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The World Bank

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INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 136.6 MILLION
(US$210 MILLION EQUIVALENT)

TO THE

PEOPLE'S REPUBLIC OF BANGLADESH

FOR A

MODERN FOOD STORAGE FACILITIES PROJECT (MFSP)

December 3, 2013

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BANGLADESH
Modern Food Storage Facilities Project (MFSP)

CURRENCY EQUIVALENTS

Currency Unit	=	Bangladesh Taka
US$1	=	BDT 80 (February 2013)
US$	=	SDR 0.65018 (October 31, 2013)

GOVERNMENT FISCAL YEAR

July 1 – June 30

ABBREVIATIONS AND ACRONYMS

BADC	Bangladesh Agricultural Development Corporation	IPOE	Independent Panel of Experts
BARI	Bangladesh Agricultural Research Institute	IS	Implementation Support
BCCRF	Bangladesh Climate Change and Resilience Fund	LCS	Least-Cost Selection
BCR	Benefit-Cost Ratio	LSD	Local Storage Depot
BDT	Bangladesh Taka	MoDMR	Ministry of Disaster Management and Relief
C&AG	Comptroller and Auditor General	MoFood	Ministry of Food
CAS	Country Assistance Strategy	MFSP	Modern Food Storage Facilities Project
CBO	Community-Based Organization	M&E	Monitoring and Evaluation
CPTU	Central Procurement Technical Unit	MIS	Management Information System
CSC	Construction Supervision Consultant	MTR	Mid-Term Review
CSD	Central Storage Depot	NCB	National Competitive Bidding
CSO	Civil Service Organization	NDMP	National Disaster Management Program
CQ	Consultants' Qualification	NFP	National Food Policy
DA	Designated Account	NGO	Non-Governmental Organization
DG Food	Director General of Food	NPV	Net Present Value
EA	Environmental Assessment	O&M	Operations and Maintenance
EAP	Environmental Action Plan	ORAF	Operational Risk Assessment Framework
ECRRP	Emergency Cyclone Recovery and Reconstruction Project	PCC	Project Coordination Committee
EIA	Environmental Impact Assessment	PDO	Project Development Objective
EIRR	Economic Internal Rate of Return	PFDS	Public Food Distribution System
EMF	Environmental Management Framework	PIU	Project Implementation Unit
EMP	Environmental Management Plan	PMU	Project Management Unit
EMS	Environmental Management System	PPA	Public Procurement Act
ERR	Economic Rate of Return	PPR	Public Procurement Rules
ESAMF	Environmental and Social Assessment and Management Framework	PRMP	Procurement Risk Mitigation Plan
FAO	Food and Agriculture Organization	PSC	Project Steering Committee
FBS	Fixed Budget Selection	QBS	Quality-Based Selection
FM	Financial Management	QCBS	Quality- and Cost-Based Selection
FMR	Financial Monitoring Report	RAP	Resettlement Action Plan
FPMC	Food Planning and Monitoring Committee	RFP	Request for Proposals
FPMU	Food Planning and Monitoring Unit	RTI	Right to Information
GAAP	Governance and Accountability Action Plan	SA	Social Assessment
GAC	Governance and Anti-Corruption	SAP	Social Assessment Plan
GDP	Gross Domestic Product	SBD	Standard Bidding Documents
GoB	Government of Bangladesh	SCF	Standard Conversion Factor
GPN	General Procurement Notice	SMP	Social Management Plan
ICB	International Competitive Bidding	SOE	Statement of Expenditure
ICR	Implementation Completion Report	SMRPF	Social Management/Resettlement Policy Framework
IDA	International Development Association	SSS	Single-Source Selection
IFR	Interim Financial Report	SW	Staff Week
IPF	Investment Project Financing	Tk	Bangladesh Taka
		ToR	Terms of Reference
		TTL	Task Team Leader
		UAR&IC	Upazila Agriculture Rehabilitation and Implementation Committees

Vice President:	Philippe H. Le Houerou
Country Director:	Johannes Zutt
Sector Manager:	Simeon K. Ehui
Sector Director:	John Henry Stein
Task Team Leader:	Patrick Verissimo

BANGLADESH:
Modern Food Storage Facilities Project (MFSP)

TABLE OF CONTENTS

Page

I. **STRATEGIC CONTEXT** **1**

II. **PROJECT DEVELOPMENT OBJECTIVES** **4**

III. **PDO Level Results Indicators** **5**

IV. **PROJECT DESCRIPTION** **5**

B. Project Financing 9

C. Lessons Learned and Reflected in the Project Design 10

D. Alternatives Considered and Reasons for Rejection 11

V. **IMPLEMENTATION** **12**

A. Institutional and Implementation Arrangements 12

B. Results Monitoring and Evaluation 13

C. Sustainability 14

VI. **KEY RISKS AND MITIGATION MEASURES** **15**

A. Risk Ratings Summary Table 15

B. Overall Risk Rating Explanation 15

VII. **APPRAISAL SUMMARY** **15**

A. Economic and Financial Analyses (Annex 7) 15

B. Technical 16

C. Financial Management 17

D. Procurement 18

E. Social (Annex 8) 19

F. Environment (Annex 8) 19

Annex 1: Results Framework and Monitoring **21**

Annex 2: Detailed Project Description **24**

Annex 3: Implementation Arrangements **36**

Annex 4: Operational Risk Assessment Framework (ORAF) **48**

Annex 5: Implementation Support Plan **52**

Annex 6: Governance and Accountability Action Plan (GAAP) **55**

Annex 7: Economic Analysis **69**

Annex 8: Environmental and Social Assessment **75**

Annex 9: Overview of Grain Sector Operations in Bangladesh **86**

Map IBRD 39880

PAD DATA SHEET

Bangladesh

Modern Food Storage Facilities Project (P120583)

PROJECT APPRAISAL DOCUMENT

SOUTH ASIA, SASDA

Report No.74597-BD

Basic Information			
Project ID	Lending Instrument	EA Category	Team Leader
P120583	Investment Project Financing (IPF)	B – Partial Assessment	Patrick Verissimo
Project Implementation Start Date		Project Implementation End Date	
March 1, 2014		December 31, 2019	
IDA Credit Expected Effectiveness Date		Expected Closing Date	
February 1, 2014		June 30, 2020	
Bangladesh Climate Change Resilience Fund (BCCRF) Grant Expected Effectiveness Date		Expected Closing Date	
February 1, 2014		December 31, 2016	
Joint IFC		No	
Sector Manager	**Sector Director**	**Country Director**	**Regional Vice President**
Simeon K. Ehui	John Henry Stein	Johannes Zutt	Philippe H. Le Houerou

Borrower: People's Republic of Bangladesh

Responsible Agency: Directorate General of Ministry of Food

Contact: Ahmed Hossain Khan	Title: Director General
Telephone No.:+88 0181 752 6902	Email:k.ahmedhossain@gmail.com

Project Financing Data(US$M)					
[ ]	Loan	[ ]	Grant	[X]	Other Grant from Bangladesh Climate Change Resilience Fund (BCCRF)
[X]	Credit	[ ]	Guarantee		

For Loans/Credits/Others

Total Project Cost (US$M): 240.00

Total Bank Financing (US$M): 210.00
BCCRF (US$M): 25.00
Beneficiary contribution (US$M): 5.00

Financing Source		Amount(US$M)
BORROWER/RECIPIENT		0.00
International Development Association (IDA)		210.00
New	155.50	
Recommitted	54.50	
BCCRF		25.00
Beneficiaries		5.00
Total		240.00

Expected IDA Disbursements (in US$ Million)

Fiscal Year	2014	2015	2016	2017	2018	2019	2020		
Annual	3	6	8	20	43	70	60		
Cumulative	3	9	17	37	80	150	210		
Bangladesh Climate Change Resilience Fund (BCCRF) Expected Disbursements									
Annual		5	20						
Cumulative		5	25						

Project Development Objective(s)

The overall project development objective is to increase the grain reserve available to households to meet their post-disaster needs and improve the efficiency of grain storage management.

Components

Component A – Construction of Modern Grain Storage Silo Facilities (US$195 million): This component will support: (A1) construction of public storage facilities with a capacity of about 535,500 tons in the form of modern grain storage silos; and (A2) provision of household storage facilities (household silos) particularly in the disaster-prone areas of the coastal zone for about 500,000 households; and (A3) implementation of social and environmental management plans.

Component B – Support for Food and Market Planning and Monitoring Program (US$25 million): This component will support improvements and modernization of the monitoring and management system of food storage/stocks in the country as well as the development, management, and implementation of a food policy research agenda that covers grain storage and distribution.

Component C – Project Management, Construction Supervision, Technical Assistance, Training and Strategic Studies (US$20 million): This component will finance costs associated with project management, implementation of the Governance and Accountability Action Plan (GAAP), detailed design, construction supervision, monitoring and evaluation of project impacts, technical assistance, training, institutional capacity building, preparation of future projects, and any strategic studies needed during project implementation.

Compliance		
Policy		
Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]
Does the project require any waivers of Bank policies?	Yes [ ]	No [X]
Have these been approved by Bank management?	Yes [ ]	No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No [ ]

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04		X
Forests OP/BP 4.36		X
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11		X
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

Legal Covenants	
Description of Covenant	**Due Date**
The Recipient will maintain the Project Management Unit (PMU) under DG Food and the Project Steering Committee (PSC) with composition, staff, functions, and resources satisfactory to IDA.	Throughout the project implementation period
The Recipient will ensure that the project is carried out in accordance with the Financial Management Manual, including its provisions on the eligibility criteria and administration arrangements for financing household silos under component A2.	Throughout the project implementation period
The Recipient will ensure that independent auditors carry out the project audit in accordance with the scope and TORs acceptable to the Bank, which shall include special examination of the controls and compliance with the agreed-upon procurement procedures.	Annually
The Recipient shall ensure that the project is carried out in accordance with the provisions of the ESAMF, the ESIAs, the EMPs, and, if applicable, the SMPs and the RAPs.	Throughout the project implementation period

The Recipient will: (i) monitor the physical and financial progress of the project, implementation of the Social Action Plans, Resettlement Action Plans (if any) and Environmental Management Plans, and the project impact studies; (ii) analyze the data on key performance indicators on a regular basis; (iii) prepare and submit quarterly progress reports within 45 days following each quarter; (iv) submit annual progress reports by August 15 of each year; and (v) annual work plans for the following year, each year by March 31.	45 days after each quarter, August 15 each year; and March 31 each year
The Mid-Term Reviews of the project will be undertaken by March 31, 2017.	March 31, 2017
The Recipient will ensure that the Governance and Accountability Action Plan (GAAP) is implemented properly according to the conditions and agreed scope, in particular, its provisions related to: (a) information and public disclosure; (b) social accountability and third party monitoring; and (c) establishment of a Procurement Panel with composition and ToRs acceptable to the Bank for carrying out procurement-related actions under the project.	Throughout the project implementation period

Team Composition

Bank Staff

Name	**Title**	**Specialization**	**Unit**
Patrick Verissimo	Lead Rural Development Specialist	Team Lead	SASDA
Masood Ahmad	Lead Water Resources Specialist	Infrastructure	SASDA
Mohammad Anis	Energy Specialist	Institutional Capacity	SASDE
Marghoob Bin Hussein	Senior Procurement Specialist	Procurement	SARPS
Mohammed Atikuzzaman	Financial Management Specialist	Financial Management	SARFM
Nadia Sharmin	Environment Specialist	Environment	SASDC
Shahpar Selim	Environment Specialist	M&E and Environment	SASDC
Swarna Kazi	Disaster Risk Management Specialist	Disaster Management	SASDC
Md. Akhtar Zaman	Social Development Specialist	Social	SASDS
Anna C. O'Donnell	Social Development Specialist	Social	SASDS
Manush Hristov	Senior Counsel	Legal	LEGEN
Junxue Chu	Senior Finance Officer	Finance	CTRLN
Jorge Luis Alva-Luperdi	Senior Counsel	Legal	LEGEN
Jonathan Rose	GAC Specialist	Governance and Accountability	SASGP
Hosna Ferdous Sumi	Associate Operations Officer	Agribusiness	CSAIC
Venkatakrishnan Ramachandran	Program Assistant	Project Operations Support	SASDO

Md. Tafazzal Hossain	Program Assistant	Project Operations Support	SASDO
Ramesh Deshpande	Consultant	Grain Markets and Sector Policy	SASDA
Usaid El-Hanbali	Consultant	Infrastructure	SASDA
Eustacius Betubiza	Consultant	Economic Analysis, Markets & Private Sector	SASDA
Amy Gautam	Consultant	Editing	SASDA

Institutional Data

Sector Board

Agriculture and Rural Development

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Agriculture, fishing, and forestry	Crops	60	30	
Agriculture, fishing, and forestry	Agricultural extension and research	20		
Public Administration, Law, and Justice	Public administration-Agriculture, fishing and forestry	20	20	
Total		100		

☐ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

The project supports the adaptation of climate change impacts that are expected to occur because of climate vulnerabilities in Bangladesh. The project primarily addresses the food shortages due to climate-related vulnerabilities and their increased frequency in case of climate change scenarios.

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Human development	Nutrition and food security	50
Social protection and risk management	Natural disaster management	25
Public sector governance	Other public sector governance	25
Total		100

I. STRATEGIC CONTEXT

A. Country Context

1. **Despite strong economic growth and a steady decline in poverty in Bangladesh over the past decade, natural disasters regularly cause serious damage to the country's infrastructure and agricultural sectors, severely affecting food access and food availability for the poor and vulnerable**. Bangladesh's GDP growth averaged 5.8 percent between 2000 and 2010, accompanied by a decline in the national poverty headcount rate from 48.9 percent to 31.5 percent over the same period, effectively lifting some 16 million people out of poverty. Nonetheless, with the country's high vulnerability to extreme weather events and climate variability, the challenges to meeting the food and nutrition security needs of the vast number of poor and vulnerable, particularly women and children in rural areas, remain considerable. Past natural disasters have caused serious damage to the country's overall economy, especially affecting the infrastructure and agriculture sectors. As 80 percent of Bangladesh's population lives in rural areas and around 53 percent of the rural population is classified as poor, climate shocks and stresses have particularly negative implications for their food, livelihood security, and welfare.

2. **The expected increase in the frequency and intensity of weather-related shocks makes it imperative that the Government of Bangladesh (GoB) enhance its preparedness to address food insecurity in disaster-prone areas.** Historically, the country has been hit by a major cyclone and/or widespread flooding once every three years on average. Growing climate variability and natural disaster risks in Bangladesh are anticipated to lead to more intense and frequent cyclones, floods, and droughts, as well as a sea level rise and associated salinity intrusion in coastal areas. This is expected to increase pressure on the government to respond to the food and nutrition security needs of affected populations with food distribution programs, both for short-term relief interventions *as well as* for longer-term recovery assistance.

3. **The Public Food Distribution System (PFDS) is a core element of the government's food security strategy.** Bangladesh's large-scale PFDS, anchored in the country's National Food Policy (NFP), operates through 15 distribution channels that broadly fall into two groups of social safety net (SSN) programs: eight monetized (sales) and seven non-monetized. The latter are composed of food-based SSN programs, accounting for almost three-fourths of the total PFDS distribution. In 2011-2012, the public distribution of grains (mostly rice) reached 2.1 million tons. Gross operating costs for PFDS have significantly increased, from around US$350 million in 2001-2002 to approximately US$950 million in 2009-2010. The food-based SSN programs under PFDS and the disaster relief and recovery programs under the National Disaster Management Plan (NDMP) are at the core of the government's food security strategy. Grain stocks for public food distribution and strategic grain reserves currently rely on a network of some 670 central and local storage depots ("godowns") with a total effective capacity of 1.5 to 1.6 million tons. Most of these conventional godowns are old and poorly maintained, leading to considerable physical losses in grain as well as in the nutritional value of the grain stored. Subpar storage conditions force a rotation of the grain every 6 to 12 months, adding pressure to the food-based safety net programs under PFDS to manage those stocks. Annex 9 contains an overview of grain sector operations in Bangladesh as well as information on the main SSNs.

4. **The modern food storage facilities proposed for construction under this project could considerably improve the efficacy of the government's emergency response and recovery efforts in disaster-prone areas, and if grain stocks are properly managed, could enhance the efficiency of its PFDS at the same time.** To respond to the above challenges, GoB seeks to improve its capacity to respond to short- and longer-term post-disaster food and nutrition security needs by enhancing its network of food grain storage facilities and building modern food storage facilities; at the same time, it aims to improve the efficacy and accountability of the public food grain system. This in turn will support the objectives pursued by the IDA-financed Safety Net Systems for the Poorest project (P136634), implemented by the Ministry of Disaster Management and Relief (MoDMR), to improve the efficiency of four of the major food-based SSN programs that help to rotate PFDS stocks. Modern storage facilities proposed for construction under this project in different strategic locations across the country will allow grain to be kept in bulk for up to two to three years in better conditions relative to the godowns used currently, with reduced grain losses and enhanced nutritional value of the grain distributed. The new storage facilities will also improve PFDS's logistical capability and operational flexibility in supplying grain both for food-based SSNs and disaster relief and recovery. With strengthened capacity for improving stock management in the modern silos, and comprehensive analyses for enhancing the overall policy framework on strategic grain reserves, GoB will be in a position to make sound and informed decisions as it reconciles the three strategic objectives that impact the domestic food market: (i) supporting the poor and vulnerable through effective SSN programs; (ii) improving the country's disaster preparedness to meet food security needs caused by disaster-induced food shortages; and (iii) devising non-distortive market interventions for food price stabilization, mainly for coarse grain consumed by the poor and vulnerable.

