosevelt convened the United Nations at its first conference devoted to food and agriculture in May-June 1943 at Hot Springs and the UN Food and Agriculture Organisation (FAO) was formed. The first FAO Conference was held in Quebec on 16 October 1946 and on 24 October 1946, an agreement was reached between the FAO and the UN Economic and Social Council (ECOSOC) to: work together improve nutrition and standards of living; production efficiency and food distribution; and the conditions of rural populations (Cépède, M. (1984) The Fight Against Hunger – its history on the international agenda. Food Policy. November 1984, pp.282-84).


57 The term ‘change agent’ has been used since the 1940s. Although not always clearly defined, it is taken to mean work of a professional person who engages in ‘purposive change’. A ‘change agency’ “has been defined as any organisation seeking to bring about social change” (Beal, G.M. (1981) The Change Agent and Change-Agent Roles. In Crouch, B.R. and Chamala, S. (eds.) Extension Education and Rural Development. Vol.2, John Wiley and Sons Ltd, Cheshire, pp.109-11).
crop combinations and farming systems, rather than developing models and analytical techniques with unrealistic assumptions for individual crops.  

‘Soft system’ methodology, with its emphasis on ‘popular participation’, was increasingly being incorporated into extension models to try to remedy the causes of inequality. Where ‘hard systems’ are concerned with maximising performance, and the boundaries and goals are assumed to be given and treated as if they really exist, soft systems are deliberate social constructs and only occur if people agree upon their own goals, boundaries, membership and usefulness. Soft system methodology therefore “acknowledges the “messy” nature of problematic situations involving people and the need to think in terms of satisfying their needs, rather than optimizing the performance of a system as though they were somehow independent of it. The methodology stresses the need for the analyst to involve actors in the problematic situation in an informed and holistic debate about desirable feasible change. Designing a hard system is dependent on first deciding what the system is meant to achieve, and it is this largely political process that is the realm of soft systems methodology.”

The changes in how extension was viewed in the 1970s resulted in an explosion of models which aimed to bring producers central to the learning experience, gather information about farming communities, and help to focus research efforts in the broader context of ‘farming systems’. Although the selection of theoretical models described below attempted to incorporate soft systems methodology into agriculture and rural development in the 1970s, the majority were not fully integrated into extension services until the 1980s.

3.5.1 People-Centred Agricultural Development

People-Centred Agricultural Development was first trialled in 1972 through the San Martín Jilotepeque Integrated Development Program in Central America. It aimed to ensure effective agricultural extension by teaching village people how to undertake experiments and teach others through ‘learning by doing’. The following principles underpinned the model:

- producers should be motivated and taught to experiment with new technologies on a small scale (sometimes referred to as ‘participatory technology development’);

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59 ‘Popular participation’ has been explained as involving situations where “community members come together to identify problems, mobilise resources and seek solutions among themselves” (Colletta 1979:15).


61 Macadam and Sriskandarajah (1993:496)

• producers should achieve rapid and successful results, to promote motivation and innovation;
• technologies that are inexpensive or locally available resources should be used;
• the number of technologies should be limited to achieve focus, success and allow more people to be involved; and
• village leaders should be trained to extend information and provide support for producers to teach other producers.63

The last principle suggests People-Centred Agricultural Development as one of the first approaches to seriously incorporate producer-to-producer extension.

The philosophy of People-Centred Agricultural Development was to hold people’s concerns central to agricultural extension, being more about ‘how’ something is taught, rather than ‘what’ is taught. It attempted to ‘empower’ individuals and communities by improving their skills and attitudes, so they could help themselves across a range of areas, not just farming, to improve their well-being. In achieving this, less external resources were required as producers were helping each other and costs are considerably reduced as external support is withdrawn. However, for the process to be successful: extension people need to be motivated and to understand fully the principles and how they can be applied; producers must be willing to teach each other; there needed to be a supportive institutional framework that encouraged producer decision making; and the number of innovations needed to be restricted to maximise the potential for adoption.64

People Centred Agricultural Development has undergone continuous development and has been adopted by numerous, mostly non-government, organisations across the world for various causes.65 Despite its incorporation globally, I found information about its principles to be limited. The lack of reference may be attributed to the evolution of ideas surrounding the model from the early 1970s. The ideas may have been relabelled or incorporated into other models, since all of the models that appear from this period promote the idea of having producers (or communities) central to the extension practice - a key feature of the model. Additionally, no theoretical development is given, but an echo of Humanism from the 1960s, with its emphasis on self-development and self-directed learning, appears to support the ideas that underpin it.

3.5.2 Linkage Model

In the early 1970s Ronald Havelock and his associates devised the Linkage Model after undertaking an extensive literature review of some 4 000 studies. According to Röling, the model became the core agricultural extension model, combining three basic models identified by the researchers for knowledge dissemination and utilisation:

64 Bunch (1998:150-53)
65 Bunch (1998:151)
1. the dissemination model (akin to our “how do I get them where I want them” model [or TOT model]);
2. the problem solving model (following a bottom up approach), and
3. the social interaction model (the diffusion of innovations research tradition)\(^66\).

Some time passed before the model was applied to interpersonal, mass communication and the process of technical research which assists in the development of extension content.\(^67\) Again, as for the People Centred Agricultural Development model, little could be found by literature search on the Linkage Model, or on Ronald Havelock, other than that he produced *Change Agents Guide to Innovation in Education* in 1973. It is unclear if this publication discussed the Linkage Model. Although the model tries to incorporate bottom-up approaches (being producer/community driven) with top-down directives (government or agency driven) it does not appear to be as ‘participatory’ in terms of producer self-direction, as the People Centred Agricultural Development model.

### 3.5.3 Rapid Rural Appraisal

The Rapid Rural Appraisal (RRA) philosophy, approaches, and qualitative methods were developed so people external to a rural community - usually rural development decision-makers - could gain access to local information and knowledge. This enabled an understanding of rural life and conditions to be obtained in a cost effective and timely manner.\(^68\) Hence, RRA is not an extension method *per se* but the information gained through RRA may be used to develop more effective extension programs.

The literature does not reveal who developed RRA, although Englishman Robert Chambers makes a number of contributions to the approach. RRA has stemmed from three main concerns: (1) disillusionment with anti-poverty biases formed from visits by urban-based professionals; (2) disappointment of the processes and results of questionnaires and surveys and; (3) a desire for cost effective methods

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\(^{66}\) Röling (1988:25)

\(^{67}\) Röling (1988:25)


The concept of ‘community’ has evolved over time to mean different things to various people for a range of situations. Community organisations and their contribution to extension were discussed in the 1950s. De Gues had commented that the community concept had been originally “defined in terms of geographical, legal or political boundaries but had become more complex as social interactions became more emphasised.” While Everingham argued that during the 1970s, community was inclusive and contained a development element. In the 2000s, it has come to be more ordered and involve abstracted individualism (i.e. self-relied individuals in self-sufficient economic family units) (De Gues, J. (1956) Community Organisations in Relation to Extension. In Penders, J.M.A. (ed.) *Methods and Program Planning in Rural Extension*. Veenman, H. and Zonen, Wageningen, p.69; Everingham, C. (2001) Reconstituting Community: social justice, social order and the politics of community. *Australian Journal of Social Issues*, Vol.36(2), pp.105-22).
of learning, which arose from the recognition of producers’ intimate knowledge of their farm - also known as indigenous technical knowledge (ITK) - is useful. Producers’ ITK was seen to complement formalised scientific knowledge by providing observed information that has extended over long periods of time. Scientific knowledge on the other hand, can provide observation-based information by using precise measurement and specialised techniques.69

Although developed in the 1970s, RRA did not gain acceptance until the 1980s, primarily due to the less rigorous nature of some of the methods employed in the approach and to reduced sample sizes failing to meet statistical criteria, which caused concerns in maintaining professional credibility.70 Many techniques and methods of investigation are used in RRA, as each circumstance requires its own unique mix.71 In choosing the methods to be used the amount, accuracy, relevance, timeliness and practicality of the information gathered needs to be considered. However, care in collecting information is required as more expertise is needed in gathering and interpreting data due to the reduction in procedures. If not performed correctly the exercise can result in misleading information.72

Where RRA is undertaken successfully, more time should be available to learn from and have contact with poorer rural people.73 As Carruthers and Chambers pointed out:

“academics would often benefit from the discipline and responsibility of operating more in the real, time-bound world and practitioners, for their part, would often benefit from insights into what is less obvious and from the challenges which would emerge from a deeper and broader understanding of change… the middle ground between these two approaches has been a no man's land.”74

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At the time of publication Ian Carruthers worked for the Agrarian Development Unit, Wye College in Britain, which is now part of the Imperial College of London. Robert Chambers has written many publications relating to agricultural extension methods since the 1970s. He is currently a research associate with the Participation, Power and Social Change Team within the Institute of Development Studies at the University of Sussex. His research includes: participation; power; methodologies; and professional, institutional and personal learning and change which have been built on from his involvement with PRA (IDS (2006) Robert Chambers. Institute of Development Studies, http://www.ids.ac.uk/ids/particip/group/team1.html#rc, Accessed 14 February 2006).


71 Chambers (1981:98-99) had listed ten methods used in RAA that demonstrate the range and possibilities: (1) existing written or published information; (2) learning from ITK; (3) using key indicators; (4) adaptations of Hildebrand’s ‘Sondeo’ approach;71 (5) using local residents as researchers; (6) using direct observation; (7) using key informants; (8) using group interviews; (9) undertaking guided interviews and; (10) aerial inspections and surveys.


73 Chambers (1981:104)

74 Carruthers and Chambers (1981:408)
However, questions were raised about whose knowledge is relevant and what is the best way in which the knowledge should be acquired and used.75

Chambers pointed out that although the approach is suited to the identification and appraisal of rural development projects it can also be used in project implementation, monitoring and evaluation. He goes on to say that the relevance of RRA is,

“enhanced by the view that rural development projects are not like construction works, with engineering blueprints which precisely predetermine what will be done, but rather like voyages into uncharted seas where direction and steering will change with new soundings and sightings. Techniques of RRA are hardly a new radar to prevent shipwreck; but they may at least reduce the dangers by showing more clearly and more quickly what is happening”.76

Agencies have recognised that multidisciplinary approaches and a holistic, or ‘systems’, view (discussed next) are difficult but desired, to assist in solving rural problems. In the 1980s RAA highlighted the complications in these types of approaches, making it problematic for agencies to find adequate resources to undertake the processes needed to achieve it.77

### 3.5.4 Farming Systems Research

Farming Systems Research (FSR) or ‘field research on farming systems’ grew out of the increasing support for low income countries and the recognition of what the farming community had to offer.78 Developed by research scientists through the International Rice Research Institute (IRRI) in the Philippines, and other agricultural research centres globally, FSR is a modification of the TOT model. It takes a soft systems approach in trying to analyse the interrelationships of the components within in a farming system.79

FSR acknowledges that yields reached at research centres were often unobtainable by individual producers due to particular socio-economic and biological constraints.80 This is presumed to be because the discipline orientated research of the industrialised countries was unsuitable for developing nations, whose complex production systems were not understood completely by the researchers: low levels of adoption were the result.81

Rather than being focused on a single commodity, FSR was more holistic and closely followed “marketing research routines, to develop and test ‘appropriate’

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75 Dunn (1994)
76 Chambers (1981:96)
77 Carruthers and Chambers (1981:411)
80 Hoare (1986:138)
81 Petheram and Clark (1998:101-2)
agricultural technology with client populations”. It aimed to understand producers’ practices and ‘the system’ in which they operated. It was thought that this would improve the well being of producers; give producers the opportunity to be involved in “identifying the appropriate path to agricultural development”; decentralise research from research stations to local environments; and help producers acquire a systems perspective by broadening their thinking on how they viewed farming.

The FSR method involved the use of multi-disciplinary teams to define the resource constraints of producers for a particular area and problem. RRA and field research was commonly conducted on producers’ properties, so that new technologies could be developed that took account of the differences in farming systems. Some problems were experienced between the scientists, and the scientists and producers, over conflicting research interests and perspectives.

3.5.5 Training and Visit System

Developed by an Israeli extensionist Daniel Benor, the Training and Visit System of Agricultural Extension (T&V) was initially trialled in Turkey on cotton farms. In 1974 the model was implemented in India and later into South and East Asia with the assistance of World Bank funding. T&V was the most significant extension model to be implemented internationally during the 1970s, and was promoted by the World Bank until 1995. The model aimed to address policy and organisational weaknesses in developing countries’ extension services and to increase food production by improving yields of major crops faster and cheaper for small-scale subsistence producers.

T&V attempted to achieve its aims by addressing the problems associated with:

- Inefficiencies resulting from extension workers’ multiple roles.
- Extension agents’ lack of knowledge or experience and their misinterpretation of information.
- Multiple subordination of the extension worker to several agencies with limited accountability.
- Lack of organisational structure to ensure contact between research and extension.
- Inadequate ratio of field agents to farm families.
- Improving staff enthusiasm.
- Inconsistencies in producer visits.
- Equity between the resource-rich and -poor producers.

82 Russell (1986:159); Röling (1988:30)
84 Chambers (1994:954); Hoare (1986:138, 143); Dunn (1994); Hoare (1986:143)
Lack of a two-way flow of information between the farm families, extension agents, researchers, and administrators, inhibiting research relevance to producers’ situations.\textsuperscript{86}

Hierarchical in design (see Figure 3.4), T&V utilises the diffusion process and retains the basic structure of the TOT model, with added opportunities for producers to provide feedback to the researchers.\textsuperscript{87} It involves a single government agency, ideally an agriculture department, with a clear line of command to the extension worker in the field. The structure attempts to limit the role of the individuals at each level in order to allow guidance, specific training and supervision of those below. For example, the Subdivisional Extension Officer (SDEO) is assisted by extension agents – Subject Matter Specialists (SMS) – knowledgeable in a specific problem area or scientific discipline, and linked with research and extension activities. The SDEO’s role is to supervise several Agricultural Extension Officers, who regularly visit and support a group of selected Village Extension Workers (VEW). These VEW’s are allocated a group of up to 1,200 farm families to train entirely in production technologies relating to producers’ field problems. Due to the large number of producers allocated to each VEW, discussions and field demonstrations of new practices occurred with up to 80 contact producers who can be joined by other producers in the area who then pass the information onto others. The success of the projects undertaken relies heavily upon the diffusion of information from the contact producers – composed of 10 to 15 percent of the farming population – to their peers.\textsuperscript{88}

The model is designed to be continually monitored and evaluated. It encourages continuous training of all staff and a close link between extension and research. All research is trialled on a producer’s property by the SMS’s before any recommendations are made.\textsuperscript{89} Further developments of the T&V system occurred into the 1980s, along with some criticisms of its effectiveness. The cause of these concerns and the fate of the T&V system are discussed further in Chapter Four.

\textsuperscript{86} Pickering (1984:5-7); Pretty (1995:188); Cernea (1981:222)
\textsuperscript{87} Hoare (1986:144); Röling (1988:28); Chambers and Ghildyal (1985:11)
\textsuperscript{89} Benor and Harrison (1977:33-44); van den Ban and Hawkins (1988:279, 281); Pickering (1984:7)
3.5.6 Agroecosystem Analysis

Developed by Gordon Conway, Agroecosystem Analysis emerged in Thailand in 1978. The aims of the method were similar to FSR, in utilising ideas from the systems disciplines, as well as ecology, along with various analytical techniques and RRA methodology to obtain data, in order to

“analyse units of agriculture and ecosystems in terms of properties which “measured” performance and trends using the concepts of productivity, stability, sustainability and equitability”.

The information obtained from this ‘agroecosystem analysis’ could then be used to develop appropriate strategies for taking action. 

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91 Petheram and Clark (1998:110); Dunn (1994)
farmer field schools in developing countries, originally set up to introduce producers to integrated pest management have educated producers on Agroecosystem Analysis.\(^{93}\) It appears that this approach is the first model to deal seriously with the interactions between the environment and production activities.

### 3.6 Conclusion

This chapter observed the development of agricultural extension from the Extension Movement (1880s) to the end of the 1970s. The range of theoretical models developed in this period, highlighted how the ideas and practices in extension have been shaped to achieve social and economic change in response to shifting government policies and social ideals (Table 3.1 below).

The historical account showed extension originating on the basis of social equality concerns and coming to incorporate economic considerations which it attempted to address through the improvement of technological innovations. In Australia for example, this was evidenced through the development of research institutions and departments of agriculture. The technological focus continued into the 1960s, but as government policies began to favour individual modernism ideals and global markets expanded, extension shifted its focus from the broader macro-consequences to the individual. Consequently, the more progressive producers who were able to meet the needs of national food supplies and expanding export markets were of more importance, and scientific knowledge was seen as the best avenue to remove ‘barriers’ to improved productivity.

By the end of the 1970s calls for the plight of resource-poor producers, primarily in developing countries, was being heard as the TOT and Diffusion of Innovation models were proven to be ineffective for this particular group. The incorporation of soft systems methodology - coinciding with the Adult Education Movement discussed in Chapter Two - was seen as a solution to remove these inequalities by taking into consideration producer knowledge. This was met with some resistance from professionals concerned about their scientific credibility. The eventual change in attitude of extension agencies towards producer knowledge and the impacts of external factors affecting production, led to a range of extension models being developed, predominately in developing countries, that utilised soft systems methodology and farming systems approaches (incorporating environmental and social concerns).

The beginning of the broadening out of agriculture beyond production concerns alone meant agriculture was being thought of within the broader context of rural

\(^{92}\) Chambers (1994:954)

\(^{93}\) Anderson and Feder (2003:20)

Farmer Field Schools are comprised of approximately 25 farmers from within one village. While being trained the farmers work in smaller groups of five people and are tested before and after the training which usually lasts for one growing season. Lecturing is limited during the training and the trainers are not allowed to act as an expert (Röling, N. and van de Flier, E. (2000) Introducing Integrated Pest Management in Rice in Indonesia: a pioneering attempt to facilitate large-scale change. In Röling, N. and Wagemakers, M.A.E. (eds.) Facilitating Sustainable Agriculture. Press Syndicate of the University of Cambridge, United Kingdom, p.163).
development. However, many of the approaches developed in the 1970s were not utilised to any great extent until much later, especially in the industrialised nations, as the following chapter will demonstrate.

Table 3.1 Summary of Selected Historical Developments in Agricultural Extension, 1880s – 1970s

<table>
<thead>
<tr>
<th>Period</th>
<th>Agricultural Extension</th>
<th>Other Significant Events</th>
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<tr>
<td>1970s</td>
<td>• Integrated rural development projects</td>
<td>• Adult Education Movement</td>
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<td>• Equity concerns for resource-poor</td>
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<td>• Soft systems approaches</td>
<td>• UNESCO consolidates education</td>
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<td>• Farming Systems approaches</td>
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<td>• Agriculture Colleges in Australia</td>
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</tr>
</tbody>
</table>
4 BROADENING THE OUTLOOK

In the previous chapter, an historical account was given of the early developments of agricultural extension to the end of the 1970s. This chapter builds on that account from the 1980s to the present. It shows extension being considered within the broader context of rural development policies. These policies support national economic goals including the growing globalisation of agricultural markets and increased commoditisation of agriculture, which has placed more demand on what it has to achieve. Consequently, an acknowledgement of its complexities emerged and highlighted equality issues between producers to meet these new demands.

To find solutions to these demands, the industrialised countries looked to adopt more socially based programs that had greater producer and community participation. Approaches of this type were more commonly used in developing nations. Additionally, systems based methodologies and concern for the utilisation and preservation of natural resources were also given more consideration. These changes in thinking were reflected in the increased volume of literature on extension, particularly for industrialised nations, from the 1990s.

To complete the chapter, a summary of the current theories and models is provided. Although global movements are noted, the Australian context is examined more closely, in order to position my research in Chapters Five and Six within the context of the evolution of agricultural extension in Australia.

4.1 National Goals and Farming Income

In the early 1980s, countries with good economic growth had dynamic agricultural systems irrespective of their agricultural policies, access to natural resources, farming systems and rates of population growth. The World Bank reported in 1982 that the characteristics of these successful agricultural sectors included the public sector supporting private initiatives; the physical and sociological aspects of the local environment were well-understood; and their infrastructure, services and policies were supported with relevant technologies. An increase in the productivity of small-scale farms was also shown to support advanced economic growth.\(^1\)

By the mid-1980s observations surfaced that little had been done in regards to food and income, particularly where extension involved local partnerships and groups. The focus on the individual producer to improve economic and technical problems associated with food production (a legacy from the 1960s individualist policies) was viewed as the problem. A lack of expertise was noted in organisational skills and the ability to critically analyse social structures that brought people together to solve problems they had in common. Limited contact with smaller producers was also identified. The proposed solution to improve

productivity and income was a greater interaction between governments and local and indigenous institutions, as ‘top-down’ approaches were seen to be ineffective. 2 Once producers had progressed beyond the subsistence stage, they would have the wherewithal to be able to produce food for sale and subsequently, a market for produce and related infrastructure could be established for economic growth. 3

Since the 1990s, government departments or ministries have emerged in many countries and developed linkages with universities, colleges, consultants or private companies involved in agriculture. The variation between nations in the types of services offered reflects their economic, social, traditional and cultural ideals and education standards. The ways in which their organisations developed from their earlier support agencies since the 1950s has also contributed. 4 The gradual privatisation of extension services is also noted, particularly for industrialised countries from the 1990s, attracting some significant criticism.

The broader focus on market development to achieve economic growth from the previous decades has prevailed internationally. The following section demonstrates that, in Australia, the adoption of innovations and practices has remained central to achieving national economic goals and improved farming income.

4.1.1 An Australian Perspective

From the 1980s, Australia viewed technological advancement as critical to maintaining its competitiveness through improved industry efficiencies, maintenance of food safety and fostering industry innovation. The ongoing support for various quarantine organisations and processes, and research, development and extension are testament to this stance (examples may be viewed in Appendix D). 5

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Industry marketing programs, instigated in the 1980s to extend and maintain export markets, coincided with increased industry independence from governments through the deregulation of statutory marketing and restructuring of rural industries. Farm income and management became a concern with training support offered from the mid-1980s, along with financial and adjustment counselling to producers and their families.\(^6\)

In the 1990s, the increasing globalisation of agriculture continued the focus and reliance on the export market to develop internationally competitive industries, in order to maintain national economic goals and rural stability.\(^7\) In 1997, the

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\(^6\) Hale and Ashton (2002:141, 179); Lovett (1997:2-3)

Industry marketing programs included: the Innovative Marketing Program and *The Kerin Plan*, both formed in 1986. *The Kerin Plan* was labelled after John Kerin the Minister for Primary Industries, recognised for making changes to research and development within Australia through corporatisation. He also introduced the Rural Industries Research Act in 1985. *The Kerin Plan* included new marketing and assistance arrangements including a reduction in government regulation and support over time, exposure of industry to local and overseas market signals through the removal of pooling and equalised returns to producers and manufacturers, and more accountability for money spent on research and development (Hale and Ashton 2002:179, 141; Lovett 1997:2-3).

Examples of financial assistance for Australian producers has occurred through the Rural Adjustment Schemes, Farm Household Support scheme providing loans for everyday living (1993); and the Farm Help program (2000), formerly the Family Farm Restart scheme, which provided income assistance and financial counselling to farm families, and the re-establishment and retraining grants for producers exiting agriculture (Hale and Ashton 2002:179).

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Between 1996 and 2004 the Australian Government, in partnership with industry, spent more than $2.9 billion on rural research and development. In 2005-06, $438 million was spent to “promote internationally competitive industries built on sustainable management of the natural resource base” (Truss *et al* 2005).
Australian Government announced the Agriculture Advancing Australia (AAA) package, which included a number of programs\(^8\) that aimed to assist in “building capacity” of primary producers through improved business management skills, and positioning profitable and competitive agricultural industries on world markets and facilitating the competitiveness of our industries...making them more self-reliant initiatives through better skilling [and] being more innovative.\(^9\)

Introduced in 2000, the FarmBis initiative supported these activities but also sought to create a “culture of life long learning”. This underpinned governments’ agenda to enhance producers’ abilities in interpreting market signals and make “rational economic decisions in a deregulated market environment”. In doing this, producers were to obtain greater self-reliance which was seen to be “the solution to farm adjustment problems”.\(^10\) The commitment to the AAA package in 2004 continued to support Australia’s international competitiveness and agricultures contribution to the economy.\(^11\) In June 2008, the AAA was replaced with the Australia’s Farming Future initiative to provide assistance to primary producers to adapt and respond to climate change.\(^12\)

State governments followed along similar lines. Primary Industries and Resources South Australia, for example, looked to “maximise economic development” by focussing on “market driven, rather than production driven, culture across private and public sectors”, by having an “international market focus” and “international competitiveness driving a need for increased efficiency in production and other market chain factors.”\(^13\) Extension responded to these ongoing pressures for improvements in the Australian food industries

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\(^10\) Higgins and Lockie (2001:185)


The AAA package programs FarmHelp, FarmBis and Agriculture Advancing Industries ceased to exist with the introduction of Australia’s Farming Future. The Rural Financial Counselling Service Program, International Agricultural Cooperation Program and Farm Management Deposits Scheme all continued as independent programs (DAFF 2009a).

international competitiveness, by becoming increasingly concerned with building producers market awareness and business skills.\textsuperscript{14} 

The economic rationale accompanying modern agricultural and rural development policies has attracted criticism.\textsuperscript{15} McMichael and Lawrence commented that the market rule scenario is unsustainable and the globalisation agenda has not demonstrated any real benefits for producers or rural communities.\textsuperscript{16} The scepticism towards government’s abilities to meet producer’s needs is similar to that directed towards the American Land Grant University system from the 1970s into the 1990s.\textsuperscript{17} Historically, Australian extension services have been the responsibility of the states, with limited philosophies underlying their services and administrative structures developed around industry-based organisational units. Agencies employed people with sound technical expertise to advise producers and assist in controlling animal and plant diseases. The mixed auspices, purposes and programs produced an inflexible and uncoordinated system, where the goals of the producers and the economic factors in applying the recommended practices were secondary to the extension goals of government organisations and industries. Although this attitude appears to have been changing in recent years, with the increased recognition of the complexities of agriculture and the need to incorporate social and environmental considerations into training programs,\textsuperscript{18} the motivation for their incorporation is being debated (discussed later).

\textsuperscript{14} Hale and Ashton (2002:180)  
\textsuperscript{16} McMichael and Lawrence (2001:164)  
\textsuperscript{17} The Land Grant University System (LGU) is comprised of the land-grant universities, state agricultural experiment stations (SAES), extension services, and United States Department of Agriculture (USDA) Agricultural Research Service. The Land Grant Movement began in the 1860s offering an alternative to the private educational colleges serving the professional classes. It was seen to be more democratic and embodied educational pragmatism ideals. In the 1970s the breadth of educational curricula was questioned. Jim Hightower produced \textit{Hard Tomatoes, Hard Times} (1973), which undertook a critique of the agricultural land-grant college complex, now known as the LGU. The report outlined: the lack of support for small scale farmers; problems associated with agribusiness and dependant rural communities; and potential environmental concerns. In 1988 Buttel and Busch also undertook a critique of the system and noted that it was criticised for not considering: the rural development of non-farm rural households; environmental issues; human nutrition concerns; reduced chemical use for organic farming; and farmer reductions due to the research and promotion of bovine growth hormone for dairy cows. The increase in public sector funds had also increased in research activities due to: the decline in federal and state funds; agriculture colleges were taken up by the larger state universities; extension agents were not looked upon as a reliable source of information; and the USDA had done little to raise public awareness of agriculture. In the late 1990s, Cooper remarked on professionalism in higher education and the continuation of elitism, being contrary to the Land Grant Movement’s ideals (Newby 1983:73; Hightower, J. (1973) \textit{Hard Tomatoes Hard Times: the original Hightower Report} - and other reports - on problems and prospects of American agriculture. Schenkman Publishing Company, Massachusetts; Buttel and Busch 1988:303-18; Cooper, D. (1999) Academic Professionalism and the Betrayal of the Land-Grant Tradition. \textit{American Behavioural Scientist}. Vol.42(5), pp.776-85).  
\textsuperscript{18} Hawkins \textit{et al} (1990:49)
Policy changes favouring privatisation has meant that extension services, internationally, have moved away from government provision. In Australia the chariots of change have included regionalisation; industry-government and community-government partnerships; implementation of the Funder-Purchaser-Provider models; and cost-recovery, cost-sharing, out-sourcing and re-direction of extension services.\textsuperscript{19} The shift in policies has caused an increase in the use of private consultants, private company employees and other advisors such as stock and station agents and suppliers for technical and financial advice in farm management.\textsuperscript{20} Several arguments in support of publicly-funded extension have been given, such as where the public benefits from the service. The provision of cheaper services through other means, and the facilitation of other programs conducted by extension services, or when the private sector does not provide a particular service, have also been suggested.\textsuperscript{21}

The adoption of innovations remains central to agricultural extension in Australia and overseas as an avenue to improve farming income and contribute to broader national economic objectives. The following section discusses ideas surrounding adoption from the 1980s and how this has instigated changes in extension thinking.

### 4.2 Adoption

Despite the advances in producer knowledge and involvement in the decades preceding the 1980s, extension was reported to have lacked impact.\textsuperscript{22} It was agreed that producers were the final decision makers on the adoption of new technologies and practices. Since they carried the risk, it was essential that they were involved in their development and implementation. This allowed for cooperation in mobilising indigenous technical knowledge,\textsuperscript{23} as producers were usually happier to test innovations when their peers were involved. Historically, the adoption behaviour for large and small scale producers was shown to increase when technologies were site specific; agriculture support services were well...


\textsuperscript{20} Black (2000:497-98)

\textsuperscript{21} Anderson and Feder (2003:9)

\textsuperscript{22} Pickering (1984:4)

In the mid-1980s, Pickering had noted that “under all kinds of agricultural systems and in a wide range of political and economic environments, research workers are developing technologies for small-scale agricultural producers, and extension officers are attempting to persuade farmers to adopt them. Unfortunately, however, in many instances these efforts are inadequate in amount, unfocused in direction, and consequently ineffective.”

developed; and price relations for commodities were good, allowing for adoption without government involvement.24

To increase productivity, extension or the development of new technologies needed to be acknowledged as only one of a number of factors contributing to farming systems. If extension was to have any impact and form sound recommendations, an understanding of the local environment and sociological characteristics of an area was needed.25 More attention to these considerations are provided later in this and subsequent chapters.

Between the early and mid-1980s several factors were identified as necessary for improving technological adoption in developing countries. These included:

- A wholistic approach that considered the physical and natural parameters of a problem being studied so that appropriate programs and policies could be developed.
- Site specific technologies where the inputs suited the conditions and practices of producers and their farms.
- Development of technologies with a wide applicability so they were acceptable to the majority of the producer population.
- Technology communicated in ways that was relevant to the producer.
- Professionals being more adaptive to allow community learning by taking approaches such as FSR out into the field so that communities could learn from their mistakes.26

The social sciences and the use of Rapid Rural Appraisal (RAA) - outlined earlier, in Chapter Three - were thought to be avenues to achieve these advancements by obtaining more knowledge on how low income producers survive through the identification of their problems, priorities, resources, and the institutional and social structures in which they operate.27 Dunn had suggested that RRA could have a place in Australian extension to assist in solving issues surrounding complex problems (e.g. sustainable agriculture which was gaining increased recognition) by closing the gap between research and adoption. He saw RRA as a solution to help producers see the relevance or gain a better understanding of research recommendations, and improve research and extension professionals understanding of how producers look at and solve problems.28

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26 Pickering (1984:3-5); Ashby and Coward (1980:520-23); Odell (1986:175-76)
27 Odell (1986:175-76)
Although it is commonly assumed that science, production and financial considerations are the main drivers for capital intensive agriculture, various Australian authors (e.g. Vanclay 1992; Guerin and Guerin 1994; Fujisaka 1994; Roberts 1995; Vanclay and Lawrence 1995; Kilpatrick 2002; and Pannell et al 2006) suggest that other factors, such as those in Table 4.1, influence adoption. Some parallels to those of the developing nations in the 1980s exist, such as the social influences in decision making.

Table 4.1 Considerations for Adoption

<table>
<thead>
<tr>
<th>Category</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td>Costs (including capital and intellectual training), the advantages of the innovation, incentives, level of risk, and external financial support.</td>
</tr>
<tr>
<td>Production</td>
<td>Observable results, applicability, complexity and compatibility of the innovation with other farming practices and personal objectives, flexibility (increase in or inhibits), conflicting information, lack of appropriate infrastructure, environmental perception, innovation divisibility so that producers may adopt parts of the innovation, opportunity to take advantage of economies of scale and trial-ability.</td>
</tr>
<tr>
<td>Psychological</td>
<td>A person’s personality traits, beliefs, values, level of risk and motivation, fear, insecurity of change, and rationale for farming (e.g. lifestyle).</td>
</tr>
<tr>
<td>Social and Cultural</td>
<td>The level of interest in the adoption by other producers (i.e. the influence of the farming subculture); how producers and their families engage with each other and their social systems (e.g. the nature of their links and networks – various sources of information, organisational membership); and the effects of peer pressure.</td>
</tr>
<tr>
<td>Geographical Location</td>
<td>Location of property from resources (e.g. water, fuel supplies, etc) and markets.</td>
</tr>
<tr>
<td>Level of Exposure</td>
<td>Level of exposure to an innovation through their social networks, extension and/or marketing avenues.</td>
</tr>
<tr>
<td>Education</td>
<td>Costs, time, motivation or abilities in learning.</td>
</tr>
<tr>
<td>Govt. Policies</td>
<td>Industry restructuring, subsidies and trade agreements.</td>
</tr>
</tbody>
</table>


4.3 Inclusion of the Social Sciences

The involvement of rural sociology in agricultural development was limited up to the early 1980s. Newby proposed that it had failed to “develop a systematic analysis of agricultural production at the enterprise level and in the overall agrarian structure”. Internationally, its lack of involvement was attributed to interest generated from the Diffusion of Innovation theory, whose persistence in industrialised countries was put down to the successful diffusion of ideas through ‘word-of-mouth communication’ and concerns for professional credibility.

In the United States, rural sociology was seen to assist in disadvantaging small-scale producers and the underprivileged, as it had little to do with agricultural production other than the diffusion of technical innovations which favoured the resource-rich. Agriculture was considered more of an economic activity, only having a small effect on the values, culture, and folkways of rural people. Problems in the methodologies used and rural sociology’s theoretical framework, based around the rural-urban continuum, were also identified along with: a low level of recognition among the sociological profession; the institutionalisation of the discipline in agricultural colleges; and the Land Grant University system did not foster an environment for intellectual creativity and debate.

By the early to mid-1980s social scientists in general across the world were more interested in the ‘alternative’ or ‘sustainable agriculture movement’ (discussed later and in Chapter Nine). Rural sociologists focussed their efforts towards analysing the “structure of agriculture, state agricultural policy, agricultural

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Professor Sir Howard Newby is an English rural sociologist best known for shifting “the discipline towards the study of power in local communities.” His research has focussed on rural farmers in Britain while employed within the Department of Sociology at the University of Essex for 21 years, and is currently the Vice-Chancellor at the University of Southampton. His most prominent publications include: *The Differential Worker, Community Studies, Property, Paternalism and Power* (co-authored with Colin Bell); *Social Class in Modern Britain; The Problem of Sociology; and Green and Pleasant Land?* (University of Sussex (2006) Professor Howard Newby. University of Sussex, http://www.essex.ac.uk/vc/orate2000/Newby%20Oration.rtf, Accessed 20 November 2006).


labour, regional inequality, and agricultural ecology”. These interests formed the ‘sociology of agriculture’ concept:

“a generic term encompassing international agriculture including the organisational impact of international agricultural development agencies, research on biotechnical innovations in agriculture, analysis shifts in land tenure and other organisational characteristics of agricultural enterprises, and other changes in a world agricultural system”.  

Experimentation with multidisciplinary teams, involving socio-economists and technical specialists, using the Sondeo approach to RRA was conducted by Hildebrand in Guatemala. His research demonstrated that multidisciplinary teams could be effective in obtaining information on rural conditions and educating the participants towards multidisciplinary thinking if well managed. Characteristics that were required to achieve this involved each person being well trained in their area of expertise, having a working understanding of other fields and contributing to them, people not being defensive of themselves or their field, final outcomes being viewed as a joint effort, and a single product being identified by all who participate in the activity.  

Despite the increase in social science activity and interest, Buttel and Busch remarked that in America, at least, social scientists had done little to change agriculture policy relating to the “U.S. and global farm crisis”. The continued debate over the involvement of rural sociology in the 1980s meant that social anthropology was embraced, which took a more holistic approach to the study of cultures and focussed on longer-term participant observation. Subsequently, work was undertaken to educate professionals to have a greater appreciation of the knowledge of rural people and “to distinguish the etic – the outsider’s mental frame, categories and world view, - and the emic – those of the insider”.

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34 Christenson and Garkovich (1985:519)


37 Social Anthropology is “the study of the entire range of cultures and societies in the world”. It originally focussed on non-Western and so-called primitive societies, whereas sociology had a Western focus. This difference meant the theoretical and methodological approaches varied. For sociologist, the context in which they operated was taken for granted as they usually studied their own society, whereas social anthropologists did not have this context to work within and therefore took a more holistic approach to their research. The theories of ‘diffusion’ and ‘migration’ arose from anthropology, where it was thought that similarities between cultures were a consequence of one culture influencing another, or by movement of people. Modern social anthropology has relevance across cultures and standardised long-term participant observation. It “aims to make other cultures familiar and the anthropologists culture strange, exposing the taken for granted as in need of explanation.” (Scott, J. and Marshall, G. (2005) Social Anthropology. In Oxford Dictionary of Sociology. Oxford University Press, Oxford, pp.603-5)

38 Chambers (1994:957)
The eventual inclusion of the social sciences in the late 1980s, internationally, resulted in more attention towards

“information and knowledge systems, on the interfaces between system components and between the information system and other social systems, and on the consequences of technological change”.39

(Further discussion on information and knowledge systems is provided in section 4.5 A Systems Perspective.)

Although the success of the Diffusion of Innovations theoretical model persisted in industrialised countries - most likely due to the influence of social anthropology, which utilised ‘diffusion’ and ‘migration’ theories - there was a growing recognition that inequalities between producers was occurring.40 In 1992 Molnar et al. remarked that current agricultural systems in America including the input supply infrastructure, marketing and transportation, favoured larger, usually white and wealthier, producers and specialised localities.41 This in turn, supported the diffusion of innovations as these people had the capacity to make “the” adaptations required. However this meant that the transfer of technology was not consistent across the community.

Similar biases in Australia sustained the 1960s focus on expanding property sizes to improve economies of scale. Consequently, over half of the outputs and returns in Australian broadacre industries were being produced by 20 percent of the best producing farms into the late 1990s.42 The recognition of the social aspects of rural areas by governments did bring a shift towards rural community and social policy development, rather than focussing on agriculture policy alone in the late 1980s.43 RRA had been experimented with by the mid-1990s, showing similar experiences to developing countries,44 but the lack of involvement by the social sciences led to calls for more socially based research in agricultural systems.45

Regardless of the advances in recognising the importance of the social aspects in Australian agriculture by academia, the absence of social science training of extension officers was observed by Vancaly and Lawrence in the mid-1990s,

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40 Refer footnote 41 for further explanation of social anthropology.

41 Scott and Marshall (2005:603-5); Molnar et al. (1992:83-91)


43 Hale and Ashton (2002:189)

The Bureau of Rural Sciences was established in 1986 to provide scientific input to agriculture policy development to manage Australia’s resource base. The *Social Atlas of Rural Australia* collated information on rural populations, labour force and employment, income, education and health (Hale and Ashton 2002:137).

44 Dunn (1994)

45 Dunn (1994)

Dunn, for example, has commented that “there is a need to study and research the ‘culture’ in agriculture; to recognise the importance of people in the system because as sure as they are part of the problems that must be addressed, they must also be part of the improvements that are needed.”
highlighting the gap between government policy and program implementation. By the late 1990s the majority of Australian research scientists still viewed Transfer of Technology (TOT) as the concept supporting extension. The notion that extension is a social process that changes people’s behaviour was still virtually unrecognised by both researchers and extension officers. This meant that the TOT and the Diffusion of Innovations language and thinking were still being incorporated into agricultural research and extension programs. In the 2000s rural sociology was still only in its early stages of development.

Globally, the concept of social capital, with its accompanying economic connotations, began to gain attention in agriculture from the late 1990s, particularly in industrialised countries. The concept, discussed in more detail in chapters Seven and Eight, emphasised the importance of networks, norms and trust in helping to solve rural decline and in some cases achieve broader national economic goals. The concept of human capital, contained in individuals own knowledge, was also gaining attention as it was believed that it effected producers performance.

The improvements in acknowledging what the social sciences in agriculture have to offer internationally, has meant that extension is increasingly becoming more interested in how people make sense of the activities in which they are involved. To accommodate this change, extension agents are taking on facilitation and coordination roles rather than those of an ‘expert’ as producer participation is encouraged.

### 4.4 Increased Participation

A solution to the problem of inequality was to complement local and scientific knowledge by allowing producers to be active participants in transferring technology, rather than passive receivers. Producers had been involved in research and extension experimentally in developing countries since the 1970s, but the practice was virtually unrecognised in ‘modern’ industrialised nations.

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48 In the latter part of the 1990s the Australian Government formed a Social Science Centre within the Bureau of Rural Sciences (BRS) to provide input into agricultural policy development (Hale and Ashton (2002:189).

In the 1980s producer participation was at the forefront of the development literature. Discussions on participatory evaluation, participatory research (including the activities of research, education and action), participatory action-research and participatory field-action were also popular. The array of uses for the term raised the issue of finding a universal meaning, or at least consensus, on what was meant by ‘participation’. These discussions coincided with a global debate on the meaning and role of extension as more interactive extension models involving producers, were experimented with (see Figure 4.1).  

In addition to targeting projects that were more relevant to producers by utilising their indigenous technical knowledge, it was thought that increased participation would help sustain producers beyond project investment periods and foster ‘self-reliance’ (a concept given more attention in Chapters Five to Seven).

Figure 4.1  Interactive Model of Extension

NOTE:  This figure is included on page 75 of the print copy of the thesis held in the University of Adelaide Library.

The growing trend towards producer and community group participation continued into the 1990s. The focus of extension moved from teaching to learning with a concentration on ‘how’ learning occurs rather than ‘what’ is learnt. Action Research and Action Learning methodologies (discussed in Chapter Two) were popularised as avenues to achieve greater participation. This led to a significant number of approaches being developed, such as

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Pretty and Chambers (1994:183)

Russell (1986:159-60); Petheram and Clark (1998:109)
Participative Action Research (used in adult education from the late 1970s), Farmer Participatory Research, Participatory Problem Solving, Participatory Rural Appraisal and Participatory Farming Systems Development. These models all held concepts similar to that of Farming Systems Research, but were more community focussed, rather focussing on producers within a defined farming system.  

The emergence of these approaches saw producer and community participation touted widely internationally and incorporated into most programs. Molnar et al had observed in the early 1990s, as Penders had in the 1950s, that the developing and industrialised worlds were not dissimilar, although the level of sophistication may vary. By the late 1990s, Lutz et al had described the broadening out of agricultural development programs beyond agricultural practices to include the ‘community’ and ‘rural development’ as a result of the

“Limited success of central, top-down approaches to development [which] has led to the recognition of the need for participatory community-driven development, …[being] a process in which community groups initiate, organize, and take action to achieve common interests and goals…. [the success of which] is generally characterised by five factors: local organisational capacity or the existence of viable community groups, an appropriate fit of technology to community capacity, effective agency outreach strategies, client-responsive agencies, and enabling policies”.  

The inclusion of greater producer and community participation has been undertaken in a range of ways in the last 25 years. The remainder of this section observes the types of participation and the connections with government ideals. This is followed by a look at some of the most prominent models. Although most models developed from the 1980s include some form of participation, some are also addressing other movements or advances in agriculture and rural education, and as a consequence are outlined in the following sections. This section will revisit the Training and Visit System, as an example of producer-to-producer extension and organisational change from the 1970s, and observe the emergence of the Farmer-First-and-Last and Participatory Rural Appraisal models popularised in the 1990s.

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Molnar et al (1992:86) had noted that “Farmers, be they Third World or American, know more about their farms – their specific local conditions and environment – than do agricultural scientists. The inventiveness or success of some farmers is based on their adaptiveness to local conditions, but it is not clear how often these local solutions are applicable to a widespread number of situations.”
Penders had stated in the 1950s that “the problem of less developed countries has much in common with that of less developed areas in a more developed country, where the overall development did not, in general, proceed along harmonious lines” (Penders 1956:99).
4.4.1 Government and Participation Types

In Chapter Two it was observed that participation had been central to adult education in English speaking countries since the early 1900s through the work of John Dewey. From the 1960s, it gained popularity in adult education and agriculture extension, coinciding with a debate on the ideas of citizen participation and control. Participation programs instigated by governments were generally viewed with scepticism of their intent to give citizens greater power in planning and defining programs in the context of urban environments. Sherry Arnstein’s paper, *A Ladder of Citizen Participation*, proposed eight forms of participation that ranged from non-participation to degrees of tokenism through to degrees of citizen power (see Figure 4.2).  

![Figure 4.2 Arnstein’s Eight Ranges on a Ladder of Citizen Participation](image)

In the 1990s agriculture underwent similar discussions. The growing emphasis on participatory based approaches meant that extensionists were taking a facilitation rather than ‘expert’ role but, with the increased use of the term, there were various interpretations as to what ‘participation’ meant. To gain some clarity around the terminology Jules Pretty gave an agricultural perspective by defining six types of participation and their characteristics in 1995 (see Table 4.2).  

Pretty begins with ‘manipulative participation’, as did Arnstein, defined as being present at a gathering but having no power. In Australia this would include activities such as farmer field days or seminars where the participants are passive receivers of information. At the other end of the spectrum Pretty proposes ‘self-mobilisation participation’, where people make all the decisions independent of external institutions, akin to Arnstein’s ‘citizen control’. Research outside of

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Figure 4.2 is adapted from Arnstein (1969:217).

60 Marsh and Pannell (1999); King (2001:7)

61 Table 4.2 is adapted from Pretty (1995:1252).
agriculture has proven that ‘interactive’ and ‘self-mobilisation’ participation needs to occur if initiatives are to have a lasting effect.62

Table 4.2  Pretty’s Typologies of Participation

<table>
<thead>
<tr>
<th>Typology</th>
<th>Characteristics of each type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manipulative participation</td>
<td>Participation is simply pretence. “People’s” representatives on official boards but who are unelected and have no power.</td>
</tr>
<tr>
<td>Passive participation</td>
<td>People participate by being told what has been decided or has already happened.</td>
</tr>
<tr>
<td>Participation by consultation</td>
<td>People participate by being consulted or by answering questions from external consultants who are under no obligation to reflect other people’s views.</td>
</tr>
<tr>
<td>Participation for material incentives</td>
<td>People participate by contributing resources, but are not involved in any experimentation or learning processes. There are no long-term incentives once the practice or experiment has ended.</td>
</tr>
<tr>
<td>Functional participation</td>
<td>Participation is seen by external agencies as a means to achieve project goals, especially reduced costs. People may participate by forming groups to meet predetermined objectives related to the project. Such involvement may be interactive and involve shared decision making, but tends to arise only after major decisions have already been made by external agents. At worst, local people may still only be coopted to serve external goals.</td>
</tr>
<tr>
<td>Interactive participation</td>
<td>People participate in joint analysis, development of action plans and formation or strengthening of local institutions. Participation is seen as a right, not just the means to achieve project goals. The process involves interdisciplinary methodologies that seek multiple perspective’s and make use of systemic and structured learning processes. As groups take control over local decisions and determine how available resources are used, so they have a stake in maintaining structures or practices.</td>
</tr>
<tr>
<td>Self-mobilisation</td>
<td>People participate by taking initiatives independently of external institutions to change systems. They develop contacts with external institutions for resources and technical advice they need, but retain control over how resources are used. Self-mobilisation can spread if governments and NGO’s provide and enabling framework of support. Such self-initiated mobilisation may or may not challenge existing distributions of wealth and power.</td>
</tr>
</tbody>
</table>

By the end of the 1990s concerns emerged over the use of group extension approaches as a means of participation.63 These related to their effectiveness in varied situations; members ongoing commitment; exclusion of participants who may be of value to an issue; vested interests by some group members; reliance on producers of being aware of their own problems; and ability to address


63 Marsh and Pannell (1999); King (2001); Vanclay and Lawrence (1995a:124-25)
sustainability and environmental concerns. King had noted in her PhD thesis, *Systematic Processes for Facilitating Social Learning*, that extension practitioner’s in India and Australia often used inadequate tools to facilitate participatory and social learning programs. This was because they did not realise the complexities involved (such as people’s different perceptions of reality, cognitive styles, power relations, and cultural and institutional systems). Hence the experience and knowledge of a facilitator would determine the level at which participation could occur.

In Australia, it is still common for producers to rely on external input to determine what they are going to learn, and manage the process of learning and organisation. Although participation in programs is often said to be obtaining interactive and self-mobilisation, Australian extension predominately occurs between the passive and functional participation levels. Vanclay and Lawrence had noted that confusion surrounds ‘bottom-up’ extension or processes that allow producers to determine their learning:

“To some, bottom-up extension is any process that involves consideration of farmer concerns. To others, farmer involvement is something of a pretence since the agency is still firmly in control of the agenda [e.g. Pretty’s functional participation]. Complete bottom up extension is a process that empowers and facilitates farmers to use their own agendas. They are encouraged to find solutions to the problems that they themselves have identified. In this process, the role of extension agents is not so much the extension of knowledge but of group facilitation….As part of the philosophy of bottom up extension, farmers must be free to make mistakes”.

The increased push for participation brought the issue of power relations between government, communities and producers to the foreground in terms of who benefits and how much control governments should relinquish. Generally, participation is considered to be an important concept in learning, originating as an alternative to the structural chain of command in capitalist production. The concept can be problematic, in that individual commitment can vary as can learning activities, and programs do not generally define what is expected of the participating learner. Although adult education has adapted to concepts such as ‘learning society’ and ‘knowledge society’ they, and many other concepts, have generally become distorted.

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64 Marsh and Pannell (1999); Vanclay and Lawrence (1995a:124-25)
65 King (2001)
67 Vanclay and Lawrence (1995a:125)
69 Mayo (1999:2-3)
70 Tight (2000:129-31)
71 Finger and Asún (2001:124)
Peter Mayo also cites participation as a victim of capitalism, in diluting its meaning.\textsuperscript{72} Concepts such as ‘empowerment’ and ‘active citizenship’ – often associated with participation – which suggest liberation, have also been hijacked and are now being used as methods to shift social responsibilities from governments to individuals, families and community’s.\textsuperscript{73} In *Participation: the new tyranny?*, Cook and Kothari have also noted the variations in meaning and application of ‘participation’ in the public and private sector for developmental work, along with the various claims of ‘empowerment’.\textsuperscript{74} Further attention is given to this topic as it relates to agriculture in Chapter Seven.

The motivation of Australian governments to support group extension programs has started a debate on whether group approaches, and the increasing onus on the community, provide a convenient avenue for governments to withdraw services and funding to agriculture.\textsuperscript{75} Gray *et al* had noted that participatory models in extension and research still do not account for the interests of all producers, since “participation is inherently a political process in which the interests of some participants may be served more readily than others”.\textsuperscript{76} The Landcare Movement (discussed later) is considered an example of this, where ‘participatory environmental governance’ has occurred through neo-liberal approaches to rural restructuring.\textsuperscript{77}

The range of forms, and interpretations, of participation that have come to exist in agriculture emphasises the need to clarify what type of participation is desired in program development and implementation. The models discussed in the remainder of this section are examples of where greater producer and community participation have been attempted.

\textsuperscript{72} Mayo proposed that the concept of participation as been eroded “in such a way as to make it an integral feature of the dominant discourse…[and] appropriated [it] in a neo-liberal context even outside the sphere of production, in the larger public domain”. He cites the example of ‘community development’ in his argument, which Cunningham refers to as being ill-defined and often used to take advantage of weaker sectors of society by the dominate groups (Mayo (1999:2-3; Cunningham 1996:58).

\textsuperscript{73} Mayo (1999:2-3)


Bill Cooke and Uma Kothari are located at the Institute for Development Policy and Management at the University of Manchester. Cooke’s interests include change management, organisational behaviour, development management, and history of development and management. Kothari has performed research and consultancies in Mauritius, India and Egypt.

\textsuperscript{75} Vanclay and Lawrence (1995a:124-25)

\textsuperscript{76} Gray *et al* (1997:97)


The aim of neo-liberal rural policy is to “bring farmers closer to international market signals” by encouraging policies based on “economic individualism” (freeing up of markets to allow development). It removes protective mechanisms that regulate currency and capital flow and have allowed for collective marketing power. This results in increased economic risks to farmers who do not have adequate levels of capital (Martin and Ritchie 1999:118; Gray, I. and Lawrence, G. (2001) Neo-liberalism, Individualism and Prospects for Regional Renewal. *Rural Society*. Vol.11(3), p.283).
4.4.2 Revisiting the Training and Visit System

The Training and Visit (T&V) system outlined in Chapter Three, and variations of it, expanded rapidly in the late 1970s to mid-1980s. The system focused on technological innovation but was concerned also with human resource development through its re-organisation of existing extension services. T&V was sometimes viewed as an organisational structure with many field personnel, rather than identifying ways that these could be utilised better. The extent to which the T&V structure was implemented was often dictated by the degree of difficulty in changing a government’s organisational structure and its operations. In some countries T&V was described as a “slightly changed progressive farmer approach”. In others, such as Zimbabwe, the system was modified to deliver more targeted technologies to small-scale farmers.

Generally, better links were shown to develop through producers’ increased exposure to research information from improved extension services. However, where trained support for producers had been limited, T&V was appropriate only in those areas considered to be high potential - such as sub-Saharan Africa for crops of highland maize and coffee, cotton and sorghum. Other various difficulties were noted across India, Thailand and Africa, including the complexities involved in restructuring and implementing the system; physical segregation of extension and research organisations, which took a top-down approach; inadequate information on how the system had affected various agronomic, social or economic processes; lack of field focus, communication, and poorly defined roles; lack of data on production and adoption rates; and a lack of concentration on research that is adaptable to meet the producers needs. The latter was to some extent due to scientists’ contact primarily with resource-rich producers, who did not question the research activities as they were capable of adopting the new technologies.

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79 In the 1970s, The World Bank invested over US$1 000m to US$4 700m in the 1980s (Farrington 1995:538).


81 Cernea et al (1984:147)

82 Röling (1988:28)

83 Cernea et al (1984:143)

84 Cernea et al (1984:144)


86 Chambers and Ghildyal (1985:12)
Sociological research on T&V, including the diffusion of information from the contact producers to their peers, was shown to not necessarily occur and limited theoretical progress had been made since the development of the Two-Step Model of Communication Flow. Some sociologists suggested that marginally positioned individuals should be included in the model, rather than just the ‘opinion leaders’, to bridge community communications. Improved training and reduced costs of the village extension worker’s (VEW), and producers to select their own VEW’s, were also suggested as avenues to improve the advice provided by extension workers, along with improved relevance of extension to the producers; better links with research; increased producer participation; increased support from sociologists and behavioural researchers to find more effective ways to communicate and transfer technological information; and further monitoring and evaluation.

Despite undergoing further modifications to offset the biases inherited from the TOT model and encouraging closer communication between researchers and producers, T&V was considered ineffective by the mid-1980s. Cernea proposed that part of the problem lay in the system being understudied in order to be able to fully understand its impact on producers’ behaviour from the technical and sociological-cultural points of view. Later in 1995, Pretty had remarked that it was not obvious whether it was the model itself, or the way it had been institutionalised that was the cause of its failure.

Anderson and Feder had the last word in 2003, reporting on extension services for the World Bank:

“the most crucial factor that eventually brought about the dismantling of the T&V extension system was the lack of financial sustainability, a generic cost made worse by the higher cost of the system. As the ability to demonstrate impact was not improved, there was not significant change into the political commitment to support extension, and, in country after country, even in long-faithful India, on the World Bank ceased funding (assuming that the new system has been "mainstreamed"), the local budget process implied a return to the smaller funding levels of the past. With lower funding, the T&V system could not be sustained and hard-pressed governments have struggles with downsizing options, in some cases supported directly by bilateral donors, and inevitably coupled with other extension reforms.”

88 The Two-Step Model of Communication Flow or Two-Step Communication Process, is where information is passed from the extension worker, to opinion leaders and then to the majority of farmers. Caution needs to be taken to ensure that the information does not stop at the opinion leaders, who are a member of a small group that has influence on others in the community (Hawkins et al 1990:16-17).
90 Chambers and Ghildyal (1985:12); Pretty (1995b:188)
91 Cernea (1984b:134)
93 Anderson and Feder (2003:18)
4.4.3 Farmer-First-And-Last

The Farmer-First-and-Last (FFL) model was developed in the mid-1980s by Chambers and Ghildyal in response to the failure of the TOT model and its modified versions with resource-poor farmers (e.g. T&V, Operational Research Project and All India Coordinated Crops Improvement Projects). Considered to be the reverse to previous learning and research strategies, FFL required an opposing mindset in promoting the acknowledgement of rural people’s knowledge and a better appreciation of producer’s needs. It differed from TOT in its rationale for the non-adoption of technologies, learning, and location (see Table 4.3). For example, non-adoption in FFL was the result of deficiencies in the technology and how it is generated, rather than the fault of the producer. FFL demanded that: (1) research and development should begin and end with the producer; (2) scientists should learn from the producer by having them identify their research problems and priorities which relate to their needs and opportunities, rather than the researcher identifying their preference for an area of research; and (3) research should be conducted on the farm with the producer, with research stations and laboratories being used for referral and consultancy roles only.

Table 4.3 Contrasts in Learning and Location – Comparisons between TOT and FFL

<table>
<thead>
<tr>
<th>Model Features</th>
<th>TOT</th>
<th>FFL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research priorities and conduct determined mainly by</td>
<td>Needs, problems, perceptions and environment of scientists</td>
<td>Needs, problems, perceptions and environment of farmers</td>
</tr>
<tr>
<td>Crucial learning is that of</td>
<td>Farmers from scientists</td>
<td>Scientists from farmers</td>
</tr>
<tr>
<td>Role of farmer</td>
<td>‘Beneficiary’</td>
<td>Client and professional colleague</td>
</tr>
<tr>
<td>Role of scientist</td>
<td>Generator of technology</td>
<td>Consultant and collaborator</td>
</tr>
<tr>
<td>Main research and development location</td>
<td>Experiment station, laboratory, glasshouse</td>
<td>Farmers’ fields and conditions</td>
</tr>
<tr>
<td>Physical features of R&amp;D mainly determined by</td>
<td>Scientists’ needs and preferences, including statistics and experimental design</td>
<td>Farmers’ needs and preferences</td>
</tr>
<tr>
<td></td>
<td>Research station resources</td>
<td>Farm-level resources</td>
</tr>
<tr>
<td>Non-adoption of innovations explained by</td>
<td>Failure of farmer to learn from scientist</td>
<td>Failure of scientist to learn from farmer</td>
</tr>
<tr>
<td></td>
<td>Farm-level constraints</td>
<td>Research station constraints</td>
</tr>
<tr>
<td>Evaluation</td>
<td>By publications</td>
<td>By adoption</td>
</tr>
<tr>
<td></td>
<td>By scientists’ peers</td>
<td>By farmers</td>
</tr>
</tbody>
</table>

94 Robert Chambers’s contribution to extension has previously been discussed in Chapter Three.
95 Hoare (1986:138); Chambers and Ghidyal (1985:22-3); Scoones and Thompson (1994:2)
Table 4.3 is adapted from Chambers and Ghildyal (1985:23).
In 1989 Robert Chambers, Arnold Pacey and Lori Ann Thrupp edited *Farmer First: farmer innovation and agricultural research*, which promoted the acknowledgement of rural people’s knowledge in order to better appreciate producer’s needs. The authors acknowledge the difficulties of making the producer central to research at organisational and professional levels. Although researchers generally agree that producers and farm family issues should be addressed, the integration of farmer-first methods into approaches such as FSR, RRA and Farmer Participatory Research have varied significantly, with some having no direct involvement at all. Chambers et al warned that researchers were likely to address the wrong problems if they presumed to know what producers and farm families wanted and needed. Additionally, the recognition of producers’ “knowledge and innovative capacity” did not mean that extension services were not required. Rather, extension needed to be developed to overcome gaps in communication, and promote the “interaction between farmers and encouraging farmer-to-farmer extension” through facilitation.

Pretty and Chambers later identified that the integration of the farmer-first approach into mainstream practice needed an “effective combination of professional and institutional elements, including a deeper understanding of the linkages between knowledge, power, research and extension; the adept use of participatory methodologies; the embracing of new attitudes, behaviours and professional norms; and the creation of enabling institutional structures and flexible organisational procedures”.

In response to the vast changes occurring in extension from the influence of the FFL model, Scoones and Thompson published *Beyond Farmer First: rural people's knowledge, agricultural research and extension practice* (1994). It investigated the “populist conception of power and knowledge” which some believed *Farmer First* had not addressed and therefore had similar problems to the TOT model. In addition, it “analyse[d] questions of difference by asking ‘whose knowledge counts?’; and dispelled the notion that agricultural transformation is a straightforward process that can be improved simply by the interventions and innovations of sensitive external support agencies”.

### 4.4.4 Participatory Rural Appraisal

Participatory Rural Appraisal (PRA) evolved from RRA and was initially utilised as a method within FSR in developing countries. The greater input by producers in PRA made it less threatening than other approaches. Although developed in

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98 Scoones and Thompson (1994:181)

99 Beyond Farmer First arose from a project instigated by the Sustainable Agriculture Program of the International Institute for Environment and Development (Scoones and Thompson (1994).

100 Scoones and Thompson (1994:2)
the mid-1980s, it wasn’t adopted to any great extent until the 1990s by international non-government organisations.101

Described as a “family of approaches and methods”, PRA incorporates aspects of social anthropology.102 It is sometimes described as being Participation, Reflection and Action, as it intends to allow local people to share and have more ownership in the information collected, conduct their own analysis of their knowledge, develop a plan and take action. It is in this feature that PRA differs from RRA, where someone from outside a community acts as a catalyst in stimulating the awareness of issues. Activist Participatory Research, Agroecosystem Analysis, applied anthropology, field research on farming systems, and RRA have all helped form PRA. In most cases the emphasis for PRA has been on its practical implementation with limited attention to the theory that supports it. Additionally, it is not clear what is meant by ‘community’, ‘participation’ and ‘learning experience’ when discussing PRA.103

The information gathered through PRA can be fed into FSR to identify the main constraints of farming systems.104 As for FFL, some concerns have been raised that the information obtained may be biased towards specific groups particularly where power, authority and gender inequalities occur.105

4.5 A Systems Perspective

From the 1990s, systems methodologies evolved in various ways to try and understand the complexities in agriculture. They have gone beyond the initial developments in FSR and Agroecosystem Analysis to include participatory approaches (e.g. Participatory Farming Systems Development), knowledge, learning and knowing systems, and greater acknowledgement of the environmental and social aspects influencing farming. These changes emerged

102 Chambers (1994:953-58)
Examples of the social anthropology approaches include “the idea of field learning as flexible art rather than rigid science, the value of field residence, unhurried participant observation, and conversations; the importance of attitudes, behaviour and rapport; the emic-etic distinction; [and] the validity of indigenous technical knowledge” (Chambers 1994).
Activist Participatory Research (APR) was inspired by the work of Brazilian educationist Paulo Freire in the 1960s. APR focused on the underprivileged and political action that threatens established interests. It sought to empower people by improving their awareness and confidence. Two related schools of thought exist in APR: participatory research, developed in the mid 1970s through the Adult Education Movement, and PAR, which has overlapped with participatory research in agriculture and industry (Chambers 1994:954; Dunn 1994).
Applied anthropology generally focuses on understanding culture and place (Dunn 1994).
104 Petheram and Clark (1998:106)
along with ‘farming systems analysis’ to gain an understanding of farming practice and a growing concern for the sustainability of systems.\(^{106}\)

In 2000 Bawden described the developments in systems theories, principles, philosophies and methodologies as a ‘systems movement’. In his paper, *Of Knowing ‘Systems’ and Change*, he outlined the key characteristics which support the logic for the movement and, hence, systems thinking and practices, or systemics. Bawden described systems as forming a whole entity through the sum of interconnected parts, which are also systems, ‘subsystems’, or a higher order ‘suprasystem’, collectively referred to as a ‘halon’. This means that each system will vary due to the interactions between the components. The example in Figure 4.3 indicates the interrelationships between the systems. Although Bawden’s diagram does not appear to indicate interactions between the agricultural ‘system’ and knowing ‘subsystem’ (added as dotted arrows), he has referred to interactions both ‘within’ and ‘between’ systems and “the web of interactions…across the entire halon”.\(^{107}\)

*Figure 4.3  Bawden’s Agricultural System, Environmental Suprasystem and Knowing Subsystem*  


Figure 4.3 is adapted from Bawden (2000:4).
Bawden goes on to say that it is important to understand the interconnectedness, coherence and adaptation of systems to be able to effectively implement agricultural innovations, which to date has not been appreciated, let alone the inclusion of ‘knowing systems’.\footnote{Bawden (2000:2-4)}

Walter Stern and Ian McClintock, from Australia, defined farming systems by incorporating sustainable agriculture (dealing with social, environmental and economic concerns), which had gained increased attention (discussed in more detail later).\footnote{Stern, W.R. and McClintock, I.C. (1999) The Farming Environment. In Robertson, A. and Watts, R. (eds.) Preserving Rural Australia: issues and solutions. CSIRO Publishing, Collingwood, p.11; Wilson, J. (1995) Changing Agriculture: an introduction to systems thinking. Kangaroo Press Pty Ltd, Kenthurst, p.7.} However in doing so, the general overall tone used in their description is predominately economically and production centred, which reflects the government policies of the time: the environmental aspects are considered as a means to achieve economic ends, and the social aspects are discussed within the broader community context.

Although systems methodologies have gained some ground since they first appeared in the 1970s, they are still seen to be under-utilised and under-researched in the areas of natural resource research and development in relation to farming.\footnote{Ison, R., Maiteny, P.T. and Carr, S. (1997) Systems Methodologies for Sustainable Natural Resources Research and Development. Agricultural Systems. Vol.55, p.257.} It has been stressed that in dealing with agricultural problems, a whole-system viewpoint needs to be taken. Farming Systems Research and Extension (FSR/E), and the range of other system approaches on offer, are seen as avenues to address complex agricultural problems and develop more sustainable farming systems by taking a logical approach to interpreting what is occurring.\footnote{Alessi, R.S., Oberle, S. and Mayhew, M.E. (1994) Systems Engineering Principles and Applications for the Design of a Whole-Farm Information System. Journal of Production Agriculture. Vol.7(1), p.137; Oberle, S. (1994) Farming Systems Options for U.S. Agriculture: an agroecological perspective. Journal of Production Agriculture. Vol.7(1), p.119.}

\section*{4.5.1 Developments in Farming Systems Research}

The benefits of FSR recognised during the 1960s and 1970s evolved into concerns in the 1980s that it was “bogged down in ponderous surveys and data
overload”\textsuperscript{112}. FSR’s primary focus was to find solutions to technical problems for multi-crop rain-fed farms, with a need to understand the requirements for each crop in the system and the importance of those crops to the producer.\textsuperscript{113}

The eventual incorporation of farming system ideas into extension meant that FSR evolved into a range of methods into the 1990s, such as:

- **Farming System Analysis** involving producers in little or no research but providing detailed descriptions and analysis of their farming systems.

- **Farmer Participatory Research** (FPR), focussing more on the ‘empowerment’ of producers, by having more ownership of the research being undertaken, rather than simply describing the farming system. However, in the late 1980s Chambers \textit{et al} had criticised the research in FPR as being usually “researcher-driven” with the topics “only within the researcher’s categories of thought”.\textsuperscript{114}

- **Integrated Farming Systems** strove to encourage the development of learning communities through the adoption of “more sustainable farming practices and systems” by identifying and overcoming barriers to achieving sustainable agriculture, and developing ‘leaders’ within the community.\textsuperscript{115}

Other approaches included the activities of agricultural extension (FSR/E) and rural development (FSR and Development (FSR/D)). The most notable aspect of these ‘improved’ models was the greater participation by producers in research and development; an increased systems perspective mainly influenced by Röling’s Agricultural Knowledge and Information Systems (discussed later), and the emergence of the FFL models.\textsuperscript{116}

The changes to FSR meant that it was not always clearly defined, as the various types were promoted by different schools of thought. Petheram and Clark portray FSR as taking a long-term approach that looks at all the components of a system that the participants believe to be important. To achieve this, it links people from different disciplines with producers to help solve their problems and test solutions. This differs from traditional research, which usually focuses on a singular discipline or commodity.\textsuperscript{117} In taking a multidisciplinary approach, FSR has benefits for farm families, researchers and policy makers.\textsuperscript{118}

\textsuperscript{112} Chambers (1994:955)
\textsuperscript{113} Cernea \textit{et al} (1984:146)
\textsuperscript{114} Petheram and Clark (1998:102); Chambers \textit{et al} (1989:103)
\textsuperscript{117} Petheram and Clark (1998:103-5)
\textsuperscript{118} Petheram and Clark (1998:103)
Additionally, the model format for FSR cannot be specified for its institutionalisation. In general terms, FSR and its evolved forms are cyclic in nature, involving action research and action learning approaches. It is assumed that the use of these approaches gives producers more ownership through greater participation, with the result being variation in producer activities and increases in adoption.\textsuperscript{119}

Although FSR has experienced some successes, it has been criticised in not meeting producer’s needs. For example, on-farm research commonly used in developing countries was usually conducted by producers but few experiments were designed and tested by them.\textsuperscript{120} In most cases the lack of consideration for producers’ needs has been a result of poor communication between producers and researchers, and inadequate training for the delivers of information. Research administrators educated in industrialised countries’ theoretical models, the neglect of political and institutional analysis, lack of willingness to learn from others, and ignorance as to how producers can participate have also been put forward as obstacles to success.\textsuperscript{121} This has led to some people, like Ison \textit{et al}, questioning whether FSR can be considered a systematic approach.\textsuperscript{122}

In Australia, FSR methodologies have been used since the 1990s and also attracted criticism. The knowledge of producers’ views and their farming systems are not well understood. FSR has had little uniformity across the states; is usually associated with ‘hard systems’ or computer modelling for the biological and economic aspects of farming; and is predominately used for small-scale producers who are generally not well serviced.\textsuperscript{123}

Difficulties in using FSR and FSR/E for natural resource management and sustainability issues beyond the farm gate have been noted, and that adjustments to research and extension have not been adequate. For example, problems have been experienced in addressing the natural and social-economic sciences together. In some cases this has led to land degradation, as a focus on components or commodities and/or productivity has overridden consideration for other systems interacting with these (e.g. environmental in the form of soil conservation).\textsuperscript{124}

Although FSR has not had great successes in Australia, Petheram and Clark propose that approaches like it could improve our understanding of the Australian producer’s knowledge. The TOT model is increasingly being seen as outdated for

\textsuperscript{119} Petheram and Clark (1998:102-3)

A typical FSR sequence of events generally includes the: clarification of objectives (e.g. policy and data base); selection of research sites; description of system (including RRA, enterprise monitoring, constraints, and site profile); design improvements; on-farm (and station) trials; communication of results to agencies, policy makers and producers; and evaluation for progress (Petheram and Clark 1998:102-3).


