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Enabling poor rural people  
to overcome poverty

**President's report on a proposed grant  
under the country-specific grants  
window to the International Rice  
Research Institute (IRRI) for**

**Support to Agricultural Research for  
Climate Change Adaptation in  
Bangladesh**

Executive Board — Ninety-sixth Session  
Rome, 29-30 April 2009

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For: **Approval**

## **Note to Executive Board Directors**

This document is submitted for approval by the Executive Board.

To make the best use of time available at Executive Board sessions, Directors are invited to contact the following focal point with any technical questions about this document before the session:

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## **Abbreviations and acronyms**

BRAC	Bangladesh Rural Advancement Committee
BIRRI	Bangladesh Rice Research Institute
CURE	Consortium for Unfavourable Rice Environments
IRRI	International Rice Research Institute

## **Recommendation for approval**

The Executive Board is invited to approve the recommendation for the proposed grant under the country-specific grants window to the International Rice Research Institute (IRRI) for Support to Agricultural Research for Climate Change Adaptation in Bangladesh, as contained in paragraph 7.



## **President's report on a proposed grant under the country-specific grants window to the International Rice Research Institute (IRRI) for Support to Agricultural Research for Climate Change Adaptation in Bangladesh**

I submit the following report and recommendation on a proposed grant under the country-specific grants window to the International Rice Research Institute (IRRI) in the amount of US\$700,000.

### **Part I – Introduction**

1. This report recommends the provision of IFAD support to the International Rice Research Institute (IRRI).
2. The document of the grant for approval by the Executive Board is contained in the annex to this report: Support to Agricultural Research for Climate Change Adaptation in Bangladesh.
3. The objectives and content of the grant support are in line with the evolving strategic objectives of IFAD and the policy and criteria of IFAD's grant programme.
4. The overarching strategic objectives that drive the IFAD Policy for Grant Financing, which was approved by the Executive Board in December 2003, are:
  - (a) Promoting pro-poor research on innovative approaches and technological options to enhance field-level impact; and/or
  - (b) Building pro-poor capacities of partner institutions, including community-based organizations and NGOs.
5. Deriving from these objectives and those of the IFAD Strategic Framework 2007-2010, the specific aims of IFAD's grant support relate to: (a) the Fund's target groups and their household food security strategies, with particular reference to groups in remote and marginalized agro-ecological areas; (b) technologies that build on traditional local/indigenous knowledge systems, are gender-responsive, and enhance and diversify the productive potential of resource-poor farming systems by improving on- and off-farm productivity and by addressing production bottlenecks; (c) access to productive assets (land and water, a broad range of rural financial services, labour and technology); (d) the sustainable and productive management of natural resources, including sustainable utilization and conservation of such resources; (e) a policy framework at both the local and the national level that provides the rural poor with a conducive incentive structure to improve their productivity and reduce their dependence on transfers; (f) access to transparent and competitive input/product markets and making these work for the poor primary producers involved in remunerative small and medium-sized enterprises and value chains; and (g) an institutional framework within which institutions – formal and informal, public- and private-sector, local and national alike – can provide services to the economically vulnerable, according to their comparative advantage. Within this framework, IFAD's grant financing supports commodity-based approaches for self-targeting among the rural poor. Finally, IFAD's grant programme fosters the establishment and strengthening of networks for pro-poor knowledge generation and exchange, which in turn enhances the Fund's own capacity to establish long-term strategic linkages with its development partners and to multiply the effect of its grant-financed research and capacity-building programmes.

6. The grant proposed in this document responds to the foregoing strategic objectives in that it aims to increase the farm output and income of small and marginal farmers living in selected coastal saline areas and enhance their ability to adapt to the adverse effects of climate change and food price inflation through the development and adoption of improved farming systems.

## **Part II – Recommendation**

7. I recommend that the Executive Board approve the proposed grant in terms of the following resolution:

RESOLVED: that the Fund, in order to finance, in part, Support to Agricultural Research for Climate Change Adaptation in Bangladesh, shall make a grant not exceeding seven hundred thousand United States dollars (US\$700,000) to the International Rice Research Institute (IRRI) for a three-year project upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board herein.

