VALUES IN AGRICULTURAL RESEARCH AND DEVELOPMENT MANAGEMENT FOR PRO-POOR IMPACT: THE CASE OF PETRRA PROJECT, BANGLADESH

AHMAD SALAHUDDIN

JANUARY 2011
Adelaide University

Values in Agricultural Research and Development Management for Pro-Poor Impact: The Case of PETRRA Project, Bangladesh

A Dissertation Submitted to

Discipline of Politics

in Candidacy for the Degree of

Doctor of Philosophy

by

Ahmad Salahuddin
B.A. (Hons.), M.A. Sociology (Rajshahi)
M.A. Development Studies (ISS, The Hague)

Adelaide, South Australia

January 2011
This work contains no material that has been accepted for the award of any other degree or diploma in any university or other tertiary institution to myself. To the best of my knowledge and belief, it 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.

I also give permission for the digital version of my thesis to be made available on the web, via the University's digital research repository, the Library catalogue, the Australasian Digital Thesis Programme (ADTP), and through web search engines, unless permission has been granted by the University to restrict access for a period of time.

Ahmad Salahuddin
Abstract

Values in Agricultural Research and Development Management for Pro-poor Impact: The Case of PETRRA Project, Bangladesh

In spite of many years of quality agricultural research and overall agricultural and economic growth, there has been slow progress in the reduction of rural poverty in many developing countries. There is agreement that technology alone is unable to solve the problem of poverty. There are many other issues that need to be considered - some are agroecological and some are social-economic-cultural-institutional-infrastructural. There has recently been fruitful discussion on poverty-focused agricultural research within national and international agricultural research systems. But the actual application of these new ideas and discussions in research has been limited. Although all agree that there is a need to discover ways to achieve greater impact on poverty from research that has been conducted, there is as yet no clear evidence of achievement based on practical experiences. There is little or no real discussion in the literature that demonstrates whether the approach to research affects poverty status.

This thesis revisits different interventions and identifies gaps in the literature in understanding approaches to agricultural research. It examines whether working directly with poor men and women farmers in partnership with organisations can contribute to poverty reduction. It also explores a range of values, asking whether they can make pro-poor research and development more effective and, more importantly, whether a value-based research management approach can significantly contribute to poverty elimination. The experience of a recently completed IRRI-managed and DFID-funded project, the Poverty Elimination Through Rice Research Assistance (PETRRA) project, which claimed to have used a value-based approach to agricultural research management, was used as a case study to learn about the effectiveness of such an approach. The project was implemented in Bangladesh for 5 years with more than 50 national and international partners and in close collaboration with the Bangladesh Rice Research Institute (BRRI).

A qualitative research methodology was used to explore the effectiveness of the value-based research management approach utilised by the project. The values included working with the poor men and women farmers on their demands and priorities, conducting research that ensures participation of men and women farmers, working with partners who work with the poor farmers, and developing networks and linkages to sustain technologies and innovations and communicate results to a large number of
poor farmers for impact. Under PETRRA, a competitive research commissioning approach was used in the selection of partners. The research method involved interviewing the research partners that led research and development subprojects 4 years on from the completion of the project. This group represents the intermediary group that made the link between two large groups: i) the national-international agricultural research and development system and ii) the users, the poor men and women farmers or the farmer groups. During the interviews, the partners of PETRRA evaluated their experience with the value-based approach that was adopted by PETRRA and analysed its effectiveness.

The research revealed that the experience of engaging with values and the value-based management approach was mostly positive. The scientists from national and international research centres and development professionals from government, non-government, and private organizations were successful in linking agricultural research, values, and the need for a management approach to achieve the objective of poverty reduction. They were able to see the strengths of the values when they were used in combination to complement each other. They observed the superior effectiveness in poverty reduction of research outputs in the form of technologies and other innovations that were developed through a value-based approach. They also identified the need for and effectiveness of the contribution of continuous capacity-building efforts on the part of the project management unit in support of a value-based approach. There was clear evidence of capacity-building impact on individual partners and their respective organizations as many of these individuals and organizations sustained the learning after the project ended. Many technologies and innovations, networks, and tools that were developed in the respective subprojects were successfully used by poor farmers, some were replicated by other organizations, and some were mainstreamed and internalised within the organizations that developed them. Many partner organizations involved were substantially changed. Those who had no previous agricultural programme became champions in agriculture, and those who had never worked with resource-poor men-women farmers became leader organizations in conducting such programmes. Many individuals and organizations became advocates and became known nationally. All such evidence indicates the effectiveness of the value-based agricultural research management approach.