\textsuperscript{121} Ison \textit{et al} (1997:262)

\textsuperscript{122} Ison \textit{et al} (1997:262)

\textsuperscript{123} Norman \textit{et al} (1994:125-26); Petheram and Clark (1998:102, 109, 111); Mattee and Lassalle (1999:105)

\textsuperscript{124} Ison \textit{et al} (1997:257); Butler (1992); Petheram and Clark (1988:102)
complex systems, and producers are more likely to identify where improvements need to occur in their farming systems. Additionally, the success of FSR could be improved by having: an identifiable structure with activities that determine staffing and staff trained in its concepts. Leadership by a person with a holistic view is also considered important, as are strong links to regional priorities and development projects, skilled disciplinary research, recognition for participants and off-farm research, and peer review.\[125\]

4.5.2 Knowledge, Information, Learning and Knowing Systems

Awareness of knowledge systems grew in popularity from the mid-1980s as producers’ indigenous technical knowledge became more appreciated in terms of what it could offer research and extension. In Australia, producer knowledge contributions were still not seen as significant and little research into producer knowledge and innovation had been undertaken into the late 1990s. Again, this had been attributed to the support for Diffusion of Innovations and adoption studies that did not observe producer knowledge.\[126\]

In the mid-1980s Bunting had defined knowledge systems as containing five components: (1) an existing stock of knowledge held by people in their heads, libraries, books, journals, maps, surveys, reports etc; (2) a means of increasing knowledge by experience, surveys and research; (3) testing and developing knowledge - development part of research and development to fit it for practical use on-farm research; (4) practical application; and (5) dissemination of knowledge.\[127\]

In 1988, Röling put forward the idea of Agricultural Knowledge and Information Systems (AKIS) in response to the recognition of the involvement of multiple groups, organisations and individuals in rural development.\[128\] Described as being an application of soft systems thinking, AKIS focused on linkages between knowledge and information operating within systems.\[129\] Röling’s articulates the differences between knowledge and information in his publication *Extension Science* (1988) - knowledge is an inherent function of the individual’s brain, whereas information can be transmitted, therefore, knowledge can be generated and utilised but not transferred.\[130\]

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126 Millar and Curtis (1999:303)
128 King (2001:7)
130 Röling (1988:32-33)

Röling (1988:32-33) describes an ‘agricultural knowledge system’ as being “a system of beliefs, cognition’s, models, theories, concepts, and other products of the mind in which the (vicarious) experience of a person or group with respect to agricultural production is accumulated”. An ‘agricultural information system’, is agricultural information that is “generated, transformed, transferred, consolidated, received and fed back in such a manner
Later in 2000, Röling and Wagemakers proposed that AKIS could be used in the following ways:

“empirically to discover how social actors in agriculture,…..are linked together in the creation, adaptation, sharing, storage and application of knowledge and information; normatively, as a mental construct, to design ideal links and flows; analytically to guide interventions to ensure that the actors do, in practice, interact in ways that give rise to desired emergent properties, such as innovation. System boundaries can be drawn widely, to achieve goals such as a competitive and productive, and/or indeed a sustainable agriculture or narrowly to achieve goals such as the production of x-litres of milk per cow.”

Röling acknowledges that AKIS has been used in the past under different titles, but he believes that, to advance the science of extension and better guide the development of rural communities, these systems needed to be viewed as a part of extension science. By the latter part of the 1990s, Röling’s AKIS, and Engel, Salomon and Fernandez’s Rapid Rural Appraisal of Knowledge (RAAK) Systems (devised in the mid-1990s), had raised the recognition of agricultural knowledge systems. Programs such as FSR responded by increasing participation and interaction levels of those involved in their extension projects and programs.

Röling and Jiggins held that three types of knowledge systems now exist. First, TOT where the producer is the receiver of information. Second, farm management development, containing an economic focus with support provided to the producer to assist in improving profitability. Third, the not-yet fully described Ecological Knowledge System (EKS), that attempts to incorporate ecological thinking into agriculture through knowledge systems by concerning itself with the socio-sphere, where the conditions for sustainable agriculture are created through changes in policy, institutionalisation and behaviour.

For tackling natural resource management issues, system learning (or learning systems) have been suggested to be more useful than other approaches such as FSR. Systems Learning attempts to be inclusive of all peoples’ views in order to formulate a problem, by encouraging participation and acknowledging the validity of others’ points of view. Examples of ‘learning systems’ used from 1990 include Systems Agriculture, Participatory Learning, Participative Ecodesign and EKS. These have generally evolved from FSR through the FPR and the Beyond Farmer-

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131 Röling and Wagemakers (2000:16-17)
134 Röling and Jiggins (2000:283, 305-6).
First models. Like FSR, systems learning has been in existence for sometime and had some successes, but is still under-researched.\textsuperscript{135}

Bawden had noted that ‘knowing systems’ were sometimes referred to as ‘learning systems’, but held that they differed from ‘knowledge systems’ in that they are the “key activity within the process of construing, while knowledge is but the outcome of that process”. He believes that cognitive or knowing ‘systems’ are critical in achieving innovation in agricultural and rural development; and although the Systems Movement had created various systems practices - such as FSR/E, systems simulation modelling, and ‘soft’ and ‘critical system’ action research and development methodologies - they did not appreciate the nature and essence of systems, and the recognition of ‘knowing systems’ is virtually absent.\textsuperscript{136}

Coinciding with the Systems Movement was a greater appreciation to preserve the natural environment for future production efforts. This opened the door to better integrate agricultural and natural environmental systems.

### 4.6 Developing an Appreciation for the Natural Environment

Minor advances in managing natural resources for farming occurred prior to the 1980s. In Australia, activities such as the formation of state Soil Conservation Boards in the 1930s and 1940s grew out of concerns about extensive soil erosion by wind and water. By the 1970s voluntary producer groups were established to deal with emerging land degradation issues (refer to Appendix D for examples).\textsuperscript{137}

In the 1980s a greater consciousness developed about human impacts on the landscape and the need to preserve natural resources in order to maintain agricultural productivity. Soil conservation, including soil structure decline and acidification, and salinity were still on the agenda acting as the impetus to form


The University of Western Sydney-Hawkesbury developed Systems Agriculture out of a need to address the problem associated with the lack of integration between research, extension and curriculum education, which they saw as hindering the development of ‘sustainable rural communities’. Although similar to FSR/E, Systems Agriculture differs in several ways. It is essentially a soft systems approach which is “based on a learning perspective and an appreciation of agriculture as the interface between human societies and their natural environments – in which neither is prime;…[and] equates learning with research and problem solving”, whereas FSR/E was established from a production, or essentially ‘hard systems’ approach. It achieves the integration of research, extension (outreach) and institutionalised education along with the integration of learning and systems thinking, by having a strong theoretical base and utilising systemic action research techniques and people-centred techniques (Macadam and Sriskandarajah 1993:495-502).

In Farmer Participatory Research (FPR) farmers are central to the research and extension activities. Although it has been successful in some projects in others farmers are merely participants in researchers projects who set the terms, conditions and methodology of the research (Scoones and Thompson 1994:7).

\textsuperscript{136} Bawden (2000:2-9)

\textsuperscript{137} Campbell (1995a:127)
the Australian Soil Conservation Council and Advisory Committee, Murray Darling Basin (MDB) Ministerial Council, and MDB Commission.138

Globally, an increased attention to the preservation of landscapes and ecological diversity emerged in the mid-1980s, in response to continuing concerns for the maintenance of production systems. In 1987, the United Nations published the report *Our Common Future*,139 popularising the idea of ‘sustainable development’ as a possible alternative to the gloomy population growth prognostications of the Club of Rome’s *Limits to Growth* report from the 1970s (discussed further in Chapter Nine). Considerations as to what was required to maintain healthy social and environmental systems and economic viability were central to the sustainable development concept.140

*Our Common Future* assisted in providing the momentum for the development of Australia’s National Strategy for Ecologically Sustainable Development (NSESd) by the Commonwealth Government, also in 1987. The increase in environmental awareness by national and state governments and the public during the latter part of the 1980s, meant that research, development and extension agencies were to have goals, projects and policies that reflected environmental issues. An attempt to address ecological literacy among agriculture and land management professionals was also being conducted.141 These changes represented a shift in how agriculture should be viewed within the landscape, moving it from activities impacting within a fence line to potential effects off-farm.

By the 1990s an increased awareness of the environment and social concerns was evident internationally and the ‘sustainability movement’ had begun. Ecologically Sustainable Development (ESD) became more prominent, and the Natural Heritage Trust of Australia was formed in 1997, along with various natural resource management committees and councils with a focus on salinity and water resource management.142 The continued awareness of soil erosion and salinity redirected extension and research to more ‘community based’ programs, concentrating on motivating producers to help themselves.143 This was

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141 Hale and Ashton (2002:187-88); Dale (2001:4-5); King (2001:7); Campbell (1992:6)

142 Examples of NRM committees and councils formed include: National Landcare Advisory Committee, Water Reform Program by the Council of Australian Governments (CoAG), National Rangelands Management Strategy, and National Weeds Strategy National Action Plan (NAP) for salinity and water quality; NHT of Australia Act; National Land and Water Resources Audit; and a Discussion paper Managing Natural Resources in Rural Australia for a Sustainable Future (Hale and Ashton 2002).

143 Hawkins *et al* (1990:54); Hale and Ashton (2002)
demonstrated through the launch of The National Decade of Landcare in 1992, along with various other initiatives in the early 2000s such as the National Action Plan for Salinity and Water Quality.

The incorporation of sustainability into agriculture began to highlight the issues surrounding power relationships (as it had for increased participatory based programs mentioned earlier), usually discussed in political and organisational arenas. It was found that increasingly the theories previously used for agricultural extension, that focussed on the individual or communication through social relationships, were inadequate to deal effectively with these power relationships.144

The remainder of this section looks briefly at the debate surrounding sustainable agriculture. Further discussion on this topic is undertaken in Chapter Nine. This is followed by observing Australia’s most prominent land management program from the 1990s, Landcare.

4.6.1 Sustainable Agriculture

The farmer-focused organic farming and Sustainability Movements seen in the early- to mid-1990s evolved from the “farm family-based, balanced, farming program”, initiated in Missouri during the 1940s.145 Constant debate over what constitutes ‘sustainability’ has occurred from this time, with some criticising that it is poorly defined, over stated and no more than lip service with the focus still on improving the production aspects of farming.146 Various definitions of ‘sustainable development’ have also taken place, partly due to how various societies balance the social, ecological and economic considerations.147

Several suggestions on how ‘sustainable’ or ‘alternative’ agriculture could be achieved have been given. In the early 1990s Butler proposed that a cross section of primary producers need to be involved in developing new methods, rather than just the innovators. She suggested that it is desirable to have the macro-level issues involving sustainability addressed by the scientists, with the producers involved in micro-level concerns.148

By the late 1990s Bunch had noted that ‘sustainable agriculture’ did not depend on the technologies developed, since yield increases and agricultural development processes had been shown to continue once the technologies had gone. He believed it was the social processes of sharing information, innovation and group

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144 Gray et al (1997:97)
147 Dale (2001:3)
148 Butler (1992); Beus and Dunlap (1994)

‘Sustainable agriculture’ is sometimes referred to as ‘alternative agriculture’ (Beus and Dunlap 1994) and is given greater attention in Chapter Nine.
problem solving that maintained ‘sustainability’, not the developed technologies.\textsuperscript{149}

Black entered the debate in the 2000s, commenting on the applicability of the diffusion theory, still commonly used in Australia. He remarked that diffusion may not be suited to more complex practices such as agro-forestry and integrated pest management; and that there may be a miss-match between applying technologies which apply to short term production outcomes, to technical outcomes which aim for long-term, more sustainable and environmentally benign outcomes.\textsuperscript{150} Röling and Wagemakers made a further contribution by suggesting six elements that are required to move from conventional to sustainable farming: (1) agricultural practices at the farm and system level; (2) learning of practices; (3) facilitation of the learning; (4) support from institutional frameworks for facilitation, markets, science, networks of innovation and others; (5) conducive policy frameworks; and (6) management of the change.\textsuperscript{151} Due to the concerns raised about modern group participatory methods to solve environmental problems, some suggested that it may be better to combine new and traditional extension practices.\textsuperscript{152}

The complexity of achieving sustainability, such as the interconnections across various types of systems (e.g. natural, farming, and social), requires a greater range of expertise to assist producers in achieving sustainability goals. An Australian example of where this has been attempted is within the National Landcare Program.\textsuperscript{153}

\begin{thebibliography}{99}


\bibitem{150} Black (2000:494)


\bibitem{151} Röling and Wagemakers (2000:7)

\bibitem{152} Black (2000:495); Vanclay and Lawrence (1995a)

\bibitem{153} In 2008, Landcare became administered under the Australian Governments Caring for our Country initiative.

\end{thebibliography}
4.6.2 National Landcare Program

The National Landcare Program (Landcare) was the most significant extension program initiated in the 1990s in Australia, involving almost one third of Australian farming businesses. Landcare contains many facets and issues that deal with national and state extension programs, and highlights the issues in attempting to merge production and natural resource management concerns.

Devised by the Victorian Government in 1986, the Landcare concept emerged from the recognition that the majority of Australian farming systems were socially, economically or ecologically unsustainable as a consequence of a history of farming practices, transferred from Europe, that had caused land degradation and financial difficulties in many industry sectors leading to rural decline. Landcare attempted to remedy the situation by drawing together communities, producers and governments to address land degradation concerns. Subsequently, support for community-based land conservation groups emerged to deal with sustainable agriculture issues. The involvement of the community making decisions about land-use set Landcare apart from other extension programs delivered in Australia at this time.

Interest in community groups eventually widened to the other states and territories. In 1990 the National Decade of Landcare Plan was agreed to by all Australian governments and was implemented in 1992 following the establishment of the National Landcare Program (NLP) and launch of the Decade of Landcare. The Plan intended to “achieve, by the year 2000, ecologically

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In 1988, the National Farmers Federation and the Australian Conservation Foundation proposed the National Land Management Program. This led to increased funding for Landcare groups and property planning across Australia to raise community participation in natural resource management. In 1992 the Australian Government renamed the National Soil Conservation Program (NSCP) the National Landcare Program (NLP) when it launched the Decade of Landcare (Campbell 1995a:127; Campbell 1994:252; Campbell 1995b; King 2001:7; Smith 2003:61). The funding of Landcare continued through the NSCP, which had been subsumed by Landcare, along with other Australian, state and territory government schemes (Lockie 1992).
sustainable land use through the management of land degradation”. The key assumptions underpinning the program were outlined by Campbell and Junor. However Curtis et al summarised them as including the idea that “with limited government funding, Landcare group action will facilitate a process of community development that will produce more aware, informed, skilled, and adaptive resource managers and thereby result in the adoption of more sustainable natural resource management practices and assist the move to more sustainable resource use.”

Rural landholders who wished to address land degradation issues in their region and develop more sustainable farming systems were initially the main participants of Landcare groups. These groups were supported by a federally funded Landcare facilitator, or coordinator, usually positioned within a state or territory government agency to assist groups in defining their direction and activities.

Over time Landcare gained momentum to involve more stakeholders and cover a broader range of issues, including social concerns. It came to achieve national acceptance and international recognition. Some of its elements were adopted by New Zealand to help address market failure and land and water management issues. The broader acknowledgement of Landcare led it to be referred to as the ‘Landcare Movement’, encompassing “soil and water conservation, nature conservation and all aspects of sustainable land use and management”, in addition to, and including, the formation of Landcare groups. In June 2008, the National Landcare Program ceased to exist and Landcare related activities are now funded as part of the Caring for Our Country initiative, to continue on-ground activities that aim to achieve “sustainable natural resource management at the farm, catchment and regional level.”

Although Landcare achieved wide acceptance and reported successes, confusion and debate occurred about what the concept included and its effectiveness.

158 Campbell and Junor (1992:17)
160 Campbell (1992:i); Campbell and Junor (1992:17)
161 Campbell (1994:253-58)
162 Activities undertaken varied including farm walks, short courses, monitoring and research programs, property and catchment planning, and the production of educational promotional material (Campbell 1994:253).
164 Campbell (1992:iii)
Clarifying Landcare

Identification of Landcare as a ‘movement’ raised questions from those observing its developments. In the early 1990s, rural sociologist Stewart Lockie queried whether Landcare could be defined as a ‘social movement’. This was because a ‘movement’ usually implied that individuals, groups and organisations had a collective identity around an issue, and engaged in political and cultural conflict. In using the term he suggested that Landcare was stating it was more than a “government extension program”. However, Lockie later acknowledged that, in spite of this, it had become an “important locus of cultural transformation in rural areas”.

By the mid-1990s the all-encompassing interpretation of Landcare as an avenue to address land degradation and sustainability concerns by individuals, corporations and governments was creating confusion about its objectives and achievements. This ambiguity made it difficult to ascertain where responsibility lay for these environmental concerns. The loose way in which the idea of ‘community’ was used in Landcare also raised concern. Ewing proposed that the ‘self-identifying community’ idea is fraught with difficulties as group member’s experience, values, and ‘capacity’ to participate can vary. Other authors in the community adult education field support Ewing’s views in remarking that community has come to have numerous definitions and may be considered more of an ideological term rather than a concept. Government policy observers Adams and Hess have also contributed to the discussion in stating that, “in Australia all states and territories have joined the Commonwealth in embracing community as a foundation for policy making and implementation …While community has re-emerged in the political rhetoric of both governments and NGOs, it has not been a central feature in most recent Australian literature on public management and policy. To date, the political statements regarding community exchange.

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provide little clear understanding of what roles community has in public policy, or what policy instruments these might translate into.”\textsuperscript{170}

In an attempt to clarify the structure of Landcare, the institutional context in which it operated was outlined by the then National Landcare Facilitator, Andrew Campbell, in the late 1990s (see Figure 4.4). He pointed out that “Landcare is simply not structured in an organisational sense, and is better thought of as a voluntary land conservation movement”\textsuperscript{171}.

\textit{Figure 4.4 Campbell’s Institutional Framework for Landcare}

The continued confusion surrounding Landcare led to a social assessment of the program in 2000 by the Social Science Centre in the Australian Government’s Bureau of Rural Sciences. The assessment concluded that Landcare could be described as having three elements: (1) the NLP, being the governmental or

\textsuperscript{170} Adams and Hess (2001:14)

Figure 4.4 is adapted from Campbell (1998).
bureaucratically defined Landcare; (2) community Landcare, being the voluntary groups; and (3) the Landcare Movement, incorporating the community groups and parts of the NLP.\textsuperscript{172}

Assessing the Success of Landcare

The success of Landcare in achieving sustainability outcomes has undergone considerable scrutiny. In the early 1990s Landcare was touted as being successful in achieving social change through improved community development and the building of social capital, but the adoption of ‘sustainable’ farming practices had been slow.\textsuperscript{173} It was seen to have closed the gap between producers and environmentalists, or ‘greenies’, by providing producers with a place and role in environmental management, helping to address the ‘us’ and ‘them’ mentality, and bringing people together that felt socially and professionally isolated.\textsuperscript{174}

Assessments of the original Landcare groups in Victoria, suggested that sustainable resource use was being achieved due to the amount of on-the-ground work being conducted.\textsuperscript{175}

In the mid-1990s, Landcare groups had been shown to have some effect on extension through the use of more participatory, group based approaches. Producers’ knowledge on agriculture and the systems in which they operated were more valued, and a culture of collective learning appeared to occur. A broader range of people, who were generally excluded in other forms of extension programs (e.g. women and smaller farmers) were engaged, although Indigenous and non-English speaking peoples involvement was limited. In some areas Landcare had emerged as the central community group replacing older existing groups, and some groups had contributed to policy development.\textsuperscript{176} The positive

\textsuperscript{172} Cary and Webb (2000:28)

The Landcare and Natural Heritage Trust Branch of the then Australian Government Department Agriculture, Fisheries and Forestry - Australia commissioned the Social Sciences Centre of the Bureau of Rural Sciences, to review existing social science understandings of the Landcare Movement; and to articulate a national overview of the Landcare model of community action aimed at sustainable natural resource management. The terms of reference for the commissioned work required the preparation of an accessible description of this model, how it works in terms of current social theory, and what it does (Cary and Webb 2000).

Baker had noted in 1997 that ‘community based Landcare’ was “a bottom-up response to the challenge of specific environmental problems and is therefore locally grounded. It is driven by principles of community participation and empowerment. It places great value on local knowledge and the communication of this knowledge” (Baker 1997:64).

\textsuperscript{173} Baker (1997); Cary and Webb (2000:28)

\textsuperscript{174} Baker (1997); Lockie (1995); (Lockie 2001b:244)

\textsuperscript{175} Curtis and DeLacy (1995b)

outcomes of Landcare were balanced with criticisms as to the functionality and effectiveness of its groups, and expectations on what individual landholders could achieve in relation to sustainability.

Participants were found to be guided by the group facilitator - their key contact - who was often technically trained and in some cases found it difficult to relinquish the ‘expert’ role (as was also found in T&V for example). Government funding priorities also determined the group’s activities resulting in a lack of group independence (i.e. it remained top-down directed). Collectively, these characteristics inhibited the groups by restricting their development of networks and utilisation of their own human, community and other external resources, which the facilitator was to support so that they could withdraw from the group allowing it to become self-reliant. A general distrust of the rural community in the governmental bureaucracy also occurred, leading to a breakdown in communication. Attempts to remedy this were undertaken with the production of the Landcare Languages manual to stimulate communication between the two groups.

In regards to the sustainability outcomes, Curtis and DeLacy offered the following analysis.

“Given low levels of profitability amongst landholders, the vast scale and intractable nature of key issues, and the considerable off-site benefits of remedial action, it is questionable whether limited funding of a communication process will effect behavioural changes sufficient to make a difference at the landscape level. Program emphasis upon developing landholders’ stewardship ethic also appears misplaced… Indeed, to the extent Landcare focuses upon changing individual behaviour rather than societal barriers to rural development, Landcare is open to criticism that it places too much responsibility upon individual landholders.”

The assumption that “that a community participation process can act as the catalyst to redirect agricultural and other resource inputs” was also seen as problematic, given Australia’s prolonged rural recession.

The intent of the governments support for Landcare was criticised by Vanclay, who saw it as a hegemonic process to manipulate community thinking and action; withdraw responsibility from land degradation; and reduce funding expenditure on agricultural extension in order to implement its already existing predetermined decisions, policies and practices. Further to Vanclay’s argument, Ewing raised concerns about the lack of effective evaluation of the program.


178 Curtis and DeLacy (1995b)

179 Baker (1997)

180 Curtis and DeLacy (1995a)


182 Vanclay (1994)

Vanclay (1994) describes a hegemonic process as being one where one social group (i.e. the government) has power or control over another group (i.e. the community) by utilising “social coercion to influence, albeit subtly, the views of other social groups”.

183 Ewing (1995)
Haworth had noted that Landcare had been touted as being a significant player in moving towards ESD, but the differences between sustainable agriculture and ecological sustainability had not been addressed.\(^{184}\) Baker contributed to this discussion in resolving that it was unlikely that ecologically sustainable land use through the ‘scaling up’ of Landcare to be involved in a broader agenda such as the National Strategy on ESD (NSESD) could be obtained.\(^{185}\)

The report on the Decade of Landcare in the 2000s, showed that people who participated as a Landcare group member had higher adoption rates of ‘best bet’ practices than those who were not members.\(^{186}\) Community Landcare was shown to be effective resulting in participatory approaches being adopted as the preferred method for delivery, as it was shown to promote self-reliance and develop social capital to move towards sustainable farming practices.\(^{187}\) A study conducted by the Institute of Rural Futures at the University of New England opposed this view. Environmental attitudes between Landcare group members and non-members appeared to be similar, and the length of involvement in Landcare did not have any influence.\(^{188}\) A study conducted by Reeve showed similar results.\(^{189}\)

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\(^{184}\) Haworth (1996)


\(^{185}\) Baker (1997:61, 71)

Since Landcare’s establishment, it had seen the rise of various public participation ‘carer’ and ‘community land literacy’ programs, moving it beyond its initial concerns with soil erosion and focus on individual landholders. These programs, broadly defined as ‘community environmental monitoring groups’, usually involved schools in conjunction with Landcare groups to collect data to monitor environmental changes across Australia. Although these have had some success, Baker remarked that it was unlikely that ecologically sustainable land use could be obtained due to funding restrictions (Baker 1997:70-71; Campbell 1994:254; Smith 2003:61).

Examples of public participation groups, or ‘carer’ groups include: Soilcare, Bushcare, Parkcare, Rivercare, Dunecare, [Koala] Bearcare, Fishcare, and Coastcare. Examples of the community literacy programs included: Drain Watch, Watertable Watch, Salt Watch, Frog Watch, Bird Watch, Worm Watch and DustWatch.

\(^{186}\) Lockie (2001b:247)

\(^{187}\) Cary and Webb (2000:28)


Reeve’s study on Australian producers’ change in attitude to the environment from 1991 to 2000, showed the influence of Landcare on landholders who had been involved in the program for various lengths of time, did not vary in their attitude toward the environment. There was
Cary and Webb had also questioned whether the identified social changes had any significant effect on the adoption of sustainable practices, given that the relationship between them was unclear. They argued that for any behavioural change to take effect, people needed to be motivated, have financial incentives, financial and skill capacity, and appropriate technologies (as identified in the adoption of new innovations and practices outlined earlier). In their opinion, Landcare had been constrained in achieving sustainability by

“managing common property issues on an individual property rights basis, and structural limitations including limited capital and human resources in rural areas, and a lack of feasible technical solutions to degradation issues which can be easily and profitably implemented on farms.”190

Continuation of Landcare

Many observers of Landcare agree that, in order for it to be maintained even in its current format, government funding and support needs to continue. Improved program management, a demonstration of commitment to it, and the implementation of plans which involve the community also need to take place. The enthusiasm of the community needs to be maintained, which may require technical and financial incentives and better group leadership and management. These must exist in conjunction with: the development of new skills and competencies for dealing with environmental issues; a new type of professionalism; an acknowledgment for the differences in culture between the people undertaking on-the-ground activities and policy makers; defining and allocating activities and roles more clearly, leaving land holders to be active participants in the projects rather than project managers; providing incentives for landholders to maintain biodiversity; and flexible policy packages to allow for land owner diversity situations.191

The changes that have occurred in Australian extension, particularly since the introduction of Landcare, have led to a range of theories and models being considered, as shown in the following section.

190 Cary and Webb (2000:28)
4.7 Current Theories and Models in Australian Agricultural Extension

By the 1990s Australian agricultural extension consisted of three prominent theoretical positions: TOT, AKIS and Policy Instrument (PI). The first two have already been defined in Chapter Three and above. The PI approach views extension as an avenue to achieve certain policy objectives. This approach has been used predominately in the Netherlands, where Cees van Woerkum adapted it for extension purposes, although agriculture was not referred to directly.\(^{192}\) Despite the lack of literature on PI approaches in extension, it could be argued that many government-funded agricultural programs used to achieve policy objectives for social, economic or environmental reasons where benefits to the broader community are desired, are PI approaches.

In general, to implement these theories, four ways of thinking about extension and its outcomes have been suggested by various authors. In 1991, Bloome proposed that these included technology transfer, problem solving, education or human development, which were later diagrammatically represented by van Beek and Coutts in 1992 (see Figure 4.5). Some have referred to these as ‘extension paradigms’ or ‘extension models’ that exist along an ‘extension spectrum’. As the situation that is being dealt with becomes more complex, the skills required also increase.\(^{193}\)

Figure 4.5  van Beek and Coutts’s Four Paradigms of Extension

NOTE:
This figure is included on page 104 of the print copy of the thesis held in the University of Adelaide Library.

To meet the varying requirements within the spectrum a range of ‘extension models’ are needed depending on the desired outcome. However, this does not


Figure 4.5 is adapted from King (2001:10) after van Beek and Coutts (1992).
mean that one ‘model’ is forsaken for another, rather the models are being built-upon, or altered, to incorporate the additional elements demanded by a more complex situation. This may require an exchange between the models, in order to meet the requirements as you move along the spectrum.\textsuperscript{194}

In 2000, Black described four similar approaches and the methods and media used for each (see Table 4.4).\textsuperscript{195} He also remarked that the use of only one model is not likely to be sufficient, as both bottom-up and top-down approaches can exclude a proportion of the population. Bottom-up approaches, although allowing more ownership through greater participation than more directed programs, may also have a limited focus, restrict the introduction of new ideas and finding solutions for more complex or environmental issues where producers knowledge may be limited.\textsuperscript{196}

\begin{table}[h]
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\begin{tabular}{|c|c|}
\hline
\textbf{Black’s Current Models, Methods and Media in Extension} & \\
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\textbf{NOTE:}
This table is included on page 105 of the print copy of the thesis held in the University of Adelaide Library.

\begin{itemize}
\item \textsuperscript{194} King (2001:9) after Bloome, P.D. (1991) and Coutts (1994); Black (2000:496)
\item \textsuperscript{195} Table 4.4 is adapted from Black (2000:497).
\item \textsuperscript{196} Black (2000:495-96, 500)
\item \textsuperscript{197} Local Best Practice Action Learning (LBPAL), Participatory Analysis and Learning Methods (PALM), Participatory Action Research (PAR), Participatory Learning and Action Research (PLAR), Participatory Problem Solving (PPS) and Participatory Technology Development (PTD).
\end{itemize}
A general description of the above authors’ models are as follows:

1. **Technology Transfer, Information Access Model or Linear Model** – is top-down directed by persuading people to adopt new technologies and innovations from research.

2. **One-to-one Advice or Information Exchange Model** - also known as Problem Solving and Personalised Consultant Model or Person-to-Person approach. Provides one-on-one advice or information exchange, and assists people in finding technical or management solutions. The approach can take three strategies: ‘do to’ where the client is motivated to do what the extension agent wants; ‘do for’ where the client needs are more closely met, but the message is still determined by the extension agent; and ‘do with’ where the client’s goals become the extension worker's goals. This approach has been greatly reduced over the last two decades due to the decline in agricultural importance in industrial countries and government’s recognition of the broader public good.

3. **Formal or Structured Education and Training Model** - also known as the Programmed Learning Model. Takes an adult education approach to assist people to understand and make decisions regarding their situation. For producers this is likely to be in the form of planned learning activities that are practically based and allow them to ask questions, requires less time, and is more applicable to their situation.

4. **Group Empowerment Model** - also known as Human Development Model and Group Facilitation Model. Bottom-up in its approach, with a strong participative base drawing on producers ITK. The aim is to stimulate communities and individuals to define, seek and solve problems for themselves.\(^{198}\)

Coutts and Roberts refer to Technology Transfer or Information Access Model as being two separate models. They classify the Technology Transfer (or Technological Development Model) as containing the practical development of technologies, management practices and support systems (e.g. field days, trials etc). While the Information Access Model, is the provision of information from a broader scale (e.g. world wide web, information centres, etc).\(^{199}\) They also claim that each of these models contributes to ‘building capacity’ in some form within individuals and communities.\(^{200}\)

Dunn has proposed that, for modern extension to be successful in Australia, extension agents and research workers must have a good understanding of extension theory and social science concepts, if bottom-up approaches are to work. Policy makers and funding bodies also need to have an understanding of their role and what they are asking to be implemented as “versions of ‘old’


\(^{199}\) Coutts and Roberts (2003:3); Coutts (2003)

\(^{200}\) Coutts and Roberts (2003) define ‘capacity building’ as “increasing the abilities and resources of individuals, organisations and communities to manage change”.

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theories [such as TOT and Diffusion theory] dressed up in new jargon will not 
work”. He stresses that extension policies and strategies, like those in European 
rural development, that help people understand their problems and enable them to 
take action need to be adopted.201

4.8 Conclusion

This chapter demonstrated the broadening out of agricultural extension to be 
corporated within rural development policies, to meet the demands associated 
with the globalisation of agricultural commodities, and achieve national economic 
goals (see Table 4.5). In trying to obtain these goals, the complexities associated 
in implementing agricultural policy and program objectives became realised.

Issues of inequality and sustainability came to the forefront as the TOT and 
Diffusion of Innovation methodologies were shown to be increasingly ineffective. 
This led to a search for alternative solutions to agricultural extension, which 
reflected work conducted in developing countries. Subsequently, more socially 
based approaches that had greater producer and community participation, and a 
growing respect for local knowledge, were adopted internationally. In Australia, 
the National Landcare Program, riding the sustainability wave, created a ground 
swell of community based activities to solve land degradation issues. In doing so, 
it changed how extension was conducted in Australia, but also highlighted the 
difficulties in achieving sustainability outcomes.

Despite the eventual adoption of more social, participatory and sustainably based 
approaches internationally, strong criticism and debate of government’s motive to 
support programs of this type are ongoing. As the privatisation of government 
services grows and the onus in put back on producers and the community to solve 
their problems, concerns associated with power relations have emerged.

The recognition of what the social sciences can offer is slowly occurring in 
Australian agricultural programs as the measurement of social outcomes, rather 
than technological outputs, is emphasised. My research, outlined in the following 
two chapters, provides a case study for the development of a socially based 
program in the wine industry in South Australia in the face of reduced 
government funding. The research attempts to remove the rhetoric often 
associated with government programs through the application of approaches 
discussed in this and earlier chapters.

201 Dunn (1997:154-55, 164)
<table>
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<tr>
<th>Period</th>
<th>Agricultural Extension</th>
<th>Other Significant Events</th>
</tr>
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<tbody>
<tr>
<td>1990s</td>
<td>• Closing the gap between developed and industrialised world</td>
<td>• Adult education debate over language and concepts</td>
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<td>On</td>
<td>• Systems Movement</td>
<td>• Education privatised</td>
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<td>• Agriculture sustainability</td>
<td>• Sustainability Movement</td>
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<td>• Recognition of knowledge systems</td>
<td>• Formation of rural policy division, AAA, privatisation of agriculture services,</td>
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<td></td>
<td>• Community based programs</td>
<td>continued market focus (Aust.)</td>
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<td>• Social capital and empowerment appear</td>
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<td>• Decade of Landcare (Aust.)</td>
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<td>1980s</td>
<td>• Increased participation</td>
<td>• Kolb popularises experiential learning and learning styles, Brundage and</td>
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<td></td>
<td>• Producer knowledge more recognised</td>
<td>Mackeracher’s adult learning principles</td>
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<td></td>
<td>• Social sciences debate</td>
<td>economic rationalism, market focus (Aust.)</td>
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<tr>
<td></td>
<td>• Self-reliance and sustainability appear</td>
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<td>1970s</td>
<td>• Integrated rural development projects</td>
<td>• Global reduction in agriculture production</td>
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<td></td>
<td>• Equity concerns for resource-poor</td>
<td>• Increased mechanisation</td>
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<td>• Soft systems approaches</td>
<td>• Limits to Growth report</td>
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<td></td>
<td>• Farming Systems approaches</td>
<td>• Rural adjustment training, land degradation publicly focussed (Aust.)</td>
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<td></td>
<td>• Beginning of recognition of producer knowledge</td>
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<td>1960s</td>
<td>• Micro-level methods focussing on early adopters</td>
<td>• Individual modernisation policies</td>
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<td></td>
<td>• Beginning of the Green Revolution</td>
<td>• UN Development Decade</td>
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<td></td>
<td>• Diffusion of Innovations</td>
<td>• Humanism, Marxist Adult Education</td>
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<td></td>
<td>• Scientific solutions to production barriers</td>
<td>• C. Rogers’s self-directed learning, Freire’s social transformation,</td>
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<td>Harbermas’s critical pedagogy</td>
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<td>1950s</td>
<td>• Social and economic concerns, attitudinal change of producers</td>
<td>• Establishment of European EU</td>
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<td></td>
<td>• Increase in extension grants, capital intensive agriculture, agriculture research</td>
<td>• Andragogy first used</td>
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<td></td>
<td>institutes (Aust.)</td>
<td>• Producers involved in government policy formation (Aust.)</td>
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<td>Early</td>
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<td>1900s</td>
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<td>• Dewey’s experiential learning, Gramsci’s</td>
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<td></td>
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<td>hegemonic education, Lewin’s Action</td>
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<td>Research, Revans’s Action Learning</td>
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<td></td>
<td></td>
<td>• Focus on social and political change, increasing exposure to world markets</td>
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<td></td>
<td>(Aust.)</td>
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<td></td>
<td></td>
<td>• World War I and II</td>
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<td>1880s</td>
<td>• Extension Movement concerned with macro consequences</td>
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<td>• TOT Model</td>
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<td>• Agriculture Colleges in Australia</td>
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*Table 4.5 Summary of Selected Historical Developments in Agricultural Extension, 1880s - present*
5 NAVIGATOR®: A LEARNING PROCESS FOR CHANGE

The Australian wine industry¹ expanded rapidly during the 1990s in response to the increased demand for its wines overseas. The impact on the South Australian wine industry was significant for several reasons. The national wine industries infrastructure with all of the major wine companies, and national research and development corporations are based in South Australia, which is also the largest producer of winegrapes and wine, and exporter of wine (see Figures 5.1 to 5.2).² The prominence of the South Australian wine industry has meant that it is a significant contributor to the agricultural economy and potential of the state.

In response to the industry’s growth, Primary Industries and Resources South Australia (PIRSA) sought to invest in a ‘cultural change’ program for winegrape producers that enabled producers to control their learning activities and progress these into action. This decision coincided with an environment of diminishing government services, and policies that touted social, economic and environmental outcomes (the, so called, triple bottom line) to achieve sustainability. As an employee of Rural Solutions SA,³ I was engaged to manage the development and implementation of the program, which came to be known as NAVIGATOR®.

¹ The ‘wine industry’ commonly includes winegrape and wine production.
³ Rural Solutions SA (formally PIRSA Rural Solutions) is a business service provider established in 1999 to deliver state and federal government funded programs, tender for external work, and undertakes consultancies within the private sector.
NAVIGATOR® provides the case study for this thesis and an example of the contribution the social sciences can make within the Australian agricultural extension context. To explain the journey of the program, this chapter begins by discussing the rationale for the program. The key objectives of the project brief are then clarified, followed by a discussion on how NAVIGATOR® was developed and implemented across South Australia between 1999 and 2002.

Figure 5.1  Winegrape Production by State

Figure 5.2  Gross Wine Production by State
5.1 Program Rationale: the operating environment

The Australian wine industry is highly vertically integrated, with many wine companies producing their own fruit, and obtaining additional fruit from smaller independent producers.4 To maintain its viability, the industry developed a national plan, *Strategy 2025*, which outlined how it would continue to expand the industries export and domestic markets.5

Traditionally government agencies have provided support to agricultural industries to meet each of their specified goals. In the case of state government services, one avenue of support has been the provision of technical advice to primary producers to meet production requirements through free extension services. In the mid- to late-1990s, this approach began to change as PIRSA reshaped how it viewed and dealt with the agriculture sector.

In PIRSA’s *Strategic Plan 1996-2000*, the department outlined the influences that defined its future direction. Some of these included: the implementation of competitive neutrality policies under the National Competition Policy (NCP),6 improvements in the accountability of the public sector through cost recovery mechanisms; a move to market - rather than production - driven focus and increases in industry competitiveness; involvement in state/commonwealth initiatives including the formation of partnerships between government and industry; and “maximising economic development while protecting our natural resource base” by focusing on increasing “exports and import replacements, …self-reliance of primary industries”, assuring the sustainability or resources, restructuring “government planning and delivery…[and increasing the] emphasis on business planning and risk management services”.7 Many of these influences had historical associations with the Australian Government.

In 1990, Prime Minister Bob Hawke announced the ‘new federalism’ initiative, which addressed government service delivery and social justice, inter-governmental cooperation and national efficiency, among a range of other items relating to public policy. It was proposed that improvements in these areas could be achieved through cooperation between the three tiers of government. The initiative also supported the NCP agenda which aimed to achieve economic reform through improved efficiencies and competitiveness, by increasing the

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4 Hoole (1997:120)
 Australian Wine Foundation, Adelaide.
emphasis on market based mechanisms and competition. The implementation of the initiative gave rise to the whole-of-government concept and created a platform for governments to review their relationship with communities and industries. The following gives a brief overview of the features of some of these policies.

5.1.1 Competition Policies

Current Australian competition policies emerged from the increasing prominence of microeconomic reform in the 1990s. To assist in achieving the goals of the ‘new federalism’ initiative, the Council of Australian Governments (CoAG) was formed. In 1995, CoAG agreed on the NCP package which came to include agriculture in 1996. In the same period, the Keating Government called for improved management and cooperation between governments in areas where there was shared responsibility, particularly in socially based programs. The following Howard Government continued to promote economic reform in emphasising quality of service delivery, advocating the purchaser-provider model, and increasing the states independence from the Australian Government.

Changes in the structure of government agencies were taking place at the state level, also. PIRSA for example, introduced a purchaser-provider model in the late 1990s for agricultural services. The establishment of the model involved the gradual withdrawal of free services, like agriculture extension. The introduction of fee-based services – considered since the early 1980s and following cuts in the Federal Government’s extension service grants – came to be delivered through the newly formed business service provider, Rural Solutions SA. The implementation of this type of departmental change was expected to improve competitive neutrality by addressing resource allocation distortions. These can occur where government business enterprises have an advantage over other sectors of the economy by not fully reflecting the resource costs in prices charged.

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The 1995 NCP policy referred to electricity, gas, water and road transport. The package included the Commonwealth Competition Policy Reform Act 1995; Compendium of National Competition Policy Agreement which contained a range of nation wide reforms to the competition policy; and state and territory legislation (Kain *et al* 2003; Commonwealth Government of Australia 1996a; Podger 2002).
10 Podger (2002)
The reduction in Commonwealth Government extension grants in 1979 “prompted the Director of the South Australian Department of Agriculture and Fisheries to say that his Department would have to curtail costly farm visits and concentrate on the use of the media.” (Campbell 1980:158) In 1982, a technical report produced by the South Australian Department of Agriculture, gave attention to the principle of fee based services: “In times of restraint attention is being given to extending the principle of fee-for-service to services traditionally provided free.” (SA Department of Agriculture 1982)
for services. One way to address this imbalance is for governments to charge similar prices for services provided by the private sector, or alternatively withdraw services altogether.

5.1.2 Whole-of-Government Concept

The Hawke Government’s push for changes in government service delivery and its effort to achieve intergovernmental cooperation led to the emergence of the whole-of-government concept and a range of strategies from 1996 in various Australian and state government documents. These documents promoted this approach as a solution to regulatory or compliance matters, initially in relation to safety and hygiene, and streamlining government services to make them more efficient to achieve improved governance and customer service. To achieve these outcomes government agencies would work together and greater collaboration between the various tiers of government were to occur (as had been identified earlier by the Royal Commission in the 1970s).

Over time the concept was broadened beyond building links formed within government. In 1998 it included the provision of better “communication between Government and regional Australia.” This moved the concept from a focus on improving internal government efficiencies to government being more accessible to those external to government. The report claimed that strengthening the links between portfolios and greater communication with the regions would “ensure that regions are aware and able to take advantage of relevant programs and policies across Commonwealth portfolios.”

One year later, the idea of government working in partnership with communities to solve issues through a whole of government approach through the Regional Australia Strategy was proposed.

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12 Commonwealth of Australia (1996a)
14 Commonwealth of Australia (1996a); Commonwealth of Australia (1996b); Queensland Health (1996); Reith (1996)

In Anderson and MacDonald’s paper Regional Australia: meeting the challenges (1999) stated the relationship that government tried to foster with communities: "Through its Regional Australia Strategy, the Government is intent on understanding and addressing the needs of regional Australia. Taking a comprehensive 'whole of government' approach, it is working together with communities to plan viable futures and deliver results. The Strategy is aimed at coordinating Federal Government activity in, and communication with, regional Australia. Ensuring coordination of the Government's efforts for regional Australia is a crucial step in delivering what communities need."
By the end of the 1990s and into the 2000s, the whole-of-government approach to implementing public policy attracted a range of titles such as ‘integrated government’, ‘joined-up government’, ‘coordinated government’, ‘networked government’ and ‘one-stop-shop’. However, in most instances these appeared within a single level of government, rather than between the tiers of government.

5.1.3 Changes to Government-Community Relationships

The whole-of-government discussion promoted the idea of government working with communities to achieve specific outcomes. This view laid the foundations for changes in how governments redefined responsibility for activities in which they had historically been involved. The idea of ‘self-reliant’ communities for example, was fully enforced by the end of the 1990s. Self-reliance was to be achieved through greater ‘participation’, sometimes in partnership with government, along with the development of ‘leadership’ qualities to ‘build capacity’ in communities. The incorporation of these new ideas saw agricultural extension shift towards more participatory based programs, like those outlined in Chapter Four.

The greater emphasis on self-reliance was said to ‘empower’ people to feel confident in their decision making processes by taking control in areas that were traditionally government driven. These characteristics were seen to grow as people improved their ‘human capital’ – the information, knowledge and knowing of an individual - and ‘social capital’ – the quality of relationships through peoples networks, norms and trust with others (discussed further in Chapter’s Seven and Eight).

John Anderson was leader for the The Nationals and former Deputy Prime Minister, prior to Mark Vaile, during the Howard Government’s period in office.


Several reviews on the whole-of-government approach have been undertaken (see for example, Ellison (1999); Fahye et al (2002); Podger (2002) and Commonwealth of Australia (2004)). These reports analyse how governments can be more successful in forming linkages within their own agencies and across governments and communities (Ellison, C. (1999) Service Charters in the Australian Public Service: report by the Special Minister of State Senator the Hon. Chris Ellison, two-year whole-of-government report July 1997 - June 1999. Department of Finance and Administration, Canberra; Fahey et al (2002); Podger (2002); Commonwealth of Australia (2004) Connecting Government: whole of government responses to Australia's priority challenges. Commonwealth of Australia, Canberra). The causes for taking such an approach are also discussed as including “globalisation, budgetary pressures, community expectations, and technology.” (Podger (2002:3)) The Australian Public Service even has a dedicated an entire website, Connected Government, to assist public servants to “understand what ‘whole of government’ work is about, what it aims to achieve, why it is important, and how to use the approaches, tools and resources available through this site.” (Australian Government (2007b) Connected Government. http://www.connected.gov.au, Accessed 30 March 2007.)
In Warner’s thesis, *Leadership for Economic Development* (2004), he supported the need to improve declining social capital and lack of leadership in regional areas, suggesting that the most effective means by which this can occur is through participation and providing learning opportunities. Effective leadership was expected to occur through: “a shared vision; empowerment; partnerships; networks and strategic alliances; collaboration; values; charisma; communication and trust; and teamwork.”\textsuperscript{18}

Governments suggest that, in building community capacity and fostering leadership, communities and producers would not need to rely on government services. The result is a decrease in costs as communities become more effective contributors to economic development. Programs and policies that demand these social and mutual obligation outcomes continue to be promoted at both the national, state and territory levels.\textsuperscript{19}

5.1.4 Approach to Agriculture Extension

Traditionally many producers had come to rely on government extension services to assist them in achieving outcomes like those described above. The acquisition and interpretation of new information occurred primarily through the transfer of technology to improve production, or by identification of market opportunities for an existing product. As global economies expanded, the focus shifted to meeting market demands and producing value-added products, particularly for export. The focus on global markets and the inclusion of sustainability pressures (discussed further attention in Chapter Nine) has meant that producers are now operating in more complex systems, requiring them to expand their view of their business beyond the farm gate.

To meet the changing demands and expectations on agriculture, the traditional services of transferring technology cannot be relied upon as in the past. As markets become more sophisticated, governments continue to invest in programs that are further along the market chain and broader in their outlook. These changes require new approaches to extension, like those discussed in Chapter

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\textsuperscript{19} In the early 2000s, a Taskforce was formed in South Australia to “review the current operations of the South Australian public sector, and to examine ways of helping it to become more open, accountable and responsive to the community.” The Taskforce’s report outlined the need for the South Australian government to work more collaboratively within the public sector and communities; and to empower and build community capacity (Fahey \textit{et al} (2002)). The Australian Government has continued to promote social and mutual obligation outcomes. Truss \textit{et al} (2004) outlined that the Farm Help program was “in line with the Coalition Government’s underlying philosophy of self-reliance and mutual obligation” (Truss, W., Macdonald, I. and Troeth, J. (2004) *Rural and Regional Australia: sustaining the nation 2004-05*. Commonwealth of Australia, Canberra). Anderson \textit{et al}’s publication *Building Stronger Communities 2005-06*, discusses ‘community leadership’, ‘building capacity’ and developing ‘self-reliant’ regions in the Sustainable Regions Program. While other programs emphasise participation such as the Regional Partnerships and Industry Partnerships programs and “maximising Australian industry participation” in the Industry Capability Network Limited and Supplier Access to Major Projects Program (Anderson, J., Lloyd, J. and Cobb, J. (2005) *Building Stronger Communities 2005-06*. Commonwealth of Australia, Canberra).
Four, to account for agriculture’s increasing complexity. For agricultural extension to keep pace with change, an emphasis on improving individuals’ or groups’ learning ability needs to occur. Recognition of this requirement has begun in acknowledging that as people’s knowledge increases the situations they identify also become more complex.

Röling and Jiggins advocate the idea of ‘discovery learning’, involving a process of enquiry enabling participants to find their own answers, leading to the acceptance and development among producers of new complex behaviours. These changes are in line with statements by Clark from some 20 years ago, that extension services should broaden their outlook by servicing the rural majority rather than the minority; include problem identification and solving; and move away from agricultural extension to what Clark described as “human extension”.

Australian governments, like their overseas counterparts, have adopted the view that communities and producers should be ‘empowered’ to help themselves, or work in ‘partnership’ with government, rather than relying on government services alone to ‘build their capacity’. In South Australia for example, the government’s view on community capacity building at the whole-of-government level, as outlined in its Community Investment Strategy,

“reflects that view that government cannot be relied upon to provide solutions to the community’s problems. It [the Strategy] has a strong focus on adult learning, facilitation and evaluation. Those familiar with agriculture recognise this as participatory extension.”


24 John Cornish, a previous Manager, Industry Development (Grape Industries) in PIRSA, provided these comments at his address at the Australasia and Pacific Extension Network Forum in 2000. He also noted that the Community Investment Strategy provided policy legitimacy to the idea of community capacity building at the whole of government level. The strategy outlines how to achieve change in cultures “to work differently to improve services to increase the capacity of communities.”
Although the programs funded by today’s governments aim to be more holistic and involve greater producer participation, primarily through group based approaches, it is common for them to still determine what people ‘should’ be learning. The rationale for greater community involvement incorporates the ideas that it reduces the demand on limited public funds, allowing dollars to be redirected to other areas of need. The response in agriculture has been to deliver programs using group-based approaches that utilise ‘soft system’ methodologies (refer Chapter Four). Despite, the ongoing debate, since World War Two, over what constitutes an effective group, governments continue to support the approach as it caters for the idea that more people can be reached through a supportive learning environment where their experiences can be shared. These group approaches are generally delivered in a workshop format, modelled around adult education and learning concepts (refer Chapter Two), with the focus including and extending beyond production.

Greater participation and formation of leadership within communities can generate increased complexities in trying to satisfying both government’s and the communities’ expectations. Cornish had noted similar concerns and observed that the nature of government investment in extension is such that:

“There is a propensity to talk about research, extension, and education and training as discreet activities with discreet outputs. The reality is that they, along with leadership, legislation and persuasion are interdependent. Each is a means to an end, not an end in itself. Further, government and the broader community are seeking outcomes, not outputs. The core issue is how to use public and private sector resources to achieve the outcomes but government working with the

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25 Röling and Wagemakers (1998)

26 A large quantity of research has been conducted on small groups since the early 1900s and grew in popularity from World War II. The use of the term in different disciplines (e.g. sociology, psychology, anthropology and business) has lead to a range of uses. Deutsch proposed that in general terms a ‘group’ is comprised of “two or more persons who (1) have one or more characteristics in common, (2) perceive themselves as forming a distinguishable entity, (3) are aware of the interdependence of some of their goals or interests, and (4) interact with one another in pursuit of their interdependent goals. In addition, some writers, particularly those with sociological backgrounds, indicate that (5) groups endure over a period of time and as a result develop (6) a set of social norms that regulate and guide member interaction and (7) a set of roles, each of which has specific activities, obligations, and rights associated with it.” (Deutsch, M (1968) Group Behaviour. In Sills, D. (ed.) International Encyclopedia of the Social Sciences. Vol.6, Macmillian Company and the Free Press, USA, p.265.)


In South Australia for example, programs like Property Management Planning (PMP) were developed to encourage producers to view their business holistically through a series of targeted workshops. This approach evolved further to include government developing ‘partnerships’ with industries and communities to develop packages to fill information gaps, and in many cases to encourage producers to be ‘export ready’; or programs are funded by government to achieve a specific outcome. Advice given on a one-to-one basis is now only provided to those who wish to pay for it as a consultancy service (PIRSA (2001) PIRSA Strategic Plan 2001-2003. Primary Industries and Resources South Australia, Adelaide).
community is a challenge, because the community is not homogeneous. We have diverse expectations and aspirations.” 28

Cornish added that fostering leadership must,
“come from all of us if we are to build community capacity. Each of us needs to challenge the system, inspire a shared vision, enable others, model the way, and encourage the heart. This ‘new’, transformational leadership is about knowing the right questions to ask, not the answers.” 29

It was these ideas that fostered the instigation for the NAVIGATOR® program, to enable the continuation of the wine industries international competitiveness and its long term functionality.

5.2 NAVIGATOR®: clarifying the purpose

The changing policy environment, discussed in the previous section, led to the view that, if South Australia was to maintain its national leadership in the wine industry and meet market demands, new and existing winegrape producers would need to develop their skills, knowledge and confidence in managing their business. To achieve this, several areas required attention. First, an understanding or awareness of how markets operated, involving a recognition of other countries as their competitors and their neighbours are their allies; and improvements in producers’ abilities to respond to market changes, to cushion them against the boom-bust cycles of the past. 30 Second, the establishment of closer relationships between wineries and winegrape producers to enable effective working relationships to be developed, so the supply of fruit was ‘fit for purpose’ (being of the right variety, with quality parameters suited to the various wine styles being exported), to meet changing tastes and food fashions; and achieve consistency and continuity in the supply of fruit. Finally, access to information and support that was relevant to their issues or concerns and a willingness to share information and knowledge across the producer population was needed.

Given the above considerations the initial project brief was to develop a program that would bridge the information, knowledge and skills gap of winegrape producers induced by the rapid expansion of the wine industry. This was to be achieved by obtaining the following outcomes:

• stimulating ‘cultural change’ in winegrape producers;
• fostering an environment for leadership development to build ‘community capacity’; and
• determining whether winegrape producers have the skills and knowledge to respond to market changes in order to produce a consistent supply of quality fruit that was always ‘fit for purpose’.

In attaining these objectives, continued learning and development opportunities for producers could be encouraged, and ultimately lead to their ‘empowerment’

29 Cornish (2000)
30 Boon et al (1999:8, 11)
and ‘self-reliance’ or independence from traditional government services. If possible, the developed program was to be transferable to other areas of agriculture, so as to increase the return on the government’s investment.

Although the preferred method of delivery requested by PIRSA was for learning to occur in groups, a common mode of program delivery, it was to avoid the dependence on government services ascribed to previously funded extension work. Additionally, the existing ‘participatory’ approaches were viewed as condescending as they continued to utilise linear adoption approaches (refer Chapter Three) and therefore, dictated to producers what and how they were to learn, as government ‘knew what was best’. Consequently, primary producers remained the receivers of information that was held by government, and led them to expect to receive information in this way. This provided little opportunity for the individual to direct their learning experiences, inhibiting the development of their skills in critical thinking.

Early conversations on the project brief suggested that the program was embedded in the social sciences, rather than the delivery of any specific technical information or to gather information for researchers and policy makers on rural issues (like the Rapid Rural Appraisal or Participatory Rural Appraisal methods described in the earlier Chapters).

As my initial training and work experience was in the environmental sciences and agriculture, I did not have all of the skills necessary to develop a socially based program. To resolve this, I enlisted the help of Dr. Patricia Murray, a Rural Sociologist from Adelaide University, to provide advice on developing a learning process to achieve ‘cultural change’ and evaluate the program.

Since the term ‘culture’ has a range of meanings, further discussions with PIRSA were held to clarify its interpretation of ‘cultural change’. The term was determined to mean:

31 Cornish (2000)
32 Freire had spoken out against similar types of approaches in education in general, during the 1960s: “Instead of communicating, the teacher issues communiqués and ‘makes deposits’ which the students patiently receive, memorise and repeat. This is the ‘banking’ concept of education, in which the scope of action allowed to the students extends only as far as receiving, filing, and sorting the deposits.” (Freire, P. (1973) Pedagogy of the Oppressed. Penguin Books, Middlesex, England, pp.45-46.) 33 The concept of ‘culture’ was devised by English ethnologist, Edward Barett Tylor, in his publication Primitive Culture (1871), where he tied culture to civilisation. Since Tylor, more than 150 definitions of ‘culture’ with various meanings have been generated within the disciplines of anthropology, archaeology, sociology and others (Feldman, M.W. (2004) Cultural Evolutions: theory and models. In Smelser, N.J. and Baltes, P.B. (eds.) International Encyclopaedia of Social and Behavioral Sciences. Elsevier, Oxford, p.3057; Harouel, J.L. (2004) Culture, Sociology of. In Smelser, N.J. and Baltes, P.B. (eds.) International Encyclopaedia of Social and Behavioral Sciences. Elsevier, Oxford, p. 3179). Within all of these definitions lies some agreement and areas of difference, particularly relating to “how culture works, the factors governing it, and the full extent of its influence on behaviour, thought, and perception.” (Hatch, E. (1985) Culture. In Kuper, A. and Kuper, J. (eds.) Encyclopaedia of Social Sciences, pp.179). The extensive use of the term ‘culture’ has meant that in most cases its referral has nothing to do with culture, and is often used in preference to the term ‘identity’ (Harouel 2004:3184).
“the development of producers ability to identify, understand and respond to constantly evolving and changing circumstances in terms of their production, market, natural and social environments, business and finance.”

Hence, the change in ‘culture’ was more about the way in which producers processed information to make decisions for change, than about the more generally recognised description of the concept as involving “the way of life of a people.”

It was agreed the program (later titled NAVIGATOR®) was to stimulate change at a more fundamental level, assisting people in learning how to learn by developing their abilities in critical thinking so as to deal with the increased complexity of agriculture. Smith had identified learning-to-learn as

“a complex, lifelong process – or a constellation of processes – through which people acquire and modify their skills and capacities for knowledge acquisition, problem solving, and the extraction of meaning from experience. It refers to learning about learning itself. Conceptually, the idea subsumes the more specific notion of ‘metacognition’ (‘knowing about knowing’ or ‘thinking about thinking’)”. ...it is a developmental process.”

There is some debate as to whether it has a relationship with critical reflection. It can occur in a haphazard manner, where the learning “develops a concept of ‘self as learner’”.

The core philosophy underpinning NAVIGATOR® was for participants to increase their confidence and abilities, so they could define their own successes and areas of need rather than others doing it for them. This was to be achieved by the participants identifying their options, choosing their own direction, and eventually taking control of their learning. In taking this approach their self-confidence could be enhanced, allowing them to be ‘empowered’ to make changes and work towards self-reliance from traditional government extension services. In this respect, it followed along the lines of Dewey’s ideas, and American Pragmatism and Humanism ideals (refer Chapter Two).

For effective change to occur, participants needed to have a desire for change and a need and relevance for learning that fitted within their current limits of knowledge, resources, and social situation. Unless these elements were met, all good intensions could be unfruitful. The types of changes in producers that were being sought and the broader economic goals desired by PIRSA, meant the program was looking to satisfy PIRSA’s outcomes and those determined by the participants in designing and implementing their projects.

35 Hatch (1985:178)
Hatch (1985:178) goes on to say that culture “consists of conventional patters of thought and behaviour, including values, beliefs, rules of conduct, political organization, economic activity, and the like, which are passed on form one generation to the next by learning – and not by biological inheritance. The concept of culture is an idea of signal importance, for it provides a set of principles for explaining and understanding human behaviour.”
The following research framework outlines the approach taken to achieve a program of the type described above.

### 5.3 The Research Framework

The dual objectives of NAVIGATOR® meant that a dozen elements needed to be considered in its design:

1. PIRSA’s and the participant’s objectives needed to be met.

2. An alternative approach to existing programs that focussed primarily on production and business aspects through the transfer of technology and diffusion of innovations; or the more recent, facilitated workshop approaches with predetermined learning modules.

3. The development of people’s personal skills in problem solving and strategic planning by learning how to learn and enhancing their skills in critical thinking, and the development of human and social capital. The development of critical thinking skills sought to stimulate people’s thinking; to challenge them to search for new information and to act, where they saw fit, to improve their situations. These abilities were seen to constitute important aspects of human, social or cultural capital, emerging as essential ingredients in the development of more sustainable agricultural and social systems.38

In the process of enhancing human capital within a supportive environment, people’s leadership skills could be encouraged and contributions to the building of social capital strengthened. In observing these processes an assessment of the participants ability to respond to market changes, to produce a consistent supply of products that are always ‘fit for purpose’ and internationally competitive could be ascertained.

4. It needed to be centred around the participants’ needs so they could own their decisions to determine what and how they were to learn enabling them to self-direct their learning,39 as it is not always obvious to an outsider what learning is required to make improvements. This would enable them to specifically target areas needing improvement based on their individual and

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39 The development and contributors to ‘self-directed learning’ (i.e. learning initiated by the individual), were discussed earlier in Chapter Two. Hiemstra proposes that several things are known about self-directed learning. Some include: “(a) Individual learners can become empowered to take increasingly more responsibility for various decisions associated with the learning endeavour. (b) Self direction is best viewed as a continuum or characteristic that exists to some degree in every person and learning situation. (c) Self direction does not necessarily mean that all learning will take place in isolation from others. (d) Self-directed learners appear able to transfer leaning, in terms of both knowledge and study skill, from one situation to another. (e) Self-directed study can involve various activities and resources.” (Hiemstra, R. (1996) Self-directed Learning. In Tuinman, A.C. (ed.) International Encyclopaedia of Adult Education and Training. Second Edition, Elsevier, Oxford, p.428).
collective need(s), rather than undertaking activities predetermined by others.

In a practical sense, by acting on these decisions, rather than just recognising what was required, their skills and knowledge in accessing and interpreting information for themselves could be improved through increased confidence. These features would enable participants to: discover what they didn’t know; achieve change in how information was acquired and interpreted; and apply the strategic thinking processes to other areas of their lives where decision making was needed. Hence, innovative approaches to problem solving would need to be developed.

5. It needed to encourage the participants to look beyond production and consider other influences on their business.

6. The developed learning process needed to be absorbed through learning by doing, allowing it to be applied to other areas of their lives, to achieve self-reliance and empowerment.

7. The facilitator’s role needed to be limited and eventually removed, if the participants were to obtain independence and become self-reliant.

8. The design needed to be simple but, also, utilise peoples existing human and social capital gained through their existing experiences and connections to industry and their community, and expand on these.

9. It needed to ensure equity amongst the group members by sharing responsibility for tasks – and be effective across a range of age groups and cultural backgrounds, and for people with varied levels of education, skills and knowledge.

10. An evaluation of the program’s progress and outcomes needed to occur from the beginning through to its completion, to determine if change was occurring and what changes observed could be attributed to the program.

11. Wineries and winegrape producers needed to obtain ownership of the program. This would enable it to continue beyond the government’s investment period and reduce feelings of abandonment once government had withdrawn from the program. It was proposed that this could be achieved by involving industry in all stages of its development and implementation.

12. It needed to be easily adapted to other areas in addition to the wine industry.

Many approaches are adopted in conducting social research, but I found Crotty to have one of the more concise explanations and have used his framework to explain this research. He proposes that social research contains four key elements which inform each other: epistemology (theory of knowledge), theoretical perspectives (philosophical stance), methodology (strategy or plan of action), and methods (techniques or procedures used for data collection and analysis).40

NAVIGATOR® was developed and evaluated by taking a constructionist approach. As Narayan had pointed out, no single learning model is able to meet every learner’s needs,\(^{41}\) so the elements of many theoretical perspectives and methodologies like those discussed in Chapters Two to Four, were drawn upon. The most prominent influences have been listed in Table 5.1, along with the methods used in monitoring and evaluating NAVIGATOR® (discussed later). However, it should be noted that Dewey’s experiential learning arising from Pragmatism ideals and Roger’s self-directed learning from the Humanism perspective were core theoretical perspectives of NAVIGATOR®. The use of these approaches will be discussed in more detail in later sections where the development of the NAVIGATOR® process is described.

<table>
<thead>
<tr>
<th>Table 5.1</th>
<th>Research Elements</th>
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<tbody>
<tr>
<td><strong>Epistemology</strong></td>
<td><strong>Theoretical Perspective</strong></td>
</tr>
<tr>
<td>Constructionism</td>
<td>• Pragmatism</td>
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<tr>
<td></td>
<td>• Humanism</td>
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The development and implementation of NAVIGATOR® occurred in four stages between July 1999 and June 2002 (see Figure 5.3).\(^{42}\) Stage one, involved the development and piloting of the NAVIGATOR® process to winegrape producers and winery employees – grape liaison officers and viticulturists – with facilitation conducted by Rural Solutions SA. In the second stage winery employees were trained to deliver the process to their contracted producers. Further training of additional industry facilitators occurred in stage three. Those facilitators included winery employees and winegrape producers who had been participants of groups facilitated by Rural Solutions SA, or had become aware of the program and wanted to be involved. At stage four, PIRSA’s funding of the program ceased, leaving NAVIGATOR® to be delivered by industry. Hence, the research described here, primarily involves stages one to three.


\(^{42}\) Figure 5.3 is adapted from Boon (2002:26).
Figure 5.3 Development and Implementation of NAVIGATOR®

<table>
<thead>
<tr>
<th>Stages of Development and Implementation</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002 onwards</th>
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</thead>
<tbody>
<tr>
<td><strong>STAGE 1:</strong> Develop and pilot NAVIGATOR®</td>
<td></td>
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<tr>
<td>- Government facilitators with industry input</td>
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<tr>
<td><strong>STAGE 2:</strong> Industry and government continue to pilot NAVIGATOR®</td>
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<td></td>
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<tr>
<td>- Facilitator training</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>- Continued process refinement</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>STAGE 3:</strong> Industry delivers NAVIGATOR® with government providing support</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>- Facilitator training</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>- Continued process refinement</td>
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<td></td>
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<td></td>
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<tr>
<td><strong>STAGE 4:</strong> Industry continues delivery</td>
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</table>

The staged approach aimed to encourage industry representatives to deliver the process, rather than leave government to ensure its continuation beyond 2002, and to ascertain whether winegrape producers facilitating to their peers was an effective delivery mechanism.

Those who became involved in the program were crucial in assisting in its development, refinement and implementation. Their early involvement in the development stages provided ownership opportunities, so it could continue once PIRSA had ceased its funding. The journey of developing the NAVIGATOR® process; forming groups; training facilitators; monitoring and evaluating of the program; and reporting and its promotion is detailed below. On completion of the project avenues to commercialise NAVIGATOR® were also explored.

### 5.4 Developing the NAVIGATOR® Process

Several key criteria were established in formulating the framework for the NAVIGATOR® process. These included: an absence of specified information and outcomes on what and how the participants were to learn; minimising and eventual removal of the facilitator’s role to increase participation and learning opportunities; the absence of written information in the form of a manual for participants; provision for making mistakes; and most importantly keeping the participant central to the processes development.

Limiting the role of the facilitator, allowing participants to learn from their mistakes, and the focus on maximising the participants learning opportunities were critical to the participants obtaining ownership of their learning experiences. Carl Rogers had identified that in facilitating learning groups, the focus should be “the honest artistry of interpersonal relations, and not the facilitator’s predetermined aims for the group.” As Rogers had done in his work, NAVIGATOR® had no specific goal for a group, but aimed to see “some sort of
process movement”. The pace at which change was to occur was also important, along with activities that suited the participant’s abilities, level of learning and relevance to their situation. This would enable learning to be viewed in a positive way, providing the opportunity for continued learning experiences.

The tension that exists between the facilitator’s role and active participation by the participants that can occur in programs like NAVIGATOR®, is rarely acknowledged in program design. There were two main concerns regarding the facilitator’s role. The first involved facilitator ‘burnout’, which had been noted by my peers in other programs and reported to occur with facilitators of Landcare (described in Chapter Four). It occurred where facilitators undertook tasks that were to be performed by the participants in order to achieve the specified project outcomes, or to maintain the energy of the group. This would sometimes be the case even when group participants had decided what it was they wanted to learn, but were not willing, or able, to do the ‘leg work’.

Second, it is common that, once government funding has ceased, initiated activities no longer continue. This is in part due to the facilitator being central to a project’s success, evidence of this had again been noted in Landcare. To address this problem, dependency on the facilitator was limited by devising a way for the participants to take responsibility for their learning and in doing so ‘real’ producer participation could be obtained. In experiencing NAVIGATOR®, it was hoped the participants would absorb the process structure and no longer require a facilitator, encouraging interactive and self-mobilised participation. Hence, NAVIGATOR® was seen to be the enabling framework, to achieve this objective.

Concern about potential failure also often leads a facilitator to intervene in learning activities, particularly where specified outcomes are to be obtained within a certain timeframe. This brings additional complexities to the concept of ‘empowerment’, which can be problematic for the facilitator, in that to empower the participants the facilitator needs to stand back and let them have control. Indeed there is a strong sense in which empowerment is in reality self-empowerment.

46 Cock (1992)
47 These were described by Pretty in 1995 and outlined in Table 4.2, Chapter Four (Pretty, J.N. (1995a) Participatory Learning for Sustainable Agriculture. World Development. Vol.23, p.1252).
Malouf commented that to achieve successful learning experiences the ‘risk of failure’ needs to be removed. However, learning also occurs by reflecting on failures. Hence the approach in NAVIGATOR was to minimise failure but not avoid it, to allow the longer-term outcomes of achieving social changes in the way participants defined, accessed and interpreted information to be obtained.

Working in groups was offered as a way to achieve successful outcomes through coordinated approaches, allowing people to draw upon the group’s collective knowledge and to obtain support from their peers.

In forming the NAVIGATOR process, action learning (changing individual behaviour through personal development) and action research (improved practice at the collective level) methodologies along with adult education and learning principles (outlined in Chapters Two and Four) served as a starting point. The use of these principles and processes is not unfamiliar in other programs that use non-directive tactics, but are often used to generate motivation by extension agencies, intending to promote ownership of programs that usually impose a direction in production, environment or business management. Examples of this have included Farmer Field Schools, Property Management Planning and Landcare, which had very open criteria for project funding, but the participants needed to locate themselves within certain guidelines. Murray had the following comment in relation to programs of this type:

“It is difficult to see how programs with predetermined outcomes can simultaneously be genuinely participatory, that is programs where participants have a significant role in determining the agenda.”

She went onto say that, “Predetermined measures and predetermined outcomes are not compatible with participatory approaches.” Hence, NAVIGATOR aimed to use the above approaches in a more rigorously and non-directive way.

To achieve the objective of action learning and action research, it was necessary for the participants to, not only decide for themselves what and how they wanted to learn (i.e. self-direct their learning), but to also perform all of their defined tasks to make the learning experience more informative. In containing these features it was similar to People-Centred Agricultural Development (discussed in Chapter Three) without the technological focus; and participatory community driven development processes, where community groups “initiate, organise, and take action to achieve common interests and goals.”

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50 Malouf (1994); Narayan (1998:105)
In allowing for greater flexibility in learning, the participants were more likely to absorb the strategic planning and critical thinking processes built into NAVIGATOR® without being aware it was occurring. In finding their own solutions to their identified problems, they could orient their behaviour to suit their situation, giving the learning experience more relevance to their particular circumstances, increasing the likelihood of further learning activities and successes. This, in turn, has the potential to allow previous learning experiences to be fed into the next learning experience, creating an upward learning spiral.\(^{54}\) It also removed the expectations on learning which can often lead to failure due to the lack of appropriate support mechanisms.\(^ {55}\) The robustness of the process to withstand various facilitation styles and levels of experience was also important. NAVIGATOR® needed to be effective without an experienced facilitator, particularly if the participants were to become independent.

The NAVIGATOR® process came to include four components: Exploration Workshop, Project Development, Project Implementation and a Project Review (see Figure 5.4).\(^ {56}\) On completing a cycle of the process, it could be repeated if the participants decided to continue as a group, enabling them to progress their learning by building on their existing knowledge and skills.

Each of these stages was designed around a planning cycle (refer Figure 5.5).\(^ {57}\) The use of the planning cycle involving an action learning and research approach is not new. In NAVIGATOR® these approaches were used as the bases for the process structure, rather than a stated activity within a program often with predetermined technical or marketing outcomes that occurred in other programs. The approach gave the participants the opportunity to engage with the process repeatedly if they wanted to continue learning together. In repeating the process, it was anticipated that the participant’s human and social capital could be developed by drawing on prior experiences and constantly reinforcing and developing their critical skills in gathering, interpreting and managing information, clear and holistic thinking, and strategic planning which could lead to self-reliance.