Kanayo F. Nwanze  
President



# **Support to Agricultural Research for Climate Change Adaptation in Bangladesh**

## **I. Background**

1. This project has been prepared in response to rising concerns, both within Bangladesh and at IFAD, of the composite impact on poor households of: (i) rising food prices; and (ii) rice supply risks stemming from global climate change.
2. The recent increase in food prices as well as in the prices of inputs for agricultural production in Bangladesh has raised the vulnerability of the rural poor. Recent studies indicate that though average food price inflation from March 2007 to March 2008 stood at 12.9 per cent, for poor people, it was more than 20 per cent. It has been calculated that this increase has meant that 2.5 million people, or 8.5 per cent of the population, have slipped below the poverty line, undoing the good progress that Bangladesh has made in recent years in poverty reduction.
3. In addition to food price inflation, farmers are facing an increasing number of climate-related risks such as cyclones, river floods, salinity intrusion and drought. These represent major barriers to the increased and secure food production needed to help keep food prices within affordable limits. Impact analysis based on statistical crop models and climate projections for 2030 from 20 general circulation models reveal that without sufficient adaptation measures, Bangladesh will likely suffer negative impacts on several crops of importance to large food-insecure populations.
4. This project has been prepared jointly by the IFAD Bangladesh country team and scientists from IRRI headquarters and the IRRI country office in Bangladesh. It builds on recent experiences of both IFAD and IRRI in the development and dissemination of improved agricultural technologies, and complements other IRRI activities (e.g. the Consortium for Unfavourable Rice Environments [CURE]) aimed at improved rice cropping systems that take account of the impact of climate change. The project will interactively operate within the framework of CURE, use varieties and technologies developed by CURE, and provide feedback to CURE.

## **II. Rationale and relevance to IFAD**

5. Small and marginal farmers in Bangladesh need to increase production and income from their farms in order to insulate themselves from the risk and uncertainties associated with price inflation and climate change.
6. This project will focus on small and marginal farmers living in the coastal saline areas of Bangladesh already affected by altered levels of salinity and flooding and deemed to be the most vulnerable in terms of the direct and indirect impacts of climate change (e.g. sea-level rise). About 1.6 million farm households in the coastal areas are affected and about 1 million hectares of land remain largely fallow or underused as a result of salinity and a lack of appropriate technologies to deal with salinity, tidal surge and cyclones.
7. The grant will focus on identifying useful technologies to boost production in coastal saline areas, packaging them in appropriate farming systems and disseminating them on a pilot scale. The technologies will also be scaled up by ongoing IFAD loan projects, using their own funds. The grant will build on existing rice research undertaken by IRRI and the Bangladesh Rice Research Institute (BRRI), and will focus on promising rice varieties such as BRRI Dhan 44 and BRRI Dhan 47 that show salinity tolerance, and on water management technologies.

8. The grant is highly relevant to IFAD in that it has been designed to respond to the first strategic objective of the country strategic opportunities programme for Bangladesh, which is aimed at providing small and marginal farmers with agricultural technology.