The thesis concludes that pro-poor agricultural research and development is possible, even within a traditional setting. The challenge is to create a management approach around research and development activities that is value-based and that can facilitate a learning environment where all actors can contribute, play their due role, and get credit for it.
Acknowledgement

The opportunity to reflect on PETRRA has been a privilege. PETRRA as a project was successful in bringing together a donor, DFID; an international agricultural research centre, IRRI; a national agricultural research institute, BRRI; and a large number of partners - international centres, national government, nongovernment, private organizations, and universities - to achieve a common goal, that of eliminating poverty in Bangladesh through agricultural research and development initiatives. It was a rarer opportunity for me to be part of this historical contribution, both as a team member and as a researcher to capture the learning from this valuable experience.

Many people thought that PETRRA was a very important experience. For many, it was a very valuable lesson and an inspiration, especially to those who wanted to contribute to a positive improvement in the livelihoods of resource-poor farmers. Recognising this, IRRI decided to invest further on the project by capturing the lessons through this research. IRRI management must be congratulated for its generous funding. Dr. Noel P. Magor, head of the IRRI Training Center had the most contribution to make this research funding possible. I am deeply grateful to him.

The cooperation of former PETRRA partners who gave me quality time and granted me very illuminating in-depth interviews, initially excited me and inspired me to carry out this research. They each deserve my heartfelt thanks. All of their names are listed in Appendix 1 and are mentioned throughout the thesis; readers will also find them present in each page.

Supervision of the thesis was not easy because of my physical isolation from my supervisors most of the time. After an initial 1-year stay at Adelaide University, I had to live most of my time in Bangladesh; yet regular consultations and meetings had to be held. Dr. Peter Mayer, my principal supervisor at Adelaide University, deserves special thanks; he rarely missed a weekly Skype meeting. I appreciated the patience, wisdom, guidance, and encouragement that he provided throughout this trying period. Dr. Noel P. Magor, my supervisor at IRRI, has always been in contact. He never stopped encouraging me. He arranged for some funds to enable me to travel to IRRI several times during the period, allowing me to work closely with him and giving me some quiet time at IRRI so I could concentrate on my writing. He also supported my participation in four international conferences to present papers based on my research findings. Dr. Juanita Elias, my co-supervisor at Adelaide University, has been very helpful during the initial concept development period. All three have been special and deserve special thanks.

My coming back to school after a long break would have been very difficult was it not for the emotional support that my family has given me. My wife Afroz Ara and my daughters Anika Farha and Afrida Faiza
had been, all along, my inspiration. They had sacrificed a lot as I could not be with them when they needed me. Afroz had to leave her job to ensure that the kids get full-time support in my absence. My parents, Muhammad Muslehuddin and Syeda Shakera Khatun, had been the most valuable source of my energy. They had always encouraged me from a distance; praying for my success at the time that they themselves need a caring hand, when they needed me to be close and give them emotional support. My brothers, sisters, relatives, friends, and colleagues all had encouraged me at different times during the period. I thank you all.

I am especially thankful to Rose Magor, who has always been very caring. She provided me support at critical times in Adelaide and at Los Banos. I am also thankful to Dr. Paul Van Mele, a friend and former colleague, for his continuous encouragement. My IRRI colleagues at Los Banos, Philippines, and in Dhaka, Bangladesh, gave me their full support. My Bangladeshi friends, the community, and my colleagues in the Politics Department at Adelaide and the scholars at IRRI have been very hospitable during my stay in both places. They inspired me a lot and I thank all of them.
Table of Contents

Certificate of Originality .................................................................................................................. i
Abstract ........................................................................................................................................... iii
Acknowledgement ............................................................................................................................ v
Table of Contents ............................................................................................................................. vii
List of Tables ..................................................................................................................................... xii
List of Figures .................................................................................................................................... xii
List of Abbreviations ......................................................................................................................... xiii
Glossary of Special Terms ................................................................................................................ xvi
Administrative Units of Bangladesh ................................................................................................. xvii

Chapter I ........................................................................................................................................... 1
1. Is This Journey Necessary? ........................................................................................................ 1
1.1. Introduction ............................................................................................................................ 1
1.2. Agriculture in development ................................................................................................. 2
1.3. Poverty and agriculture ........................................................................................................ 6
1.4. Poverty, agricultural research, and public goods ................................................................. 7
1.5. The values-based agricultural research management approach: a new front for scholarship 13
1.5.1. Management, agricultural research, and values ............................................................. 16
1.5.2. ‘Values’: from business to development .......................................................................... 16
1.5.3. Values-based management in business and development ............................................. 17
1.5.4. Important values in agricultural research and development management ............... 21
1.5.5. PETRRA interfacing values concepts .......................................................................... 28
1.5.6. Innovation Systems Framework and the PETRRA approach ..................................... 30
1.5.7. PETRRA in the context of institutional learning and change .................................... 31
1.5.8. Introducing PETRRA with actors and approaches ..................................................... 33
1.6. The research questions ......................................................................................................... 35
1.7. Thesis outline ...................................................................................................................... 36