This approach has similarities to Röling and Jiggins ‘discovery learning’, which “relies on engaging people in experimentation, observation, measurement and so on which allow[s] people to draw their own conclusions.”\(^ {58}\) NAVIGATOR® attempted to address the issue of engagement by removing the need for predetermined outcomes to allow the participants the flexibility to fully direct their own learning experiences, as demonstrated in the following sections. As mentioned earlier, minimising the role of the facilitator was critical to obtaining these outcomes, and how this was achieved in practice is given more attention later.


\(^{55}\) Narayan (1998:105)

\(^{56}\) Figure 5.4 is adapted from Boon (2002:20).

\(^{57}\) Figure 5.5 is adapted from Boon (2002:20).

The final version of the NAVIGATOR® process was collated into a 321 page manual consisting of ten sections (see Table 5.2). The manual was absent of any content that the participants were to learn, as is usual for other programs. Its purpose was for the facilitators use only, to describe the NAVIGATOR® process, so they could use it to support the participants in directing and acting on their learning journey.

59 Figure 5.6 is adapted from Boon, K.F and Murray, P.M (2002) NAVIGATOR® for Winegrapes. PIRSA Rural Solutions, Lenswood.
Table 5.2  NAVIGATOR® Manual Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Description of Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How to Use the Manual</td>
<td>Describes how the manual is set out and provides a description of the NAVIGATOR® process.</td>
</tr>
<tr>
<td>2. Introduction</td>
<td>A prepared presentation for facilitators to give potential group participants an understanding of NAVIGATOR® before they commit to a group.</td>
</tr>
<tr>
<td>3. Exploration Workshop</td>
<td>The NAVIGATOR® process (described in more detail below).</td>
</tr>
<tr>
<td>4. Project Development</td>
<td></td>
</tr>
<tr>
<td>5. Project Implementation</td>
<td></td>
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<tr>
<td>6. Project Review</td>
<td></td>
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<tr>
<td>7. Refocussing Workshop</td>
<td></td>
</tr>
<tr>
<td>8. Evaluation</td>
<td>Contained facilitator evaluation forms for each stage of the NAVIGATOR® process. The forms were for use by the facilitator: for reflection on how a group had responded in each of the sessions held; to help improve their observation skills; and to critically review their facilitation style.</td>
</tr>
<tr>
<td>9. Funding and Contacts</td>
<td>Contained handouts on various funding organisations and how to contact them. These were provided as sources of information that the facilitator could provide to the group if needed, particularly if their project required external funding.</td>
</tr>
<tr>
<td>10. Additional Information</td>
<td>Contained: icebreaker activities that could be used in the initial establishment of the group if the participants were not familiar with each other; a Hints page to provide some facilitation tips; and a Troubleshooting page to address issues associated with lack of attendance and dominate group members.</td>
</tr>
</tbody>
</table>

Sections three to seven of the manual (outlined in more detail below), describe the process in detail in a in a step by step table format. Possible questions to stimulate peoples thinking and enquiry were also included as a guide, to support those individuals with limited facilitation experience, along with potential responses from the group to the activities and questions. A master copy of prepared handouts and/or slides that supported the process was also supplied in hard and electronic format, along with a copy of the NAVIGATOR® brochure (Appendix E). The use of slides was optional, depending on where and how the group held its meetings, and the facilitator’s familiarity with the process.

The activities undertaken throughout the process, with the exception of the Project Implementation, involved small and large group work to encourage discussion and consultation with group members. However, it should be noted that the facilitator’s attitude towards the participants learning was critical to ensuring the outcomes for the program could be met (discussed further in 5.6 Industry Facilitator Training).
In 2001, interest was expressed to trial the process in the dairy industry. Consequently, a dairy manual was produced for this purpose and a group established.

5.4.1 Exploration Workshop

The Exploration Workshop aimed to encourage participants to focus their efforts by defining areas for further investigation and development that had relevance to them as individuals and within the group. It involved a series of activities that answer the questions ‘where do we [the participants] want to get to?’ and ‘where are we now?’ (refer Figure 5.5), at an industry and personal level. This was achieved through the establishment of a working agreement, identification of external influences on their industry and business, and an individual assessment (see Figure 5.6). The additional question ‘where should our focus be?’ (shown in italics in Figure 5.5), focused the group on a project area, by clearly defining what they needed to know, reducing the risk of taking on too many activities which may have led to failure.

**Figure 5.6 Exploration Workshop Structure**

<table>
<thead>
<tr>
<th>Working Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defines how the group wishes to function and role of the facilitator</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>External Influences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defines the group’s views on their industry in their region, impacts on their industry and how they view it in the future</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Individual Assessment</th>
</tr>
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<tbody>
<tr>
<td>Defines where areas of improvement are needed</td>
</tr>
</tbody>
</table>

| Project Area |

**Working Agreement**

A working agreement was established early in the Exploration Workshop, to clarify people’s expectations of the group and its members. The sharing of information, expectations of behaviour and roles, and the values and beliefs people had in being involved in a group were discussed. This was initiated by asking the group to voice what types of behaviour they did not approve of and then structuring their expectations from these comments. How people viewed the purpose of the group was also determined and a group statement developed from their ideas.
Clarification around these topics was considered essential to the future functioning of the group, particularly where participants did not know other group members. This allowed them to create their own safe learning environment, both mentally and socially, in order to make their learning worthwhile.\(^60\) It also defined the functional aspects of working towards improved knowledge and common goals, by providing members with an understanding of what people expected of others in terms of behaviour and commitment when working together; and reduced the risk of resources and information being controlled by dominate or leading community group members. Similar ideas of establishing ground rules early in a groups formation have been noted by others, so that future interactions are productive and bring order to the behaviour and attitudes of the group (e.g. Sherif and Sherif (1968); Cock (1992); Malouf (1994); Narayan (1998); Sniezek (2001)).\(^61\)

In determining the participants’ working agreement, the role of the facilitator was also formally clarified. This was achieved by asking the participants what they thought the facilitator’s role would be, listing their expectations and discussing these. In clarifying the facilitators’ role upfront, it was anticipated that independence from the facilitator and commitment to each other and the project could be obtained. Having a clear understanding of their role, would also assist in the project design stage, where consideration was given to the amount of time that the participants could commit to their group and project.

Finally, participants were asked if they wanted to name their group. Again this was to foster ownership and provided the group with an opportunity to select a title that reflected their identified purpose.

**External Influences**

This stage of the workshop encouraged the participants to look more broadly at their industry and develop an awareness of the range of considerations that had influence upon it and the impacts of these on their own business. The activity asked the participants to imagine their industry in the future and to identify the main influences in shaping their industry, including the practice or activity associated with these and how they may be measured. The latter part of the

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\(^{60}\) Malouf (1994)


Cock (1992:318) for example, proposed the following in relation to establishing ground rules: that “the development and implementation of basic structures and processes for group management need to occur during the early ‘honeymoon’ phase of the group, because later, when they are more needed, they will be difficult to develop.”

While Sniezek (2001:6400) noted that in situations where group members are unfamiliar with each other there are difficulties in predicting the other group members’ behaviour and therefore the extent to which they will work towards a group goal. Hence it is necessary to negotiate group goals so that “purposeful interaction can occur”. 

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exercise challenged the participants to look more closely at their business and think about how they saw themselves operating within it.

**Individual Assessment**

The individual assessment involved two activities. The first asked the participants to reflect as individuals on their own business by identifying its positive aspects in the areas of production, business and finance, environment, market and people. Their thoughts were shared with the other group members if they thought it appropriate.

The second exercise involved an assessment of the skills and knowledge within the group, again across the five areas mentioned above, and listing these. In viewing these skills, with the broad picture in mind from the earlier exercise, the participants determined what they had control over and areas where they or their business needed to improve. This was achieved by assessing each item using a matrix that asked them to question, how often they used the particular skill or knowledge and how good they thought they were at using it. Five priority areas were then identified by the participants from this assessment as to determine their project area.

**Project Area**

The group’s project area was determined by collating the participant’s individual needs and observing the five most frequent occurrences. The participants then discussed whether they would like to focus their efforts on one of the topics raised, or undertake a general project across a few or all of the areas identified.

A jointly-agreed project was important to give the members a common interest and goal. It was hoped this would enthuse the participants to continue to be involved in the project as it had relevance to their personal circumstances, and consequently a personal benefit could be obtained through the acquisition of new knowledge or skills. Defining the project area in this way also placed the individuals in a supportive learning environment: many opportunities to discuss their views in a non-confrontational way were provided and the group members could help each other in learning, supported by their mutually agreed working agreement.\(^{62}\)

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\(^{62}\) Others had also recognised the importance of common goals in groups. For example, Fisk *et al* note that in community learning in integrated farming systems, “there must be something holding them [the community] together at a fundamental level which encourages them to expand together. A common vision held by all serves to bind them together, encouraging trust and collaborative effort as well as guiding the community. A learning community focuses on the process of learning and change as well as on the content of the issue at hand.” (Fisk, J.W., Hesterman, O.B. and Throburn, T.L. (2000) Integrated Farming Systems: a sustainable agriculture learning community in the USA. In Röling, N. and Wagemakers, M.A.E. (eds.) *Facilitating Sustainable Agriculture*. Press Syndicate of the University of Cambridge, United Kingdom, p.218.)
In discussing cognitive psychology in group decision making, Sniezek reports that “regardless of their overall purpose, every group must make decisions so that member’s actions are coordinated, and directed toward the common objective.”\textsuperscript{63} The necessity of the need for a common objective and the “coordination of individual members’ cognitive processes and communication of the outputs of these processes” primarily emerge from the added complexity associated with the processing of information within groups compared to an individual.\textsuperscript{64} The importance of a collectively determined need was seen to be important at this stage and in the following stages, where clarification of comments and intentions would be needed to keep the group functional.

A modified version of the Exploration Workshop, titled the Refocussing Workshop, was later developed for repeated cycles of the process and is discussed further in 5.4.5 Refining the Process.

### 5.4.2 Project Development

The Project Development stage addresses the question ‘how are we going to get there?’ (refer Figure 5.5). It focuses the area of interest identified in the Exploration Workshop and develops a project plan, by asking the participants to discuss and map out their project through a series of questions and activities.

The participants make decisions on what they want to achieve (i.e. their aim and objectives), define what they need to know, and how they want to learn within their particular circumstances. The result is a project that suits their needs and other commitments in a format that is of interest to them. This approach aims to develop their self-confidence by developing strategic planning skills and fostering a greater commitment to the project where participants are in control of all the decisions relating to its development and implementation.

Since people are more likely to make changes if they participate in training activities and gain information from more than one source, the level of preferred participation can vary.\textsuperscript{65} To address this, the group members determined the amount of involvement that was needed to achieve their stated outcomes and types of training required (if any). They were also asked to think about where they may obtain information they had identified as important to meet their project objectives, to encourage the extension of their networks and possible avenues for seeking information including within and external to government.

The facilitator was required to refrain from intervening in the participant’s decision-making process, so as not to hinder the exploration of their ideas and avenues of enquiry. Strategic planning was also not discussed explicitly but was achieved by addressing questions within the processes structure and checking that the project design was meeting their initial aim and objectives. Through this method skills in learning to plan and achieve focused and targeted outcomes could be obtained, increasing the chances of success.

\textsuperscript{63} Sniezek (2001:6399)
\textsuperscript{64} Sniezek (2001:6400)
\textsuperscript{65} Black (2000)
Once the participants identified what needed to occur to achieve their projects aim, a timeline with the associated activities was developed to give the project further structure. It also served as a reality check to ensure the group did not take on more than group members were prepared to offer, again, making it more likely to achieve a successful outcome. In addition they were asked if any training would be required - once more encouraging the participants to think strategically and plan their input.

Due to the reflective nature of the process at the Project Implementation and Project Review stages, an evaluation of the producers’ project occurs informally. However, the group is asked if they would like to formally evaluate their project, which may be required if external funding was being sought.

Once the project was planned, the first set of tasks identified was assigned to begin the projects implementation. This was a crucial step in determining commitment to the project, as a lack of commitment would result in the projects failure. If the facilitator were to take on a coordination role at this point, the opportunity to encourage the participants to take responsibility for themselves and obtain self-reliance would be missed, resulting in a relationship of dependency.

5.4.3 Project Implementation

The Project Implementation is where the participants ‘act on our [their] decisions’ (refer Figure 5.5). It is the only stage that was continually repeated within a project cycle until the project was completed. The fostering of cultural change as defined by PIRSA, in building human and social capital, creating continuous learning, and strategic planning (by gathering, interpreting, and managing information) happened here.

It involved the group taking action on their decisions determined in the Project Development stage. Progress and direction were constantly reviewed. Engagement in activities, allocation of tasks and ensuring that the next date, time and location of meetings were set also occurred. The order of the activities could be modified to suit the group’s needs and some removed if not required.

Participants were encouraged to rotate identified tasks and the organisation of meetings. This approach was different from many other programs where an external person (such as a facilitator or extension agent), or a ‘nominated’ volunteer from the group, would exercise leadership. The encouragement to share responsibility and workload, ensured that all the group members participated by utilising peer pressure to progress the project and take the onus off the facilitator. It also aimed to prevent one or a few members taking control of the groups activities and resources.

Again the onus was on the group to actively direct their own learning activities in this stage of the process. Communication, the sharing of ideas and problem solving was also encouraged. As Malouf has noted that these characteristics allow participants to learn from each other as “learning is essentially a social
process”.

On completing their project, the group underwent a review of their project.

### 5.4.4 Project Review

The Project Review, ‘reviews how we [the group] went’ (refer Figure 5.5) in achieving its stated outcomes in the Exploration Workshop. Although, normally conducted once a project was completed, it could also be used: as a refocussing point for longer projects; if the participants felt they had lost their way; or where other commitments such as vintage had distracted their activities.

The session was designed to engage participants in critically analysing their project through a series of activities and structured questions. It encouraged them to reflect critically on what they initially set out to accomplish, acknowledge their achievements and identify any areas for improvement. This gave the participants confidence through their achievements, solutions to areas where they needed to improve, and completed the learning cycle. From this point, the group determined their continued direction by considering five options: (1) beginning the next project on their priority list (developed in the Exploration Workshop); (2) expanding or refining the existing project; (3) identifying a new project(s); (4) continuing the current project if not complete; or (5) disband the group. If the group chose to continue learning together, they began another cycle of the process entering at the appropriate stage.

### 5.4.5 Refining the Process

The refinement of the process was important to guarantee the participants were identifying and pursuing their own goals while simultaneously ensuring PIRSA’s objectives were achieved. To accomplish this, a qualitative evaluation approach was built into the program from its outset and changes made where parts of the process were shown not to be effective. In the second and consecutive years of the program, a participant from each of the groups or a winery employee was trained to take over facilitation of the government facilitated groups. Together these participants and facilitators assisted in providing additional information to refine the process. Since the information used in refining the process was also used to analyse the overall effect of the program, further explanation is provided in 5.7 Monitoring and Evaluation: a qualitative approach.

Parts of the process that did not fully engage the participants (predominately the Exploration Workshop and Project Development stages), or allow them to be in control of decisions and the final outcome of their projects, were progressively removed or modified. This was because less input from the facilitator meant.

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66 Malouf (1994)
67 The Exploration Workshop underwent the most changes. It initially contained an icebreaker activity and an explanation of benchmarking and the planning cycle. The icebreaker was removed as it did not add any valuable contribution to the process, particularly where the participants new each other. The benchmarking explanation and planning cycle were also removed as they were essentially ‘talk-at’ sessions, rather than providing opportunity for any meaningful interaction. Additionally, the planning cycle appeared to bore the participants, and since they would indirectly learn it by undertaking the process (i.e. learn by doing) it was not
more activity, creativity and control from the participants. Additionally, a producer’s decision to engage and be involved in learning activities could be determined by the amount of commitment required amidst competing pressures. Hence, consideration was given to the amount of time spent in undertaking some of the stages.

A Refocussing Workshop was later developed as an alternative to the Exploration Workshop for groups that had completed a full cycle of the process. Its development grew from the idea that participant’s skills in holistic thinking and strategic planning would have been enhanced by completing a cycle of NAVIGATOR®. As a modified and shortened version of the Exploration Workshop, the Refocussing Workshop could be undertaken where the participants needed to: refocus their group; restart the process from the beginning as they had no more identified projects, and a short time has elapsed since undertaking the Exploration Workshop; or new members had joined the group, bringing with them new ideas and views. In undertaking this workshop the group revisited the guidelines they had set for the group function, their regional vision, reflecting on their own business, and determined a new project direction.

The program also underwent a change in name. Originally titled Better Practice Winegrape Production by PIRSA, the name was changed to NAVIGATOR® in the later part of 2000. The instigation for this arose from the original title misleading producers to think the program was based on production issues. The delivery of the program by Rural Solutions SA and wineries only appeared to reinforce this view from the producer’s perspective. Additionally, the name did not lend itself to encompass all of what the process represented and could not be utilised in other industries or areas outside of agriculture. Since it was desirable for the participants not to have preconceived ideas as to what they were to undertake (e.g. production based projects), a name change was considered necessary.

5.5 Industry Engagement and Group Formation

Interest in NAVIGATOR® was gauged through discussions and presentations to a selection of wineries, winegrape producer associations and individual producers across South Australia. The involvement of corporate wineries was preferred as they were more likely to have the human resources (though stretched) to be engaged as facilitators and assist in its development and implementation. They also had access a large number of producers, so that the program could be trialled with individuals that had a diverse set of skills, knowledge and abilities. The idea of obtaining self-reliant winegrape producers was not altogether foreign to leading wine companies. Orlando-Wyndham for example, had also identified that as

needed. Confusion surrounding the benchmarking session was noted. It also led the earlier participants in the program into benchmarking projects, rather than one of their choosing, which inhibited the development of new ways of thinking and problem solving.

The Project Development stage was initially composed of two separate sessions. These were combined as they had similar elements and enabled the participants to implement their project(s) earlier, as less time was taken in planning. The planning process, shown as a reminder of the basis for NAVIGATOR®, was removed for the same reasons as those described for the Exploration Workshop. No changes to content where made to the Project Implementation and Review stages.
more specialist knowledge is required in producing fruit, producers needed to increase their self-reliance.\textsuperscript{68}

Smaller wineries that were approached could not see the value in the program for their contracted producers. The pressures of time and finances in which to establish and trial the program ultimately dictated the number of groups formed. This meant that further pursuit of additional to medium to smaller wineries was not possible.

Potential participants were informed about the program using the same methods as in developing industry partnerships (i.e. one-on-one discussion and group presentations). Since there was no delivery of any specific information with predetermined outcomes in terms of what the participants were to learn, the program was initially described as a process where producers came together to work on a project, or group of activities, which they had identified to suit their needs.

Later when the process structure was further established, it was articulated as a process with a structured framework, that aimed to assist participants in identifying their options, choosing a direction where it was important for them to concentrate their efforts, and in doing so, take control by focusing on these areas and taking action. It was highlighted that in determining where to concentrate their efforts, the process could assist the participants in developing strategies to make changes to suit their constantly changing circumstances. The focus areas were determined by using a holistic approach (i.e. it covered all the aspects of their business in the first instance), to determine where they would like to focus their efforts; and all the activities were producer determined and driven, in a group environment, assisted by a facilitator in the first instance to access relevant information and funding, if required, to achieve their specified goals. A description of the process structure was also provided, along with examples of other group’s projects, features of the process including the limited role of the facilitator, and perceived benefits of being involved in a group. Concepts such as strategic planning, capacity building, cultural change, self-reliance and others, were not mentioned as these were essentially language used by government and did not have any relevance to the producers.

Since participatory learning was being encouraged, smaller group sizes of 10 to 15 participants were preferred. This allowed for the responsibility of tasks and information to be shared more easily; and prevented the likelihood of difficulties in lack of cohesion than can occur in larger groups.\textsuperscript{69} Lack of cohesion was of particular concern as it can cause difficulties with the ‘development’, frequently followed by the rapid ‘burn out’ of one or two active group members, together with the general disillusionment and demise of the whole group. In comparison a

\textsuperscript{68} Hoole (1997)


Ball had noted in his study on defining how people’s awareness and commitment to the environment developed, that for learners to engage in an activity support and trust from their peers was important, and more likely to result in a sustained commitment to their cause Ball, G.S. (1999) Building a Sustainable Future Through Transformation. Futures. Vol.31, p.269).
cohesive group generates more positive attitudes and behaviour and are generally self-maintaining.\textsuperscript{70}

The formation of groups occurred in four ways:

- By approaching individuals who were interested in sharing information and allowing them to self-select their group members.
- By the facilitator selecting participants who were interested in sharing information and then forming a group.
- By obtaining an expression of interest from producers to be involved and then placing them into a group.
- By engaging existing groups.

The first approach was preferable as the participants generally knew each other on a social basis and were more willing to share information. Additionally, the risk of placing individuals in groups that did not get along was virtually eliminated, as the situation in which individuals are located has the most influence on their behaviour (as opposed to traits or other cross-situational constants).\textsuperscript{71} Hence it was assumed that, in allowing individuals to select who they were to learn within their chosen environment, the group would be more likely to stay together for continuous learning and development.

Generally the second and third options were done in conjunction with the wineries that had numerous producers to service. In regions where more than one cultural background occurred, these were generally separated because of social interactions; although this was not as strongly adhered to as may have occurred in the past.

5.6 Industry Facilitator Training

Industry facilitators were organised in several ways. They were either winery employees who had been involved with the program from its inception, either as a group participant or assisting a government facilitator; a producer participant within an existing group; or an individual connected to a member of a group. The two latter facilitators emerged after the group had completed a cycle of the process, originally facilitated by government, where group members were asked to select an individual as their new facilitator. If the identified individual was not an existing member of a group, they were approached over the phone to determine their interest in the group and a meeting held to discuss their involvement.

Groups facilitated by the winery employees were also offered the opportunity to


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have an alternative facilitator. The involvement of industry as facilitators, aimed to directly engage people with the program so that leadership skills could be developed allowing the program to continue after PIRSA ceased involvement.

The majority of the people who volunteered as facilitators had predominately a technical background. For winery employees, the style of information delivery they were familiar with was similar to the Transfer of Technology and Diffusion of Innovation models (described in Chapter Three). Earlier research had shown that there can be difficulties in getting technically trained people to think differently and stimulate group learning processes.\(^\text{72}\) Hence in many cases a shift in paradigm was required in training the NAVIGATOR\(^\text{®}\) facilitators. It was important to communicate clearly how NAVIGATOR\(^\text{®}\) differed from previous styles of delivery. An understanding of why it was important to let groups make their own decisions and mistakes, and how to foster a learning environment was essential. The facilitators needed to appreciate the necessity of trusting in peoples learning ability to allow “dialogue, reflection and communication”,\(^\text{73}\) and move from the role of expert to facilitator. The danger being that, facilitators’ who did not trust the group would tend to a more directive style of facilitation and hinder the participant’s opportunities to learn and develop.

A two day training session was developed, along with a NAVIGATOR\(^\text{®}\) Training Manual for those conducting the training. The training session had four key aims. The first was to ensure that the trainees understood NAVIGATOR\(^\text{®}\) had two sets of outcomes: those decided by the participants emerging as the projects devised and undertaken by the group; and those required by PIRSA in fostering cultural change through the development of leadership, and human and social capital. A clear understanding of these was critical to achieving the second aim, of understanding the philosophies underpinning the process. These related to how to achieve empowerment and self-reliance by allowing participants to direct their own learning by drawing on their experience and fostering an environment for critical thinking.

The outcomes specified by PIRSA that should ultimately lead to the empowerment of producers through the development of critical skills and knowledge - such as clear and holistic thinking and strategic planning - to deal with, and adapt to, the participants’ complex and changing circumstances were also discussed. It was essential that the trainees appreciate that, by following the process as designed, these outcomes could be achieved. They did not need to explain or describe the concepts of empowerment or the outcomes required by PIRSA. Rather, the producers, by pursuing a project that satisfied their own identified outcomes, developed the skills and knowledge seen as desirable by PIRSA. The producers would ‘learn to learn’, to network, to plan strategically, etcetera, in the course of their own projects.

The third aim was for the trainees to experience the NAVIGATOR\(^\text{®}\) process and, in doing so, demonstrate how it worked. This was achieved by explaining the process parts in terms of why they existed and what they were expected to

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\(^\text{72}\) Clark (1979); Röling and Jiggins (2000:294-95)
\(^\text{73}\) Freire (1973:41)
achieve. The trainees then experienced the process as both participant and a facilitator. Each of the components was discussed to address any questions or issues that may have surfaced. Again, the importance of following the process as designed was reinforced to ensure producer empowerment. Comparisons with other programs that the trainees were familiar with were provided so that they could compare the differences in approach, delivery and outcomes. The final aim of the training was for the trainees to develop basic facilitation skills such as effective listening, summarising, and using a whiteboard and overhead projector (if needed). These were discussed and practised.

Since the refinement of the process was ongoing, it was unknown how successful the process would be when facilitated by people who had limited or no facilitation experience. Discussions with the potential facilitators were held outlining the expectations of their involvement. The industry and peer facilitators were supported by a government facilitator (including me) for one year (refer Figure 5.3). This provided support to the facilitators and assisted in bridging the gap in the transition phase, of removing the government facilitators.

5.7 Monitoring and Evaluation: a qualitative approach

Observers of agricultural extension from the mid-1900s noted an appraisal of extension should be conducted to determine if the educational requirements of the receivers of information were being met, particularly where public funds were used to fund extension activities. However, measuring the impacts of extension can be problematic. Other direct or indirect influences and learning opportunities (i.e. formal, informal and incidental learning), from which skills can be gradually acquired, can occur as a person moves through their everyday life.74

The monitoring and evaluation of Australian agricultural extension activities have been limited in their use and methods for participatory approaches,75 due to poor planning and design of extension projects leading to difficulties in situation and


Penders (1956:27) had noted that it was “almost impossible to measure by concrete standards certain aspects of rural life influenced by extension work, such as improved living conditions, the satisfaction derived from increased knowledge, self-confidence and independence of the rural population, development of leadership, etc.”

problem analysis. Anderson and Feder note that, for extension in general, ‘input indicators’ such as “the volume of contacts, number of agents, number of demonstration days, etc” are frequently used to try to determine the effects of extension. These types of ‘performance criteria’ are used because they require less resources and simpler to establish and therefore cost less, but “are not necessarily indicative of the quality and relevance of the knowledge conveyed.”

Participatory models demand that the extension agents meet the client’s needs and their interpretation of these needs. However, in trying to achieve this, the “workers’ accountability to the policy maker, employer or funding body becomes more and more difficult to establish.” The recent move towards outcome-orientated evaluation is also not seen to be appropriate, as government policies do not often match with participatory objectives. Rather then being driven by governments timelines, learners need to be able to self-direct their learning at a pace in which they are comfortable, an approach adopted within NAVIGATOR®.

To address these issues in the development and implementation of NAVIGATOR®, both formative and summative evaluation were utilised. A qualitative approach to the program logic was undertaken as it seeks “to discover understanding or to achieve explanation from the data instead of from (or in addition to) prior knowledge or theory”. Approaches of this type determine more accurately whether social outcomes are being achieved, as they allow for more in-depth and detailed information to be obtained, by the researcher learning from the participants how they experience, place meaning and interpret events. For example, in qualitatively assessing the impact of an extension activity on expanding primary producers’ networks, the types and relevance of the networks, impact they have had, and how they are maintained can be ascertained, rather than obtaining a measurement of the number of networks (as quantitative measures would do).

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77 Anderson and Feder (2003:14)
78 Murray (2000:519, 524-25)
The grounded theory approach, developed by Glaser and Strauss\(^{83}\) was adopted, as it is commonly used where change is expected and understanding of change and process needs to occur.\(^{84}\) Rather than using a positivist approach, where a set of hypothesis or theories are to be tested, grounded theory takes a constructionist view in selecting a topic to be studied and attempting to address what is occurring within a situation.\(^{85}\) It identifies, develops and relates concepts using a systematic set of procedures to produce theories that are generated or discovered, by “learn[ing] from the participants how to understand a process or situation”. These are verified out of the data collected for a particular phenomenon.\(^{86}\) Hence the emergent social theories are built or grounded in the data, rather than being derived from researchers’ experience or their speculation, as may occur in positivist approaches.\(^{87}\)

The information that is generated in grounded theory is more tightly connected, or highlights certain aspects, to the area under study.\(^{88}\) This is because the collection and analyses of the data occurs simultaneously; each provides a check on the other - a hallmark feature of this approach - and allows re-examination or modification of generated categories from the data to explain the identified phenomenon.\(^{89}\)

As NAVIGATOR\(^{®}\) aimed for changes in thinking and orientation, which may lead to changes in knowledge and/or practice, this approach provided more freedom and information to be able to look more deeply into how the process was responding. In monitoring and tracking NAVIGATOR\(^{®}\)’s development closely, aspects that needed to be changed were identified early on to ensure it was achieving PIRSA’s and the participant’s objectives. Consequently, identification and understanding of those aspects of the process that were not working well could also be ascertained, which was equally, if not more important, than identifying those aspects.

\(^{83}\) Grounded theory has its foundations in Symbolic Interactionism, where peoples’ reality is negotiated, changes, and constantly evolves.


Social theory is described as being “a system of interconnected abstractions or ideas that condense and organize knowledge about the social world” in order to define “how the world works”\(^{87}\) or can be explained (Denzin, N.K. (1978) *The Research Act - a theoretical introduction to sociological methods*. McGraw-Hill Book Company, New York, p.47).

\(^{88}\) Strauss and Corbin (1990:24)

elements that did work well. Those that were not meeting the desired outcomes were either changed and retested with a new group or removed completely (the changes to the process from this analysis were noted earlier in 5.4.5 Refining the Process).

The incorporation of formative methods, rather than relying solely on summative approaches, was more likely to enable the identification of the participant’s learning that could be attributed to NAVIGATOR®. Additionally, how well the process performed meeting the participants and PIRSA’s objectives, its effectiveness for different facilitators and whether primary producers were able to facilitate to their peers could also be ascertained. As the participants’ projects were evaluated informally through the processes structure as noted earlier, PIRSA’s objectives required a greater depth of information and analysis to determine whether they were being met.

5.7.1 Data Collection Methods

Assistance on the type of data collection methods was guided by the Rural Sociologist (evaluator). The range of methods selected assisted in improving the NAVIGATOR® process and assess its impacts. These methods included: data generated by the group; a range of participant and facilitator feedback approaches; and a comparison of complementary programs in Australia that aimed to broaden participants’ perspectives.

The multiple use and comparison of varying complementary data sources and methods of data collection, known as ‘triangulation’, allowed partial views to be reconciled and provided a fuller perspective or ‘thick description’ of what was occurring to be obtained. Triangulation assumes that, if the findings from all of the measures match then confidence and trust in the findings are increased considerably. If the results are not congruent, then analysis and comparison of the data is possible so that differences can be explained and understood.

Data Generated by the Group

Group-generated data was constituted from information produced by the group either on butchers’ paper, or by a volunteer note taker. This information was read alongside the facilitator’s assessment of the session (discussed later) and post session feedback questions that were provided verbally by the participants, so the group responses could be compared with the observations made by the facilitator.

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‘Thick description’ is defined by Kiel as the ability to “draw large conclusions from small, but very densely textured facts; to support broad assertions about the role of culture in the construction of collective life by engaging them exactly with complex specifics’.” It should be thought of as being “open-ended, a layering of meaning in which any bit of behaviour of any statement about human phenomenon can always be further contextualized and interpreted by the next human who comes along.” (Keil, C. (1985) Thick Description. In Kuper, A. and Kuper, J. (eds.) *Encyclopaedia of Social Sciences*. p.853.)
Participant Feedback

Since a participant’s experience may differ from that observed\(^{91}\) by the facilitator, it was important to add participant feedback, which was obtained in several ways: informally through their discussions with the facilitator and when asked to provide feedback at the end of each session on the process and their project and, more formally, through a focus group discussion.

The informal participant feedback was considered and reported in conjunction with the facilitator evaluation forms described later. The focus group discussion, designed to obtain participants experience and views on NAVIGATOR\(^{®}\), were held once a group had completed a complete cycle of the process, or had been working together for approximately one year. The participants were asked two sets of questions. The first set, asked them to think broadly and objectively about their experiences with NAVIGATOR\(^{®}\) and related to their group and who they thought the process would suit. The questions were addressed in small group discussions and the responses shared with the rest of their group with points being clarified where needed. The second set of questions were answered in writing by participants, who were asked to reflect on their personal participation in NAVIGATOR\(^{®}\) and what changes, if any, they saw in themselves through their involvement with the process.\(^{92}\)

Facilitator Feedback

Facilitator feedback was provided informally through *ad hoc* discussions on the progression of the program and, more formally, by the facilitators completing facilitator evaluation forms, semi-structured interviews, and a focus group discussion.

Facilitator Evaluation Forms. Facilitator evaluation forms were developed for each stage of the NAVIGATOR\(^{®}\) process to gather evidence of the groups’ development. These were completed by the facilitator after every session in the group’s absence, for each stage of the process until its completion. Instructions on how to fill out the forms based on identified indicators were provided. The participant’s involvement in this evaluation was non-reactive, in that they were not aware of it occurring, so as to allow for a more natural response.\(^{93}\) The evaluation was conducted in this way so that evidence of the group’s development through their behaviour could be ascertained, rather than whether the participants had learnt something new or had enjoyed the session. This approach was taken because the level of information required would have been tedious for the participants to fill out, and distracted them from their own activities.

This approach differs to other programs that, often, ask participants to use a post-session questionnaire or survey, where often the responses reflect how much the participants like the facilitator. Having the facilitator observing the group’s

\(^{91}\) Morse and Richards (2002:96)
\(^{93}\) Neuman (2003:308-9)
involvement served to provide a richer and more accurate description of what was occurring in the group.

The evaluation was conducted for each component of the process within a session. Facilitators were asked to comment on whether they thought it was excellent, good, okay or poor. The ranking was validated by commenting on the participant’s responses or actions (verbally and physically) in relation to their level of enthusiasm, depth of discussion and involvement. For example, a facilitator’s observation may be “people appeared confused as they had a blank look on their face and were not interacting or making comment”. Alternatively if it went well, they may report that “people created discussion without needing to be prompted” or “…this is a real break through as they have not done this before.” By recording the participants responses and actions it could be ascertained how the group tackled activities, interacted with each other and their level of involvement. Thus providing a richer description of what was occurring.

The participants’ knowledge and skill level was also observed overtime to ascertain if any changes in these occurred. For example, the facilitator may report that “the group was lacking in skills in this area, but was aware of it and decided to gather more information”. Quotes and any other comments the facilitator thought relevant, but not covered in the above, was also recorded.

Feedback and questions from the participants throughout the process were encouraged and their responses recorded. Informal feedback was gained by asking the participants some questions constructed with the precise purpose of developing and understanding the operation of the processes employed in the session, rather than whether the participants enjoyed the session. Other observations such as attendance, timing of break sessions and equipment were also noted.

To prevent the loss of observed and heard information and ensure clarity of thought, facilitators were encouraged to complete the forms within two to three days of the group meeting. Additional benefits from undertaking this level of analysis of the process included assisting the facilitator’s in improving their observation skills and critically assessing their facilitation style. The responses obtained from the facilitators were later compared with the data generated by the group for a particular session.

Semi-Structured Interviews. Semi-structured, taped interviews with each of the facilitators were conducted by the evaluator in late May and early June 2002, for 20 minutes to an hour. The implementation of NAVIGATOR®, the participant’s progress and whether PIRSA’s objectives were being obtained were explored.

Focus Group Discussion. A one-day focus group discussion with all of the facilitators was conducted in late June 2002 near the program’s completion. Here the facilitators were asked to reflect on their experiences in delivering the process in moving from an expert to facilitator role; give their opinion on whether the process was meeting the participants and PIRSA’s outcomes; and provide an

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94 Murray and Boon (2001)
honest assessment of its role in the wine industry once PIRSA had withdrawn its involvement.

Comparison with Other Facilitated Programs

To determine NAVIGATOR®’s effectiveness relative to other contemporary facilitated programs, an attempt was made to compare it against reported data for Property Management Planning (South Australia), GrapeCheque (Victoria) and Landcare (national) programs. These programs were chosen as they also intended to broaden people’s perspectives.

The comparison was not altogether satisfactory as the evaluation parameters under which the studies occurred and the make up of the participants differed. The evaluation approach used in NAVIGATOR® was also more extensive in using a range of evaluation approaches that were both formative and summative, and some of the objectives varied. Hence, any meaningful comparison could not be made.

5.7.2 Data Analysis

As mentioned earlier, the data analysis in this chapter had two foci: to develop the process, and evaluate whether the program was achieving its stated outcomes. This occurred by using formative and summative approaches. Initially, the data from the facilitator’s evaluation forms, was compared with the data generated by the group. By keeping in mind the objectives of achieving ‘cultural change’, the determination of where change was taking place and why it was occurring in relation to the process could be identified. Any comments or responses that raised concern were discussed to enable the strengthening of the process by altering or removing elements, to ensure that PIRSA’s and the participant’s outcomes were being met. This information also gave an indication of where the group was at, and through the accumulation of information from progressive sessions, changes in attitude or thinking could be tracked and attributed to the process, rather than from external influences. Later, the formal participant and facilitator feedback

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96 PMP was an Australian Government funded initiative under the Natural Heritage Trust. The principles behind the program included: holistic farm management approach; group learning; continuous improvement; interactive processes and strategic planning; environmental, economic and social sustainability; and whole family learning. It sought to enable families to develop a sustainable business and feel more in control of their future. In essence it was a farm management extension program that encouraged the development of holistic skills to develop primary producers as highly skilled self-reliant business people. It differed from NAVIGATOR® in consisting of a series of eight workshops on predetermined topics that aimed to develop a business plan (PIRSA (1999) Property Management Planning: irrigation extension resource manual. Primary Industries and Resources South Australia, Adelaide).

GrapeCheque, on the other hand, was specifically targeted at winegrape producers and allowed participants to choose their avenue of topic, however, the topics were commonly organised by an employed state government GrapeCheque coordinator (Murray 2009b).

data was used to confirm or reject the ‘process data’ (i.e. the original and ongoing facilitator evaluation form recorded data and data generated by the group), by comparing the comments with each other and the ongoing process data. This information served to increase our confidence in the data collected in developing the process.

Qualitative Solutions Research, Non-numerical Unstructured Data Indexing Searching and Theorising (QSR Nud•ist) computer package was utilised for some of the data sets to determine if the broader objective of cultural change was being achieved.\(^{98}\) Data was entered and saved in a text format and thematically coded by developing a range of categories around core themes that emerged from what was found in the data (i.e. by taking the grounded theory approach). These categories were linked to one another through a tree-like structure similar to that shown in Figure 5.7. Hence, different data sets had their own series of categories, but related themes.

**Figure 5.7 Categorisation of Data – an example**

In analysing the data, the categories related to PIRSA’s objectives, not the self-determined outcomes achieved by participants through their project activity. However it was noted if the participants were, or were not, achieving their set goals. As achieving any cultural change was seen to be the main objective or core theme, it was identified as the first category. A number of concurrent objectives were identified, many of which were subsidiaries of cultural change, such as the development of human and social capital. However, the features that either contribute to the development, or are indicative of the development of these can include for example self-reliance (category two). Indicators of this category can then be further identified through aspects such as how ‘information’ is obtained,

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QSR Nud•ist is “designed to aid users in handling Non-numerical and unstructured data in qualitative analysis, by supporting processes of coding data in an index system, searching for text or searching patterns of coding and theorizing about the data.” (QSR 1997:2)
whether there is evidence of ‘empowerment’ or ‘learning’ taking place (category three). The following categories (i.e. four and onwards) are subsequently more focussed expressions of the previous categories.99

5.8 Reporting and Promotion

Quarterly and annual reports along with three evaluation reports were provided to PIRSA on the programs developments and outcomes. An external analysis of performance on one of the groups was also undertaken by a private consultancy firm observing education and training for primary producers.100

Promotion of NAVIGATOR® was conducted through paper and poster presentations at conferences, regional newspapers, industry journals, internal government newsletter, and brochures. A full listing of the material produced is provided in Appendix F.

5.9 Commercialisation of NAVIGATOR®

In 2002-03, the commercialisation of NAVIGATOR® was explored and a trademark for the program obtained (Figure 5.8). As part of this arrangement, Rural Solutions SA retained responsibility for the NAVIGATOR® facilitators training. The delivery of the process was to occur by industry representatives. This kept ownership of the program within industry as they usually had better established links into winegrape production communities.

Figure 5.8 NAVIGATOR® Trademark

Other avenues for commercialisation included the adoption of NAVIGATOR® into other areas within and outside of agriculture that aimed to achieve positive change within individuals and communities.101 This was not seen to be limited solely to government programs. During the development stages of the process interest was generated from the Dairy Industry, Queensland Department of Health, Indigenous Land Corporation and private consultants working in regional areas of South Australia, New South Wales and Victoria. It was envisaged that its application in the natural resource management and business areas could also be applicable. A private marketing consultant was also employed for two days to undertake some initial investigations as to whether the process may be of interest to the business sector.

99 Murray (2001)
101 Boon (2002:26)
5.10 Summary

The chapter outlined the rational for NAVIGATOR® as the result of changes in competition policies, micro-economic reform, and the relationship between government and the community. These changes, along with the increasing complexity of agriculture as it operates within a global economy, meant PIRSA was seeking to find new ways to approach learning for winegrape producers, by moving away from linear adoption models to more participatory approaches.

The core philosophy underpinning NAVIGATOR® was for participants to increase their self-confidence and abilities by learning how to learn. The developed NAVIGATOR® process provided an approach that allowed participants to direct their own learning and foster their critical thinking skills. This enabled them to identifying their options, choose their own direction, and take control of their learning. The facilitator’s role was restricted to provide the opportunity for self-empowerment so participants could work towards self-reliance from traditional government extension services. The absence of any specific information to be learnt set NAVIGATOR® apart from other extension practices of the time, in aiming to achieve changes in the ways producers sought, managed and used information; and formulate, develop and reassess their group function and projects.

Additional features of NAVIGATOR® that distinguished it from other approaches used in Australian agriculture at the time included:

- the participants learned how to learn, rather than being told what they ‘needed’ to know, or learn, by someone external to the group;
- it provided a structured pathway to make decisions and act on them;
- there was no specification as to how the participants were to learn or seek the information they had identified as important to them;
- There was no specification as to how their activities were to be structured to answer their questions;
- participants were allowed to make mistakes so as to learn from all experiences not just their successes;
- peer pressure was central to achieving the participants aims and objectives;
- role rotation was encouraged to share responsibility; and
- participants underwent all of their activity organisation and continuance of group membership.

Members of the wine industry were involved at all stages of the programs development and implementation, to encourage industry ownership once PIRSA had ceased funding. An extensive qualitative monitoring and evaluation program was also used, to track NAVIGATOR®’s development and determine if the participants’ and PIRSA’s goals were being obtained. The following chapter outlines the findings from this research and critiques the development and implementation of NAVIGATOR® to provide a synthesis on the lessons learnt.
The previous chapter outlined the impetus for the development of the NAVIGATOR® program and how it was constructed. This chapter presents the findings of that research, that was trialled across five of the seven South Australian wine regions with groups located in McLaren Vale, Clare Valley, Naracoorte, Robe/Mt Benson, Renmark, Barmera and Loxton (see Figure 6.1). In doing so, it observes the successes and difficulties in meeting the programs objectives set by Primary Industries and Resources South Australia (PIRSA) to: stimulate cultural change in winegrape producers; develop leadership qualities to build community capacity; and determine whether producers have the skills and knowledge to respond to market changes to produce fruit that is ‘fit for purpose’.

Some difficulties were experienced in collecting data for the monitoring and evaluation of the program and are discussed in the following section. This is followed by an analysis of the participants and their projects, the skills and capabilities required to achieve the stated program objectives and observations on the facilitators and their facilitation. The research also draws attention to the practicalities of implementing new policy initiatives and the commercialisation of government programs into agriculture in the course of this analysis.

6.1 Comments on the Data Collection

Unless stated otherwise, the assessment uses the data collected by myself and the evaluator, the evaluator’s reported information (which I oversaw), information contained in papers presented at conferences by the evaluator and me, and internal reports I compiled for PIRSA on the program.

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Some difficulties were experienced in obtaining data through the several qualitative evaluation methods used, to inform the program’s development and determine its effectiveness. This has meant that the evaluation was less robust than it could have been. The session data reported by the facilitators and used to assist in the development of the process, was not always completed, particularly by the industry facilitators. Additionally, rather than recording the groups responses to the process, information on the groups’ projects and the facilitators’ reactions to the process, commonly noted as suggested changes, provided limited clarification on what had led them to these conclusions. Attempts to rectify this were not always successful.

The formal participant feedback, conducted as a focus group session half way through the program, also experienced some difficulties as the evaluator was unable to attend all of the groups’ meetings. To overcome this, the groups’ facilitators were asked to obtain the feedback. Data was successfully collected for the Loxton, McLaren Vale and Robe/Mt Benson groups. However, facilitators of the Renmark and Barmera groups chose to have the focus group questions handed to members to complete in their own time. This did not allow for opportunities for discussion amongst the participants that was required for some of the questions. No responses were received for Barmera and only a few comments were returned for the Renmark group. Although the Naracoorte group had been formed when this assessment was undertaken, they were new to the program and consequently it was felt that it was too soon to undertake an assessment of their reactions to the process.

Some of the data relating to the facilitators interviews (conducted by the evaluator) and facilitator focus group session (conducted by the evaluator and me) were also lost due to technological difficulties. Therefore, I have fully relied on the evaluators reported information for the facilitator interviews, but can attest the validity of the comments in the reported information for the focus group session as I was present.

Despite the shortcomings in the data collected, the range of methods used to assess the program’s development and implementation, and my close association with the evaluator, facilitators and the groups, has meant that a well-textured picture of the program’s impact was achievable. The exercise highlighted the difficulties in obtaining qualitative data for the methods chosen, that relied upon data being collected by a range of individuals across a number of locations.
6.2 The Participants and Their Projects

Participants with varying levels of education, age, gender, exposure to the winegrape and wine industries, and cultural backgrounds were engaged in the program. Eight groups existed in total. Five of these were producer groups. The remaining two groups consisted of winery employees or technical experts. Five of these groups existed in established winegrape areas - McLaren Vale, Clare Valley and the Riverland (comprising Renmark, Loxton and Barmera). The remaining two groups - Robe/Mt Benson and Naracoorte - were new areas but were associated with a range of existing primary industries.

The Clare Valley and Riverland groups had been formed from existing groups. The remaining groups were newly formed. The participant composition of the groups is summarised in Table 6.1.

Typically a group size of up to 15 participants was desirable, and was generally achieved in the established regions due to the presence of a larger number of producers. The Renmark group was very particular about maintaining its group size and often referred to and enforced its group rules on attendance that they established in the Exploration Workshop. Participants who were not committed to the group, defined by attendance, were replaced by other members selected by the active group members. Penalties for not attending a session were also adhered to by a contribution of a carton of beer to the group. For all of the groups, new members were invited into a group on agreement by the active group members.

In the newer regions (Robe/Mt Benson and Naracoorte), the groups were larger but had a small number of core participants. For example, the Naracoorte group could contain up to 30 producers depending on their activity. Groups in these areas were hesitant to exclude participants from attending the sessions based on attendance or contribution. This related to the smaller size of these communities. In the early stages of the development of these groups, the larger size and fluctuating attendance caused uncohesiveness and made it difficult to rotate tasks. The McLaren Vale winery employee group also fluctuated due to the relocation and introduction of new winery employees, but managed to hold a core group of seven members with less issues developing and still successfully completed their defined activities.

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2 The Clare Valley group had previously come together to undertake a Property Management Planning (PMP) course. The majority of the Riverland group members were also participants in the Riverland Grape Industry Committee (RGIC), a technical group of industry representatives formed to discuss best management practices for the region.
<table>
<thead>
<tr>
<th>Location</th>
<th>Formation</th>
<th>Occupation</th>
<th>No. of Members</th>
<th>Gender (M:F)</th>
<th>Formal Educational Background</th>
<th>Cultural Background</th>
<th>Age (years)</th>
<th>Years in Industry</th>
<th>Years in Program</th>
<th>Facilitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barmera</td>
<td>Expression of interest to winery</td>
<td>Producers</td>
<td>15</td>
<td>100:0</td>
<td>Mostly high school</td>
<td>Anglo-saxon Greek</td>
<td>20s - 60s</td>
<td>5 - 55</td>
<td>Nov 2000 - 2002</td>
<td>Winery</td>
</tr>
<tr>
<td>Clare Valley</td>
<td>Old PMP group</td>
<td>Producers and a winemaker</td>
<td>9</td>
<td>90:10</td>
<td>Mostly high school</td>
<td>Anglo-saxon</td>
<td>5 - 45</td>
<td></td>
<td>Dec 1999 - Feb 2000</td>
<td>Government</td>
</tr>
<tr>
<td>Loxton</td>
<td>Expression of interest to winery</td>
<td>Producers</td>
<td>16</td>
<td>95:5</td>
<td>Mostly high school</td>
<td>Anglo-saxon German</td>
<td>30 - 40s</td>
<td>9 - 35</td>
<td>Nov 2000 - 2002</td>
<td>Winery</td>
</tr>
<tr>
<td>Naracoorte</td>
<td>Winery invitation to all producers</td>
<td>Producers (formally livestock and other horticulture)</td>
<td>15 - 30</td>
<td>90:10</td>
<td>Mostly high school</td>
<td>Anglo-saxon</td>
<td>Early 20s - late 50s</td>
<td>1 - 10</td>
<td>2001 - 2002</td>
<td>Winery</td>
</tr>
<tr>
<td>Renmark</td>
<td>Producer cooperative invitation</td>
<td>Producers</td>
<td>15</td>
<td>100:0</td>
<td>High school and university*</td>
<td>Anglo-saxon Italian</td>
<td>Early 30s - late 50s</td>
<td>2 - 50</td>
<td>Nov 1999 - 2002</td>
<td>Government/Producer</td>
</tr>
<tr>
<td>Robe/Mt Benson</td>
<td>Winery invitation to all producers</td>
<td>Producers (also broad acre, livestock, fishing) and winery viticulturists</td>
<td>13 up to 25</td>
<td>95:5</td>
<td>Most high school, some university</td>
<td>Anglo-saxon</td>
<td>Mid 20s - early 70s</td>
<td>1 - 10</td>
<td>Nov 1999 - 2002</td>
<td>Government/Producer</td>
</tr>
<tr>
<td>McLaren Vale</td>
<td>Self-selecting</td>
<td>Winery viticulturists, winemaker, private consultant and farm supplies representative</td>
<td>14</td>
<td>60:40</td>
<td>Mostly university</td>
<td>Anglo-saxon</td>
<td>Early 20s - late 40s</td>
<td>2 - 35</td>
<td>Aug 1999 - 2002</td>
<td>Government/Group representative</td>
</tr>
</tbody>
</table>

* One university educated participant in the Arts who had been involved in the wine grape industry since childhood.
6.2.1 The Participants

The winery employee groups’ participants had a similar range of experience, age, cultural background and level of education (refer Table 6.1). The producer groups were more variable. Some groups included individuals that were not producers (i.e. a winemaker in Clare Valley and a winery viticulturist in Robe/Mt Benson. Members of the Naracoorte and Robe/Mt Benson group were also involved in livestock, broad acre and/or fishing activities. Some members of the Loxton, Barmera, Renmark, and Clare Valley groups had off-farm employment (e.g. bus company, jeweller, and mechanic), or had been involved in other forms of agriculture (e.g. wheat, bee keeping, or citrus). Some group members were known to interact with each other socially: Robe/Mt Benson, Renmark, and in Loxton, for example, they “all played football together.”

University level of education had been obtained by most of the members in the winery employee groups. The producer groups’ formal education varied from primary school to university, with the majority obtaining some high school education. The time spent in the wine industry ranged from one to 55 years across the regions. Generally, the established regions had more members with longer durations of involvement in the wine industry.

The age of the participants was diverse across all of the regions. Most groups had members between their 20s and 50s. Two groups had members into their 60s and 70s. The cultural backgrounds were generally defined by region, due to historical associations, such as settlement schemes. The Renmark, Loxton and Barmera regions had the most cultural diversity, with some participants being first generation Australians with Italian and Greek origins.

The participants were mostly males, as the women in winegrape producing families often had other forms of employment and could not attend activities associated with the business, or alternatively, production based activities were usually the male’s role. The Naracoorte group was the exception, where the women in the group tended to look after the vineyard aspects of their farm, while the husbands were concerned with the grazing side of the business, although the proportion of males was still greater. The Loxton group did include one father and daughter pair. Generally the women in these groups tended to be younger.

In the participants’ focus groups, held in 2001, they were asked to define who NAVIGATOR® groups would suit. The responses included people such as new and existing producers; “anyone in an industry that is experiencing change management”; “those willing to share acquired expertise”; and “people with similar goals”. The winery group thought that, in addition to producers, NAVIGATOR® was appropriate for a “broad spectrum of participants” such as “service industries”, “vineyard supervisors and winery forepersons”, “winemakers” and “community region orientated people”. Both types of groups agreed that the process needed people that were committed to being involved in a group. Given the diversity of the groups shown above, and the outcomes of their projects discussed below, NAVIGATOR® appeared to fit the participants suggested criteria.

3 Facilitator 3
6.2.2 Participants’ Projects

A summary of the participants’ projects is provided in Table 6.2, showing a range of activities and project durations. The McLaren Vale and Robe/Mt Benson groups opted for one, large, ongoing project over a 12 month period that was revised, refined and repeated in the following years. The remaining groups took a more ‘hands-on’ approach including information sessions over shorter time frames, usually one to three months, around defined areas of interest. On completing their activities these groups reassessed their situation and planned further activities, again on short-term durations. The number of iterations in the project implementation stage ranged from four to 18, before moving onto the project review.

The Riverland and Clare Valley groups ceased to exist prior to completion of their projects. Following the identification of benchmarking winegrape quality as their project activity, the Riverland group, consisting predominately of members from the Riverland Grape Industry Committee (RGIC), could not see any further value in forming another group as the RGIC was also undertaking work in this area. Some of the group members were, however, later trained to deliver the process to their contracted producers. The Clare Valley groups experience was somewhat different. After investigating quality assurance and realising that it involved food safety, rather than fruit quality, the group had difficulty in redirecting itself. Group numbers were low and one member was particularly dominate. These difficulties, coupled with the proposed establishment of a regional producer group, which they thought would address their concerns, resulted in the cessation of the group. This group stood as an example of where a previous group, formed to undertake a specific exercise, such as Property Management Planning, did not work in a more democratic environment where decisions were to be made collectively.

The Loxton group were particularly fond of field based learning and improved their vineyard practices to the extent that the winery facilitator remarked that they had become leaders in improved vineyard practices in their region. The Renmark group was also committed to these types of activities. This group was fortunate to be supported by a group member who owned a bus company and transported the members to their determined field-trip locations. The group’s commitment to their activities extended to the point where if members did not appear at the designated meeting point the bus would appear at the member’s property and they would be encouraged to join the activity.4

An indication of the participants’ ability to think holistically was the extent to which they included the aspects of production, social, environment, market, business and finance in their thinking and corresponding actions, when identifying their projects and implementing them through their identified activities. Production based activities were shown to dominate for all of the groups as evidenced in Table 6.2. However, consideration was given to the other areas as discussed below.

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4 Facilitator 1
<table>
<thead>
<tr>
<th>Group</th>
<th>Initial Areas of Interest</th>
<th>Project</th>
<th>Topics Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barmera</td>
<td>RDI/Irrigation • Pests and disease • Nutrition • Canopy management (including pruning) • Computer skills</td>
<td>Project 1 - Multi-activity project to produce quality fruit including (in-house and field trips mapped out on 3-4 month schedule over two years)</td>
<td>Water management (including soil texture, RDI) • Irrigation moisture monitoring equipment • Aspects of quality winegrape production</td>
</tr>
<tr>
<td>Clare Valley</td>
<td>Strong negotiation skills • Developing marketing plans • Computing • Risk management • Technical skills</td>
<td>Project 1 - Quality assessment (in-house)</td>
<td>Quality assessment</td>
</tr>
<tr>
<td>Loxton</td>
<td>Irrigation management (soil types, moisture monitoring and RDI) • Nutrition (pests and disease monitoring, petiole analysis and interpretation) • Canopy management (pruning methods and type) • Quality parameters (understanding NIRS and quality control) • Computer skills and record keeping</td>
<td>Project 1 - Production of fruit quality for winery specification as a multi-activity project (In-house and field trips) Project 2 - Fruit quality (in-house and field trips)</td>
<td>Vineyard assessment • Cover crops • Winery visit – grape sampling (NIRS, Baumé), crushers, laboratory testing • Study NIRS and compare figures • Vine training • Pruning techniques • Vine nutrition – fertiliser, petiole analysis • Irrigation • Disease recognition • Connection between Baumé, pH and grape colour • Petiole analysis • Post harvest colour score comparison</td>
</tr>
<tr>
<td>Naracoorte</td>
<td>Irrigation • Nutrition • Pests and diseases • Crop estimation • Canopy management</td>
<td>Project 1 - Multi-activity project addressing priority areas involving (in-house and field trips)</td>
<td>Irrigation system maintenance and evaluation • Soil moisture monitoring and recording • Canopy management • Irrigation system scheduling</td>
</tr>
<tr>
<td>Group</td>
<td>Initial Areas of Interest</td>
<td>Project</td>
<td>Topics Covered</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Renmark</td>
<td>• Taxation (GST) and information technology&lt;br&gt;• Soil and water management&lt;br&gt;• Quality assurance systems&lt;br&gt;• End-use in terms of communication, marketing and quality</td>
<td>Project 1 - Multi-activity project addressing their priority areas (in-house and field trips mapped out on 3-4 monthly schedule over three years</td>
<td>• Vineyard assessment&lt;br&gt;• GST (ATO presented)&lt;br&gt;• Financial management using computing packages (funding obtained through FarmBis)&lt;br&gt;• NIRS assessment&lt;br&gt;• Recording vineyard information</td>
</tr>
<tr>
<td>Robe/Mt Benson</td>
<td>• Product knowledge&lt;br&gt;• Vineyard management&lt;br&gt;• Microbiology of soil&lt;br&gt;• Knowing inputs/outputs&lt;br&gt;• Good administrative structure</td>
<td>Project 1 - Developed vineyard management recording sheet for each season and discussed collected data with group members (in-house)&lt;br&gt;Project 2 - Refinement and continuation of project one incorporating winery and peer vineyard visits (in-house and field trips)</td>
<td>• Irrigation systems and soil testing&lt;br&gt;• Pruning methods&lt;br&gt;• Frost protection&lt;br&gt;• Snails&lt;br&gt;• Bud fruitfulness&lt;br&gt;• Relating costs of production to practices&lt;br&gt;• Property visits of peers&lt;br&gt;• Benchmarking project run through PIRSA.</td>
</tr>
<tr>
<td>Group</td>
<td>Initial Areas of Interest</td>
<td>Project</td>
<td>Topics Covered</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| McLaren Vale  | • Knowledge of legislation  
• Communication with wineries  
• Benchmarking for production  
• Feedback (positive and negative)  
• Leadership in terms of knowing how to motivate producers | **Project 1** - Began with benchmarking all aspects of vineyard production for a few winegrape varieties and later focussed the project to investigate irrigation practices on Shiraz and how it affects winegrape quality (in-house)  
**Project 2** - Refinement of project 1 with activity repeated (in-house)  
**Project 3** - Effects of longer watering periods on quality (under consideration) | • Irrigation practices on Shiraz  
• Development of questionnaire for contracted producers  
• Matched winery quality assessment of fruit to irrigation practices  
• Raised funding to employ a market research company to provide advice on questionnaire and analyse data  
• Held a seminar for producers to relay back results in conjunction with the South Australian Farmers Federation |
| Riverland     | • Benchmarking winegrape quality                                                        | **Project 1** - Benchmarking winegrape quality (in-house)                | • Project was not undertaken                                                   |

* Regulated Deficit Irrigation (RDI) involves restricting irrigation to the vine at specified growth phases so as to improve fruit quality.

** Near Infra-red Spectrometry (NIRS) is used to assist in determining winegrape quality.
Business and Finance

In addition to the Robe/Mt Benson group’s record-keeping project, they incorporated an Irrigation Benchmarking project run by PIRSA’s Irrigation Crop Management Service funded by the Australian Governments Natural Heritage Trust. This group also related costs of production to their various record keeping activities. Although sometimes shared, this was mostly on an individual basis, usually by the older (50s and upwards) members who were keen to ensure their recent investment into the wine industry was successful. One producer in the group commented that the main advantage of being involved in NAVIGATOR® was being able to “review my own performance through recording and benchmarking.”

Although finance concerns often coincided with discussions around the various aspects of production, the Remark group was the only other group to undertake any specific activities associated in this area. Members enrolled in a formal course in computer based financial packages through the River Murray Training Centre, and applied for FarmBis5 funding to support this activity. However a condition set by the group members was that their wives attended the training session as they ‘managed the books’. Although a move towards addressing financial matters occurred for this group, the facilitator reported at the end of the program that any financial discussion beyond the attendance of the training courses was not undertaken. He suggested that this may have been due to the group members not having developed the social skills to undertake such discussions.6

The McLaren Vale group was the only other group to obtain external funding to support its projects activities. Funds from the Onkaparinga Catchment Board and private enterprise, were used to employ a market research company to analyse the data from their developed questionnaire. The questionnaire, completed by 300 producers across the region, was designed to determine the effects of various irrigation practices on the quality of Shiraz, and was matched with winery quality assessments. The group also held regional forums in conjunction with the South Australian Farmers Federation for the producers to report back the information from their research.

The facilitators noted that group members exchanged a lot of information, including uncommonly, information on finance. They suggested the openness may have stemmed from the wine industry viewing itself in competition with other countries for markets, rather than localised competition between wineries, and between producers. They remarked that this outlook had resulted in the industry being more open and able to network and communicate, compared to other agricultural industries: the wineries and winegrape producers were now viewed as partners.

5 FarmBis funding was supplied through the Australian Government’s Agriculture Advancing Australia program. Funds were allocated and administered by the states. In South Australia funding was made available for business management related activities only (e.g. computing skills, book keeping etc). Funding could not be obtained for technical production based activities such as pruning, water management.

6 Facilitator 8
Some producers from the Riverland commented that they had moved towards a more business-based approach since being involved in NAVIGATOR®. For example, one producer was “learning to look at my [their] property as a business, more than a way of life.” Another commented he was taking a “more professional approach to growing of grapes.” And yet another, “considered quality growing issues more professionally with improved knowledge from NAVIGATOR® group sessions.”

**Market**

The group members were aware that they were competing in a global market, but generally viewed ‘the market’ in light of meeting the wineries’ requirements for ‘quality’ fruit production (i.e. their immediate market). The facilitators attributed the increasing awareness of the various wine markets in part to NAVIGATOR® and in part to the developments in the wine industry over the preceding decade.

In the early development of the groups, some discussion occurred on lifting their regions profile as a producer of good quality fruit and therefore wine. This was noted by all of the groups as they were passionate about wanting to be seen as producers of quality fruit and wine. Riverland groups, wanted to shake off the reputation as a bulk wine region to one of premium products. The focus of the groups on quality and reputation of the region meant that production was seen for a specified market within the bigger picture of the wider industry beyond the farm gate, rather than just producing wine grapes. This was significant as, traditionally, little consideration was given to the market, and this view demonstrated that the participants had a good understanding that the market requirements needed to be met.

The McLaren Vale and Robe/Mt Benson groups also gave consideration to regional development opportunities by considering further integration of their regional wine industry with tourism and other food industries. For McLaren Vale, the focus was on continuing to build on their current recognition as an established wine region and producer of quality wines. Robe/Mt Benson, a newly formed wine region, looked to gain recognition as producers of wine and avenues to provide further interest for tourists in visiting the area. However in both cases, these ideas were not taken on as a specific project.

**Environment**

The environment, in terms of the broader effects of production outside the farm gate on natural ecosystems or other farming systems, was not a concern for the producers, despite the fact that the Australian wine industry has built its reputation overseas on the supply of consistent quality wines and a ‘clean green image’. Both the participants and some of the facilitators had difficulty in interpreting what was meant by ‘environment’ in the Exploration Workshop. The facilitators (government and industry) often explained it in agricultural economic terms of ‘natural resource management’ or ‘land management’. Although the

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7 Natural resources are taken to be incorporated within the environment such as soil and water. The environment is more holistic and involves the interactions between air, land and water including the organisms in each of these.
environment encompasses these, the usage meant that the producer’s responses to issues in this area were similar to those in their production category. These concerns related mostly to soil and water management, including salinity, within the confines of the farm. Overall, the environment was seen as less important than the production aspects of farming, and no strong interest in the environment was shown that was not linked to production.

The facilitators were very clear that the producer’s awareness of the ‘environment’ was tied to production and not vice versa. The environment was seen to gain from good production practices such as controlling spray drift and over spraying, better irrigation practices, and cover cropping. Hence good production practices resulted in ‘environmental’ benefits.

In traditional grazing regions (Robe/Mt Benson and Naracoorte), producers had greater opportunity to select sites most suited to a vineyard, particularly for soil suitability and aspect. This was not the case in areas such as the Riverland where, often, the entire farm was under vines as the land sizes were historically smaller due to the establishment of irrigation and soldier settlement schemes from the early 1900s. In this region, problems such as soil salinity had been inherited and producers were very aware of this in terms of soil and water management. They did not necessarily view this as a problem, they were aware of it and saw it as being ‘just how it is’. The facilitators all agreed that the producers in South Australia could not ignore environmental considerations, but environment was strongly tied to production as was the ‘hip pocket nerve’.

Social

The human or social aspects of the business were also not considered a priority area. The majority of comments by the participants related to communication skills predominately between the winery and producers. In terms of their involvement in a group, the participants saw value in being able to share information with others and valued the networks they had developed within and outside of the group. More information on this topic is provided in sections 6.3.2 (Developing Networks) and 6.3.4 (Learning).

In the participant focus groups conducted late in 2001, members were asked to comment on what changes they would like to see in NAVIGATOR®. Most agreed that they wanted “none” or they were happy with it as it was. Others suggested that they already made changes where they thought were necessary and appreciated being able to “organise their own activities”, “they all have an equal say” and they worked well together in the “team environment”. One group commented that ideally a NAVIGATOR® group would involve people with a broader range of skills to enhance the group decisions, suggesting a more holistic view, beyond production, for at least one of the groups.

The suggested changes to the process often related more to their project design, which was in their control, rather than the structure of NAVIGATOR®. For example they spoke of having “more guest speakers”, “interaction with other

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8 An explanation of Australia’s various settlement schemes was provided in Chapter Three.
groups”; “continued information flow from wineries”; “tours to other areas”; “more practical hands on experience”; and “more people involved”. The Robe/Mt Benson group expressed the need for “greater leadership”. This reflected the difficulties in getting group cohesiveness early on in their development, and the changes in facilitators. The McLaren Vale winery employee groups thought that the program could be promoted more and “involve a greater cross section of industry”, and a “source of initial funding to get started” would be of help. By the next round of projects undertaken some the items identified as suggested changes were incorporated into their activities. This demonstrated their continued control of their projects, and that they were more comfortable in directing and acting on their own learning.

The following section takes a look at whether other skills and capabilities of the participants, in addition to holistic thinking, were enhanced through their involvement in NAVIGATOR®.

6.3 Skill and Capability Development

The exploration of holistic thinking was given consideration in Section 6.2 (The Participants’ and Their Projects) in observing the types of projects the participants chose to undertake. This section builds on that analysis in determining the presence of those skills and capabilities that can contribute to the development of critical thinking, and human and social capital. These attributes are considered important to deal with the complexities of agriculture and constantly changing circumstances in order to satisfy the programs objectives. It was determined that they could be found in exploring the participants’ strategic planning abilities, development of networks, improved confidence in their abilities and what they had learnt by being involved in NAVIGATOR®. Each of these aspects is given attention below.

6.3.1 Strategic Planning

Strategic planning in agriculture has been widely advocated by governments to assist in forward planning and subsequently to account for the rise and fall of supply and demand for products. In spite of this, planning in its strategic sense was not shown to be practiced widely amongst producers. The exception to this may be in those activities relating to production, which are usually memorised rather than recorded. Many of the producers that were new to the wine industry had completed a plan on their winegrape production business as part of their financial assessment in entering the industry. However the facilitators agreed that fluctuations in the returns on investment over time can make it difficult for producers to plan strategically, and it was often seen as being difficult and challenging for them.

Although NAVIGATOR® provided a planning structure, in terms of identifying areas of need and acting on these, the majority of the groups did not plan their projects in any strategic way. Instead, they made a list of activities usually within the vineyard which met their immediate needs. The Robe/Mt Benson and

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9 The Robe/Mt Benson group experienced a change in its facilitator part way though the groups movement through the process.
McLaren Vale groups, which had longer term projects were the exception, and stated they had improved their planning skills and abilities to handle information. The differences between the participants’ and facilitators’ interpretation of the effectiveness of the participants planning abilities was that the facilitators had a more strategic understanding of planning for long-term stability, rather than general planning for short-term outcomes.

The newer producers in the Naracoorte and Robe/Mt Benson groups tended to be better at planning for the longer term. One facilitator in this area commented that it was “the nature of the industry to plan, think long-term; they [the producers] are working with a 10 to 15-year budget”.10 An example was noted where the development of a vineyard plan instigated the development of a plan for the grazing side of their family business.11 The difference between these producers and the others in more established regions was the time spent in horticulture activities (e.g. citrus, stone fruit, and table grapes). Some producers in the established areas were third generation producers and did not see it necessary to plan a shift from one horticulture crop to another, as they could rely on their skills developed in similar crops.

The Robe, McLaren Vale and Loxton groups showed interest in benchmarking their activities, which involved the collection of data relating to vineyard activities. By keeping records on various aspects of their production, the participants began to appreciate the value of the information they were collecting and how it was organised. The Robe/Mt Benson and McLaren Vale groups both refined their projects so as to achieve more realistic outcomes, with the Robe group realising that a mass of data did not necessarily mean more knowledge. The collection of more targeted information over a period of time was seen as a first step in moving towards more strategic thinking and planning. It allowed for comparisons to be made through the critical assessment of activities resulting in changes in farm management with a longer-term view. The Robe/Mt Benson group commented that in recommending NAVIGATOR® to others, they should “set your goals” and “don’t take on too much”. The Loxton group’s facilitator remarked that, as a consequence of collecting information on their practices, the group had moved from “grade one to grade two” as they were planning to look more in-depth at selected issues and improve the keeping of their records:

“last year they were looking more broadly at issues effecting their grapes and the quality of their grapes. This year they want to go into more depth, be more specific”.12

6.3.2 Developing Networks

An independent study, by Skills Strategy in 2001, found that NAVIGATOR® participants believed their group helped them extend their networks.13
NAVIGATOR® evaluation also noted a broadening of networks across all of the groups. Participants reported that they had “better networks of associates in local industry”; were “better able to access information, funds etcetera for a common goal”; had the “ability to ask more contacts for help”; “consult more experts before jumping in”; had a “broader information network”; “gained networking opportunities and skills”; found it “easier to contact group members to discuss any problems /information”; increased their “ability to talk to others about specific problems that family or retailers couldn’t help with”; had “increased networking of contacts within industry”; and had “a network of people to call on”. Additionally, they believed that being in a group provided better access to a broader range of guest speakers than as individuals.

Over time, the group members were found to become more comfortable with contacting directly people such as researchers, rather than going through a government extension person or the winery. All of the groups, with the exception of the Riverland group, engaged people external to their group to supply information on topics of interest and share their experiences. These included private company employees (e.g. irrigation suppliers, pest and disease managers, and a market researcher), state government research agencies (e.g. South Australian Research and Development Institute), winery viticulturists and winemakers, and leading producers.

The three producer groups in the Riverland also expressed an interest in networking with each other. On some occasions, groups who supplied fruit to the same winery held their meetings together where a common issue had been identified. These groups were willing to share their problems and interests. One facilitator remarked that the producers tended to view themselves as “having all their eggs in one basket”, wanted to network with other producers, and “get the best out of the winery”.14

The desire to go into other regions and view viticultural practices was discussed in most of these groups, and demonstrated their willingness to learn from others. It also showed that, although different environmental conditions can be experienced in another region, they were keen to see how other vineyards were managed. The producers were open to information and could determine for themselves whether activities undertaken by others could be applied to their situation. Despite the willingness of producers to undertake visits outside of their region, the Renmark group was the only group to do so within the research period, by visiting the Australian Wine Research Institute and National Wine Centre in Adelaide to gain a better understanding of wine.