B. Sectoral and Institutional Context

5. **The NFP and the NDMP are closely linked in terms of policy and operations.** Established by GoB in 2006, the NFP is coordinated by the Ministry of Food (MoFood) and implemented in close coordination with the NDMP of the MoDMR. Under the NFP, MoFood procures food grains from local producers and/or through imports and distributes the subsidized grain through the PFDS to eligible segments of the population. In September 2012, GoB passed the updated Bangladesh Disaster Management Act, 2012, which promotes a more holistic approach to disaster preparedness and management. This has led to an improvement in Bangladesh's overall effectiveness and disaster preparedness by: strengthening coordination and networking at all critical levels for addressing issues in risk exposure to the most disadvantaged livelihood groups in targeted, disaster-prone districts; and mainstreaming disaster risk reduction and climate change adaptation agendas in sectoral policies, plans, and budgetary frameworks. Such an integrated approach to food security is also critical to ensure:

(i) Timely and competitive procurement of food grains in local and international markets (when the markets are flush with supply of grain and prices are low), taking into account the projected needs for SSN programs and potential disaster relief and recovery programs, as well as the current stock level;

(ii) Efficient management of grain storage operations using existing godowns on a short-term basis to ensure quick delivery of grain to beneficiary households, backed by more efficient, modern steel silos for rice and wheat storage for the medium term (up to three years); and

(iii) Planning/implementation of GoB grain operations in such a way that these remain limited to projected needs for food-based SSN programs and disaster relief and recovery programs, and do not distort the country's broader grain markets.

6. **GoB is undertaking efforts to gradually shift SSN programs from costly and less efficient food transfers to cash transfers**. Since 2000, GoB has consistently expanded its public expenditure allocation for SSN programs, which increased from an average of 12 percent during 2000-2008 (1.5 percent of GDP) to about 14 percent during 2009-12 (around 2.5 percent of GDP). This has helped increase the proportion of households covered by SSN programs from 13 percent in 2005 to 24 percent in 2010, bringing the total number of households reached to roughly 8 million. In 2005, the bulk of public transfers were allocated to food transfer programs. The administration of food-based programs is difficult and costly: the delivery cost of transferring Tk1 worth of food is Tk0.20; in contrast, the delivery cost of cash is negligible – it costs only Tk0.15 to transfer Tk1,000 in cash to a recipient. Over time, GoB has boosted cash transfer programs, doubling their share of total program spending (from 12 percent in 2005 to 24 percent in 2010). This increased emphasis on cash transfers also reflects the recognition by GoB that these programs are more cost-effective and carry a lower risk of misappropriation. The appropriate balance for Bangladesh between food-based and cash-based transfers in SSN programs requires comprehensive research, taking political economy aspects into account. A complete switch to delivering cash instead of food involves assessing the optimal size of food stocks and various modalities for their monetization. Reforming the PFDS such that cost-effective modalities are expanded while weaker ones are phased out is a nontrivial process that requires sustained political will, careful analysis, and long-term planning.

7. **Stocking strategic grain reserves in the current public storage facilities is costly and largely inefficient**. Given that the physical condition of many facilities currently used to store food grain is expected to further deteriorate over the next five to seven years, the available effective storage capacity in the conventional godowns is expected to drop by 35-40 percent to an aggregate capacity of about 1 million tons by 2020. Given the lack of moisture/temperature control facilities at the traditional godowns, PFDS can only hold stocks of rice and wheat on a short-term basis (about 6 to 12 months). The high turnover of stocks in traditional godowns, required to prevent further quality losses of the grain stored, increases the cost of grain used for food-based transfers as well as for disaster relief and recovery programs and further increases pressure on SSNs to absorb those quantities (in non-emergency times). Annual losses incurred by PFDS via leakages in grain stocks and deterioration in grain quality are in the range of 17-20 percent of the value of stocks; these losses at times exceed the variable costs of public funds locked in grain stocks procured and the fixed administrative overheads on the salaries and allowances of staff employed to manage and operate the godowns.

8. **Renting out excess storage capacity to the private sector will require significantly improving the storage conditions for grain**. GoB's ongoing efforts to rehabilitate and maintain the existing storage facilities should be addressed in the context of the holistic, integrated approach referenced earlier, which would require limiting such rehabilitations to the storage capacity effectively needed – assuming an "optimum" aggregate volume of strategic grain reserves can be reliably assessed. The NFP highlights the need to improve the policy and legal framework to promote private sector participation in market infrastructure such as storage

facilities; the NFP Action Plan calls for leasing underutilized public storage facilities to the private sector. This opens the door for a dialogue between the public and private sectors on their respective roles, opportunities, and constraints in the overall grain market and storage in particular; it could lead other participants in the rice value chain (e.g., producers and millers) to use central and local public depots, including for rice paddy, which has a longer storage life in godowns without proper temperature and moisture control than does rice.

9. **Except for providing the storage function for public stocks, the private sector dominates the food grain value chains in Bangladesh**. During 2011-2012, the country imported 2.3 million tons of food grain (76 percent was wheat, the rest rice), of which more than 1.2 million tons were imported by the private sector. Some 30,000 small-scale rice millers located across the production areas supply grain to GoB (about 5 percent of total production) and sell the rest in the open market. Many of the existing mills are old and inefficient. The private sector is now beginning to invest in automatic rice mills, which are expected to dominate the rice milling industry within a decade or so. Except for one case reported, the private sector has not built large, modern storage facilities for food grain storage due to the business model on which they operate, which is based on rapid turnover and smaller storage needs for food grain. The high cost of establishing steel silos, including the cost of land, coupled with low margins on grain storage and trade, are severe constraints to private sector participation in GoB investments in modern storage facilities. The proposed project will thus provide technical assistance to MoFood to develop and pilot various partnership models designed to increase private participation in further development of modern grain storage.

C. Higher Level Objectives to Which the Project Contributes

10. **The proposed operation is fully aligned with the Country Assistance Strategy (CAS) for FY11-14 (July 30, 2010; report 54615-BD)**. The overarching objective of the CAS is to help Bangladesh achieve its ambitious target of reaching middle-income status and reducing poverty from 32 percent to 15 percent of the population by 2021. The proposed operation directly supports the implementation of the second pillar of the CAS, which is to *Reduce Environmental Degradation and Vulnerability to Climate Change and Natural Disasters*. Moreover, improving the efficiency of the country's grain storage management, as stated in the PDO, will indirectly contribute to more efficient delivery by GoB of various (food-based) SSN programs which, as noted in the 2013 Bank report on Bangladesh Poverty Assessment, are helping to reduce poverty and inequality, mitigate adverse effects of shocks, improve livelihoods, and enable households to invest in children's education and health and in turn, promote pro-poor growth. Well-designed and well-targeted SSNs protect the poor, help them climb out of poverty, and prevent intergenerational transmission of poverty, all while being fiscally cost-effective.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

11. The overall project development objective is to *increase the grain reserve available to households to meet their post-disaster needs and improve the efficiency of grain storage management*.

B. Project Beneficiaries

12. **At least 10 million people (or some 25 percent of the population living in the project area) are expected to directly or indirectly benefit from the project**, primarily vulnerable and poor people in areas regularly affected by floods and cyclones. The latest poverty assessment indicates that 31.5 percent of the country's population is considered poor while about 17.6 percent live in absolute poverty. About 500,000 households (around 2.5 million people) will directly benefit from facilitated access to household silos. A portion of the recipients of food-based safety net programs will indirectly benefit from the project through the improved quality of the food grain released from the modern storage facilities. It is estimated that over half of all beneficiaries will be women and children.

III. PDO LEVEL RESULTS INDICATORS

13. **The following key results are expected from the project:**

(i) Increased availability of grain stocks;
(ii) Increased number of households whose grain needs can be met immediately after a natural disaster;
(iii) Decreased cost per ton to store grain; and
(iv) Reduced loss in grain stocks.

IV. PROJECT DESCRIPTION

A. Project Components

Component A – Construction of Modern Grain Storage Silo Facilities (US$195.0 million)

14. **The primary objectives of this component are to:** (i) improve the storage capacity for grain at the country level by financing the construction of modern steel silos for rice and wheat that will be built in accordance with social and environmental sustainability parameters and safeguards compliance criteria; and (ii) facilitate households' access to domestic silos for food grain and seed storage to improve household-level food security during and after natural disasters. This component will include: (A1) construction of public storage facilities in the form of modern grain storage silos; (A2) provision of household-level storage facilities or family silos, particularly in the disaster-prone areas of the coastal zone; and (A3) implementation of social and environmental management plans.

15. **Component A1: Construction of Modern Public Food Grain Storage Silos (US$145 million IDA and US$25 million Bangladesh Climate Change and Resilience Fund (BCCRF)):** This component will finance an improved storage silo system to store milled rice with a total capacity of around 535,500 tons. Subject to full compliance with the requirements in the publicly disclosed Environmental and Social Assessment and Management Framework (ESAMF) and prior completion of all complementary, site-specific studies and analyses required, the silos will be constructed at eight sites in various strategic locations across the country (see Annex 2 Table 2.2 and the attached map for locations). The eight sites proposed are on land currently owned by DG Food, so no land acquisition will be required. In the event that the local

conditions at any of the eight proposed sites evolve prior to actual construction or if the site-specific, complementary studies bring new information to light, a new assessment of the eligibility and feasibility of silo construction at that site will be carried out – and an alternative location possibly considered (subject to the same rigorous eligibility criteria). The characteristics of each proposed site and the technology to be used for long-term food grain storage are detailed in Annex 2. BCCRF funds are expected to be used for silo construction at the Naryangang site. Subject to the above requirements or in the event that the end-of-construction date at that site would go beyond the BCCRF Grant Agreement closing date, these funds could be used for silo construction at another project site, subject to prior consultations and approval by the BCCRF Management Committee.

16. **Component A2: Household Silos (US$15 million IDA and US$5 million from beneficiaries):** Under the 2007 Emergency Cyclone Recovery and Reconstruction Project (ECRRP, P111272), household-level silos or grain storage bins were developed in Bangladesh. These units are specially designed 70-liter, food-grade plastic bins tested to ensure that chemical contaminants do not migrate into the stored food. They hold about 40kg of paddy and come equipped with a watertight lid, preventing water intrusion from surges and floods (see Annex 2 for detailed specifications). Provision of home storage units under ECRRP has been extremely successful; under FAO coordination some 20,000 units were distributed. Based on the lessons learned from the ECRRP, this project's investment in small-scale storage at the rural household level is expected to bring important benefits to the farming community – in the form of safer storage of rice seed (which is more valuable than commercial grain) and the enhanced capacity of affected households to have seed readily available for subsequent planting seasons.

17. **Small-scale home silos will be sold via a network of local dealers to eligible households at a subsidized price under a voucher scheme implemented by a third party**. The procurement price of storage bins currently ranges from US$23 to US$33 per unit, down from US$50 at the start of ECRRP. It is envisaged that the project will make these storage bins available to eligible households at a subsidized price of US$10 per unit, with the rest covered by the project. The cost is expected to drop further with the increased supply in the market; the subsidy element will thus be reviewed annually and adjusted accordingly. Resultant surplus project funds could be used to expand coverage if the need persists or used on other project activities. This component will be subject to regular reviews and impact assessments to facilitate necessary modifications or corrections in scope and implementation arrangements. In line with efforts in other components to explore opportunities for private sector participation, the project will purposely work towards spurring a market for these goods by closely working with the local network of dealers and private distributors in the project area, as well as with manufacturers. To that effect, the project will implement a voucher-based mechanism by which eligible households purchase the household silo from a dealer (at the subsidized price) rather than receiving the unit through the distribution program of a local government agency.

18. **Component A3: Implementation of Social and Environmental Management Plans (US$10 million):** The sites proposed for public silos are already owned by GoB. Therefore, no major social or resettlement issues are expected. However, funds will be provided under this component to ensure that if any such issues arise they can be addressed properly. These issues encompass, for example, increased traffic congestion or other environmental or social issues

resulting from the complementary site-specific studies which are required to be fully addressed prior to invitation for bidding, and others that could emerge during silo construction. The component will also support environmental enhancement, such as improved landscaping, planting of trees to improve the aesthetics of tall steel silos, and more.

Component B – Support for Food Planning and Monitoring Program (US$25 million)

19. **The objective of this component is threefold:** (i) to enhance the institutional capacity of DG Food and the Food Planning Monitoring Unit (FPMU) and support these agencies in carrying out their respective mandates; (ii) to address analytical gaps and support the development of an evidence-based policy framework to improve the efficiency and performance of the country's overall food storage system and management of strategic grain reserves; and (iii) to improve the coordination of public agencies (in particular DG Food and FPMU with MoDMR) involved in procurement, public storage, and distribution of food grains, as well as disaster relief. FPMU is responsible for monitoring the food situation in the country and implementing related policies, while DG Food is responsible for physical procurement and management of government food stocks in accordance with agreed food security policies, including the supply of food to the disaster-affected population through relief and rehabilitation programs. The component will contribute to reconciling policies and public interventions: (i) on food distribution (taking into account short- and longer-term storage capacities); (ii) in response to incremental demand for food grain in post-disaster situations; and (iii) aimed at achieving price stabilization for coarse grains normally consumed by the poor and vulnerable.

20. **Activities supported under this component will directly contribute to enhancing coordination between MoFood and MoDMR agencies and to improving the decision-making process on food storage, food distribution, and market intervention** on the basis of up-to-date, sound, and informed analyses. Subsequently, the Bank expects GoB to follow up on these policy recommendations with concrete policy actions and/or improvements to relevant regulations and institutional arrangements that address key questions around enhancing the efficiency and performance of the food storage and food distribution system. To that effect, a range of studies will be developed, undertaken, and disseminated under Component B to answer the following strategic challenges (explained in Annex 2): (i) the "optimum" volume of grain to be stored and its implications on GoB's policies; (ii) the impacts of GoB food market interventions on price stabilization and broader food markets; (iii) the improvements needed in the enabling environment conducive of an increased participation of the private sector in modern grain storage facilities; (iv) a strategy for disposal of grain stored in the modern facilities; (v) evaluation of the current physical condition of existing public storage facilities; (vi) development of the policy, legal, and institutional framework and technical requirements for nutrient fortification; and (vii) introduction of a warehouse receipt system.

21. **These strategic questions will be assessed under an *Integrated Food Policy Research Program* supported by Component B.** The project will fund an institutional capacity enhancement and skills development assessment of DG Food and FPMU to identify their institutional needs to develop, manage, and implement such a program. The program will coordinate the research around the policy issues above, as well as related knowledge sharing and dissemination activities. This program will be hosted by FPMU in close collaboration with DG

Food and in partnership with a "joint venture" between a renowned national and an international institution. The program will become a platform for evidence-based policy dialogue between MoFood and MoDMR as well as other ministries. As part of the project's annual activity and budget plan, DG Food will prepare a detailed annual program of studies to be funded under the Food Policy Research Program and submit it to the Bank for approval.

22. **Component B will also support the development, installation, and initial operation of a nationwide electronic monitoring system for food stocks**, building upon work already done by DG Food and FPMU. This modern food stock monitoring system will be coordinated by DG Food in close collaboration with FPMU. To that effect, this component will include the establishment of a food monitoring center under DG Food. Technical assistance will be provided under this component to finance improvements in the monitoring and management of food storage/stock and to introduce a modernized system that will enable GoB to better plan and monitor food stocks nationwide. These investments will assist in significantly reducing losses, and will secure a more rapid and efficient distribution of grain in the event of an emergency through an improved network for grain stocks.

Component C - Project Management, Construction Supervision, Technical Assistance, Training and Strategic Studies (US$20 million)

23. **This component will finance costs required to ensure adequate overall management of the project, monitoring and evaluation of the activities implemented, and capacity enhancement of selected stakeholders.** It will include: (C1) project management of the task; incremental staff and expenditures of DG Food in implementation of the project; the costs for implementing the Governance and Accountability Action Plan (GAAP; see Annex 6), including a panel of experts, as needed, a Procurement Panel, an audit, and other such costs; (C2) cost of consultants for preparation of bidding documents, construction supervision, and update of designs required during construction; this will among others include costs for construction supervision and monitoring and evaluation of project impacts; (C3) provision of technical assistance, training, institutional capacity building, preparation of future projects, and any strategic studies needed during project implementation and not covered under Component B.