Chapter II ........................................................................................................................................ 39
2. The PETRRA Context ................................................................................................................ 39
2.1. Introduction ......................................................................................................................... 39
2.1.1. Who initiated ..................................................................................................................... 39
2.1.2. Background ..................................................................................................................... 40
2.2. Project Objectives .............................................................................................................. 43
2.2.1. The Goal, Super Goal, and Purpose .............................................................................. 44
2.2.2. The Outputs ................................................................................................................... 46
2.2.3. Cross-cutting issues, the values ..................................................................................... 50
2.3. Project approach ............................................................................................................... 54
2.3.1. Strategies ....................................................................................................................... 54
2.3.2. Defining a target client group ......................................................................................... 54
2.3.3. Demand-led and participatory research ....................................................................... 55
2.3.4. Research priority setting through stakeholders ........................................................... 56
2.3.5. Making women visible in agricultural research ............................................................ 57
2.3.6. Identification of poverty elimination pathways early in the research ....................... 58
2.3.7. Extension materials not research papers as outputs ................................................... 58
2.3.8 Communications profile evolved with project progress ............................................... 59
2.3.8. Strong local ownership ............................................................................................... 60
2.3.9. Partnerships: from cost effectiveness to complementarity and sustainability ........................................... 61
2.3.10. Capacity building of local partners to ensure quality research delivery ............................................. 63
2.3.11. Focal Area Approach (a concept of decentralised research approach and management) ..................... 64
2.3.12. Uptake Forum ........................................................................................................................................... 66
2.4. Project management approach ..................................................................................................................... 67
2.4.1. Establishment of the Project Management Unit (PMU) ........................................................................... 67
2.4.2. Establishment of Project Steering Committee (PSC) and Technical Committee (TEC) ......................... 69
2.4.3. Annual reviews ......................................................................................................................................... 72
2.5. PETRRA research-commissioning process ............................................................................................. 73
2.5.1. Identification of researchable issues ....................................................................................................... 73
2.5.2. Research commissioning on a competitive basis .................................................................................... 75
2.5.3. What research to commission? ........................................................................................................... 76
2.5.4. Who chose the partners? ....................................................................................................................... 77
2.5.5. Learning from other projects .............................................................................................................. 78
2.5.6. Monitoring and evaluation of subprojects ........................................................................................... 79
2.5.7. Impacts assessed during the life of the project .................................................................................... 80
2.6. ‘Values’ of values-based agricultural research management in PETRRA .................................................. 80
2.7. Conclusion .................................................................................................................................................. 81

Chapter III
3. The concept and method of capturing learning ............................................................................................. 83
3.1. Introduction ............................................................................................................................................... 83
3.2. A qualitative research approach was used .............................................................................................. 83
3.3. The conceptual framework of the inquiry process .................................................................................... 85
3.4. The Method ............................................................................................................................................... 87
3.4.1. Who to learn from and why? .............................................................................................................. 88
3.4.2. Who are they? ...................................................................................................................................... 89
3.4.3. Questions to the respondents .............................................................................................................. 90
3.4.4. Different stages of the interview process ............................................................................................ 90
3.4.5. The processing and analyses of interviews ........................................................................................ 92
3.5. Reflection on the method ......................................................................................................................... 92
3.5.1. Open-ended interviews opened up the boundary ............................................................................. 92
3.5.2. Each case interview was different .................................................................................................... 93
3.5.3. “It was a shame for me, I could not recognise you” ............................................................................. 94
3.5.4. Personal experience as observer and investigator ............................................................................. 95