6.3.3 Developing Confidence

The development of confidence was integral to allow the participants to feel secure in their decision making processes. The facilitators acknowledged that when a group formed the participants needed to recognise what they didn’t know and admit to this; and the NAVIGATOR® process provided a safe way of achieving this. On completion of the Exploration Workshop the groups were found to be

14 Facilitator 1
committed to each other. The establishment of group rules, first seen as ‘touchy feely’, is what gave the participants ownership and guidelines to proceed with their project.

Initially all of the groups experienced some difficulty in gaining volunteers for tasks to implement their projects. This was particularly noticeable for the Robe/Mt Benson and Naracoorte groups, where the participants were not as familiar with group based learning, unlike their peers in the Riverland region who were experienced ‘groupies’. The Clare and Robe/Mt Benson groups also had members who were dominant in making decisions for the group. As discussed earlier, the Clare group disbanded. For the Robe/Mt Benson group, who persisted with the program, the person directing the group was employed by a winery. Since the group members were less familiar to group work and to the industry, they were more inclined to be led. However, this limited group members’ participation in discussions and in determining their project direction. Further difficulties were encountered with the size of the group and changes in facilitator. Once the central group member left the group, some upheaval was experienced but the group, now smaller in size, reorganised themselves and took more control of their activities. Both of these incidents demonstrate the importance of group formation at the outset and group size, to enable effective decision making. These two groups did not self-select and experienced uncohesiveness which, for the Robe group, took over a year and one cycle of the process to develop into a workable group.

One facilitator had observed that the producers often came with pre-existing ideas about how the group worked based on their

“experience from other groups expecting what to be told what to do, but they suddenly realise they are in control. This takes people out of their comfort zone.”

Other facilitators noted similar occurrences and that after some time, the participants developed a self-confidence and assurance as they came to realise they were in control, and could say and do what they wanted. This was demonstrated by the participants becoming more talkative, being more comfortable in approaching people such as researchers directly (discussed earlier in networking), and being more willing to organise their own activities as they were confident that the responsibilities would be shared.

The participants were noticed to develop confidence about their place within the industry, by becoming more comfortable with change and managing it. This was evidenced by some participants reporting that they were: “more confident about what I do”; had a “greater empowerment to solve and understand [problems]”; learning to “listen to new ideas and having the confidence to try them out”, and “ask[ed] a lot more questions in group discussion”. One winery participant commented on their “greater personal development.” The Skills Strategy report also commented that participants felt more in control.

The time it took for this change in perception and behaviour to occur in the groups varied. Some facilitators reported it as occurring quite abruptly in the first

15 Facilitator 3
16 Colley et al (2001)
session, while for others it took up to one cycle of the process. As one of the facilitators in a newer winegrape region noted

“it took a while to realise they can take control, a while to say this is what we want. The process helps this to happen.”

When asked what changes NAVIGATOR® participants would like to see to the process, one Renmark participant commented that they make their own changes:

“If we don’t like something or can see a better way, we already do it or have changed it – we take no prisoners.”

The facilitators also reported that the group became more confident in handling and approaching information and had a better understanding of the roles of wineries and government. The winery facilitators reported that although the groups continued to look to the winery for direction they made up their own minds as to whether the direction suited their needs and interests. However, often the group’s activities reflected the winery’s agenda. This is not an impractical approach as the winery is the winegrape producer’s customer and its needs must be met in order for the best price to be obtained for the producer’s fruit. The question remains as to whether the group was undertaking the activity because it was facilitated by the winery, or whether the participants saw it as being important.

The facilitators credit NAVIGATOR® with the change in how the participants viewed the winery and government’s role. They observed that the process gave the group structure, which allowed the participants to learn about working in groups, develop their self-confidence in handling information, broaden their outlook, and it “created a passion”. One facilitator commented that “without the process it wouldn’t have worked, the process gives the group structure and confidence. It gets them to think about issues and think outside of themselves”.

Others agreed that the participants “learn about working in groups, and the process creates a passion [and] without the process I don’t know”. Another commented that the ‘shift’ in how the roles were viewed is due to “the process that makes the shift occur, because it happens with a range of facilitators”.

The producers in the established regions also remarked on their improved confidence by reporting that they were “not so scared of failure”, “push[ed] the boundaries further on things that you know others may have, or play safe due to others ‘bad’ experience”, had a “more positive outlook”, and were “more confident to pursue people for answers”. The lack of presence of these types of responses in the Robe/Mt Benson region earlier in their project may have been due to the difficulties experienced by the group in cohesion (discussed earlier) and more frequent change in facilitators when compared with the other groups.

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17 Facilitator 5
18 Facilitator 3
19 Facilitator 5
20 Facilitator 3
21 Facilitator 7
6.3.4 Learning

By being involved in the program the participants understood its benefits and told others about it. This was particularly evident in the Riverland region where producers who were not involved in NAVIGATOR® were asking how they could get involved.

The data generated by the groups in undertaking their projects, coupled with the facilitators observations, showed that peer pressure had a greater influence in progressing the groups learning than the facilitator. This was demonstrated by more commitment, responsibility and accountability to each other. When the participants involved in the focus group sessions were asked what points they would make in relation to NAVIGATOR® if they recommended it to friends or acquaintances, all of the groups identified the need to have a desire for learning, or be willing to learn from others as being important and a positive outcome from being involved. The “ability to choose your own topics” and “a hands on friendly way to learn” were also common responses, while others varied from: being “relevant to industry”; setting “realistic deadlines for tasks”; “join like minded group of grapegrowers”; “share[ing] costs of access to expertise and consultants”; “good mix of new and old ideas”; and to “have fun”.

Additional, learning outcomes for NAVIGATOR® participants were clarified in the participant focus groups by outlining the main advantages of being involved in the program; what they had learnt; what they had changed and done differently as a result of their involvement in the program; and whether they approached problems differently.

Main Advantages of Participation

The participants identified a range of advantages of being involved in NAVIGATOR®, most of which involved the sharing of, or access to, information through personal interactions to achieve learning outcomes as their central theme. For example, in the participant feedback one producer commented that he viewed “learning the adult way (touching, seeing etc not theory)” as one of the main advantages of participation. While others reported such things as: “meeting new growers”; “learning from other people”; “sharing my and other’s experiences (good and bad) and thus saving time and effort”; “I enjoy the field visits to other properties and get a lot out of it”; “we all seem to have the same goal – to be better winegrape growers”; “we have a lot of fun and enjoy each others company”; “access to knowledgeable people on specific subjects to go in depth more than we normally would, and to prompt more awareness on these subjects”; “mixing with other growers and sharing information”; “closer winery contact”; “whole learning experience”; and gaining a “real perspective of where I am in relation to other growers in my district with respect to performance” as being of value. The Skills Strategy report also found that producers enjoyed discussing and exploring any topic that they found relevant with their peers, in “their own language and style”, rather than a training course that did not meet their needs.22

The winery group also enjoyed “meeting a fine group of people interested in the

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22 Colley et al (2001)
same industry” as well as obtaining a better understanding of their regional “problems involved with growers”.

The willingness of the groups to share information, as evidenced above, evolved into a sense of trust (an feature of social capital) and shared purpose for the groups. The facilitators reported that although different levels of knowledge existed within the groups, the experienced producers weren’t board and the newer producers were not intimidated. The participants appeared to enjoy the process and sharing of knowledge with others willing to learn. Producers also listed the social aspects of the group as being important in making the learning experiences enjoyable.

**What Has Been Learnt**

The producer groups commented that they had mostly achieved improved technical knowledge when asked what they had learnt from their involvement in NAVIGATOR®, and had also gained an awareness and knowledge in how to interact and work better with others, along with improved business skills: “respect others views”; “networking opportunities and skills”; “that I’m not as good as I thought I was”; “better record keeping”; “learnt to work in a team environment better”; “many varied tasks/systems/ methods for specific jobs on my property”; “how to compromise in a group”; and as summed up by one producer

“I have learnt that the people with the best equipment and technology have to do the least amount of work to achieve results.”

The winery group also identified a significant number of changes form their involvement including: being able “to source information differently”; “more accurate communication skills”; “community based approach to problem solving”; “negotiation group and how to participate effectively in a group”; “funding avenues”; and “better insight to government partners [and] understanding of grower issues”.

**Identified Changes**

Groups showed that they had been applying what they were learning - not just in a production sense, even though their projects were commonly focussed in this area. The producers reported improved vineyard practices in irrigation, fertiliser use, cover cropping, spraying, improved crop load predictions; plus “becoming more aware of related activities to attend”; “increased information base to make decisions regarding quality management”; “cost saving and practice change”; “gradual increase in knowledge in the industry”; “better understanding of my own ability”; “more confident to approach problems”; “raising the bar on achievement”; and a “more professional approach to growing winegrapes”. For some producers it was a “reaffirmation of current practices”. The producers commented that since being involved in NAVIGATOR® they tended to approach problems differently due to improved confidence and by “plan[ing] more”, “sharing experiences with others”, “look[ing] at them [problems] from other perspectives” and “ask[ing] for professional advice e.g. viticulturalists and consultants”.

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Discussions with the facilitators supported the producers’ statements, with facilitators noting that producers involved in NAVIGATOR® tended to adopt practices earlier; and “our guys are going to be the first to take it [new practices] up”\textsuperscript{23} They thought that this is because people are able to experiment with innovations, usually on a small scale, and then discuss their findings with others. Hence, a successful encounter with an innovation will encourage others to adopt a practice, whereas those not involved in such activities are left behind. However, the facilitators added that the innovations needed to be practical and the returns evident for the effort put in. The Skills Strategy report also commented that participants were more likely to apply new techniques in a group environment, rather than on their own. They also felt that they were more likely to obtain answers to their questions faster, so they could initiate change quicker. One group believed they had more credibility as a group and that the age differences, cultural backgrounds and different ways of learning in the group were valuable.\textsuperscript{25}

In comparison with other group approaches the facilitators remarked that the adoption rate was higher for NAVIGATOR® participants, and practices could become normal. They attribute this to the support and advice offered by the group members and the long-term follow up provided within the group; rather than a demonstration of an innovation which has no follow up support unless it was sought by the producer.

For the winery groups, the changes made related more to how they managed projects including such things as: “learning to focus on the task”; “awareness level of issues”; “focus”; “goal setting”; “improved relationships with [group] members”; “speak[ing] to people in the group more often”; and “talk[ing] to people at all levels of the industry”.

Since all of the groups were undertaking activities that were of interest, designed and acted upon by them, the exercise resulted in them embarking on further learning experiences. All the participants who contributed to the evaluation reported that they approached problems differently as a result of being in NAVIGATOR®. They cited such things as being more direct and creative in their approach, more organised and tended to “play the devil’s advocate”.

The changes demonstrated above complement those identified in improving confidence and networking abilities. The facilitators and participants attributed these changes to NAVIGATOR®. According to Coleman (1998) these types of changes are typical in developing social capital, which is said to facilitate the development of human capital through people being able to learn to solve problems and take action in order to be effective in their own lives.\textsuperscript{26} However, due to the short duration of the program the durability of these changes could not be determined.

\textsuperscript{23} Facilitator 1 and 3
\textsuperscript{24} Facilitator 3
\textsuperscript{25} Colley \textit{et al} (2001)
6.4 The Facilitators and Their Facilitation

All of the groups that were established in 1999 (Renmark, Clare Valley, Robe/Mt Benson, McLaren Vale and the Riverland) were initially facilitated by Rural Solutions SA. Those groups that continued to be involved in the program were later facilitated by winery employees (McLaren Vale), a group representative (Renmark), or a partner to a group member (Robe/Mt Benson) that had been trained in the process. The groups that formed later in Loxton (2000), Barmera (2000) and Naracoorte (2001) were established and facilitated by winery employees (refer Table 6.1).

Fifteen people participated in the facilitator training session in stages two and three of the program (refer Chapter Five, Figure 5.1). Four of these, in addition to myself, were government facilitators in viticulture or horticulture. The remaining eleven industry facilitators were either winery representatives, producers or their partners, and one government dairy representative looking to utilise NAVIGATOR® in the dairy industry. 11 of these attended one of two group training sessions conducted by myself and the rural sociologist/evaluator. The remaining three trainees were trained individually by me as they were unable to attend the scheduled group training sessions. The gender distribution amongst the industry facilitators was reasonably balanced (see Table 6.3).

<table>
<thead>
<tr>
<th>Facilitator(s)</th>
<th>Number of Participants</th>
<th>Location</th>
<th>Gender (F:M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winery</td>
<td>7</td>
<td>Barmera, Barossa, Loxton, McLaren Vale, Naracoorte, Waikerie, Adelaide Hills</td>
<td>3:4</td>
</tr>
<tr>
<td>Winegrape producer / producers partner</td>
<td>3</td>
<td>Eden Valley, Robe/Mt Benson, Renmark</td>
<td>1:2</td>
</tr>
<tr>
<td>Government (Wine/viticulture)</td>
<td>5</td>
<td>Statewide</td>
<td>1:4</td>
</tr>
<tr>
<td>Government (Dairy)</td>
<td>1</td>
<td>Statewide</td>
<td>1:0</td>
</tr>
</tbody>
</table>

Industry facilitators trained in the process but unable to form a group in the time PIRSA funded the program was generally a result of time constraints due to other commitments (Barossa, Adelaide Hills and Waikerie). One potential facilitator was a winegrape producer who attended so he could report back to his regional group (Eden Valley) on whether the program would be of use to them, and it was decided it was not.

The facilitators exhibited a range of skills and experience. All of the government and winery facilitators were university educated in science, agriculture or viticulture, with the exception of one winery employee who had gained his knowledge informally through his previous occupation as a winegrape producer. Although the government and winery facilitators were used to dealing with producers one-on-one, the government facilitators were more experienced in working with groups, and therefore had a greater understanding of group learning processes.
The two producer-facilitators (selected by their groups) were also university educated, one in accountancy; the other in Arts, who had also been involved in winegrape production since childhood. The producer-facilitator with accountancy training also had some experience in group training, although the approaches used were of an information transfer role similar to that in a classroom but not technically related.

The first group of trainee NAVIGATOR® facilitators commented positively on its underlying philosophy; and the dual outcomes required in terms of those objectives required by PIRSA and those to be determined by the participants. However, some suggestions were made to alter the process which would have made it more directed and removed the elements that were likely to promote cultural change. In the expectation that the training session may have been at fault for these conclusions, the practical example used to demonstrate the process was changed for the next round of facilitator training. Similar comments were not noted at the modified session.

Over time the facilitators made minor changes to the process, to suit their own personal style, or by request from the participants. However, the core structure of the process was sustained. The following section outlines some of the findings in relation to the facilitation of NAVIGATOR® pertaining to the empowerment of the participants, the level of energy by the group in undertaking the process, and a comparison between the industry, government and producer facilitators.

### 6.4.1 Difficulty of ‘Empowerment’

The way in which facilitation occurred in NAVIGATOR® and the facilitators’ attitude were critical to encouraging self-direction of the participants, by trusting them to make their own decisions, even if they did not appear to be the ‘right’ one(s). Freire had argued the need to trust in people’s learning ability, to allow “dialogue, reflection and communication” and that

> “knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry men [and women] pursue in the world, with the world and with each other.”

Facilitators who do not trust the group will tend to a more directive style of facilitation, and hinder the empowerment of participants. In NAVIGATOR®, empowerment was really self-empowerment, where the facilitator’s role was to stand back and provide a set of circumstances in which the participants could take control to empower themselves.

For some of the facilitators the empowerment concept was problematic. An expectation from many of the groups was that the facilitator would perform a traditional role of taking responsibility for organising the group and coordinating activities. The role clarification undertaken in the Exploration Workshop went someway to dispelling this perception. However, people who take on roles as facilitators generally enjoy working with people, are confident in talking to groups and as a result are inclined to want to help them by intervening in their learning.

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process. Some of the government and winery facilitators found it difficult and confronting to relinquish control as: (1) they were used to information transfer approaches where the outcomes were defined. This resulted in feelings of discomfort about the open-ended ‘boundary-less’ outcomes of NAVIGATOR®, that encouraged the participants to self-direct their own learning; (2) they could not appreciate that all participants may be capable of self-direction and that this provided opportunity for creativity, originality and resourcefulness; (3) it was easier to provide information than facilitate learning; and (4) for some facilitators it lead to a sense of helplessness in not having to be needed. van Weperen, Proost and Röling had also noted difficulties in changing the style and role of extension workers in their paper on Integrated Arable Farming in the Netherlands.28

Over time some of the facilitators underwent their own transformation. Those that were initially hesitant about the participants’ abilities to direct their own learning became more confident and less anxious about their own reduced level of input to the group. The continuation of the majority of the groups meant that the process withstood the various facilitation styles, with some facilitators being naturals while others were not. This outcome demonstrated the robustness of the process. In some cases NAVIGATOR® carried the inexperienced facilitators, or those slightly adverse to its objectives, through the process along with the participants. As long as the process was broadly followed in including the minimalist role of the facilitator, and encouragement of participant responsibilities to determine, organise, carry through and reflect on their activities, the process appeared to empower participants even where the facilitators attempted to remain in ‘control’. There was evidence to suggest that, for some groups, the participants’ actions showed that they had a greater appreciation of their own ability to self-direct their learning than the facilitator.

It is speculated that the robustness of the process was due to its highly participatory nature and the lack of opportunities for the facilitator to talk at the participants. The relaying of information was usually only done by the group members themselves or when they had invited a guest speaker to provide them with information. These built-in features discouraged direction from the facilitator and encouraged participant empowerment.


van Weperen, Proost and Röling (1973) noted “the project experienced difficulties in training extension workers in their new role, especially giving up the role of expert and embracing that of facilitator of learning”.

Integrated Arable Farming has been experimented with since 1979 by the Dutch Government. It is similar to Integrated Pest Management in that it aims to integrate “mechanical, biological and chemical pest controls” to try and reduce chemicals, pesticides and minerals inputs; reduce production costs; improve quality of produce; and increase use of knowledge and labour (2000:102).
6.4.2 Energy in Facilitation

During the development of the process it was noted that less input from the facilitator meant more activity and creatively from the participants, allowing for the development of human capital. Additionally, a comparison of the facilitator’s comments with the participant’s outputs for the group sessions, showed that when a facilitator had noted a part of the session as ‘good’ or ‘okay’ the output from the group was more impressive than if it had been ranked as ‘excellent’. This suggests the participants were seen to be enjoying themselves more in an ‘excellent’ ranking, perhaps through creative facilitation, but more substantial learning occurred when the group was more subdued providing greater opportunities for thought and reflection. These observations further cement the ideas surrounding the less interventionist role of the facilitator, and suggested that a facilitator who is good at achieving excitement amongst a group may not be suitable in achieving the desired learning outcomes like those required for NAVIGATOR®.

6.4.3 Facilitator Comparison

As mentioned earlier, the winery facilitators were more used to one-on-one type activities and consequently had to undergo a significant transformation in the way they communicated to producers in order to take them through the process. One facilitator commented that she found it “difficult to facilitate and watch the group at the same time” in order to assess how they were responding to the process. While another embraced the processes and enjoyed supporting his fellow facilitators and seeing the participants achieve their stated outcomes.

A comparison on participant reliance on the facilitators noted a slightly greater tendency for producers to rely on the winery facilitators to undertake some organisation activities, than for the producer and government facilitators. However, this reliance only appeared to occur for activities where the producers had requested information from a company winemaker or viticulturist, and it was the role of the company representative (also the facilitator) to organise these types of events.

It was also noted that the producer’s agenda often reflected that of the wineries. This may be due to reasons explained earlier in relation to holism (refer section 6.2.2 Participants’ Projects). Although, the winery facilitators acknowledged that this similarity occurred, NAVIGATOR® was seen to provide direction and ownership to the producers. They commented that producers may have looked to the winery for direction, but

“They take ownership (of direction and information) but they respond to where the industry is going. They make up their own minds as to what they need to do to achieve.”

29 Facilitator 4
30 Facilitator 3
31 Facilitator 5
In comparing the Loxton, McLaren Vale, Renmark and Robe/Mt Benson groups in July of 2000, it was observed that the Loxton group was showing a reduced number of benefits than participants in the other groups. Of particular note were those aspects relating to the things such as empowerment, planning, learning and holism, although some of their responses were higher in obtaining information than for the other groups. The difference between these groups was that Loxton had a winery facilitator and the others did not. In this case some of the responsibility of the group was taken up by the facilitator, which was not desirable as it created reliance upon the facilitator and gave less ownership to the group. It was also noted in the later-formed Barmera group, that the winery facilitator was expected to organise the reconvention of the group after they had taken their post-vintage break. However, the facilitator commented that once the group was up and running they did most of their own organising.  

Later assessments of the winery facilitators revealed that they were effective, particularly in cementing relationships between the winery and their contracted producers. However, whether the participants would move beyond production aspects still needed to be determined, given the expectations of what the winery would support.

As the producer-facilitators were selected by the group, they were trusted by the group and recognised by their peers as having leadership qualities. These facilitators appeared to work well in developing leadership qualities within their group and could ensure that the process could be delivered without the contamination of the participant’s expectations of what they thought was required from industry and/or government programs. Some difficulties were noted in being both a participant of the group and a facilitator to their peers. These were more evident with the facilitator who was also a group member. In an ideal situation the producer-facilitator would be involved in one group as a participant and in another as the facilitator.

Since the producer-facilitators had only been in the role for one year and only two existed, any firm conclusions as to whether these types of facilitators are successful in the long-term could not be reached. In my discussions with other government staff that supported both the producer and winery facilitators, they were confident that the producer-facilitators had the ability to be successful if given the appropriate levels of support in the short-term. This support was to include facilitation advice and problem-solving.

### 6.5 Commercialisation

The brief for NAVIGATOR® specified a desire to have a program that could be adjusted for use in other areas. Although positive feedback was generally obtained in discussions with people about the program, the attempts to commercialise the program were faced with difficulties.

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32 Facilitator 4
Attempts had been made to trial NAVIGATOR® in the dairy industry but, due to adjustments in funding in this industry, this was not continued and no conclusions could be drawn as to the effect. Other areas of agriculture such as field crops, commented that they were already undertaking the same types of approaches. This was true in some respects, in that participatory type approaches were being implemented, but the programs still tended to be more directed, usually in specifying production or finance outcomes.

People involved with Indigenous communities could see some merit, but thought the participants may need to be directed more. Due to current programs running in this area and limitation to funds, this avenue was also not pursued any further. Interest had also been expressed though discussions with health professionals at an extension conference, but was not followed through due to financial constraints.

The difficulties noted in defining how NAVIGATOR® differed from other approaches being used in these areas was in the interpretation of the words used to describe each of the programs. Often the same language was used - but it held different meanings. This has already been identified as an issue in Chapter Two (Adult Education) and also emerges in interpreting social capital (Chapter Eight) and sustainability (Chapter Nine).

Since the business sector was not in Rural Solutions SA’s area of expertise, a consultant was employed to undertake a market assessment. The assessment found that although this sector had become more focussed on training, it was outcome driven with a focus on “control and deliverables”. The consultant reported, briefly, that the people interviewed

“were impressed that they [the materials for NAVIGATOR®] had been developed and that longer term thinking had been employed in this area (eg empowerment, building social and human capital)…[but they did not provide anything new]…It was the fact that the concepts had been applied innovatively to such a perceived resistant group that was of interest”. 33

Although the incorporation of elements such as empowerment and social and human capital first appeared impressive they did not have great appeal, as the outcomes could not be related back to “quantifiable results”. It was suggested that it could be made more attractive with some modifications, that again made the process more directed to achieve desirable short-term outcomes. The report noted that the

“conservative business market in Australia has been slow to engage with the concept of life long learning. Learning to learn in business [is seen] to be a fine social/community ideal but of little application in the real “cut and thrust” of commerce, especially at the worker level. Even the current pre-occupation with the need for business to embrace and encourage innovation amongst management and staff has not translated into recognition of the need for continual learning for all associated with the organisation. It is still perceived by many as too “soft” an approach for the “hard” disciplines required in business. Even if the concept is accepted, the perception of long return on investment periods required do not fit

with the “short termism” (1-3 years) that currently pervades much of Australian businesses.” 34

Suggestions of this type are interesting, given that the many advances in the field of adult education, as outlined in Chapter Two, had emerged from the business sector since the 1930s, albeit at the management level. The report suggested that the types of groups appropriate for NAVIGATOR® were: community groups, state and local government groups, remote communities, regional development boards, emerging industry clusters, new business associates, chambers of commerce, and export groups.

6.6 Meeting the Program Objectives

NAVIGATOR® aimed to provide a framework in which participants could define their leaning, find solutions to their problems and act on these. It was important that the learning experiences were meaningful, had applicability in terms of being self-directed, and could be used in other situations (within or outside of agriculture). The development of human and social capital was encouraged to: foster self reliance; improve participant’s breadth of view in their industry; and improve strategic planning skills through critical analysis so the participants could deal with their constantly changing circumstances.

NAVIGATOR® drew upon adult learning principles, action research and action learning methodologies to pursue the outcomes desired by PIRSA. Although the use of these principles and methodologies are not new, little work in Australian agriculture extension had been undertaken utilising them in such a non-directive way as devised in NAVIGATOR®. The program did not specify a particular agenda, boundaries or predetermined outcomes in terms of the participants’ projects or how they were to learn. Therefore, it didn’t ‘extend’ anything in the usual sense of extension, but provided, instead, a pathway for participants to identify options and act on them. This enabled them to take control and responsibility for their learning, as the NAVIGATOR® process supported and stimulated the participants to navigate through the complex and multiple issues affecting their businesses through a defined structure; and formulate, develop, act on and reassess their decisions over time. The participants owned their learning activities because they defined the problems and designed the solutions. As a result each group’s project was unique, had a defined goal it wished to obtain, and reflected their perception of their needs.

The extensive use of a range of qualitative methods to both inform and assess the outcomes of the program was also uncommon. The social considerations of the program demanded such an approach, so the changes observed could be attributed

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34 Tomlian (2003)
to it. However the research showed that in some instances, difficulties in obtaining enough accurate and informative information arose. This was particularly the case where those collecting the data, such as the facilitators, did not have a good understanding of how to collect and report information of the type required. This draws attention to the difficulties in obtaining data of this type, that need to rely upon a range of individuals for accurate data collection.

In most cases NAVIGATOR® achieved positive learning outcomes and change, and appeared to have an equal or greater impact when compared with other programs. In some respects, it should be no surprise that if an individuals’ learning begins where they feel most comfortable, and occurs in a way suited to their learning style, then a positive outcome is achieved and can be used as a platform for further learning. However, another likely contributor is the ongoing support provided in NAVIGATOR®. This was provided by way of the process structure. It enabled the participants to follow through with their ideas and areas of interest, and test these on others in a safe environment, rather than relying on information received which is then analysed and deciphered in isolation from others.

Enquiries into the commercialisation of NAVIGATOR®, emphasized the difficulties in selling a program that encouraged learning how to learn, rather than the directive forms of learning where perceived benefits can be more easily identified. This demonstrated the complexities involved where governments are looking for specific outcomes but also want to withdraw or commercialise services. The remainder of this chapter assesses whether PIRSA’s specified outcomes in achieving ‘cultural change’, developing leadership, and ascertaining if the participants had the abilities to respond to market changes were obtained through NAVIGATOR®.

### 6.6.1 Achieving ‘Cultural Change’

The three year period over which NAVIGATOR® was developed and trialled showed that as the process became more participatory and less directive, more evidence of cultural change was observed though the development of human and social capital. The steps taken by the participants over the life of the program were small, but significant, for the time they had been involved and the ambitious outcomes expected. Programs with similar outcomes for cultural change and sustainability have been run for longer periods, in some cases up to 10 years.35

High energy levels in a group did not assist the participants in the development of skills in critical analysis, and infact, were more likely to have a negative consequences. The self-directedness of the program in allowing participants to choose what and how they learn and being able to follow through on a project at their own pace and style, is what they enjoyed once they realised they were in control of their learning.

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An increase in the group’s structure and participants’ confidence was clearly observed, along with improved abilities in networking and accessing information, and these were attributed to NAVIGATOR®. The increased networking ability meant that the participants were extending their social capital, creating the potential for self-reliance from traditional government services. The demonstrated willingness of the participants to share information and problems, sometimes listed as a necessity to be a participant for some of the groups, assisted in binding the group members, built a sense of trust, and provided encouragement for them to continue with their learning experiences. This appeared to occur quicker for those groups that were self-selected or where members new each other, drawing attention to the importance of group formation.

The more independent the groups became the more they appreciated the role of the wineries and government and became more confident in managing change. The confidence within the broader industry assisted in this, and instilled a desire for the participants to be seen as producers of quality fruit in a reputable region. The participants were applying what they were learning, usually in advance of other producers in their regions.

The diversity in group ages, cultural backgrounds and experience was valued, allowing the participants to gain a variety of perspectives and enriched their learning experiences. It also was shown to be effective in non-producer groups, such as the McLaren Vale winery employee group. Initially set up to trial and later facilitate the process to their own producers, the McLaren Vale group found that the process helped them develop more strategic thinking and planning skills. This demonstrated that the process could be used with a wider range of target groups in addition to producers. However, attempts at implementing the program beyond the wine industry were difficult, partly as a result of peoples various interpretations of the words used to describe NAVIGATOR®. Chapter Seven investigates this further by taking a selection of popular terms used in agriculture to try to understand their origins and incorporation into the agriculture language.

The participants did focus primarily on production issues but were not ignorant of the other aspects of their business, and expanded their ideas into other areas particularly when dealing with regional issues. It was noted however, that the Remark group’s interest in computer based financial packages may have had more to do with the introduction of the goods and services tax which coincided with the implementation of NAVIGATOR®, but still satisfied a need.

Additionally, the people aspects, in terms of staff resources and management, were rarely considered and the environment was not fully understood, either by the participants and some of the facilitators. ‘Environment’ was generally viewed in terms of natural resource management and nearly always in relation to the production aspects of viticulture. The lack of comprehension of what the environment consists of raises some concerns, particularly when governments are seeking to obtain sustainability (i.e. social, economic and environment) outcomes. It also identifies a gap in communication between the language used in agriculture policy and specified within program briefs, but not necessarily understood by those who are responsible for implementation. This can result in the same
The participant’s primary focus on production had several drivers. First, the wineries were moving to pay producers based on their fruit quality to enable a consistent quality product for their export markets. Poor quality fruit resulted in a reduction in payment. Since ‘quality’ was difficult to define, producers needed to improve their relationship with their contracted wineries in order to grow fruit to the wineries specifications for the various wine styles and markets.

Second, the producers may have felt more comfortable sharing information on production matters. This is not necessarily a bad place to start, indicating where the participants ‘were at’ in the sense of what they felt they needed to know, as well as what they were comfortable in dealing with. In the past, producers withheld information as they saw their neighbours as competitors. The focus on the overseas market resulted in a change in the way producers viewed their peers and the industry, with winegrapes now being grown for specific wine styles for export. This meant producers became more willing to openly share information and saw their competitors as other regions and countries. Many of the groups identified a willingness to share information as an important prerequisite of membership. For some groups, sharing information was extended to include financial information. The Barmera, Loxton and Renmark groups were particularly open with each other. This may have been due to the amount of group work that had occurred in the Riverland region in the past, in comparison to the other more remote areas, resulting in these groups being more group savvy. These groups were also in more established horticultural areas, whereas the Robe/Mt Benson and Naracoorte regions were newer to horticulture, and the group members were more geographically dispersed within their region.

Third, the producers may have perceived that the projects needed to have a production focus as the wineries and PIRSA were involved, although this was not stated as a requirement. Historically PIRSA had focussed on production based activities or related topics. Involvement with the wineries may also have suggested to the groups that they needed to choose projects seen to be relevant to the wineries interests. Therefore, the group members may have perceived that they needed to undertake projects that had traditionally occurred with PIRSA and were of interest to the winery.

Finally, the production aspects are why people were farming in the first instance, although the business and finance, market, environment and human elements are considered important to the health of a business over time. The gradual change of farming from lifestyle to a business enterprise has been slow for smaller producers, but not altogether absent.

The selection of the project areas demonstrates what was important to the group members once they had considered all their options. This is in line with the adult learning principle, that adults undertake learning in areas that appear relevant to their life situations. Therefore, it is anticipated that as the participants become more aware of the need to address the other aspects of their business, gain more
confidence in their abilities, and if the group support can continue, they may be more willing to move into other areas. The type of gradual change experienced in NAVIGATOR®, can be a problem for programs that require social outcomes in short timeframes. Since no ongoing assessment was undertaken on the groups continuing with NAVIGATOR®, it could not be ascertained if these types of changes persisted.

The implementation of NAVIGATOR® also drew attention to the importance of the mindset of the facilitators and the importance of their training to achieve socially based outcomes that related to the development of human and social capital. The difficulties in asking technically trained individuals to facilitate outcomes of this type are a challenge. Like the environment, it is one that governments need to consider in light of what they are trying to achieve in programs, and the skills of the staff they have to develop and deliver these programs. The consequences of not taking into consideration the complexities involved in achieving social outcomes are also demonstrated in the following section on developing leadership, and is given closer attention in Chapters Seven and Eight which observe the concept of social capital more closely.

6.6.2 Developing Leadership

The development of leadership skills was seen to be a contributing factor in building the ‘community’s capacity’ (i.e. those involved in the wine industry) to achieve ‘self-reliance’ from government services. Hence in NAVIGATOR®, leadership skills were encouraged in several ways. First, by training winery employees to facilitate to their contracted producers. Second, by training NAVIGATOR® group members to facilitate the process to their peers. Finally, by reducing the facilitator’s role and encouraging the participants to think and act for themselves.

The findings demonstrated that, over time, successes were achieved for each of the above approaches, especially where there was less intervention by the facilitator. Some facilitators who were more familiar with information transfer approaches struggled to relinquish control. Hence the empowerment of the participants and leadership opportunities within the groups was more difficult, but was shown to improve over time. The duality of roles for the winery and producer facilitators also added complexities to fostering leadership. Winery facilitators were often required to support producers as part of their employment with their organisation; hence difficulties in motivating participants to undertake certain tasks were sometimes complicated. Another competing factor involved the need for winery employee-facilitators to ensure that their time spent in letting producers direct their own learning added value in terms of economic outcomes for their employer.

Due to the smaller number of producer-facilitators, no conclusive outcomes could be drawn in relation to the development of leadership abilities for this group. It is worth noting, however, that, for the producer-facilitator who was also a group member, some difficulties surfaced in being an effective facilitator and participant of their group. Involvement of a producer-facilitator in a group in this way, may result in the facilitator taking on a more controlling role and lead to a tendency to
move the group into areas out of personal interest, although that was not observed in this research. Ideally, as was demonstrated for one of the producer-facilitators, it is preferable to have the producer-facilitator not as a participant of the group they are facilitating, allowing them to focus on the groups’ development.

Despite the range of facilitation styles and competence, the participants were shown to take control of their learning, and improve their confidence and networking abilities which overtime may lead to improved leadership. In being able to obtain these outcomes the robustness of the process to meet the objectives of NAVIGATOR® were demonstrated. However, it brings to our attention that, in cases where governments want to relinquish responsibilities back to the community, there can be difficulties due to competing priorities. This is particularly the case where government has set the agenda on what is to be achieved. It also poses the question, as to whether programs that are seeking social outcomes like those in NAVIGATOR® can effectively be achieved over the longer term with minimum input from government.

6.6.3 Responding to Market Change

The global orientation of markets requires producers to have knowledge of markets in which they contribute. This enables adjustments to be made so that a consistent quality product can be produced that is fit for its end purpose, and subsequently, longer-term viability within the industry. The ability of producers to be able to meet these demands can be observed through the development of new skills and strategies to be more active in the global market.

Although the above skills were not found to exist to any great extent in NAVIGATOR®, change in, and the development of, particular aspects of their business were reported - most notably in production areas and changes in their personal life. Generally, the participants appeared to understand the global context of their industry, and had demonstrated some capacity to ‘think globally, act locally’ to improve their region’s notoriety through improved quality and reputation. This was viewed as being important for their position within the industry, giving them a sense of pride; and essential to meet market demands. These changes suggested that the participants have the capability to develop the required skills and strategies to become active in the global market, but were taking small steps.

The encouragement of more strategic planning into agriculture can be problematic in that populations are not homogenous, with some people taking to planning while others will not. This being the case the incorporation of more targeted planning activities may involve a considerable change for many people, particularly for those activities seen to be everyday occurrences. However, if these were to be incorporated into NAVIGATOR®, the self-directed nature of the program would be removed, leading to a more directive style of learning. This highlights the tension that can exist in government funded programs. Governments will always have an agenda as to why they are spending public funds on a particular activity. NAVIGATOR® is no different to any other publicly funded program in this regard. Therefore, in self-directed and highly participatory
based approaches, a tension will exist between those outcomes desired by government and those that the participants see as valuable.

The kinds of changes requested of the participants by government and the wine industry to meet export market demands, will not occur rapidly. Producers have, and do, respond to market signals, but need support to think, plan and act with the long-term in mind. It is anticipated that, as their confidence grows in their abilities to seek information and extend their networks, the market signals will act as a catalyst for further learning and development of skills. The move toward a more business-based approach by some of the participants also points to further evidence of their ability to achieve this outcome.

6.7 Conclusion

This chapter outlined the findings from NAVIGATOR® over its three year duration and provided an assessment of PIRSA’s objectives to: stimulate cultural change in winegrape producers; develop leadership qualities to build community capacity; and determine whether producers have the skills and knowledge to respond to market changes to produce fruit that is ‘fit for purpose’. It also acknowledges that in obtaining these objectives, the participants objectives determined through their projects must also be satisfied; hence the two sets of outcomes are intertwined.

Generally, the participants had undergone ‘cultural change’ in some areas, particularly in relation to improved confidence which enabled them to extend their networks and source information for themselves. A longer term analysis and greater industry involvement would be required to determine if the cultural changes observed are permanent and would continue over a longer period.

Although the participants were shown to give consideration to all aspects of their business and industry while making decisions, they predominately remained focussed on production. The lack of understanding of the environment was also concerning and did not support environmental sustainability outcomes being sought by government. The development of leadership skills was shown to improve over time. The winery-facilitators became more comfortable in their role as a facilitator, rather than expert, which allowed the participants to be more confident in their decision making. This demonstrated the development of leadership abilities on behalf of the wineries and also the group members as they became more confident in their abilities to make and process their decisions into actions, but also drew attention to the difficulties associated with the facilitators understanding of how to achieve social outcomes.

Although changes in the participants businesses were reported they were not shown to clearly demonstrate their abilities to respond to market changes to any great extent. However, they did often consider the market in light of their practices in the vineyard.

The period over which NAVIGATOR® ran was not long enough to determine its longer term effects and whether all of PIRSA’s desired outcomes could be obtained. The lessons learnt have been extensive, and include:
1. Artificial formation of groups is less desirable for programs seeking social outcomes.

2. Diversity in groups such as varying ethnic backgrounds, education levels, age groups and experience are valuable in self-directed activities as they provide a broader range of perspectives for people to consider.

3. The self-directed approach appeared to suit both producers and more technically trained individuals.

4. High group energy levels do not constitute a good environment for critical thinking and analysis.

5. Ongoing support provided for participants to act on their areas of interest through enquiry based learning has improved impacts on adoption.

6. Group structure and confidence can be achieved through less-directive means.

7. The ability of groups to provide avenues for enquiry and ongoing support in learning activities appears to be more successful than the demonstration of ideas which is considered in isolation.

8. Leadership and strategic planning abilities take longer to obtain than improved confidence and networking abilities.

9. Governments need to consider the duality of roles, such as winery-facilitators, and how this may affect their desired outcomes.

10. The paradigms of those trained in the social and technical sciences vary significantly and, consequently, this needs to be considered when developing programs of this type. If technically trained individuals are to be used to deliver social outcomes like those in NAVIGATOR®, time is needed for them to develop an understanding of these and how to effectively achieve them.

11. Those involved in the collection of qualitative data need to be clear about the importance of collecting quality data so that change can be directly attributed to the program.

12. Governments need to be realistic about the time required to achieve the types of change they are requesting.

13. Governments need to acknowledge that tension may exist between those outcomes desired by them and those that the participants see as valuable which can determine the effectiveness of a program.

14. Confusion pertaining to the social and environmental language raises issues when new policies and programs are seeking sustainability, or triple bottom-line, outcomes.

These learnings suggest that, if governments are seeking to achieve social outcomes, then people with skills in these areas need to be engaged to assist in the development and implementation of programs of this type. In some instances this will require organisations to have a cultural adjustment of their own, particularly those whose employees are predominately technically based and used to a different style of learning and thinking. An ideal situation would be for multi-disciplinary teams to exist, so that a more holistic approach to learning can be taken, as is done in developing countries when dealing with regional development concerns. This is not dissimilar to the expectations and considerations we are asking of the people governments are developing programs for in having to
change and adjust to meet global market requirements and the complexities associated with this in modern agriculture.

The lack of understanding and sometimes confusion associated with the language used while undertaking NAVIGATOR® within industry and government, led me to question the origins of the language and how it became incorporated into agriculture. In answering these questions a greater understanding of the languages presence and use in agricultural policy and extension programs could be ascertained. The find answers to these questions, the following chapter researches a selection of terms commonly used in agriculture extension dialogue.
Chapters Three and Four showed how agricultural extension has historically drawn upon a range of areas to improve its development. The latter part of the twentieth century saw a focus on the incorporation of more social and environmental considerations, predominately to achieve economic outcomes. The incorporation of language from other areas has caused some debate as to the appropriateness of their use in the agricultural context, which may differ in its objective and outlook. The NAVIGATOR® case study described in Chapters Five and Six provided a practical example of where confusion surrounding people’s understanding of social and environmentally based terminology within an Australian context occurred.

This chapter seeks to gain a fuller understanding of the adoption of popular language used in agriculture policy and programs. To do this, the terms listed in Table 7.1 were researched and the extent of their use overtime observed. The approach taken involved a bibliometric analysis conducted through the Elsevier online data base ScienceDirect®. This database was selected as it listed over 2 000 journals (204 of these relating to agriculture), and contained an historical archive of greater than 6.75 million articles across a range of fields of study.1

<table>
<thead>
<tr>
<th>Search Term</th>
<th>Information Entered for Search</th>
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<tbody>
<tr>
<td>Capacity building</td>
<td>Capacity building</td>
</tr>
<tr>
<td>Cultural change</td>
<td>Cultur! Change (to capture culture and cultural)</td>
</tr>
<tr>
<td>Empowerment</td>
<td>Empowerment</td>
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<tr>
<td>Participation</td>
<td>Participation</td>
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<tr>
<td>Self-reliance</td>
<td>Self-reliance</td>
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<tr>
<td>Social capital</td>
<td>Social capital</td>
</tr>
<tr>
<td>Sustainability</td>
<td>Sustainab! (to capture sustainable and sustainability)</td>
</tr>
</tbody>
</table>

Searches were conducted on journal articles across four subject areas defined by Elsevier: Agriculture and Biological Sciences (ABS); Economics, Econometrics and Finance (EEF); Environmental Science (ES); and the Social Sciences (SS). These subject categories were selected as they appeared to be the most likely to contain the fields of study from which the terms outlined in Table 7.1 may have emerged. This conclusion was drawn by giving consideration to the fields of study that were shown to have influenced the development of adult education and agriculture extension theory and models outlined in Chapters Two to Four. Occurrences relating specifically to agriculture were determined by identifying the journals and articles within the ABS category that were agriculturally related.

The retention of the Elsevier subject categories, in preference to a manual grouping across the journal listing, meant that a more accurate search was likely. This avoided misrepresentation or exclusion of a journal if they did not appear to

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obviously fit a particular category. Manual categorisation would have also been extremely time consuming, as each journal would need to have been searched separately to identify appropriate articles.

The findings of this research are presented by reporting when the terms first appeared followed by an account of their most prominent areas of use over time, and their integration into agriculture. This has enabled the extent of their use to be tracked and helped define the context in which they have been used internationally.

7.1 The First Appearance

To obtain information on the year in which each of the terms first appeared, a search across the subject categories in ScienceDirect® was conducted on journal articles, including in-press and corrected proof, so as to gain as many occurrences as possible. The search was later extended to include key words and abstracts as some categories returned only a small number of articles. Agriculturally-related appearances were found by searching the ABS category and observing an indication of content relating to agricultural extension, rural development, policy, marketing, or organisational aspects of agriculture.

The results presented in Table 7.2, show when the terms first appeared in each category and their origin. The shaded areas highlight the year in which the terms appeared overall. The subject categories listed in brackets within the agriculture category indicate other categories for which the same journal appeared.

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<table>
<thead>
<tr>
<th>Term</th>
<th>Category</th>
<th>Reference</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td><em>(Title, Journal, Organisation, Country)</em></td>
</tr>
<tr>
<td><strong>Capacity building</strong></td>
<td>1993</td>
<td>Ventilation as a means of air-conditioning power saving in reinforced concrete telephone - exchange buildings-analysis and directions for design. <em>Energy and Buildings</em></td>
</tr>
<tr>
<td></td>
<td>1986</td>
<td>Department of Building Climatology, Building Research Station, Technion—Israel Institute of Technology; Energy and Machinery Division, Engineering Services, Ministry of Communications; and The National Physical Laboratory of Israel, Hebrew University Campus, Israel</td>
</tr>
<tr>
<td></td>
<td>1984</td>
<td>Capacity building for rural development in the United States. <em>Journal of Rural Studies</em></td>
</tr>
<tr>
<td></td>
<td>1986</td>
<td>School of Public Policy, Economics and Law, University of Ulster, UK and Centre for Rural Assistance, Colorado State University, USA</td>
</tr>
<tr>
<td><strong>Cultural change</strong></td>
<td>1969</td>
<td>Cultural characteristics of a pelagic marine hymenostome ciliate, <em>Uronema</em> sp. <em>Journal of Experimental Marine Biology and Ecology</em></td>
</tr>
<tr>
<td></td>
<td>1969</td>
<td>Institute of Marine Resources, University of California La Jolla, USA</td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>Culture Change in Agricultural Research Organisations – an urgent need. <em>Agricultural Systems</em></td>
</tr>
<tr>
<td></td>
<td>(ABS)</td>
<td>Department of Primary Industries, Queensland and Department of Mechanical Engineering, University of Queensland, Australia</td>
</tr>
<tr>
<td><strong>Empowerment</strong></td>
<td>1992</td>
<td>Power and Empowerment. <em>Women’s Studies International Forum</em></td>
</tr>
<tr>
<td></td>
<td>1987</td>
<td>Division of Humanities and Arts, 180 Kresge College, University of California, USA</td>
</tr>
<tr>
<td></td>
<td>1986</td>
<td>Rural Community Development: what sort of social change? <em>Journal of Rural Studies</em></td>
</tr>
<tr>
<td></td>
<td>1983</td>
<td>School of Cultural and Community Studies, University of Sussex, UK</td>
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<tr>
<th>Term</th>
<th>Category</th>
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<td></td>
<td></td>
<td><em>(Title, Journal, Organisation, Country)</em></td>
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**Table 7.2  Summary of Terms’ First Appearance**
<table>
<thead>
<tr>
<th>Term</th>
<th>Category</th>
<th>Reference</th>
</tr>
</thead>
</table>
Organisation and country unknown  
Centre for International Affairs, Harvard University, Cambridge, USA |
Organisation and country unknown  
The Village Situation in India and Reorganisation of its Agricultural Resources: a case study. *Agricultural Administration*  
University College of Agriculture, Calcutta, India; Seva-Bharati College, India |
*Economics of Education Review*  
Departments of Economics and Education, University of Chicago, USA  
How does the human rights perspective help to shape the food and nutrition policy research agenda? *Food Policy*  
International Food Policy Research Institute, USA and Ministry of Agriculture, Food Production and Plant and Animal Health, Norway |
<table>
<thead>
<tr>
<th>Term</th>
<th>Category</th>
<th>Reference</th>
</tr>
</thead>
</table>
| **Sustainability**   |          | The Dynamics of Commercially Exploited Natural Animal Populations. *Mathematical Biosciences*  
Department of Mathematics, University of British Columbia, Canada |
| 1972                 |          | The conservation of Antarctic Whales. *Biological Conservation*  
Chief, Fishery Statistics and Economic Data Branch, Food and Agriculture Organization of the United Nations, Italy |
| 1972                 |          | Fisheries in Upwelling Regions – with special reference to peruvian waters. *Geoform*  
Department of Oceanography, University of Hawaii, USA |
| 1976 (ABS, ES)       |          | Energy and Food Production. *Agro-Ecosystems*  
Office of the Science Advisor, Department of the Environment and President Biswas & Associates Ltd, Canada |
Where a term’s first appearance occurred across more than one category (i.e. cultural change, self-reliance, and social capital), these were the same article. Sustainability was the exception where three separate articles were produced as indicated in Table 7.2.

The search showed that capacity building, cultural change and participation originated out of the biological and physical sciences. Empowerment, self-reliance and social capital emerged from the economic and social sciences. Again sustainability was out on its own in appearing across all categories with the exception of economics. However, a closer look at the articles for sustainability revealed that the topics of discussion were similar in referring to whaling, fishing and the exploitation of natural animal populations. The ABS use of sustainability did however, also include mathematics.

By the time all of the terms had become incorporated into agriculture their meaning reflected more of the social and economic interpretations. Variations did occur in how long it took for the terms to be adopted into agriculture. Generally, those that originated in the economic and social sciences took less time to appear in agriculture than those that were grounded in other areas. It was observed however, that the incorporation of the terms into agriculture appeared either in the 1970s (i.e. participation, self-reliance and sustainability) or the 1990s (e.g. capacity building, cultural change, empowerment and social capital). Their occurrence at these times either precedes or coincides with the developmental accounts on adult education and agricultural extension provided in Chapters Two to Four.

The fields of study where the terms were used and the organisations from which they emerged also varied. More articles were produced by the United States of America, although these varied in location and topic of content.

### 7.2 Prominent Areas of Use

To deepen the understanding of the use of the terms, the investigation was continued by observing where the terms were predominately used over time. This was undertaken to give an insight into the evolution of ideas around the terms and their use, leading to their incorporation into agriculture. To complete this task a search by journal article title, keyword and abstract was undertaken. References specific to agriculture were determined by adding up the number of articles that were present in agriculture related journals in the Agriculture and Biological Sciences (ABS) category.

The results in Table 7.3 show the total number of occurrences over time for each of the terms. The dominance of the Social Sciences (SS), highlighted in yellow, is evident for all of the terms with the exception of sustainability, which featured in the Environmental Science (ES) category. Those categories rating the second highest number of occurrences (highlighted in grey) included: ES for capacity building; Agriculture and Biological Sciences (ABS) for cultural change, participation and sustainability; and Economics, Econometrics and Finance (EEF) for empowerment, self-reliance and social capital. Agriculture was shown to have the least number of occurrences for all of the terms.
To determine the pattern of use overtime the data was observed more closely. This allowed the tracking of each term’s progression (or not) within each of the subject categories, providing an indication of the movement of the language across the fields of study.

The exercise was achieved by adding the number of articles (again determined by searching on article title, keyword and abstract) recorded for each decade since a term’s first appearance for each subject category. To obtain data for the Agriculture category the journals which reported a citing for each of the terms in the ABS category were reviewed, and the number of articles that related specifically to agriculture was recorded. The results from this analysis are presented in Figures 7.1 to 7.7 below.
Figure 7.2  Frequency of Occurrence for Cultural Change by Subject Category

Figure 7.3  Frequency of Occurrence for Empowerment by Subject Category
Due to the large number of samples for participation, the agriculture figures for 1980, 1990 and 2000 were calculated by determining the percentage of appearances from a journal sample and then multiplying by the percentage of the total ABS figure.
Figure 7.6  Frequency of Occurrence for Social Capital by Subject Category

Figure 7.7  Frequency of Occurrence for Sustainability by Subject Category

Due to the large number of samples for sustainability, the agriculture figure for 1990 and 2000 were calculated by determining the percentage of appearances from a journal sample and then multiplying by the percentage of the total ABS figure.
The findings of the research showed that in all cases, except for sustainability, the SS category consistently had the highest number of occurrences. It also had an increased use of these terms overtime, other than for self-reliance. Self-reliance’s use fell after the 1980s and began to increase again in the 1990s (Figure 7.5). Its appearance in the Agriculture and EEF categories followed along similar lines, although the occurrences began to fall in the 1970s and the frequency of use was not significant.

Although empowerment increased over time it was shown to stabilise in the 1990s and onward. It was noted, however, that categories other than SS did not utilise capacity building, empowerment, and social capital to any great extent (refer to Figure’s 7.1, 7.3 and 7.6).5

Sustainability was shown to feature more frequently in the ABS and ES categories (Figure 7.7), being consistent with the results from Table 7.3. It experienced a slow increase from the 1970s into the 1980s and was followed by an explosion of papers using the term in the 1990s, with all categories continuing to use the term with the exception of EEF, which levelled off.

In the case of cultural change (Figure 7.2), SS increased the use of the term from the 1960s while agriculture, EEF and ES followed a similar pattern with gradual increases from the 1980s. ABS’s use of cultural change peaked in the 1990s and fell in the 2000s. However, none of the categories except SS used the term to any great extent, with less than 10 appearances in each of the decades where it occurred, excluding an increased use by ABS in the 1990s.

Participation (Figure 7.4) followed a similar pattern to cultural change but with a significantly more occurrences. It is possible that the reduced number in 2000 for both of these terms in the ABS category may have been due to an incomplete dataset when the research was undertaken.

Generally the ABS and ES categories were shown to closely follow each other over time for all of the terms. This may be a result of many of the journals being listed in both categories and possible similarities in topic content.

7.3 Integration into Agriculture

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assessments is provided below. More detailed information is contained in Appendix G.

### 7.3.1 International Interpretation

The Elsevier journal search was undertaken by initially searching the ABS category (as it incorporated agriculture), and the subject category which had shown the most frequent occurrences for each of the terms as it was thought this would be a likely area of influence. The search was conducted separately for each of the categories and terms by journal article title, keyword and abstract within each decade since a term’s first appearance. Information was gathered on the journal title, the number of articles for each journal, and some general observations as to the content of the most prominent journals.

Since this investigation was to look specifically at how the terms have been incorporated into agriculture, occurrences for journals specifically relating to agriculture were collated from the ABS journal listing. This allowed for a comparison between the journals which occurred for agriculture, ABS, and the most frequently occurring subject categories.

It was noted in 7.1 (The First Appearance), that a journal could be listed in more than one subject category and therefore include a broader range of fields of study. To take the sharing of journals across subject categories into account, the list of journals for each of the terms and subject categories was obtained from Elsevier so that a comparison could be made. The occurrence of multiple subject categories for the agriculture listed journals was achieved by observing the ABS journal listing and determining whether journals that specifically related to agriculture appeared in any of the other subject categories. The number of journals appearing in other subject categories is demonstrated in Table 7.4. The ES category had the highest number of journals shared with other categories (mostly ABS) followed by: SS and ABS sharing predominately with ES; and EEF sharing mostly with SS. Considering the appearance of journals in more than one category it allowed an assessment to be made on whether the journal content leaned more towards one subject area than another.

| Number of Journals within Each Subject Category from the Elsevier Journal List |
|---------------------------------|---------|---------|---------|---------|---------|
| Agriculture | ABS | EEF | ES | SS |
| Total Number of Journals by Subject Category | 36 | 204 | 100 | 127 | 217 |
| Number of Journals in: | |
| 2 subject categories | 7 | 43 | 11 | 54 | 31 |
| 3 subject categories | 1 | 7 | 4 | 7 | 5 |
| 4 subject categories | 0 | 1 | 1 | 1 | 1 |
| Number of Journals Across Subject Categories | EEF = 2 | EEF = 5 | ABS = 5 | ABS = 39 | ABS = 8 |
| Categories | ES = 5 | ES = 39 | ES = 4 | EEF = 4 | EEF = 9 |
| | SS = 2 | SS = 8 | SS = 9 | SS = 22 | ES = 22 |
If the number of journal listings for a particular subject category and decade exceeded 100 a random sample of 20 articles per 100 listings was obtained. If the list comprised greater than 1 000 articles, these were sorted by relevance to mix up the dates in which they appeared, as greater than 1 000 journal listings could not be viewed. If an article listing for a decade was particularly large, as in the case of sustainability, the number of years being searched was reduced and samples of articles taken and then later collated to give an overview of the decade’s occurrences. The results from the assessment were found to be partially limited due to the small number of journals presenting in the Agriculture category as shown below.

**Capacity Building.** Only three journals directly related to the Agriculture category reported capacity building in the ABS category. Consequently, it was difficult to draw any conclusive results as to which areas of study may have influenced its incorporation into agriculture. However from the journals listed, the focus was aligned to the social sciences and economics in including journals such as *World Development, Journal of Rural Studies, Food Policy* and *Evaluation* and *Program Planning*.

**Cultural change.** The number of occurrences of cultural change in agriculture and the ABS category was extremely small from the 1980s to the present. This reflected the earlier results in the prominent areas of use assessment conducted in section 7.2. The journals which featured for agriculture were also the most prominent journals for the ABS category. The types of journals featuring the term suggested that the biological sciences first influenced cultural change in agriculture from the 1960s into the 1980s. Following this period, and into the 2000s, more social interpretations were incorporated by addressing institutional change, and community issues, rather than producers, specifically. Systems based thinking was also being discussed, particularly in the 1990s.

**Empowerment.** The contributions to agriculture for empowerment were limited and diverse. As for capacity building, journals with a social science and economic focus featured from the 1990s to the present. In the 2000s, the environmental considerations became equally important in observing issues surrounding water and ecosystems.

**Participation.** Only ten journals listed the occurrence of participation for agriculture between 1970 and the present. Participation first appeared in agriculture journals in the 1970s and came to involve various fields of study. It continued its administrative focus into the 1980s with some minor contributions in the policy area. By the 1990s the influences of the social sciences had become more prominent, continuing into the 2000s along with economics and the environment (to a lesser degree).

**Self-reliance.** Four journals listed self-reliance in the Agriculture category and ten in the ABS category. The small number of journals meant that the occurrences found often mirrored each other. The early accounts in the agriculture journals (1970s-1980s) suggest an administrative focus to self-reliance, with influences from economics and the social sciences. Later
appearances, in the 1990s, continued with a social science influence and came to include environmental concerns through systems-based discussions.

**Social capital.** Four journals showed a presence of social capital in agriculture since the concept emerged in the 1990s. Three of these were associated with other subject categories (EEF, ES and SS). Hence the breadth of contribution to social capital appears to have come from a range of areas – food policy, agribusiness, sociology – particularly in the 2000s when systems discussions were included in the mix of topics.

**Sustainability.** The largest number of journals for sustainability featured in ABS at 80, however most of the articles were to also appear in the ES category. 22 journals featured in the Agriculture category, having a significantly greater presence that for the other terms. The number of journals being shared with other subject categories was greatest for ES at nearly half of its journals citing sustainability, mostly shared with ABS followed by SS. The observations of the journals highlight the strong influence of the ES category on the journals listed in the Agriculture category from the 1970s through to the present. Economics and the social sciences were shown to be more included from the 1980s.

### 7.3.2 The Australian Context

The previous sections have provided an overview of the use of the terms internationally. This section seeks to provide more detailed information on the use of the terms in the Australian context, so that it can be compared against the backdrop of the international accounts. The data used in this analysis was drawn from searches of the Adelaide University library catalogue, internet searches on topics relating to agriculture and rural development in Australia, and an electronic search of the *Australian Journal of Experimental Agriculture*, from 1961 to the present. This refereed journal was chosen in preference to others, as it specifically related to agriculture in Australia. A more extensive search was not conducted as the intent was to obtain an indication, rather than full analysis, on where the language may be used and in what context, for agriculture only.

Given the limited scope of literature explored the number of publications presenting use of the terms was restricted. The results from this research are provided below.

**Capacity Building.** Seven reports or papers were found that discussed capacity building in Australia from 2002. None of these were located within the *Australian Journal of Experimental Agriculture* but were produced by, and for, various Australian Government agencies, research centres, universities and farming organisations. They exclusively discussed capacity building in agriculture and natural resource management for rural development and to improve the management skills of producers to combat drought.\(^6\)

A Cooperative Venture for Capacity Building (CVCB), involving various research and development corporations, was also established from 2001. The venture aims to “to give all primary producers the opportunity and skills to obtain the information and education needed to embrace innovation”. It is said to achieve this by “investing in R&D that focuses on enhancing the understanding of learning, improving organisational arrangements to support rural human capacity building, and inspiring innovative farming practices.” Although the CVCB mentions both rural community and producer development, the statements suggest that rural ‘community’ development is achieved by improving producers’ innovation.

Cultural Change. The first appearance internationally for cultural change in 1990 in agriculture was also the first Australian listing of the term (refer Table 7.2). Further searches within the *Australian Journal of Experimental Agriculture* found 17 articles using the term, but none were socially related. Only three references could be found using the term after 2000 from various universities across Australia. Two of these articles primarily dealt with organisational cultural change in the public sector, while the other discussed the idea of ‘cultural capital’ in fostering growth in sustainable development. The lack of literature on cultural change in rural Australia is evident, and the CVCB’s goal is to:

“instigate and support learning by farmer and rural communities. Through research and development initiatives initiated by the CV, our rural communities will be placed in a position to prosper and grow as Australian rural industry adapts successfully to global change. We aim to give all primary producers the opportunity and skills to obtain the information and education needed to embrace innovation.” (CVCB 2006)

The contributors to the CVCB include: Australian Governments Department of Agriculture, Fisheries and Forestry; Murray Darling Basin Commission; Land and Water Australia; Rural Industries Research and Development Corporation; Meat and Livestock Australia; Dairy Australia; research and development corporations in grape and wine, cotton, grains and sugar; Australian Wool Innovation and Horticulture Australia Limited (CVCB 2006).

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Investing in people so they have the capacity to take advantage of the opportunities created by an ever changing world.” (CVCB 2006)

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Schoorl and Holt (1990)

change is somewhat surprising, given that cultural change in relation to producers is often spoken about verbally in extension.

**Empowerment.** The use of empowerment emerged from the late 1990s. Although no occurrences of the term could be found in the *Australian Journal of Experimental Agriculture*, it is referred to in other sources in the context of community development and commonly in conjunction with adult education for producers. For example, by educating the community you are ‘empowering’ the people. In some cases it is suggested that economic and sustainability outcomes can be achieved through empowerment.

**Participation.** Participation was found to be used widely since the late 1990s, in land management and production areas of extension and rural development. In the *Australian Journal of Experimental Agriculture*, it was referred to on 23 accounts. Five of these occurred in the 1990s, one article was biologically related and the remaining four discussed the effects of quality assurance programs in agriculture and extension programs. In the 2000s, 18 articles were produced, all of which were socially based and concerned with the evaluation of extension programs, management practices and attitudes of producers, adult education in extension programs, and sustainability.

Other sources on participation also referred to adult education and learning by individuals and communities. The term is usually used for more on-the-ground type activities or extension, rather than for example participation by employees of agricultural institutions.

**Self-Reliance.** Little information was found specifically relating to self-reliance with no occurrences in the *Australian Journal of Experimental Agriculture*. It is referred to by Primary Industries and Resources South Australia in its *Strategic Plan 1999-2001* (1999), in the context of the creation of industry and customer (i.e. producer / industry) self-reliance from government. In 2004 it appeared in Australian Government documents, again in the context of agriculture industry self-reliance, and as a desired outcome of Australian Government programs for producers in reference to farm adjustment schemes. It is also often verbally referred to as a desirable outcome for projects relating to agriculture production and natural resource management.

Vaughan Higgins and Stewart Lockie also specifically addressed self-reliance in their publication *Getting Big and Getting Out: government policy, self-reliance and farm adjustment* (2001). The authors reported that self-reliance was incorporated into the Australian Government’s Rural Adjustment Scheme and

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drought policy since the early 1990s as it was seen as “the solution to farm adjustment problems”.12

Social Capital. Since the late 1990s Ian Falk and Sue Kilpatrick, along with their colleagues from the Centre for Research and Learning in Regional Australia in Tasmania, have produced numerous reports on social capital. These reports primarily address community and farm business development with a focus on adult education and learning. Ideas on what constitutes social capital and how it can be measured within these contexts are also addressed.13 In 2001, David Adams and Michael Hess from the Australian National University discussed the incorporation into public policy of new language, including social capital.14 Two references were found in the Australian Journal of Experimental Agriculture in 2003, which focussed on grazing systems.15

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Sustainability. It is likely that one of the first well known uses of ‘sustainability’ in Australia was in the consultation period for the development of the Australian Government’s National Strategy for Ecological Sustainable Development (NSESD) which occurred from 1987 until its release in 1992. The Australian Journal of Experimental Agriculture listed 74 articles between 1990 and 2000. In the 1990s topics included a framework for monitoring sustainability in cropping and biological farming. In the 2000s these were extended to include: extension and sustainability, farming systems, economic value, research and the development of agriculture crops and systems, social factors of farming, production research, and the commercialisation of agriculture advances.

Other sources spoke of sustainability in relation to its production, environmental and economic aspects. The publications that discussed agriculture and sustainability together were mostly concerned with the improvement of farming systems. Social sustainability did not feature strongly, but was more of a happy coincidence or secondary consideration in achieving sustainability of the production system. Critiques of Landcare were common with some advocating it, while others were indifferent to its effects as discussed earlier in Chapter Four. Articles that discussed rural policy, including agriculture, were advocating change and to be more inclusive of the economic, social and environmental forms of sustainability (given more attention in Chapter Nine). Government documents that featured sustainability in the agriculture context were in relation to community expectations of sustainability, sustainable development, management of natural resources through ecologically sustainable development, and sustaining rural and regional Australia.

7.4 Deciphering the Language

The results presented above are discussed below in two parts: why the terms may have appeared when they did; and the influences that have caused changes to their use over time. This discussion is conducted within the context of how the changes relate to agriculture.

7.4.1 Emerging Language

The first appearances for each of the terms including agriculture were variable both in time, area of study and organisation of origin (refer Table 7.2). Table 7.5 summarises their year of appearance and journal article details.

The terms origin and their final incorporation into agriculture was predominately from developed countries. Since no author could be identified for the first appearance of participation and self-reliance, no comparison could be made between their first appearance and incorporation into agriculture. Only sustainability (Canada) and social capital (USA) featured countries of the same

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origin, although the institutions and content of the articles were different. None of the terms were shown to be strongly influenced from within the agriculture field of study.

Table 7.5 Summary of Terms First Occurrence, Article Content and Country of Origin for each Subject Category and Agriculture

<table>
<thead>
<tr>
<th>Year</th>
<th>Term</th>
<th>Category</th>
<th>Article Content</th>
<th>Country of Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Elsevier</td>
<td>Nominated*</td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>Participation</td>
<td>ES</td>
<td>ES</td>
<td>Chemical, Unknown</td>
</tr>
<tr>
<td>1960</td>
<td>Cultural change</td>
<td>ABS, ES</td>
<td>BS, ES</td>
<td>Biological, USA</td>
</tr>
<tr>
<td>1970</td>
<td>Sustainability</td>
<td>ABS, ES</td>
<td>BS, ES</td>
<td>Biological, Canada, Italy, USA</td>
</tr>
<tr>
<td></td>
<td>Self-reliance (agriculture)</td>
<td>EEF, SS</td>
<td>EEF</td>
<td>Policy (Chinese aid), Unknown</td>
</tr>
<tr>
<td></td>
<td>Participation (agriculture)</td>
<td>ABS, EEF</td>
<td>EEF</td>
<td>Policy (International food), USA</td>
</tr>
<tr>
<td></td>
<td>Self-reliance (agriculture)</td>
<td>ABS</td>
<td>EEF, SS</td>
<td>Socio-economics, India</td>
</tr>
<tr>
<td></td>
<td>Sustainability (agriculture)</td>
<td>ABS, ES</td>
<td>EEF, ES</td>
<td>Policy (Production), Canada</td>
</tr>
<tr>
<td>1980</td>
<td>Empowerment</td>
<td>SS</td>
<td>SS</td>
<td>Human studies, USA</td>
</tr>
<tr>
<td></td>
<td>Capacity building</td>
<td>ES</td>
<td>ES</td>
<td>Energy and Building, Israel</td>
</tr>
<tr>
<td>1990</td>
<td>Social capital</td>
<td>EEF, SS</td>
<td>EEF, SS</td>
<td>Vocational education and training, USA</td>
</tr>
<tr>
<td></td>
<td>Cultural change (agriculture)</td>
<td>ABS</td>
<td>SS</td>
<td>Organisational management, Australia</td>
</tr>
<tr>
<td></td>
<td>Empowerment (agriculture)</td>
<td>ABS, SS</td>
<td>SS</td>
<td>Community development, UK</td>
</tr>
<tr>
<td></td>
<td>Ag capacity building</td>
<td>ABS, SS</td>
<td>EEF, SS</td>
<td>Rural development, UK/USA</td>
</tr>
<tr>
<td></td>
<td>Ag social capital</td>
<td>ABS, EEF</td>
<td>EEF, SS</td>
<td>Policy (human rights, food and nutrition research), Norway/USA</td>
</tr>
</tbody>
</table>

* Based on an assessment of the content of the articles.

The time taken from when the terms first appeared to their occurrence in agriculture was between one (e.g. self-reliance) and 23 years (e.g. participation). Those appearing prior to the 1970s (e.g. participation and cultural change) took the longest to be incorporated into agriculture. Participation and cultural change both originated in the biological/environmental sciences, along with sustainability in the 1970s and capacity building in the 1980s. With the exception of sustainability, all of these terms took the longest to be incorporated into agriculture, and the area in which they first appeared changed overtime. Participation’s incorporation into agriculture in 1972 took on an economic
perspective associated with international food policies; sustainability maintained its environmental focus but also incorporated economics in 1976, dealing with policy associated with agricultural production; cultural change emerged in an organisational management context (SS) in 1990. Finally, capacity building came to be used in the social science and economic contexts in 1995 relating to rural development.

As in the case of sustainability, the remaining terms retained their original areas of influence and came to include others for their first appearance in agriculture. Empowerment was an exception to this, with its continued utilisation of the social sciences in the 1980s, but moved from a gender focus to the broader context of community development. Self-reliance maintained its economic focus in the 1970s and later included the social sciences. Finally, social capital was the last term to appear in 1990 in both its first appearance within the EEF and SS categories examining vocational education and training, and in an agricultural context (1998) in a policy perspective in relation to human rights and food and nutrition research policy (SS). As to the incorporation of the terms into agriculture, the social sciences and economic areas of study have been the most prominent (with the exception of sustainability, which has also been influenced by the environmental sciences). The rationale for when the terms appeared in agriculture is varied.

Participation and self-reliance appeared in agriculture the 1970s shortly after the reorientation of global policies towards the individual in the 1960s. This would account for the content of the articles being orientated towards policy and economic outcomes. The focus on the individual resulted in a change in how extension operated and the eventual rise of people-centred programs in rural development, agriculture and adult education as discussed in Chapters Two to Four. The occurrence of ‘sustainability’ in 1972 across a range of fields of study, and the first agricultural related appearance in 1976, occurred in the same decade as the release of the Limits to Growth report produced by The Club of Rome (1972). This report brought to the foreground humans’ impact on the environment and concerns around population growth.17

By the 1990s the remaining terms (capacity building, cultural change, empowerment and social capital) had appeared in agriculture. The late emergence of social capital out of the USA is consistent with the term being used by the American economist James Coleman since the late 1980s (discussed in more detail in Chapter Eight). Additionally, its focus on ‘capital’ lends it to derive from economics and areas of policy both within and outside of agriculture. Capacity building and empowerment appear to have emerged for several reasons: (1) on the wake of rural sociology and social anthropology having more involvement in agriculture from the 1980s; (2) by the incorporation of experiential learning ideas from adult education also in the 1980s; and (3) as the increasing recognition of producer’s indigenous technical knowledge was pushed as part of the wider concerns of agricultural systems thinking, and improvements in producer

education becoming more prominent in the 1990s (discussed in Chapters Two and Four).