24. **Component C3 will build the capacity of DG Food to effectively implement the project, manage the operations and maintenance (O&M) of the food silos, and fully carry out its mandated functions**. These activities include but are not limited to: (i) enhancing DG Food's capacity in planning and programming, engineering and O&M of the silos, and management of environmental and social issues; (ii) technical assistance and training in such areas as design of silos and food storages, detailed designs of structures, safety enhancement of storage structures, contract administration and construction supervision, procurement, storage operations and management planning, asset management plans, financial management, and legal issues (such support includes among others, on-the-job training, post-graduate programs, seminars, workshops, and study tours); and (iii) any other issues that may need further study and investigation during project implementation. As part of the project's annual activity and budget plan, DG Food will prepare a detailed annual program of all training and capacity development activities to be funded under the Food Policy Research Program and submit it to the Bank for approval.

B. Project Financing

25. **Lending Instrument:** The lending instrument is Investment Project Financing (IPF).

Table 1: Project Cost by Component (US$ million)

Project Component	Total Cost Incl. Contingencies	IDA Financing	BCCRF Financing	Beneficiaries Contribution
A. Construction of Modern Grain Storage Silo Facilities				
A1 Construction of Public Silos	170	145	25	
A2 Provision of Household Silos	15	10		5
A3 Implementation of Social and Environmental Management Plans	10	10		
Sub Total Component A	**195**	**165**	**25**	**5**
B. Support for Food Planning and Monitoring Program				
B1 Support for Food Planning and Policies	10	10		
B2 Support for Food Stock and Market Monitoring System	15	15		
Sub Total Component B	**25**	**25**	**0**	**0**
C. Project Management, Construction Supervision, GAAP, TA and Training, Strategic Studies				
C1 Project Management Support, GAAP, Panel and Audits	8	8		
C2 Construction Supervision and Contract Management	10	10		
C3 Capacity Building, TA, Training, Strategic Studies, Future Project Preparation.	2	2		
Sub Total Component C	**20**	**20**	**0**	**0**
Total	**240**	**210**	**25**	**5**

26. **Project Cost and Financing:** The project cost by component is given in Table 1. The total cost is about US$240 million, including expected contributions from beneficiaries under Component A2. The project will be financed by an IDA credit of US$210 million and a grant from the BCCRF of US$25 million; the latter will fund the construction of modern silos at one site. The grant was approved by the Management Committee of the BCCRF in June 2012. Of the total BCCRF grant allocated to this project, US$12.224 million currently available in the BCCRF Trust Fund with the World Bank are being provided now and the remaining amount will be provided when the Trust Fund is replenished by the donors. Beneficiaries are expected to contribute about US$5 million equivalent towards component A2.

27. **The total IDA credit is SDR136,600,000** of which SDR35,434,810 (US$54.5 million equivalent) are recommitted funds cancelled earlier from various IDA credits, and the remaining (US$155.5 million equivalent) are new IDA funds. The canceled IDA funds are from the Additional Financing for the Rural Electrification and Renewable Energy Development Project (SDR13.6 million, Credit No. 4643-BD) and the Second Additional Financing for the Rural Electrification and Renewable Energy Development Project (SDR22.2 million, Credit No. 5013-

BD); and the Power Sector Development Technical Assistance Project (SDR0.5 million, Credit No. 3913-BD), respectively.

28. **The BCCRF grant will be used in Component A1 for the construction of public grain silos on the Narayanganj site** as approved by the BCCRF Management Committee. However, if some issues arise on this site or for some reason construction on this site is projected to conclude later than the BCCRF grant closing date, then the funds may be used for another site in the project, subject to consultation and approval from the BCCRF Management Committee.

C. Lessons Learned and Reflected in the Project Design

29. **The project design draws on lessons learned from infrastructure as well as emergency recovery projects, both in and outside of Bangladesh**. Bank-wide experience has shown that infrastructure is crucial for socioeconomic development and this is particularly true in Bangladesh, which has significant infrastructure gaps affecting transport and the movement of goods and people. The primary lessons incorporated in the project are that: (i) project design should be based on thorough analysis and investigation using state-of-the-art design concepts and methods. The designs of the main storage facilities are based on a series of studies, site investigation, and use of the best talent and methodologies available in the world. The technology proposed is the best available and least cost, considering the lifecycle cost of the facilities; (ii) environmental and social studies should be completed prior to invitation for bids; (iii) upstream detailed assessments and plans for social and environmental issues should be carried out early in the preparation; (iv) extensive *a priori* consultation with various stakeholders and consideration of alternatives are needed to minimize adverse effects and to make interventions most effective; (v) proper review of construction planning is critical to identify and minimize negative effects during construction and operation of the river and navigation network without major interruptions, as is preparation of necessary mitigation measures; (vi) implementation of the project works through large civil contracts should follow the best contract management models, whereby competent consultants with adequate resources provide the best construction supervision; (vii) any resettlement and land acquisition issues should be dealt with up front; (viii) contingency planning should be based on risk analysis so that people are not affected by the construction works, and proper plans should be in place in case of any disturbances, floods, or other disasters; (ix) strong government leadership and a properly staffed project management office are indispensable to effective project preparation and implementation; (x) procurement needs to be flexible and procurement processes should start early; retroactive financing can be very helpful to ensure an early project start-up; (xi) the speed of appraisal and implementation is critical to project success; (xii) independent experts should oversee the technical designs and geotechnical analysis; and (xii) long-term sustainability and O&M issues should be anticipated and dealt with early on.

30. **Lessons learned from other projects in Bangladesh were also taken into account in the design of the proposed operation**. Component A2 on household silos is modeled after elements of the Agriculture component in the IDA/BCCRF co-funded Emergency Cyclone Recovery project (ECRRP, P111272), which aims at building the resilience of farming households in disaster-prone coastal and flood areas. The ECRRP has facilitated the access of some 20,000 farming households to small-scale storage bins, which was highly successful in providing farmers with the capacity to adequately store rice seeds which are then readily available for

planting in the season following a disaster occurrence. Should a non-emergency context prevail at the time of implementation in the project area, modalities for accessing the storage bins will be different than under the ECRRP, and will occur through a network of local dealers, with the price of bins subsidized for beneficiaries.

31. **The Modern Food Storage Facilities project (MFSP) advocates a holistic approach that takes the steel silos as an integral element of Bangladesh's grain market and GoB's PFDS**. Efficient use of the storage capacity to be developed with modern storage facilities should take into account the country's overall food grain storage system and the PFDS and its SSN programs, as well as GoB objectives to increase its preparedness to address food shortages in post-disaster situations. To that effect, the project seeks complementarity with the IDA-funded Safety Nets for the Poorest project (P136634), aimed at improving the equity, efficiency, and transparency of major SSN programs to benefit the poorest households. Two lessons learned from the Safety Nets project directly addressed in the MFSP are that there is a need to: (i) increase collaboration between MoFood and MoDMR (on a monitoring and information system that generates real-time data on stock levels in different locations, and on complementary technical assistance for development of an integrated policy framework on food security, disaster response, and post-disaster recovery); and (ii) capitalize on the extended storage time of food grain in modern steel silos to coordinate and manage the increase in the share of cash-based SSN programs relative to food-based programs under the PFDS.

D. Alternatives Considered and Reasons for Rejection

32. **Given the country's vulnerability to natural disasters that frequently result in severe food shortages, the "Do Nothing" alternative was rejected**. Bangladesh is highly vulnerable to natural disasters; food shortages are common in post-disaster periods due to losses in crops and lack of adequate food stored at the public and private level. For that reason, it is important that the country has a sufficient stock of food grains to meet post-disaster needs. During the design phase, several alternatives were considered but the proposed solution is considered best.

33. **Least-Cost Alternative, Optimal Design, and Locations:** The design used is least-cost based on the lifecycle cost of the facilities proposed for construction. Steel silos were chosen over the alternative options of conventional godowns and concrete silos as they provide the least-cost option. Within this choice, various design options were evaluated, such as a combination of height and width and site selection (i.e., new sites versus existing sites where DG Food has godowns and land is available).

34. **The proposed combination of height, width, and bin size was found to be most effective considering the lifecycle cost of the project**. Sites proposed take into account: (i) connectivity and logistics to collect and distribute food grain in case of disasters and availability of utilities, particularly access to the electricity grid; (ii) availability of appropriate plant and equipment for easy handling and distribution; (iii) existing godowns where extra land is available to minimize the land requirements (land is very limited in Bangladesh), thus minimizing the social and environmental costs; and (iv) accessibility of sites during and after major natural disasters. The proposed project was optimally designed to consider all these aspects.

35. **A key driver for GoB's policy to further expand its strategic food grain reserves is the considerable challenges it had in meeting its import demand for food grain during the global food crisis in 2008-2010.** The period coincided with a ban on grain exports in India, traditionally a major supplier to Bangladesh, and historically high international prices for wheat and rice. After the world market situation stabilized, Bangladesh imported a record 5.2 million tons of food grains in 2010-2011 (with GoB alone importing over 2 million tons, including 1.2 million tons of rice), despite limited adequate long-term storage capacity. In such situations of supply shortage and high prices, cash-based safety net interventions are likely to have a more limited impact than food-based assistance – provided the government has the ability draw from strategic food grain reserves procured when prices were lower. The proposed project as designed provides GoB the flexibility to import food grain when prices are low and to keep it in modern facilities that allow longer-term storage.

V. IMPLEMENTATION

A. Institutional and Implementation Arrangements

36. **Project Implementation: The project will be implemented by MoFood through DG Food**. DG Food will have overall responsibility for project implementation, including fiduciary compliance. DG Food will also be responsible for overall financial management and operation of the Designated Account. FPMU will lead the development, management, and implementation of the integrated food policy research program under Component B. A Project Steering Committee (PSC), chaired by the MoFood Secretary, will provide overall guidance and facilitate coordination among involved government agencies. The Secretaries of Planning, Agriculture, Forestry, Environment, and Finance and Disaster Management, Bangladesh Agricultural Development Corporation (BADC), representatives of the Cabinet Deputy Commissioners of the districts where silos are being constructed, and the General Directors for DG Food and FPMU will comprise the PSC members. DG Food will act as the Secretary of PSC. The project will be implemented over a period of six years. All works will be completed in year four or five of the project and one to two years will be allowed for the warranty period.

37. **A Project Management Unit (PMU) has been established in DG Food's office for day–to-day implementation and monitoring of the project activities**. The PMU is headed by a Project Director and consists of essential project staff (see Annex 3). The detailed composition and number of staff for PMU and field offices will be agreed with the Bank during various stages of project implementation. DG Food will carry out a human resources needs assessment for the new storage facilities, taking into account the staff currently employed at the conventional godowns to avoid overlap of functions and increased overhead costs for GoB.

38. **Governance and Accountability Action Plan:** The project will be implemented in accordance with the GAAP (as detailed in Annex 6) to ensure proper implementation of the project and the use of IDA and BCCRF grant funds. Bangladesh is rated as a high-risk environment from a governance, procurement, and financial management viewpoint. The key elements of the GAAP are: (i) information and public disclosure of all project documents to ensure full transparency of the project activities; (ii) social accountability measures including

third party monitoring measures; and (iii) measures to safeguard procurement and financial management including information and communication technology (ICT).

39. **Information and Public Disclosure:** In line with the World Bank's Disclosure Policy and Bangladesh's Right to Information (RTI) Act, all information in the project shall be made public. This includes: (i) public disclosure of all project documentation, including project information, description, and location information; (ii) disclosure of procurement and other related information; (iii) establishment of a website; and (iv) a centralized information system in Dhaka that will allow the public to access information on the project and on national grain stocks held at the divisional levels.

40. **Social Accountability and Third Party Monitoring**: The project will make use of social accountability and transparency measures to improve project performance through third party monitoring, project-level grievance redress mechanisms, and project-level monitoring to ensure the integration of social accountability measures and the transparency of procurement and implementation. Specific measures will be designed (by the time silos are fully operational) on grievance-redress mechanisms and participatory monitoring. The project will have field-level coordinators who will also serve as focal points for complaints and feedback on the project's design, impacts, and implementation. Local communities will be consulted early in the process, and will be encouraged to monitor project progress in the construction phases. In addition, the project will explore the establishment of an independent, non-governmental consultative group based in Dhaka that will review all project information and procurement decisions, as well as the use of ICT in project monitoring activities, where applicable.

41. **Procurement and Financial Management:** A Procurement Panel with responsibility for key procurement actions in the project will be established (as described in Annex 3). Procurement under the project will be grouped into large International Competitive Bidding (ICB) contracts undertaken with a high level of scrutiny by the Bank and GoB, and construction supervision will be undertaken by international consultants who will be the "engineers" for works contracts. In addition, bidding documents will require all contractors to disclose their agents and relationships with the implementing entity as well as in Bangladesh. The Procurement Panel will ensure that the bidding process is conducted with full integrity and thoroughness, following appropriate guidelines. Appropriate clauses will be added in the contracts between the Borrower and the contractors to give the Bank the right to audit the contractors. The Panel will also oversee the contract management and ensure the quality of works, changes in work, and payments, etc. The major contracts will be thoroughly reviewed by the Bank and an independent consultant will be recruited as needed to review such contracts at various stages of evaluation and award and to evaluate proposed changes in the contract.

42. **Financial Management will be undertaken by a Senior Financial Management Specialist, to be recruited by the projec**t and based in Dhaka. All financial management activities will be undertaken centrally in the PMU office in Dhaka to ensure full accountability.

B. Results Monitoring and Evaluation

43. **DG Food will submit quarterly reports in an appropriate format to MoFood, the PSC, and the Bank no later than 45 days after the end of each quarter**. The PMU will be

responsible for preparation of the quarterly report, which will cover the progress and expected completion dates for civil works and equipment supply contracts, progress on institutional components, implementation of Social Assessment Plans (SAPs) and Environmental Management Plans (EMPs), training and studies, and activities of DG Food/PMU's engineering, procurement, and financial consultants, and NGOs. Progress in implementing the GAAP will also be reported. The quarterly reports will also cover financial and procurement information.

44. **The PMU at DG Food will also prepare annual reports by no later than August 15 of each year of project implementation**. The annual report will cover: (i) the progress of each component, implementation of key features of the EMP, implementation of the GAAP, key performance indicators, operation of project facilities, and financial statements; and (ii) the Annual Work Plan for implementation, annual funds required for implementation with breakdown by each co-financier, an updated disbursement profile, planned actions for mitigating negative effects during construction, and target indicators for the coming fiscal year. In addition, semi-annual reviews will be undertaken jointly with the Bank throughout the project lifetime.

45. **With the help of consultants, the PMU will undertake project M&E impact assessment studies**. The M&E studies will evaluate the success in project implementation in terms of meeting the project's objectives and will assess its physical, hydrological, environmental, social, and economic impacts. The M&E activities will provide continuous feedback to the PSC, DG Food, and DG FPMU on the project's performance and on mitigation of negative impacts under various components so that corrective actions can be undertaken in a timely manner if necessary. Changes to the project, if any, will be reflected in the implementation review aide memoires.

46. **With support from consultants, the PMU will be responsible for monitoring and reporting on the GAAP on a quarterly basis**. Monitoring shall include quantitative measures of implementation of actions (e.g., numbers of complaints received, followed up, and resolved; numbers of persons at accountability meetings), recording of benchmarks, and qualitative reporting on the efficacy of measures and instances where problems were corrected through these mechanisms. Its reports will be submitted to the PSC and the Bank simultaneously. Upon clearance by the PSC, summaries of the reports indicating complaints, investigations, and their outcomes will be disclosed to the Bank and the public through the project website. DG Food will issue special reports concerning its independent reviews of significant cases and their outcomes as necessary.

C. Sustainability

47. **The O&M cost of the facilities will be about US$6 million annually, a small proportion of GoB's annual food program**. In addition, because of the long-term storage to be availed by the project, GoB will rotate its grain in traditional godowns more frequently before it goes bad. This will translate into savings sufficient to offset the additional O&M cost of the new facilities. Furthermore, as part of normal grain management, grain from steel silos not distributed after about two to three years will be periodically rotated (removed and replaced). When such grain is not needed for SSN programs, it could be auctioned off, generating revenue which could go towards O&M of the silos. Several scenarios involving revenue generation from private sector participation (including leasing out excess storage capacity, private sector management of GoB's

modern silos, and potential for disinvestment) will be explored based on the outcomes of the related research carried out under Component B. Finally, the project will support local capacity building for effective O&M of the steel silo facilities.

VI. KEY RISKS AND MITIGATION MEASURES

A. Risk Ratings Summary Table

Stakeholder Risk	Rating
Implementing Agency Risk	
- Capacity	Moderate
- Governance	Substantial
Project Risk	
- Design	Moderate
- Social and Environmental	Moderate
- Program and Donor	Moderate
- Delivery Monitoring and Sustainability	Moderate
- Procurement	High
- Fraud and Corruption	Substantial
Overall Implementation Risk	**Substantial**

B. Overall Risk Rating Explanation

48. **The overall risk rating for the project is "Substantial."** This is based on governance risks primarily due to the operating environment and the large size of the contracts involved. These risks have been carefully assessed and will be addressed throughout the project implementation period through the use of the Operational Risk Assessment Framework (ORAF) and implementation of the GAAP, extensive supervision, and other measures as deemed necessary (see Annex 4 and Annex 6).