Chapter IV
4. PETRRA values in practice: early evidence of impact .................................................................................. 97
4.1. Introduction ............................................................................................................................................... 97
4.2. Poverty focus .......................................................................................................................................... 99
4.2.1. Targeting poor farmers for agricultural R&D: a contested strategy ................................................. 99
4.2.2. Strategies and tools to make the programme poverty-focused ......................................................... 102
4.2.3. Implementers’ attitudes affect targeting performance ........................................................................ 105
4.2.4. Engagement with the resource-poor: constraints and prospects ...................................................... 108
4.3. Women in agricultural R&D: PETRRA learning laboratory ................................................................. 109
4.3.1. Organizational background helped .................................................................................................. 110
4.3.2. The potential of women-inclusive agricultural R&D ....................................................................... 111
4.3.3. PETRRA emphasis and followup helped partners achieve women-inclusive R&D .................... 114
4.3.4. Approaches need to be strategic and culture-sensitive ....................................................................... 116
4.3.5. Working with women became the most important strategy for some partners ............................. 117
4.4. Demand-led R&D .................................................................................................................................. 118
4.4.1. Engagement with farmers: key to understanding their demand .................................................... 119
4.4.2. Ecosystem provides clues for effective technology .......................................................................... 120
4.4.3. Addressing farmer demand is a challenge ....................................................................................... 121
4.4.4. Demand-led R&D: reality and rhetoric .......................................................................................... 122
4.4.5. Conducive policy, strategy, and environment for demand-led research ........................................ 123

viii
4.4.6. Disseminating technologies that farmers demand through networking .................. 125
4.5. Participation of poor men and women farmer in R&D ........................................ 126
4.5.1. Defining participatory research: pushing the boundary .................................. 126
4.5.2. Organizational commitment was crucial .............................................................. 128
4.5.3. Partnership made participation easy ................................................................. 129
4.5.4. Participatory R&D helps improve capacity of researchers and ensures quick adoption 129
4.5.5. Participatory research has a niche .................................................................... 131
4.5.6. From concept to practice—the PETRRA experience helped them walk an extra mile 134
4.5.7. Impact of participatory research approach of PETRRA .................................. 135
4.6. Partnership for pro-poor R&D ........................................................................... 137
4.6.1. A new experience for many partners ............................................................... 137
4.6.2. Advantages of partnership in R&D as partners learned from the experience..... 138
4.6.3. Cost-effective partnership development approach with local NGOs and CBOs—a discovery 140
4.7. Linkage and network for sustained R&D .......................................................... 141
4.7.1. Partners developed positive views on linkage and network gradually ............ 142
4.7.2. Flow on from PETRRA was revealing ............................................................. 144
4.8. Competitive system to identify competent R&D suppliers ............................... 145
4.8.1. PETRRA’s competitive research commissioning system was a learning process 146
4.8.2. Only competition would not work .................................................................. 147
4.8.3. In a competitive system, advantages and disadvantages coexist ............... 148
4.8.4. Some clear outcomes of competitive system ............................................... 150
4.9. Communication for dissemination, scaling up and sustainability of R&D results 152
4.9.1. PETRRA helped build awareness and skills about communication ............ 152
4.9.2. Ideas generated shared, replicated, and materials being further utilised ......... 154
4.9.3. Making a balance to target tools and audience was a challenge .................. 156
4.9.4. PETRRA helped partners develop confidence .............................................. 157
4.10. Conclusion ....................................................................................................... 157

Chapter V ................................................................. 159
5. Facilitating learning for capacity development ....................................................... 159
5.1. Introduction ....................................................................................................... 159
5.2. PETRRA facilitating capacity development ....................................................... 160
5.2.1. PETRRA facilitated a conducive learning environment ................................. 160
5.2.2. Researchers, extension agents, and farmers worked and learned together .... 162
5.2.3. PETRRA engaged with partners to achieve a value orientation ............... 163
5.2.4. PETRRA’s capacity-building approach attracted partners ......................... 165
5.2.5. Flexibility was an important learning and management tool in PETRRA .... 166
5.2.6. PETRRA core values worked as sources of capacity .................................. 169
5.3. The impact of capacity development on individuals ........................................ 171
5.4. The evidence of organizational capacity impact .............................................. 174
5.4.1. Bangladesh Rice Research Institute (BRRI) ................................................. 175
5.4.1.1. PETRRA helped change BRRI ................................................................. 175
5.4.1.2. BRRI scientists were exposed to multiple partners ................................ 176
5.4.1.3. PETRRA helped BRRI to achieve scale .................................................. 177
5.4.1.4. What BRRI did in PETRRA was unique .................................................. 178
5.4.1.5. PETRRA experience exposed BRRI to many opportunities .................... 178
5.4.1.6. BRRI contributed to develop system capacity ........................................ 179
5.4.1.7. Rice Knowledge Bank and BRRI ............................................................ 179
5.4.1.8. Some BRRI partners found opportunities elsewhere ............................ 180
5.4.2. Dr M.A. Razzaque, Bangladesh Agricultural Research Council (TEC member and chair BARC) ................................................................. 180
5.4.3. International Rice Research Institute (IRRI) ................................................ 181
5.4.3.1. PETRRA laid the foundation of many IRRI projects .............................. 181
5.4.3.2. PETRRA had a big impact ................................................................. 182
Chapter VI