The arrival of cultural change in an institutionalised context in the 1990s could also be attributed to the changes in agricultural extension for capacity building and empowerment that have demanded change within organisations associated with agriculture. The presentation of the article on cultural change was also the first Australian occurrence for the term internationally. Social capital and cultural change were the only other terms in Australia that appeared within the same decade as its global counterparts (Table 7.6). Compared with the international occurrences for the remaining terms, the popularisation of the terms in Australia occurred later. Self-reliance took the longest to appear in Australian agriculture, 29 years after its first appearance in India. This was followed by participation (20 years); sustainability (11 years); empowerment and capacity building (five years). There did not appear to be any association between the country of origin for the use of the terms at a global level and their final incorporation into Australia as all of the terms, with the exception of self-reliance, was generated from industrialised countries (see Table 7.5 above).

<table>
<thead>
<tr>
<th>Term</th>
<th>Agriculture Internationally</th>
<th>Australian Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity Building</td>
<td>1995</td>
<td>2000s</td>
</tr>
<tr>
<td>Cultural Change</td>
<td>1990</td>
<td>1990</td>
</tr>
<tr>
<td>Empowerment</td>
<td>1992</td>
<td>Late 1990s</td>
</tr>
<tr>
<td>Participation</td>
<td>1976</td>
<td>Late 1990s</td>
</tr>
<tr>
<td>Self-reliance</td>
<td>1976</td>
<td>Late 1990s</td>
</tr>
<tr>
<td>Social Capital</td>
<td>1998</td>
<td>Late 1990s</td>
</tr>
<tr>
<td>Sustainability</td>
<td>1976</td>
<td>Late 1980s</td>
</tr>
</tbody>
</table>

The terms which first appeared in agriculture from 1976 took longer to be incorporated into Australian agriculture. This suggests that the gap between the generation of new information and ideas within global community and their later adoption in Australian agriculture and rural development closed as we moved towards the present. Social capital is an example of this, appearing in Australia within the same decade as its international occurrence. The longer time taken to incorporate the earlier terms may be a result of the focus on transfer of technology and diffusion of innovations approaches in agricultural extension, which did not submit to, or incorporate, other approaches until the 1990s (as discussed in Chapter Four). The earlier adoption of terms may also be a consequence of Australia being increasingly a part of the broader global economy and hence the language used internationally.

The appearance of sustainability in the late 1980s through the *National Strategy for Ecological Sustainable Development* coincided with the Brundtland Commission's report *Our Common Future* (1987), discussing issues of sustainable
development. The popularity of the remaining terms in the late 1990s and early 2000s appeared as Australian agriculture underwent a transformation. This took the form of producers being more engaged in agricultural extension; governments requesting communities have a mutual obligation in solving rural development issues; and reductions in government services through the implementation of competition based policies. The following section builds on this account by discussing what fields of study have shaped each of the terms use overtime.

### 7.4.2 Influences on Language Over Time

The incorporation of the terms into agriculture were shown to occur from the 1970s (i.e. participation, self-reliance, sustainability) into the 1990s (i.e. capacity building, cultural change, empowerment and social capital). In observing their use over time as shown in Figures 7.1 to 7.7, only a small number of articles referred to capacity building, cultural change, self-reliance and social capital. Similar occurrences were also noted in Australia, with the exception that none of the terms appeared to be used to any great extent, apart from sustainability. The near absence of self-reliance and empowerment was somewhat surprising, given their appearance in government documentation and extensive verbal use, to obtain desirable outcomes for Australian extension programs.

Table 7.7 was compiled to compare the first and ongoing appearances for agriculture internationally, and their use in Australian agriculture. The subject categories in brackets indicate the context in which the terms have been discussed most frequently by observing the content of the literature described earlier in this chapter. The previous section noted that all of the terms entered agriculture with an economic and/or social context, and sustainability was the only term which included the environment. Over time capacity building and cultural change retained their original dominant areas of influence. The remaining terms also continued to include the areas in which the terms first appeared but came to include other areas over time.

Cultural change, empowerment, and social capital appeared in Australia in the same decade, and incorporated the same areas of influence (EEF and SS) as the international occurrences. However, the Australian appearances, unlike those that occurred internationally, did not include the environmental sciences as an area of influence in the 2000s for empowerment and social capital. Australia lagged in the use of the remaining terms (i.e. capacity building, participation, self-reliance and sustainability). When they did appear, their occurrence was in the same subject categories as the international listings, with two exceptions. Self-reliance did not appear in Australia within the environmental sciences subject category area in the 2000s; and for participation, Australia’s use of the term appeared in the environmental science subject area a decade before the international appearance.

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18 The *National Strategy for Ecological Sustainable Development* was mentioned in Chapter Four and will be given further attention in Chapter Nine along with *Our Common Future*. 

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### Table 7.7 Prominent Areas of Influence in Agriculture Internationally and in Australia

<table>
<thead>
<tr>
<th>Term</th>
<th>Agriculture Internationally</th>
<th>Australian Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Appearance</td>
<td>Ongoing Appearance</td>
</tr>
<tr>
<td>Capacity Building</td>
<td>1995 (EEF, SS)</td>
<td>1990s (EEF, SS)</td>
</tr>
<tr>
<td>Cultural Change</td>
<td>1990 (SS)</td>
<td>1990s (SS)</td>
</tr>
<tr>
<td>Empowerment</td>
<td>1992 (SS)</td>
<td>1990s (EEF, SS)</td>
</tr>
<tr>
<td>Participation</td>
<td>1976 (EEF)</td>
<td>1970s (EEF, SS)</td>
</tr>
<tr>
<td>Self-reliance</td>
<td>1976 (EEF, SS)</td>
<td>1970s (EEF, SS)</td>
</tr>
<tr>
<td>Social Capital</td>
<td>1998 (EEF, SS)</td>
<td>1990s (EEF, SS)</td>
</tr>
</tbody>
</table>

International articles in the 1970s, on participation and self-reliance, addressed issues in developing countries associated with rural development, food aid and sufficiency, and work (EEF and SS). ‘Sustainability’, which also appeared in the same decade, spoke to similar concerns but in relation to the environmental effects (ES). Concerns around these topics in the 1970s appeared in conjunction with a fall in world prices due to subsidised surpluses, a reduction in agricultural production and the beginning of the adult education movement following the United Nations Development Decade from the 1960s (discussed earlier in Chapter Two). Agricultural extension also made substantial changes during this period with the development of people centred models and Rapid Rural Appraisal to assess rural people’s needs (refer Chapter Three). The *Limits to Growth Report*, mentioned earlier, also raised awareness to the effects of human activity on the environment (given more attention in Chapter Nine).

In the 1980s journals listed as including *sustainability* discussed various agriculture and environmental systems. This followed on from earlier systems discussions (e.g. the development of Agro-ecosystems Analysis model by Conway in the 1970s), but pre-dated the agricultural systems movement by a

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decade (refer Chapters Three and Four). Farmer participation was also mentioned and is most likely a result of the earlier developments from the 1970s in agricultural extension. Economics also made a greater appearance in relation to sustainability along with greater emphasis on rural development concerns, which coincided with the popularisation of ‘sustainable development’ by the Brundtland Commission. Participation and self-reliance continued with similar topics of discussion from the 1970s, although a greater development focus was noted for participation and, as for sustainability, producer participation and adoption was discussed along with economic and policy topics. The greater inclusion of the producers’ involvement shown in this search is mirrored in agricultural extension during the 1980s through the increased recognition of producers’ knowledge and models such as Farmer-First-and-Last, Agricultural Knowledge and Information Systems and Participatory Rural Appraisal being developed to account for this (refer Chapter Four).

In the 1990s all of the terms were being used in agriculture. For sustainability, the topics of discussion had broadened to be more inclusive of the social, environmental and economic aspects of sustainability with a greater focus on ecology; land use; various environmental and agricultural systems; social aspects of rural environments and producer attitudes. Australia’s attention to sustainability also featured more prominently during this period but with a greater focus on the production and economic aspects of sustainability, rather than ecological or social which entered later in the 2000s. The increased practice of sustainability in Australia and overseas and the explosion of articles about the concept and practice in both areas in the 1990s (Figure 7.7), marked the emergence of the sustainability and agricultural systems movement’s (discussed in Chapters Four and Nine); and increased interest in organic foods.

The emphasis on the social aspects of rural environments became more prominent in participation during the 1990s, in developing and industrialised countries, as various social movements and community governance was observed. There were similar occurrences for the 2000s, but a greater focus on the environment existed. This was also the case for self-reliance in the 2000s. In Australia the points of discussion for participation focussed around on-ground activities in agricultural extension and land management from the 1990s, and came to include program evaluation and a greater focus on farm management and producer attitudes by the 2000s. Farm adjustment remained the focus for self-reliance from the 1990s as part of Australian government’s continued focus on rural adjustment and implementation of National Competition Policies. This may account for the presence of self-reliance in Australia when compared with its absence internationally. Self-reliance’s occurrence in Australia also featured after a shift in the Australian Government directive to involve the rural community and develop social policies in agriculture, rather than focussing on agriculture commodities alone, since the 1980s.

The 1990s saw the introduction of the remainder of the terms in agriculture internationally. Capacity building and empowerment both focussed on rural

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20 World Commission On Environment and Development (1987)
21 Hale and Ashton (2002)
development issues. Empowerment also addressed the broader social issues such as human rights, as did social capital. Cultural change differed by discussing institutional cultural change, which remained the only topic of discussion in Australia from the 1990s to the present, whereas, internationally, cultural change came to include broader rural community issues. Community development featured in empowerment in the 2000s in Australia and internationally. Differences occurred in Australia’s focus on adult education with producers, while international references included program evaluation and economic and environmental related topics. Capacity building also featured a broader range of topics in the 2000s with a greater environmental, market and social focus. Australia followed similar lines to empowerment for capacity building, discussing rural development, producer education and farming innovation. This orientation in Australia is not surprising given the establishment of the Agriculture Advancing Australia program in the 1990s which aimed to ‘build capacity’ of producers through such training initiatives as FarmBis.22

Social capital rhetoric in the 2000s was focussed on the environment and production systems in developing countries, while Australia approached community and farm business development mostly through adult education and learning. The extent to which each of the terms has been incorporated into other areas, particularly since the 1990s, gives some explanation as to how they can be misrepresented or interpreted.

7.5 Conclusion

This chapter has tracked the emergence and incorporation of a range of terms commonly used in Australian agriculture extension. Capacity building (1984), cultural change (1969), participation (1953) and sustainability (1972) all originated in the biological and/or environmental sciences. A range of other influences surrounded their incorporation into agriculture. Participation (1976) was more concerned with economic outcomes in international policies; cultural change (1990) in organisational management; sustainability (1976) continued with an environmental focus and came to include economics; and capacity building (1995) was influenced by the social sciences and economics in rural development.

‘Empowerment’ (1992) retained its original influence in the social sciences as it became incorporated into agriculture but moved from a gender focus to the broader aspects of community development. Social capital (1998) was similar, beginning with an economic and social science influence and maintaining this in the agricultural context. Self-reliance (1976) also maintained its original economic contribution into agriculture, but came to include the social sciences. Over time, the use of the terms was broadened (particularly from the 1990s), and they came to be influenced by the social sciences, economics and environment. Australia followed the lines of its international counterparts, although it applied the terms more within the producer and community development contexts.

The extensive use of the terms across a range of fields of study can lead to confusion or misinterpretation of their meaning. To determine if this has been

22 More detail on Agriculture Advancing Australian program, including FarmBis, has been provided in Chapter Four.
the case the following two chapters give more attention to social capital and sustainability. These terms have been selected for further investigation, in preference to the others for the following reasons. Social capital, along with human capital, was used as an indicator in my research for the occurrence of cultural change (discussed in Chapters Five and Six). In recent years its use has covered a range of areas including rural development. Additionally, ‘participation’ is required in the development or presence of social capital, and in cases where social capital generates positive outcomes it could be said to ‘empower’ people and improve ‘self-reliance’ (individual or community level), which may (or may not) result in ‘cultural change’. Social capital is also viewed as assisting in the development of individuals and communities capacity (i.e. ‘capacity building’). For example, Falk and Harrison have commented that, in community development, the process of building social capital is associated with capacity building. It is recognised that a community needs to develop its collection of resources to a stage of “having sufficient capacity to deal with day-to-day development as an extraordinary developmental needs”. Therefore, the terms capacity building, cultural change, empowerment, participation and self-reliance with social capital can support each other, depending on the situation in which they occur; and social capital is the element that can link the other terms together.

Sustainability has also been widely applied, with various forms (mostly environmental, economic, and social) and has come to take on various meanings. Like social capital, sustainability is often used in conjunction with the concepts of empowerment, capacity building, self-reliance, participation and cultural change, when discussing community or rural development, and producer programs. The literature tends to suggest that in applying these concepts in programs, sustainability in its various forms can be achieved. Yencken and Wilkinson summarise the importance of having a ‘sustainable’ environment, which demonstrates why this term has been chosen to be worthy of further investigation.

“It is intuitively obvious that our well-being and our economy depend entirely upon the physical world around us. We rely upon it for the food we eat, the water we drink, the air we breathe. Our economies depend upon it for all their resources, the energy they use, the materials, fibres and materials needed for natural and synthetic products and the myriad of services that are now provided to us. We also rely upon it for the absorption and recycling of our wastes and emissions.”

In understanding this, the reliance on the environment and society on each other is clear. Without a healthy environment we cannot sustain society, and without a well functioning society, of which social capital is considered important, we cannot take care of the environment. Hence these two terms were considered the most important to my understanding of how we operate and make decisions relating to agriculture and rural development policies and programs.

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24 Yencken and Wilkinson (2000)
The bibliometric analysis reported in Chapter Seven showed social capital emerging in economics during the 1990s within the vocational education and training field of study. In 1995, it appeared in agriculture, again in relation to economics, but within a sustainable development context. However, the term first appeared in sociology in the 1980s, and many earlier references to component features, such as ‘social ties’ have been discussed over the past one hundred years.\(^1\)

In the last three decades, social capital - with some further changes of conceptual content - has become incorporated into a range of fields of study including economic development, political science, the social sciences (e.g. health, political science, and anthropology), management, and the environmental sciences. The term has attracted interest from politicians, policy-makers, and organisations such as the World Bank and OECD.\(^2\) Its emergence in agriculture, in company with the chorus of calls for more self-sustaining communities and the collection of benefits social capital is said to create, demands a closer look at how it has been applied in other fields.

### 8.1 Early Contributors to Social Capital Theory

Social capital has been applied across so many fields that there is a vigorous debate about who has contributed to its development and what it contains. Those who assert that social capital holds no ideas new to sociology, observe that the positive effects of group participation on individuals and communities have been acknowledged since French sociologist Émile Durkhiem. Durkhiem wrote about group life in the late 1800s, while Karl Marx was discussing classless societies and his German compatriot, Ferdinand Tönnies, distinguished ‘Gemeinschaft’ (meaning community or the intimate and durable relationships with the individual

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Some of the constituent ideas were lurking in ‘community studies’ associated with post-WWII reconstruction in the United Kingdom from the 1950s (and in the USA).

having the most importance) from ‘Gesellschaft’ (association or impersonal relationships).  

Farr remarked in his history of the term that social capital is “merely new language for a very old debate in American intellectual circles” since the early 1900s. He cites De Tocqueville, Hume, Adam Smith and J.S. Mill as predecessors of the ideas incorporated in the lately-acclaimed social capital. He also sees the ideas of John Dewey, the founder of adult education discussed in Chapter Two, as being incorporated into the Social Centre Movement of the early 1900s with his interest in issues surrounding inequality. Putnam, whose works are discussed in more detail later, makes reference to Hanifan who also drew upon the Social Centre Movement outlining participation in improving school performances in West Virginia.

More recent discussions on the concept has circled around the writing of Pierre Bourdieu, James Coleman and Robert Putnam. Each has his own interpretation on what social capital means, how it is observed and the extent to which it can be utilised. The discussion below investigates the emphasis for each of these authors, beginning with Bourdieu, the first author to use the term, followed by Coleman and Putnam.

### 8.1.1 Pierre Bourdieu

French sociologist Pierre Bourdieu sparked the revival of interest in social capital through his analysis of the concept in 1980. His writings, translated into English in 1985, were not widely publicised. In these publications he distinguished various forms of ‘capital’ including economic, cultural, social, functional,

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4 Farr (2004)


De Tocqueville who “displayed concept without term”; Hume, Smith and Mill analysed civil society and capitalism (Farr 2004).

Dewey suggested the following in relation to equality, that “society means association; coming together enjoyed intercourse and action for the better realization of any form of experience which is augmented and confirmed by being shared” (Farr 2004).

5 Woolcock and Narayan (2000); Farr (2004)

Other authors who have been noted to contribute to commentaries on social capital include: Silverman’s economic text - *The Substance of Economics* (1935); Canadian urban sociologists (1950s), American social theorist George C. Homans’ rational choice theory of exchange (1960s), Jane Jacobs’s urban studies (1961) and Glen Loury’s ‘dynamic theory’ of racial income differences (1977) (Woolcock and Narayan 2000; Scott and Marshall 2005:274; Falk et al 1998:116).
linguistic, personal, political, professional and symbolic capital. Bourdieu defined social capital as

“the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance or recognition”. 6

Hence, he differentiated it as providing individual benefits through group participation and a purposefully constructed friendly society. 7

Bourdieu observed three features of social capital that related to the relationships between people. First, networks in social capital must be constructed through the social relationships between individuals that facilitate access to associates’ ‘assets’. Second, social capital can deteriorate through the types and quality of relationships between individuals, hence the amount and quality of resources is important. Third, the creation of social capital is determined by economic organisation, resulting in various types of social relations, and economic benefits can result from social capital and improve people’s standard of living and opportunities. Hence, economic capital as a requirement to achieve social capital, but the processes used to obtain social capital such as a lack of clarity through unspecified obligations and uncertain time horizons, differ from those used in economic exchange. 8

8.1.2 James Coleman

James Coleman, an American economist and rational choice theorist, also focussed on the occurrence of social capital in the individual, but did not refer to Bourdieu. He built on the human capital work in the late 1970s of another economist, Glen Loury. 9 In his 1988 publication, Social Capital in the Creation of Human Capital, Coleman defined social capital by drawing on the ideas of ‘social action’ in sociology. Social action views “the actor as socialised and action as governed by social norms, rules, and obligations”; and economics, which sees


The Oxford Dictionary of Sociology describes ‘Rational Choice Theory’ as “a theory of action that sees individual self-interest as the fundamental human motive and traces all social activities back to acts of rational calculation and decision-making that are supposed to have produced them.” It is agreed that these theories have their roots in the 1700s, with Adam Smith’s publication The Wealth of Nations (1776) being the most familiar example (Scott and Marshall 2005:546).
“the actor as having goals independently arrived at, as acting independently, and as wholly self-interested”.10

To try to overcome the different viewpoints of social action with its liberal collective focus and the individualism associated with economics, Coleman used the notion of ‘embeddedness’, proposed by American sociologist Mark Granovetter. Granovetter described embeddedness as the “concrete personal relations and networks of relations...[which] generate trust, in establishing expectations, and in creating and enforcing norms”.11 In consolidating these ideas Coleman proposed that

“social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors – whether persons or corporate actors – within the structure.”12

Therefore social capital is seen to be “highly context specific” and can occur “in any sort of social relation that provides a ‘resource for action’”13.

It has been argued that Coleman’s definition of social capital is rather loose in interpreting social capital as a resource like any other individual asset. Bourdieu, on the other hand, clearly distinguished “the resources themselves from the ability to obtain them by virtue of membership in different social structures”.14 Coleman’s lack of clarity in this area has resulted in statements that appear to equate availability of resources with the ability to obtain social capital regarded being as equal. This has meant a range of processes being labelled as social capital have developed.15 Portes argued that the motivational distinction between those giving and those receiving in social capital exchanges is important,16 but Coleman’s formulation might not reveal that distinction.

11 Coleman (1998:S97)
12 Foley and Edwards (1997)
13 Portes (1998:5)
15 Portes (1998:5)
16 Portes (1998:5)

11 Coleman (1998:S97)
13 Foley and Edwards (1997)
14 Portes (1998:5)
16 Portes (1998:5)

Alejandro Portes is a Howard Harrison and Gabrielle Snyder Beck Professor of sociology at the Department of Sociology, Princeton University, New Jersey. His research interests include immigration to the United States of America and factors that affect immigrants and their children. He has written numerous publications on these topics (Princeton University
Coleman also suggested that social, physical and human capital were similar, as they “may be specific to certain activities” and could be “productive, making possible the achievement of certain ends” that may not occur in their absence. But social capital differs from these other types of capital in that it “inheres in the structure of relations between actors and among actors” (i.e. social capital is the ‘glue’ or structure that holds the relationships together). It also has a public good aspect as it extends benefits beyond the individual. He proposed that social capital can be used for the creation of human capital, generating changes in individuals’ skills and capabilities so that they may act in new ways. The strength of social capital in families and communities, Coleman says, is what determines the next generation’s human capital.

Coleman identified three forms of social relations as being variably important to the development and maintenance of social capital. First, relationships based on obligation and expectations, which rely on trust between individuals or groups to meet these obligations and expectations. Second, information channels which transfer information between people and facilitate the means for social action. Third, norms and effective sanctions that can develop social capital but also inhibit innovativeness. Coleman’s third point would be viewed in agriculture in the context of producer adoption of new practices or innovations such as those outlined in Chapter Four. Coleman proposed that ‘closure’ - the limiting of negative external effects in social relations - was necessary so that effective norms could be formed and trustworthiness could develop. The establishment of organisations to fulfil a purpose of helping others is also important in the formation of social capital.

Additionally, Coleman makes no comment on the contribution of voluntary networks in determining social capital. His focus on the benefit to individuals from social capital leaves him neutral on the point of ‘civic’ betterment popularised by Putnam, who developed his theory on social capital five years after Coleman.

### 8.1.3 Robert Putnam

Robert Putnam, a Harvard political scientist, takes a broader view of social capital. His 1993 PhD thesis on democracy in Italy alerted him to the role of social capital and provoked his judgement that ‘civic participation’ in the United States has declined in recent years.
States was comparatively in decline and that small businesses that were economically successful were both competitive and cooperative.22

Putnam built on Coleman’s ideas and drew on work by Hanifan from the early 1900s regarding social development in schools in West Virginia. Putnam differs from Bourdieu and Coleman by extending social capital beyond the individual to suggest its ‘civic’ consequences in generating ‘collective social capital’.23 He proposes that democratic politics and the state of a country’s economy determine the richness of social capital (i.e. the more wealthy and democratic a country, the greater social capital and therefore quality of life): the key point is that wealthy communities are rich because they are civic.24

Two forms of social capital exist for Putnam. One occurs informally through social interactions (localised social capital). The other occurs outside of an individual’s immediate network through weak ties but provides new information and opportunities (known as bridging capital).25 He describes social capital as being

“features of social organisations, such as networks, norms, and trust, that facilitate action and cooperations for mutual benefit. …Working together is easier in a community blessed with a substantial stock of social capital”.26

Putnam sees social capital as signifying the attitudes and habits (or ‘values’) of people that are supportive of civic engagement, and trust as central to maintaining a civil society.27 He is also a supporter of voluntary organisations in developing social capital through face-to-face interactions, and promoting attitudes and habits to develop an “engaged and civil citizenry”.28


Putnam’s two most noted publications on social capital include: Making Social Democracy Work and Bowling Alone.


24 Foley and Edwards (1997); Macgregor and Cary (2002:106)

25 Macinko and Starfield (2001)


28 Foley and Edwards (1997)
Although Putnam focuses on the broader interactions of social capital at a civic level and recognises the contribution of voluntary organisations in building social capital at the face-to-face level, he does not consider that large-scale groups which operate nationally are contributors. In agriculture, the National Farmers Federation would be an example of a voice for the farming community but not a significant source of social capital. However, ignoring the role of these larger groups in giving people a voice on political and non-political issues discounts their contribution to public debate and informing the public. In fulfilling this role these larger organisations may be better at generating civic engagement through the promotion of particular attitudes and values by “represent[ing] people’s interests and advance[ing] their visions of the good life and the common good”. However, these larger groups do not always represent all of the people who they claim to have a voice for. Aspects of this are covered later in the discussion of negative effects of social capital.

Foley and Edwards suggest that the

“‘social psychological’ or ‘cultural’ (or even ‘ideological’) dimension may be a large part of what many people, including Putnam, are trying to get at in speaking of social capital; for, unless social structures are specifically oriented toward promoting positive civic action or economic cooperations, it is doubtful they will contribute directly to the political or economic health of a democracy. Social structure, in other words, must be filled with a certain ‘content’ before it can fully perform the functions usually attributed to it in the current discussion.”

8.2 Government and Social Capital

Putnam’s civic approach has found favour for him among United States conservative and liberal parties. The attractiveness of his approach to governments has generated some criticism and brought him to centre stage of the social capital debate. It has been argued that the willingness of governments to embrace civic social capital is held by a desire to dismantle the welfare state and triple bottom line (i.e. economic, social and environmental outcomes). Additionally, the increase in participatory programs said to nurture communities in an increasingly globalised world, has been offered as an avenue to achieve government agenda’s. Examples of this have been given throughout this thesis for agriculture and rural development.

The positive outcomes touted for social capital have been extensive, such as: reducing economic transaction costs; improved knowledge and innovations; promoting cooperative and/or socially-minded behaviour; enhanced capacity of societies to handle external and internal shocks; individual benefits and spin offs; and strong networks with established expectations of reciprocity (devised by Putnam) that are able to compete with each other have been highlighted in the context of fostering power and influence. The promotion of these outcomes and

29 Foley and Edwards (1997)
30 Foley and Edwards (1997)
31 Macinko and Starfield (2001); Alston (2002:95); Macgregor and Cary (2002:105)
exclusion of the negative effects of social capital (discussed later) have produced expanding discussions on ‘capital’. 32 Portes suggests that the “potential fungibility of diverse sources of capital reduces the distance between sociological and economic perspectives and simultaneously engages the attention of policy-makers seeking less costly, non-economic solutions to social problems” 33

Pearce and Smith agree that the current embracing of social capital by governments is a convenient way to “depoliticise issues of social and economic development”. 34 Macinko and Starfield suggest that these mixed usages may be due, in part, to the drawing on a wide range of disciplines with their own slant on how social capital fits their theories, which has lead to misleading or overestimated claims. 35

Cairns contributed to the discussion an observation that for all the ‘capital’ and learning metaphors “there has also been a tendency to simply apply concepts from Economics and Strategic Management to individuals and organisations as almost wishful thinking about what ‘ought to fit’, rather than what is theoretically and pragmatically sound in action”. 36

He suggested that the use of these capital metaphors is inappropriate, controlling and disempowering when referring to social concerns, and remarked that capital is a quantitative term, misused in situations looking for qualitative improvements. It is also more static, whereas the social forms of capital are dynamic, and it diminishes people who are at the centre of the concepts by reducing them to mere resources. 37 Social capital is not alone in projecting quantitative measures onto qualitative outcomes. Many of the programs in agriculture, that request social outcomes, for example, are said to have occurred via quantitative measures (examples such as self-reliance, empowerment, capacity building, participation and cultural change were investigated in Chapter Seven).

Australia has participated in the global trend of industrialised countries to transfer responsibility for social (and environmental) concerns from a government responsibility to the community or individual, under the guise of reducing

33 Portes (1998:2-3)
Macinko and Starfield (2001) refer to the sociology, political science, economic development and health inequalities literature as the sources of information on social capital.
37 Cairns (1998)
dependency and achieving empowerment while maintaining economic effectiveness. My own research in agriculture, outlined in Chapter’s Five and Six, and the earlier historical accounts demonstrate this. However these changes, which draw on free market principles and desire the enhancement of social capital, do not fully comprehend the tendency of neo-liberal individualist policies to restrict the development of social capital. Further, the opportunity to develop innovative services in rural areas has been seen to be wasted and has exacerbated social exclusion because voluntary and non-government agencies rarely have the resources or capacity to fulfil those roles once occupied by government.\textsuperscript{38}

In Australia the neo-liberal Productivity Commission asserted that governments should consider the effects of social capital when developing policy and programs, so as to not erode social capital. Existing social capital needs to be utilised appropriately and the development of new social capital needs to be stimulated.\textsuperscript{39} To be able to do this the negative effects of social capital which are often overlooked need to be acknowledged.

8.3 Negative Effects of Social Capital

It is generally accepted that there are more positive than negative outcomes from social capital. Negative effects can manifest themselves through conflict in civil society, resulting in an unequal distribution of social capital. Where social capital is well established, for example, it may fragment societies rather than strengthen them. Examples are when communities or networks become isolated, or when they are working in opposition to the benefits of a society. This can occur through various means such as the exclusion of people outside of communities and groups. These may include those who do not conform to the norms, culture differences, religious ties, and business ties; business initiatives may be undermined by existing social networks, or where the existing social capital does not allow for individuals to make improvements resulting in a restriction on an individuals freedom (e.g. such as those in ghettos’, or conversion to agriculture practices not commonly used). Excess claims being made on group members and a downward levelling of norms are also given as examples.\textsuperscript{40}

The existence of the negative effects of social capital or the identification of weaknesses can benefit community development by highlighting such occurrences as power imbalances and unproductive conflict.\textsuperscript{41} These incidents can be used to assist governments in turning around the socially-focussed rhetoric of policies and programs to develop more constructive outcomes.


\textsuperscript{39} Productivity Commission (2003)

The (Commonwealth) Commission, together with various state commissions of audit, were an attempt by conservative government’s in Australia to turn back what they saw as a crypto-Keynsean tide in economic policy.


\textsuperscript{41} Kilpatrick \textit{et al} (2001:17)
8.4 The Social Capital Debate

The initial interpretations of social capital have resulted in a continuous debate around its meaning and effectiveness across the various disciplines that have adopted the term. For example, individualist variations to Coleman’s original definition of social capital: have confused the sources and benefits of social capital; obscured the negative effects on existing or developing social capital networks; and in Putnam’s hands, have made it a feature of groups and nations, extended over multiple relationships.42

Substantial claims have been made about the effects of social capital on individuals, communities and nations.43 Portes and Landolt comment that social capital has been misrepresented by claims that is has “the ability to create and sustain voluntary associations, or the idea that a healthy community is essential to prosperity”.44 Other commentators have dismissed the concept as being under-theorised, over-simplified, lacking a research base and clarity, and having sloppy definitions.45 The earlier discussion relating to the use of capital metaphors is summed up in Portes’ comment that economic capital existed in people’s bank accounts, human capital in their heads, and social capital in the structure of their relationships.46

The various fields of study that have come to incorporate the term into their dialogue have positioned it within the context of their particular field of study. Foley and Edwards suggested that two schools of thought have emerged from the initial authors’ theories on social capital. The first follows Coleman’s ideas, where social capital is considered to be a social resource that inheres to social relations so that action can be taken. The second follows Putnam’s civic approach where individuals utilise their social capital to help others, sometimes with no real benefit for themselves.47 The two schools of thought, one supporting social capital in the individual context and the other taking a civic approach, draw on three theories. The individualist school follows Bourdieu and Coleman ideas, the civic school follows Putnam. Although Coleman and Putnum’s ideas gain the most attention, the influence of Bourdieu is particularly evident in publications since the late 1990s (see for example Portes 1998, Falk et al 1998, Falk and Kilpatrick 1999 and Pope 2000).

42 Portes and Landolt (1994); Woolcock and Nanyan (2000); Macinko and Starfield (2001)
43 Portes (1998:1)
44 Portes and Landolt (1994)
46 Portes (1998:7)
47 Foley and Edwards (1997)
This section takes a closer look at some of the ways in which social capital has been incorporated into a selection of fields, and assesses where agreement has been reached on what social capital includes.

8.4.1 Perspectives of Social Capital

In considering family and community structures, Portes identified three basic functions that are needed for social capital. The first includes a source of social control such as rule enforcement, including bounded solidarity (i.e. being restrained by the limits of the community to maintain identity) and enforceable trust (i.e. where trust occurs due to enforced obligation, motivation to assist is based on honour, approval or status). The second function is as a source of family support by parents and kin and a final function is as a source of benefits through networks beyond the immediate family.48

It has been suggested that the formation of networks like those suggested above are also applicable in the development of businesses to contribute to the global economy. The existence of external networks has proven to be particularly critical in the development of innovations.49 Fukuyama suggests that the ability to facilitate the development of these networks is culturally defined. He proposed that the “character of civil society”, expressed through its culture, religion, tradition and other pre-modern sources is what determines a country’s success in the global economy, by how it utilises its intermediate associations (or social capital). However, he warns that if social capital is not periodically renewed it will become depleted.50

In addition to networks, research on economic development has been approached through communitarian, institutional and synergy ‘lenses’. The last of these, concentrating on connections within society, such as that between government and citizens, has gained the most attention.51 As suggested earlier, this focus

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48 Portes (1998:8-11)
50 Fukuyama (1995:94, 103)


The remaining approaches to economic development have been defined by Woolcock and Narayan (2000) as follows: Communitarian “equates social capital with such logical organisations as clubs, associations, and civic groups [and] holds that social capital is inherently good, that more is better, and in its presence always has a positive effect on communities welfare.” Networks perspective “stresses the importance of vertical as well as horizontal associations between people and of relations within and among such organisational entities as community groups and firms.” Institutional perspective “argues that the vitality of community networks and civil society is largely the product of the political, legal, and institutional environment.”
follows the lines of Putnam’s theory of social capital involving a ‘civil society’, which is why it has gained attention from governments.

Social capital has also been linked to the maintenance of ‘natural capital’, predominantly in agriculture and biodiversity conservation. In these areas, the networking of groups is again considered to be important because connected groups and networks are seen to be more likely to maintain stewardship over natural resources. Terms such as community, participatory, joint, decentralised management, and co-management are often used to describe these collective resource management programs. These aim to improve natural capital through the use of social capital by using group based social learning approaches.\(^5\)

Australians Kilpatrick and Falk have written a number of publications in relation to learning and social capital, particularly for agricultural and rural communities. Kilpatrick et al suggested that, in the development of informal learning in geographic communities and ‘communities-of-common purpose’,

“social capital is not restricted to within a community…[but] external learning interactions are essential if communities are to adapt to change. A community which has access to knowledge and identity resources from outside the community has a wider pool of social capital upon which to draw.”

This is regarded as important in preventing the anti-social behaviour and prejudices that can occur in ‘closed’ communities.\(^5\) In another paper Falk et al defined social capital in a learning context by building on the work of Coleman and Putnam. They suggest social capital in the learning context involves

“knowing who and where to go for advice, support, information and resources; and being willing (committed) to act for the community and its members…[it] is the common resources that are drawn on as people interest and which can be used for the benefit of the community”.\(^5\)

Falk et al propose that social capital is produced during interactions between people, as well as being used among them. Later research by Kilpatrick and Falk, used the critical theory perspective on communities with a common purpose; and compared the micro-level social interactions of individuals as agents for change with the broader meso-level life of communities and macro-level significance of social, civic and economic institutions. They found that local interactions are the only place in which social capital can originate and that macro-assessments of social capital are difficult to measure. Two types of social capital were found to

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be utilised within community (or organisation) interactions: interactional infrastructure and value/attitudinal infrastructure. 55

These insights led the authors to re-structure their earlier definition of social capital, thus:

“the product of social interactions that may contribute to the social, civic or economic well being of a community-of-common-purpose. The interactions draw on knowledge and identity resources and simultaneously use and build stores of social capital. The nature of the social capital depends on various qualitative and quantitative dimensions of the interactions in which it is produced, such as the quality of the internal-external interactions, the historicity, the reciprocity, the trust and the shared values and norms.” 56

Learning can be considered to be the currency of social capital in helping in its development and creating ‘learning societies’. 57 This type of development is said to result in social benefits which are supported with the “rhetoric around lifelong learning” to reach a more civil society. Economic benefits are also said to be achieved by using learning to develop efficiencies and more sustainable practices, along with technological and cultural benefits. 58

The most common feature for each of the above perspectives on social capital is the reference to the importance of networks. The following section looks more closely at the commonalities between the different interpretations of social capital and where agreement has been reached.

8.4.2 Reaching Agreement on Social Capital

Taking together Bourdieu’s (1980) and Coleman’s (1988) individual view of social capital and Putnam’s (1993) broader outlook, social capital can be defined as existing within and between social relationships in the form of networks (interconnected groups of people with a commonality), norms (shared understandings, informal rules and conventions), and trust (confidence that people have in each other) facilitated for mutual benefit. Agreement on who benefits varies, ranging from the individual to workplace, groups, organisations, neighbourhoods, communities and nations. These networks, norms and trust are

Interactional infrastructure is that “which provides networks that help identify people with whom to interact, sites and opportunities to come together to interact, and guides for the interactions in the form of procedures and leadership.” Value/attitudinal infrastructure “underlies all interactions; the degree of trust and sharing of norms, values, attitudes and visions determines the ease at which community members interact” (Kilpatrick and Falk 1999:4).


58 Falk and Harrison (1998:3-4)
said to accumulate when used, are reinforcing and are available to everyone including those who are not maintaining the relationships.\textsuperscript{59}

The significance of trust in the development of social capital is often referred to in the literature across the various disciplines\textsuperscript{60} but some of that research has been a little shaky methodologically. Trust is often assumed to occur as a by-product of social interactions at a macro level, or its existence is ‘proved’ by illustrative examples or instances.\textsuperscript{61} In relation to losses in foregone trust Coleman had remarked that they were only small and that large losses were endured in trust misplaced. Hardin opposed this view, suggesting that large losses are endured in trust foregone if blockages to the forming of longer-term relationships are experienced and, in the case of distrust, a collection of lost opportunities occurs.\textsuperscript{62}

Fukuyama compared and contrasted the occurrence of trust in relation to the various social ties (including family) in the United States and its partners in the North American Free Trade Agreement, European Union and East Asia in the building of industrial structures and the development of economies. He then suggested that countries with high levels of trust (or social capital), such as Germany, United States and Japan, allow for the development of larger organisations as they have greater non-kinship bonds. This compares with countries with strong family ties such as China and Italy, which tend to have smaller family based businesses and are less trusting of people outside of the family connections.\textsuperscript{63}

Farr also contributes to the discussion by considering the moral psychological aspects of social capital. He proposes it is sympathy, not trust, that captures ‘civic virtue’, allowing people to “act with and towards others”; hence sympathy “hides in the shadow of trust”.\textsuperscript{64} Commitment, reciprocity and exchange are sometimes added as other features of social capital.\textsuperscript{65}


\textsuperscript{61} Falk and Kilpatrick (1999:3)

\textsuperscript{62} Hardin (1993)


\textsuperscript{63} Fukuyama (1995)


\textsuperscript{64} Farr (2004)

\textsuperscript{65} Coleman (1998); Woolcock and Narayan (2000); Pretty and Smith (2004)
The literature on ‘connectedness’, described as the social ties between participants, is said to explain how social capital works. Five types of connectedness have been suggested. The first, ‘bonding ties’, occurs locally between individuals and groups by building on and maintaining links between group members that have a similar outlook and objectives. The second, ‘bridging ties’, occurs horizontally in connections between groups within communities or between communities (i.e. local-local interactions). This form of connectedness is defined by a group’s capacity to form links or have interactions outside of their group with others that may have different views. Woolcock suggested the third form, ‘linking social capital’, which exists externally to the group by vertically linking the group and an agency to change their policies or access useful resources. An aspect of ‘political morality’ is involved in these local-external interactions to address unequal power relations to achieve a common goal. The last two forms occur either horizontally by connections between external agencies (i.e. external-external interactions); or through external interactions where strong connections between individuals, within external agencies, are present.

Essentially, social capital is described as being the result of the interactions (i.e. spoken, written, verbal and non-verbal) between people. Falk et al describe it as being “the glue between the bricks (groups, institutions, and organisations) from which society is built”, and that it “can only be produced as a result of interactions” between people. It inheres in the structure of relationships in both formal and informal encounters, and is seen as a resource to generate social and economic outcomes. But the quality and quantity of the interactions are important, as outlined earlier by Bourdieu. Not all interactions result in the development of social capital, and it needs to be supported by the existing social structures which fuel the processes, or interactions between people, in which social capital exists. Despite the various interpretations of social capital, there is agreement that it is differentiated from other forms of capital by its ‘goodwill’ in contributing to the public or common good.

8.5 Measuring Social Capital

Discussions on how social capital is to be measured have occurred in parallel with the debate around how it is to be defined. The types of studies involved have included international comparisons, country studies, local level studies and contextual studies. Measuring the effects (or outcomes) of social capital has also been attempted in areas such as economic performance, government efficacy, education and child welfare, health, crime and violence, and (in)equality. Given that the methodology for measuring social capital and its effects are relatively

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68 Coleman (1988); Kilpatrick et al (1998a:2); Cairns (1998); Falk (1999:2)

new, the approaches being taken are still exploratory and can lack clarity (Australian examples are provided in Appendix H).

The majority of research attempts to understand, from a theoretical viewpoint, how social capital works and to define what it is. This has involved trying to determine the link between the elements of social capital (networks, norms and trust) and tying these back to the quality of observed outcomes for families, communities, regions or nations, which are often measures of the outcomes of social capital, rather than a measure of social capital itself. The research does not separate the social resources, products or individual responses of social capital. The data used is often collected for purposes other than measuring social capital, and the various ways in which its presence have been analysed has evolved from a range of understandings of what it is. Pope’s research into the vitality of aboriginal communities, proposes that, in order to measure social capital, its source (social ties or networks) needs to be understood. Additionally, one needs to know how networks are utilised for advantage or for access to resources (process of social exchange) and what resources and advantages resulted from being in the network (outcomes).

Two main approaches are taken when measuring social capital. The first uses Bourdieu’s definition of social capital, involving social processes linked to economic organisation. This approach requires qualitative methods, as individual indications cannot be used to quantify social capital, due to the complex nature of the social relations. The second approach presumes Coleman’s definition, which treats relationship ties as being unconstrained and relationship building as having a purpose to meet identified needs. This approach is used in health service surveys, is based on individual responses and attempts to measure trust and membership in the domain being served. Interestingly the measurement of social capital at the civic level, as suggested in Putnum’s definition, is rare, despite the popularity of his ideas.

8.6 Conclusion

This chapter observed the development and emergence of social capital theory from a range of fields of study, which have formed two main schools of thought. The first follows the work of Bourdieu and Coleman, seeing social capital as a function of individual relationships. The second is aligned with Putnam’s theory with its broader civic effects (see Table 8.1).

A continuing debate on what constitutes social capital has surrounded these theories, with claims being made at the individual, community (e.g. common interest groups, professional organisations, geographic communities, and networks of businesses) and national levels. This demonstrates the lack of clarity on the topic and the tensions between the individualist and civic viewpoints, with some authors looking to satisfy both. These tensions were also shown to be an

70 Falk and Harrison (1998); Kilpatrick and Falk (1999:2); Macgregor and Cary (2002:105)
72 Pope (2000); Pope (2002:2)
issue in my own research outlined in Chapters Five and Six, where improvements at the *individual* level were being sought to extend benefits to the broader *community* through economic benefit. These types of programs, where governments aim to administer change at both the individual and civic levels by use of the social capital language, have lead to criticism of neo-liberal policies that promise to promote participation, leadership, empowerment and self-reliance by building social capital.

Table 8.1  Comparison of Social Capital Theories

<table>
<thead>
<tr>
<th>Author</th>
<th>Focus</th>
<th>Definition</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pierre Bourdieu</td>
<td>Individual</td>
<td>Aggregate of actual and potential resources linked through relationships between people.</td>
<td>Must be constructed to gain access to ‘assets’.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Depends on quality of relationships.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Determined by economic organisation (i.e. social capital reaps economic benefit).</td>
</tr>
<tr>
<td>James Coleman</td>
<td>Individual</td>
<td></td>
<td>Determined by its function. Consists in social structures and facilitates certain actions of people.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Can create human capital.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Relationships based on obligations and expectations relying on trust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Information channels transfer information and facilitate action.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Can be developed by norms and effective sanctions but can also inhibit innovation.</td>
</tr>
<tr>
<td>Robert Putnam</td>
<td>Collective social capital – civic effect</td>
<td>Features of social organisation including networks, norms and trust that exist for mutual benefit.</td>
<td>Requires networks.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Based on values of people.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Requires trust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The wealthier a country the greater social capital.</td>
</tr>
</tbody>
</table>

The section on measuring social capital reinforced the lack of clarity about constituent features of the concept, which is not surprising given that it is only a new area of study. In some cases, both individual and civic effects were being measured. It does appear to be a bit of a stretch from individual relations to influences at the civic level as many networks from all walks of life would need to be active for this to be achieved. In taking this view it is somewhat similar to the projections of social changes forming out of technological innovations in agriculture or, as discussed earlier in this Chapter and Chapter Five, the assertions made about achieving qualitative outcomes through quantitative means.
It is generally agreed that the one element common to all the social capital theories is the emphasis on goodwill in contributing to the public or common good. It is also agreed that social capital appears within and between social relationships, usually in the form of networks, norms and trust facilitated for mutual benefit - but agreement on who benefits is still debated.

This chapter demonstrates that, if governments are to achieve identifiable outcomes by requiring the presence of social capital in agricultural programs, there needs to be a common understanding on what is meant by social capital at the very least defined within the field of study. The definition needs to be accompanied by identifiable indicators so that it can be accurately measured. Since social capital is considered to constitute social interactions and these are dynamic by nature, measuring its presence demands a qualitative approach. I suggest that people skilled in social theory need to be engaged to ensure the correct measures of social capital, and that the policies and programs devised to achieve social outcomes need to be theoretically informed. Both the genesis of social capital and the contexts in which the term is used in programs applied to agriculture need to be clear in the minds of latter-day enthusiasts. The same caution might be applied to another term commonly used in agriculture programs, sustainability – as the next chapter will demonstrate.
9 REVIEWING SUSTAINABILITY

Sustainability has appeared throughout this thesis, highlighting its importance as a concept that demands further consideration. In Chapter Four it was identified as a desirable outcome for agricultural programs from the mid-1990s. My research in Chapters Five and Six, provided a case study of where sustainability outcomes were being sought to meet triple bottom line requirements. Following on from these chapters, Chapter Seven (Popular Language) sought to gain an insight as to how it came to be incorporated into the agriculture language. Although shown to appear in the late 1970s in that that Chapter, this chapter will show that the origin of ideas surrounding sustainability occurred much earlier.

The focus on sustainability to ascertain its meaning and properties is important in agriculture as public concern for the environment continues to strengthen. This has led governments to promote the maintenance of natural resources and assets to achieve national goals. Consequently, sustainability has been integrated as a key outcome for most agricultural policies and programs. Nonetheless, a lack of clarity surrounds the concept, creating an ongoing debate as to what it means and how best to achieve it. In order to gain a greater understanding of sustainability’s use in agriculture, this chapter follows its journey in observing its development, forms, and how it is utilised globally so that it can be obtained.

9.1 Development of the Sustainability Concept

Changes to the world’s natural landscape began with the Agricultural Revolution with the domestication of plants and animals in the Middle East, 12 000 years ago. Although these changes required some technological advances,1 significant alterations to the natural environment didn’t occur until the 1760s, with the beginning of the industrial revolution and modern capitalism in Britain. The movement from small cottage industries to the development of larger scale manufacturing during this period demonstrated the shift away from agriculture as the main contributor to the economy.2 By the late 1700s, concerns for the demands on the earth’s resources and the quality of life of its inhabitants were beginning to be expressed. The Reverend Thomas Robert Malthus, recognised as one of the early active contributors to this topic, challenged the popular idea that economic progress and national power were improved by increasing population.

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In his Essay on the Principle of Population...(1798), Malthus made three propositions in relation to population growth. First, population growth could not sustain a healthy society if it did not have subsistence. By this he meant that a continually growing population would eventually outstrip food supply unless there was an increase in mortality rates, lower life expectancy, or restraints on birth rates. Second, increases in population occur with an increase in subsistence availability. Finally, humanity would find itself in misery and immoral conduct if population growth was not monitored and kept to a level that was in harmony with the natural environment. Malthus had the understanding that food resources were intertwined “with the other variables that underlay economic growth, notably capital accumulation, the relationship between agriculture, manufacturing, and foreign trade, and the connections between rent, profits, and wages, and the prices of goods and services.”

He believed that for standards of living to be improved, society needed to have its foundations in private property and self interest. These would be able to provide incentives “that would guarantee a surplus over basic needs and make rising standards of living possible;...[this] led to the best available solutions by preventing production from going beyond what was economically sustainable, even when this fell short of the maximum level of output that was physically possible.”

Many disagreed with Malthus’s predictions as there were not seen to take into account technological advances and economic adjustments for scarce resources, which allowed for the support of larger populations. Later in the mid-1900s, the technological advances of the Green Revolution were used as evidence to support this argument and have persisted into the present as a solution to land degradation problems. Counter arguments for his ideas on the continued geometric growth of populations that had access to resources were also put forward, as it was demonstrated that wealthier countries experienced a decrease in birth rate, rather than an increase as Malthus proposed.


4 Winch (1987)

5 Winch (1987)


Ecological economists trace the basis of their discipline back to Malthus and are sometimes called neo-malthusians (Goldstein 2005:114-16).

During the 16th Century, European countries expanded their horizons through trade and colonisation, partly as a result of population pressures. This in conjunction with the introduction of the industrial revolution in the 1700s and advances in agriculture, enabled the earth’s carrying capacity to increase further. In the 1960s the Green Revolution took place with plant breeding establishing high yielding varieties and incorporation of fertilisers to

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Since World War Two efforts to improve peoples’ standard of living have increased (if variably by location). Success has been measured in terms of people’s income, gross national product, health, life expectancy and infant mortality rates. Development was seen as desirable to achieve these standards of living and well-being for an expanding global population, to advance it to a ‘higher stage of civilisation’ with more complex social, political and economic systems.7

Although the above considerations incorporate elements of sustainability, it wasn’t until the early-1970s that the sustainability term appeared (as evidenced in Chapter Seven).8 This coincided with a more public focus on land degradation and a frenzy of discussions on the concept. Population pressure, excessive use of natural resources, and the effects of natural resource exploitation on future generations became topics of media interest and public discussion. In efforts to find solutions to achieve sustainability, Biologist Paul Ehrlich and his colleague John Holdren devised the I = PAT formula in 1971 to determine the impact of population, technology and consumption on the environment.9 The equation proposed a new way to consider environmental problems in terms of over population and consumption. Although the impacts of the economic, political and social aspects on the environment were not included, it emphasised the point that the more developed a society, the greater its impact on the environment.10

The introduction of the Limits to Growth (1972) report by The Club of Rome, brought to the forefront concerns for the human impact on the environment at a global scale.11 The report introduced the first integrated global based systems-dynamics model comprising feedback loops,12 and attempted to understand

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8 Brown defines land degradation as being “any process that diminishes, or has the potential to diminish, the capacity of land to support the total biomass, the average growth rate, or the range of species of plants under conditions of adequate water availability, light intensity, and within a range of temperatures appropriate to the plants that would normally grow ‘there’” (Brown, A.D. (2003) Feed or Feedback: agriculture, population dynamics and the state of the planet. International Books, Netherlands, pp.63-64).
9 The equation is stated as: I (impact) = P (population) x A (affluence or level of consumption) x T (technological efficiency).
11 Since the appearance of Ehrlich and Holdren’s I= PAT equation other versions have been devised such as the CSIRO’s PLOT (Population x Lifestyle x Organisation x Technology) model (Yencken and Wilkinson 2001:31).
12 The Club of Rome was a group of young scientists, business executives and academics. The Limits to Growth report suggested that the way in which we think about the world needed to be changed. It attempted to “understand the global system of population, production, resource
“the global system of population, production, resource use, food supply and pollution, in such a way that all interactions between those variables could be measured together, and calculated in their common interrelated behaviour.”

In focusing on the production of waste and its effects on natural systems, *Limits to Growth* proposed that if growth of the global population and use of its resources continued at its then current rate, limits to growth would be achieved by the 2070s. The Club of Rome concluded that in spite of these grim forecasts, development could be redirected to mitigate these occurrences. Objection to the report was wide spread. It was argued, as it had been against Malthus, that the authors did not consider technology as a means to discover other resources; and that economic pricing would signal the need to find new resources to replace those that had become scarce. Hence, the scarcity of a resource did not necessarily involve limits to growth.

In 1980, the concept of ‘sustainable development’ emerged through the World Conservation Strategy. By 1987 the Brundtland Commission produced *Our Common Future*, partly to divert the debate about population in the wake of *Limits to Growth*. *Our Common Future* proposed that extreme poverty in poor countries and unsustainable consumption in wealthy countries was the cause for environmental degradation. Hence there was a need to combine ecological considerations with economic development and social wellbeing. The report popularised the idea of sustainable development as a means to achieve a balance between ecological, social and economic outcomes and defined it as:

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“development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- The concept of ‘needs’, in particular the essential needs of the world’s poor, to which overriding priority should be given; and
- The idea of limitations imposed by the state of technology and social organisation on the environment’s ability to meet present and future needs.”

Since the release of *Our Common Future*, sustainability has been rapidly incorporated into government policies and programs globally. The result has been multiple interpretations of its meaning, which continues to evolve and accumulate various interpretations of what it contains. Clarification on these is provided in the following section.

### 9.2 Forms of Sustainability

Sustainability is sometimes more specifically referred to in the following ways: sustainable growth, sustainable economic growth, sustainable agricultural development, sustainable rural development, sustainable environmental (or ecological) development, sustainable societies, and ecological sustainable development. These variations result in the term having debatable meaning in everyday use.

Generally, sustainable development is said to integrate (or balance) ecological (e.g. genetic diversity, resilience, biological productivity), social (e.g. cultural diversity, institutional stability, social justice, and participation) and economic (e.g. satisfying basic needs such as reducing poverty, equity enhancing, increasing useful goods and services) systems (refer Figure 9.1). In the development literature, these are considered within the present context. They are also referred to by governments as the necessary components to meeting their ‘triple bottom

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18 World Commission On Environment and Development (1987:54)
19 The ongoing concerns relating to the provision of food for the world’s increasing population gave rise to the ‘sustainable agricultural development’ concept. In poorer countries this was implemented via approaches that assisted in increasing employment and alleviated poverty. However, this usually involved the promotion of further advances in technology similar to that demonstrated in the Green Revolution (i.e. increasing agricultural production by creating a dependence on external inputs and reduced the need for labour) (Pretty, J.N. (1999) *Regenerating Agriculture: policies and practice for sustainability and self-reliance*. Earthscan Publications Ltd, London, p.5; Bayliss-Smith, T.P. (1982) *The Ecology of Agricultural Systems*. Press Syndicate University of Cambridge, Cambridge, p.20).
20 In 1974 the World Council of Churches devised the term ‘sustainable society’, to place emphasis on the conservation of life-support systems. It was argued that, for a society to be sustainable there needed to be a balance between the positive and negative forces that determine biological sustainability within a managed landscape. This would enable the well-being of current and future generations to be provided for in a fair and equitable way (Roberts 1995:21; Yencken and Wilkinson 2001:343).
line’ outcomes. Some argue however, that the term sustainable development is an oxymoron with more emphasis placed on ‘development’ than ‘sustainability’ and that healthy societies need equal attention to all three components of sustainability if it is to be obtained.\textsuperscript{22} Although government’s report to have given consideration and support to the environmental aspects of sustainable development, as part of achieving sustainable societies, the economic aspects dominate through attempts to achieve short-term economic ends.\textsuperscript{23}

Figure 9.1 Sustainable Development - integration of social, ecological and economic systems

\textsuperscript{22} Human ecologist, Professor Gerald Marten, has argued that “sustainable development does not mean sustaining economic growth. Economic growth is impossible to sustain if it depends upon ever increasing quantities of resources from ecosystems with limited capacities to provide the resources. Nor is sustainable development a luxury to be pursued after economic development and other priorities such as social justice is achieved. Damaged ecosystems that lose their capacity to meet basic human needs close off opportunities for economic development and social justice. A healthy society gives equal attention to ecological sustainability, economic development and social justice because they are all mutually reinforcing.” Marten (2001:9)

Professor Marten is an Adjunct Senior Fellow at the East-West Center, Honolulu, Hawaii. His main research interests include “the analysis of environmental success stories to understand how human/environment systems can be turned from decline to restoration”, development of EcoTippling points to solve environmental problems; and ecological control of mosquito-borne diseases. Marten has held previous positions at the School of Policy Studies, Kwansei Gakuin University, Sanda, Hyogo, Japan; Department of Tropical Medicine, Tulane University; and the Centres for Disease Control in the U.S. Department of Health and Human Services (East West Centre (2009) Gerald G. Marten. http://www.eastwestcenter.org/about-ewc/directory/?class_id=938, Accessed 13 May 2009; Discover Life (2009) Curriculum Vitae Gerald G. Marten. http://www.discoverlife.org/who/CV/Marten_Gerry.20071210.html, Accessed 13 May2009).

Other forms of sustainability have also been acknowledged, but not widely referred to, such as cultural sustainability, geographical sustainability and spiritual sustainability.\(^{24}\) Each of the proposed forms attempts to maintain each individual system in which it refers, however in doing so it may impact on the other forms.

The range of forms of sustainability is accompanied by a crowded suite of operational categories. For example, an economic focus on the capital perspective defines sustainability as levels of ‘weak sustainability’ (substitutes can be found) to ‘strong sustainability’ (natural limits exist so no substitute can be found) for future use.\(^{25}\) Commonly the desire for human development, equity, pursuit of individual freedom and economic goals, are often seen to be in conflict with environmental or ecological stability.\(^{26}\)

The lack of clarity around the interpretation of sustainability has led to it having a range of meanings for people. In some instances it is viewed more as a future vision, rather than something that can be obtained in the present.\(^{27}\) The various emphases placed on ‘sustainable’ and ‘development’ can be attributed to the range of human societies and their ecological, social and economic outlooks. Sustainable development is also scale, place and time dependent, with each of these being determined by the type, intensity and frequency of use. Definitions within social and geographical contexts are also difficult as each national, regional and local situation can vary. Since precise definitions of sustainability are difficult to explain, it is becoming increasingly important to determine what needs

\(^{24}\) Yencken and Wilkinson (2001:9, 351); Castleman (1998:81)

Cultural sustainability can be more difficult to define than the other types, due to the range of meanings for culture (e.g. farming practices, to social graces, to belief systems) (Yenken and Wilkinson 2001:351).

Bradbery \textit{et al} proposed that, to achieve more sustainable rural environments through development programs, more thought needs to be given to people’s spiritual connections and human interconnectedness to their region. For example, some consideration may be given to Aboriginal and Torres Straight Islander sites for development, but the spiritual ties are generally ignored (Bradbery, P., Fletcher, J. and Molloy, B. (1998) Spiritual Impact Statements - a key to sustainability. In Falk, I. (ed.) \textit{Learning Communities, Regional Sustainability and the Learning Society: an international symposium. Conference Proceedings 13-20 June 1998. Vol.1. Centre for Research and Learning in Regional Australia, Launceston, pp.32-39). For this sector of society, the dismissal of the relationship with the landscape is significant because for “Aboriginal people ‘country’ means origin but it is much more than a geographical space. It is shorthand for all the values, places, resources, stories, and cultural obligations associated with that geographical area.” (Yencken and Wilkinson 2001:3)


The Economics literature defines four types of ‘capital’ that are non-substitutable. These include social (or cultural) capital, ecological (or natural) capital, human capital (labour) and manufactured (man-made) capital. Weak forms of sustainability include social and manufactured capital that can be substituted for natural and human capital, since technological innovations will find solutions to the depletion of natural resources. Strong forms of sustainability have natural limits and cannot be substituted (Somers 2000:142).

\(^{26}\) Yencken and Wilkinson (2001:326)

\(^{27}\) Castleman (1998:81)
sustaining, at what level, for how long, for whose benefit and at whose cost, over what area, and measured by what criteria.\textsuperscript{28}

9.3 Sustainability in a Global Context

Since the 1970s, numerous international treaties and conventions, regional and local agreements, and various protocols have been put in place to support sustainable development. At the United Nations Conference on Environment and Development (UNCED) in 1992, the Rio Declaration was devised containing 27 principles that were adopted by 178 governments, to obtain global agreement on the rights and responsibilities of nations. This was accompanied with an “Agenda 21” list of actions on how to achieve sustainability.\textsuperscript{29}

Despite the good will to develop environmental protection laws, sizeable gaps remain between the formal intent of these laws and their effect on natural systems. The impediments to achieving more successful outcomes include the inadequacy of organisational structures and administrative processes that deal with the management of natural systems.\textsuperscript{30} The United Nations has also proposed that it is difficult to obtain locally the types of social and economic adjustments required to move towards a more sustainable world as they are “embedded in the socio-economic structures of all societies and regions”.\textsuperscript{31}

Public concerns for environmental degradation are now major social and political issues.\textsuperscript{32} For example, governments are being put under pressure, particularly in developed countries, to impose strict environmental controls in agriculture. The reduction of pesticide and synthetic fertiliser use and the regulation of farm waste disposal being the most sought after. However the preservation of natural resources is still not considered to be a high priority and no real technological advances on the scale of the Green Revolution are on the horizon. This has reignited the residual fear from the population debate, that enough food may not be produced to feed an expanding population with all the underlying social,


\textsuperscript{31} Yencken and Wilkinson (2001:10)

political and economic implications that Malthus had noted in the late 1700s - and that this will have irreversible effects on the environment, and people’s quality of life.\textsuperscript{33}

Foster faults the modern human’s attitude for environmental degradation: it has been “reduced to a tap from which resource’s can be extracted and a sink in which wastes (often of very toxic nature) can be dumped”.\textsuperscript{34} In the case of agriculture, food is not equally distributed and hunger remains, despite advances to technologies. The result is inequalities between nations which will continue as long as food is construed as saleable commodity like any other.\textsuperscript{35}

Economic development in most countries has traditionally been based on the utilisation of natural resources, particularly those associated with agriculture. By the 1990s, 25 percent of the world’s occupied land was considered to be degraded, through erosion, salinity from irrigation schemes, poor farming practices and land clearing. Although some land can be restored, much is beyond the ability of producers alone to remedy.\textsuperscript{36} Various attempts have been made to gain some perspective on the economic benefits of the environment and potential losses incurred by degrading it.\textsuperscript{37} Nonetheless, there are inherent difficulties in trying to


\textsuperscript{34} Foster (1996:131)

\textsuperscript{35} Pretty (1999:3); Hossay (2006:1, 144); Lowe (2005:11-12)

The United Nations \textit{Millennium Assessment Report} offers a similar generalisation in regards to food supply: “everyone on the world depends completely on Earth’s ecosystems and the services they provide, such as food, water, disease management, climate regulation, spiritual fulfilment, and aesthetic enjoyment. Over the past 50 years, humans have changed these ecosystems more rapidly and extensively than in any comparable period of time in human history, largely to meet rapidly growing demands for food, fresh water, timber, fibre, and fuel. This transformation of the planet has contributed to substantial net gains in human well-being and economic development. But not all regions and groups of people have benefited from this process – in fact, many have been harmed. Moreover, the full costs associated with these gains are only now becoming apparent.” (Lowe 2005-11-12)

1 360 experts provided input to the Millennium Assessment Report (Lowe 2005:11).

\textsuperscript{36} Norse (1992:35); Roberts (1995:6)

In the early 1990s, the United Nations Environment Programme assessed that approximately 25 percent of occupied land in the world was degraded. Of this degraded land, 295 million hectares were beyond the ability of producers to remedy. The United Nations assessment was done through the Global Assessment of Soil Degradation (GLASOD) (Norse 1992:35). In the mid-1990s, The World Resources Institute reported that China had lost 11 percent of its cropping land to erosion, desertification and to non-agricultural uses since 1957; and 25 percent of India’s total land area was affected by erosion (Norse 1992:35).

\textsuperscript{37} Stevens, H. (2001) \textit{Declining Biodiversity and Unsustainable Agricultural Production: common cause, common solution?} Department of the Parliamentary Library, Canberra, p.3.
obtain a real value for natural resources, since environmental benefits do not always equate to costs or profits.

The World Bank and Inter-American Development Bank have dominated the location and size of projects undertaken in developing countries to ‘improve’ their situation. However the motives for their investment and sustainability of their projects have been questioned. Some development programs have been reported to have caused severe environmental degradation through increased pollution of water, soil, and air in highly populated regions. Development projects funded by wealthier nations have also been seen to take advantage of poorer countries whose basic need is simple survival. Creating a situation where poorer countries are in thrall to wealthy nations through borrowed debt, and exploitation by multinationals who take advantage of their lack of environmental controls.38

The persistence of the debate on population growth and sustainability has raised questions as to how many resources we draw upon and the extent of ongoing demand upon them. Two schools of thought have evolved in this discussion. The optimists have confidence that technology and economics, through free market conditions, will solve issues surrounding natural resource decline and damage. The pessimists say we have reached, are close to reaching, or have already exceeded, the point in which unrepairable damage has taken place. They propose that we need to act immediately to prevent any further degradation.39

To determine how Australia compares with the global perspective of sustainability the following section observes its development locally.

9.4 Sustainability in Australia

Australia’s original inhabitants managed plants and animals with burning techniques (i.e. firestick farming) and by flooding forests in the dry season by diverting water. The arrival of Europeans from 1788 saw the introduction of foreign plant and animal species for food, such as barley and sheep,40 which required a different management of the landscape.

Since colonisation the landscape has, for some non-Indigenous Australians, become part of their identity, yet an understanding of the interactions within it has been slow to develop.41 Substantial changes in ecological relationships have taken place, primarily through extensive land clearing (beginning in NSW in the

Global ecosystems have been valued at more than the global domestic product at $33 trillion per annum (Stevens 2001:3).


39 Pretty (1999:11)


1830s by squatters, refer Appendix C). This was accompanied by a distorted perception of the environment, as it was presumed to have the same productivity as European soils; and the natural vegetation was replaced with tussock, grassland, sown pasture and crops. W.K Hancock concurred that the environmental damage caused by the settlers was a result of them trying to make a living from the land. Barron Field, author of *First Fruits of Australian Poetry*, added to the discussion by stating the issue as a problem of perception towards the environment.

“No European migrant to Australia could possibly see the country as it really was. He was conditioned by years of European experience. It was natural that he should search for familiar analogies through which to define his new experiences.”

Introduced species have continued to remain the major food source, export commodity and dominant feature of Australia’s rural landscape. Australia’s vastness and remoteness from markets has meant it has become a supplier of primarily bulk commodities on the world platform that uses intensive farming practices to produce these. Hence, it is unlikely that diversification into crops that are not mainstream will occur. The following sections discuss the extent of environmental degradation in Australia and the government policies and initiatives developed to address these.

### 9.4.1 Environmental Degradation

Australia remains one of the highest consumers of environmental goods in one of the world’s harshest environments. Although it is rich and unique in biodiversity, it has limited resources for agricultural purposes, despite 61 percent of the continent being used for this purpose.

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Hancock’s full description of his argument was as follows: “The very soil has suffered from the ruthlessness of the invaders. The most precious possessions of Australia are her rivers, whose even flow is protected by the forests which stand around their mountain sources and the trees which line their banks. The invaders hated trees. The early Governors forbade them to clear the river-banks, but these prohibitions were soon forgotten…the greed of the pioneers caused them to devastate hundreds of thousands of acres of forest-land which they could not hope to till or to graze effectively. To punish their folly the land brought forth for them bracken and poor scrub and other rubbish.” (Bolton 1976:21-22)


In 2001, 70 percent of land degradation in Australia was reported to occur on agricultural land. For rural industries this means hefty costs to the Australian economy, and reflection later may conclude that the loss of biodiversity and degraded land have resulted in a greater economic cost than the profits obtained through their destruction and ultimately destabilise agriculture. As a consequence of this extensive environmental degradation, ecological systems (including agricultural lands) lose their resilience and interrelated landscape processes malfunction or cease to exist.

Environmental degradation can be observed through the catalogue of the loss of soil through water and wind erosion; a reduction in soil fertility; increased dryland salinity; soil acidification and compaction; woody weed and pest invasion; waterlogging; changed hydrological systems such as rising groundwater tables; and the increased use of pesticides contaminating soil and water bodies. All have an effect on agricultural productivity and biodiversity, with many effects not being recognised until sometime after a disturbance has taken place, and in locations away from the site of disturbance.

The constriction of biodiversity and the limitations to agricultural production have largely resulted from land clearing (predominately in Queensland) for cropping and grazing, followed by ill-equipped practices. These have occurred despite a
history of environmental movements and various tree planting programs in Australia through such initiatives as Landcare and Greening Australia. The modifications to the landscape have, in some cases, made it difficult to determine what an Australian natural landscape consists of.

The way in which Australian governments have responded to environmental degradation has been variable, some which are described in the following section.

9.4.2 Government Policies and Initiatives

Australia is the only developed country in the world that relies on natural resources such as agriculture and mining as the basis for its economy. Its history does provide examples of environmental movements to protect natural landscapes in the 1800s, where land was conserved for aesthetic purposes. In this period people’s views on the environment were generally defined by their profession. The middle-class provided a voice for preservation. The working class saw it as an avenue for making a living. Environmental societies predominately consisted of artists, and in most cases the ideas and plans put forward to conserve the environment were not successful (refer Appendix C for details on the formation of environmental societies).

By the 1900s, issues surrounding water had emerged as a concern. The Interstate Royal Commission was formed (1902), to investigate the allocation of riparian rights, irrigation issues and water navigation from the Murray River. This was followed by a tri-state agreement in 1914 for water use from the river; formation of the River Murray Commission; and joint Commonwealth and state administration of the river in 1917. In the 1920s, people began to realise that overexploitation of the land was resulting in declines in production, and soil erosion was more noticeable. The Commonwealth Government responded by providing funding for research into soil conservation through the Commonwealth Scientific and Industrial Research (now known as CSIRO) in 1927. The formation of soil conservation boards followed in the 1930s.

References:


In 2000, Queensland rate of land clearing was 75.2 percent of the Australian total. This was followed by NSW at 17.7 percent and Tasmania at 3 percent (Stevens 2001:9-10).

51 Seddon and Davis (1976:15)

An example of Australian natural landscape interpretation has been provided by Seddon and Davis in their publication Man and Landscape in Australia: towards an ecological vision: “some Australian’s who ‘love the bush’ have in mind such cleared pastures with a few stands of remnant eucalypts. Many have no idea of what an undisturbed environment is like. I have heard a tattered few acres that has been logged, cleared and burned three times in a hundred years, and is now tertiary regrowth eucalyptus woodland chocked with blackberry and watsonia, described and ardently defended as natural bushland.”


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migrant schemes initiated during this period to ‘open up’ rural areas, were later shown to have contributed to environmental degradation as they were often located on marginal land and were too small to allow for best practice farm management.\footnote{Curtis and Lockwood (1998:218)}

The introduction of ‘environment’ into Australia’s political discourse in the 1960s saw some moves towards more sustainable farming practices.\footnote{Gray and Lawrence (2001:142)} In the 1980s a range of initiatives and advisory groups associated with soil conservation, the Murray Darling Basin, and salinity were formed.\footnote{Examples of initiatives introduced in the 1980s included the: National Soil Conservation Program; Australian Soil Conservation Council and Soil Conservation Advisory Committee; Murray Darling Basin (MDB) Ministerial Council and MDB Commission; National Land Management program; and Commonwealth funded salinity mitigation programs. More details on other initiatives are provided in Appendix C.} Sustainable development was also introduced into the government’s language which has seen it evolve into a socio-political concept that is often termed ecologically sustainable development (ESD), incorporating social, economic and environmental aspects. This incorporation was assisted by the release of \textit{Our Common Future} (1987) and concerns from the community. It provided the momentum for Australia’s first \textit{National Strategy for Ecologically Sustainable Development} (NSESD) that was agreed to by all Australian governments in 1992 and included the precautionary principle.\footnote{Geno (1998:141); DEWHA (2008) \textit{National Strategy for Ecologically Sustainable Development}. Department of the Environment, Water, Heritage and the Arts, http://www.environment.gov.au/esd/national/nssd/index.html, Accessed 24 December 2008. The ‘precautionary principle’ is defined as being “where there are threats of serious or irreversible environmental damage, a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation” (Yencken and Wilkinson 2001:10). The Precautionary Principle causes the question to be raised as to what extent environmental resources, or natural capital, can be utilised and stresses the use of substitutes where available (Goldstein 2005:119).}

ESD was also incorporated into the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) in the 1990s, who acted as an advisory or regulatory body on issues relating to agriculture, land and rural and urban water issues.\footnote{Australian Science Technology and Heritage Centre (2006) \textit{Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ), 1993–2001}. University of Melbourne, http://www.austehc.unimelb.edu.au/asaw/biogs/A001646b.htm, Accessed 13 September 2006.} As in the previous decade numerous committees and...
councils were established to manage land management concerns such as salinity, water quality and allocation. The Decade of Landcare was launched to address land management issues (refer Chapter Four); and twenty years after the Rural Policy green paper of 1974, Australian Government institutions had embraced the term ‘sustainable rural development’. By the 2000s, programs such as the Sustainable Regions Programme had emerged to assist regional areas to become self-reliant, along with the formation of new government agencies, legislation and other programs to protect the environment (refer Appendix D).\(^5^9\)

In spite of the good intentions to repair environmental damage through initiatives such as the National Landcare Program, Natural Heritage Trust (NHT), National Action Plan for Salinity and Water Quality, and a range of approaches to restore the Murray Darling Basin, there has often been inconsistencies and lack of persistence and implementation.\(^6^0\) Australia’s first *State of the Environment* report (1996),\(^6^1\) expressed that the environment needed some urgent attention. The second report in 2000 showed improvements had been made in urban environments, but rural areas had worsened.\(^6^2\) Part of the problem lies in the way in which natural resource management issues are dealt with in Australia, being either through a participative, rational/comprehensive (science driven processes) and/or incremental approach. The incremental approach is considered to be the most challenging, as problems are addressed only when they arise, so there is no strategic vision, medium or long-term objectives, and only solutions that are not difficult to implement are chosen.\(^6^3\) Land clearing has been promoted as an example of where environmental and economic policies compete.\(^6^4\)


\(^{61}\) Internationally, regular reviewing and reporting of nations ‘state of the environment’ was requested for the members of the Organisation for Economic Co-operation and Development (OECD) and the Council of Europe. Informal assessments by the OECD on their member countries were, and continue to be, conducted. The Australian governments also use the OECD recommended model to undertake their own state of environment reporting, to define their current situation, identify potential problems, and the types of responses in which to deal with each of these (Yencken and Wilkinson (2001:6-7).