### III. The proposed project

9. The overall goal of the grant support is to enhance food security for poor farm households living in the coastal saline areas of Bangladesh. This goal will be achieved through the project objective of developing improved farming systems to increase farm output and income and building the ability of small and marginal farmers in the target areas to adapt to the adverse effects of climate change and food price inflation. It is expected that a range of technology choices will be packaged into appropriate farming systems to provide farmers with options when coping with the uncertainties associated with climate change.
10. The project will have a three-year duration and will comprise three main components:
  - **Improved farming systems developed.** Farmers in saline areas need a range of farming systems to enhance their farm productivity and income and insulate themselves from the risk and uncertainties associated with soil salinity, climate change and food price inflation. These systems should combine local knowledge with technologies developed by various research institutions/universities. At present, a large area remains fallow during the dry season as a result of increased salinity and lack of suitable irrigation water. The new farming systems will therefore provide opportunities to intensify cropping. This will require a better understanding both of current rice production systems within the context of the existing farming systems and food security levels, and of the impact of climate change and salinity. Through this component a number of promising rice varieties and rice-based farming systems for the coastal saline environment will be adapted through participatory research undertaken with farmers.
  - **Improved farming systems scaled up through a participatory community and multistakeholder approach.** Using technologies based on the geographic information system (GIS), areas for the newly identified farming systems will be identified and, by means of a community participatory approach, the project will validate (through simple on-farm testing) and scale up the technologies in large but similar environments in the same and in neighbouring districts. In the second and third years of implementation, the project will train men and women farmers and development workers to facilitate rapid adoption and impact. The project will conduct participatory monitoring and evaluation and share the lessons with the community and other stakeholders so that these farming systems will be adopted by the farmers and their neighbours. Based on feedback, the project will improve the systems for further testing by farmers. Knowledge, attitude, and practice (KAP) studies will be carried out to obtain feedback on the adoption of the improved technologies.
  - **Lessons learned are shared with development workers and policymakers.** The project will organize workshops/seminars and use multiple media to share results with policymakers, senior managers of development agencies, and other farmers to accelerate the adoption of the successful technologies and the formulation of appropriate policies to promote the sustainable adoption of such farming systems. The project will also document and publish reports on successes for the purposes of reference and visibility. All knowledge generated will also

be shared through the Bangladesh Rice Knowledge Bank and the proposed Bangladesh Agricultural Knowledge Bank, both of which are being developed under the technical leadership of IRRI scientists.

#### **IV. Expected outputs and benefits**

11. The following outputs and benefits are foreseen:
  - Location-specific and demand-driven improved farming systems will be developed, providing farmers in coastal areas of Bangladesh with increased yields and greater resilience to the risks and uncertainties associated with food prices and climate.
  - Improved farming systems will be scaled up and validated with farmers in 15 communities through a participatory community and multistakeholder approach.
  - Links forged with ongoing IFAD loan-funded operations in the coastal zone, as well as with national development partners such as the Department of Agricultural Extension and the Bangladesh Rural Advancement Committee (BRAC) will provide significant opportunities for further dissemination of the technologies.
  - Lessons learned will be shared with development workers and policymakers. This sharing will be facilitated through a number of workshops, and the preparation of publications and fact sheets.

#### **V. Implementation arrangements**

12. The project will be managed by IRRI and also implemented by IRRI, in partnership with BRRI, the Bangladesh Agricultural Research Institute (BARI), the Bangladesh Livestock Research Institute (BLRI) and BRAC. Project management will be dealt with by a team comprising a farming systems/technology transfer specialist, a climate change coordinator, an agronomist and a social scientist. IRRI will hire a nationally recruited scientist, to be based in the IRRI country office, who will devote 100 per cent of his/her time to the project. The IRRI country office will take the lead role and will be responsible for reporting. IRRI will establish memoranda of understanding with all partner institutions for the implementation of project activities and disbursement of funds.
13. IRRI will form a project advisory committee with representatives from IRRI, the four implementing partners and national institutions such as BRAC, BLRI, the Climate Change Cell of the Ministry of Environment and Forests, the Soil Resources Development Institute, the Centre for Environmental and Geographic Information Services, the Bangladesh Fisheries Research Institute, the Bangladesh Water Development Board, the Local Government Engineering Department, various IFAD-funded projects, and international agencies such as the International Union for Conservation of Nature and WorldFish Center. As far as practical, the committee will include members from the national working group for salinity of CURE. These stakeholders will help set project implementation guidelines and will play a lead role in establishing priorities and advising on annual work plans. Their participation in the project advisory committee will also help in scaling up results and in institutionalizing processes.
14. The grant project will be implemented by IRRI in partnership with a number of IFAD loan-funded projects. These projects include the Market Infrastructure Development Project in Charland Regions and the forthcoming Participatory Small-scale Water Resources Project. The IRRI grant project will work through participating projects by means of technical and field activities with project group members and provision of training. The mode of cooperation will be spelled out in memoranda of understanding between IRRI and the IFAD-supported projects.