6. Impact and sustainability of PETRRA innovations ......................................................... 199
6.1. Introduction ................................................................................................................... 199
6.2. Innovations and sustainability ...................................................................................... 200
6.2.1. Seed network: a small element in PETRRA that became a major national programme .... 201
6.2.2. Seed health technologies showed important pro-poor impact potential ....................... 205
6.2.3. Salinity-tolerant variety development research had longer term impact on the way research should be done ........................................................................................................... 207
6.2.4. From PETRRA partnership to many networks and linkages nationally ............................ 208
6.2.5. Communication activities had strong elements of impact ........................................... 211
6.2.5.1. Bangladesh Rice Knowledge Bank: important seed sown for impact ............................ 211
6.2.5.2. Seed technology videos made a big impact ................................................................. 212
6.2.5.3. PETRRA materials continued to be used to deliver impact ........................................... 213
6.2.6. Graduate education-research linkage – an important capacity development impact ........ 214
6.2.7. PETRRA innovations disseminated by organizations, projects, or programmes ............ 216
6.3. Organizational and institutional sustainability ............................................................... 219
6.3.1. Some indications of organizational and institutional impact ........................................... 219
6.3.2. Some organizations were transformed ........................................................................... 220
6.3.3. Focal Area Forum – a sustainable approach for scaling up impact ............................... 223
6.4. Reflections on limitations ............................................................................................. 228
6.4.1. Duration was too short for PETRRA ............................................................................ 229
6.4.1.1. Strategy development for sustainability was not possible ............................................ 229
6.4.1.2. Followup activities could not be taken up .................................................................. 229
6.4.1.3. The short life of the project limited the potential for sustainability .............................. 230
6.4.1.4. Duration was not enough to get a momentum ............................................................ 230
6.4.2. There was a lack of followup strategy for better impact ............................................. 231
6.4.3. Achieving sustainability had a few challenges .......................................................... 232
6.5. Conclusion .................................................................................................................. 234

Chapter VII

7. Wide open future ............................................................................................................ 239
7.1. Introduction .................................................................................................................. 239
7.2. PETRRA was everybody's story .................................................................................. 240
7.3. PETRRA values and their potential strategic use ......................................................... 242
7.3.1. PETRRA experience provides clues and examples for pro-poor R&D ............................ 243
7.3.2. Simple approach made a big difference .................................................................... 243
7.3.3. Values helped organizations to reveal reality ............................................................. 244
7.3.4. Partnership: time to recognise an expanded NARES definition ................................. 245
7.3.5. Values: visible change in individual and organizational behaviour ............................ 247
List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.</td>
<td>Timeline: Agricultural research, international centres, and poverty</td>
</tr>
<tr>
<td>1.2.</td>
<td>The evolution of values within the CGIAR</td>
</tr>
<tr>
<td>1.3.</td>
<td>Approaches in agricultural research, by agency</td>
</tr>
<tr>
<td>1.4.</td>
<td>Stakeholders’ early responses to the PETRRA experience</td>
</tr>
<tr>
<td>1.5.</td>
<td>Research questions, chapters, and methods at a glance</td>
</tr>
<tr>
<td>2.1.</td>
<td>Changes in output statements of the logical framework of PETRRA over successive output-to-purpose reviews (OPR).</td>
</tr>
<tr>
<td>2.2.</td>
<td>PETRRA outputs and linkages with the values</td>
</tr>
<tr>
<td>2.3.</td>
<td>Evolution of cross-cutting issues over time within PETRRA</td>
</tr>
<tr>
<td>2.4.</td>
<td>Project Management Unit: Actual verses Shadow</td>
</tr>
<tr>
<td>3.1.</td>
<td>Representation of persons interviewed</td>
</tr>
<tr>
<td>4.1.</td>
<td>Coverage of poor farmers over time by five PETRRA NGO partners</td>
</tr>
<tr>
<td>6.1.</td>
<td>Change in organizations because of PETRRA involvement that created impact potentials</td>
</tr>
<tr>
<td>7.1.</td>
<td>Features and dynamics of culture change among partners over the life of PETRRA</td>
</tr>
<tr>
<td>7.2.</td>
<td>Facilitation need for a diverse group of actors: the PETRRA example</td>
</tr>
<tr>
<td>7.3.</td>
<td>A tentative list of elements of values-based management approach as take-home for major stakeholder groups</td>
</tr>
</tbody>
</table>