\(^{62}\) Lowe (2005:40-41)

\(^{63}\) Curtis and Lockwood (1998:215)

\(^{64}\) Norton (1999:56)

Some states and territories have tightened their land clearing controls (e.g. South Australia, Victoria, Western Australia and Australian Capital Territory) and have good native vegetation
NHT also attracted criticism for having done little to repair the larger environmental issues. The money allocated to it was spread thinly too be effective, and a lack of clarity of the longer-term commitment to the program and other community funded programs were absent. Since the introduction of the NSES, little has been done towards acting on its recommendations, few statutory or institutional bases in environmental policy exist. The Australian Government continued to focus on short-term economic gains and did not seem to have a coordinated strategic vision, sense of urgency and indication that it understood the scale of the problems. Vanclay proposed that, in regard to agriculture:

"Australian governments are now totally committed to the philosophy of economic rationalism. They have abandoned their responsibility to directly intervene in the economy in order to protect society and the environment from the non-market externalities of the production processes."

Australia’s reliance on natural resource exports adds further cause for concern. The contest for natural resources internationally is extremely competitive and the environmental costs (e.g. damage, repair and maintenance) are not included in the costs of production and market prices. This makes it difficult to demonstrate realistically the scarcity of resources when pricing products, so as to recoup costs associated with land degradation for repair.

Australia’s position at the semi-periphery of the global economy adds more complexity, as it is neither a major economic nation (defined as a ‘metropole’) nor an underdeveloped country (the ‘periphery’), but sits in between the two. Since countries at the periphery or semi-periphery are more likely to be driven by ‘debt stress’, they are more prone to environmental degradation as technologies and practices to increase production are introduced to support the economy, placing more demands on the environment. Apart from the effects of production within Australia, it also compounds environmental degradation on periphery countries (who also rely on natural resources as their economic base), as greater economic benefits are obtained when trading with these countries.

There are overriding concerns that, if current policies do not address sustainability issues, environmental degradation will continue. Generally the problems associated with the current policy processes and institutional arrangements for resource and environmental management are varied. Issues noted as being significant include:

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Yencken and Wilkinson (2001:307, 310-15); Lowe (2005:55, 58);
A lack of maintenance of policy processes and institutions to allow results to emerge, be evaluated, and learned from.
- A lack of any pursued principles, goals, or standards that are widely agreed to.
- Ineffective legislation and its administration.
- A lack of sincerity in dealing with environmental pressures in the existing legislation;
- A lack of distinction between the quality of policy initiatives and the effectiveness of their implementation, and the degree of their success.
- A lack of clarity on policy and management interventions.
- Unclear advances in environmental monitoring.
- A lack of systematic monitoring programs to provide feedback on programs being conducted.
- Variability in including the community.
- A lack of resources and means to implement programs.
- Limited response by governments to address threatening processes to environmental degradation.  

Where governments have shown the capacity to change and adapt when supplied with new information, this has not been done in an ordered way. Institutional conflict has occurred over resource dependencies and allocation of responsibility. Within service organisations and rural institutions, there has been a lack of community economic development facilitation skills. There are also issues of power relations between the government and community. Policies that relinquish too much control to the community are seen to diminish government control, while alternatively there is also the inability of government’s to make hard decisions to protect the environment.

In addition to the immediate issues surrounding environmental degradation the current policies do not address increasing population and material demands. Economic development remains the focus in government decision making. Current rural policies support global agribusiness, hence economic rationalism provides the framework for such things as natural resource management policies, not for the preservation of the environment. Political acceptability, administrative traceability and cost also dictate how policy is constructed. This means that for agriculture; policy, research and industry groups are focused on increased efficiency, production and export competitiveness.

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70 Dovers (2003:518-29); Wallace (1998)
Lowe (2005:101) noted that “As the historian Paul Kennedy observed, people who succeed in democratic political systems are usually those who avoid antagonising powerful interest groups. This means they will not make difficult decisions now in the interests of future generations, as long as they can argue that the experts are divided and more research is needed.”
71 The aim of economic rationalism is to maximise the role of the market as a mechanism for determining the production and allocation of resources (Curtis and Lockwood 1998:217).
Organisational issues also exist. For example, agricultural specialists who are production-oriented have, historically, been the predominant source of information on environmental management for producers, rather than an environmental specialist. This can lead to a misinterpretation of the language being used. Additionally, environment and agriculture have traditionally been separated in two separate departments which limits the exchange of information. The introduction of government user-pays services, due to the implementation of national competition policies (refer Chapter Five), means that only the top producers can afford to pay for extension services. This segregates the producer population as: some may not be willing to share information if they have paid for it; extension agents have less contact with producers and therefore do not gain a full view of the issues in the farming environment; and it limits less financially resourced producers from obtaining up to date information on how to adopt less destructive methods of farming. It is also difficult to segregate what is a public or private good in giving advice on environmental concerns in land management due to the nature of off-site effects. These complexities associated with sustainable farming and how it is interpreted is given more attention below.

9.5 Sustainability and Farming

Conventional agriculture uses a range of external inputs to increase production (such as pesticides, inorganic fertilisers, and fossil fuels to run tractors and other machinery), which substitute for natural processes. The growing concern for the impacts of agriculture on the environment and people’s health has meant that the idea of sustainable agriculture has come into favour, although it has existed for some time in other forms.

Since the 1930s, sustainable farming, in the shape of well managed production systems, has been referred to as conservation farming, balanced farming, organic farming and holistic resource management. In the 1990s the concept of ‘sustainable agriculture’ became somewhat of a catchcry. The modern definition of sustainable, or alternative, farming is somewhat varied, with different meanings for different people. It can range from a philosophy that integrates the farming resources and knowledge to include more long-term objectives. To some, it implies persistence while, to others, it implies resilience or developmental activities. The common element however, is the prevention of land degradation and the implication that it has regenerative practices (i.e. it is self-sustaining).
Pretty proposed that it is impossible to define sustainable agriculture due to its complexity. To try and gain some clarification of the concept, the definition by Francis and Youngberg appears to be used the most frequently, which states that

“sustainable agriculture is a philosophy based on human goals and on understanding the long-term impact of our activities on the environment and on other species. Use of this philosophy guides our application of prior experience and the latest scientific advances to create integrated, resource-conserving, equitable farming systems. These systems reduce environmental degradation, maintain agricultural productivity, promote economic viability in both the short and long term, and maintain stable rural communities and quality of life.”

In explaining sustainable agriculture to producers, this definition is broad and many would prefer to have defined actions to achieve sustainability, rather than a discussion on its philosophy. Further confusion arises amongst producers, management agency staff and scientists as to what sustainability is due to different values, viewpoints and interpretations of it, like sustainable development. How to manage the biophysical components of agricultural landscapes is also a concern. These differences represent social impediments to defining targets for landscape restoration. Each agricultural region also has varying natural and economic features, and social structures, hence sustainability will differ for each region. The lack of clarity, in conjunction with fragmented and uncoordinated research efforts, has made it difficult to provide advice to producers on how sustainable agriculture is achieved. It also creates difficulties in promoting the adoption of land conscious practices, since sustainable agriculture is generally perceived to be difficult to understand and apply.

The above definition of sustainable agriculture appears to be holistic in its approach, since it considers social, environmental, and economic concerns. In

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pretty (1999:11) Jules Pretty is a Professor of Environment and Society at the University of Essex. He has written widely on issues relating to agriculture. His research interests cover topics such as sustainable agriculture, social capital and natural resources, biodiversity and ecoliteracy and agricultural policy (University of Essex (2006) Professor Jules Pretty. University of Essex, United Kingdom, http://www.essex.ac.uk/bs/ staff/pretty/index.shtml, Accessed 12 September 2006).


81 Castleman (1998:84)

this regard it does not differ from sustainable rural development. However in practice, sustainable agriculture appears to be seen as a subset of sustainable rural development, being narrower in its focus with a particular emphasis on the production aspects of farming (e.g. soil and water management), and the economics of the practices adopted. The broader ecological and social concerns, though often mentioned as desirable, are generally not considered as the main priority, and are ‘bonus’ outcomes or assumed outcomes as a result of changes in practice.

The importance of maintaining biodiversity in Australia on land under agriculture lies in its value of preserving the fragile soils and therefore providing stability and maintaining ecological processes across land systems. Although on-farm improvements have been made in Australia to soil, water and vegetation management, the sustainability of agriculture and environmental issues in general need to be viewed from a broader perspective. In this wider view the health of larger systems at the landscape level are not found to be sustainable. Evidence of this includes the continued rising of soil and water salinity, fragmentation of bushland, and decline of river system health. The remainder of this section addresses the role of technologies and how the attitudes and behaviour of producers influence the adoption of more sustainable farming practices.

9.5.1 Technologies

Prior to the middle of the 1900s producers utilised various internal resources in their production systems. A change in policies emphasised the use of external inputs into agriculture (e.g. pesticides, synthetic fertilisers, and energy in the form of fossil fuels). This has meant that many of those previously valued internal resources are now seen as waste products; and agriculture has come to rely significantly on technology to be able to produce enough food to sustain populations and provide external markets.

Since the 1990s, sustainable farming has become an essential ingredient in sustainable development, where producers are expected to be more than a supplier of produce at the farm gate. They are required to supply and market their produce and be an environmental caretaker as a heightened concern for the impacts of agricultural inputs on the environment has come under the spotlight (discussed in Chapter Four). In order to remedy the problems of modern high input agriculture, biological technologies emerged from the 1970s as the saviour to solve environmental concerns by reducing inputs, and to solve productivity issues. However, there are several points of unease surrounding the faith in biotechnologies: corporations may create biotechnologies that are reliant on other products which they sell (e.g. herbicides); genetically modified organisms may displace other organisms or produce substances that have dire effects on other organisms; and the cost for the producer to buy these technologies is usually

84 Robertson and Roshier (1999:1); Nix (1989:65)

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Another point for consideration is whether biotechnologies are needed if agriculture is being conducted sustainably. It may be more useful to look at why a particular crop is not performing well, rather than trying to develop genetically modified crops for locations that have become unsustainable, or are already unsuitable for agricultural purposes (e.g. development of salt tolerant wheat).

The perception of sustainable agriculture has also run into problems. It is considered by some to be backward, incompatible with other farming methods, and produce low outputs. These claims appear to be unfounded as evidence to the contrary exists in many countries around the world where sustainable agriculture has been found to make better use of natural and human resources, and increase productivity. Ultimately, how the technologies will be developed and adopted into society is determined by socio-political structures, as technology is embedded in these.

9.5.2 Adoption

Prescriptive technologies, practices or policies are not seen to be ideal for sustainable agriculture as they restrict options for future producers and make it difficult to change and adapt to new information. Ideally, sustainable agriculture should be seen as a process for learning, rather than enforcing prescriptive technologies. The adoption of sustainable farming practices has improved as producers have gained a greater understanding of problems surrounding land degradation, but the change is not occurring at a rate that is needed to achieve sustainable agriculture and, as Pannell et al point out: “For issues like dryland salinity and biodiversity loss, the response by landholders as a whole is clearly insufficient to halt degradation processes.”

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86 Vanclay and Lawrence (1995a:41-42); Castleman (1998:82-83); Roberts (1995:121); Axinn and Thorat (1972:3)


Research conducted by Hanson et al showed that grain producers in the United States, for example, did not experience a drop in yield or price, when converting to sustainable agriculture, however vegetable producers were undecided (Hanson, J.C., Kauffman, C.S. and Schauer, A. (1995) Attitudes and Practices of Sustainable Farmers, with Applications to Designing a Sustainable Agriculture Extension Program. Journal of Sustainable Agriculture. Vol.6, pp.135-56).

88 Vanclay and Lawrence (1995a:54)

89 Pretty (2000:23-24)


A range of studies indicate that Australian producers show a positive attitude towards the environment and improving farm management practices. The lack of adoption of sustainable farming practices then lies in the difference between the producers’ attitude and their behaviour.\textsuperscript{92} Reeve’s study on Australian producers’ change in attitude to the environment from 1991 to 2000, showed there was an awareness of the complexities of environmental concerns and a greater understanding of environmental policies and organisations.\textsuperscript{93}

The reasons why producers choose to adopt, or not adopt, sustainable practices are similar to those for any other agricultural innovation. These considerations, discussed more fully in Chapter Four, include production, psychological, social and financial reasons. It has also been recognised that many producers cannot afford to invest in environmental conservation practices due to the restructuring of agriculture that has removed subsidies and concessions, and the reluctance of banks to lend.\textsuperscript{94} Decisions surrounding the adoption of an innovation or new practice are multifactorial, and a change in a landholder’s behaviour requires more than a technical and/or financial fix. Producer’s rely on their family, friends and experts for approval, advice, and to try out new ideas. The greater range of networks that a producer has the more likely an adoption will occur\textsuperscript{95} and the types of networks are also important.\textsuperscript{96} These characteristics mimic the requirements for effective social capital discussed in Chapter Eight. My research (Chapters Five and Six) also supports these views where it was observed that producers gained substantial benefits through improving their networks with others.

Although there are similar considerations for the adoption of conventional farming practices (e.g. those that are in the producer’s interests), sustainable agriculture differs in some important aspects. It is usually more complex and therefore financial benefits or immediate physical results are not easily demonstrated, practices cannot usually be trialled on a small scale, nor are they

\textsuperscript{92} Lockie (2001a:234)

The research for the project was based on two surveys. The survey conducted in 1991 involved 2 044 members from producer organisations, while the survey in 2000 involved 1 455 people from producer organisations and rural addresses from Commonwealth electoral roles. The response rates ranged from 30 to 57 percent.


\textsuperscript{95} Vanclay and Lawrence (1995b); Kilpatrick (2002:1-2); Guerin and Guerin (1994:551); Lockie (2001a:235)

\textsuperscript{96} Comer et al (1999:29-31)

A study by Comer et al (1999) into the socio-economic characteristics, attitudes and beliefs of sustainable and conventional producers in the United States, showed the importance of the types of networks held by producers. Conventional and sustainable producer’s perceptions of sustainable agriculture differed, being affected by the groups and organisations in which they interacted. The lack of scientific information and how it was to be applied was also seen as a variable constraint.
always compatible with existing practices.\textsuperscript{97} In some cases the producer may not experience the problem that the innovation aims to repair. Technological innovations may not exist for a problem that needs solving, or the innovation may be too expensive to develop and implement.\textsuperscript{98} Additionally, producers have commented that “you can’t be green when you’re in the red”, when economic constraints are tightening, and they are being asked to invest in modifications that cost them money which they may not be able to afford.\textsuperscript{99}

Producers do prefer to have technology demonstrated before they adopt, which adds another layer of difficulty in obtaining adoption. Marginal producers have been found to be less effective environmental managers, and non-commercial landholders are less likely to adopt sustainable environmental practices.\textsuperscript{100} Although the lack of adoption of production related technologies could be ignored, the lack of adoption surrounding environmental concerns is more serious. Group learning has been shown to be of value for the majority of primary producers because it allows ideas to be shared, new knowledge to be provided by peers and experts, and provides an avenue to challenge entrenched values and beliefs.\textsuperscript{101} Participants’ outcomes in my research (Chapter’s Five and Six) support this view.

Difficulties arise if we are looking to producers to identify environmental problems. They are not always aware of the processes that generate land degradation problems. Their participation on boards and committees is also sometimes flawed due to a lack of representation across farming communities (usually being the higher end producers who have different issues to the smaller or poorer peers); novice representatives may be subsumed by formal procedures and established members may be bureaucratised; representative producer’s language, ideology and values can vary from that of other members; and they may not have a good understanding of the breadth of issues for all producers. However these potential ‘barriers’ to environmental concerns, should not stop the utilisation of producer’s indigenous technical knowledge (refer Chapter Four) to find solutions to land degradation problems. This knowledge is particularly useful when used in participatory research programs, where the researcher and producers partner to find solutions to sustainability issues.\textsuperscript{102}

9.6 Sustainable Solutions

If sustainability is to be attained several issues require addressing: (1) the world’s preoccupation with more immediate concerns; (2) increasing population and difficulties in redistributing populations due to logistical, social and economic impediments; (3) opposition from vested interests; (4) increasing consumption (e.g. transport, bigger houses; price influencing behaviour); (5) lifestyle choices

\textsuperscript{97} Kilpatrick (2002:3); Lutz \textit{et al} (1998:204)
\textsuperscript{98} Fujisaka (1994:409, 416-18); Curtis and Lockwood (1998:212)
\textsuperscript{100} Vanclay and Lawrence (1995b)
\textsuperscript{101} Guerin and Guerin (1994:566); Kilpatrick (2002:4); Somers (2000:132); Vanclay and Lawrence (1995b)
\textsuperscript{102} Vanclay and Lawrence (1995a); Vanclay and Lawrence (1995b)
including the technologies we use (e.g. air conditioning); (6) peculiarities of human behaviour; (7) resistance to rapid change of complex and dynamic systems; (8) pressures of economic systems (e.g. focus on economic growth, short term outcomes, and failure to incorporate the cost of the impact on natural systems); (9) environmental considerations such as climate change and improving the understanding of biodiversity and functioning of land systems; (10) changing the mindset that technology can solve our problems; and (11) and a bias of media towards an economic end. Incorporated across, and within, each of these are considerations as to how we manage our natural and modified landscapes.

Murray points out that, in the case of agriculture, there are important interactions between society and the environment:

“Agriculture…is an important point at which society and environment interface. Agriculture, farming, is the construction of a relationship with nature that cannot be understood simply as a form of the human domination of nature, any more than it can be seen as nature taking revenge on humans, or sitting passively while humans have their way.

Rather, if agriculture is to be successful, it must maintain attributes of nature while directing them to humanly defined ends. It cannot ‘de-nature’ nature, its practice and ongoing practice establishes nature as not passive, and if it is understood as ‘socialising’ nature, not a particularly helpful way of looking at it, it is a socialisation that is ongoing, never to be completed or taken for granted, never finally socialised.”

The importance of maintaining biodiversity and achieving ecological sustainability is convincing and widely accepted. Humanity relies on an intricate network of species, many of which remain unknown, to support us. Natural systems provide food, fuel and fibre; renew our soils; act as waste sinks by removing carbon dioxide and other industrial wastes; recycle; fix nitrogen; provide new sources of medicine, oxygen to breathe, and ideas for new innovations through biomimicry. They also give us a sense of wellbeing and aesthetic pleasure. Continuing degradation and misuse for short term profits or to accelerate an ‘improved standard of living’ will result in a shortfall of resources for future generations, as the earth’s human carrying capacity reaches its limit. The current levels of abuse cannot be maintained, if we are to retain natural systems that provide the ingredients essential to support humanity and the other creatures which share the earth. We need to become custodians of the environment for our own existence and for future generations. This is not a new revelation as many authors have provided examples where the misuse of natural resources has resulted in the collapse, and in some cases the complete destruction,


Dale (2001:30)

The term ‘carrying capacity’ relates to the optimum number of humans (or other life forms) that can be supported indefinitely in a given habitat under certain environmental conditions (Jones, G., Robertson, A., Forbes, J. and Hollier, G. (1990) Environmental Science. Collins, Glasgow, p.67).
of societies across the world (see, for example, Andrew Beattie and Paul Ehrlich (2001) and Jarred Diamond (2005)). Dale aptly expresses the point by saying that once the finite natural resources of earth have been all consumed, “there are no new frontiers to exploit”. 107

The range of interpretations of sustainability makes it a state difficult to achieve, as described earlier in this chapter. It is generally agreed that a sustainable global society with a rich resource base, requires the integration of viable economies, ecosystems and communities. A systems perspective is essential to observe the complex relationships between the various factors that contribute to sustainability. For example, people’s perceptions and values are materially and culturally defined, shaped by what we perceive, experience and value – and, therefore, labile. 108

James Woodhill and Neils Röling highlighted eight factors among the human dimensions of learning which make the current environmental crisis so challenging, relative to a sustainable future:

- **Interdependence** of individuals, local communities and nations.
- **Social embeddedness** – strategies for dealing with the environment are “intimately connected with all aspects of our social and cultural life”.
- **Complexity** of the global networks that humans have to deal with.
- **Uncertainty** in predicting environmental change; and devising appropriate and timely responses by individual’s, communities and governments.
- **Skewed criteria for development** – key factors for development are seen as economic optimisation and material wealth.
- **Individual engagement**, to understand environmental issues and develop willingness for change.
- **Local action, global coordination**.
- **Paradigm dilemmas** – challenging of assumptions that currently support modern industrialised culture and the formation of new paradigms. 109

To face the challenge for a sustainable future, the key requirement, of governments, communities and individuals, is a change in attitude and behaviour. Issues surrounding food supply and population, government policies and roles, economic and environmental considerations, and sustainable agriculture also need addressing. Each is discussed below with a particular focus on solutions for a sustainable Australia.


109 Woodhill and Röling (2000:48-49)
9.6.1 Society, Attitudes and Behaviour

Since most environmental degradation is a result of human activity, changes in people’s attitudes (developed by perceptions) and behaviour is paramount if sustainability is to be obtained globally, nationally and locally. We need to be discontent with the current situation and have a vision for the future, along with a commitment and feasible pathway to achieve it. It has been suggested that the values needed to obtain sustainability are lacking, and to achieve sustainable development, a moral obligation and a shared environmental ethic is needed. This requires changes in the way we do business, conduct our daily lives, and make decisions.  

Lowe suggests that the attributes of a future sustainable society to be HEALTHIER would involve it being:

“Humane, take[ing] on an Ecocentric Approach, use[ing] a Long Time Horizon for planning purposes, be Informed about the consequences of our choices on natural systems, be Efficient in its use of natural resources, and be Resourced [i.e. by utilising renewable resources in preference to finite natural resources].”  

To achieve Lowe’s HEALTHIER society would require us to challenge the current mind-sets, structures and power relations when dealing with environmental problems and economic opportunities. Dale sees the challenging of people’s mind-sets or dominant paradigms, myths, and metaphors as important; since the values that underpin how we make decisions determines “how we structure our organisations; the nature of our science; and the paradigms, myths, and metaphors with which we make sense of our world, our interpersonal relationships, and our relationships with the environment.” 

She proposes that, in addressing these, systems of governance will be forced to “acknowledge and support the notion of civil societies as communities of learning and knowledge.” This can be achieved by

“first, making them [paradigms, myths, and metaphors] explicit in everyday discourse; second, by showing the interaction between language and domination; third, by questioning the underlying values; fourth, by creating new narratives, myths, and metaphors for social change; and fifth, by changing the boundaries of decision making.”

In the case of agriculture, some landholders hold the view that they can do what they please with ‘their’ land. To remedy this, the idea of being stewards of the landscape rather than owners, must be fostered, since stewardship of sustainable agriculture requires a shift in producer’s attitudes and improved knowledge is required through raising consciousness, rather than the incorporation of new

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111 Lowe (2005:83-4)
112 Yencken and Wilkinson (2001:9-10)
113 Dale (2001:25, 37-8)
farming practices. Agricultural change agents must also learn to make adjustments.114 Some agricultural institutions (e.g. governments and universities) also find it difficult to learn from producers and rural people. To overcome this, obstacles to prevent the greater exchange of ideas and knowledge have to be removed. Agricultural organisations also need to become learning organisations by creating an environment in which experimentation, connectivity and group work based on roles in preference to disciplines in promoted. Monitoring and self evaluation systems should also be adopted to improve learning and awareness.115

9.6.2 Food Supply and Population

Population optimists have drawn heavily upon the ‘successes’ of the Green Revolution for support. Nearly forty years on it has exhausted its potential. Yields are now at their optimum, and the gains in productivity have not been shared equally across the globe, due to the commoditisation of food. It is unlikely that we will experience another revolution in agricultural technology because past advances have caused environmental problems such as: introduced chemicals and fertilisers (leaching to water sources); soil loss; clearing of forests to expand agriculture (in some cases onto unsuitable lands); and a high use of irrigation that depletes water sources. Malthus’ theory that food supply will one day not be able to meet the needs of the global population may be approaching its ‘due date’.116

In the Australian context, the existing domestic food supply is capable of feeding more people if there was less wastage and we were committed to healthier diets. In the late 1980s, it was proposed that Australia’s ideal population was between 25 to 50 million, if we considered the use of renewable resources. The figure at 50 million, could only be sustained if food exports were reduced, living standards lowered, and there was less extravagant resource use.117 A figure of 20 to 30 million is more appropriate when taking into consideration the current levels of land degradation; retaining some land for purposes other than agriculture; and being able to obtain some income from a smaller number of exports. Flannery suggests that, for hunter-gather societies, the ideal ecologically sustainable population is at 20 to 30 percent of the land’s carrying capacity. If this figure is used as a guide to determine Australia’s population, its optimum level for human habitation would be between six and 12 million, a figure already exceeded.118 The continuation of land degradation suggests that population levels need to be stabilised and a population policy introduced. This would reduce the pressure and impacts on our natural resources so they can be managed now and in the future to maintain Australia’s renewable resources; and reduce the potential for social

115 Pretty (1999:202-3) cites the causes of agricultural institutions reservations to embrace producer knowledge as a result of: institutions being characterized by restrictive bureaucracy and centralized hierarchical authority; professionals have a narrow view of the world as they specialize in a particular area; and they have systemic processes for getting feedback on performance.
117 Day and Rowland (1989:35-36); Lowe (2005:82-98)
118 Flannery (1994:368-69)
inequality as resources become scarcer. The role of governments would be central to achieving outcomes of this type.

9.6.3 Government Policies and Roles

To make up ground on the issue of sustainability in Australia, governments’ sustainability policies have to be more inclusive of stakeholders and take a greater interest in the influences of gender on individuals, households and communities’ rights, resources and responsibilities. They should be less responsive to popular ideas and have longer term resourcing. To achieve these outcomes, governments must create conditions under which action can be taken, including a more mature politics, focussed on sustainability for equity of global resources and limits of use, an improvement in the ecological literacy among political institutions, and a reconciliation framework that is adopted across governments.

For Australia to deal with its increasing environmental degradation, it must get serious about acting on a sustainable policy and improve its ability to identify and apply an effective mix of policy instruments. The ecological and social aspects of sustainability need to be considered sincerely, to the same extent as economic factors. The lack of advances in addressing environmental problems, as outlined earlier (refer 9.4.2 Government Policies and Initiatives), demonstrates that governments need to have well defined policy goals, and set targets on what needs to be achieved so that their purpose over time is clear. David Yencken and Debra Wilkinson argue that public policy targets are required for each of the key dimensions of environmental degradation because target setting focuses attention on priority issues and the actions needed to meet the defined targets; they give the community and specialists confidence that issues are being tackled; purposeful state of the environment reporting and monitoring is facilitated and; finally, it allows the generation of new ideas to solve problems. In order to meet these targets, adjustments to the economic, social and political systems are required.

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119 Lowe (2005:78-80, 82-98); Vanclay and Lawrence (1995b); Flannery (1994:369-70); Marten (2001:40)
122 Dovers (2003:534)
123 Yencken and Wilkinson (2001:317)

A centralised approach to sustainability that is top-down is generally ineffective, so the development and management of environmental policy, should be decentralised and occur as a whole-of-government practice (refer Chapter Five), not contained within a single portfolio. Alterations to legislation, monitoring of performance across government, having an informed information base, and actively implementing environmental management in all government agencies needs to be undertaken to integrate environmental concerns across, and within, agencies. The changes to the legislative base also need to take place in conjunction with the development and implementation of prescriptions for land use and codes of practice. A range of policy instruments may be more successful than a single approach where change of land use is required, including such things as education, property rights, regulation and financial incentives.

In conjunction with more effective government policy on conservation and land management, an improved institutional capacity for learning and adaptation is necessary. Institutions will not only need to be more capable in dealing with a mixture of policy instruments and equitable allocation of resources; but also in delivering allocations effectively to community-based organisations and, where necessary, making tough decisions despite the opposition of strong sectional interests. Additionally, a greater understanding of the scientific requirements enabling us to reach sustainability is essential so adjustments can be made in the social and economic spheres. If this is not done, ad hoc policies will continue to be developed and existing prejudices and presumptions reinforced.

**Policy for Sustainable Agriculture**

Internationally agricultural policies are generally geared towards short-term economic outcomes, rather than the longer term social and environmental outcomes and, therefore, do not support sustainable agriculture. Producers who do want to change from conventional farming to more sustainable practices often incur transition costs. Countries that have some support for the move towards sustainable agriculture are usually concerned with: expenditure relating to foreign exchange or environmental damage; and policies that deal with incentives, inputs, technologies and knowledge, institutions and infrastructures, and the investment needed to maintain these. The solution, in most cases, is to reduce agricultural inputs, rather than any real consideration for sustainability in terms of the long term environmental and social costs, that give consideration to targeted planning,

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125 Yencken and Wilkinson (2001:212)
126 Norton (1999:56)
127 Curtis and Lockwood (1998:228)
128 Yencken and Wilkinson (2001:9-10)
or processes, which deal with integrating production and environmental policy goals.\textsuperscript{129}

The development of new policies in agriculture has to enable communities by creating conditions in which they can instigate the development of locally based resources, skills and knowledge. A well grounded policy environment will provide a framework to encourage producers to innovation and therefore, develop sustainable solutions to land management problems. This can be achieved by developing policies that have greater producer and community input.\textsuperscript{130} In Table 9.1 Pretty outlines 25 policies that have worked in achieving sustainable agriculture across the world in the areas of national policy, changes in technology and practice, community action, and institutional and professional approaches.\textsuperscript{131}

\textit{Table 9.1 Policies that Work for Sustainable Agriculture}

\begin{table}[h]
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NOTE: & This table is included on page 258 of the print copy of the thesis held in the University of Adelaide Library. \\
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\textsuperscript{130} Lutz \textit{et al} (1998:95); Kilpatrick, S. (2000) \textit{Community Learning and Sustainability: practice and policy}. Centre for Research and Learning for Regional Australia, University of Tasmania, Launceston; Norse (1992:36)

\textsuperscript{131} Pretty (2000:39-40)

Table 9.1 is adapted from Pretty (2000:39-40).
The calls for greater producer participation have led Vanclay and Lawrence to express some caution when addressing environmental concerns (refer 9.5.2 Adoption). They argue that it is unreasonable for society to expect producers will act for the collective good when they need to consider their own interests first. The recent reorientation towards the purchaser-prover and user-pays models in Australia should be reversed due to the complexities of environmental issues in farming, as it can lead to the exclusion of some producers, and restrict the sharing of information between them once information is purchased. Therefore, where a greater public benefit exists to achieve effective environmental outcomes, rather than individual benefit, free extension services should be offered.  

These considerations require Australia to rethink its policies in relation to

“structural adjustment, rationalisation of services, privatisation of agricultural agencies, funding of extension services, subsidisation and support to farmers, protectionism, as well as a hole array of related policies”

“the different management philosophies of farmers need to be considered in any sociology of agriculture and in any agriculture extension program.”

Hall et al.’s paper on the privatisation of extension services in New Zealand supports Vanclay and Lawrence’s view on free extension services. They warn that the lack of extension services to provide advice on sustainable practices can lead to the need for regulatory processes, including fines to enforce environmental protections. Regulatory processes can be difficult to implement and are not as effective as educational processes.

Stevens added to the discussion by proposing that landholders should be required to develop a farm plan to address Australia’s land and water degradation problems. This would enable farm viability to be restored, and conservation methods that are in line with regional strategies for biodiversity conservation could be implemented. The administration of this activity could take place under new sustainable agriculture legislation by the states and territories. Since conservation has a public aspect, tax incentives, subsidies, and grants could be provided to assist in implementing the Farm Plan. An environment levy could also be introduced to fund these activities. Governments across the world could also assist communities to acquire ecologically sensitive knowledge through the development of strategic partnerships between governments with greater civil dialogue. To accomplish this, they would need to sacrifice their current position of dominance and power in controlling and monitoring environmental concerns.

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132 Vanclay and Lawrence (1995a:172); Vanclay and Lawrence (1995b)  
133 Vanclay and Lawrence (1995a:172-73)  
134 Vanclay and Lawrence (1995a:155)  
136 Stevens (2001:24)  
137 Dale (2001:26)
9.6.4 Economic Considerations

In most cases, the concept of sustainable development assumes that the consumption of natural resources is declared and environmental costs are reflected in market prices. However, for natural resource-based economies like Australia, a number of problems link the economic structure and international economic and political relations. The existence of these complexities makes achieving sustainable development at the global level difficult. To remedy this, Daniels proposes that a ‘speedy’ development of resource-based environmental technologies is needed.  

In order to obtain a sustainable economy, ecological economists want to see the issues of population and consumption growth addressed in terms of their effects on deteriorating the stocks of natural capital. In recognising the difficulties in obtaining quantitative benefits on preserving the natural environment, they have suggested a ‘safe minimum standard’. This standard is in line with the precautionary principle and should be used to preserve resources of an unknown value.

Others believe that the current mentality on a growth economy needs to give way to notions of a ‘steady state economy’, and the notion of a ‘cowboy economy’, which is wasteful and extravagant, needs to be replaced with a ‘spaceship economy’, which is frugal, clean and re-uses resources where possible. If these goals are to be reached, in all cases more creativity is required to obtain economic solutions while preserving the environment, since ecological sustainability relies upon the “massive dematerialisation of the economy”.

In obtaining sustainable agriculture, economic stability through the regeneration of social and natural capital must occur, rather than giving economics priority. An alternative is to achieve this through organic agriculture. Although organics has its sceptics regarding it to be unprofitable particularly during the transition to obtain certification, evidence around the world contradicts this with producers shown to have high rates of production and enhanced biodiversity. Markets already exist for organic produce and there is an exceptionally high rate of growth internationally, with large supermarket chains such as Tesco, Sainsbury and Safeway demanding organic products. With this in mind, research and policy agendas should be targeted towards the regeneration of social and natural capital rather than on high input agriculture. This would require placing social and

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138 Daniels (1992:250, 258-9)
139 Pretty defines ‘natural capital’ as being the “stocks of plants and animals and the ecosystems they make up: minerals, atmosphere and water. These stocks of capital create ‘services’ that comprise flows of material, energy and information which we can combine with manufactured and human capital to produce welfare”. Three features of natural capital are important: the level of stocks, ecological relationships and diversity. Natural capital like social capital is a public good and provides a basis for economic growth and the improved human welfare by supplying resources that people can use (Pretty 2001:7, 9).
140 Goldstein (2005:113, 120)
141 Roberts (1995:11)
142 Yencken and Wilkinson (2001:335, 359)
environmental issues before economic gains and then determining the productivity and profitability opportunities.143

9.6.5 Environmental Conservation

To ensure that future generations have access to the same types of natural resources as we experience now, we would need to pass on resilient natural ecosystems that resemble our own.144 Yencken and Wilkinson propose that ecological sustainability in Australia can be achieved by developing an overall goal that includes a set of principles which outline how it is to be achieved, along with general targets and assessments to assist in ensuring the goals and targets are met. Improvements in biodiversity could be obtained across all types of land tenures by including the following in a strategic framework: overall bioregional strategy including a biodiversity conservation strategy; implementation and effective monitoring systems and programs; increase in, and enhanced management of, protected areas; biodiversity planning for public and private lands; and establishment of ecological networks between protected and non-protected areas. By improving our knowledge on species and their interactions, more informed conservation measures and ESD can be planned.145

To assist in slowing the rate of environmental degradation and to conserve biodiversity, the threat of land clearing needs to be stopped, and the following approaches taken:

- Adoption of biodiversity goals and effective reserve systems for public lands.
- Biodiversity conservation needs to be seen to be in the economic interests of private and leasehold lands.
- A review of economic deterrents needs to be undertaken and the removal of disincentives and introduction of positive incentives.
- Modification of laws of land management and development to protect biodiversity.
- More information given to landholders on the value of biodiversity conservation and provision of assistance to undertake conservation activities.
- Positive incentives such as funds to support conservation activities.
- Improve effectiveness of landholder cooperative work.
- Increased adoption of best management practices at the local level, including such things as more sustainable grazing practices, or removing grazing from those areas that are not conducive to farming; having more effective monitoring systems on genetic engineering; and control of introduced species.
- Improved strategies for land management by Aboriginal and Torres Strait Islander people so they can effectively manage their own lands.146

143 Lockie (2001b:294-96)
Only 2 percent of Australian producers were converted to organic production in the early 2000s (Lockie 2001a:242).
144 Goldstein (2005:116-17)
146 Curtis and Lockwood (1998:228); Yencken and Wilkinson (2001:222)
Importantly, the time and space constraints associated with restoration projects need to be considered in the funding of programs. Suggested activities particularly relating to agriculture are provided in the following section.

9.6.6 Sustainable Agriculture

Although agriculture is incorporated in the other forms of sustainability, it has been given special attention here due to its large occupation of land globally. The importance of maintaining biodiversity as outlined above has relevance to agriculture, in that, if degraded land is not reclaimed to biodiversity, the landscape will continue to decline, and agriculture will have to cease on the land it currently occupies. If land management is to be successful it must account for on and off-site effects of degradation.

Since many poor producers undertake unsustainable practices for economic and institutional reasons, sustainable development in agriculture must include not only the production aspects but improve economic and environmental efficiency. An integration of regenerative technologies and re-design on how agriculture functions within communities is also required. In 1991, the International Federation of Agricultural Producers suggested a range of features that a modern sustainable production system should contain, such as the encouragement of self-reliance and resilience (now identified as a key outcome in Australian agriculture – refer Chapter’s Four and Five). In the same year the Working Group on Sustainable Agriculture (WGSA) devised a set of objectives or principles so as to gauge the suitability of future trends for sustainable agriculture. Later in 1998, Goldney and Bauer proposed ten principles that could be used as a basis to create change for sustainable landscapes by integrating nature conservation and agricultural production. Pretty also suggested that six types of local groups

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147 Robertson and Roshier (1999:3)
149 Norse (1992:38)
150 Pretty (2000:30-31)
151 Additional features of sustainable production systems suggested by the International Federation of Agricultural Producers included: be non-disruptive; be appropriate to local needs; be productive; have a reasonable level of profitability; regenerate by balancing inputs and outputs; and be stable by not exploiting natural resources (Roberts 1995:112).
154 Goldney and Bauer’s (1998:28-31) principles for sustainable landscapes: (1) It is essential that agriculturalists take into account ecological considerations to prevent short and long-term disaster. (2) A single property cannot be farmed independently within the various systems. (3) All land managers should participate in developing local and regional catchment plans. (4) Land managers should develop individual farm plans within the context of catchment plans. (5) Inputs that have adverse environmental effects such as pesticides and fertilisers should be reduced. (6) Technological and natural solutions should be balanced. (7) Integration of bushland/surrogate bushland with active agricultural processes should be undertaken. (8) Native flora and fauna can be used as indicator species to assess land health. (9) Drainage
need to be involved in obtaining sustainable agriculture: community organisations; natural resource management groups; producer research groups; producer-to-producer extension groups; credit management groups; and consumer groups.  

Technologies

The technological fix is usually seen as the answer to environmental problems on agricultural lands, probably because it is easier to implement, but advanced technologies usually have a large detrimental effects (e.g. cultivation machinery), hence, sustainable technology practices need to have less impact on the land. Due to the scepticism and various myths surrounding sustainable agriculture, reinforcement that healthy landscapes result in productive landscapes must occur and a variety of goals need to be balanced. It is possible to have sustainable agriculture and conserve biodiversity by retaining and replanting native vegetation. In addition to stabilising the landscape, the presence of native vegetation has been shown to improve agricultural production by sheltering of crops, pastures, and livestock; and a greater diversity of plant communities leads to more nutrient rich soils and their retention allowing for increases in production, soil microbes, earthworms, and fungi which support healthy systems. Agriculture and biodiversity travel in double harness.

There needs to be a move away from traditional practices that are focussed more on economic and productivity goals to systems approaches (Chapter Three and Four). The necessary reduction in external inputs and better utilisation of natural and social resources can be achieved by using already existing resource-conserving technologies that can be integrated into agriculture and regenerate internal resources more effectively. Some research to find alternatives to conventional practices has already been occurring in this area. Fujisaka suggests that incentives for producers to adopt sustainable farming practices may be improved by: identifying farms with problems; providing innovations that work; reducing costs to implement innovations; having effective communication

lines and ephemeral waterways should be rehabilitated. (10) Environmental costs of agricultural production must be factored into the market place.

Pretty (1999:162)
Cock (1992:304)
Lockie (2001a:240)
Flora (1992:37, 47); Röling and Wagemakers (2000); Watson (1989:54-56); Pretty (1999:16-17, 129); Norse (1992:34)

An example of where traditional practices have caused serious environmental problems can be found in observing Australia’s use of chemicals and fertilisers. The largest uses of these agricultural inputs exist in the irrigated and continuous cropping regions. A reduction in the application of fertilisers would prevent further soil acidification and nitrate build up in groundwater.
between extensionists and producers; introducing policies that encourage investment in innovations; and increasing producer participation. However, these will require changes in how people view agriculture and their interactions with it as discussed earlier in 9.6.1 Society, Attitudes and Behaviour, and below.

**Education, Training and Knowledge**

Broader involvement across the community to deal with sustainability issues is particularly important in Australia due to the uniqueness of its environment. An improved understanding of our landscape is central to better manage our natural resources. Currently, substantial gaps exist between land and water managers and scientists on understanding ecological processes in Australian landscapes. Work undertaken by ecologists is often done at a scale not relevant to producers (e.g. on pristine habitats), while the biophysical scientists work is also often undertaken in inappropriate locations. In order to be able to better predict the response of ecosystems to restoration, a longer-term ecological data set within agricultural landscapes is required.

For sustainable agricultural development to be effective both top-down and bottom-up approaches in policy and practice must work towards a middle ground that integrates the two. This will require changes in how we approach and interact with producers, by moving from teaching producers to learning styles and utilising their indigenous technical knowledge as mentioned earlier. However, producers require ideas and suggestions on what they can do to achieve sustainable agriculture which they can trial on their own farms, rather than being given the principles or ready-to-implement solutions common in conventional farming. The implication for professionals is that they will require a broader skills base and the ability to choose the correct methodology for the desired outcome. Although there may be some challenges from the professional’s point of view, it will address problems that producers are experiencing rather than those devised by others interests. However, the result is more likely to be the completion of activities, but greater producer participation needs to be enhanced by the building of local skills, interests and capacity to deal with sustainable agriculture issues.

**9.7 Conclusion**

This chapter discussed the development of the sustainability concept and how it is interpreted and obtained. Malthus is generally credited with being the first to raise concerns on issues associated with sustainability, such as the relationship between food supply, population growth, economic progress, national power, and equality in obtaining subsistence resources in the 1790s. In the 1970s the *Limits*...
to Growth report produced by the Club of Rome, sparked the population and resources debate. The Brundtland Commission responded with *Our Common Future* (1987) highlighting the need to effectively manage the earth’s natural resources for the benefit of current and future generations. It also popularised the term ‘sustainable development’ which embodied social, economic and ecological considerations, and is now commonly featured in government policies reflected as requirements to meet their triple bottom line outcomes. Australia’s response was to produce a *National Strategy for Ecologically Sustainable Development* (1992).

It is generally agreed that sustainability gives consideration to ecological, economic and social elements. However, the ongoing sustainability and sustainable development debate has led to the emergence of social, ecological, economic, environmental, cultural, geographical and spiritual forms of sustainability. These are interpreted variably through people’s attitudes, values and beliefs, which differ depending on their occupation (e.g. producers, agricultural advisors, and environmental scientists), position in society and culture. Since the various forms of sustainability are susceptible to change, it is also space and time dependent. ‘Sustainability’ is also commonly referred to as something to achieve or obtain, but it is often not clear how this is to be accomplished.

The lack of clarity and confusion surrounding sustainability highlights its complexity, and the difficulties faced in trying to develop and implement policies and programs that aim to achieve it. Its multifaceted nature also makes it difficult to manage issues at the local, national and global scale, particularly where stakeholders have varying goals, and the avenues for measuring sustainability are rarely qualified or quantified.

Sustainability is often seen to be more of a future vision than something that is achievable in the near term, or present. Despite Australia recognising issues associated with land management for over 100 years, it has little strategic vision and few long term objectives in its policies to achieve sustainability. The recent focus of the Australian economy on natural resource extraction and use has meant that economic gains have taken a priority over the social and ecological facets of sustainability. Consequently, the funding allocated to solve environmental problems is often spread too thinly and/or being administered ineffectively. The costs involved in repairing the landscape, which we are now coming to recognise as being substantial, may outweigh the short term economic benefits on which Australia has focussed.

Many think that achieving sustainability lies in technological advances and adjustments in the pricing of scarce resources. Others argue that a longer term solution lies in the adjustment of people’s attitude and behaviour to how sustainability is viewed and obtained. This requires us to challenge our current mind-sets or paradigms, myths, and metaphors on how we interpret the world. This can only be achieved if:

- we have a commitment to addressing environmental degradation and stand by the current rhetoric of maintaining resources for future generations.
- landholders (public and private) become stewards, rather than owners of land.
• governments include producers and the broader community more in the
development of policy and programs when dealing with land degradation and
management; and create conditions under which action can be taken.
• we develop a moral obligation at a global level so that resources are shared
equally and economic and social equity can be obtained.
• we give more consideration to all of the facets of sustainability rather than
limiting our focus to those related to short term economic outcomes.
• we put the political economy to the side.

Before we can achieve any of these outcomes we must articulate what we mean
by sustainability and the best ways to achieve it. This chapter demonstrates that
there is still some way to go before this happens: ‘sustainability’ is frequently
utilised, but not well understood. As with social capital in the previous chapter,
this highlights the dangers in adopting terminology and trying to incorporate them
within policies and programs without a full comprehension, or definition, by all its
users of what they are about. The continued focus on technical fixes for social
based outcomes further strengthens the argument that more emphasis needs to be
given to the inclusion of the social sciences when considering outcomes that are
of a social nature.

The following, final, chapter draws together the key conclusions on the
interpretations of what influences change in agricultural policies and extension
programs throughout this thesis. It concludes by recommending areas for focus, if
effective social and sustainability outcomes are to be obtained in these areas.
In Chapter One, the purpose of this thesis was identified as analysing the history of change in agricultural policy and extension models so as to inform the more effective delivery of future activity in these areas. Social and sustainability concepts were given particular attention due to their growing popularity in current agriculture initiatives. The questions framing the thesis included:

- What influences have shaped agriculture policy and how do these affect the development of extension models?
- What is required to develop effective agriculture extension policies and programs that specify social and sustainability outcomes?

My interest in this area of research emerged while developing the NAVIGATOR® program in partnership with the wine industry for Primary Industries and Resources South Australia (PIRSA). The program sought to achieve ‘cultural change’ by encouraging its participants to develop self-reliance from government services traditionally offered for free, in response to the introduction of competition based policies. It also sought to support producers to develop their social capital, and skills and abilities to deal with the increasing complexities of agriculture and the unpredictability of global markets. The focus on the development of these social capabilities, rather than technological considerations that were more common, brought with it a whole suite of new language that required consideration. This experience led me to contemplate what influences change in government policy that includes new language, requiring different approaches to program delivery.

In order to address the first question, I began by investigating the development of adult education theory and concepts (Chapter Two), as agricultural extension involves the education of adults. This provided me with context as to the development of ideas in this field of study. The findings from this research could then be compared with the developments in agricultural extension (Chapters Three and Four). This enabled me to ascertain if an exchange of ideas and adoption of approaches between the two fields of study had occurred; and if similarities existed in the instigators for change in the approaches to learning overtime.

My research in Chapters Five and Six on the NAVIGATOR® program, provided a contemporary example of an extension model that aimed to deliver on new policy objectives that demanded social outcomes involving learning. In developing the program participatory based approaches involving action learning and action research, and the incorporation of adult education principles (outlined in the previous chapters), were adopted. The case study demonstrated how government policy directs program delivery and the complexities associated with the kaleidoscope of activity in modern agriculture. It also provided some answers to the second question as to what is required for success in programs of this type by observing the lessons learnt from its development and implementation.
The changing agricultural policy climate that coincided with NAVIGATOR®’s development brought with it the utilisation of a range of new terminology. In Chapter Seven (Popular Language) I investigated the historical origins and application of a selection of terms commonly used – capacity building, culture change, empowerment, participation, self-reliance, social capital and sustainability – to gain further insight into their incorporation into agriculture. Given the current focus on social capital and sustainability outcomes in Australian agriculture these two concepts were looked at in more detail in Chapters Eight and Nine, respectively. This work provided a richer understanding of these concepts as they continue to grow in popularity as desired outcomes in agriculture initiatives. As for the NAVIGATOR® case study, conclusions could also be drawn from the information researched to address research question two.

This chapter brings together the analysis from across the thesis. It does this by first addressing question one by discussing the key findings relating to the influences of change. This is followed by a dialogue synthesising what I observed to develop effective agriculture extension policies and programs that specify social and sustainability outcomes (question two). Following these two sections, the chapter concludes with some recommendations for future policy and program development.

10.1 Influences of Change

The course of this thesis highlighted a number of influences shaping modern agricultural policy and extension beginning with the incorporation of theory and practice ideas from the adult education field of study into agriculture extension. The political economies involvement, to varying degrees and purpose, was prominent occurring primarily through the continued push to globalise markets to meet national economic goals. Environmental and social concerns were two other main influences. The emergence of these has to some degree kept the political economy in check, but it remains the thread which determines how change occurs. This was identified as a significant issue in Chapter Nine (sustainability) for example, where the balance between the social, environmental and economic outcomes for sustainable development was shown to be difficult to obtain.

10.1.1 Adult Education and Agriculture Extension

The literature review on the models of agriculture extension commonly did not refer directly to the theories that supported their development. In comparing chapter two (Adult Education) with the extension chapters (Three and Four), the impact of adult education could be seen, but often took many decades for adoption to take place.

The exchange of ideas began to occur after some earlier developments in adult education with primary producers in Britain, that later emerged as the Agriculture Extension Movement (1880s), with its concerns around rural sociology. Many developments took place in adult education from this period into the 1960s underpinned by three theoretical perspectives. American Pragmatism, concerned with individual and collective problem solving, provided the foundation for American educator John Dewey’s experimental learning ideas (early 1900s), Kurt
Lewin’s Action Research model (1930s) and Reg Revan’s Action Learning model (1940s). Carl Rogers’ self-directed learning ideas (1960s) emerged from the Humanism perspective (with its focus on an individual’s capacity for personal growth), and finally, Paulo Freire’s ideas around social transformation (1960s) from the Marxist Adult Education perspective. Up to this period, agricultural extension retained its Transfer of Technology model – a linear adoption approach with information being transferred from the researcher to farmer - until American Everett Rogers devised the Diffusion of Innovations (1960s).

The diffusion model, developed in response to individual modernisation policies, proposed that innovations diffuse into people’s lives as they go about their daily activities and emerge as ‘cultural change’. In the 1970s it was acknowledged, particularly for developing countries that the transfer of technology and diffusion models were unsuitable for subsistence producers, consequently vigorous developments in extension models began to occur. These developments coincided with the Adult Education Movement, seeing further promotion of the self-directed concept by Malcolm Knowles and Allan Tough, the popularisation of the Andragogy concept (emphasising adult education to be different to that of children) also by Knowles, and the combination of the three adult education theoretical perspectives into a framework by UNESCO.

New extension models derived from developing countries (e.g. People Centred Agricultural Development, Linkage Model, Rapid Rural Appraisal, Farming Systems Research, Training and Visit System and Agroecosystem Analysis) gave greater consideration to producers’ concerns; incorporated soft systems methodology; and took a more holistic approach because subsistence farming was generally more complex. They achieved this by: involving producers more in research and development; providing ways in which governments could find out more about resource-poor producers; and addressing organisational structure and management to achieve better extension results. The bibliographic analysis, undertaken in Chapter Seven, also observed the adoption of ‘participation’, ‘self-reliance’ terminology entering into agriculture predominately from the social science areas during this period and increasing over time.

Although a range of models were developed in the 1970s, they were not adopted in totality, or in part, until the 1980s when agricultural extension began to broaden its outlook. Further calls to utilise producers indigenous technical knowledge, increase ‘self-reliance’, and encourage greater participation in research occurred as rural sociology and social anthropology became more involved in extension. This occurred in conjunction with the popularisation of the experimental learning concept by David Kolb, and promotion of adult learning principles. A greater concentration on farming systems was also evident as the increasing complexities of farming became acknowledged. In the same period an awareness of the effects of human impacts on the natural environment, popularised through the Brundtland Commission’s report, Our Common Future (1987), promoted the notion of ‘sustainable development’ (incorporating social, ecological and economic considerations) and highlighted the need to give greater consideration not only to the social aspects of agriculture, but also the environmental considerations (discussed later).
By the 1990s the differences in how extension should be approached in industrialised nations was being viewed in a similar light to that of developing countries. The TOT and diffusion models that had persisted as the main method of extension began to give way to more participatory-based approaches that included action learning and action research approaches and incorporated the adult learning principles. The focus on farming systems also peaked with the Systems Movement, which coincided with the Sustainability Movement. By the end of the 1990s, concepts such as empowerment, lifelong learning, capacity building, self-reliance, sustainability and social capital had become common place in agriculture extension discussions, and were desired outcomes of government funded programs to achieve national economic goals.

These developments show that as agricultural extension became increasingly concerned with social and sustainability outcomes, particularly following the release of *Our Common Future*, extension more actively incorporated more of the adult education approaches. The bibliographic analysis (Chapter Seven) on a selection of common terms often used in agricultural extension – capacity building, cultural change, empowerment, participation, self-reliance, social capital and sustainability - also supports the integration of this language in line with the above developments, primarily out of the social sciences and economic fields of study.

The inclusion of these social considerations and the types of extension approaches required to deliver on them is not always easy, particularly in situations where more transmissive approaches are preferred or understood. The NAVIGATOR® case study provided an example of this, where some of the facilitators, often more used to a more directive style of communication, found it difficult to let the participants have control of their learning outcomes. It also demonstrated the complexities in integrating social outcomes into government programs where technical solutions where standard approaches. The clarification on language and rational for the approaches taken in delivery was critical in ensuring the facilitators understood the social outcomes required. The success of the program was evidenced through the improvement in the participants’ self-confidence to take control of their learning that resulted in an increase in the adoption of better farming practices, which was specified by them as their preferred area to focus.

### 10.1.2 Globalisation of Markets

Just as the industrial revolution impacted on manufacturing from the 1760s, changes were also experienced in agriculture. Industries began to expand and were absorbed into the widening global economy as governments pursued the ideals of what capitalism could offer. To continue to be an active player at the global level, government intervention was required to instigate change and foster innovation.

The changes being experienced by agriculture through the commoditisation of food has led it to be viewed no differently from any other commodity. This would not have surprised Karl Marx who suggested in the late 1890s, that agriculture,
like other industries, would eventually become more industrialised. There is however, some limit on how much change can occur given agriculture's close association with communities and environmental constraints. For example, in developing countries where farming remains a subsistence activity; and in industrialised countries such as Australia, some view it as a lifestyle choice, or production is restricted by natural resource availability (e.g. water or soil fertility) which can limit its profitability. Limitations also exist in being able to control nature so that growth of produce can be streamlined.

Australia's exportation of agriculture products occurred not long after colonisation (refer Appendix C for a full account of developments). In the early 1900s up to the 1960s, governments supported agriculture expansion projects through various irrigation, migrant and soldier settlement schemes to 'open up' and populate the rural areas of Australia, encourage people away from the cities, strengthen the export markets by increased production, and provide employment for returned soldiers and migrants. Often these new land holders were ill-equipped in both skills and knowledge of farming and little support was given to obtain these as the focus was on how much could be produced, rather than the best approach to production.

In Australia, as overseas, the effects of the increasing reliance on export markets to sell produce beyond what is required for national consumption has continued as industries became more globalised. This is particularly evident from the 1960s when government policies shifted towards focussing on the individual and the extension approaches adopted reflected this shift (refer Chapter Three). These changes in policy have slowly resulted in an unequal distribution of wealth and benefits between producers depending on their ability to access resources (social, financial and/or environmental). Although often discussed as a problem for developing countries, particularly since the Green Revolution (also in the 1960s), the equity gap is also evident in industrialised nations, even if at a different scale. This is becoming more obvious as continued attempts to industrialise agriculture through capitalist means are enforced. Producers are then placed in the unenviable position of trying to keep costs low and increase profits, which are usually remedied by increasing farm size to pursue economies of scale (i.e. distribution of costs across the enterprise are less for larger scale properties).

1 Marx's view was that agriculture was no different from any other industry and that it would be "transformed into an industrialised mode, or system, of production" as it was subject to the same "laws of capitalist development". He did not distinguish rural cultures and problems as different from those that were urban. However, as Mann and Dickinson discuss in their paper on the *Obstacles to the Development of a Capitalist Agriculture* (1978), Marx's capitalist production involves the relationship between production time and labour time, where capitalism favours a reduced production time. The difficulty for agriculture is in reducing the production time as it is determined by nature and therefore not easily drawn into capitalism. Attempts to shorten production times have been done through such things as yield modifications and technology advances (Stanford University (2006) Karl Marx. In *Stanford Encyclopedia of Philosophy*. http://plato.stanford.edu/entries/marx, Accessed 23 September 2006; Lockie, S. (2001) *Rural Sociological Perspectives and Problems: a potted history*. In Lockie, S. and Bourke, L. (eds.) *Rurality Bites*, Pluto Press Australia, Annandale, pp.18-19; Mann, S.A. and Dickinson, J.M. (1978) *Obstacles to the Development of a Capitalist Agriculture*. *Journal of Peasant Studies*. Vol.5(40), pp.466-81).

Issues are then created in trying to achieve sustainable agriculture outcomes, as evidenced in Chapters Four and Nine and further in the following section. In Australia, the distance from its export markets also makes balancing the books more challenging, due to added transportation costs.

These individualist policies that favour larger producers, innovators and early adopters have continued as this particular group are more likely to be profitable and therefore provide greater input to the economy. In Australia, policies of this type were implemented through rural reconstruction schemes in the 1960s, to remove small scale producers from agriculture. The continued support for linear adoption models in agricultural extension also favoured larger producers as they had access to the resources often to implement technologies and practices promoted through these approaches. Since mining overtook agriculture as the main economic earner in the same period, along with the collapse of the British export market in the 1970s, Australia has continued with various adjustment and reconstruction schemes supported by state and federal governments. This has left the smaller producers to consider how to get big or get out of farming, although many have remained despite the obstacles.

But what comes with the expanding globalisation of commodities and the push for capitalism is the increasing expectation of what producers are to achieve. In addition to producing a raw product, they now need to have a better understanding of the global markets in which they operate, so that they can adapt to market changes to meet consumer tastes and styles. Australian governments reinforced this from the 1980s as efforts were turned to expand international competitiveness increased into the late 1990s. This approach tried to bring the market and producer closer together by producing products that are fit-for-purpose and market ready, demanding better business management skills. The development of extension in Chapter Four confirms this approach and was also seen to be desirable outcomes for the NAVIGATOR® program (Chapter Five and Six). In more recent times value-adding for some producers has also been added into the list of desirable skills.

For some industries, such as wine production, the changes needed to meet consumer wants require longer lead times. New varieties need to be planted and the time allowed to reach first harvest and for a vine to become balanced in its production of fruit. Close liaison between the winery and producer can assist in overcoming this problem of the producer having to predict the market signals. This means that the producer is strongly reliant on a third party to give direction to the running of their business – but also allows them to be educated in how the market operates, so they may make more informed decisions regarding the management of their business and meet their customers (i.e. the wineries) requirements. NAVIGATOR®, provided one example where this type of relationship, between the winery and winegrape producers, was shown to be effective, as the producers confidence in the production of their fruit to meet the wineries requirements could be confirmed.

Along with changing consumer tastes and styles of produce there is an increasing expectation that agriculture minimise inorganic inputs such as chemical fertilisers and pesticides due to health concerns. Pressure to reduce the impacts of
agriculture on the environment both on and off the farm has increased significantly since the 1980s as evidenced in Chapters Four (Broadening the Outlook) and Nine (Sustainability). The debate on balancing economic and environmental outcomes has now been occurring for sometime and little progress appears to have been made.

10.1.3 Environmental Concerns

Environmental concerns due to the effects of agriculture were shown to emerge from public unease around the loss of the natural environment and need to improve the management of diminishing natural resources. Chapter Nine demonstrated the range of initiatives undertaken in Australia and overseas to respond to the public pressure and recognise that environmental degradation also had economic implications in terms of farm viability, contributions to the national economy, and costs to repair the environment.

The implication from the sustainable development viewpoint – that social, economic and ecological concerns need attention – led to the adoption and promotion of sustainable agriculture concept. This enabled governments to incorporate the ideas of sustainable development within the agricultural context, allowing economic considerations to still be accounted for in managing natural resources. However, difficulties remained in obtaining an agreed definition of what sustainability means and how it is to be obtained. The majority of this confusion is associated with the various meanings it has to a range of people and the contexts from which they view sustainability. It can differ in geographical location and situations, and because it focuses on maintaining and preserving systems it is often viewed as being something that can be obtained in the future, rather than a being achievable in the present.

Concern for the preservation of Australia’s natural resources on farming land has been ongoing since soil losses were observed, mostly in the southern states, from the 1930s. These concerns have been tied to the production capacity of farms and instigated the development of state soil conservation boards. However, biodiversity conservation and the restoration of natural resources to preserve the environment across landscapes did not become an issue for producers until the 1980s. This emphasis has continued and in some cases become a requirement to maintain our export markets (e.g. the clean and green image under which some Australian produce is sold).

In the most part, the responsibility to repair and restore the environment has fallen back on producers. In some situations, this is reasonable, in some regards, as producers are the dominate land utilisers and water consumers in Australia. However, some have argued that not all of the responsibility should reside with landholders. On one hand, farming is a business like any other, and producers like anyone else are responsible for their actions. On the other hand, the farming collective contributes to the broader economy; and the nature of farming, through its utilisation of natural resources, means that its effects are not necessarily confined within each producer’s fence line: this has implications for the broader community. Therefore, the remainder of the community is forced to support producers as environmental repair is too big a burden to bear on their own; and
the community has a vested interest in ensuring a healthy environment for its own existence and pleasure.

Governments also need to be accountable for their part in environmental degradation. The implementation of past policies has encouraged producers to implement practices that have contributed to the degradation of our natural resources, causing irreparable environmental damage. Examples include land clearing, which is ongoing; and the settlement and irrigation schemes instigated from the early 1900s. Despite the social and economic failure of many of the settlement schemes from small farming allotments and inappropriate land management from lack of skills and knowledge by those who occupied the land, those schemes continued to be developed up into the 1960s.

From the 1960s onwards, there has been an increasing push to industrialise agriculture through the adoption of inorganic fertilisers, fossil fuel driven technologies and chemical pesticides. This has meant that, in many cases, existing producers have inherited problems from their predecessors who have undertaken activities under government directives and, to meet market demands, similar approaches are required. The extent to which agriculture now relies on these inputs to make farms profitable is being addressed as the impacts of intensive farming on the environment are acknowledged on the farm and off-site.

Governments have sought to deal in several ways with environmental degradation. Numerous research and development organisations have been established, plus natural resource management committees and commissions, particularly since the development of the National Strategy for Ecological Sustainable Development in the 1980s. However, the extent of land degradation that occurs from farming requires more resources for repair and restoration. Even after the decade of Landcare, the environment is still losing out as resources are spread too thinly, administered ineffectively, and the community is expected to undertake roles that were once the responsibility of government’s.

To address environmental concerns seriously, Australian governments – and primary producers – need to make some hard decisions as to the appropriateness of agriculture in certain locations, particularly in marginal areas, if we persist with growing crops foreign to our environment. From an economic perspective the cost of repairing the damage to the environment and the continued support of government assistance schemes that uphold farming, outweigh the current perceived economic benefits. Hence, innovation is needed to find solutions, not only in agriculture, but in alternatives to agriculture if the objective to sustain rural communities continues.

For those locations in which farming is deemed suitable, we need to ascertain realistic production outputs. Currently, the majority of Australia’s primary production is exported rather than for domestic use. If export markets will continue to be the main earner for agriculture, and market prices for agricultural commodities do not offset the costs of land degradation, the long term costs may be more than the short term profits gained through agriculture.
As discussed in earlier chapters, the possibility that we will experience another Green Revolution is unlikely, particularly if we are to maintain production at its current levels and demands to decrease artificial inputs persist. Alternative methods of raising nutrient levels for example through organics, take time to take effect and there is scepticism about the levels of production, although not always founded. So again, we revert back to a requirement for greater innovation and need to question the balance between the environment and our economy.

This question of balance also brings us back to the expectations that we have as a society as what standard of living we desire. Generally, the higher the standard of living the more natural resources are required, bringing us out of balance with nature as populations increase and more resources are consumed. This harks back to the Malthusian concern with the environment’s capacity to provide for an ever-increasing population that is also a healthy society (refer Chapter Two).

10.1.4 Social Considerations

In most cases the push for social considerations in adult education emerged out of rejections to government policies or positioning. Examples include such events as the desire for education to be available to all classes of society from the late 1800s and the rising concerns for the environment which peaked in the 1980s, causing agriculture to address issues surrounding farming inputs and practices.

Historically, economic and social considerations have coexisted. The research into popular language in agriculture policies and programs (Chapter Seven) clearly demonstrated these links. Australian examples can be seen though the establishment of settlement schemes, to provide employment for returned soldiers and migrants and encourage rural development (Chapter Three). More recent occurrences include the push to make individuals and communities more ‘self-reliant’, enabling governments to reduce their input into services traditionally provided for free, such as extension services to educate and train primary producers (Chapter Four). To achieve these outcomes the idea of social capital has become increasingly popular (Chapter Eight). In the majority of cases, changes in agriculture that involve the social aspects are linked to economic gains (e.g. reduce welfare demands, or increase exports), not for the primary social benefit of communities. As with the environment, positive social outcomes are presumed to result from good economic management.

It is commonly thought that in achieving economic advances and security for producers ensures that the social aspects will take care of themselves. However, previous chapters (four and nine), dispel this view. Governments have had a very narrow view of how the social aspects of farming and communities operate. Since the 1980s, in particular, the Australian Government has been the chief advocate for social outcomes in rural areas through to its rural adjustment and restructuring schemes, which have been strongly supported by the states and territories. More recent inclusions into government policies have been the promotion of concepts such as individual and community empowerment, self-reliance, capacity building, participation, cultural change and social capital (Chapters Five, Eight and Nine). These are now seen as key attributes for achieving a better functioning agricultural sector by making producers more independent of government services.
since the introduction of competition policies and continued promotion of capitalism ideals. Their popularity has meant that they have been incorporated into many programs as desirable outcomes, Chapters Five and Six provided an example of this.

Despite the advances in the economy, not a lot appears to have been achieved over the past few decades of restructuring agriculture as rural decline continues to be a topic of much discussion. Replacing government funding by the privatisation of services in areas such as agricultural extension has coincided with the acceptance that agricultural systems are more complex than once thought. This increasing complexity requires a greater diversity of skills to be developed to solve problems pertaining to agriculture, particularly if the social (as for environmental) aspects of farming are to be considered equally with economic features. This demand for a greater suite of skills requires more resources, or a better positioning of them, to find solutions to farming problems (discussed later). If governments are to continue to support programs with social outcomes through education as a means to achieve agricultural objectives, including sustainability, we need to look beyond the economic aspects of agriculture.

10.2 Solutions for the Future

If governments are to achieve improved sustainability and more effective social outcomes, that they speak of, in agricultural extension in addition to economic gains, changes are required in the way we view and approach the development of policies and programs in this area. The following outlines areas for consideration if we are to advance work in these areas. It begins by suggesting that we need to move beyond economic considerations and give greater consideration to the tradition of the social sciences. To continue the argument on this point, I propose that clarification in the language being used needs to occur, as without this all other efforts are hamstrung. I then attend to a discussion on policy and organisational change, allowing time for social change, consideration of theory and program development, and the monitoring and evaluation of outcomes that can be enriched by involving this other area of study.

10.2.1 Moving Beyond Economics

The literature clearly outlined how the social and environmental aspects of farming are given a priority lower than that of economics, in industrialised countries at least. Much discussion has been provided on how farming profitability needs to be balanced with the preservation of the environment to achieve sustainable agriculture. The importance of a greater inclusion of the social sciences to assist in achieving more effective environmental and social outcomes are points to be regarded if we are to move beyond economics and obtain triple-bottom-line outcomes.

To come closer to achieving the social outcomes touted in modern policies and programs, greater involvement from specialists in the social sciences is essential. This change needs to occur at all levels (policy and program administration, development and implementation), within all Australian governments.
Chapters Three and Four demonstrated that the incorporation of the social sciences into agricultural developments, particularly at the program level, is not a recent revelation. Rural sociologists, social anthropologists, social psychologists and others have all contributed. The developing world has used social scientists for many decades to assist with change in agriculture. Adult education in general has at its heart a social conscious that began with the desire to educate those outside of formal institutions in Britain in the 1880s, and has come to include aspects associated with personal development and growth, to ideas around social transformation (Chapter Two).

Despite these well founded beginnings, adult education (including agriculture) appears to have lost its way, particularly since the 1960s, as agriculture became increasingly industrialised. The focus on economics has meant that the incorporation and acknowledgement of the social sciences in developed countries has proven to be more difficult. The social sciences are rarely consulted, particularly in industrialised nations, and have little input into agriculture, which is somewhat perplexing given the social outcomes being sought.

Unless the language exists only as a pacifier in government policy, it should be obvious that, if social outcomes are desired, social specialists are needed to provide advice and input to directions that can be taken. After all, it would not be considered appropriate for a social scientist to be providing recommendations on how to ameliorate soil or give advice on economic matters. Therefore it is not appropriate, nor should it be assumed that technical specialists or economists have the knowledge to appropriately develop socially based programs and evaluate their effectiveness, or that economists’ who are usually concerned with macro-consequences, are fully aware of social concerns to achieve the kinds of social change that is being suggested.

Achieving well informed social outcomes requires a multidisciplinary approach to obtain a specified common goal. The incorporation of alternate disciplines into agriculture to deal with social concerns in industrialised countries has been extremely slow. It is here that we can learn from the experience of developing nations, who have been undertaking multi-disciplinary activities for decades, as a greater recognition of the complexities of farming became acknowledged. Although industrialised countries may differ from developing nations in their needs and requirements, they do not differ in that we all work within a social framework. This was clearly demonstrated by many authors, as to why producers choose to adopt or not adopt changes to their farm management and practices, with financial matters shown to be only one solution amongst a range of concerns.