VII. APPRAISAL SUMMARY

A. Economic and Financial Analyses (Annex 7)

49. **The economic analysis shows the project to be cost-effective**. The project will provide about 535,500 tons of grain storage capacity in modern silos through the most efficient means. The economic analysis shows the project to be cost-effective for several reasons: (i) the cost of construction of alternatives such as conventional godowns and concrete silos is very high (i.e., steel silos are the least-cost option; see details in Annex 7); and (ii) they will reduce losses in storage and lower the cost of transportation and handling. The project will provide all of this new storage on sites already owned by the GoB.

50. **Least-Cost Option**: **Among the three possible options for constructing grain storage, steel silos have been found to be the most cost effective** compared to conventional godowns and concrete silos. Compared to concrete silos and conventional central storage depots (CSDs), steel silos are more than 45 percent and 318 percent cheaper, respectively, when all costs

(including O&M and grain quality retention capacity) are considered. Other advantages are that steel silos require less land and can store grain without a deterioration in quality for a longer period (up to three years), making them more suitable for attaining sustainable food security in post-disaster periods.

51. **Economic Rate of Return (ERR) Estimates: The ERR for the base case is 19 percent**. The benefit-cost ratio, including capital and operational costs, is over 1.7. The base case reflects a very conservative estimate and the actual ERR realized is likely to be higher.

52. **Sensitivity Analysis: The project ERR is robust and not very sensitive to modest variations in project costs or benefits**. Switching values were computed to determine the effects of an increase in costs and a decrease in benefits. With an increase in capital cost of 10 percent *or* a reduction in benefits of 10 percent, the ERR is 17 percent. With an increase in capital cost of 10 percent *and* a simultaneous reduction in benefits of 10 percent, the ERR is 16 percent. The ERR remains above the 10 percent opportunity cost of capital with a 72 percent increase in the capital cost *or* a reduction in benefits of 42 percent, or with a capital cost increase of 26 percent *and* a simultaneous decrease in benefits of 26 percent.

53. **Financial Analysis and Fiscal Impact: The operations of the silos constructed under the project are fundamentally non-revenue-generating activities**, as they are primarily geared to preparing the country for disaster relief. However, as indicated above, there are opportunities for auctioning off some of the grain as part of normal grain rotation, particularly when such grain is not needed for immediate relief or SSN requirements. Similarly, occasional unutilized capacity could be leased to the private sector. Such undertakings could generate some revenue to supplement budgetary allocations for the O&M of these facilities. The framework for such undertakings will be developed under the project. As it is not possible at this time to estimate the frequency and magnitude of such opportunities, it is difficult to compute the potential revenue under such operations.

54. **During the investment phase, the project is not expected to strain GoB finances as no counterpart funds are required**. O&M costs of the silos are estimated at about US$6 million in total annually. This represents a small part of GoB's annual food program. In addition, the availability of long-term storage facilities will negate the need to keep grain for extended periods in traditional godowns. GoB will keep grain in traditional godowns for less than a year (since long-term storage needs will be met through steel silos), hence minimizing grain loss. Savings from grain loss due to more frequent turnover when the grain is still fresh can be as high as five times the cost of annual steel silo maintenance.

B. Technical

55. **The silos to be constructed under this project are essentially flat bottom, large tank-type structures made of corrugated, galvanized, bolted steel, to be used for bulk storage of food grains in a monitored atmosphere**. The silos will allow storage handling of large volumes of food grain, particularly rice, for two to three years. The steel-bolted silos used in all climate zones will allow for speedy construction, and will have temperature control and fumigation systems, automated mechanical handling, and a central computerized control system. These types of silos have a highly competitive supply, with at least 20 manufacturers active in the

international market. The details of the technology to be used are provided in Annex 2 along with the detailed project description.

56. **The technology that will be used in this project is common and well known globally**. Steel silos occupy much less space than conventional godowns and can store much more for several years. Many countries are now shifting to steel silos because of their speedy construction and the ease of maintaining food quality by artificially (computerized) controlling their humidity and temperature. The key technical components of the modern facilities financed by the project to store rice include: (i) flat bottom, corrugated, galvanized, bolted steel silos; (ii) grain chillers; and (iii) grain dryers. Storing imported wheat in the steel silos will require neither dryers nor chillers; however, investments for specialized handling facilities at the port of entry and waterways will likely be needed (see details in Annex 2).

57. **The foundation works for construction of the steel silos are considered critical for the longer durability of these silos, so that they can withstand high velocity wind or any natural disasters**. Because of this, careful consideration was given to selecting the sites and bin sizes based on the subsoil conditions at each site. The subsoil investigation report carried out by the client reveals that the quality of soil is poor in almost all sites, necessitating a pile foundation since there will be heavy loads over each bin foundation. Accordingly, the number of piles for each bin will vary from site to site depending on the soil condition and the loads. Individual bins for wheat storage will be much larger than those used for rice storage. The selected size is expected to reduce the capital cost in the foundation, the size of motors and plants, and the operating costs in the long run.

C. Financial Management

58. **Based on the findings of the institutional financial management assessment carried out by the Bank in February 2013 at DG Food, the overall financial management (FM) risk for the project is rated "Substantial."** The FM assessment was carried out in accordance with the Financial Management Manual for IDA-financed investment operations issued by the Financial Management Sector Board on March 1, 2010. The objective of this assessment was to determine whether the implementing agency, DG Food (MoFood), has adequate FM capacity in place to execute the project and in coordination with FPMU (MoFood). The findings of the FM assessment, including recommendation for this project, are elaborated in Annex 3 (i.e., weak system/procedures, skill gaps, and staffing issues), based on which the overall FM risk rating for the project is "Substantial."

59. **Initially disbursements will follow the "SOE" based method that may be converted to IFR-based disbursement after two years** or at an earlier date, at the option of GoB and the Ministry after the project successfully demonstrates capacity to generate quality and timely IFRs acceptable to Bank. The project will maintain two Designated Accounts for IDA credit and BCCRF grants respectively. The DA ceilings will be specified in the Disbursement Letter. The recipient may request for advances up to the ceilings based on the project needs. DG Food is responsible for overall implementation of all components while the implementation of the integrated food policy research center under Component B will be led by FPMU. Currently DG Food applies their own financial management, monitoring and reporting systems which need to

be improved in terms of control and up gradation. The project's financial statements will be audited by the Independent Auditor and must be submitted to the Bank no later than 6 months (December 31) after the FY end. The project will be put on the Government FM Information System starting from the inception period. In addition to the annual audit, the project will undergo an additional annual operational review conducted by an independent audit firm to cover effectiveness internal controls over financial management. DG Food, as the leading executing part of implementing agency is responsible for coordination, monitoring and consolidation of financial reporting. Thus, the PMU will recruit qualified FM and accounting staff for the project and provide required training immediately after recruitment. The project Director at the PMU will be responsible for operation of the Designated Accounts (DA) that will be used to provide advance from the IDA Credit and BCCRF Grant accounts.

60. **Retroactive Financing:** Retroactive financing of up to SDR2.0 million equivalent for payments made against eligible expenditures from May 1, 2013, to the Credit signing date will be covered, provided that the procurement procedures are acceptable to the Bank.

61. **Since DG Food and MoFood have agreed to adequate mitigation measures, the residual FM risk for the project is rated as "Modest."** The overall FM risk is rated as "Substantial" due to: (i) weak implementation capacity of the PMU; (ii) staff inexperience in implementing donor-funded projects; (iii) lack of approved operational guidelines for FM; and (iv) inadequate internal control systems.

D. Procurement

62. **Based on the findings of the institutional procurement assessment carried out by the Bank in December 2012 at DG Food, the overall Procurement risk for the project is rated "High Risk."** A procurement capacity assessment of DG Food was conducted. Given the procurement environment in the country and the nature of procurement in significantly large value contracts, the project is rated as "High Risk" from a procurement operation and contract administration viewpoint. DG Food will require adequate procurement staff to manage procurement processes and contracts under this project. The assessment shows that DG Food has experience in procurement but not enough to handle such high-value, complex procurement. It lacks procurement knowledge especially in ICB and displays some weakness in the preparation of bidding documents and bid evaluation. DG Food is also not immune to systemic issues affecting procurement efficiency and performance. In addition to adequate staffing for procurement needs, emphasis needs to be put on internal control, documentation, information dissemination, and administration of contracts, including delivery follow-up, payments, handling complaints, and more. Therefore, DG Food's capacity in procurement and contract management will be strengthened by hiring: (i) a senior procurement consultant with experience carrying out procurement and contract management for similar contracts; and (ii) a construction supervision consultant (CSC) with substantial international experience, to be designated as the "engineer" under the civil works contracts.

63. **DG Food will implement a broad range of risk-mitigating measures within six months of project implementation**. Risk-mitigation measures to be implemented are detailed in Annex 3. The Bank will work closely with the authorities to ensure that those measures are

implemented in due course and will assist with the monitoring of these measures within the regular joint implementation support mission.

E. Social (Annex 8)

64. **A number of potential sites for the construction of modern silo facilities were reviewed and a preliminary social assessment was carried out during project preparation for the eight sites proposed**. The preliminary screening showed that the project will have minimal adverse social impacts, as lands for all sites are either owned by DG Food or by GoB. However, it may turn out during detail design that additional private lands are required or that people need to be displaced physically or economically for the construction of silo facilities. Therefore, **the Bank's operational policy (OP) on involuntary resettlement (OP 4.12) has been triggered**. The project activities will not negatively affect any indigenous people and DG Food will exclude from final selection any site with impacts of any degree on tribal communities. Therefore, the Bank's operational policy on indigenous peoples (OP 4.10) has not been triggered. Sites with additional social issues and impacts that involve prohibitively high mitigation costs will be discarded and alternatives sites with manageable social issues will be sought. Each proposed silo construction site will be screened for social safeguards compliance following the detailed engineering design.

65. **To facilitate the process of screening the proposed sites for social safety compliance, DG Food has developed a comprehensive Social Management and Resettlement Policy Framework (SMRPF) in compliance with OP 4.12**. The SMRPF is a single document covering social, environmental, and safeguards aspects. The SMRPF will guide DG Food on how to address social safeguards compliance issues arising during the project implementation stage and on how to ensure social inclusion in the process. DG Food will assess the social impacts of project interventions and, whenever required, will prepare in accordance with the SMRPF Social Management Plans (SMPs) and Resettlement Action Plans (RAPs) for each construction site prior to issuing the bidding documents. The SMRPF is also applicable to the technical studies for silo construction and preparation of new projects.

F. Environment (Annex 8)

66. **The construction activities under the proposed project are likely to cause a moderate level of environmental impacts and the project has thus been classified as Environment Category B**. Potential environmental impacts include additional vehicular traffic, air and noise pollution, water contamination, health and safety hazards, and possible damage to the existing infrastructure/amenities at the sites. However, most of these impacts are temporary and reversible in nature. Similarly, the O&M of the proposed silos is likely to cause some negative environmental impacts, including additional road and waterway traffic to transport the grain, and safety and health hazards associated with use and handling of fumigants (such as aluminum phosphide with the release of phosphine gas). However, with the help of appropriate procedures and measures, these impacts can be adequately mitigated. **Thus, the Bank's operational policy on Environmental Assessment (OP 4.01) has been triggered**.

67. **DG Food prepared and publicly disclosed a comprehensive ESAMF** for the project in response to the requirements defined in OP 4.01 and the national regulatory framework. This

document provides the Environmental Framework, the Environmental Assessments for the eight sites proposed for construction, and the project's overall EMP. The document was prepared to provide guidelines about the procedure for environmental screening/assessment, identification of an environmental code of practice, preparation and implementation of site-specific Environmental Action Plans (EAPs) in accordance with the overall EMP, and monitoring and institutional responsibilities. In accordance with the Bank's disclosure policy, the ESAMF, in both English and Bengali, was uploaded to DG Food's website on March 12, 2013 (www.dgfood.gov.bd/esamf silo.php) and to the Bank InfoShop on March 29, 2013.

68. **All outstanding site-specific environmental (and social) assessments and management plans will be completed prior to bid allocation, and bidding documents will be required to include environmental (and social) action plans and mitigation costs**. DG Food has proposed eight possible silo construction locations based on an initial analysis of 14 different sites. Further studies will be conducted during the first year of project implementation to finalize the choice of sites, taking into account environmental factors and other technical issues. During the preparation phase, a partial environmental assessment (EA) was carried out at the eight proposed sites and an overall project EMP was prepared. Once it has developed detailed technical and geo-technical designs for each of the proposed sites, DG Food will be required to develop site-specific EMPs satisfactory to IDA prior to issuing the invitation to submit bid proposals. Subsequently, all bids submitted will need to include fully costed and budgeted environmental action plans (EAPs) and SAPs.

69. **DG Food will submit quarterly progress reports on environmental management; it will also acquire external expertise to carry out relevant project tasks and build the institution's environmental capacity**. DG Food has limited capacity on environmental management and is not familiar with the Bank's safeguards policies. To ensure adequate environmental compliance, DG Food will appoint a fulltime environmental specialist for the project who will also develop DG Food's technical skills on relevant environmental issues. The CSC to be appointed by DG Food will also have site-based environmental staff to regularly monitor and ensure EMP implementation in the field at each site. Similarly, the contractors will have dedicated field-based environmental staff to implement the EMPs and their mitigation measures.

Annex 1: Results Framework and Monitoring

BANGLADESH: Modern Food Storage Facilities Project (MFSP)

Project Development Objective (PDO): The overall Project development objective is to be increase the grain reserve available to households to meet their post-disaster needs and improve the efficiency of grain storage management.

PDO Level Results Indicators	Core	Unit of Measure	Baseline	Cumulative Target Values							Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4	YR5	YR6	YR7				
P1. Increased availability of silos grain stocks	☐	Tons	0.0	0	0	100,000	200,000	280,000	350,000	400,000	Annual, MTR and ICR	Annual reports (PMU + DG Food), MTR mission report	PMU, Coordinators at the project sites, and third party verification	Availability of stored grains following a natural disaster. Stored at 80% of capacity
P2. Increased number of households whose grain needs can be met	☐	Million HHs	0	0	0.1	0.5	1.0	2.0	4.5	4.5	Annual, MTR and ICR	Same as above	Same as above	Households that can benefit following a natural disaster. No increments are expected in the 7th year
P3. Decreased grain storage cost	☐	US$ per ton	800						300		Same as above	Same as above	Same as above	No further decrease expected in the 7th year
P4. Reduced loss in grain stocks	☐	Percentage	17	17	17	15	10	3	3	3	Same as above	Same as above	Same as above	Losses in godowns that are over 17%

PDO Level Results Indicators*	Core	Unit of Measure	Baseline	Cumulative Target Values**							Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4	YR5	YR6	YR7				
INTERMEDIATE RESULTS														
Component A: Construction of Modern Public Food Grain Storage Silo Facilities														
A1. Public food grain silos constructed and operational	☐	Number	0.0	0	0	2	4	6	8	8	Same as above	Same as above	Same as above	No increments are expected in the 7th year
A2. Household level silos purchased by benefiaries	☐	Number	0.0	0	5,000	10,000	30,000	50,000	50,000	50,000	Quarterly and Annual	Quarterly and Annual reports (PMU + DG Food)	Same as above	No increments are expected in the 7th year
A3. Environment and social action plans implemented	☐	Number	0	0	2	4	6	8	8	--	Same as above	Quarterly and Annual reports (PMU + DG Food)	Same as above	Number of sites
Component B: Support for Food Planning and Monitoring Program														
B1. MIS designed for better monitoring	☐	Text	Limited capacity	--	MIS design and plan is finalized	MIS implemented and fully functional	--	--	--	--	Annual	Annual reports (PMU + DG Food)	Same as above	
B2. Better monitoring, and improved governance and management of food stocks	☐	Text	Limited capacity	NA	NA	MIS fully operational and reports are produced	Data is used in studies, planning and decision making	NA	NA	NA	Same as above	Same as above	Same as above	Grievance mechanism and project outputs and outcomes monitoring fully functional.
B3. Framework for changing the policies for grain stock, purchase and distribution is developed	☐	Text	None existing	Food policy research program established	Studies are launched	Significant progress on the studies	Studies completed	Stock and distribution policies finalized	NA	NA	Annual	Annual reports (PMU + FPMU)	Same as above	Studies for various policy aspects of stock and distribution management
B4. FPMU's capacity to shape the food policy dialogue has improved with policy notes published	☐	Cumulative number	0	0	0	3	6	10	15	20	Annual	Ministry of Food's website Official publications	DG Food	Policy notes published

PDO Level Results Indicators*	Core	Unit of Measure	Baseline	Cumulative Target Values**							Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4	YR5	YR6	YR7				
Component C: Project management, construction supervision, technical assistance, training														
C5. Client weeks of training provided	☒	Number	0.0	0	25	40	50	80	100		Same as above	Same as above	Same as above	
C6. Capacity in DG Food's capacity improved	☐	Text	Limited capacity	Basic capacity needs iden-tified and a plan ap-proved		Pro-cesses and proce-dures documen ted and a repositor y devel-oped and dissemi-nated	NA	NA	NA		Same as above	Same as above	Same as above	

Annex 2: Detailed Project Description

BANGLADESH: Modern Food Storage Facilities Project (MFSP)

A. Project Description

Component A – Construction of Modern Grain Storage Silo Facilities (US$195.0 million)

70. **The primary objectives of this component are to:** (i) improve the storage capacity for grain at the country level by financing the construction of modern steel silos for rice and wheat, built in accordance with social and environmental sustainability parameters and safeguards compliance criteria; and (ii) facilitate the access of households to domestic silos for food grain and seed storage to improve household-level food security during and after natural disasters. This component has three parts: (A1) construction of public storage facilities in the form of modern grain storage silos; (A2) provision of household-level storage facilities or family silos, particularly in disaster-prone areas of the coastal zone; and (A3) implementation of associated social and environmental management plans.