List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.</td>
<td>The conceptual framework of the learning process for PETRRA</td>
</tr>
<tr>
<td>3.2.</td>
<td>Partners as the focus of research</td>
</tr>
<tr>
<td>3.3.</td>
<td>Possibility frontiers for a respondent position</td>
</tr>
<tr>
<td>6.1.</td>
<td>NW Focal Area Forum approach of training</td>
</tr>
<tr>
<td>7.1.</td>
<td>Values-based project/programme cycle</td>
</tr>
<tr>
<td>7.2.</td>
<td>Values and their interrelationship</td>
</tr>
<tr>
<td>7.3.</td>
<td>Values-based agricultural research management approach</td>
</tr>
</tbody>
</table>
List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS</td>
<td>Agricultural Advisory Society</td>
</tr>
<tr>
<td>ABC</td>
<td>Agri-Business Corporation</td>
</tr>
<tr>
<td>ACIAR</td>
<td>Australian Centre for International Agricultural Research</td>
</tr>
<tr>
<td>ActionAid</td>
<td>An international NGO</td>
</tr>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
</tr>
<tr>
<td>AID-Comilla</td>
<td>Association for Integrated Development, Comilla</td>
</tr>
<tr>
<td>AIS</td>
<td>Agricultural Information Services</td>
</tr>
<tr>
<td>APEX</td>
<td>voluntary organization for community development</td>
</tr>
<tr>
<td>AR&amp;D</td>
<td>Agricultural Research and Development</td>
</tr>
<tr>
<td>AR4D</td>
<td>Agricultural Research for Development</td>
</tr>
<tr>
<td>ARI</td>
<td>Agricultural Research Institute</td>
</tr>
<tr>
<td>ARMP</td>
<td>Agricultural Research Management Project</td>
</tr>
<tr>
<td>ASIRP</td>
<td>Agricultural Services Innovations and Reform Project</td>
</tr>
<tr>
<td>ASSP</td>
<td>Agricultural Support Service Project</td>
</tr>
<tr>
<td>AWD</td>
<td>Alternative Wet and Dry</td>
</tr>
<tr>
<td>BADC</td>
<td>Bangladesh Agricultural Development Corporation</td>
</tr>
<tr>
<td>BARC</td>
<td>Bangladesh Agricultural Research Council</td>
</tr>
<tr>
<td>BARCIK</td>
<td>Bangladesh Resource Center for Indigenous Knowledge</td>
</tr>
<tr>
<td>BARD</td>
<td>Bangladesh Academy for Rural Development</td>
</tr>
<tr>
<td>BARI</td>
<td>Bangladesh Agricultural Research Institute</td>
</tr>
<tr>
<td>BAU</td>
<td>Bangladesh Agricultural University</td>
</tr>
<tr>
<td>BIDS</td>
<td>Bangladesh Institute of Development Studies</td>
</tr>
<tr>
<td>BINA</td>
<td>Bangladesh Institute of Nuclear Agriculture</td>
</tr>
<tr>
<td>BMZ</td>
<td>a German donor agency</td>
</tr>
<tr>
<td>BRRI</td>
<td>Bangladesh Rice Research Institute</td>
</tr>
<tr>
<td>BS</td>
<td>Breeder Seed</td>
</tr>
<tr>
<td>BSMRAU</td>
<td>Bangladesh Shaikh Mujibur Rahman Agricultural University</td>
</tr>
<tr>
<td>BTV</td>
<td>Bangladesh Television</td>
</tr>
<tr>
<td>BWDB</td>
<td>Bangladesh Water Development Board</td>
</tr>
<tr>
<td>CABI</td>
<td>CAB International</td>
</tr>
<tr>
<td>CARE</td>
<td>Cooperative American Remittances Everywhere</td>
</tr>
<tr>
<td>CAREB</td>
<td>CARE Bangladesh</td>
</tr>
<tr>
<td>CAZR</td>
<td>Centre for Arid Zone Research</td>
</tr>
<tr>
<td>CBFM</td>
<td>Community Based Fisheries Management</td>
</tr>
<tr>
<td>CBO</td>
<td>Community-Based Organization</td>
</tr>
<tr>
<td>CDP</td>
<td>Crop Diversification Project</td>
</tr>
<tr>
<td>CGIAR</td>
<td>Consultative Group on International Agricultural Research</td>
</tr>
<tr>
<td>CGS</td>
<td>Competitive Grants System</td>
</tr>
<tr>
<td>CIAT</td>
<td>Centro Internacional de Agricultura Tropical</td>
</tr>
<tr>
<td>CIFOR</td>
<td>Center for International Forestry Research</td>
</tr>
<tr>
<td>CIMMYT</td>
<td>International Center for Maize and Wheat Improvement</td>
</tr>
<tr>
<td>CIP</td>
<td>Centro Internacional de la Papa</td>
</tr>
<tr>
<td>CN</td>
<td>Concept Note</td>
</tr>
<tr>
<td>CONCERN</td>
<td>an international NGO</td>
</tr>
</tbody>
</table>
CPD Centre for Policy Dialogue
CPWF Challenge Program on Water and Food
CSIRO Commonwealth Scientific and Industrial Research Organization
CSISA Cereal Systems Initiative in South Asia
CSO Civil Society Organization
CURE Consortium for Unfavorable Rice Environments
DAE Department of Agricultural Extension
DANIDA Danish International Development Agency
DDG Deputy Director General
DFID Department for International Development (UK)
DoF Department of Fisheries
DoL Department of Livestock
East-west Seed a private seed company
EC European Commission
EPRC Environment and Population Research Centre
ESCOR Economic and Social Research Programme
FAO Food and Agriculture Organization
FARMSEED Farmer to Farmer Seed production
FFL Farmer First and Last
FFS Farmer Field School
FIVDB Friends in Village Development Bangladesh
FoSHoL Food Security for Sustainable Household Livelihoods
FSR Farming Systems Research
GATT General Agreement on Tariffs and Trade
GDP Gross Domestic Product
GKF Grameen Krishi Foundation
GMO Genetically Modified Organism
GO Government Organization
GoB Government of Bangladesh
Grid International an international consulting firm in the area of project management
GSI Good Seed Initiative
HARP Hill Agricultural Research Project
HEED Health Education and Economic Development
HYV High Yielding Variety
IAR International Agricultural Research
IARC International Agricultural Research Centre