## VI. Indicative project costs and financing

15. The total budget for the project is US\$791,387, of which IRRI will provide US\$91,387 in kind and IFAD will provide a grant of US\$700,000. IRRI's in-kind contribution will include international staff time of the current IRRI representative in Bangladesh, the climate change coordinator, and the CURE coordinator.

### Summary of budget and financing plan

(in United States dollars)

<i>Type of expenditure</i>	<i>IFAD</i>	<i>Cofinancing (IRRI)</i>
Personnel (including subcontractors)	159 762	81 387
Professional services	27 000	
Travel costs	30 375	
Equipment	41 200	
Operational costs, reporting and publications	226 463	10 000
National agricultural research and extension systems	166 000	
Training/capacity-building	49 200	
<b>Total</b>	<b>700 000</b>	<b>91 387</b>

## Results-based logical framework

	Objectives-hierarchy	Objectively verifiable indicators	Means of verification	Assumptions
<b>Goal</b>	To contribute to enhancing food security for poor farm households in the coastal saline areas of Bangladesh to cope with vulnerability to price inflation, climate change, and other environmental shocks.	Reduced period of food scarcity, increased assets	Sample surveys (baseline and impact)	No major external disasters occur; markets will function as is or better
<b>Objective</b>	Development and adoption of improved farming systems to increase farm output and ability of small and marginal farmers to adapt to adverse effects of climate change and food price inflation.	Changes in farm practices, increased yields by about 15%, use of technologies, and stable income over the years	Sample surveys Participatory monitoring	Policy support will facilitate adoption of improved farming systems
<b>Outputs</b>	<i>1. Location-specific and demand-driven improved farming systems developed.</i>	Four improved farming systems identified; 6 improved component technologies; 15% increase in yield and/or income; 60% of participating farmers will accept such technologies; partnerships with stakeholder developed	KAP studies, socioeconomic surveys; GIS maps; project reports and surveys Economic analysis	NARES and other partners assign priority to such work; no major natural calamities occur
	<i>2. Improved farming systems scaled up/validated with farmers in 15 communities through community participatory and multi-stakeholder approach</i>	About 300 farmers participate in validation trials ; about 3000 farmers exposed to technologies through field days; Farmers of IFAD-funded development projects demonstrated the technologies; a collaborative platform developed for scaling up	KAP studies Project reports	Activities of #1 will not suffer; NARES and other partners assign priority to such work; no major natural calamities occur
	<i>3. Lessons learned are shared with development workers and policymakers.</i>	3 to 4 lesson-sharing workshops and activities held; One set of Technology Advisory Notes and 3 project documents and publications; at least 6 fact sheets uploaded on the Web	Workshop proceedings; published documents	Activities related to outputs #1 and #2 will not suffer
<b>Key Activities</b>	<p><u>1. Development of farming systems</u></p> <ul style="list-style-type: none"> <li>▪ KAP studies on the impact of climate change and salinity, and farmers' traditional knowledge and practices for adaptation.</li> <li>▪ Collecting and analyzing physical, climatic, biological, socioeconomic, market, cultural, and land-use characteristics and mapping of the coastal saline areas, indicating seasonal variability of salinity intrusion, drought, flooding, and current farming systems using GIS and other methods</li> <li>▪ Impact assessment of spatio-temporal variability of salinity-affected soils</li> <li>▪ Suitability assessment, prioritizing needs and opportunities, and designing improved farming systems integrating local technical knowledge and technologies available from research institutions and CURE.</li> <li>▪ Conducting community participatory trials.</li> <li>▪ Socioeconomic analysis</li> </ul>	<p><u>2. Scaling up of improved systems</u></p> <ul style="list-style-type: none"> <li>▪ Identification of locations and communities for scaling up, including participants in other IFAD projects</li> <li>▪ Training farmers and development workers to scale up</li> <li>▪ Implementation of field tests/demonstrations</li> <li>▪ KAP studies to get feedback on adoption of improved technologies</li> </ul>	<p><u>3. Lesson learning</u></p> <ul style="list-style-type: none"> <li>• Organization of workshops/seminars and use of multiple media to share results with policymakers, senior managers of development agencies, and other farmers.</li> <li>• Documentation and publication of reports and uploading appropriate material onto the Web</li> </ul>	