71. **Component A1: Construction of Modern Public Food Grain Storage Silos (US$145 million IDA and US$25 million BCCRF):** This component will finance an improved storage silo system to store milled rice (and wheat to a lesser extent) with a total capacity of around 535,500 tons. Subject to full compliance with the requirements in the publicly disclosed ESAMF and prior completion of all complementary site-specific studies and analyses required, the silos will be constructed at about eight sites in various strategic locations across the country (see Table 2.2 and the attached map for locations). As the eight sites proposed are on land currently owned by DG Food, no land acquisition will be required. In the event that the local conditions at any of the eight sites proposed evolve prior to actual construction or the outcomes of any of the site-specific complementary studies bring new information to light, a new assessment of the eligibility and feasibility of silo construction at that site will be required – possibly leading to discard of the site and consideration of an alternative location (subject to the same rigorous eligibility criteria). BCCRF funds are expected to be used for silo construction at the Naryangang site. Subject to the above requirements or in the event that the end-of-construction date at that site would go beyond the BCCRF Grant Agreement closing date, these funds could be used for silo construction at another project site, subject to prior consultations and approval by the BCCRF Management Committee. The characteristics of each site are described in Section B below. The technology used to facilitate long-term storage of food grain is described in more detail in Section C below.

72. **Component A2: Household Silos (US$15 million IDA and US$5 million from beneficiaries):** Under the 2007 Emergency Cyclone Recovery and Reconstruction Project (ECRRP, P111272), household-level silos or grain storage bins were developed in Bangladesh. These units are specially designed 70-liter, food-grade plastic bins tested to ensure that chemical contaminants do not leach into the stored food. They hold about 40kg of paddy and come equipped with a watertight lid, preventing water intrusion from surges and floods. The home storage units provided under ECRRP have been extremely successful. Based on the lessons learned from the ECRRP (where under FAO coordination, some 20,000 units were distributed), this project's investments in small-scale storage at the rural household level are expected to bring

important benefits to the farming community – in the form of safer storage of rice seed (which is more valuable than commercial grain) and the enhanced capacity of affected households to have seed readily available for subsequent planting seasons.

73. The procurement price of household storage bins currently ranges from US$23 to US$33 per unit, down from US$50 at the start of ECRRP. It is envisaged that project will make these storage bins available to eligible households at a subsidized price of US$10 per unit, with the rest covered by the project. The cost is expected to drop further with the increased supply in the market; the subsidy element will be reviewed annually and adjusted accordingly. Resultant surplus project funds could be used to expand coverage if the need persists or on other project activities. This component will be subject to regular reviews and impact assessments to facilitate necessary modifications or corrections in scope and implementation arrangements. In line with efforts in other components to explore opportunities for private sector participation, the project will purposely work towards spurring a market for these goods by closely working with the local network of dealers and private distributors in the project area, as well as with manufacturers. To that effect, the project will implement a voucher-based program administered by a third party (e.g., an NGO) by which eligible households would purchase the household silo from a dealer (at the subsidized price), rather than receiving the unit through the distribution program of a local government agency.

74. Beneficiary selection for the small-scale home silos will be given adequate consideration. The project will ensure a credible beneficiary list/database with ID numbers, names, sites, locations, and gender. Selected households will receive vouchers based on agreed criteria and the project will ensure that no more than one silo per household is purchased at the agreed discounted price, in close collaboration with a pre-identified local network of dealers. The payment procedure will be outlined in the agreed Financial Manual to be regularly updated. Selection of such beneficiaries will be endorsed by local authorities (e.g., Upazila Agriculture Officer, and Upazila Agriculture Rehabilitation and Implementation Committees (UAR&ICs)). A robust transparent beneficiary selection process will be developed, taking experience from other Bank projects into account. Guiding principles for the selection of beneficiaries will take the following subpopulations into special consideration:

- Households located in disaster-prone areas (cyclones and floods);
- Marginal and land-poor farmers (0.02-0.20 ha per household);
- Landless households (less than 0.02 ha per household);
- Members of both formal and informal farmer groups and other production groups (e.g., Union Farmers Associations, CBOs);
- Female-headed households and youth;
- Communities located in remote and less accessible areas not receiving any other external support, such as assets from other sources/projects or remittances from outside the district; and
- Those not receiving remittances from other sources.

75. **Component A3: Implementation of Social and Environmental Management Plans (US$10 million):** The sites proposed for public silos are already owned by the GoB. Therefore, no major social or resettlement issues are expected. However, funds are provided under this component to ensure that if any such issues arise they will be addressed properly. These issues

could be, for example, increased traffic congestion or other environmental or social issues resulting from the complementary site-specific studies that are required to be fully addressed prior to invitation for bidding, or others that emerge during silo construction. The component will also support enhancement of the environment, such as improved landscaping, planting of trees to improve the aesthetics of tall steel silos, and more.

Component B – Support for Food Planning and Monitoring Program (US$25 million)

76. The primary objectives of this component are threefold: (i) to enhance the institutional capacity of DG Food and FPMU and support these agencies in carrying out their respective mandates; (ii) to address analytical gaps and support the development of an evidence-based policy framework to improve the efficiency and performance of the country's overall food storage system and management of strategic grain reserves; and (iii) to improve the coordination of public agencies (in particular DG Food and FPMU with MoDMR) involved in public food storage and distribution as well as disaster relief. The component will contribute to reconciling policies and public interventions: (i) on food distribution (taking into account short- and longer-term storage capacities); (ii) in response to incremental demand for food grain in post-disaster situations; and (iii) aimed at achieving food price stabilization.

77. FPMU is responsible for monitoring the food situation in the country and implementing related policies, while DG Food is responsible for physical procurement and management of government food stocks in accordance with agreed food security policies, including the supply of food to the disaster-affected population through relief and rehabilitation programs. Although the Ministry of Disaster Management and Relief (MoDMR) is now separated from the MoFood (it was Ministry of Food and Disaster earlier), there is a strong need to strengthen the coordination between DG Food and FPMU with MoDMR in the area of policy design for disaster relief and food distribution. Currently, the MoDMR is receiving investment funding and technical assistance through the IDA-financed Social Safety Net Support project (P136634). It is envisioned that the activities proposed under this project will be complementary to the TA support received by the MoDMR from other sources.

78. The activities under this component are consistent with the PDO. They further support GoB's strategy to improve food planning and monitoring, procurement, storage, distribution, and management. They further support GoB efforts to reassess the balance in the public food distribution system (between monetized and commodity-based SSN programs) and to devise ways to promote greater private sector involvement, especially in the area of ownership and management of modern grain storage. Component B consists of two major pillars, namely support for food planning and policies, to be coordinated by DG Food in close collaboration with FPMU and MoDMR, and support for the food monitoring program, to be coordinated by FPMU in close collaboration with DG Food and MoDMR.

79. A large number of activities supported under this component will directly contribute to enhancing coordination between MoFood and MoDMR and to improving the decision-making process on food storage, food distribution, and market intervention on the basis of up-to-date, sound, and informed analyses. Subsequently, the Bank expects GoB to follow up on these policy recommendations with concrete policy actions and/or improvements to relevant regulations and

institutional arrangements that address key questions around enhancing the efficiency and performance of the food storage and food distribution system. To that effect, studies, analyses, and econometric models will be undertaken or developed under Component B to answer the following strategic questions:

- What would be the "optimum" volume of grain stored given GoB's goals to meet incremental short- and medium-term demand for food grain in a post-disaster situation and to sustain an efficient PFDS?
- What would be the implications of this "optimum" volume of stored grain on GoB's vision and policies for developing incremental storage facilities (adding storage capacity as opposed to replacing the old godowns with modern silos)?
- What would be the impacts of GoB food market interventions on price stabilization and broader food markets? What parameters should govern GoB intervention in the food market? What policies should be adopted and implemented to that effect?
- What improvements are required for the enabling environment (policies, regulations, and institutional arrangements) to promote a sustainable partnership between the public and private sectors for the storage and management of the country's strategic grain reserves?
- What should be the strategy for disposing of grain stored in the modern facilities (release from regular rotation as well as due to the absence of a natural disaster during the shelf life of the stored grain)? What are the policy issues relevant to some of the options (e.g., auctioning, exporting, processing, channeling through food-based SSN programs)?
- What is the current physical condition of the existing public storage facilities (baseline diagnostic)? How high are the losses (in terms of volume and nutritional value) incurred by the grain stored in traditional godowns? What would it cost to improve the efficiency of the current public storage facilities?
- What are the requirements for the policy, legal, and institutional framework, as well as the technical requirements, to pilot nutrient fortification of rice held in modern storage facilities?
- What would be the requirements for the policy, legal, and institutional framework, as well as the technical requirements, to pilot the introduction of a warehouse receipt system to promote access to rural finance for producers?

80. Under Component B, the project will also fund an institutional capacity enhancement and skills development needs assessment of DG Food and FPMU to identify their needs for developing, managing, and implementing an *Integrated Food Policy Research Program* (or similar). Such a program will coordinate the research around the policy issues above, as well as related knowledge sharing and dissemination activities. This program could be hosted by FPMU in close collaboration with DG Food and, in partnership with a "joint venture" between a renowned national and an international institution, could become a platform for evidence-based policy dialogue between MoFood and MoDMR as well as other ministries. Table 2.1 provides an overview of some of the thematic areas and related activities covered (but not exclusively limited to) under Component B. The list will be adjusted in the course of project implementation and further defined in the budget and activity programming exercise undertaken by DG Food every year.

Table 2.1: Partial List of Policy Research Topics Proposed Under Component B

Assist in enhanced planning and monitoring of food stocks
Conduct studies regarding development of a framework to improve food distribution and stock turnover policies
Study the potential modalities for renting or leasing storage capacity to the private sector and for private sector O&M of storage facilities; undertake an economic feasibility analysis for private investments in modern food storage and identify specific areas where public support would be needed
Study the potential for government disinvestment, and pilot its execution on 1 or 2 sites (with accompanying technical, legal, and financial advisory services)
Evaluate the opportunities for revenue-generating activities related to modern storage facilities (e.g., auctioning off rotated grain, renting out excess capacity, leasing infrastructure to the private sector, and others) and make recommendations for development of the associated policy and regulatory framework that would be required;
Evaluate the effectiveness of grain procurement and price support to farmers; assess the requirements for the introduction of open tendering for GoB procurement of grain; review trade regulations (export/import) for cereals; conduct a risk-based assessment of threats to food security
Develop and install a nationwide electronic monitoring system for food stocks
Review the stock purchase system and the nature of transportation contracts; design optimal forms of transportation
Assess current grain losses, including their magnitude and sources, and the potential solutions for reducing losses
Establish a food monitoring centre and office (possibly via an addition to existing buildings)
Conduct a detailed assessment of the condition of current storage facilities; identify priority facilities and perform needed repairs; and identify those that could be divested to the private sector for construction of modern storage
Conduct studies to establish the technical and regulatory requirements for fortification of strategic rice reserves
Draw on lessons learned from other countries to develop a feasible and sustainable model for warehouse receipt financing system

81. Component B will also support the development, installation, and initial operation of a nationwide electronic monitoring system for food stocks, building upon work already done by DG Food and FPMU. This modern food stock monitoring system will be coordinated by DG Food in close collaboration with FPMU. To that effect, this component will include the establishment of a food monitoring center under DG Food. Improvements are needed in the monitoring and management of food storage/stock and the current system needs to be modernized. Technical assistance will be provided under this component to finance these improvements and introduce a modernized system that will assist GoB to better plan and monitor food stocks nationwide. These investments will assist in significantly reducing losses, and will ensure more rapid and efficient distribution of grain in the event of an emergency through an improved network for grain stocks.

Component C - Project Management, Construction Supervision, Technical Assistance, Training, and Strategic Studies (US$20 million)

82. This component will finance costs associated with: (C1) project management of the task, incremental staff and expenditures of DG Food in implementation of the project, the costs for

implementing the Governance and Accountability Action Plan (GAAP), including a panel of experts, as needed, a Procurement Panel, an audit, and other such costs; (C2) cost of consultants for preparation of detailed designs, bidding documents, construction supervision, and update of designs required during the construction. This will include costs for construction supervision and M&E of project impacts; and (C3) provision of technical assistance, training, institutional capacity building, preparation of future projects, and any strategic studies needed during project implementation.

83. Component C3 will build the capacity of DG Food to effectively implement the project, carry out O&M of the food storage it manages, and fully carry out its mandated functions. These activities include, but are not limited to: (i) enhancing DG Food's capacity in planning and programming, engineering and O&M of the storages, financial management, procurement, and management of environmental and social issues; (ii) providing technical assistance and training in such areas as designing silos and storages, detailed designs of structures, contract administration and construction supervision, procurement, operations and management planning, asset management plans, financial management, and legal issues (such support includes on-the-job training, post-graduate programs, seminars, workshops, and study tours, etc.); (iii) implementing the Governance and Accountability Action Plan (GAAP); and (iv) if deemed necessary by the Bank and MoFood to address any emerging issues, establishing an independent panel of experts (IPOE) for design and construction quality, safety enhancement, or any other issues that may have to be addressed during project implementation.

B. Location of Public Silos

84. To locate the public silos at the best locations considering logistics, availability of rice, distribution, and constructability, and other factors, several sites were examined across Bangladesh. Out of the 14 sites for which a detailed site analysis was carried out, eight sites were finally proposed for the project (see Table 2.2).

85. All of these sites are located on land already owned by DG Food. Conventional godowns are constructed on these sites but they have enough extra space available to fit in a silo cluster. The capacity, number of bins, and bin size to be constructed on each site are given in Table 2.2 and more detailed characteristics of each proposed site are described below. About 535,500 tons of modern grain storage capacity would be constructed on these sites. Two sites (Chittagong and Maheshwar) are expected to be used for wheat storage (and possibly paddy rice), while the remaining six will be used for milled rice. ***Any site found to have major social or resettlement issues will be excluded from the project and replaced by another site if possible.***

86. **Barisal Central Storage Depot (CSD).** The proposed construction site is located on the east side of Barisal CSD and is accessible by a 20-ft-wide *pucca* road. The 13 acres of land for the site are on the west bank of the Kirtankhola River and water transport is also used for communication. The proposed land for construction is 3 feet below the plinth level of the existing godown. The existing soil is alluvial in nature and there are around 100 mahogeny, banyan, banana, and other trees on the premises. Water is supplied by the City Corporation, and landline and mobile networks are available on the site. There is an 11KV electric line about 500 feet from the site. However, there are no gas lines or sewerage and drainage systems. There are 2

semi-*pucca* buildings in the southeast corner of the site, and a 6-acre pond on the western side. Water usually accumulates up to 1.5 ft in the low-lying area in the monsoon season, but the site is usually not affected by flood water. The proposed location of the silo is in the tidal zone but tidal water is 1 ft below the river bank. The site will be prepared using appropriate filling material. Silos with a capacity of 50,000 tons will be constructed on this site.

Table 2.2: Location of Public Silos and Approximate Size of Storage

No.	Site	Bin Size (ft)	Number of Bins	Capacity (metric tons)
1	Barisal	60 D X 40 H	15	45,000
2	Narayanganj	60 D X 40 H	15	45,000
3	Dhaka	60 D X 40 H	18	55,000
4	Ashuganj	60 D X 40 H	30	90,000
5	Madupur	60 D X 40 H	30	82,000
6	Mymensingh	60 D X 40 H	18	55,000
7	Maheshwarpasha (wheat)	90 D X 78 H	4	52,500
8	Chittagong (wheat)	90 D X 78 H	9	111,000
	Total		**140**	**535,500**

		Coordinates	
No.	**Site**	**NORTH**	**EAST**
1	Barisal	22° 40’ 50.98”	90° 21’ 45.70”
2	Narayanganj	23° 37’ 15.63”	90° 30’ 37.63”
3	Dhaka	23° 41’ 53.87”	90° 25’ 12.14”
4	Ashuganj	24° 02’ 20.16”	90° 59’ 48.93”
5	Madhupur	24° 37’ 46.26”	90° 03’ 51.87”
6	Mymensingh	24° 46’ 36.63”	90° 21’ 46.90”
7	Maheshwarpasha (wheat)	22° 50’ 16.66”	89° 32’ 36.83”
8	Chittagong (wheat)	22° 16’ 32.70”	91° 47’ 44.91”

87. **Narayanganj CSD.** The Narayanganj CSD site is located on the northeast side of Kalirbazar, Kadam Rasolpur and is accessible by a 16-ft-wide *pucca* road off the Dhaka-Chittagong highway. The 17 acres of land for the site are adjacent to the Shitalakkha River (on the west) and water transport is also used for communication. The proposed land for construction is 3 feet below the plinth level of the existing godown. The existing soil is mainly clay and there are Mehegoni, mango, and other trees on the premises. There is deep tube well for supplying water, soak wells and septic tanks as a sewerage system, and electricity, gas, and landline and mobile networks are available on the site. There are 5 staff quarters, 1 office building, and 18 functional and 17 dilapidated godowns on the site. There is a pond inside the compound with natural water flow from the river. The site is not usually affected by flood water (the highest level of 2 feet above the internal road level was reached during the 1998 floods).