In many ways industrial countries have been blasé about the complexity of the social aspects of farming, limiting it to being able to communicate well with producers and believing that if the economic aspects are satisfied the social considerations will take care of themselves. This is a very narrow view of the disciplines that are incorporated within the social sciences and the contribution they can make to agriculture. It has been suggested that there is an element of discipline snobbery, or perhaps ignorance or lack of exposure to the contributions social theories and their accompanying qualitative studies can make to agriculture. The depth of understanding at which the social sciences go, to understand the
interactions and dynamics of change through inquisitive and collective understandings between individuals, groups and communities can be a valuable resource to agriculture. This argument does not ignore the importance of agricultural and environmental specialists, but does draw attention to the contribution that the social sciences can make to agricultural extension. In recent years progress has been made in this area, but there is still someway to go. The lack of understanding in the language used in this area can sometimes be a prohibiting factor in bridging the gap.

10.2.2 Clarity in the Language

Clarity in language was identified as a major obstacle in achieving specified outcomes throughout the thesis (see, for example, social capital and sustainability). The language, usually first utilised at the policy end, can have different meanings or interpretations for those who are administering, developing, or implementing programs that enact the policies. This was clearly demonstrated through my own experience of trying to implement a program with social objectives, and has been supported by my closer look at the literature of sustainability and social capital. These various interpretations and meanings are in part due to: the language being borrowed from other disciplines and fields; absence of a universally agreed definition; and variations in individuals' training that generate different perceptions of how these concepts are to be achieved in practice. The difficulties in gaining clarification between government and professionals is compounded further by producers having yet another interpretation of what the language means as they try to place it in the context of their own situation.

The danger in adopting new language without appropriate instruction or understanding of what it or the ideas that underpin it mean, can lead to incorrect use and implementation. This gap in understanding can be extensive between the policy objective and implementation process due the differing backgrounds of those involved in these areas. The result is government ‘rhetoric’, which has been described by critics as governments using language to hide political agendas.

Whilst agreeing with the view of some critics that there is strong bias towards economic ends, I suggest that the rhetoric emerges for three reasons: (1) a lack of understanding of the terms; (2) a lack of understanding of how to effectively implement policies with social and sustainability outcomes; and (3) in the situation where the programs are administered by the Australian Government implemented by the states and territories, there is not enough communication or clarification to implement the programs effectively, due to reasons (1) and (2). A long list of people from policy development through to implementation will each have their viewpoint on what is meant by the language used if no firm definitions are on offer or, no one is available with the appropriate skills to provide input to their meaning and show how this may manifest in the form of practical programs.

Clarifying the language incorporated into policies and programs can be difficult. As people begin to use a terminology and become more familiar with the specific terms, it can become a case of people saying they are achieving the types of social outcomes discussed (e.g. social capital, capacity building) due to the familiarity
and their own interpretation of them. But in real terms it is usually a change in wording and the delivery continues in organisationally entrenched ways. In other words it is new terminology to describe what practitioners think they have already been doing, and as such it is usually the Transfer of Technology and Diffusion of Innovations in disguise.

My experience through discussing the NAVIGATOR® program with others demonstrated to me how people interpreted words like empowerment, self-reliance, capacity building, cultural change and even facilitation. Much faith and conviction was expressed in what they were saying and the projections of how achieving one outcome could be extended to others. In comparing the types of programs being run within the same period, often the language used was similar or identical but the approaches, and in particular the underlying philosophies, differed. This made it difficult to assay or counteract peoples’ claims of achieving the specified social outcomes because appropriate qualitative evaluations were rarely performed (more discussion on the point of evaluation will be given later). It becomes a case of taking the ‘experts’ word for it as, commonly, those who fund the programs also do not have a clear understanding of what they are asking for or, because the extension agents have reported as meeting the outcomes, it is taken that the changes have occurred.

In summary, in order to more effectively deliver socially based programs we need to first gain some clarity on the language being used and devise firm definitions that can be understood easily. If this can be achieved, then policy and programs will at least be coordinated in their efforts.

10.2.3 Policies that Suit

The current policies that support agriculture are generally focussed on the larger producers and early adopters. Although these policies claim to satisfy social, environmental and economic considerations they are generally biased towards achieving economic outcomes and, the wording of what is to be achieved is often not reflected in on-the-ground activities. Throughout each of the chapters in this thesis it was evident that polices which attempt to deal with agriculture, including, the social aspects of farming and communities, are inadequate to manage the types of changes that are being demanded. Ideas in the social sciences have been devised as to how producers can be assisted, but in some cases it has taken decades to implement the plans, especially in the industrialised world (Chapters Three and Four).

If the economic viewpoint is to continue its dominance, then policies must be developed that allow for innovation to achieve more sustainable practices and new products and to address more effectively the social aspects of farming. High value products produced on a smaller scale would be desirable so we can more effectively manage land occupied by agriculture and in some cases cease production on land that is unsuitable to the current suite of farming commodities. Support for all producers to obtain information and be involved in activities that promote sustainable agriculture and reconsideration of how research and development funding is distributed to achieve greater public benefit also needs to occur. This can be achieved through the current extension organisations but there
are clearly some problems that need to be addressed to achieve this, one of which is addressing a long needed change as to who is employed in agricultural organisations and the way in which they function.

10.2.4 Organisational Change

The business of agriculture departments is to improve productivity and hence, economic benefits. As a consequence, the employees usually have an economic, accountancy, land management or agricultural background. Skills and knowledge in the social sciences is often lacking. Therefore, if social outcomes and facilitators of ‘change’ are to be obtained, a change within these agencies needs to take place first.

In 1994 Finlayson and McMahon had observed, in relation to Australian environmental research performance, that

“Overall, the staff in government departments are poorly qualified to design and conduct research programs. Instances of persons untrained in research rising from positions as technical officers to lead research teams are all too common. This situation is exacerbated by poor staff development practices in many departments. Research staff generally are not encouraged to upgrade their qualifications or to participate in research conferences and workshops.”

The same could be said for the current wave of desirable social outcomes, which has left agriculture departments devoid of expertise in this area sufficient to implement the policies effectively through to program developers and facilitators. Embracing the purchaser-provider model only seems to have exacerbated the problem.

The Purchaser-Provider Model

In 1994 Vanclay had described agricultural extension as being in a ‘crisis’ and my observation of the subsequent literature suggests that the crisis continues. Through my experience in working in a purchaser-provider model, I observed a reduction in the number of technical specialists due to financial constraints and sourcing of work through public and private means, as well as undertaking captured consultancies.

The ability for specialists to succeed in obtaining ‘paid’ work is restricted by the quasi government-privatised role that increases overheads and put more pressure on the reduced number of specialist to recover costs and make profits. Training, in some areas, is not undertaken because the funds to update skills are not available. This can mean the ‘consultant’ becomes irrelevant to those producers who can afford their services. On one level this is advantageous to government as it provokes producers to look for information elsewhere but, on the other hand, it


undermines the consultancy arm of government, becoming increasingly reliant on cost recovery mechanisms, by limiting both purchases of their services and their exposure to a range of producers to further expand their knowledge and skills. So who is benefiting in this situation is unclear.

Where services bring benefits to the individual producer (e.g. pruning advice) payment for these may be justified. The exception exists for those services for land management activities that will preserve natural resources, maintain biodiversity and reduce on and off-site effects as discussed earlier, that affects a larger group of people. The difficulty with this approach is coming to agreement on what should constitute a free service and what should not. One point is very clear; a reduction in government services does nothing to assist in limiting environmental degradation through farming activities and makes the ‘clean and green’ marketing catch cry for Australian produce empty words. The lack of acknowledgment for the social aspects of farming only compounds the problem, making a mockery of communicated sustainability commitments. These issues demand changes to organisations. This can be achieved by taking a more outward looking approach more effectively deal with the changes in the types of programs governments are seeking to find alternate solutions.

**Looking Outward**

The importance of expanding beyond the current knowledge and skills base in agriculture to find solutions has been one of the themes in this chapter. The contribution of the developing world to the field of extension has been discussed numerous times throughout this thesis, particularly in Chapters Two to Four, with the industrialised nations found to be contributing more to the field from the 1980s.

The inclusion of the social aspects to agriculture adds an additional layer of complexity. Differences in paradigms exist between the physical sciences view based around hypotheses (positivist) and the social science view based on avenues for enquiry (inductive), as was discussed in Chapter Five. These different views impede any easy transition of skills from one to the other. At the implementation end, agricultural scientists and their managers have had to undertake some creative self adjustment, mostly guided by instinct and small amounts of knowledge (rarely socially informed) that is gleaned from others who have undertaken similar programs. Agriculture in Australia does have a culture of trying to accommodate change, and government employees are used to adapting for it. However, there is a general unwillingness to call on the expertise of people outside of their field, despite the methods used in extension being a conglomerate of many fields of study historically (e.g. agronomy, soil scientists, sociology, social anthropology, social psychology, and business management). The calls for a whole-of-government approach (Chapter Five) have also not done a lot to encourage this engagement. It would be expected that through the promotion of a broader outlook across agencies that access to areas of rural community health, for example, would be a good starting point for integration. However, this does not seem to occur in any practical sense, partly because the ability of the public sector to reach beyond their individual agencies is becoming increasingly hard to obtain,
due to increasing demands, limited resources, working in silos and confused accountability that prevent agencies from looking outward.\textsuperscript{5}

Since agricultural organisations can be inward looking it may be difficult to see how the social sciences can contribute but this is why experts in this field need to be more involved, rather than operating at the periphery, or not being considered at all. The NAVIGATOR\textsuperscript{7} program (Chapters Four and Five) was an example of where the involvement of the rural sociologist, coupled with the technical personnel’s existing relationships and understanding of the primary producers, worked well to enable the participants to define their own direction and implement their projects, while still obtaining government objectives.

To some degree the problem of the incorporation of the social sciences into programs lies more in a lack of knowing where to go to for help – and rural sociologists, let alone qualitative evaluators, are a bit thin on the ground. In either case, the idea of incorporating the social sciences into agriculture is not new and, as discussed earlier, if social and sustainability outcomes are to continue to be a desirable outcome for agriculture extension programs, a multi-disciplinary approach needs to be taken. This could enable social scientists to be more involved from the policy end through to project implementation. If this is not done, programs will continue to be developed that are not theoretically informed and result in lost time and tax payer’s money.

To date, agriculture has incorporated facilitation techniques, primarily through the participation push (Chapter Four) and assumed that social outcomes will eventuate. Practice alone (e.g. facilitation) does not foster change; it needs to be accompanied with the right mindset as how to best achieve the types of changes that are being requested, and an understanding of what type of participation is being sought needs to be clarified. A willingness on the part of facilitators and governments to be patient in allowing change to happen within the participants’ timeframe (discussed below) is also needed. This can be difficult as governments want, and often need, quick responses to justify the dollars spent.

Most extension activities attempted in Australia have already been tested overseas, or similar ideas have been used in other areas. The building of social capital, discussed in Chapter Eight, provides an example. With this broad range of global activity in Australia and overseas in trying to achieve social outcomes, agriculture does not need to be so inward looking. The closing of the gap in the development of the language between Australia and overseas (Chapter Seven) provides some hope that Australia will more regularly keep pace with international advances in dealing with advances in these areas.

The point of looking outside of the discipline to include ideas from others has been repeated throughout this chapter. From a practical point of view, wasted effort can be saved by developing informed programs aimed to improve the social aspects of producers and rural communities; and enrich the types of programs that

are constructed. Producers should not be excluded as people to consult and work with in extension initiatives.

10.2.5 Allowing Time for Change

The historical account of adult education (Chapter Two) and development of agriculture (Chapters Three and Four) demonstrated the length of time taken to incorporate new ideas within organisations, particularly those that are not economic or production related. Diffusion of Innovations and the technologies in the Green Revolution for example, happened within a decade, whereas soft system methodologies – including producer participation in research and extension – have taken many decades.

Many agriculture extension programs are funded on short timeframes, commonly one to three years, and reviewed on an annual basis. If social changes such as the creation of self-reliance through empowerment and improvements in social capital are to be achieved, these timeframes may be a hurdle. The incorporation of new ideas within organisations, as suggested above, can be used as a comparison to highlight this point. Organisations are not unlike primary producers, there has to be relevance in the new ideas before adoption occurs. Hence it is unreasonable to expect that producers will rapidly take on the ideas that governments have decided is ‘for their own good’.

For the types of social outcomes being requested, time needs to be given to make adjustments to new programs and allow for the building of trust at a pace that is most likely to achieve change. For example, the first year of NAVIGATOR® was used to adjust the process in conjunction with the participants and facilitators, so as to maximise the participants’ ownership of their learning. Trust between the participants, government and the corporate organisations were considered extremely important if the program was to succeed, particularly where past experiments may have generated mistrust. The participants also needed to be trusted that they knew what they needed to learn and the best ways of achieving the outcomes that they wanted. This leads back to Dewey’s American Pragmatism ideas from the early 1900s, where people were trusted to make decisions based on their experiences (Chapter Two).

Since producers are analysing how new approaches suit their particular situation the rate of change will vary. There may be periods when no change appears to be happening and governments need to be tolerant of this. If programs are cut short it is likely that those who are not the first to be involved will not be reached, and it is difficult to ascertain if the participants will continue to make changes outside of the program (e.g. through the maintenance of networks).

10.2.6 Theory and Program Development

The literature review conducted for adult education (Chapter Two) revealed three identifiable theoretical underpinnings: American Pragmatism (focussing on experiential learning, and individual and collective problem solving), Humanism (involving self-direction and personal growth) and Marxist Adult Education (concerned with social transformation). In comparison, the agricultural extension
literature lacked reference to theoretical background for the development of ideas, although the discipline of sociology was often referred to. It was not until the historical development of the extension models was laid against the theoretically informed developments in adult education that the influences on the agricultural models became clearer.

The lack of theoretical background in the extension literature may be a consequence of it being practically based. Despite the promotion of ideas from Carl Rogers (Humanism) and Paulo Freire (Marxist Adult Education) in the 1960s, these did not appear to be strong contributors agricultural extension, in Australia at least. The perceived lack of contribution of their work may have been a result of the continued focus on experiential learning and problem solving (following on from Dewey’s work) to achieve production outcomes that are emphasised in the extension models.

Additionally, the various interpretations of language and lack of skills in implementing programs, in developed countries (discussed earlier), appears to have gotten in the way of utilising the ideas of the other two schools of thought. UNESCO had seen the value of incorporating the three schools into its development programs in the 1970s. NAVIGATOR® tried to achieve this to some extent, mostly using Dewey’s (experiential learning and problem solving) and Rogers’s (personal growth ideas that could be applied to other areas of their business and build confidence) and, to a lesser extent, Freire’s ideas (to encourage the facilitator to stand back and let the participants ideas be the main focus rather than external interests). It appeared to be successful in most cases, although private sector interests were a concern and some difficulties were experienced at the facilitation end, mostly due to paradigm changes from technical to social thinking (Chapter Six). A longer term analysis would be required to determine whether the changes integrated into other areas of the participants’ lives.

The programs successes in areas such as increased confidence and networks and achievement of positive learning outcomes should not be surprising – especially when the participants determined what they needed to know (by drawing on their own experiences and knowledge), defined the best way to learn (as they know how they learn best), and were active throughout the learning experience at a pace that is comfortable.

The exclusion of theoretical information in cases where disciplines such as sociology have been involved in extension activities, could be a consequence of the extensionists (usually technically based) undertaking the program reporting and, therefore, not recording this information. Alternatively rural sociology in particular, is a relatively new field of study which has had limited involvement in agriculture until the 1980s – in Australia it has only been in existence since the 1990s.

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It could be debated as to whether theory, or an understanding of the historical roots of ideas, need to be acknowledged in agricultural extension, due to its practical platform where extensionists are seen to deal with ‘what works’. However, in the era of accountability, ‘what works’ has had a good innings. The recognition that farming is more complex than once thought demands the inclusion of a broader range of disciplines and fields of study. The discussion around systems thinking (Chapter Four) should have alerted us to this. Therefore, a greater understanding of the thoughts that sit behind the theoretical and practical developments of these areas are important, as they provide context to the practices that are being attempted. They also allow for an intellectual analysis in conjunction with other specialists and pre-implementation discussion on whether new approaches may or may not work, or how they may be modified to be applicable in the current context. It saves second guessing and brings some rigour into the development of programs that seek social outcomes – so both time and money can be saved through the development of appropriately planned programs that are theoretically and practically informed and, therefore, more likely to meet the goals that are directed at the policy level. Additionally, primary producers should not be ignored in this process, as their knowledge, experiences and understanding of how their community and peer groups function are invaluable to achieving successful outcomes.

Models such as the People-Centred Agricultural Development program from the 1970s, and the Farmer-First and Last (FFL) and Farmer Participatory Research (FPR) models from the 1980s, aimed to make the producer central to the learning experience. These models promoted the ideas of utilising indigenous technical knowledge and experiences in farm management to solve problems (Dewey’s legacy). The concepts gained popularity in the 1980s through a range of works that promoted the ideas of: experiential learning (American David Kolb); increased producer participation; improved social capital by emphasizing the importance of networks, establishment of norms and trust (referred to by French sociologist Piere Bourdieu and American political economist James Coleman in Chapter Eight); and capacity building and cultural change as capitalist ideals became more prominent globally. The incorporation of action research (Kurt Lewin in the 1930s) into modern extension and ideas of lifelong learning (frequently appearing from the 1990s) in Australia, can also all be attributed back to Dewey.

Chapter Two discussed the fact that adult learning rarely occurs just for the sake of learning; it is done through a need or necessity that is applicable to a person’s life situation. As for governments, they are not in the business of funding learning for the sake of personal interest and therefore, there will always be an agenda such as the broader benefits to the economy or outcomes for the collective population. It is here that tensions can emerge between those outcomes desired by government and those deemed appropriate by the participants. However, primary producers will not usually join a learning activity unless they can see value in it, or are interested in finding out more about an innovation for example. This is usually why production-based activities, in comparison to finance or farm management, are more popular and have made it difficult for governments to obtain ground in these areas. I suggest that, for winegrape producers, the adjustment to viewing farming as a business has taken place in many cases. Part of this change evolved
as a consequence of new entrants to the industry having to undertake a financial plan to ensure their initial investment was going to be successful. Some older producers had also experienced the vine pull scheme of the 1980s and drew upon this experience in assessing their continued involvement in the industry. Both groups were aware that if they were to succeed in winegrape production, they needed to produce a product that met their markets specifications in order to maintain income – the ‘hip pocket nerve’.

If governments are to reach the broader spectrum of producers, one type of program will not fit all, just as there exists variations in how people learn best (i.e. through visual, touch or hearing). To achieve this I will not be recommending anything that others have not already stated, that we need greater involvement and consultation with all types of producers as to what would be suitable learning activities. Time, as discussed earlier, also needs to be given to allow changes to take place, particularly if we are looking for social outcomes. NAVIGATOR® demonstrated this in identifying that it was important for the participants to start where they were most comfortable (in the activity and with their peers). This may not be the starting point for program funders, but it allows participants to increase their confidence enabling them to venture beyond their comfort zone. Dewey had also emphasised the importance of people needing to start where they were most comfortable. In doing this, trust is placed in the individuals’ intelligence to discern what they need to know, to improve their situation by drawing on their previous experiences. However, he noted that in practical terms this was difficult to achieve as

"the main problem with many ethical theories and the institutions that support them, ...is that they tend to distrust the capacity of human intelligence to find innovative ways of coming to terms with experienced problems".7

If outcomes such as self-reliance and empowerment are wanted, then people need to direct their own learning. However, it is also more difficult to market programs of this type. Traditionally, producers are used to being offered solutions rather than finding their own answers. If governments are to continue down the path of wanting to obtain social outcomes in agriculture, appropriate monitoring and evaluation also needs to be undertaken to ensure that these outcomes are being achieved.

### 10.2.7 Monitoring and Evaluation

The importance of matching the monitoring and evaluation of programs to the types of activities being undertaken were discussed in Chapter Five. In extension, program evaluation is often of the summative form and conducted for accountability purposes. Although a few projects have used qualitative evaluation to determine social outcomes, quantitative approaches remain the dominant form of determining ‘change’. Methods used in the quantitative approach can include occurrences as the number of brochures handed out, meeting attendance, and adoption of practice. Although methods like these, have been used to assess

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Qualitative outcomes, numerous assumptions are made to bridge the projection from one approach to the other.

Quantitative outcomes are not suited to measuring the occurrences of social changes because they illuminate different things. Quantitative approaches are of a positivist nature, being based on proof or disproof of hypothesis, while qualitative approaches take an inductive approach using methods of enquiry to understand a situation. Put simply, technical outcomes require quantitative methods and social outcomes need qualitative means. However, qualitative approaches are rarely preferred as technical specialists and government departments do not have the skills (e.g. interviewing techniques, or observation) or knowledge (e.g. theory and design, data analysis) to undertake appropriate qualitative studies. In many cases, an understanding of its relevance is also absent. The same argument as to the reasons as to why it is important to involve social science specialists in programs requesting social outcomes, applies to qualitative evaluation— they have the skills and know how. It is equally important to have someone skilled in qualitative evaluation to assist in program design, and the collection and interpretation of the data if evidence of a program's contribution to social concerns is to be defined. In some instances a combination of qualitative and quantitative approaches may be appropriate depending on what needs to be measured.

10.3 Conclusion and Recommendations

The thesis was developed with the intention of analysing the history of change in agricultural policy and extension models so as to inform the more effective delivery of future activity in these areas. Social and sustainability considerations were given particular attention due to their growing popularity in current agriculture initiatives. The questions framing the thesis included:

- What influences have shaped agriculture policy and how do these affect the development of extension models?
- What is required to develop effective agriculture extension policies and programs that specify social and sustainability outcomes?

The thesis acknowledges the diversity of fields, often with very different focuses and points of view, which have influenced the development of agriculture policies and extension. The formation of ideas in these areas, along with a closer analysis of popular terminology used in agricultural initiatives, highlighted how political economy considerations in particular have orchestrated the observed changes in agriculture initiatives. This is demonstrated through the globalisation of markets in order to to achieve the continued movement towards capitalism. Other forces, often still tied to the political economy agenda, have included the timing in adoption of adult education approaches into agriculture extension; environmental concerns (generated through public pressure and the need to retain natural resources for production purposes); and social concerns (surrounding equality and justice issues, and government programs that look to change the ways in which rural communities and primary producers see themselves and function in light of the removal of government expenditure in these areas).
In determining what is required to achieve effective social and sustainability objectives a number of impediments were identified. A move beyond economic considerations was considered essential. The sustainable development concept, a touted key consideration for agriculture, provides an example in demonstrating that when operationalised, the economic aspects were often promoted at the expense of social and environmental outcomes. However, if sustainable development is to be achieved, more attention must be given to the other aspects of sustainability. In agriculture this will require a clear understanding of the terminology being used to describe it. Similar considerations will need to be given to the social outcomes being sought and the range of terminology used to explain what these outcomes are (e.g. social capital, capacity building, self-reliance, empowerment ecetera). The lack of clarification and confusion surrounding the use of the language in these areas makes it difficult to devise appropriate mechanisms (policies that suit, specialised extension models, the right evaluation approaches) to achieve them. In the absence of this disconnect it can lead to government ‘rhetoric’ when scrutinised.

Part of the problem in in gaining this clarity is the absence of input from skilled experts in the areas from which the terminology has been adopted. To rectify this problem, more weight must be given to the tradition of social sciences that emphasizes inquisitive and collectivist understandings of the dynamics of change. In doing so, these understandings can be more effectively incorporated into agricultural policies and programs. Possible steps include:

1. obtaining clarification of the language that is used to remove ambiguity between the use of the terminology at the policy level and program development and implementation stages.

2. engaging specialists in the social sciences to inform all stages of policy and program development and implementation that aim for social changes, rather than making assumptions that these outcomes will evolve through other means. This could be achieved by:
   - establishing multi-disciplinary teams.
   - employing people specifically trained in the social sciences to compliment those skilled in the technological field, to enable the development of suitable programs that are theoretically informed, and to provide guidance to technical personnel on how best to achieve social outcomes.
   - providing training for existing personnel on what the social sciences can offer so that they may gain a greater appreciation of the work in this area.

3. the encouragement of organisations to be more outward looking and to draw on experiences from other fields of study (e.g. community health) and countries (e.g. developing nations).

4. obtaining a better understanding of the social and environmental systems in which we operate, so that approaches on how to more effectively integrate positive outcomes for all areas may be integrated.

5. encouragement of all ‘experts’ to accept the viewpoints of others and put aside paradigms and differences to work towards a common identified goal.
6. greater involvement of producers in policy and program development and implementation that effect them, so as to improve the effectiveness and applicability to their situation.

7. allowing adequate time for programs to take effect and assess their outcomes, as short term goals do not always equate to long term solutions.

8. the recognition that quantitative measures are not always the best mechanism to measure social outcomes. The engagement of appropriately skilled people who understand qualitative measures are needed so that social outcomes can be more effectively assessed.
APPENDIX A

Comparison of Theoretical Schools of Action Learning

In 1999 Victoria Marsick and Judy O’Neil published *The Many Faces of Action Learning*. Their article outlined the various forms of action learning and the philosophies which underpin them. The following tables (1 and 2) and notes are reproduced from Marsick and O’Neil’s paper. It should be noted that the three schools of thought listed in Table 1 are not officially recognised, and have been suggested by O’Neil from her review into various literature and interviews with practitioners of action learning in the United States, England and Sweden.

Table 1  Comparison of Theoretical Schools of Action Learning

<table>
<thead>
<tr>
<th>Category of Analysis</th>
<th>Scientific School</th>
<th>Experiential School</th>
<th>Critical Reflection School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>Scientific method</td>
<td>Experiential learning</td>
<td>Critical reflection</td>
</tr>
<tr>
<td>Learning coach</td>
<td>(1) X X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Reflection</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Critical reflection</td>
<td>Not as evident</td>
<td>Not as evident</td>
<td>X</td>
</tr>
<tr>
<td>Teams</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Real work for project</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Focus on team process</td>
<td>(2) X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Questioning insight</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Programmed knowledge</td>
<td>(3) X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Just in time learning</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Individual problem</td>
<td>X</td>
<td>X</td>
<td>(4)</td>
</tr>
<tr>
<td>Team problem</td>
<td>Not as evident</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

---

Notes:
1. “There is a role for supernumerary (set advisor) in the early days of the set, to help the five or so fellows find their feet in this somewhat artificial venture, by encouraging them to exchange their experiences at the periodic meetings in accordance with an intelligible programme.”

2. Revans (1978) explicitly says that Action Learning “is not group dynamics”, but also refers to a need for participants to be involved in the “collective social process of the set”.

3. “this does not imply that Action Learning rejects all formal instruction; it merely recognises that, however necessary such instruction may be, it is by no means sufficient”.

4. Participants may have individual projects, but group or team projects is the norm.

**Table 2 Comparison of Theoretical Schools of Action Learning**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Scientific</th>
<th>Experiential</th>
<th>Critical Reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philosophical basis</td>
<td>Scientific method, which in turn is the basis for action research</td>
<td>Action research and Kolb’s (1984) experiential learning theory</td>
<td>Action research and critical humanistic orientation</td>
</tr>
<tr>
<td>Purpose</td>
<td>Understanding and changing self and /on system through action and reflection on action</td>
<td>Understanding and changing self in system through action and reflection on action</td>
<td>Understanding and changing belief system to transform self and /or system through action, reflection on action and critical reflection on assumptions</td>
</tr>
<tr>
<td>Time frame of change</td>
<td>Mid- and somewhat long-term</td>
<td>Mid- and somewhat long-term</td>
<td>Mid- and somewhat long-term</td>
</tr>
<tr>
<td>Depth of change</td>
<td>Instrumental, interpersonal and sometimes systemic</td>
<td>Instrumental, intrapersonal and interpersonal</td>
<td>Instrumental, interpersonal, interpersonal and sometimes systemic</td>
</tr>
</tbody>
</table>


3 After Revans (1978).

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Scientific</th>
<th>Experiential</th>
<th>Critical Reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epistemology</td>
<td>Problem solving: examine and change tacit practice</td>
<td>Problem solving: raise awareness and develop capacity to change tacit practice</td>
<td>Problem framing/ re-training: raise awareness of forces that shape tacit practice; develop capacity to change tacit practice</td>
</tr>
<tr>
<td>Nature of discourse</td>
<td>Rational: making meaning from experience</td>
<td>Rational: making meaning from experience</td>
<td>Rational and tending to emancipatory: making meaning form and critiquing experience</td>
</tr>
<tr>
<td>Ideology</td>
<td>Influenced by beliefs of participants and staff</td>
<td>Influenced by beliefs of participants and staff</td>
<td>Influenced by beliefs of participants and staff</td>
</tr>
<tr>
<td>Methodology</td>
<td>Cycles of problem framing, action, reflection on action, concluding, reframing</td>
<td>Cycles of problem framing, action, reflection on action, concluding, reframing</td>
<td>Cycles of problem framing, action, reflection on action, concluding, reframing</td>
</tr>
<tr>
<td>Facilitation role</td>
<td>Varies but is often passive; acts as mirror to help individuals and team look at learning</td>
<td>Varies but is often passive; acts as mirror to help individuals and team look at learning</td>
<td>Varies, but is often more interventionist; combines passive role with active challenge</td>
</tr>
<tr>
<td>Level of interference</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium-high</td>
</tr>
<tr>
<td>Personal risk</td>
<td>Depends on visibility of projects; political risk if poor individual or team performance</td>
<td>Depends on visibility of projects; political risk if poor individual or team performance</td>
<td>Depends on visibility of projects; political risk if poor individual or team performance; potential psychic risk</td>
</tr>
<tr>
<td>Organisational risk</td>
<td>Moderate, needs management support at various levels</td>
<td>Moderate, needs management support at various levels</td>
<td>Moderate to high, needs involvement of management</td>
</tr>
<tr>
<td>Assessment</td>
<td>Change at individual, team or system level depending on focus</td>
<td>Change at individual, team or system level depending on focus</td>
<td>Change at individual, team or system level depending on focus</td>
</tr>
<tr>
<td>Learning level</td>
<td>Second-order</td>
<td>Second-order</td>
<td>Second-order; edging into third-order in some designs and based on the interventions of the facilitator</td>
</tr>
</tbody>
</table>
## APPENDIX B

### Comparison of Pedagogy and Andragogy


#### Table 1  Comparison of Pedagogy and Andragogy

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Pedagogy</th>
<th>Andragogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>The need to know</td>
<td>Learners only need to know that they must learn what the teacher teaches if they want to pass and get promoted; they do not need to know how what they learn will apply to their lives.</td>
<td>Adults need to know why they need to learn something before undertaking to learn it.</td>
</tr>
<tr>
<td>The learner’s</td>
<td>The teacher’s concept of the learner is that of a dependent personality; therefore, the learner’s self-concept eventually becomes that of a dependent personality.</td>
<td>Adults have a self-concept of being responsible for their own decisions, for their own lives.</td>
</tr>
<tr>
<td>self-concept</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The role of experience</td>
<td>The learner’s experience is of little worth as a resource for learning; the experience that counts is that of the teacher, the textbook writer, and the audio-visual aids producer. Therefore, transmittal techniques – lectures, assigned readings etc., are the backbone of pedagogical methodology.</td>
<td>Adults come into an educational activity with both a greater volume and a different quality of experience from youths…it assures that in any group of adults there will be a wider range of individual differences than is the case with a group of youths. … But the fact of greater experience also has some potentially negative effects. As we accumulate experience, we tend to develop mental habits, biases, and presuppositions that tend to cause us to close our minds to new ideas, fresh perceptions, and alternative ways of thinking.</td>
</tr>
<tr>
<td>Readiness to learn</td>
<td>Learners become ready to learn what the teacher tells them they must learn if they want to pass and get promoted.</td>
<td>Adults become ready to learn those things they need to know and be able to do in order to cope effectively with their real-life situations.</td>
</tr>
</tbody>
</table>
Table 1 continued.

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Pedagogy</th>
<th>Andragogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation to learning</td>
<td>Learners have a subject-centred orientation to learning; they see learning as acquiring subject-matter content. Therefore, learning experiences are organized according to the logic of the subject-matter content.</td>
<td>In contrast to children’s and youths’ subject-centred orientation to learning (at least in school), adults are life-centred (or task-centred or problem-centred) in their orientation to learning. Adults are motivated to devote energy to learn something to the extent that they perceive that it will help them perform tasks or deal with problems that they confront in their life situations. Furthermore, they learn new knowledge, understanding, skills, values, and attitudes most effectively when they are presented in the context of application to real-life situations.</td>
</tr>
<tr>
<td>Motivation</td>
<td>Learners are motivated to learn by external motivators – grades, the teachers’ approval or disapproval, parental pressures.</td>
<td>While adults are responsive to some external motivators (better jobs, promotions, higher salaries, and the like), the most potent motivators are internal pressures (the desire for increased job satisfaction, self-esteem, quality of life, and the like).</td>
</tr>
</tbody>
</table>
APPENDIX C

Early Developments in Australian Agriculture and Significant Global Events – 1788 to 1970s

The historical account for the early developments in Australian agriculture from 1788 to the 1970s, provided in the table below, has been collated from a range of publications (refer footnote 1). Those events listed in the ‘significant global events’ column were predominately drawn from the information contained throughout the thesis.1

---

<table>
<thead>
<tr>
<th>Australian Events</th>
<th>Significant Global Events</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education and Research</strong></td>
<td>1788-1790s <strong>British Colonisation of Australia</strong></td>
</tr>
<tr>
<td><strong>Production and Industry Development</strong></td>
<td><strong>Economics, Marketing and Trade</strong></td>
</tr>
<tr>
<td><strong>1788-1790s</strong></td>
<td>1788 – First attempt to grow wheat and vines in Sydney area, infertile soils cause a move to Parramatta 1790 – First plough used in Sydney colony; First harvest of wheat and barley in Sydney</td>
</tr>
<tr>
<td><strong>1800s</strong></td>
<td>1805 – First shipment of cows to Tas. 1806 – First shipment of sheep to Tas.</td>
</tr>
<tr>
<td><strong>1810s</strong></td>
<td>1819 – First attempt to cultivate sugar cane in NSW; Tasmania agriculture society formed</td>
</tr>
<tr>
<td><strong>1820s</strong></td>
<td>Expansion of ‘squatting’^2 1822 – Agriculture society of NSW formed 1825 – Larger stock owners</td>
</tr>
</tbody>
</table>

^2 A squatter is defined as someone who occupies Crown Land to graze livestock (Hughes *et al*; 1995:115).
### Australian Events

<table>
<thead>
<tr>
<th>Education and Research</th>
<th>Production and Industry Development</th>
<th>Economics, Marketing and Trade</th>
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</tr>
</thead>
<tbody>
<tr>
<td>allowed to buy crown land; Smaller stockowners given land grants</td>
<td>Qld 1826 – WA settled, development of farming and grazing slow; Establishment of Australian Agricultural Company and the Van Dieman’s Land Company</td>
<td>(1820), NSW and Qld (1830-40) 1821 – First Scientific Society formed in NSW (Philosophical Society of Australasia)</td>
<td></td>
</tr>
</tbody>
</table>

#### 1830s

| 1836 – Leases given to squatters for crown land 1839 – Elders formed | 1830 – Economic depression in England (1825-1829) effects Aust wool exports 1836 – SA founded on pastoralism | Squatting in NSW; Scientific Society formed in Tas. 1837-9 – Drought | |

#### 1840s

| 1843 – Wheat ‘stripper’ developed in SA by John Ridley Late 1840’s – Dalgety farm supplies founded | Permanent settlement in Qld based on pastoralism 1843 – Wool prices crash due to political uncertainty in Britain | Prickly pear introduced NSW and Qld; Naturalist John Gould expresses concerns for environmental losses; Count Strzelecki warns of land degradation | Social: Karl Marx’s ideas on classless society  
Extension: University extension from Britain |

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3 Elders - a provider of services and farming supplies to agriculture - was founded by Alexander Elder initially to develop Australia's agriculture potential. Today it has 390 branches across Australia aiming to improve the production and marketing performance of agriculture. It offers services in marketing of wool, livestock and real estate, provision of merchandise, insurance and finance products (Stock Journal 1999).

4 The Tasmanian Society was strongly supported by Governor Franklin and Lady Jane Franklin. In the 1840s it merged with the Royal Society of Tasmania and became “the first scientific society in Australia to call for flora and fauna reserves, and continued to be a forum for promoting national parks throughout the century” (Hutton and Connors 1999:36).

5 Dalgety Farm Supplies was established by Frederick Dalgety from Geelong in Victoria. Dalgety merged with the Western Australian company Wesfarmers in 1993 (Stock Journal 1999).
<table>
<thead>
<tr>
<th>Australian Events</th>
<th>Significant Global Events</th>
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</thead>
<tbody>
<tr>
<td><strong>1850s</strong></td>
<td></td>
</tr>
<tr>
<td>Mid 1850’s – Wine boom due to domestic growth</td>
<td>Adult Education: Britain devises adult education term</td>
</tr>
</tbody>
</table>
| Increased demand for food and labour due to gold rushes  
_1850-60s_ – Delay in pastoral expansions Qld due to conflict with aboriginals  
_1859_ - Board of Agriculture in Vic established | |
| Aboriginal and settler conflict in Qld  
_1851_ – Gold discovered  
_1853_ – Royal Society of South Aust. formed  
_1855_ – Royal Society of Victoria formed  
_Late 1850s_ – Farmers return to land, increase in migrants  
_1859_ – Rabbit plagues, damage until the 1950s | |
| **1860s**         |                            |
| _1860_ – First cotton planted in Qld  
_Early 1860s_ – Crown land released for purchase in NSW, Qld and Vic for ‘squatters’ and ‘selectors’;  
Michell’s founded |  
_1864_ – American, G.P. Marsh, publishes _Man and Nature_ |
| Wool prices start to fall steadily |  
Rabbit plagues; Foundation of acclimatisation societies in the eastern states;  
Marsh’s ideas on damage caused by forest clearance | |

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6 The Royal Society of South Australia (1876) was originally titled the Philosophical Society of South Australia (1853). In 1883 a Field Naturalists Section was formed (Hutton and Connors 1999:37).

7 Michell is Australia’s largest buyer, processor and exporter of Australian wool (Stock Journal 1999).
## Australian Events

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<tr>
<td></td>
<td></td>
<td></td>
<td><strong>published in the Aust Colonial Press</strong></td>
</tr>
<tr>
<td><strong>1866</strong></td>
<td></td>
<td></td>
<td><strong>1866</strong> – Royal Society of NSW established, used as a forum to discuss human impact on the environment</td>
</tr>
</tbody>
</table>

| **1870s**              | Development of refrigerated transport improves dairy production | Railway expansion | Rabbit plagues; Eccleston du Faur promotes environmental approaches to understanding climate patterns; Concerns for saltation in water catchments from land clearing; Public debate on forests |
|                        | **1872-5** – Cotton farming thrived in Qld due to American civil war | **1872** – Board of Agriculture in Vic. replaced by sub-Department of Agriculture | **1870** – Qld Acclimatisation Society raises questions on forest clearance |
|                        | **1875** – Agriculture and Technical Education Committee suggests Agricultural College and farms in SA | **1872-5** – Wool prices disturbed | **1875** – Qld parliament inquiry into forest conservancy |
|                        | **1876** – Stump jump plough developed by Robert Bowyer in SA |                                |                                |

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8. The acclimatisation societies were established in response to ignorance of Australia’s flora and fauna and lack of biological research. The societies were community based with amateur and professional membership in the cities and country areas. In addition to research, they engaged in public education and applied political pressure (Hutton and Connors 1999:46).

9. Marsh’s publication discussed the “destructive effects of human dominance of nature, and his ideas about the damage caused by forest clearance were popularised in the Australian colonial press of the 1860s” (Hutton and Connors 1999:51).
### Australian Events

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<tr>
<td><strong>1880s</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establishment of Agriculture Colleges in Roseworthy, SA (1883)(^{10}) and Dookie, Vic. (1885)</td>
<td>Further development of refrigeration and refrigerated shipping; Wine industry boom for domestic and export markets <strong>Early 1880s</strong> – Investigations into larger scale irrigation system conducted by Vic. government; NSW tries boring for water <strong>1881</strong> – Scrub roller developed <strong>1884</strong> – Combine harvester invented by Hugh Victor McKay <strong>1883</strong> – Development of cream separator <strong>1886</strong> – Victorian Government passed legislation to encourage the formation of Irrigation Trusts by local groups <strong>1887</strong> – American Chaffey brothers develop Mildura Irrigation Scheme</td>
<td>Depression <strong>Early 1880s</strong> – Close settlement of Aust countryside begins due to railway; Development of state Agriculture Departments</td>
<td>Nature Protection Movement; Rabbit plagues; Drought <strong>1880</strong> – Field Naturalists Club of Victoria formed <strong>1881</strong> – Zoological Society in NSW convinces the state government to pass the Bird Protection Act which later came to include native species <strong>1887</strong> – Natural History Association of NSW <strong>1888</strong> – Australian Association for the Advancement of Science formed(^{11}) <strong>Late 1880s</strong> – School teacher W. Catton Grasby</td>
</tr>
</tbody>
</table>

\(^{10}\) Professor of Agriculture, J.D. Constance, provided policy advice to the South Australian Government and was charted with establishing the Roseworthy Agriculture College. The Colleges research into superphosphate assisted in the development of southern Australia’s dryland farming systems (South Australian Department of Agriculture 1982:99).

\(^{11}\) The Australian Association for the Advancement of Science formalised intercolonial scientific links, which contributed to conservation concerns (Hutton and Connors 1999:39).
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<tr>
<td>Production and Industry Development</td>
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<tr>
<td>for fruit growing</td>
<td>introduces natural history into SA schools(^{12})</td>
</tr>
<tr>
<td>Economics, Marketing and Trade</td>
<td></td>
</tr>
<tr>
<td>Depression; Colonies first Department</td>
<td></td>
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<tr>
<td>of Agriculture formed as a sub-Branch of Department of Mines in response to rural</td>
<td></td>
</tr>
<tr>
<td>crisis; Failure of Mildura Irrigation Scheme due to debt, insufficient markets,</td>
<td></td>
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<tr>
<td>transport and depression</td>
<td></td>
</tr>
<tr>
<td>1891-1907 – All states pass legislation for ‘closer settlement schemes’(^{13})</td>
<td></td>
</tr>
<tr>
<td>Early 1890s – Prices for commodities decline(^{14})</td>
<td></td>
</tr>
<tr>
<td>1894 – Establishment of Agriculture Bank in WA for improvements</td>
<td></td>
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<tr>
<td>1895-1914 – Increased frozen meat exports due to British demand</td>
<td></td>
</tr>
<tr>
<td><strong>1890s</strong></td>
<td></td>
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<tr>
<td>State department journals on agriculture appear to include science in agriculture</td>
<td></td>
</tr>
<tr>
<td>1894 – First Colonial conference into agricultural problems</td>
<td></td>
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<tr>
<td>1897 – Establishment of Hawkesbury (NSW) and Gatton (Qld) agriculture colleges</td>
<td></td>
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<tr>
<td>Superphosphate recognised for depleted soils; Expansion of dairy industry, large</td>
<td></td>
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<tr>
<td>number of diary butter factories established; Widespread introduction of hand</td>
<td></td>
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<tr>
<td>separators; Production of cream for butter rather than milk for metropolitan market;</td>
<td></td>
</tr>
<tr>
<td>Quality controls imposed as export trade grew for dairy products</td>
<td></td>
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<tr>
<td>Early 1890s - Series of bad seasons for sheep; Reorganisation of sugar industry due</td>
<td></td>
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<tr>
<td>to reduction in Kanaka labour.</td>
<td></td>
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<tr>
<td>Late 1890s - Increases in wheat</td>
<td></td>
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<tr>
<td>Depression; Colonies first Department</td>
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<td></td>
</tr>
<tr>
<td>**Great Artesian Basin discovered; Australian Conservation Movement; Australian</td>
<td></td>
</tr>
<tr>
<td>Labour Movement; Formation of the Australian Labor Party; Flora and Fauna Movement</td>
<td></td>
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<tr>
<td>1891 – Rabbit plague</td>
<td></td>
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<tr>
<td>1892 – Samuel Dixon expresses concern of European cultivation on the natural</td>
<td></td>
</tr>
<tr>
<td>environment to the Royal Society of SA</td>
<td></td>
</tr>
<tr>
<td>1894 – Natural History Society in WA successful at</td>
<td></td>
</tr>
</tbody>
</table>

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\(^{12}\) Grasby was a member of the Royal Society of South Australia and continued teaching natural history into the 1890s. He founded the Boys Field Club and influenced other educators in Victoria (Hutton and Connors 1999:43).

\(^{13}\) ‘Closer Settlement Schemes’ aimed to increase the population of rural areas through small scale farming. The venture was not successful with the exception of some dairy properties due to small land holdings, farmers inexperience in conjunction with marginal agricultural land and lack of access to transport (Ashton 2002:22,24).

\(^{14}\) The commodity price decline was due to an increase in exported goods, and of countries such as the USA, Argentina, NZ and South Africa relying heavily on credit from British banks to reduce their profit margins (Hale and Ashton 2000).
### Australian Events

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<tbody>
<tr>
<td>production due to release of different varieties</td>
<td><strong>1898</strong> – NSW no longer requires imports from India and Tasmania</td>
<td>obtaining a flora and fauna reserve(^{15})</td>
<td>(^{1895-1903}) – The Great Drought</td>
</tr>
</tbody>
</table>

#### 1900s

<table>
<thead>
<tr>
<th>1901 – <strong>Federation of Australia</strong></th>
</tr>
</thead>
</table>

| Early 1900s – More horse drawn vehicles; Expansion in crops being grown; General use of superphosphate, led by SA, due to change in farmer attitude; Refrigerated transport; Irrigation; Introduction of dryland farming for wheat from America; Share cropping | Governments look to farming to boost economy; Debate for establishment of Commonwealth Department of Agriculture; Products developed in Australia feed industrial workers especially in Britain; Increase in frozen meat exports | Erosion of gullies common; Government agricultural scientists address farm erosion and semi-arid degradation |
| 1901-13 – Cold storage established; Increased butter and cheese production | 1901-13 – State railway construction | Early 1900s – Increase in popularity of social issues; Campaign against Australian bird and feather trade\(^{16}\) |
| 1902 – Federation wheat strain released – higher yield, rust resistant, mechanically harvestable | 1902-1 – World prices for cotton increase | 1902 – Interstate Royal Commission on allocation of riparian right, irrigation issues, water navigation from Murray River |
| 1903 – Department of Agriculture formed in SA | 1905 – Development of Commerce (Trade Descriptions) Act by Commonwealth to protect agriculture | |
| 1905 – Development of Commerce (Trade Descriptions) Act by Commonwealth to protect agriculture | |

---

\(^{15}\) The flora and fauna reserve located between Pinjarra, North Dandalup and the Bannister River covered 65 000 ha. In 1898 Premier Forrest recommended its cancellation as a reserve due to pressure from timber cutters. In 1911 it was converted to a timber reserve (Hutton and Connors 1999:32).

\(^{16}\) The campaign against Australia’s bird and feather trade - fuelled by the fashions of the time and the expanding middle-class across the world – “was probably the first organised environmental activity to pierce the Australian consciousness about a particular environmental threat.” (Hutton and Connors 1999:40-41)
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<tr>
<td><strong>Education and Research</strong></td>
<td>1902, 1914, 1919 – Drought</td>
</tr>
<tr>
<td><strong>Production and Industry Development</strong></td>
<td>1904 – Formation of Tasmanian Field Naturalist Club</td>
</tr>
<tr>
<td>1903 – Sheep and cattle numbers increase; Expansion of SA and Vic. wheat belt</td>
<td>1906 – Qld’s first national parks and state forests legislation passed</td>
</tr>
<tr>
<td>1904 – Inadequate handling of produce</td>
<td>1909 – Formation of the Wild Life Preservation Society of Australia</td>
</tr>
<tr>
<td>1905 – Royal Commission into Commonwealth Butter Industry identifies sub-standard practices in production and manufacturing, transport, cold-storage, shipping, grading for export</td>
<td>1910s</td>
</tr>
<tr>
<td>1907 – Commonwealth encourages production of cotton, flax, jute, sisal hemp, rice, rubber, coffee, tobacco and dried sultanas primarily for domestic market under Bounties Act</td>
<td><strong>1914-18 World War I</strong></td>
</tr>
<tr>
<td><strong>Economics, Marketing and Trade</strong></td>
<td>1914-18 World War I</td>
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<tr>
<td>1907 – Commonwealth encourages production of cotton, flax, jute, sisal hemp, rice, rubber, coffee, tobacco and dried sultanas primarily for domestic market under Bounties Act</td>
<td>States to manage farmer education through experimental farms and colleges</td>
</tr>
<tr>
<td>QLD’s first national parks and state forests legislation passed</td>
<td>1910 – Irrigated dairy farms on improved pasture and orchards established in Vic and SA</td>
</tr>
<tr>
<td><strong>Environmental and Social</strong></td>
<td>1911 – University of Melbourne Faculty of Agriculture and Forestry</td>
</tr>
<tr>
<td>1909 – Federal Quarantine Service established</td>
<td>1912 – Development of Commonwealth Govt regulatory schemes</td>
</tr>
<tr>
<td>1909 – Formation of the Wild Life Preservation Society of Australia</td>
<td>1913 – Auto head stripper invented</td>
</tr>
<tr>
<td>Commonwealth Arbitration Commission argues working conditions and wages to attract ‘white’ cane cutters.</td>
<td>Queensland exports meat to soldiers on Western Front for Imperial Government (London); Commonwealth ventures into large scale agricultural marketing; new systems for transporting and marketing products; Soldier settlement</td>
</tr>
<tr>
<td>1913-15 – Drought</td>
<td>Commonwealth Arbitration Commission argues working conditions and wages to attract ‘white’ cane cutters.</td>
</tr>
<tr>
<td>1914 – Tri-state agreement on Murray River</td>
<td>Education: Antonio Gramsci promotes the concept of hegemony and education (Italy); American John Dewey devises the learning cycle and experiential learning;</td>
</tr>
<tr>
<td>Australian Events</td>
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<td><strong>Economics, Marketing and Trade</strong></td>
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<tr>
<td>1913 – Department of Agriculture NSW establish Marara Viticultural research station</td>
<td>1917 – River Murray Commission formed and joint Commonwealth and State administration of River</td>
</tr>
<tr>
<td>1916 – Commonwealth funds scientific research through the establishment of the Advisory Council for Science and Industry (ASCI)</td>
<td>Post 1918 – Community looks to Commonwealth Government for leadership; Soldier settlers in debt</td>
</tr>
<tr>
<td><strong>Production and Industry Development</strong></td>
<td><strong>Environmental and Social</strong></td>
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<tr>
<td>Post 1918 – SA Soldier settlement sets standard for farming instruction, other states slow to follow</td>
<td>1917 – River Murray Commission formed and joint Commonwealth and State administration of River</td>
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<tr>
<td>by Headlie Shepard Taylor</td>
<td>Post 1918 – Community looks to Commonwealth Government for leadership; Soldier settlers in debt</td>
</tr>
<tr>
<td><strong>Economics, Marketing and Trade</strong></td>
<td></td>
</tr>
<tr>
<td>1912 – Murray Irrigation Area established for dairy and horticulture</td>
<td>Social: Russian Revolution (1917)</td>
</tr>
<tr>
<td>1913 – Australian Wheat Board (AWB) established</td>
<td></td>
</tr>
<tr>
<td>scheme for new industries eg fruit – not successful; Commonwealth negotiates Imperial Purchase Agreements with Britain for wool, meat and butter and backs marketing arrangements for wheat</td>
<td>1914 – Increase wool sales mostly to England</td>
</tr>
<tr>
<td>1913 – 40% of produce exported to Britain</td>
<td>1914-18</td>
</tr>
<tr>
<td>1914 – Butter exported from NSW for first time</td>
<td>1915</td>
</tr>
<tr>
<td>1915 – Cotton slump;</td>
<td>1917 – Commonwealth War Precautions Act placing butter and cheese in Commonwealth pool and domestic price control</td>
</tr>
<tr>
<td>1917 – Commonwealth War Precautions Act placing butter and cheese in Commonwealth pool and domestic price control</td>
<td>Post 1918 – Postwar prosperity</td>
</tr>
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### Australian Events

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<tr>
<td><strong>1920s</strong></td>
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<tr>
<td>Agriculture High Schools established</td>
<td>Rising production; Introduction of tractors; Scientific agriculture; Fertiliser use for depleted soils; State Departments staffed by tertiary trained agriculture scientists; Expansion of wheat belt; Wheat handled in bulk; Increased production of dairy, dried and canned fruit; Growers press for wheat pooling to continue; Development of poor farming practices; Increase in irrigation</td>
<td>Improvements in export marketing; Butter exports peak; End of Imperial Purchase Agreement and Commonwealth control of domestic butter pricing; Fall in agriculture commodities price due to war recovery overseas; Decline in co-op wheat marketing; Dairy industry request industry stabilisation from Commonwealth – Paterson Scheme;¹⁹ Compulsory pooling of wheat ceases; Re-establishment of European production causing decrease in dairy and dried fruit prices; Reliance on exports leaves farmers open to world market instability; World over-production of wheat reduces prices; Federal Export Marketing Boards</td>
<td>Increased war prices leads to confidence in farming; Recognition of land over exploitation to maximum returns; Soil erosion more noticeable NSW and Vic. due to popular fallowing and dryland farming; Griffith Taylor observes Australia’s environmental limits to agriculture and population growth and calls for a national resource atlas; Outdoor Recreational Movement (to 1930s)</td>
</tr>
<tr>
<td>1920 – Commonwealth Institute of Science and Industry (CISI) continues the work of ACSI; First agriculture students from Sydney; First Commonwealth funded research into soil deficiencies</td>
<td>1924 – Adelaide University Waite Research Institute established</td>
<td>1926 – Council for Scientific and Industrial Research (CSIR) replaces CISI</td>
<td>1921 – Minimum export standards set, improvements in grading, inspection, certification</td>
</tr>
<tr>
<td>1923 – Establishment of Australian Fruit Council and Australian Dairy Council (voluntary producer)</td>
<td></td>
<td></td>
<td></td>
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</table>

¹⁹ The Canegrowers Association was established by government and funded by producers through a compulsory levy (Elder 2001:193).

²⁰ The Paterson Scheme focused on equalising returns to butter manufactures for exported and domestic products and introduced a levy on butter (Hale and Ashton 2002:36).
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<tr>
<td>organisations); Rice grown commercially</td>
<td>on Murray River Irrigation Settlements through CSIR with Waite Institute</td>
</tr>
<tr>
<td>1923-4 – Increased cotton plantings</td>
<td></td>
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<tr>
<td>1924 – First Rice commercially grown in MIA</td>
<td></td>
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<tr>
<td>1925 – Producer controlled Butter Co-op scheme</td>
<td></td>
</tr>
<tr>
<td>1926 – Canegrowers Association formed</td>
<td></td>
</tr>
<tr>
<td>Mid 1920s – Wine industry boom due to Soldier Settlement Scheme</td>
<td></td>
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<tr>
<td><strong>Economics, Marketing and Trade</strong></td>
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</tr>
<tr>
<td>established for dairy, dried, canned and fresh fruit and wine;21 Migrant Settlement Schemes; Expansion of irrigation settlements for vines, stone fruits and citrus</td>
<td></td>
</tr>
<tr>
<td>1922 – First government appointment for trade overseas</td>
<td></td>
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<tr>
<td>1923-6 – Increased exports to Britain</td>
<td></td>
</tr>
<tr>
<td>1924 – Export Control Boards formed</td>
<td></td>
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<tr>
<td>1925 – Establishment of Federal Government Department concerned with agriculture – Department of Markets and Migration;22 Improved marketing and export of rural produce</td>
<td></td>
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<tr>
<td>1929 – Great Recession; Cessation of the Soldier Settlement Scheme</td>
<td></td>
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<tr>
<td>Late 1920s – Wool and meat recovery</td>
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1930s

<table>
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<tr>
<th>1939-45 World War II</th>
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<tbody>
<tr>
<td>1939-45 – Interruptions due to WWII</td>
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21 The Federal Marketing and Export Boards were responsible for price fixing of produce and export marketing. The Board for Dairy was known as the Australian Dairy Council (Hale and Ashton 2002:69).

22 The Department of Markets and Migration concerned itself with the development of marketing arrangements for rural produce under export commodity boards (Hale and Ashton 2002:36).
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<td><strong>Environment:</strong></td>
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<td><strong>Economics, Marketing and Trade</strong></td>
<td><strong>Drought in the Great Plains in the USA – ‘Dust Bowl’</strong></td>
</tr>
<tr>
<td><strong>Environmental and Social</strong></td>
<td><strong>Other Events:</strong></td>
</tr>
</tbody>
</table>
| canned fruit and wine; Ottawa Agreement put in place; Push for unrestricted access to British market; Increase in egg exports to Britain; Assistance schemes to improve efficiency and farm reconstruction; ‘Grow More Wheat’ campaign by Federal Government; Voluntary Federal Committees for potatoes, tobacco and fodder conservation  
1931-6 – Federal financial assistance to wheat farmers  
1933 – Trade Commissioner Service established to assist Australian exporters to market overseas  
1934 – Royal Commission into Wheat, Flour and Bread Industries; Australian Agriculture Council (AAC) formed; Empire Marketing Board ceases; Aust assumes responsibility | **International Peace Campaign (1936)** |  
| establishment of soil conservation boards  
1939 – Part-time Soil Conservation Board formed in Vic. |  |  

23 The Ottawa Agreement – a British Empire tariff arrangement – hindered exports of some of Australia’s primary produce by limiting access to other Commonwealth countries, but also assisted others (Hale and Ashton 2002:61).

24 Voluntary Federal Committee’s were voluntary Boards established at the outbreak of the war. They collected levies on behalf of statutory marketing boards which were matched with Commonwealth funds for trade and research activities (Hale and Ashton 2002:69).

25 The AAC represented the state and Commonwealth government’s in matters of agriculture marketing, policy development for international marketing relations, and rural rehabilitation for producer debt relief (Hale and Ashton 2002:62).

26 The Australian Wool Board and Australian Apple and Pear Board were established for export marketing and price fixing (Hale and Ashton 2002:69).
<table>
<thead>
<tr>
<th>Australian Events</th>
<th>Significant Global Events</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education and Research</strong></td>
<td><strong>Production and Industry Development</strong></td>
</tr>
<tr>
<td><strong>1940s</strong></td>
<td>Commonwealth assumes control of agricultural extension; Commonwealth creates Extension Grants to improve production</td>
</tr>
<tr>
<td><strong>Australian Events</strong></td>
<td><strong>Significant Global Events</strong></td>
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</tr>
<tr>
<td><strong>Education and Research</strong></td>
<td><strong>Production and Industry Development</strong></td>
</tr>
<tr>
<td>efficiencies</td>
<td>1941 – Pig export weights reduced for Britain; Butter fat canned and shipped without refrigeration</td>
</tr>
<tr>
<td>1942 – Agricultural production hindered by labour shortages, lack of machinery, equipment, fencing, vegetable seed and fertilizer; War time production-driven agriculture to feed American and Aust troops; Increased demand for meat, butter, potatoes, vegetables, eggs and fruit but difficult to meet; Flax production committee established; Meat Canning committee established;</td>
<td>Industry boom due to domestic demand</td>
</tr>
<tr>
<td>1943 – Commonwealth funds large scale dehydration of fruit and vegetables</td>
<td><strong>Early 1940s</strong> – Rural Reconstruction Commission to promote larger and industrialised farms</td>
</tr>
<tr>
<td>1941 – Reduced refrigerated shipping space; Britain requests more cheese, dry egg powder; - Wheat Industry Stabilisation Board (WISB) established under National Security Regulations</td>
<td></td>
</tr>
<tr>
<td>1941-7 – Australian Woman’s Land Army established and use of Italian prisoners of war as labourers to supply food for overseas troops</td>
<td></td>
</tr>
<tr>
<td>1942 – Pig industry brought under price control; Purchase of export surplus by Britain ceases; Controller</td>
<td></td>
</tr>
<tr>
<td>Mid to late 1940s – Vegetable industry boom due to domestic demand</td>
<td></td>
</tr>
<tr>
<td>1943 – Rural Reconstruction Commission appointed to assess wartime organisation and postwar reconstruction of primary production, returned soldier settlement, conservation and development of natural resources</td>
<td></td>
</tr>
<tr>
<td>1944 – Severe drought</td>
<td></td>
</tr>
<tr>
<td>1945-7 – Drought</td>
<td></td>
</tr>
<tr>
<td>1946 – Premiers Conference decide that soil erosion should be dealt with via</td>
<td></td>
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<tr>
<td>of enforcement as addressed trade in goods only and did not include agriculture</td>
<td></td>
</tr>
<tr>
<td><strong>Education:</strong> Englishman Reg Revans devises the action learning model</td>
<td></td>
</tr>
<tr>
<td><strong>Other Events:</strong> WWII continues</td>
<td></td>
</tr>
</tbody>
</table>

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27 The Joint Dairying Committee on Production had state and Commonwealth representation. It was to undertake national surveys on dairy farm production costs (Hale and Ashton 2002).
<table>
<thead>
<tr>
<th>Australian Events</th>
<th>Significant Global Events</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education and Research</strong></td>
<td><strong>Production and Industry Development</strong></td>
</tr>
<tr>
<td>of Defence Food Stuffs; Aust Food Council (AFC); Development of meat purchase plan due to rise in frozen meat supplies; Crop-Priority Rationing Scheme introduced; - District War Agricultural Committees established in each state; Department of Commerce and Agriculture formed; Aust Meat Industry Commission formed under National Security Regulations at Dept of Commerce 1942-3 - Commonwealth Government reorganised to meet wartime food production targets 1943 – Rural reconstruction Commission appointed to assess wartime organisation and postwar reconstruction of primary production, returned soldier settlement and conservation and development of natural resources; Food Executive</td>
<td>state bodies and the Commonwealth assisting and coordinating activities 1947 – Commonwealth Standing Committee on Soil Conservation established</td>
</tr>
<tr>
<td>growing a priority; Increase in farm size and decrease in number of farms; Mechanised machinery more powerful and tractors more common; Reductions in labour; Cask wine developed</td>
<td></td>
</tr>
</tbody>
</table>

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28 The Controller of Defence Food Stuffs and AFC were established in an attempt to balance out the supply and demand of agricultural products. The AFC included representatives of government ministries and departments who advised the Commonwealth on service and civilian food supplies (Hale and Ashton 2000:79, 81).

29 The District War Agricultural Committee facilitated a national planned system of agriculture production by encouraging producers to work together by pooling their resources. State departments reported to the Commonwealth on progress.

30 BAE was established to undertake a continual economic review and analysis of rural industries (Hale and Ashton 2002).
<table>
<thead>
<tr>
<th>Australian Events</th>
<th>Significant Global Events</th>
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</thead>
<tbody>
<tr>
<td><strong>Education and Research</strong></td>
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<tr>
<td><strong>Production and Industry Development</strong></td>
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<tr>
<td><strong>Economics, Marketing and Trade</strong></td>
<td></td>
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<tr>
<td><strong>Environmental and Social</strong></td>
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<tr>
<td>replaces the Aust Food Council and then Commonwealth Food Control (CFC) to carryout wartime activities</td>
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<tr>
<td>1946 – Farming of less importance to economy; A Rural Policy for Post War Australia outlines principles for post-war agriculture policy; Bureau of Agricultural Economics (BAE) formed</td>
<td></td>
</tr>
<tr>
<td>1947 – Formation of bilateral trade and international commodity agreements; Preparatory work involved in Australia's accession to GATT; Commonwealth subsidises milk production; First cost of production based pricing arrangements for wheat and dairy industries undertaken by BAE</td>
<td></td>
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<tr>
<td>1948-53 – First five year stabilisation plan for wheat industry</td>
<td></td>
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<tr>
<td>Late 1940s – Commonwealth forces farmers to put dollars aside for tax; Regulated market scheme for wool, similar to that of wheat, rejected by growers</td>
<td></td>
</tr>
<tr>
<td><strong>1950s</strong></td>
<td></td>
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<tr>
<td>1952 – Increase in Commonwealth Extension Grants</td>
<td>Industry has more influence on Federal Government policies due to relationships between producer</td>
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<tr>
<td>Australian Events</td>
<td>Significant Global Events</td>
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</tr>
<tr>
<td><strong>Education and Research</strong></td>
<td><strong>Production and Industry Development</strong></td>
</tr>
<tr>
<td><strong>1953</strong> – Wagga Wagga Agriculture Research Institute established in NSW</td>
<td>organisations and Federal Country Party (held balance of power); Sowing subterranean clover takes off - pasture improvement increases production - probably the principle factor in doubling rural productivity in two decades following WWII; Improved soil fertility; Increased use of wire fencing; Expansion of sugar mills</td>
</tr>
<tr>
<td><strong>1956</strong> – Beginning of joint funded Commonwealth and industry schemes for research and development</td>
<td><strong>Early 1950s</strong> – Wool boom due to Korean War; Agriculture’s importance in Aust economy peaks; Post WWII inflated prices persist</td>
</tr>
<tr>
<td></td>
<td><strong>1952</strong> – Development of industrialised, capital intensive agriculture; Larger farms; Smaller farms absorbed; More mechanisation, Labour force continues to decline; Extensive farming gives way to intensive farming</td>
</tr>
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<td></td>
<td><strong>1950-60</strong></td>
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<tr>
<td></td>
<td>Stable government (compared to 1950s)</td>
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<td>Australian Events</td>
<td>Significant Global Events</td>
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<tr>
<td><strong>Education and Research</strong></td>
<td><strong>Production and Industry Development</strong></td>
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<tr>
<td>contract with establishment of the</td>
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<tr>
<td>European Economic Community (EEC);</td>
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<tr>
<td>Concerns over US government</td>
<td></td>
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<tr>
<td>price support policies, and Europe</td>
<td></td>
</tr>
<tr>
<td>and UK’s desire for self sufficiency;</td>
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<tr>
<td>First</td>
<td></td>
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<tr>
<td>trade agreement with Japan (large</td>
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<tr>
<td>wool buyer); Trade agreement with</td>
<td></td>
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<tr>
<td>Britain replaces Ottawa agreement -</td>
<td></td>
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<tr>
<td>Australia allowed to negotiate trade</td>
<td></td>
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<tr>
<td>with other countries and mutual tariff</td>
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<tr>
<td>preference between Australia and</td>
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<tr>
<td>Britain</td>
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<tr>
<td><strong>1960s</strong></td>
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<tr>
<td><strong>1960</strong> – Commonwealth matches state funds for industries not covered by legislative research and development provision for short term research and extension projects</td>
<td>Bagged wheat eliminated; Increase in private farm consultants in SA</td>
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<td></td>
<td>1960 – Commonwealth ceases involvement in flax production; Expansion of crop varieties in grain sorghum, soya beans and oilseeds</td>
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<tr>
<td></td>
<td>1961 – Cotton established by American company in NSW</td>
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<td></td>
<td>1969-70 – Wheat quotas imposed to reduce oversupply</td>
</tr>
</tbody>
</table>

\(^{31}\) Examples of these environmental centres and conservation councils include: Tasmanian Conservation Trust (1968); Tasmanian Environment Centre (1973); Conservation Council of South Australia (1971); Nature Conservation Council in WA (1967) renamed to the Conservation Council of Western Australia (1973); Total Environment Centre in Sydney (1972); Conservation Council of Victoria (after 1969); and the Queensland Conservation Council (1970) (Hutton and Connors 1999:123).
<table>
<thead>
<tr>
<th>Australian Events</th>
<th>Significant Global Events</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education and Research</strong></td>
<td>and early adopters; Limit barriers to production; Scientific knowledge desirable; Innovation in economics and production encouraged; Green Revolution (to 1970s); Debate on extensions impact on community development; Everett Rogers Diffusion of Innovations; Ideas adopted from other fields of study</td>
</tr>
<tr>
<td><strong>Production and Industry Development</strong></td>
<td><strong>Adult Education:</strong> Humanism and Marxist Adult Education; Carl Rogers self-directed learning; Paulo Freire’s critical consciousness, conscientization and praxis; Jurgen Habermas’s critical theory; Participation appears in UK; Houle researches why people participate in learning</td>
</tr>
<tr>
<td><strong>Economics, Marketing and Trade</strong></td>
<td><strong>Environment:</strong> Rachel Carson writes <em>Silent Spring</em> (1962) drawing attention to pesticide use and its effects on human health and the environment</td>
</tr>
<tr>
<td><strong>Environmental and Social</strong></td>
<td></td>
</tr>
<tr>
<td>1965 – Regulated market scheme for wool suggested and again rejected by growers</td>
<td></td>
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<tr>
<td>1968 – Ceiling placed on wheat industry bounties</td>
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<tr>
<td>1968-71 – Marginal Dairying Farms Reconstruction Scheme to get small low income farmers to leave the industry or amalgamate their holdings</td>
<td></td>
</tr>
<tr>
<td><strong>Late 1960s</strong> – Decline in agriculture due to increased inputs and fall in profitability; Mining overtakes agriculture as a main export earner; Alternative markets for wool, wheat, beef and sugar</td>
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<tr>
<td>Australian Events</td>
<td>Significant Global Events</td>
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<tr>
<td><strong>Education and Research</strong></td>
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<tr>
<td><strong>Production and Industry Development</strong></td>
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<tr>
<td><strong>Economics, Marketing and Trade</strong></td>
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<tr>
<td><strong>Environmental and Social</strong></td>
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</tbody>
</table>

1970s

**1972 – Rural Adjustment Training Program**

- Farmers forced to deal with inefficiencies and not to rely on relief and subsidy support from Government; Increase in production from technical advances; Farm machinery larger and more powerful; Mechanical harvesting in sugar industry
- Fall in Federal Govt assistance; Beginning of sugar industry deregulation
- 1970 – Reserve price scheme for wool established; Farmer protection mechanisms questioned (ie. bounties, subsidies, low-price and stabilisation schemes); Move from subsidised production to readjustment; Agriculture oversupply; Reduction in overseas markets; Mineral boom; Reserve price scheme for wool
- 1971 – Rural Recession; Rural Reconstruction Scheme for all agriculture industries included debt reconstruction, farm build-up, and rehabilitation assistance; Income Equalisation Deposits Scheme; First National Agriculture Outlook Conference
- 1972 – Division of Agriculture and Food Services Division established; deal with land degradation issues; Australian Environmental Movement (to early 1980s); Anti-Uranium Movement; Wilderness Campaigns; Biodiversity becomes a key concept

**Primary producers require a change of mindset of Government support and farm management; Farmers develop voluntary groups to**

**Economics and Trade: Fall in world prices due to subsidised surpluses; Reduction in agricultural production; Collapse of USA**

**1971 – Reserve price scheme for wool**

**1972 – Division of Agriculture and Food Services Division established**

32 The Rural Adjustment Training Program was undertaken in conjunction with the Fruit Growing Reconstruction Scheme (Hale and Ashton 2002:128).
33 The Division of Agriculture and Food Services within the Commonwealth Department of Primary Industries administered the: War Service Land Settlement and Rural Reconstruction Schemes; regulated exports through the industry Division of Australian Plague Locust Commission; Codex Alimentarius Commission; FAO of the United Nations; World Health Organisation Food Standards Program; provision of the Secretariat for the Australian Agriculture Council; coordination of federal and state activities;
fertiliser subsidies; farm mechanisation; regulation of agricultural chemicals and veterinarian drugs; and the commonwealth extension service grants to the states. The Food Services Division role was to develop and review new initiatives; coordinate policy development among industry divisions and for the Departments international policy and its role with overseas organisations (Hale and Ashton 2002:120-21).

34 The Rural Policy in Australia Inquiry was commissioned by the Federal Government to make more informed policy decisions. The subsequent report, *The Principles of Rural Policy in Australia*, recommended a "gradual winding back of protection and agricultural marketing arrangements and the introduction of greater flexibility to allow agriculture to cope with change and achieve greater efficiency." It highlighted that social and welfare issues also needed to be considered (Hale and Ashton 2002:130).

35 The Australian Wool Corporation was a merger of the Australian Wool Board and Australian Wool Commission.


37 The PIBA was established through government legislation to provide Australia's primary producers with long-term funds from the overseas money market for various agriculture endeavors. Today it is a "specialist provider of rural finance products and services, distributed direct to farmers" (StockJournal 1999).