ICARDA International Center for Agricultural Research in the Dry Areas
ICM Integrated Crop Management
ICRAF World Agroforestry Center
ICRISAT International Crop Research Institute for the Semi-Arid Tropics
IFAD International Fund for Agricultural Development
IFC International Finance Corporation
IFPRI International Food Policy Research Institute
IITA International Institute of Tropical Agriculture
ILAC Institutional Learning and Change
ILCA International Livestock Center for Africa
ILRAD International Laboratory for Research on Animal Diseases (merged with ILRI)
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILRI</td>
<td>International Livestock Research Institute</td>
</tr>
<tr>
<td>INGO</td>
<td>International Non-Governmental Organization</td>
</tr>
<tr>
<td>INIBAP</td>
<td>International Plant Genetic Resources Institute (now known as Bioversity International)</td>
</tr>
<tr>
<td>IPGRI</td>
<td>International Plant Genetic Resources Institute</td>
</tr>
<tr>
<td>IPM</td>
<td>Integrated Pest Management</td>
</tr>
<tr>
<td>IRRI</td>
<td>International Rice Research Institute</td>
</tr>
<tr>
<td>ISNAR</td>
<td>International Service for National Agricultural Research</td>
</tr>
<tr>
<td>IWMi</td>
<td>International Water Management Institute</td>
</tr>
<tr>
<td>JBIC</td>
<td>Japan Bank of International Cooperation</td>
</tr>
<tr>
<td>JICA</td>
<td>Japan International Cooperation Agency</td>
</tr>
<tr>
<td>KAP</td>
<td>Knowledge, Attitude and Practice</td>
</tr>
<tr>
<td>Katalyst</td>
<td>A Swiss supported project in Bangladesh</td>
</tr>
<tr>
<td>Kg</td>
<td>kilogram</td>
</tr>
<tr>
<td>LCC</td>
<td>Leaf Color Chart</td>
</tr>
<tr>
<td>LCVIP</td>
<td>Learner Centered Video Development Project</td>
</tr>
<tr>
<td>LG</td>
<td>Local Government</td>
</tr>
<tr>
<td>LITE</td>
<td>Livelihoods Improvement Through Ecology</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
</tr>
<tr>
<td>MNC</td>
<td>Multi-National Company</td>
</tr>
<tr>
<td>MoA</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>MoU</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>MS</td>
<td>Master of Science</td>
</tr>
<tr>
<td>Mukti</td>
<td>voluntary organization for community development</td>
</tr>
<tr>
<td>NAEP</td>
<td>New Agricultural Extension Policy</td>
</tr>
<tr>
<td>Namdhari Malik Seed</td>
<td>a private seed company</td>
</tr>
<tr>
<td>NARES</td>
<td>National Agricultural Research &amp; Extension System</td>
</tr>
<tr>
<td>NARI</td>
<td>National Agricultural Research Institute</td>
</tr>
<tr>
<td>NARS</td>
<td>National Agricultural Research System</td>
</tr>
<tr>
<td>NATP</td>
<td>National Agriculture Technology Project</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
</tr>
<tr>
<td>NRI</td>
<td>Natural Resources Institute (UK)</td>
</tr>
<tr>
<td>NRM</td>
<td>Natural Resources Management</td>
</tr>
<tr>
<td>OPR</td>
<td>Output to Purpose Review</td>
</tr>
<tr>
<td>OXFAM</td>
<td>an international NGO</td>
</tr>
<tr>
<td>PETRRA</td>
<td>Poverty Elimination Through Rice Research Assistance</td>
</tr>
<tr>
<td>PhD</td>
<td>Doctor of Philosophy</td>
</tr>
<tr>
<td>PKSF</td>
<td>Palli Kormo Shahayak Foundation (village employment support foundation)</td>
</tr>
<tr>
<td>PLA</td>
<td>Participatory Learning and Action</td>
</tr>
<tr>
<td>PMU</td>
<td>Project Management Unit</td>
</tr>
<tr>
<td>POSD</td>
<td>People’s Organization for Sustainable Development</td>
</tr>
<tr>
<td>PPS</td>
<td>PRA Promoters’ Society</td>
</tr>
<tr>
<td>PRA</td>
<td>Participatory Rural Appraisal</td>
</tr>
<tr>
<td>Practical Action</td>
<td>an international NGO</td>
</tr>
<tr>
<td>PROSHIKA</td>
<td>one of the largest NGOs in Bangladesh</td>
</tr>
<tr>
<td>PSC</td>
<td>Project Steering Committee</td>
</tr>
<tr>
<td>PVS</td>
<td>Participatory Variety Selection</td>
</tr>
</tbody>
</table>
R&D  Research and Development
R4D  Research for Development
RDA  Rural Development Academy
RDRS  Rangpur and Dinajpur Rural Service
REFPI  Research and Extension in Farm Power Issues Project
RIU  Research into Use
RKB  Rice Knowledge Bank
RLEP  Rural Livelihoods Evaluation Partnership
RP  Research Proposal
RPF  Resource-Poor Farmers
RPRF  Resource-Poor Rice Farmers
R-to-D  Research to Development
SAFE  Sustainable Agriculture and Farming Enterprise
SCA  Seed Certification Agency
SDC  Swiss Development Cooperation
SFFP  Soil Fertility and Fertilizer Project
SHIP  Seed-Health Improvement sub-project (of PETRRA)
Shushilan  A regional NGO
SID  Seed Industries Development project
SP  Sub-Project
SRI  System of Rice Intensification
STRASA  Stress Tolerant Rice for poor farmers in Asia and Africa
STW  Shallow Tube Well
SUFER  Support for University Fisheries Education and Research
Syngenta  a multi-national private agri-business organization
TAC  Technical Advisory Committee
TEC  Technical Evaluation Committee
TLS  Truthfully Labelled Seed
ToR  Terms of Reference
ToT  Training of Trainers
UN  United Nations
UNDP  United Nations Development Programme
USG  Urea Super Granule
Uttaran  community development organization in Southwest Bangladesh
VBM  Value-Based Management
VBR  Values-Based Research
WAVE  community development organization
WB  World Bank
WTO  World Trade Organization
Glossary of Special Terms