88. **Dhaka CSD.** The Dhaka site is located north of the police station at Faridabad, Postagola and is accessible by a 26-ft-wide *pucca* road. The 3 acres of land for the site are adjacent to the Buriganga River (on the south) and water transport is also used for communication. The proposed land for construction is 2.5 feet below the plinth level of the existing godown. The existing soil is mainly clay and there are no mentionable trees on the premises. There is piped Dhaka WASA water supply, a good sewerage and drainage system, and electricity, gas, and

landline and mobile networks available on the site. There are 2 staff quarters, 1 office building, and 15 poor-quality godowns on the site. The site is not usually inundated during the monsoon season nor affected by flood water (3.5 feet above the internal road level was reached during the 1988 floods).

89. **Ashuganj CSD.** The Ashuganj site is located on the south side of Ashuganj railway station in Brahmonbaria District and is accessible by a 15-ft-wide *pucca* (built up) road off the Dhaka-Brahmonbaria highway. The 33 acres of land are on the east side of the Meghna River and water transport is also used for communication (along with railways and road). The proposed land for construction is 3 feet below the plinth level of the existing silo. The existing soil is mainly clay and there are mehegoni, mango, and other trees on the premises. There is a deep tube well for supplying water, and soak wells and septic tanks as a sewerage system; electricity, landline, and mobile networks are available on the site and a gas line is available adjacent to the site. One silo and 9 *pucca* buildings are on the site. The site is not usually inundated during the monsoon season nor is it affected by flood water (the highest level of 1 foot above the internal road level was reached during the 1998 floods).

90. **Madhupur CSD.** The site is 3.5 km north of Modhupur Upazila sadar. The land is about 5 acres that are adjacent to Mymensingh-Tangail-Jamalpur highway. At the north of the site, BADC is producing seeds; at the west is Dhaka-Tangail highway; and at the east is government-owned land. The site is about 1.5 feet below ground level and the access road is a 16-ft-wide *pucca* road. Tube wells provide the only source of water. There is an electricity line but no sewerage and drainage system.

91. **Mymensingh CSD.** The Mymensingh CSD site is at Khagdahar Mouza, 4 km west of Mymensingh center, accessible by a 20-ft-wide *pucca* road off the Mymensingh-Tangail Highway. The 22 acres of land for the site are on the southern bank of the Brahmaputra River and water transport is also used for communication. The proposed land for construction is 2.5 feet below the plinth level of the existing godown. The existing soil is sandy clay and there are around 3,000 coconut, mehegoni, eucalyptus, karai, akashmoni, mango, and other trees on the premises. There is a deep tube well for supplying water, a sewerage and drainage system, and electricity, gas, landline and mobile networks available on the site. There are 54 godowns, 1 office building, 4 staff quarters, and a mosque on the site. There is 2.7-acre pond in the southwest corner of the premises. Water up to 1.5 feet usually accumulates in the monsoon season in the low-lying portions of the site. The site is not usually affected by flood water (around 0.5 foot accumulated in the CSD premises during the 1998 floods).

92. **Maheswarpasha CSD.** The site is located on the western bank of Bhairab and the eastern side of Khulna and Jessore highway and railway line. The total area is 58.14 acres. Communication is by bus, truck, and boat. The northern portion is a low-lying area. The site has access to a 32-ft-wide *pucca* road. The soil is alluvial. The site is located in the tidal zone; during the highest levels, water comes below 1 foot of the concrete jetty. A shallow tube well supplies water. There are about 9 godowns in dilapidated condition. There is an 11KV electric line and a sewerage system.

93. **Chittagong CSD.** The site is located between a Korean Export Processing Zone and the fertilizer import terminal north of Patenga, Chittagong. The site already has silos; the total area of the site is 24.61 acres, of which 2.5 acres will be used to construct silos under the project. The site is linked by rail, road, and sea. The site is connected to Kathghor road-sea beach/airport road. The site is high, with access to a 30-ft–wide *pucca* road. The soil is sandy, and there are banana, guava, and nut trees. The site is level with good drainage, and there is access to a water supply from WASA. There is an 11KV electric line, as well as landline and mobile networks. The site is not affected by tidal water. This is already a key facility for DG Food for reception, storage, and transshipment of imported wheat by river, road, and rail. Chittagong is a strategic point for distribution of wheat, particularly by river barge, under PFDS schemes to the disaster-prone southern coastal areas. About 60 percent of government wheat imports enter through Chittagong, where there is a 40-year-old concrete grain elevator (financed by the Bank). During the peak import period in the dry winter months, the government must pay demurrage charges because vessels cannot be unloaded fast enough at the quay. There is often pressure to move the wheat out from bulk storage in Chittagong to government warehouses, where storage is in bags and quality losses result. These storage depot warehouses are frequently short of capacity for rice, partly due to the need to store wheat moved too early from the ports.

C. Technology to be Used for Modern Silos

94. Modern silos will allow storage handling of large volumes of food grains, particularly rice, for two to three years. The steel-bolted silos used in all climate zones will be used, allowing for speedy construction, and will have temperature control and fumigation systems, automated mechanical handling, and a central computerized control system. These types of silos have a highly competitive supply, with at least 20 manufacturers active in the international market.

95. **Selection of Bin Size.** Large volumes of wheat, soybeans, and maize are usually stored in siloes of around 100,000 tons capacity, with individual bin size varying from 10,000 to 15,000 tons capacity. For the proposed project, the bin size has been determined considering each site's foundation conditions as well as the technical requirements for cooling the rice stored; thus, a bin size of about 3,000 tons capacity, 60 feet in diameter and 40 feet high will be used. This size appears to be the most suitable considering the lifecycle cost of the silos, particularly given the requirements for cooling rice, which is critical its long-term storage. A silo 6 feet narrower and 18 feet taller can store 29 percent more grain but would require motors 2.5 times more powerful for adequate cooling of the rice. The bin size selected thus reduces the capital cost required for the foundation, the size of the motors required, and the operating costs in the long run.

96. **Drying Rice Before Storage.** In Bangladesh, it is expected that storage sites will receive milled, parboiled rice, which needs to maintain moisture content of about 12.5 percent to ensure efficient chilling for long-term storage. When it is not possible to obtain rice with this moisture content, a drying center will be installed. Two continuous drying systems will be installed at each site, with a drying capacity of 600 tons per day, the targeted rate for receiving milled rice during the 4 to 5-month period following the *Boro* harvest. With a circulating-type dryer, rice will be dried in three passes at a low temperature of 38C to 40C to avoid cracking and breakage; about 0.75 percent of the moisture will be removed in each pass. A higher temperature will be used for paddy.

97. **Grain Chillers.** With proper control of temperature and humidity, it is possible to store any grain, including milled, parboiled rice, almost indefinitely without spoilage. To prevent infestations and rancidity during extended storage periods in a climate such as that of Bangladesh, it is essential to lower and maintain the temperature of the stored grain to 15C or below. This is done with a grain chiller, a very powerful refrigeration unit consisting of a compressor, condenser, evaporator, high-power fan, frequency inverter, and electrical controls. The chiller blows cold, dehumidified air through the grain mass, cooling it progressively in layers from bottom to top. The warm moist air in the rice mass is steadily pushed upwards by the entering cold, dry air until it exits from the top. There are two common types of grain chillers: mobile, air-cooled chillers and stationary, water-cooled chillers. The latter requires more ductwork but does not need to be moved from silo to silo manually. Two to three chillers of either type will be installed at each site, connected to the bins by ductwork. Each chiller will have the capacity to cool 300 to 400 tons of rice per day from ambient temperature of 30-35C down to 15C. Therefore, after filling a 3,000 ton silo, about 10 days of continuous chilling are needed to bring the temperature of the entire grain mass to the necessary level. Subsequently, chilling may be required for about five hours or less per month per bin; in the cooler months, it may not be required at all.

98. **Bagging and Packaging.** Each storage silo facility will have two baggage stations at the discharge area for filling 50-kg bags at a rate of 500 bags per hour per station or 50 tons per hour at the two stations combined. These two bagging stations will be installed in a bagging house with two truck lanes below, such that trucks or hand trolleys can be loaded from above by means of a vertically adjustable slide or hoistable belt conveyer ramp. Each bagging station will be fed by a 33-ton capacity surge bin, allowing bagging to continue even during stoppages of the main conveying equipment. A third load-out station in each discharge area will be equipped to load trucks with rice in bulk or to fill 1-ton “jumbo” bags in trucks or on hand trolleys. The latter can be used to move jumbo bags the short distance to the jetties at Narayanganj and Dhaka sites, before they are loaded onto barges with cranes.

99. Each silo storage facility will have a packaging line for filling 5- and 10-kg packages of rice. One existing warehouse at each site can be converted for this purpose. Packaging capacity at each site will be 10 tons per hour. Three packaging machines per site will be used. The packaged rice can be pre-positioned or held at the storage facility for emergency relief operations and can be rotated when necessary through open market sales.

100. **Technology for Wheat Silos.** The bulk storage facilities for wheat (and possibly paddy) under the project will also utilize bolted, corrugated, galvanized steel silos, just like the storage facilities for milled rice, but there are a few major differences in their design. The size of individual bins will be much larger, with each bin holding about 12,700 tons of wheat. Bin dimensions will be about 28 m in diameter (90 ft) by 24 m (78 ft) in height. Larger bin sizes will reduce by about 30 percent the cost of the imported silo equipment in terms of per ton storage capacity. Taller bins with smaller diameters will reduce the amount of valuable port land needed for storage and will add only incrementally to the per ton storage cost vis-à-vis wider, lower bins. Long-term storage of wheat does not require chilling, making the larger bin size possible. Drying centers are not needed for wheat either, since most wheat procured by DG Food is imported and

arrives with a low enough moisture content for long-term storage. The design concept includes investment in ship unloaders, barge loaders, and reversible conveyers between quays and the silo facility conveying equipment so that river barges can be efficiently loaded with bulk or bagged wheat.

101. **Storage of Seed Paddy.** The design of the silo storage facilities, including drying and chilling, will also be suitable for storage of emergency reserves of seed paddy in a cooperative arrangement between the Food Department and BADC (Bangladesh Agricultural Development Corporation). One of the greatest needs of farmers after a cyclone or flooding is replacement of seed paddy for the next crop sowing. BADC It operates a network of warehouse facilities where the seed paddy is kept in bags. The same grain drying and chilling technology in the project design will make possible long-term storage of government seed paddy in bulk in steel silos, reducing storage losses from insects and moisture. At certain sites for rice storage, up to 20 percent of the storage capacity could be devoted to seed paddy. Preliminary discussions are taking place between BADC and DG Food.

D. Description of the Household Silos

102. The small-scale storage units made available to households under Component A2 are specially designed 70-liter, food-grade plastic bins tested to ensure that chemical contaminants do not leach into the stored food. They hold about 40kg of paddy and come equipped with a watertight lid, preventing water intrusion from surges and floods. Providing those home storage units under ECRRP has been extremely successful. Based on the lessons learned from the ECRRP project (P111272), where under FAO coordination some 20,000 units were distributed, this project's investments in small-scale storage at the level of rural households are expected to bring important benefits to the farming community – in the form of safer storage of rice seed (which is more valuable than commercial grain) and the enhanced capacity of affected households to have seed readily available for subsequent planting seasons.

103. The procurement price of storage bins currently ranges from US$23 to US$33 per unit, down from US$50 at the start of ECRRP. It is envisaged that project will make these storage bins available to eligible households at a subsidized price of US$10 per unit, with the rest covered by the project. The cost is expected to drop further with the increased supply in the market; the subsidy element will be reviewed annually and adjusted accordingly. Resultant surplus project funds could be used to expand coverage if the need persists or used on other project activities. This component will be subject to regular reviews and impact assessments to facilitate necessary modifications or corrections in scope and implementation arrangements. In line with efforts in other components to explore opportunities for private sector participation, the project will purposely work towards spurring a market for these goods by closely working with the local network of dealers and private distributors in the project area, as well as with manufacturers. To that effect, the project will implement a voucher-based mechanism by which eligible households will purchase the household silo from a dealer (at the subsidized price), rather than receiving the unit through the distribution program of a local government agency.

104. Such silos are already being provided to people in Cyclone Sidr-affected areas under a separate Bank project and they are extremely popular. People use them to store rice seeds for

safekeeping for future planting seasons in the event of floods or storm surges, as well as to store rice. Household silos also reduce the burden of the government to carry such stocks (tying up funds that could be used for development) and to distribute them fairly in remote areas. The ability to store rice seeds for the next agricultural season provides additional value to households.

E. Project Cost

105. The total project cost is estimated at about US$240 million for all components. The cost by component is provided in Table 1 and the cost by expenditure category is provided in Annex 3's Table 3.1. Taxes and duties are estimated at around US$72.5 million equivalent. As the project involves import of equipment for construction of public silos, the estimated taxes and duties are relatively high. The cost estimates are based on the November 2012 costs, revised in October 2013, and include 10 percent physical contingencies and 8 percent price contingencies.

Annex 3: Implementation Arrangements

BANGLADESH: Modern Food Storage Facilities Project (MFSP)

106. **The project will be implemented by MoFood through DG Food**. DG Food will have overall responsibility for project implementation, including fiduciary compliance. DG Food will also be responsible for overall financial management and operation of the Designated Account. FPMU will lead the development, management, and implementation of the integrated food policy research program under Component B. A Project Steering Committee (PSC), chaired by the Secretary, MoFood, will provide overall guidance and help coordination among various government agencies. The Secretaries of Planning, Agriculture, Forestry, Environment, and Finance and Disaster Management, BADC, representatives of the Cabinet Deputy Commissioners of the districts where silos are being constructed, and the General Directors for DG Food and FPMU will be the members of the PSC. DG Food will act as the PSC Secretary. The project will be implemented over a period of six years. All works will be completed in year four or five of the project and one to two years will be allowed for the warranty period.

107. **A Project Management Unit (PMU) was established in DG Food's office for day–to-day implementation and monitoring of the project activities**. The PMU is headed by a Project Director and consists of: (i) one Deputy Project Director; (ii) two Technical Specialists; (ii) one Senior Procurement Specialist, assisted by one Procurement Analyst; (iii) one Senior Financial Management specialist, one Financial Management Specialist, one accountant, and a bookkeeper; (iv) one Senior Environmental Specialist, one Senior Social Specialist, and one Senior Communication Specialist (who will also act as a Right to Information Officer); (v) one Senior Monitoring and Evaluation Specialist, and one Senior Institutional Specialist; (vi) at each site in the field, the PMU will have one Project Coordinator for coordination with the contractors, consultants, and local administration as well as with communities, two Technical Specialists and one Social and Environment Specialist; and (vii) support staff as needed for the Dhaka office as well as field offices. The detailed composition and number of staff for PMU and field offices will be agreed with the Bank during various stages of project implementation. DG Food will explore the opportunities for streamlining the staffing for the existing and proposed storage facilities to avoid overlap of functions and increased overhead costs for GoB; to that effect, DG Food will commission a human resources needs assessment for the new storage facilities taking into account the staff already employed in existing storage facilities.

Financial Management, Disbursements and Procurement

108. **Financial Management (FM) Assessment:** In February 2013, **t**he Bank carried out an institutional assessment to evaluate the overall FM environment prevailing in the country and within the implementing agency, DG Food. The assessment also identified the FM arrangements under the proposed project that will need to be in place to meet the Bank's fiduciary requirements in accordance with OP/BP 10.02. Primarily, the Bank will rely on GoB's existing accounting and control systems, budgeting, and auditing framework for implementation of this project. However, the project will adopt the measures recommended by the Bank while implementing the project. The implementing agency is currently running a project for the construction of a concrete grain silo with ancillary facility at Mongla Port (50,000 MT capacity) of US$25 million funded by the Japan Debt Cancellation Fund (JDCF).

109. **Budgeting:** The annual budgets for each fiscal year will be prepared by FM staff of the Project Implementation Unit (PIU) at DG Food in close consultation with DG FPMU. The budget of all the project components will be consolidated by the PIU under the supervision of the Project Director on the basis of the approved procurement and implementation plans. The original and the revised budget proposals will be submitted to the planning wing of MoFDM for the inclusion of the same to annual development plan of the Planning Commission. The Project Director will undertake due diligence in approving a realistic budget to ensure that the project implementation does not suffer from budgetary constraints, while ensuring that only the resources needed for the proposed implementation are budgeted. Actual expenditures incurred under this project will be monitored against this budget each quarter; budget variances and their rational will be reported and discussed in the Interim Financial Reports (IFRs).