38 Green Bans occurred in Sydney and other capital cities. As part of an urban social movement, the Green Bans Movement, "battled with dominant interests to define…’urban meaning’". Communities protested against the dominant class who controlled the urban environments through capital and information and hence development. The community fought to maintain the cities “sense of place and history”. The Green Bans mobilised communities, counteracted development through trade unions economic power, and ideological coherence (Hutton and Connors 1999:128-29).

39 The NIEO emerged from impoverished countries passing a united declaration at the UN General Assembly to make changes to the global economic system. The NIEO “outlined changes in the international distribution of wealth, decision-making power in the World Bank and International Monetary Fund, and changes in the terms of trade that would allow impoverished countries an opportunity to develop.” However, this new economic order did not persist (Hossay 2006:76).

40 IFAD was established in 1977 by the United Nations out of recommendations from the World Hunger Conference in 1974. An International financial institution, IFAD finances agricultural development projects for food production mostly in developing countries to assist in promoting economic advancement. The programme is still active in the 2000s (IFAD 2007).

41 The Club of Rome, a group of young scientists, produced the *Limits to Growth* report which attempted to “understand the global system of population, production, resource use, food supply and pollution, in such a way that all interactions between those variables could be measured together, and calculated in their common interrelated behaviour.” It introduced the systems-dynamics model based on feedback loops. The report was reproduced in 50 different languages and various public events and publications promoted its content (Brown 2003).

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<table>
<thead>
<tr>
<th>Australian Events</th>
<th>Significant Global Events</th>
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</thead>
<tbody>
<tr>
<td>Education and Research</td>
<td>Production and Industry Development</td>
</tr>
<tr>
<td>Fruit Growing Reconstruction Scheme of subsidised tree pulling; Wool</td>
<td>Collaborative Soil Conservation Study</td>
</tr>
<tr>
<td>Environmental and Social</td>
<td></td>
</tr>
<tr>
<td>USA and Europe excess productivity;</td>
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<tr>
<td>Australian Events</td>
<td>Significant Global Events</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td><strong>Education and Research</strong></td>
<td><strong>Extension:</strong> TOT and Diffusions models not suited to resource poor farmers; Family, economics and farm sustainability recognised; People Centred Agricultural Development, Linkage Model, FSR, T&amp;V and Agroecosystems and RRA models devised; Farmer ITK recognised; Participation (Italy), self reliance (India) and sustainability (Canada) appear in agriculture</td>
</tr>
<tr>
<td><strong>Production and Industry Development</strong></td>
<td><strong>Adult Education:</strong> Adult Education Movement; Increased participatory approaches; UNESCO and Council of Europe devise education permanente; UNESCO combines American Pragmatism; Humanism and Marxist Adult Education; Malcolm Knowles promotes Andragogy and self directed learning; PAR</td>
</tr>
<tr>
<td><strong>Economics, Marketing and Trade</strong></td>
<td><strong>Environment:</strong> Paul Ehrlich promotes Malthus’s ideas on population</td>
</tr>
<tr>
<td><strong>Environmental and Social</strong></td>
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</tr>
<tr>
<td>Industry Act introduces changes to statutory marketing arrangements</td>
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<tr>
<td>1973 – Collapse of Australia’s main export market in Britain after joining EEC; Rural Policy in Australia inquiry; Expansion into Asian markets; Australian Wool Corporation formed</td>
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</tr>
<tr>
<td>1974 – Bureau of Animal Health established; Industries Assistance Commission established by Commonwealth Government to replace Tariff Board</td>
<td></td>
</tr>
<tr>
<td>Mid 1970s – Collapse of Aust beef market; Minimum reserve price for wool introduced</td>
<td></td>
</tr>
<tr>
<td>1977 – Rural Adjustment Scheme</td>
<td></td>
</tr>
<tr>
<td>1978 – Primary Industry Bank of Aust Ltd (PIBA) formed</td>
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<tr>
<td>Australian Events</td>
<td>Significant Global Events</td>
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</tr>
<tr>
<td>Education and Research</td>
<td>Growth and environmental capacity; International Green Bans Movement; Limits to Growth report by the Club of Rome (1972); Sustainability first appears (Canada); Environmental protests; Convention on International Trade in Endangered Species (1973)</td>
</tr>
<tr>
<td>Production and Industry Development</td>
<td>Social: Human rights and peace protests; Cultural change (USA) and self reliance first appear</td>
</tr>
<tr>
<td>Economics, Marketing and Trade</td>
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<tr>
<td>Environmental and Social</td>
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</table>
APPENDIX D

Historical Developments in Australian Agriculture and Significant Global Events – 1980s to the present

The historical account for the development of Australian agriculture provided in the table below for the period, 1980s to the present, has been collated from a range of publications (refer footnote 1). Those events listed in the ‘significant global events’ column were predominately drawn from the information contained throughout the thesis.1

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<table>
<thead>
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<tbody>
<tr>
<td><strong>Education and Research</strong></td>
<td><strong>Production and Industry Development</strong></td>
</tr>
<tr>
<td><strong>1980s</strong></td>
<td></td>
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</tbody>
</table>
| **Mid 1980s** – Commonwealth support for rural community agriculture adjustment programs continues  
**1985** – New organisational arrangements for rural industries research and development; Rural Industries Research Act replaces research committees with research councils and trust funds; New organisational arrangements for rural industries research and development; Rural Industries Research Act replaced research committees with research councils and trust funds; Programs corporatised to increase commercial returns to industry and community  
**1986** – Innovative Agriculture Marketing | **Rise in Federal Government assistance due to drought**  
**1985** – Vine-pull compensation scheme²  
**1988** – Deregulation of wheat hotly debated  
**1989** – AWB lost grower domination and became more commercially focused | **Deregulation of statutory marketing; Less involvement with regulation of agricultural industries; Continued calls for reform in wheat industry and eventual deregulation; Domestic economic downturn; Funding for rural adjustment scheme increased; Restructure and deregulation of Australian economy to improve efficiency and international competitiveness; Specialist agricultural representation overseas extended; Reform of statutory marketing authorities; Sugar growers exposed to fluctuating world markets**  
**1982** – Recognised need for efficiency in agriculture through competition, exposure to market forces and further winding back of protection; Export Inspection Service for inspection of all primary produce  
**1983** – Commonwealth agenda for economic rationalism; Reduced government regulation of agriculture; Extension: Continued criticisms of extension; Increased participation for ‘self reliance’; Increase in literature from industrialised countries; Farmer knowledge more recognised; Farmers as researchers; Rural sociology and social anthropology | **Recognition that past government policies and land management practices degraded the landscape; New policies developed to help support sustainable land use; Development of a National Strategy for ESD; Financial and adjustment counseling for farmers and their families for the first time; Rural Women’s Access Program (RWAP) established; Environment Movement’s increases in professionalism; Green politics; ESD refined in the context of struggle**  
**Early 1980s** – Drought  
**1983** – Development of management policies for Aust. natural resource base; Resource management initiative the National Soil | **Economics and Trade:**  
Distortion of world markets; Agriculture incorporated into GATT at Uruguay (1986) devising the Agreement on Agriculture (AoA) and WTO formed; Increased globalisation; Cairns group proposal for less distorted markets; Corporate takeover of agriculture; Stock market crash  
**Extension:** Continued criticisms of extension; Increased participation for ‘self reliance’; Increase in literature from industrialised countries; Farmer knowledge more recognised; Farmers as researchers; Rural sociology and social anthropology |

² The Vine-pull Compensation Scheme was funded by the Commonwealth Government in response to the wine industries downturn in order to encourage winegrape growers to plant alternative crops (Osmond and Anderson 1998).
<table>
<thead>
<tr>
<th>Australian Events</th>
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<tr>
<td><strong>Education and Research</strong></td>
<td><strong>Production and Industry Development</strong></td>
</tr>
<tr>
<td>Program established to develop market culture among farmers and increase emphasis on value adding, particularly for export <strong>1988</strong> – Income Equalisation Deposits Scheme restructured to become the Farm Financial Management Skills Program targeting farm financial management skills <strong>1989</strong> – Rural Adjustment Scheme revamped to focus on farming as a business to improve efficiencies and international competitiveness. More active in assisting unviable farmers to leave an industry and improve financial and mgt skills;</td>
<td>Market orientation of agriculture; Reduced hidden costs to community; Maintenance of international competitiveness 1984 – Australia Agriculture Health and Quarantine Service formed 1985 – Rural and Provincial Affairs Unit formed to deal with the rural adjustment and community programs; 1986 – Innovative Agriculture Marketing Program; The Kerin Plan³; Australia Quarantine and Inspection Service - included AAHQS; EU bans use of hormonal growth promoting chemicals for domestic animals and imports 1988 – Cairns Group puts forward proposals at GATT for a less distorted innovation and adaptations needed</td>
</tr>
</tbody>
</table>

³ John Kerin was the Australian Government Minister for Primary Industries. He set about making changes to the management and provision of research and development. Kerin introduced the Rural Industries Research Act in 1985 and corporatised research and development. The Kerin Plan included new marketing and assistance arrangements including a reduction in government regulation and support over time, exposure of industry to local and overseas market signals through the removal of pooling and equalised returns to producers and manufacturers; and more accountability for money spent on research and development (Lovett 1997:2-3; Hale and Ashton 2002:141). ⁴ BRS was established to provide scientific input into policy development to better address the growing agenda of managing Australia’s resource base (Hale and Ashton 2002:137).
<table>
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<tbody>
<tr>
<td><strong>Education and Research</strong></td>
<td><strong>Production and Industry Development</strong></td>
</tr>
<tr>
<td><strong>Rural Industries Research Act of 1985 replaced with the Primary Industries and Energy Research and Development Act; Research and Development Corporations (RDC) replace research committees’</strong>; Rural Industries Research and Development Corporation established for smaller and emerging industries  <strong>Late 1980s</strong> – More involvement with rural education and training; Marketing skills program and Innovative Agriculture Marketing Program established to improve export marketing performance at company and industry level especially for value-added products; Sustainability appears in agriculture</td>
<td>agriculture markets;  5 Quarantine controls based on risk analysis and science developed through Sanitary and Phytosanitary (SPS) Agreement at GATT Uruguay Round and completed in 1994 as part of the Marrakech Agreement  <strong>1989</strong> – Increased spending on quarantine; Introduction of Northern Australia Quarantine Strategy to focus on health threats of animal and plants from Australia’s north; Australia accepts the Asia Pacific Economic Cooperation agenda on “increased privatisation, structural adjustment and decreased public expenditure, reduced government control of business activity, and rapid economic growth”  6 <strong>Late 1980s</strong> – Recovery of sheep, beef and wool markets; Deregulation of rail and bulk handling operations; Identified need to expand international competitiveness, and commercial success of primary industries more innovation and adaptations needed funded salinity mitigation programs; National Land Management Program formed  <strong>1989</strong> – Formal Landcare policy initiative launched; Federal Government facilitates national debate on ESD  <strong>Late 1980s</strong> – More involvement with rural community and social policy development rather than focusing on agriculture commodity policy alone funded salinity mitigation programs; National Land Management Program formed  <strong>1989</strong> – Formal Landcare policy initiative launched; Federal Government facilitates national debate on ESD  <strong>Late 1980s</strong> – More involvement with rural community and social policy development rather than focusing on agriculture commodity policy alone</td>
</tr>
</tbody>
</table>

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5  The Cairns Group is a group of agricultural exporting nations which includes Australia.  
6  Hutton and Connors (1999:259)
<table>
<thead>
<tr>
<th><strong>Australian Events</strong></th>
<th><strong>Significant Global Events</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education and Research</strong></td>
<td><strong>Production and Industry Development</strong></td>
</tr>
<tr>
<td><strong>1990s</strong></td>
<td><strong>Economics, Marketing and Trade</strong></td>
</tr>
<tr>
<td>Business Advice for Rural Areas expanded; More RDC’s established, building on industry/government alliances to target research, collaborate to identify research gaps, internationally recognised; Producers fund research that benefits downstream industries; Farmers and other rural businesses encouraged to travel overseas to see markets first hand, develop business and marketing skills, work together and network under various Agribusiness Programs; Empowerment, participation, self reliance, and social capital appears in Agriculture 1990 – Land and Water Resources RDC (LWRDC)</td>
<td><strong>Environmental and Social</strong></td>
</tr>
<tr>
<td>Restructure of wool and dairy industries; ‘Whole of industry’ approach; Industries given responsibility for their own future; Promotion of the ‘Clean, Green Image’ of Australian produce; Continued emphasis on value-adding to encourage processing 1993-6 – National Drought Policy between commonwealth and states forms the Drought Relief payment, and Drought Exceptional Circumstances program under RAS; Agriculture and Resource Ministers Council of Australia and NZ (ARMCANZ) review efficiency and effectiveness of quarantine and export inspection services by states 1995 – Commonwealth takes over service delivery of AQIS, reforms organisation, introduces HACCP; In adopting HACCP Australia was one of the first countries to have a mandatory HACCP based inspection system (Hale and Ashton 2002:176).</td>
<td>Drought; Issues surrounding NRM becoming more prominent; Community based RAS programs continue from 1980s; Rural Counseling Program expanded; Environment Movement pushes environmental agenda into mainstream society in challenging development and participates in Australia Government ESD process; Governments have limited and incremental approaches to environmental reform; Pastoral, cotton and Mining companies threaten world heritage listing of Lake Eyre basin, Tarkine and Cape York; National Strategy for Rangeland Management; Land clearing seen as major</td>
</tr>
</tbody>
</table>

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7 Hazard Analysis Critical Control Point (HACCP) is a quality assurance system that helps identify potential areas of risk in the production or processing of food products. In adopting HACCP Australia was one of the first countries to have a mandatory HACCP based inspection system (Hale and Ashton 2002:176).
8 WTO introduced free trade market principles into international trade by decreasing trade barriers and applying non-discriminatory rules, and special consideration for developing countries (Rosset 2006).
### Australian Events

<table>
<thead>
<tr>
<th>Education and Research</th>
<th>Production and Industry Development</th>
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<th>Environmental and Social</th>
</tr>
</thead>
<tbody>
<tr>
<td>formed; Cultural change appears in Australian agriculture</td>
<td>Government moves from Programs being in cooperation with industry to in ‘partnership’ with industry</td>
<td>National Competition Policy (NCP) reduced statutory marketing; Limited regulation for public health reasons; Australia agriculture only 3% of Australia GDP and dropping export share; Focus on rural downturn since 1970s;</td>
<td>environmental problem</td>
</tr>
<tr>
<td>1991 – Wool RDC formed; Cooperative Venture for Capacity Building for Innovation in Rural Industries formed 10</td>
<td>1997 – Meat and Livestock Australia formed and take over responsibilities of Australia Meat and Livestock Corporation</td>
<td>1990 – Discussion paper on ESD prepared by Commonwealth Interdepartmental Committee; Resource Assessment Commission inquiry into forests</td>
<td>1990 – Wool Industry Future Directions Task Force formed following a no confidence vote in the AWRAP by growers; Wool International privatised with the growers becoming the shareholders after desires expressed to become separate from Government</td>
</tr>
<tr>
<td></td>
<td>1990-1 - Cairns Group aligns with US against EC to reduce domestic farm subsidies, export subsidies – agreement</td>
<td>1990-1 – CAIRNS aligns with US against the EU to reduce domestic farm subsidies, export subsidies – agreement</td>
<td>1992 - National Decade of Landcare Plan launched, regional community based</td>
</tr>
<tr>
<td></td>
<td>National Competition Policy (NCP) reduced statutory marketing; Limited regulation for public health reasons; Australia agriculture only 3% of Australia GDP and dropping export share; Focus on rural downturn since 1970s;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Environmental problem</td>
<td></td>
<td>1990 – Discussion paper on ESD prepared by Commonwealth Interdepartmental Committee; Resource Assessment Commission inquiry into forests</td>
</tr>
<tr>
<td></td>
<td>1991 – Wool Industry Future Directions Task Force operated</td>
<td>Early 1990s – Collapse of wool market; Continued constraints on international agriculture trade through the protectionist policies of the US and European Union;</td>
<td>1991 – Development of Rural Policy Division in Commonwealth Agriculture Department 12</td>
</tr>
<tr>
<td></td>
<td>1990-1 - Cairns Group aligns with US against EC to reduce domestic farm subsidies, export subsidies – agreement</td>
<td>1990-1 – CAIRNS aligns with US against the EU to reduce domestic farm subsidies, export subsidies – agreement</td>
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### Significant Global Events

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<tbody>
<tr>
<td>The Cooperative Venture for Capacity Building for Innovation in Rural Industries was established in 2001. It consists of the Australian Government Department of Agriculture, Fisheries and Forestry, MDB Commission, eight RDC’s and the RIRDC, whose aim is to “provide through a coordinated program, the R&amp;D basis for ensuring an effective rural industries extension, learning and education system.” (Macadam et al 2004:iii)</td>
</tr>
<tr>
<td>The NCP &quot;examined the impact of statutory marketing arrangements, including the assessment of [their] costs and benefits...to the community at large, not just the farming sector.” To achieve this, it was acknowledged that greater flexibility was required for some industries to compete internationally, hence the Commonwealth and states reduced statutory marketing arrangements under the NCP (Hale and Ashton 2002:181).</td>
</tr>
<tr>
<td>Division’s aim was to “ensure social justice in the delivery of government programs and services to rural communities but without compromising the essential structural adjustment objectives of the RAS.” (Hale and Ashton 2002:167)</td>
</tr>
<tr>
<td>Adult Education: Language and practices uncohesive and multiple definitions for concepts; Education privatised; Mezinow’s theory of transformative learning; Foley’s learning in struggle framework; Mayo’s theory of transformative adult education</td>
</tr>
<tr>
<td>Language - Putnam suggests civic social capital; Empowerment appears and Social capital appears</td>
</tr>
</tbody>
</table>

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10 The Cooperative Venture for Capacity Building for Innovation in Rural Industries was established in 2001. It consists of the Australian Government Department of Agriculture, Fisheries and Forestry, MDB Commission, eight RDC’s and the RIRDC, whose aim is to “provide through a coordinated program, the R&D basis for ensuring an effective rural industries extension, learning and education system.” (Macadam et al 2004:iii)

11 The NCP "examined the impact of statutory marketing arrangements, including the assessment of [their] costs and benefits...to the community at large, not just the farming sector.” To achieve this, it was acknowledged that greater flexibility was required for some industries to compete internationally, hence the Commonwealth and states reduced statutory marketing arrangements under the NCP (Hale and Ashton 2002:181).

12 Division’s aim was to “ensure social justice in the delivery of government programs and services to rural communities but without compromising the essential structural adjustment objectives of the RAS.” (Hale and Ashton 2002:167)
### Australian Events

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<thead>
<tr>
<th>Education and Research</th>
<th>Production and Industry Development</th>
<th>Economics, Marketing and Trade</th>
<th>Environmental and Social</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research Centres(CRC)</strong>&lt;sup&gt;13&lt;/sup&gt;</td>
<td><strong>1993</strong> – Australian Wool Research and Promotion Organisation (AWRP) replaces Wool R&amp;D and takes over responsibility for both wool promotion and R&amp;D</td>
<td><strong>1999</strong> - Grains industry independent of government and responsible for own financing, similar deregulations occur in cotton and gradual deregulation of other grains industries such as oil seeds; AWB listed on stock exchange</td>
<td>and driven approaches to rehabilitation, government and community partnerships; National Landcare Advisory Committee and Landcare Australia Ltd; Bureau of Resource Sciences replaces BRR; Social development listed as an outcome for the Primary Industries and Energy portfolio&lt;sup&gt;15&lt;/sup&gt;; Federal Government signs Biodiversity Convention at Rio Summit, passed Endangered Species Act and develops National Strategy for the Conservation of Biodiversity; Arid Lands Coalition addresses</td>
</tr>
<tr>
<td><strong>1997</strong> – Meat and Livestock Australian take over R&amp;D for Meat Research Corporation</td>
<td><strong>Late 1990s</strong> – Rapid expansion of wine industry and export markets</td>
<td>achieved in 1993 to improve market access through multilateral negotiations</td>
<td>Environment: Sustainability movement; UN Earth Summit (1992); UN Convention on Climate Change; Increase in genetically modified crops; Convention on Biodiversity (1992); Kyoto Protocol to the 1992 UN Framework on Climate Change (1997)</td>
</tr>
<tr>
<td><strong>1998</strong> – Farm Business Improvement Program (FarmBis) under AAA.&lt;sup&gt;14&lt;/sup&gt;</td>
<td></td>
<td><strong>1991</strong> - Collapse of Reserve Price Scheme, which had been operating since 1974; Australian Wool Realisation Commission formed with Wool RDC to get rid of wool stockpile and repay debt</td>
<td></td>
</tr>
<tr>
<td><strong>1999</strong> – Community capacity building, empowerment, leadership and self reliance appear in Australian Government documents</td>
<td><strong>1992</strong> – Agrifood Strategy and Clean Food Export Program formed to establish preference for Aust food due to its quality and origin from a clean production and processing environment; Keating Government produces <em>One Nation</em> economic statement</td>
<td><strong>1993</strong> – Wool industry review undertaken - Garnaut Report - two statutory authorities established; Wool International (replaced AWRC) and Australian Wool Research and</td>
<td></td>
</tr>
</tbody>
</table>

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13 The Cooperative Research Centres (CRC), were devised by the Chief Scientific Advisor to the Hawke Government, Professor Ralph Slatyer. The centres consist of partnerships between government agencies, universities and the private sector in order to bring together experts across a certain field to develop linkages and undertake projects with a national focus that are relevant to a particular industry (Lovett 1997:40-1).

14 Farm Business Improvement Program (FarmBis) is "a skills-focused grants program that will provide assistance directly to farmers to help them improve the management of their businesses" (Anderson 1998:4). FarmBis was administered within the AAA program (refer footnote 14).

15 One of the goals stated in the Department of Primary Industries and Energy portfolio in pursuit of its mission (ie. to increase the contribution that agriculture, minerals, energy, fisheries and forestry industries make to the well-being of Australian's) is:"the economic and social development of resilient rural communities" (Crean 1992:5).
<table>
<thead>
<tr>
<th>Australian Events</th>
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<tr>
<td>Education and Research</td>
<td>Environmental and Social</td>
</tr>
<tr>
<td>Promotion Organisation to replace</td>
<td>unsustainable pastoral practices</td>
</tr>
<tr>
<td>Production and Industry Development</td>
<td>1993 – Commonwealth, states, territories agree to incorporate ESD into the work of the Agriculture and Resource Mgt Council of Australia and NZ (ARMCANZ) and establish the Sustainable Land and Water Resources Management Committee, and later the National Landcare Advisory Committee, Water Reform Program by the Council of Aust Govts, National Rangelands Management</td>
</tr>
<tr>
<td>Economics, Marketing and Trade</td>
<td>1994 – Exceptional Circumstances Program formed with Drought Exceptional Circumstances Program and Drought Relief Payment</td>
</tr>
<tr>
<td>RAS retains all existing programs and makes adjustments focusing on improved farm productivity, profitability, sustainability or farm exit and moves away from assisting farmers in trouble, and all existing programs retained</td>
<td></td>
</tr>
<tr>
<td>1995 – Rural Partnership Program formed</td>
<td></td>
</tr>
<tr>
<td>1996 – Whole of Government strategies</td>
<td></td>
</tr>
<tr>
<td>1997 – Agriculture-Advancing Australia (AAA) formed; AAA replaced the Rural Communities Access Program and RAS but retained some of the RAS existing initiatives and the Exceptional Circumstances and Rural Partnership programs. The idea of the AAA program was to &quot;build capacity&quot; of primary producers through improved business management skills, and &quot;positioning profitable and competitive agricultural industries on world markets and ‘facilitating the competitiveness of our industries...making them more self-reliant through better skilling [and] being more innovative’&quot; (Hale and Ashton 2002:180). It included initiatives such as the FarmBis, Farm Management Deposit Scheme and Farm Family Restart Scheme (Anderson 1998:4).</td>
<td></td>
</tr>
<tr>
<td>1993 – Commonwealth, states, territories agree to incorporate ESD into the work of the Agriculture and Resource Mgt Council of Australia and NZ (ARMCANZ) and establish the Sustainable Land and Water Resources Management Committee, and later the National Landcare Advisory Committee, Water Reform Program by the Council of Aust Govts, National Rangelands Management</td>
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</tbody>
</table>

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16 Short term targeted support to assist long term viable farm businesses to cope with the adverse impacts of exceptional events, including drought (Hale and Ashton 2002:179).

17 Joint Commonwealth and state government funding of community rural initiatives (Hale and Ashton 2002:179).

18 AAA replaced the Rural Communities Access Program and RAS but retained some of the RAS existing initiatives and the Exceptional Circumstances and Rural Partnership programs. The idea of the AAA program was to "build capacity" of primary producers through improved business management skills, and "positioning profitable and competitive agricultural industries on world markets and ‘facilitating the competitiveness of our industries...making them more self-reliant through better skilling [and] being more innovative’" (Hale and Ashton 2002:180). It included initiatives such as the FarmBis, Farm Management Deposit Scheme and Farm Family Restart Scheme (Anderson 1998:4).

19 ARMCANZ was formally known as the Agriculture Council of Australia and New Zealand (Hale and Ashton 2002:189).
<table>
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<tr>
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</tr>
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<tbody>
<tr>
<td><strong>Education and Research</strong></td>
<td><strong>Production and Industry Development</strong></td>
</tr>
<tr>
<td>Supermarket to Asia strategy(^{20}) 1999 – WoolStock Australia Ltd was incorporated, clearing wool debt by 2000; Wool levy introduced; Statutory marketing and financing arrangements for wheat (through former statutory AWB) ceased and were taken up by a majority grower-owned and controlled, public unlisted company, AWB Ltd and its subsidiaries; Regional Australia Strategy(^{21}); Farm Managements Deposits Scheme(^{22})</td>
<td>Strategy, and National Weeds Strategy; National Action Plan (NAP) for salinity and water quality; Increased focus on water sustainability - pricing, allocation trade, and research reforms; Salinity concerns; Water reforms including commercialisation of MDB water delivery, pricing regimes for water, cost recovery measures, capping of water diversion supplies(^{23}); RAS reintroduces Farm Household Support scheme in the form of loans for day-to-day living</td>
</tr>
</tbody>
</table>

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\(^{20}\) The Supermarket to Asia strategy involved the development of agrifood networks, identified how producers could better access business opportunities and overcome barriers to Asian food markets (Hale and Ashton 2002:209).

\(^{21}\) The Regional Australia Strategy “is aimed at coordinating Federal Government activity in, and communication with, regional Australia. Ensuring coordination of the government's efforts for regional Australia is a crucial step in delivering what communities need” (Anderson 1999:1).

\(^{22}\) The Farm Management Deposits Scheme is a “tax linked, financial risk management tool” (Truss et al 2004:6).

\(^{23}\) The NAP was formed under the Natural Resources Management (Financial Assistance) Act 1992. The National Landcare Advisory Committee gives recommendations to Federal Government Ministers on natural resource management in order to give policy direction. Landcare Australia Ltd raises Landcare awareness and funds from the business community; and founded the Landcare Foundation to handle donations (Baker 1997:68).

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<table>
<thead>
<tr>
<th>Australian Events</th>
<th>Significant Global Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education and Research</td>
<td>1994 – Water Reform Framework adopted by all governments to achieve efficient and sustainable water industry</td>
</tr>
<tr>
<td>Production and Industry Development</td>
<td>Mid 1990s – Review of water pricing policy and allocation by the Council of Australian Governments (CoAG)</td>
</tr>
<tr>
<td>Economics, Marketing and Trade</td>
<td>1997 – Natural Heritage Trust of Australia Act formed partly funded by Commonwealth sustainable agriculture and environment packages of 1997 to 2002 and sale of Telstra; National Land and Water Resources Audit under NHT funding</td>
</tr>
<tr>
<td>Environmental and Social</td>
<td>1998 – Bureau of Rural Sciences establishes a Social Science Centre to integrate social sciences into policy development</td>
</tr>
<tr>
<td></td>
<td>1999 – Discussion paper</td>
</tr>
</tbody>
</table>

24 The Social Atlas provided information on rural population, labour force and employment, income, education and health (Hale and Ashton 2002:189).

25 The Regional Summit consisted of communities, business and government identifying problems and opportunities within regional Australia (Commonwealth of Australia 2001:7).
<table>
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<tr>
<td><strong>Education and Research</strong></td>
<td><strong>Production and Industry Development</strong></td>
</tr>
<tr>
<td>2000s</td>
<td>2008 – Climate Variability in Agriculture R&amp;D Programs formed through AAA</td>
</tr>
<tr>
<td>2000 – Climate Variability in Agriculture R&amp;D Programs formed through AAA</td>
<td>2002 – Capacity building appears in Australian agriculture</td>
</tr>
<tr>
<td>2003 – Food Futures</td>
<td>2004 – Australian Government funded project in the application of biotechnology.</td>
</tr>
<tr>
<td>2000 – Climate Variability in Agriculture R&amp;D Programs formed through AAA</td>
<td>Boom in organic farming due to concerns over GMO's; Expansion of sugar industry through the development of new irrigated areas</td>
</tr>
<tr>
<td>2002 – Capacity building appears in Australian agriculture</td>
<td>2000 – Woolgrowers Advisory Group and Australian Wool Services Ltd established including Australian Wool Innovation (AWI) P/L and TWC Holding P/L - growers elect to become shareholders of the company</td>
</tr>
<tr>
<td>2003 – Food Futures</td>
<td>2004 – Australian Government funded project in the application of biotechnology.</td>
</tr>
<tr>
<td>2004 – Australian Government funded project in the application of biotechnology.</td>
<td>2001 – Calls for WTO to consider damage to poorer countries from trade liberalisation at the Doha Ministerial</td>
</tr>
</tbody>
</table>

26 Climate Variability in Agriculture Research and Development Program - Developed management schemes within agriculture sector (Hale and Ashton 2002:179).
27 Food Futures is a CSIRO National Research Flagship which aims to “transform the international competitiveness and add $3 billion of value to the Australian agrifood sector by applying frontier technologies to its largest industries” (Anderson et al 2005:73).
28 Farm Growth Through Export Growth - developed market access and overcame export barriers thorough bilateral trade agreements.
Retirement Assistance for Farmers - for low income and pension aged farmers to transfer their farms immediately and access the age pension.
Farm Management Deposits - enabled farmers to set aside pre-tax income in good years as cash reserves for poor years.
Rural Partnership Program - Commonwealth and state government funding of community rural initiatives.
### Australian Events

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</thead>
<tbody>
<tr>
<td>giving them ownership and control of industry bodies; Farm Innovation Program Grants for innovative practices, processes and products developed under AAA scheme; Worlds largest beef exporter and second largest sheep meat exporter</td>
<td>Withdrawal of last price supports in dairy and regulated arrangements for milk production - deregulation</td>
<td>program, formerly Family Farm Restart Scheme, formed</td>
<td>agreements</td>
</tr>
</tbody>
</table>
| **2004** – Industry Partnerships initiative under AAA to encourage innovation. | **2001** – AWI under industry control took over management of wool levy, R&D funding and innovation; TWC Holdings took over Woolmark Company concentrating on market development; AWB subsidiary company AWB International (AWBI) Ltd granted single desk export rights and Wheat Export Authority established | **2001** – Sustainable Regions Program | **Extension:**
| **2005** – Healthy Soils for Sustainable Farms Program from NHT; New Industries | **2003** – National Water Initiative | **2005** – Joint Government Enterprise funding for Murray Environmental Flows (trading as Water for Rivers); Reform of the Exceptional Circumstances support scheme for drought. | Common use of concepts empowerment, lifelong learning, capacity building, sustainability, social capital and human capital; Three theoretical positions TOT, AKIS and PI; Four extension paradigms TOT, problem solving, education and human development |

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29 Exceptional Circumstances Program – Included Drought Exceptional Circumstances Program and Drought Relief Payment. Short term targeted support to assist long term viable farm businesses to cope with the adverse impacts of exceptional events (Hale and Ashton 2002:179).

30 The Plan was developed by state and Commonwealth governments and was the first comprehensive national strategy to address salinity and water quality problems nationally following the discussion paper Managing Natural Resources in Rural Australia for a Sustainable Future in 1999.

31 The Healthy Soils for Sustainable Farms Program was devised to address damaging European-style agricultural practices and builds on the Industry Partnerships Program under Landcare (Truss et al 2005:21; Anderson et al 2005:11).

32 The Wheat Export Authorities role was to control exports of wheat including issuing export consents to other persons wishing to export wheat, and to monitor and report on the use of the single desk by the AWBI (Hale and Ashton 2002:186).

33 The FarmHelp Program provided income assistance and financial counseling for farm families. Re-establishment and retraining grants for exiting farmers. In 2004 $134.9 million was included in the budget for the Program over four years (Hale and Ashton 2002:179; Truss et al 2004:5).
### Australian Events

<table>
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</thead>
<tbody>
<tr>
<td>Development Program (commercialise new agribusinesses products, technologies or services.)</td>
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<table>
<thead>
<tr>
<th>Significant Global Events</th>
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<tbody>
<tr>
<td>learning our way out</td>
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</tbody>
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34 The Sustainable Regions Program was formed in 2001 under the Stronger Regions, A Stronger Australia Statement. The Program has a focus on 10 regions around Australia with an aim to assist “regional communities to address priority issues they have themselves identified” so that regions may become self reliant. The Program intends to strengthen “regional economic and social opportunities”; sustain “productive natural resources and environment”; deliver “better regional services”; and adjust “to economic, technological and government-induced change”. Advisory Committees provide advice to Government on priority issues and areas for project funding (Department of Transport and Regional Services 2007; Commonwealth of Australia (2001:4).

35 The National Water Initiative aim is to increase the productivity and efficiency of water use, sustain rural and urban communities, and health of river and groundwater systems (Truss et al 2004:8).

36 The HomeGrown campaign promotes Australian produce domestically with the aim of increasing consumer awareness and consumption of Australian produce. The program is funded through AAA and matching industry dollars (Costello 2005:16; Truss et al 2005:12-13).

37 International Food and Agricultural Service coordinates “the Australian Governments market access services more effectively and enhance access for Australian agriculture to key markets in Asia.” Funded at $9.7 million over 4 years to establish the service within DAFF (Costello 2005:19).
<table>
<thead>
<tr>
<th>Australian Events</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Education and Research</td>
<td>Free Trade Agreement with China; Established Biosecurity Australia as a prescribed agency; Farming Future Initiative; International Food and Agriculture Service; Regional Partnerships Program; Establishment of 8 new export hubs in regional areas 2007 – Grown in Australia campaign, Food Industry Development initiative</td>
</tr>
<tr>
<td>Production and Industry Development</td>
<td></td>
</tr>
<tr>
<td>Economics, Marketing and Trade</td>
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<tr>
<td>Environmental and Social</td>
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</tbody>
</table>

38 The Farming Future Initiative was formed to “boost food processing in regional Australia”. Its aim being to stimulate economic growth through value adding (Truss et al 2005:12).


40 The Regional Partnerships Program is targeted towards regional development. It focused is on establishing relationships between communities, industry and government to develop self reliance and make it easier for communities to access assistance (Anderson et al 2005:69-70).


**Navigator™** is a highly interactive process that allows participants to navigate through all the options available to them to determine where it is important to concentrate their efforts in a group environment.

**Navigator™** was developed to assist participants in determining areas in their enterprise that need improvement and from this develop a project or programme to meet knowledge or skills gap.

All activities and sessions are participants determined and are assisted by a facilitator.

**Stages of Navigator™**

The **Navigator™** process consists of four stages: an Exploration Workshop, Project Development, Project Implementation and Project Review.

All activities and sessions are highly participative and are designed so that, in the long term, participants become independent of the facilitator and the **Navigator™** process.

---

**Exploration Workshop**

It is through the Exploration Workshop that the group navigates through all of their options to determine where to concentrate their efforts that has benefits to each individual within the group.

This is achieved by establishing a working agreement for the group, exploring a vision for your industry and region, reviewing your business and defining a group project area.

Through out this stage the aspects of production, people, environment, business and finance and market are discussed.

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**Project Development**

Here the group clarifies and defines their project intentions, explores the information and resources required to meet their intended outcomes, and time lines their project. It is here that the group may identify any training and/or funding required to meet their project outcomes.

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**Project Implementation**

This stage is repetitive. It involves acting on the decisions made in the Project Development stage by carrying out the project. It involves allocating at each session, nominating people to carry out tasks and constantly reviewing the project progress and direction to achieve the desired outcomes.

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**Project Review**

This is done at the end of the project or programme in order to identify successes and areas, which need improvement, and determine future direction.

Once the group has completed a cycle of the process it is started again or re-entered, at the appropriate stage.
APPENDIX F

NAVIGATOR® Promotional Material and Reports

Conference Papers

Conference Posters

Newspaper Articles
Industry Journals

Internal Government Newsletter and Project Reports

Proposals / Project Scoping Documents

Milestone and End of Year Reports


**Evaluation Reports**


**Brochures and Information Handouts**


**Unpublished papers**

Independent Case Study

Independent Reports
APPENDIX G

Popular Language Incorporation into Agriculture

The following outlines the assessment of the incorporation of the terms capacity building, cultural change, empowerment, participation, self-reliance, social capital and sustainability into agriculture. This assessment was undertaken by reviewing the types of journals in which the search terms appeared in the Elsevier journal list.

Tables one to seven included in the assessment below provide information on: (1) the number of journals that were shown to include the term; (2) the number of journals with the term that are shared with another subject category, with multiple cross-overs accounted for in the final figure. This has been shown to determine if there is possible representation from another area; and (3) a list of the most frequently occurring journals for each decade. ‘n’ indicates the number of journal articles for a particular decade, or the sample number of articles in the case where the database exceeded 100 listings; and the figure accompanying the journal represents the number of articles listed for that particular journal. For example, in the case of capacity building in the ABS category for 1990 (refer Table 1), 14 journal articles were listed 11 of them from Marine Policy. The information provided below provides a summary of the assessment for each of the terms listed above.

1 Capacity Building

Only three journals directly related to agriculture reported capacity building in the ABS category and a few articles were listed within these journals (Table 1). The Journal of Rural Studies (shared with SS) appeared on its own in the 1990s with one article relating to rural development concerns.¹ It emerged again in the 2000s but was succeeded by Food Policy also listed in the EEF, ES and SS categories discussing topics on biotechnology and producers, linking producers to markets for exports, and the development of human capital; and Agricultural Systems. These journals did not feature prominently in either the ABS or SS categories.

Marine Policy dominated the listings in ABS in the 1990s and 2000s discussing topics relating to fisheries management and development, and some adult learning processes for formal and informal training.² This journal also featured strongly in the SS category in the 1990s with the same number of articles, suggesting the influence of the social sciences in the area of Marine Policy; and was accompanied with medical and educational journals. Other journals in the SS category covered a range of topics. In the 1980s development issues were the main topic of discussion,

and in the 2000s *Evaluation and Programme Planning* featured along with *Habitat International* focussing on human settlements.

### Table 1 Most Popular Journals for Capacity Building

<table>
<thead>
<tr>
<th></th>
<th>Agriculture</th>
<th>ABS</th>
<th>SS</th>
</tr>
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<tbody>
<tr>
<td>Number of Journals with Term</td>
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<tr>
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<td>7 EEF=2 ES=5 SS=4</td>
<td>11 ABS=4 EEF=1 ES=8</td>
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<table>
<thead>
<tr>
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<th>1980 (n = 0)</th>
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<td></td>
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<td>Marine Policy (11)</td>
</tr>
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<td></td>
<td></td>
<td>Social Science and Medicine (6)</td>
</tr>
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<td></td>
<td></td>
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<td>1990 (n = 1)</td>
<td>Journal of Rural Studies (1)</td>
<td>1990 (n = 14)</td>
<td>Marine Policy (11)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Evaluation and Program Planning (12) Habitat International (11)</td>
</tr>
</tbody>
</table>

### 2 Cultural Change

The number of occurrences of cultural change in agriculture and the ABS category was extremely small from the 1980s to the present. Additionally, the journals which featured for agriculture also featured as the most prominent journals for the ABS category (Table 2). *Scientia Horticulturae* was shared with ABS in 1980s relating to the technical aspects of production for horticultural crops. *Agricultural Systems* featured later in the 1990s with all of the articles discussions centred on institutionalised culture change from the same authors in Australia. A range of journals were noted to accompany *Agricultural Systems* in ABS although not in any great numbers.

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Table 2  Most Popular Journals for Cultural Change

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
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<td>1960 (n = 0)</td>
</tr>
<tr>
<td></td>
<td>• <em>Journal of Experimental Marine Biology and Ecology</em> (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1970 (n = 0)</td>
<td>1970 (n = 0)</td>
<td>1970 (n = 5)</td>
</tr>
<tr>
<td></td>
<td>• <em>Annals of Tourism Research</em> (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1980 (n = 1)</td>
<td>1980 (n = 4)</td>
<td>1980 (n = 22)</td>
</tr>
<tr>
<td></td>
<td>• <em>Scientia Horticulturae</em> (1)</td>
<td>• <em>Journal of Human Evolution</em> (2)</td>
<td>• <em>Social Science and Medicine</em> (9)</td>
</tr>
<tr>
<td></td>
<td>1990 (n = 3)</td>
<td>1990 (n = 17)</td>
<td>1990 (n = 39)</td>
</tr>
<tr>
<td></td>
<td>• <em>Agricultural Systems</em> (3)</td>
<td>• <em>Agricultural Systems</em> (3)</td>
<td>• <em>Social Science and Medicine</em> (5)</td>
</tr>
<tr>
<td></td>
<td>2000 (n = 3)</td>
<td>2000 (n = 10)</td>
<td>2000 (n = 49)</td>
</tr>
<tr>
<td></td>
<td>• <em>Journal of Rural Studies</em> (2) • <em>CATENA</em> (2) • <em>Social Science and Medicine</em> (7)</td>
<td>• <em>Journal of Rural Studies</em> (2) • <em>Poetics</em> (4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <em>Food Control</em> (1)</td>
<td>• <em>Landscape and Urban Planning</em> (2)</td>
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</table>

In the 2000s the *Journal of Rural Studies* featured in the agriculture and ABS categories discussing rural youth and rural change in developed countries.\(^5\) *CATENA* and *Landscape and Urban Planning* (shared with ES) appeared in ABS with the same number of articles for the *Journal of Rural Studies*, while *Food Control* also featured in agriculture but with less accounts. Although the *Journal of Rural Studies* is also listed in the SS category, it did not feature as a prominent journal at any time in this category. The SS category contained an early focus on tourism during the 1970s. It later came to be dominated by the *Social Science and Medicine* journal from the 1980s through to the present, covering a range of health material that applied to the

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social sciences, health practitioners and policy makers. Education began to utilise the term in the 1980s, however health and medicine prevailed focussing on issues generally in the urban areas of developing countries. Other areas such as poetics, geography, archaeology, anthropology and human society in general, also contributed during the 1990s increasing capacity buildings use. By the 2000s communications and transportation were introduced into the suite of areas in which the term was being utilised in this category.

3 Empowerment

Six journals included empowerment in agriculture and four of these were associated with other subject categories. The *Journal of Rural Studies* (also listed in SS) concerned with participation and empowerment in rural development, held a minor lead over *Food Policy* (also listed in EEF, ES and SS) discussing nutrition and children’s rights; and *The International Food and Agribusiness Management Review* focussing on labour management and small business. None of these journals appeared to any great extent in the ABS or SS categories during this decade (Table 3).

ABS featured the *Journal of the American Dietetic Association* discussing empowerment of both medical practitioners and patients. This journal covers a range of areas of interest including: “nutritional science, medical nutrition therapy, public health nutrition, food science and biotechnology, foodservice systems, leadership management, and dietetics education”. Although the journal is not listed as occurring in any other subject category, its content suggest that it covers topics also relevant to the social sciences. Other journals appearing during this period for ABS were concerned with policy, economics, biological sciences, planning and agribusiness management.

Earlier in the 1980s, the SS category had featured journals outlining issues of power relations in gender and institutionalised workplaces mostly for non-government organisations in developing countries and women’s employment. By the 1990s it listed a strong showing of the use of empowerment in its journals with the main focus being in the areas of health and to a lesser extent development studies. Less prominent journals included additional topics that were health related as well as in the areas of education, evaluation, and topics surrounding societies and cultures.

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### Table 3  Most Popular Journals for Empowerment

<table>
<thead>
<tr>
<th></th>
<th>Agriculture</th>
<th>ABS</th>
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<tbody>
<tr>
<td>Number of Journals</td>
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<td>with Term</td>
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<td>1980 (n = 0)</td>
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<td>1990 (n = 3)</td>
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<td>• Journal of Rural</td>
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<td>Studies (2)</td>
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<tr>
<td>• Food Policy (1)</td>
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<td>• International Food</td>
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<td>and Agribusiness</td>
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<td>2000 (n = 9)</td>
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<td>• Journal of Rural</td>
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<td>Studies (5)</td>
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<td>• Agricultural Water</td>
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<td>Management (1)</td>
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<td>1990 (n = 15)</td>
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<td>• Journal of the</td>
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<td>2000 (n = 24)</td>
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<tr>
<td>• Journal of Rural</td>
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<tr>
<td>Studies (5)</td>
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<tr>
<td>2000 (n = 40)</td>
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<td></td>
</tr>
<tr>
<td>• Social Science and Medicine (10)</td>
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<tr>
<td>• World Development (4)</td>
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</table>

* Selection of terms taken from 1990 onwards for SS.

In the 2000s, agriculture still had only a few occurrences of empowerment with more than half appearing in the *Journal of Rural Studies* which also featured as the most prominent journal in ABS. The topics of discussion were focussed in the social sciences concerned with community development and the evaluation of programs predominately in industrialised countries. The remaining journals in agriculture dealt with issues around water management, economics and the environment. In addition to the *Journal of Rural Studies*, the ABS category also had a strong presence of various economic and policy journals that were also associated with the ES category. The social sciences presented similar findings to those in the 1990s and also extended its journal listing to include topics on computing and food concerns.
4 Participation

Ten journals listed the occurrence of participation for agriculture between 1970 and the present, being only 16 percent of the total journal listing for ABS. Five out of the six journals listing participation in the agriculture category in the 1970s existed within *Agricultural Administration*, dealing with a range of topics, mostly in developing countries, regarding rural development projects and their implementation, institutions and issues surrounding rural workers. The remaining journal in this period for agriculture was *Food Policy*, also shared with the EEF, ES and SS categories (Table 4). None of these journals were shared with the ABS and SS category as their most prominent journals during this period. ABS remained biologically focussed while SS predominately discussed development concerns associated with a range of fields of study in health, education, and the social sciences.

In the 1980s *Agricultural Administration* featured again in the agriculture category, along with its successor, *Agricultural Administration and Extension*. Similar topics to the 1970s were discussed, again in developing countries; but also included topics on women and small landholders in agriculture, evaluation of farmer organisations, agricultural development in developing countries, farmer adoption, labour issues, national policy, and farmer participation. Collectively these two journals produced 83 percent of the agriculture listings and 33 percent of the listings in the ABS category. The remaining two journals in agriculture, *Agricultural Systems* and *Food Policy*, discussed farmer participation in agriculture research. The ABS category continued with biological science based journals and a range of policy, planning and geography journals.

In the 1990s the *Journal of Rural Studies* (shared with SS) came to the foreground in the agriculture listing, producing more than half of the articles for this period concerned with social issues in industrialised and developing countries such as rural development, social movements in rural areas, and community governance and participation. The absence of any articles from *Agricultural Administration and Extension* is due to it being discontinued from 1989. *Agricultural Systems* appeared again and was joined by journals which had an environmental (e.g. *Agriculture Ecosystems and Environment*) and economic flavour (e.g. *Agricultural Economics*). Unlike the previous decade, none of these journals were shared with the most prominent listing for ABS with its focus in *FEBS Letters* (publishing information on molecular biosciences), also listed in the previous two decades; and the *Journal of American Dietetic Association* producing numerous articles involving health and social issues. As for empowerment I suspect the latter journal should also be listed in the SS category due to its strong social focus.

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<table>
<thead>
<tr>
<th>Most Frequently Occurring Journals</th>
<th>Agriculture</th>
<th>ABS*</th>
<th>SS**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950 (n = 0)</td>
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<td>1950 (n = 0)</td>
<td>1950 (n = 0)</td>
</tr>
<tr>
<td>1960 (n = 0)</td>
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<td>1960 (n = 19)</td>
<td>1960 (n = 16)</td>
</tr>
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<td>Agricultural Administration (5)</td>
<td>FEBS Letters (4)</td>
<td>Social Science and Medicine (22)</td>
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<td>1980 (n = 12)</td>
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<td>Agricultural Administration and Extension (6)</td>
<td>World Development (8)</td>
</tr>
<tr>
<td>2000 (n = 17)</td>
<td>Agricultural Economics (1)</td>
<td>Landscape and Urban Planning (7)</td>
<td>Social Science and Medicine (26)</td>
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</tbody>
</table>
| * Selection of terms taken from the 1980s onwards for ABS.  
**Selection of terms taken from the 1970s onwards for SS. |
Although the *Journal of Rural Studies* featured in the agriculture category it was not shown to be a prominent journal in the SS category where it is also listed. From the 1970s, SS had featured journals such as: *International Journal of Nursing Studies* concerned with nursing practice in the 1970s; *World Development* (shared with EEF) dealing primarily with developing countries economies and markets, environmental focus to programs, working women, and approaches to development; *Social Science and Medicine*, with a focus on practitioner and client involvement in health programs, predominately in developing countries; and the *Annals of Tourism Research* which observed the “academic perspectives of tourism”.\(^{11}\)

*World Development* and *Social Science and Medicine* continued their dominance in the SS category into the 2000s. However, large numbers of journals included ‘participation’ in the SS category, particularly from the 1980s, including such points of discussion as accounting, ergonomics, geography, language, children’s safety, human studies, computers, education, various policy avenues, history, management, crime, mental and physical health, planning, transportation, and urban issues.

In the 2000s the *Journal of Rural Studies* featured again as the most prominent journal in agriculture with topics similar to those in the 1990s in developing and industrialised countries. It also included a greater focus on the environment with topics such as politics and governance of the environment, farm conservation, gender and community rural development, and water allocations. The *Journal of Rural Studies* also appeared as a prominent journal in ABS but to a lesser degree than the environmentally related journals *Landscape and Urban Planning*, which considered “conceptual, scientific and design approaches to land use”, primarily focusing on the ecological aspects of the landscape. *Forest Policy and Economics*, dealing with “policy issues including economics and planning relating to the forest and forest industries sector” contained the majority of most listings for participation.\(^{12}\)

### 5 Self-Reliance

Very few journals listed self-reliance in the agriculture and ABS categories. SS produced more articles, though still not a great number (Table 5 and also noted in Figure 7.5 in Chapter 7). In the 1970s and 1980s agriculture and ABS shared their most prominent journals: *Agricultural Administration*, discussing food sufficiency and agricultural resources; and *Food Policy*, looking at food aid and food supplies (shared with EEF, ES and SS). ABS had only one addition in the later decade (i.e. *Land Use Policy* shared with ES and SS).\(^{13}\)


### Table 5  Most Popular Journals for Self-reliance

<table>
<thead>
<tr>
<th></th>
<th>Agriculture</th>
<th>ABS</th>
<th>SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Journals</td>
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<td>with More than One</td>
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<td>EEF=2</td>
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<td>ES=5</td>
<td>EEF=2</td>
</tr>
<tr>
<td></td>
<td>SS=1</td>
<td>SS=2</td>
<td>ES=5</td>
</tr>
</tbody>
</table>

| Most Frequently   | 1970 (n = 2) | 1970 (n = 2) | 1970 (n = 14) |
| Occurring Journals | Agriculture Administration (1) | Agriculture Administration (1) | World Development (11) |
|                    | Food Policy (1) | Food Policy (1) | |
| 1980 (n = 2)       | Agriculture Administration (1) | Agriculture Administration (1) | Social Science and Medicine (8) |
|                    | Food Policy (1) | Food Policy (1) | World Development (6) |
| 1990 (n = 0)       | Biomass and Bioenergy (1) | Ecological Engineering (1) | Journal of Personality and Social Psychology (3) |
|                    | Landscape and Urban Planning (1) | | |
| 2000 (n = 2)       | Agricultural Systems (1) | Agricultural Systems (1) | Futures (3) |
|                    | Journal of Rural Studies (1) | Ecological Economics (1) | |
|                    |                         | Journal of Rural Studies (1) | |
|                    |                         | Insect Biochemistry and Molecular Biology (1) | |

By the 1990s agriculture listed no journals with self-reliance, and the ABS category listed biological and environmentally focussed journals. In the 2000s listings returned to agriculture, again sharing two of its four listings with ABS in *Agricultural Systems* concerned with organic farming, and the *Journal of Rural Studies* discussing rural self-reliance in South Africa.14

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None of the journals listed in the agriculture category featured in the SS category as a prominent journal. As for many of the other terms the *World Development* (also listed in EEF) and the *Social Science and Medicine* journals occurred mostly in the 1970s and 1980s. By the 1990s the number of articles produced in the SS category had dropped, and the journals producing articles became more varied. The prominent journals of the 1970s and 1980s had given way to the *Journal of Personality and Social Psychology* in the 1990s and the *Futures* journal in the 2000s with only three articles occurring for each.\(^{15}\)

### 6 Social Capital

Four journals showed a presence of social capital in agriculture since the concept emerged in the 1990s (Table 6). Three of these were associated with other subject categories. Although ABS had a greater number of journals listed with the term, it also had a high proportion of these listed in other subject categories. SS featured better with 23 journals producing a greater number of articles particularly in the 2000s.

*Food Policy* (shared with EEF, ES and SS) was one of two journals listing social capital in the agriculture category with a social science perspective of the relationship between human rights and food policy in the 1990s.\(^{16}\) This journal also featured in the ABS category along with *International Food and Agribusiness Management Review* discussing cropping contracts in Arkansas.\(^{17}\) ABS included one additional journal, *Ecological Economics*, reinforcing the economics focus for this category. The SS category featured *World Development* and *Social Science and Medicine* which collectively produced half of the listings in this category for the 1990s and nearly two thirds in the 2000s.

*Agricultural Systems* emerged in the 2000s for both the agriculture and ABS categories, focussing on improving land management and sustainable production systems primarily in developing countries. However, agriculture produced less than half of the listings in the ABS category during this period with *Ecological Economics* (also shared with EEF and ES) being more prominent in ABS continuing its theme of discussion from the 1990s on improving economies, sustainable development and social well-being. Additions for the agriculture category were influenced by economics and SS through *Agricultural Economics* (shared with EEF), *Food Policy* (shared with EEF, ES and SS) and *Journal of Rural Studies* (shared with SS).


\(^{16}\) Haddad and Oshaug (1998)

### Table 6  Most Popular Journals for Social Capital

<table>
<thead>
<tr>
<th></th>
<th>Agriculture</th>
<th>ABS</th>
<th>SS*</th>
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<tbody>
<tr>
<td>Number of Journals with Term</td>
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<td>15</td>
<td>23</td>
</tr>
<tr>
<td>Number of Journals with More Than One Subject Category</td>
<td>EEF=2 ES=1 SS=2</td>
<td>EEF=4 ES=7 SS=5</td>
<td>ABS=2 EEF=3 ES=5</td>
</tr>
<tr>
<td>Most Frequent Occurring Journals</td>
<td>1990 (n = 2)</td>
<td>1990 (n = 3)</td>
<td>1990 (n = 39)</td>
</tr>
<tr>
<td></td>
<td>• Food Policy (1)</td>
<td>• Ecological Economics (1)</td>
<td>• World Development (13)</td>
</tr>
<tr>
<td></td>
<td>• International Food and Agribusiness Management Review (1)</td>
<td>• Food Policy (1)</td>
<td>• Social Science and Medicine (7)</td>
</tr>
</tbody>
</table>
| | • Agricultural System (8) | • Agricultural Economics (12) | • 
| | • Agricultural Economics (2) | • Agricultural Systems (8) | •  
| | • Food Policy (2) | •  |  
| | • Journal of Rural Studies (2) | •  |  

* Selection of terms has been taken for the 2000s.

### 7  Sustainability

The largest number of journals for sustainability featured in ABS at 80, most of these were found in the ES category. Agriculture featured less than a third for each of these categories at only 22 journals. The number of journals being shared with other subject categories was greatest for ES at nearly half of its journals citing sustainability, mostly shared with ABS followed by SS (see Table 7).

Agriculture featured only one journal in the 1970s in Agro-ecosystems (also listed in ES) concerned with population, food and energy relationships as discussed earlier in first appearances. Biological Conservation and Marine Policy both discussed sustainability and whaling stocks; and Energy Policy looked at the interrelationships between population, food, and energy. ABS did not share Ago-Ecosystems as a feature journal, having more focus on biological and environmental related journals, with Mathematical Biosciences featuring the most, discussing the behaviour of natural animal populations and economic exploitation.

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18 Biswas and Biswas (1976)
Table 7  Most Popular Journals for Sustainability

<table>
<thead>
<tr>
<th></th>
<th>Agriculture</th>
<th>ABS*</th>
<th>ES**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Journals</td>
<td>22</td>
<td>80</td>
<td>71</td>
</tr>
<tr>
<td>with Term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Journals</td>
<td>5</td>
<td>27</td>
<td>34</td>
</tr>
<tr>
<td>with More than One</td>
<td>EEF=2</td>
<td>EEF=4</td>
<td>ABS=23</td>
</tr>
<tr>
<td>Subject Category</td>
<td>ES=3</td>
<td>SS=6</td>
<td>EEF=4</td>
</tr>
<tr>
<td></td>
<td>SS=2</td>
<td></td>
<td>SS=14</td>
</tr>
</tbody>
</table>

Most Frequently Occurring Journals

1970 (n = 1)
- Agro-ecosystems (1)
- Mathematical Biosciences (4)

1970 (n = 35)
- Agriculture, Ecosystems and Environment (14)
- Agricultural Systems (6)
- Food Policy (5)

1980 (n = 76)
- Agriculture, Ecosystems and Environment (14)
- Agricultural Systems (6)
- Ecological Modelling (6)
- Forest Ecology and Management (6)

1990 (n = 200)
- Ecological Economics (34)
- Landscape and Urban Planning (15)
- Agriculture, Ecosystems and Environment (14)
- Forest Ecology and Management (14)

2000 (n = 400)
- Ecological Economics (47)
- Forest Ecology and Management (43)
- Agriculture, Ecosystems and Environment (30)

2000 (n = 500)
- Ecological Economics (47)
- Forest Ecology and Management (39)
- Agriculture, Ecosystems and Environment (37)
- Journal of Cleaner Production (34)

* Selection of terms taken from 1990 onwards for ABS.
** Selection of terms taken from 1990 onwards for ES.

In the 1980s the number of journals and articles began to increase across all of the categories with 35 journals featuring sustainability in agriculture. Agriculture, Ecosystems and Environment was the journal most frequently occurring, recording 14 articles in agriculture and ABS and 13 for ES with topics on low input agriculture and economic sustainability, agricultural systems, agro-ecology, agriculture, and to a
lesser extent farming societies. *Agricultural Systems* also featured for agriculture and ABS, again with the same number of occurrences discussing cropping systems and renewable resources, and agro-ecosystems. It was not reported as a prominent journal in ES, whose two other feature journals were ecologically focused and were also shared with ABS. *Food Policy* (shared with EEF, ES and SS) was the last journal in agriculture with any numerous issues looking at food production, introduced crops in developing countries, and farmer participation in agricultural research. Other journals listed in smaller numbers discussed agricultural administration, economics and water management.

In the 1990s the types of journals broadened to include topics focussing more on ecology, forestry management, and landscape and urban planning issues in both the ABS and ES categories. *Agriculture, Ecosystems and Environment* again featured in the agriculture category with the most occurrences and was recorded as ranking third highest in the ABS and ES categories examining biophysical and economical land use, agro-ecosystems, organics, agro-forestry, agro-landscape, energy and agriculture, and rural landscape development. Other journals of significance for agriculture included *Agricultural Systems*, *Food Policy* (shared with EEF, ES and SS), and *Soil and Tillage Research*. The remaining journals covered similar topics to those in the 1980s with additional inclusions on meteorology, energy, engineering research, small ruminant research and rural studies. The most frequently occurring journal in the ABS and ES categories was *Ecological Economics* (shared with EEF). This was accompanied by *Water Science and Technology* for ES; and for ABS, *Landscape and Urban Planning* (shared with ES) and *Forest Ecology and Management* (also shared with ES).

In the 2000s, similar occurrences were noted for all of the subject categories. *Ecological Economics* was found to have the largest number of occurrences of sustainability for ABS and ES (also shared with the EEF category). It continued to discuss the environmental and economics aspects of sustainability and policy concerns, international trade, small scale farming in developing countries, fisheries, transport, and regional development for industrialised and developing countries. *Forest Ecology and Management* was the next most frequent journal, again shared between ABS and ES. *Agriculture, Ecosystems and Environment* was shown to rank third for these two categories, but held the highest number of occurrences for agriculture considering similar matters to those in the 1990s but also: the safety of agricultural systems, evaluating change in agricultural landscapes, evaluation of agricultural systems, energy analysis, human carrying capacity of agricultural lands, and the modelling of productivity.

The *Journal of Cleaner Production* was the only other remaining prominent journal in the ES category to mention sustainability. For agriculture, *Agriculture Systems* featured again along with *Forest Policy and Economics* (shared with ES), with the remaining journals concerned with similar topics to the 1990s and also included computers and electronics, crop protection and research, food policy, and industrial crops and products.
APPENDIX H

Measuring Social Capital

The following selection of examples have been drawn from the extensive literature on social capital and demonstrate ways in which it has been measured in Australia. The first approach, by the Centre for Research and Learning in Regional Australia (CRLRA), develops indicators to assess the interactions between individuals within rural communities. It provides some ideas on ‘building’ or enhancing of social capital. The second example from the Australian Institute of Family Studies outlines the development of a social capital framework. The third example by Macgregor and Cary uses a framework designed for the rapid appraisal of social capital utilising secondary data. It illustrates some of the consequences of using Putnam’s model to measure the broader effects of social capital.

1 Centre for Research and Learning in Regional Australia, Indicators of Social Capital

Falk, Harrison and Kilpatrick noted that the majority of research conducted on social capital is at the individual and community level, with few interactions between individuals within a community being observed. Since 1998, they have attempted to fill this gap by investigating the links between learning processes and the development of social capital as a determinant for economic growth. They drew on Coleman and Putnam’s social capital theories and the grounded theory methodology to develop a set of indicators to determine the presence of social capital and learning in rural communities.


The ‘grounded theory’ methodological approach was outlined in Chapter Five.

The CRLRA is located within the Faculty of Education at the University of Tasmania. It is primarily concerned with community development and small business issues in relation to adult education and learning in communities. When previously associated with the CRLRA Ian Falk, Sue Kilpatrick and colleagues wrote numerous publications on social capital regarding: literacy
Two approaches were taken to develop their indicators. The first approach, identified by the authors as their “bottom-up approach”, drew on research from their *Indicators of Social Capital* project involving whole-community case studies. Rather than to elucidate social capital, the project was designed to determine “what is the nature of the interactive productivity between the local networks in a community?” The results identified three resource categories of meaning which people access when interacting with each other: knowledge resources; identity resources; and consolidated resources. Each of these was found to be shared, used and ‘built’ simultaneously as they interacted with each other.3

The second approach, described by the authors as their “across project top-down approach”, used data from their *Executive Link™* project as well as their *Indicators of Social Capital* project.4 They identified three features that needed to exist in both quality and quantity. However, it is not entirely clear from their description how the indicators listed below were derived.

- Demonstration of reciprocity in relationships.
- Sharing of resources in terms of the use of networks (number, frequency of interactions across and within networks); diversity and range; and use of physical

and community; lifelong and adult learning; community development; family farm businesses; leadership; networks and trust; groups; the relationship between human and social capital; and social capital in general.

3 Falk *et al* (1998:120); Kilpatrick, S., Falk, I. and Harrison, L. (1998b) *Learning in Rural Communities: a response to rapid economic change*. Centre for Research and Learning in Regional Australia, Launceston; Falk, I. (2001a) *Human and Social Capital: a case study of conceptual colonisation*. Centre for Research and Learning in Regional Australia, University of Tasmania, Launceston, p.3-5. The resource categories are described as follows:

“1. Knowledge resources – where the interactions draw on the resource of shared (common) knowledge of community, personal, individual and collective information: members' length of residence, genealogy, actions, values and reputations, occupations, volunteer positions, hobbies and interests. 2. Identity resources – where the interactions draw on the resource of shared (common) understandings of personal, individual and collective identities. This results in a sense of individuals ‘belonging’ in both social and civic categories. 3. Consolidated resources – where the interactions draw on the resource of shared (common) understanding and familiarity with community assets which are aggregated and used reciprocally for mutual benefit” (Falk *et al* 1998:120).

4 The *Indicators of Social Capital* project was a pilot study conducted by Ian Falk and Lesley Harrison from the CRLRA in the late 1990s. The project aimed to “derive tentative indicators for social capital through a grounded theory approach, which in turn allows for subsequent refinement and testing”. It used a whole-community case study to observe how communities responded to change so as to achieve community sustainability (Falk and Harrison 1998).

The *Executive Link™* project consisted of a group of farm businesses located in Chapters in Eastern Australia. The producers meet on a regular basis (three times per year for a residential workshop for three days) for informal education and training. Each Chapter contained a Board which provided advice to the group members. A farm management training course had to be completed before a business could be a part of the program (Kilpatrick and Bell 1998:5; Kilpatrick *et al* 1998a:5; Kilpatrick, S. (2002) *Learning and Building Social Capital in a Community of Family Farm Business*. Centre for Research and Learning in Regional Australia, University of Tasmania, Launceston).
community resources, use of shared purposes or visions, and drawing on a diversity of individuals to achieve common purposes.

- External interactions, indicated by participants’ evaluative referencing with other communities/individuals, and outside areas coming into the community.\(^5\)

The authors also commented on the building or production of social capital, suggesting that how it is produced needs to be observed. They propose that this can be achieved by assessing the development of the participants’:

- ‘knowledge’ of other community member’s skills and knowledge, common physical resources, strengths and weaknesses;
- ‘agency’, or capacity to act for the communities benefit and individuals and acceptance of others credibility; and
- ‘opportunity’ (e.g. newspaper, projects and networks).\(^6\)

Again, the quality and quantity of both internal (or local) and external interactions needed to be considered when developing the sharing of language and experiences, trust, personal development, and identifying with the community of concern.\(^7\) The quality aspects of social capital had been identified earlier by Bourdieu as being important. In addressing this consideration CRLRA draw on all three of the original social capital theories, rather than the two they had identified.

2 Australian Institute of Family Studies Social Capital Framework

The Australian Institute of Family Studies devised a theoretically informed social capital framework (see Figure 1) through their *Families, Social Capital and Citizenship Project*. The framework used by Stone and Hughes, tests three approaches to measuring social capital: (1) network based measures; (2) whether a single measure of social capital can be devised; and (3) the development of a cluster-based typology of social capital.\(^8\)

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Figure 1 is adapted from Stone and Hughes (2002).
The framework views social capital as a “multidimensional concept comprising networks, trust and reciprocity...[and] emphasises both the quality and structure of social relations”. In those particulars it is similar to the CRLRA model. The centre columns describe the measures of social capital, which include the types of networks and the norms which govern them and the characteristics, or structure, of social relations in which the norms operate. So that social capital can be empirically assessed, the measures of its determinants and outcomes have been listed separately in the left and right columns. These hypothesised determinants and outcomes include other forms of capital and reflect concerns by policy makers and researchers.9

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9 Stone and Hughes (2002:2-6)

The data used to assess the three approaches to social capital was obtained from a telephone survey of 1 500 households (Stone and Hughes 2002).
From this research Stone and Hughes drew the question whether social capital should be thought of as a “multidimensional concept, or whether we should think about the different dimensions or elements of as conceptually distinct, …[since the] measures of norms, networks and network characteristics do not cohere readily to form an overall measure of social capital, but rather that differences exist between these core elements.”

3 Social/Human Capital Rapid Appraisal Model

Due to the costs, time restraints, and difficulties in obtaining access to primary data for the determination of human and social capital, Macgregor and Cary devised a model in 2002 to use secondary data. The idea for the model arose from the need to assess the viability of small regional communities in Australia due to the effects of globalisation on their supporting economies (e.g. agriculture and mining). Although it is not stated by the authors, this has similar objectives to that of Rapid Rural Appraisal discussed earlier in Chapter Three.

The authors based the development of their *Social/Human Capital Rapid Appraisal Model (SCRAM)* on a review of social capital indicators conducted by Black and Hughes in 2001. The framework, shown in Table 1, recommends that social capital needs to be considered in terms of: (A) patterns of processes; (B) the qualities of processes; and (C) structures that govern or enhance social processes. The presence of each can be determined by using the indicators in column one of Table 1 through the use of primary data (e.g. questionnaires and interviews).

Macgregor and Cary state that primary data is not always available. Therefore they propose that appropriate secondary data, which allows for the effects of social capital to be determined, such as those in column two, could be used as an alternative. However, the use of secondary data can pose some problems, in that it may not have been originally intended for determining the presence of social capital. Where appropriate secondary data cannot be found, they have devised a set of ‘possible proxy indicators’ (column three) from ‘social capital outcomes (D)’. These ‘proxy indicators’ are a suggested form of data that can used as a substitute to determine

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10 Stone and Hughes (2002)  
11 Prior to writing this paper, Colin Macgregor and Professor John Cary were associated with the Social Science Program within the Australian Government’s Bureau of Rural Sciences. Macgregor’s interests lie in social science methodologies in relation to natural resource management and sustainable communities. Cary’s research interests are in human behaviour related to the environment.  

Table 1 is adapted from Macgregor and Cary (2002).
social capital in the absence of any primary indicators where suitable data is available.\textsuperscript{14}

\textit{Table 1} \hspace{1em} SCRAM Social Capital Indicator Framework

\begin{center}
\begin{tabular}{|c|c|}
\hline
\textbf{NOTE:} & \\
This table is included on page 357 of the print copy of the thesis held in the University of Adelaide Library. & \\
\hline
\end{tabular}
\end{center}

\textsuperscript{14} Macgregor and Cary (2002:106-14)
The authors discuss the proxy indicators in relation to Stone’s interpretation that social capital indicators must be “classified into ‘proximal’ [i.e. the core elements of social capital: networks, trust and reciprocity] and ‘distal’ [i.e. those associated with social capital outcomes] groupings.” Since these proximal groupings are usually determined through primary data and distal groupings through association with social capital (i.e. usually secondary data), it is not clear how these differ from the existing primary and secondary data indicators in columns one and two. Additionally, other than stating that the ‘community indicators’ are social capital outcomes (D) and have “no particular affiliation”, it is difficult to determine what these are specifically measuring in relation to social capital.

Since human capital is said to enhance social capital (as suggested earlier by Coleman), Macgregor and Cary developed an additional framework of indicators for human capital. The primary indicators, shown in Table 2, were again based on the work by Black and Hughes. They have also proposed secondary and possible proxy indicators as in Table 1 for social capital, where the secondary data indicators can be achieved by observing changes over time or by conducting comparisons with other similar communities.

SCRAM deals primarily with social capital outcomes through its assessment of networks, norms and trust and distal indicators from an individual level through to civic impact. Although the constraints to undertaking evaluations with primary data are understood, some caution as to how the secondary data is attributed to social capital outcomes would need to be taken and not treated as gospel, as can often be the case. Given that the incorporation of qualitative evaluation into agriculture is still in its infant stage and therefore not well understood, those using SCRAM would need to be skilled in interpreting the secondary data to make the step to proposed social capital outcomes. Again, someone skilled in qualitative evaluation and the social sciences with its accompanying theories would be preferable, so that incorrect assumptions on what is being achieved are not made.

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15 Wendy Stone was involved in developing the *Australian Institute of Family Studies Social Capital Framework*, discussed in Section 8.5.2, with Jody Hughes.


17 Table 2 is adapted from Macgregor and Cary (2002).

18 Macgregor and Cary (2002:115, 117)
Table 2  SCRAM Human Capital Indicator Framework

NOTE:
This table is included on page 359 of the print copy of the thesis held in the University of Adelaide Library.


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Daniels, J. and Woods, E. (year unknown) *RIRDC Short Report: evaluation demonstrates computers can benefit farm business management.* Rural


Falk, I. (2001b) *Literacy and Community: social capital and its production of human capital*. Centre for Research and Learning in Regional Australia, University of Tasmania, Launceston.


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