Aman  Main monsoon rice season in Bangladesh whereby crop is transplanted from July to August and harvested from November to December

Bigha  one bigha is equal to 0.33 acre

Boro  Dominant irrigated winter rice season, which is transplanted during the cold months of December to early February and harvested in April to early June

BRRIDhan28  a BRRI developed HYV rice variety grown in winter season

BRRIDhan29  a BRRI developed HYV rice variety grown in winter season

BRRIdhan47  a HYV rice variety developed by BRRI for winter season

Decimal  one hundredth of an acre or 40 square metres

Federation  an apex organization that constitutes of representatives from several groups

Haor  Flood plain in the northeast of Bangladesh

Laksmi  a Hindu goddess

Lakh  equals to 100,000

Maund  37.32 kg

Monga  a local Bangla term, is used to describe famine-like situation

Rice provisioning ability  RPA is the number of months a farming household can supply itself with rice from its own or operated land.

Rickshaw  Three-wheeled vehicle like bicycle with seats attached behind the driver

Taka  The currency in Bangladesh. Tk 69 equals US$ 1

Administrative Units in Bangladesh:

Bangladesh comprises six divisions, namely Dhaka, Khulna, Barisal, Rajshahi, Chittagong and Sylhet.

1 division = 10-12 districts
1 district = 5-12 upazilas
1 upazila = 5-12 unions
1 union = 9 wards
1 ward = 1-3 villages