110. MoFood will monitor the budget implementation through issuance of authorization for use of the Designated Account and quarterly release of GoB funds. Any valid necessity to deviate from the budget will be addressed by obtaining approval through the revised Annual Development Plan.

111. **Disbursements and Fund Flow:** This project will maintain two Designated Accounts (Designated Account A and Designated Account B) - Convertible Taka Account (CONTASA) in the Nationalized Commercial Bank of Bangladesh. Designated Account A will be exclusively used for IDA credit while Designated Account B will be solely used for the BCCRF grant. The DAs' ceilings will be specified in the Disbursement Letter. The recipient may request for advances up to the ceilings based on the project needs. The applications for use of the advances will be supported by SOEs and records (e.g., invoices) evidencing eligible expenditures for identified contracts in accordance with the Disbursement Letter. The major transactions of Components B will be settled by DG Food while there will be a front-loaded fund on imprest basis up to US$100,000 to FPMU for meeting the recurring operational expenditure of two calendar months for the integrated food policy research program. The SOE-based disbursement will be converted to an IFR-based disbursement after two years or at an earlier date at the option of GoB and the DG Food after the project successfully demonstrates capacity to generate quality and timely IFRs acceptable to the Bank. The option for report-based disbursement has not been considered at this stage, as the newly established PCU does not have adequate capacity in place to prepare timely and accurate Financial Monitoring Reports (FMRs).

Table 3.1 IDA and BCCRF Allocation of Credit and Grant Proceeds

Expenditure Category	IDA Credit (US$ Millions)	BCCRF Grant (US$ Millions)	Share of expenditure to be financed
1. Works (except for silos selected to be financed from the BCCRF proceeds), Goods, Consulting Services, Training, Operating Costs for the project	210	0	100%
2. Works (except for Category 1)	0	25	100%
Total	210	25	

112. As part of an enhanced focus to identify and minimize the risk of leakage or misuse of project funds, a risk mitigation table denoting expenditure eligibility and indicators of fraud, corruption, collusion, and coercion is being prepared and will be agreed during implementation. This tool will serve as a basis for any investigation that might result from internal audit, external audit, or operational review reports. Initially, to the extent possible, the project will follow GoB's budgeting, accounting, and reporting system.

113. **Financial Reporting:** Initially, the implementing agency will submit SOE claims ensuring that the funds are utilized for the intended purposes. Any deviations noticed during reviews will be noted for remedy and improvements. Report-based disbursements will be considered after two years of performance after credit effectiveness or at an earlier date if the Bank issues such a recommendation. IFRs will provide information on the sources and uses of funds as per disbursement categories and project components. The format of the IFRs agreed between the Bank and DG Food will be attached to the Minutes of Negotiations for the proposed project.

114. The IFRs of all components will be prepared by the PMU on the basis of expenditures incurred by all cost centers as per GoB accounting codes and will be submitted to the Bank within 45 days of the end of each calendar quarter. The amounts disbursed by the PMU to DG FPMU for recurring operational expenditure of 60 days will be recorded as advances in the IFRs and will be reported as expenditures only on receipt of the utilization certificates. The process for monitoring advances will be detailed in the project FM manual.

115. **Accounting and Financial Controls:** The Treasury Rules and General Financial Rules of GoB and existing chart of accounts/economic codes followed in GoB's iBAS accounting system will be used for the accounting and financial controls by the PIU. There are clear guidelines prescribed by MoFood for the authorization and approval of financial transactions. Ministry of Finance's existing financial powers, authority, and payment responsibility outlined for development projects will be followed meticulously by the PIU for this project. DG Food is the Treasurer and also the Drawing and Disbursement Officer for respective components of the project.

116. The **FM manual** will be the key guiding rule for the project's FM. The FM manual will be updated periodically and at least once a year to incorporate lessons learned over the past year. The manual provides complete details/procedures to be followed by the project on FM arrangements: (i) budgeting; (ii) fund flows; (iii) accounting; (iv) internal controls; (v) financial reporting (quarterly IFRs); and (vi) external audit based on statement of audit needs as agreed with the Comptroller and Auditor General (C&AG) of Bangladesh. The PMU and every spending unit should maintain staff in the agreed positions for financing during the project period.

117. After disbursements begin, required quarterly IFRs will show: (i) sources and uses of funds by disbursement category; and (ii) uses of funds by project component after expenditures, and consolidated fund utilization based on governmental head of accounts, compared with the budget. GoB and the Bank agreed on a customized report format during Negotiations; this is attached to the Minutes of Negotiations.

118. **Staffing:** It has been agreed that the staff strength of the PMU finance section will be increased by appointment of one qualified FM specialist and two accountants. These staff members will maintain appropriate records for the project expenditures, coordinate with the respective government offices, and prepare IFRs and project financial statements. Job descriptions and the requisite qualifications for these staff positions will be specified in the ToRs. Appropriate provisioning for these staff positions has been made under this project. The selected staff will be adequately trained in FM and disbursement-related aspects to meet the Bank's minimum requirements.

119. **Internal Audit:** Considering the complexity of the project spending and existing capacity of the implementing agency, strong management oversight is essential and will be strengthened through periodic internal audit. The project will undergo an additional annual operational review conducted by an independent audit firm to cover effectiveness of internal controls over FM. In close consultation with the Bank, an appropriate ToR for this review, including internal audit functions, will be prepared by March 31, 2014. The firm will be selected through an appropriate competitive process to be initially reviewed by the Bank. The audit will cover the expenditures incurred under all project components with a special focus on the amounts disbursed and spent for the construction of silo storage facilities and household silos. The scope of the audit will be comprehensive and involve field-level review of financial operations and the efficiency of internal control arrangements. These annual audits will provide feedback to the project management on any control weaknesses and issues, if any, that require management attention. It has been agreed that the internal audit reports along with the corrective actions taken by the project to address the control weaknesses (if any) will be shared with the Bank. Issues arising in the external and internal audits will need to be promptly addressed and acted upon in a timely manner by the PMU.

120. **External Audit:** The C&AG has the mandate to conduct the audit for all donor-financed projects in Bangladesh. The annual external audit for all components of the project will be carried out by the C&AG through its Foreign Aided Project Directorate (FAPAD). A Statement of Audit Needs (SAN) will be agreed with FAPAD within six months of project effectiveness. The PMU will be responsible for providing the audit report, project financial statements, and management letter to the Bank within six months from the end of the each fiscal year (July 01 to June 30).

121. The following audit reports will be received by the Bank and will be monitored in Audit Report Compliance System (ARCS):

Table 3.2: Audit Reports Schedule

Implementing Agency	Audit Report	Auditor	Due Date
PMU, DG Food & PMU, FPMU	Audit report and project financial statements	C&AG of Bangladesh	December 31 of each year
PMU, DG Food & PMU, FPMU	Audit report and Risk Updates	Independent Audit Firm	December 31 of each year

122. **Project Audit Committee**: To ensure that the audit reports provided by the internal, operational, and external audits of the project have met ToRs, that reports have been reviewed, and that audit recommendations have regularly been followed up, a project audit committee will

be set up and will meet at least twice a year. This committee will report its findings to the PSC.

123. **Public Disclosure:** In line with the Bank's Access to Information policy, it has been agreed with DG Food and DG FPMU that the annual audit report and project financial statements of this project issued by the C&AG and the private auditor will be disclosed on the implementing agency's website.

124. **Project Supervision:** During the initial stages of project implementation, the FM supervision will focus on compliance with the agreed action plan, including training on FM-related aspects and addressing any disbursement-related issues. As implementation progresses, the supervision will involve six monthly field visits to review the adequacy of the agreed FM arrangements, reviews of SOEs, IFRs, internal and external audit reports, and more.

125. **Adequacy of FM Arrangements:** Until implementation of the recommended mitigation measures, the overall FM risk is rated as "Substantial." This is mainly due to weak implementation capacity of the PIU staff and their lack of experience in Bank-funded projects, limited operational guidelines, and inadequate internal and external oversight. Overall, FM arrangements for the PIU may be considered adequate, as long as the FM staffing arrangements and their training are complied with. With appropriate measures taken, as listed in the above action plans, the PIU will have an FM system that can adequately account for all resources and expenditures. These are also incorporated in the FM manual, which will be updated periodically. To ensure acceptable FM arrangements at project startup, actions shown in Table 3.3 have been agreed upon:

Table 3.3 Agreed Actions for Financial Management

	Agreed Actions	Responsible	Due Date
1	Required clearance and formalities for project bank account opening	DF Food	Within 1 month of negotiation
2	Develop formats of SOE and IFRs in consultation with the Bank	DG Food & DG FPMU	At negotiation
3	Appointment of one qualified FM Specialist and two Accountants under ToRs acceptable to the Bank	DG Food	Within 3 months of project effectiveness
4	Procurement of computerized accounting system (off the shelf) for PIU and Divisional Forest Offices	DG Food	Within 4 months of project effectiveness
5	ToRs for Internal Audit acceptable to the Bank	DG Food	Within 8 months of project effectiveness
6	An agreement on Statement of Audit Needs with C&AG (FAPAD) acceptable to the Bank	DG Food	Within 8 months of project effectiveness
7	Training to PIU-DG Food on FM aspects	Bank	Within 4-5 months of project effectiveness
8	Updating of agreed FM manual	DG Food	Completed June 30, 2013

Procurement

126. Procurement for the proposed project will be carried out in accordance with the Guidelines for Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits and Grants, January 2011 and Guidelines for Selection and Employment of Consultants

under IBRD Loans and IDA Credits and Grants by World Bank Borrowers January 2011 and the provisions stipulated in the Financing Agreement. All expected major procurement of works and consultants' services will be announced in the General Procurement Notice (GPN) and published on the Bank's external website and United Nations Development Business (UNDB) Online.

127. **Procurement Responsibility:** The overall responsibility for project implementation will be with DG Food. Procurement activities related to the design, management, and implementation of the integrated food policy research program under Component B will be done in close consultation with FMPU.

128. **Particular Methods of Procurement of Goods and Works:** Except as otherwise agreed in the procurement plan, works and goods may be procured on the basis of International Competitive Bidding (ICB). Procurement of goods and works having an estimated value less than the ceiling stipulated in the Procurement Plan may follow National Competitive Bidding (NCB) and Shopping. Direct Contracting (DC) (Goods/Works) and Single-Source Selection (Consultants) may be allowed under special circumstances with prior approval of the Bank. NCB will be carried out under Bank Procurement Guidelines following procedures for Open Tendering Method (OTM) of the People's Republic of Bangladesh (Public Procurement Act 2006 - PPA, 1st amendment to PPA (2009) and The Public Procurement Rules 2008, as amended in August 2009) using standard bidding documents satisfactory to the Bank. The "Request for Quotation" document based on PPA is acceptable to IDA for shopping. For the purpose of NCB, the following shall apply:

(i) Post-bidding negotiations shall not be allowed with the lowest evaluated or any other bidder;
(ii) Bids should be submitted and opened in public in one location immediately after the deadline for submission;
(iii) Lottery in award of contracts shall not be allowed;
(iv) Bidders' qualification / experience requirement shall be mandatory;
(v) Bids shall not be invited on the basis of percentage above or below the estimated cost and contract award shall be based on the lowest evaluated bid price of compliant bid from eligible and qualified bidder; and
(vi) A single-stage, two-envelope procurement system shall not be allowed.

129. **Procurement for Silo Construction**: The main procurement under this project is for the construction of modern steel silos in up to eight locations under two to four ICB contracts. These are high-value, complex procurement contracts and the preferred procurement procedure is prequalification of prospective contractors followed by single-stage bidding of two to four separate contracts. Due to the stringent technical requirements to maintain constant ranges of temperature, air pressure, humidity, and other physical aspects of the silos' internal environment, these contracts are likely to draw the attention of leading contractors in the international steel silo industry. During pre-qualification, bidders will be categorized based on their technical and commercial capacity to undertake one or more contracts. Appropriate criteria will be set to ensure enhanced international competition with reduced risk. There will be a single invitation for bids (IFB) for all contract packages, with issuance of separate bidding documents for each contract.

130. **Procurement of Non-consulting Services:** Except as otherwise agreed in the Procurement Plan, non-consulting services may be procured on the basis of ICB. Procurement of non-consulting services having an estimated value less than the ceiling stipulated in the Procurement Plan may follow NCB. The agencies will carry out such procurement using the Bank's guidelines.

131. **Methods of Procurement of Consultant Services***:* Selection of consultants will follow the Bank Consultant Guidelines. The following methods will apply for selection of consultants: Quality- and Cost-Based Selection (QCBS), Quality-Based Selection (QBS), Fixed Budget Selection (FBS), Consultants' Qualification (CQ), Least-Cost Selection (LCS), and Single-Source Selection (SSS). A shortlist of consultants for services estimated to cost less than US$300,000 equivalent per contract may be composed entirely of national consultants. The Procurement Plan will specify the circumstances and threshold under which specific methods are applicable.

132. **Operating Costs:** These costs will include incremental operating costs for office utilities, office supplies and stationeries, O&M of equipment and vehicles, hiring of vehicles, fuel, office rent, souvenirs, events, bank charges, advertising costs (local and international), and salaries and contractual allowances of contracted staff as agreed by the Bank, but excluding salaries of government officials.

133. **Assessment of DG Food's Capacity to Implement Procurement**: Bangladesh has a nodal procurement policy agency and a Public Procurement Act (PPA) 2006 with associated Public Procurement Rules 2008 (PPR) and bidding documents. It created a critical mass of about 25 procurement professionals and, as of now, has provided training to over 4,800 staff in about 350 organizations. To sustain the reform, with the Bank's assistance, GoB has been implementing a second procurement reform project since late 2007, focusing largely on the implementation and monitoring of PPA, including introduction of e-government procurement at key sectoral agencies. Notwithstanding the above progress over the past years, the government recently made a few amendments to the PPA, some of which were found to be inconsistent with the Bank's guidelines; thus in projects funded by the Bank, the Bank allows the use of PPA/PPR for local procurement – except where the provisions are inconsistent with the Bank's guidelines, where the latter will prevail.

134. A procurement capacity assessment of DG Food was conducted by the Bank in December 2012. DG Food will require adequate procurement staff to manage procurement under this project. The assessment shows that DG Food has a lack of procurement knowledge, especially in complex ICB procurement, and a weakness in preparation of bidding document and bid evaluation. Furthermore, DG Food will need more training and experience in ICB following Bank guidelines. Special emphasis needs to be given to contract management and implementation. Neither DG Food nor DG FPMU are immune to systemic issues affecting procurement efficiency and performance. In addition to adequate staffing for procurement needs, emphasis also needs to be placed on areas of internal control, documentation, information dissemination, and administration of contracts, including delivery follow-up, payments, handling complaints, etc. The project is rated as "High Risk" from a procurement operation and contract administration viewpoint. Several measures need to be introduced to minimize the risk during

project implementation.

135. To minimize procurement-associated risks, the following measures have been agreed upon with GoB:

(i) **Service of a fulltime procurement consultant**: DG Food will appoint a senior procurement consultant with experience carrying out procurement and contract management for such contracts.

(ii) **Service of a construction supervision consultant (CSC)**: An internationally recruited CSC will be designated as the "engineer" under the civil works contracts.

(iii) **Identification of procurement focal points (PFP) in DG Food and FPMU**: Both agencies shall nominate a PFP for this project. The appointed PFPs will take necessary training, both on PPR 2008 and Bank Procurement Guidelines. The PFPs will help the respective agencies in day-to-day procurement follow-up and preparation of periodic procurement reporting.

(iv) **Appointment of a Procurement Panel**: A Procurement Panel will be appointed by DG Food to carry out the procurement process of major contracts specified in the Procurement Plan for such purpose. Activities will include shortlisting of consultants, pre-qualification of contractors and suppliers, review and issuance of bidding documents, evaluation of proposals, and recommendation of award. The panel will consist of two international/expatriate specialists (technical and procurement) and one national specialist. Selection process and final panel composition will need to be satisfactory to the Bank. The Procurement Panel will also oversee contract management during implementation and changes in the scope, quality, and variations in the contracts. The procurement specialists should have sound knowledge of and experience with international procurement and the technical specialist should have proven experience in the field of food grain storage facilities. The panel members will be recruited on a part-time basis, which will be further specified in the ToRs for recruitment of panel members.

(v) **Conduct of bid evaluation**: For high-value contracts (ICB), DG Food will: (i) set a tight timeline for the procurement process; (ii) prepare thorough ToRs for the bid evaluation; (iii) ensure that the Procurement Panel (Bid Evaluation Committee, as it is normally understood) works fulltime for bid evaluation; and (iv) establish strict confidentiality arrangements for bid evaluation (e.g., sequestering the panel – including cell phone silence – for the duration of the process).

(vi) **Conduct of independent evaluation by the Bank**: The major contracts will be thoroughly reviewed by the Bank, and independent consultants will be recruited, as needed, to review such contracts at various stages of evaluation and award and to evaluate proposed changes in the contract.

(vii) **Establishment of a functional webpage for DG Food with procurement-related information accessible to the public:** All information pertaining to bidding and procurement above the specified thresholds, as per PPR, will be published on the Central Procurement Technical Unit's (CPTU's) website. In addition, DG Food will publish procurement information on its own website. This information will include: invitation to bid, bid documents, and RFPs (wherever applicable); latest information on procurement plan/contracts; status of evaluations once completed; contract award information; and information covering the poor performance of contractors, suppliers,

and consultants, including a list of debarred firms. The website will be accessible to all bidders and interested persons equally and free of charge.

(viii) **Advertisement** (Invitation for Prequalification- IFPQ) of Food Silo Contracts will be done not only on the Bank's external website and United Nations Development Business (UNDB) Online, but also in noted international journals such as "The Economist," "BusinessWeek," or similar publications agreed with the Bank. Furthermore, the IFPQ will be sent to the commercial wing of leading embassies and resident missions functioning in Bangladesh.

(ix) **Establishment of a system for handling complaints** and a database for recording, monitoring, and following up on all the procurement activities under the project in DG Food.

(x) **Introduction of a procurement risk mitigation plan** (PRMP) by DG Food through reports submitted to IDA on a periodic (semi-annual) basis with a set of features as mentioned below:

a) **Alert bidders in pre-bid meeting**: DG Food and FPMU through a notification will alert bidders during a pre-bid meeting on the consequences of corrupt practices (fraud and corruption, collusion, coercion, etc.). The alert message, among other things, will inform that if bidders are found to have adopted such practices, there may be remedial actions, including debarment from bidding processes in conformity with the Bank's guidelines. For NCB, national bidders debarred, if any, under the PPA will not be able to participate. In addition, in the pre-bid meeting, the correct preparation of bids will be clarified to bidders.

b) **Alert internal officers/staff**: DG Food and FPMU will issue alert letter(s) notifying staff of the fraud and corruption indicators and the possible consequences of corrupt and similar behavior in procurement practices and the action to be taken against official staff involved in such practices. Moreover, DG Food and FPMU will highlight that, in case of noncompliance or material deviation from IDA's Procurement Guidelines, IDA may take remedial actions (i.e., withdrawal of funds, declaration of mis-procurement) for concerned contracts.

c) **Publish bid opening minutes**: During the same day of bid opening, photocopies of the Bid Opening Minutes (BOM) with readout bid prices of participating bidders will be submitted by bid evaluation committee for circulation to all concerned. For prior review packages, such BOM will be shared with IDA.

d) **Investigate low competition among bidders and high bid prices**: The case(s) of low competition (not solely based on number of bidders) in ICB and NCB cases, coupled with high-priced bids, will be inquired into and further reviewed by DG Food and FPMU. The review and decision in this regard will be in the context of qualification criteria, contract size (too small or too large), location and accessibility of the site, capacity of the contractors, etc.

e) **Implement measures to reduce coercive practices**: Upon receiving allegations of coercive practices resulting in low competition, DG Food and FPMU will look into the matter and take appropriate measures. For prior review contracts, observations of DG Food and FPMU will be shared with IDA, along with the evaluation reports. DG Food and FPMU may seek assistance from law

enforcement agencies to provide adequate security for bidders during bid submission. For ICB contracts, provision for bid submission through international/national courier services will be allowed and confirmation of the receipt of the bid will be sent to bidders through e-mail.

f) **Address rebidding**: In case of re-bidding, DG Food and FPMU will inquire into the matter and record and highlight the grounds for re-bidding (i.e., corruption or similar, high-bid prices, etc.) along with recommended actions to be taken. For prior review of cases, all such detailed reports will be sent to IDA.

g) **Maintain filing and recordkeeping practices**: DG Food and FPMU will preserve all records and documents regarding their public procurement in accordance with provisions of the PPA. These records will be made readily available on request for audit/investigation/review by the development partners and GoB.

h) **Publish the contract award**: DG Food and FPMU will publish the contract award information within two weeks of the award on its website, dgMarket, UNDB Online, and CPTU's website with the following information: identity of contract package, date of advertisement, number of bids sold, number of submitted bids along with names, bid prices as read out at bid opening, name and evaluated price of each bid, number of responsive bids along with name of bidder, name of bidders whose bids were rejected and brief reasons for rejection of bids, name of the winning bidder and the price it offered, proposed completion of date of contract, as well as a brief description of the contract awarded.

136. **Procurement Plan:** An initial Procurement Plan covering all major procurement packages in ICB has been prepared for the entire duration of the project. Immediately after project effectiveness, the first update of the Procurement Plan will move to SEPA (Sistema de Ejecucion de Planes de Adquisiciones- Procurement Plan Execution System), an IT-based procurement planning and monitoring application that will allow DG Food and FPMU to closely manage implementation of the plan and monitor physical progress and disbursement of relevant contract packages. The Procurement Plan will also be available in the project's database and on IDA's external website for this project. The Procurement Plan will be updated in agreement with DG Food and FPMU at least annually to reflect the actual project implementation needs and adjustments thereof.

137. **Use of Standard Procurement Documents:** For procurement following ICB, the Bank's Standard Pre-qualification Document (SPQD) and Standard Bidding Documents (SBDs) will be used, including the forms of contract attached with SBDs. Similarly, for consultancy packages, the Bank's Standard Request for Proposals (SRFP) and associated forms of contract will be used. For all NCB packages in goods and works, model tender documents agreed with IDA will be used by DG Food and DG FPMU.

138. **Electronic Government Procurement (eGP)**: The Bank has approved use of the GoB's eGP platform and related bidding process for NCB contracts under projects funded by the Bank. During early stages of the project effectiveness, the Bank's implementation support team will assess the readiness and capacity of DG Food for the shift to eGP and advise a roadmap for the project to use eGP as much as possible for NCB contracts.

139. **Review by IDA of Procurement Decisions:** The review by IDA of procurement decisions and selection of consultants will be governed by Appendix 1 of the Bank's guidelines. For each contract to be financed by credit, the threshold for prior review requirements and post-review contracts will be identified in the Procurement Plan. During the first 18 months of the project, IDA will carry out prior review of the following contracts. This **prior review threshold** will be updated annually based on the performance of DG Food and FPMU:

(i) **For Goods:** All ICB Contracts and Direct Contracts irrespective of estimated cost. NCB Contracts with estimated cost of US$300,000 equivalent or above.

(ii) **For Works**: All ICB Contracts and Direct Contracts irrespective of estimated cost. NCB Contracts with estimated cost of US$2,000,000 equivalent or above.

(iii) **For Non-consulting Services:** Contracts with estimated cost of US$300,000 equivalent or above.

(iv) **For Consultants' Services**: Prior review will be required for consultants' services contracts with estimated cost of US$300,000 equivalent or above for firms and US$100,000 equivalent or more for individuals. All single-source contracts will be subject to prior review by and in agreement with IDA. All consultants' ToRs are subject to IDA's prior review.

(v) **Independent Evaluation by the Bank.** The major contracts will be thoroughly reviewed by the Bank and if needed, an independent consultant will be recruited to review such contracts at various stages of evaluation and award and to evaluate proposed changes.

Table 3.4: Major contracts for Works and Consultant Services (US$ Million)

Works

Ref No.	Contract Description	Estimated Cost (US$ Million)	Selection Method	Review By Bank (Prior/ Post)	Expected Bid Opening Date
W1	Construction of Public Silos	170	ICB	Prior	August 2014
W2	Construction of Public Silos		ICB	Prior	August 2014
W3	Construction of Public Silos		ICB	Prior	August 2014

Services

Ref No.	Contract Description	Estimated Cost (US$ Million)	Selection Method	Review By Bank (Prior/ Post)	Expected Proposal Opening Date
S1	Construction Supervision	10	QBS	Prior	March 2014
S2	Miscellaneous Consultancies	0.2	QCBS/FBS	Prior	May 2014

Monitoring & Evaluation

140. **DG Food will submit quarterly progress reports in an appropriate format to GoB/MoFood**, the PSC, and the Bank no later than 45 days after the end of each quarter. The PD PMU will be responsible for preparation of the quarterly report, which will cover the

progress and expected completion dates for civil works and equipment supply contracts, progress on institutional components, implementation of SAP and EMP, training and studies, and activities of DG Food/PMUs engineering, procurement, and financial consultants and NGOs. The reports will cover financial and procurement information, including: (i) comparison of actual physical and financial outputs with forecasts, and updated six-month project forecasts; (ii) project financial statements, including sources and application of funds, expenditures by category statement, and special accounts reconciliation statements; (iii) a procurement management report, showing status and contract commitments; and (iv) status of GAAP implementation activities.

141. **The PMU will also prepare an annual progress report (by fiscal year)** by no later than August 15 of each year of project implementation. The report will cover: (i) the progress of each component, implementation of key features of the environmental management plan, key performance indicators, operation of project facilities, and financial statements; and (ii) the Annual Work Plan for implementation, annual funds required for implementation with breakdown by each co-financier, an updated disbursement profile, planned actions for mitigating negative effects during construction, and target indicators for the coming fiscal year. Mid-term review of the project will be undertaken by December 31, 2016. An Implementation Completion Report (ICR) will be submitted to the Bank no later than six months after the closing date.

142. With the help of consultants, the PMU will undertake M&E studies that will evaluate the success in project implementation in terms of meeting the project's objectives and assess its physical, hydrological, environmental, social, and economic impacts. The M&E activities will provide continuous feedback to GoB, the PSC, and the Bank on the project's performance, and on mitigation of negative impacts under various components, so that corrective actions can be undertaken in a timely manner if necessary. Changes to the project, if any, will be reflected in the implementation review aide memoires and/or communicated through exchange of letters between the Bank and GoB. The Bank team will place a staff member and/or a consultant in the country who will visit the project site twice a week, particularly in the first two years of the project, to monitor the project planning, the implementation program for construction activities, the communication strategy, and EMP and SAP/RAP activities.

143. **GAAP Monitoring Arrangements.** The PMU with support from consultants will be responsible for monitoring and reporting on the GAAP on a quarterly basis. Monitoring shall include quantitative measures of implementation of actions (e.g., numbers of complaints received, followed up and resolved; numbers of persons at accountability meetings), recording of benchmarks (e.g., training of designated Information Officer; establishment of third party monitoring), and qualitative reporting on the efficacy of measures and instances where problems were corrected through these mechanisms. Its reports shall be submitted to the PSC and the Bank simultaneously. Upon clearance by the PSC, summaries of the reports indicating complaints, investigations, and their outcomes, without specific personalized information regarding shortcomings resolved internally, will also be disclosed to the Bank and the public through the project website. DG Food will issue special reports on its independent reviews of significant cases and their outcomes as necessary.

Annex 4: Operational Risk Assessment Framework (ORAF)

Bangladesh: Modern Food Storage Facilities Project (P120583)

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Project Stakeholder Risks						
Stakeholder Risk	Rating	Moderate				
Description: Opposition to project from stakeholders expected to be limited; Bank has been involved in disaster risk reduction through several operations and the proposed project emerges from this engagement.	Risk Management: Continued dialogue with relevant stakeholders, including government agencies, donors, CSOs, private sector, and local communities through communications, consultations, and frequent follow-up.					
	Resp: Bank	Status: Not Yet Due	Stage: Both	Recurrent: ☑	Due Date:	Frequency:
Implementing Agency (IA) Risks (including Fiduciary Risks)						
Capacity	Rating	Moderate				
Description: MoFood is the responsible agency for disaster management and has been successfully implementing one component of an existing IDA project. However, the agency faces limited capacity, particular with respect to contract management and procurement. Financial Management: MoFood has limited capacity in financial management. Procurement: MoFood has limited capacity in procurement and contract management.	Risk Management: Project implementation will be supported by a dedicated Project Management Unit that will receive technical assistance and adequate budget to implement the project.					
	Resp: Client	Status: Not Yet Due	Stage: Implementation	Recurrent: ☑	Due Date:	Frequency:

Governance	Rating	Substantial				
Description: Some governance risks exist for the project in contract management and procurement given the size and nature of the contracts for construction.	Risk Management: A Procurement Panel established by DG Food, made up of two international expatriate experts and one national expert, will be responsible for key procurement actions, bidding documents, evaluation of bids, and award of contracts.					
	Resp: Both	Status: Not Yet Due	Stage: Implementation	Recurrent: ☑	Due Date:	Frequency:
	Risk Management: A GAAP has been prepared to address the specific fraud and corruption issues present within the project.					
	Resp: Both	Status: Not Yet Due	Stage: Implementation	Recurrent: ☑	Due Date:	Frequency:
Project Risks						
Design	Rating	Moderate				
Description: The project design draws on a feasibility analysis and designs of silos, as well as a set of criteria to determine priority geographical areas. Execution of these designs to the specified level of technical complexity will have to be carefully monitored. The increase in GoB strategic grain reserve through the infrastructure financed and its use by the authorities needs to be firmly anchored in a relevant evidence-based, holistic policy framework that fully takes into account the PFDS and SSN programs.	Risk Management: Project design will continue to be updated during appraisal to account for technical details. Project design includes overview of policy gaps and provides themes that should be addressed by the integrated food policy research program under Component 3.					
	Resp: Client	Status: Not Yet Due	Stage: Preparation	Recurrent: ☑	Due Date:	Frequency:

Social and Environmental	Rating	Moderate				
Description: The project is anticipated to have positive social consequences for households who will benefit from necessary food security in a post-disaster situation. However, the project could also result in potentially negative social and environmental consequences.	Risk Management: DG Food has developed an ESAMF that will identify the range of potential environmental and social impacts resulting from the project. In addition, EIAs, an EMP, an EAP, SIAs, SMPs for each project site, and RAPs will be prepared as needed prior to bid allocation to identify potential impacts and provide mitigation measures for project implementation. All of these documents will be an integral part of final site selection and design consideration. The costing for safeguard compliance will be added to the bidding document. The project will support the establishment of an Environmental Management System (EMS).					
	Resp: Client	Status: In Progress	Stage: Both	Recurrent: ☐	Due Date:	Frequency:
Program and Donor	Rating	Moderate				
Description: Several donors have been active in post-disaster recovery efforts. At present, the Bank is a lead financier in an Emergency credit to the GoB, which financed the feasibility study for this project. The proposed silos project is co-financed with a US$25 million grant from the Bangladesh Climate Change Resilience Fund (BCCRF). The BCCRF steering committee, composed of donor representatives, fully endorsed this proposal. Funds are executed by the Bank.	Risk Management: Project documents will be made publicly available, thus providing access to other donors working on similar themes and sectors.					
	Resp: Both	Status: Not Yet Due	Stage: Both	Recurrent: ☑	Due Date:	Frequency:
Delivery Monitoring and Sustainability	Rating	Moderate				
Description: GoB has indicated a strong commitment to the improvement of food storage systems for a post-disaster environment. However, continued and adequate maintenance of the silos could become an issue.	Risk Management: The feasibility studies identified new designs that will improve storage capabilities and minimize costs to GoB, which will reduce eventual maintenance costs.					
	Resp: Client	Status: Not Yet Due	Stage: Implementation	Recurrent: ☑	Due Date:	Frequency:

Description:	Risk Management:					
	Resp:	Status:	Stage:	Recurrent: ☐	Due Date:	Frequency:
Overall Risk						
Implementation Risk Rating: Substantial						
Comments:						

Annex 5: Implementation Support Plan

BANGLADESH: Modern Food Storage Facilities Project (MFSP)

Strategy and Approach for Implementation Support[1]

144. The strategy for implementation support (IS) was developed based on the nature and "substantial" risk profiles of the proposed project. The strategy aims to make support to the client for implementation more flexible and efficient and focuses on implementation of the risk-mitigation measures defined in the ORAF.

- **Procurement**: There are two to four large ICB contracts for construction of the silos. The Bank team has been providing and continues to provide IS by: (i) supplying technical, management, and procurement expertise funded from the ongoing ECRRP; (ii) training members of the procurement committee and related staff in the regional project offices, as well as the project management consultant; (iii) reviewing procurement documents and providing timely feedback to the procurement committee; (iv) providing detailed guidance on the Bank's procurement guidelines to the procurement committee; and (v) monitoring procurement progress against the detailed procurement plan developed by DG Food.

- **Financial management**: Supervision will review the project's FM system, including but not limited to accounting, reporting, and internal controls. Supervision will also cover subprojects on a random sample basis. The Bank team will also work with the project management consultant to assist DG Food in improving coordination among different departments and units for FM and reporting.
- **Environmental and social safeguards**: The Bank team will supervise and provide support to DG Food for implementation of the agreed Environmental Management Plan and the Simplified Resettlement Action Plan.
- **Governance**: The Bank team will supervise the implementation of the agreed Governance and Accountability Action Plan (GAAP).
- **Other issues**: Some issues like O&M of the facilities, management of the food stocks, and strengthening of DG Food will not be addressed only at the project level but also through the Bank's policy dialogue with GoB, Ministry of Finance, and DG Food.

Implementation Support Plan

145. Most of the Bank team members will be based in the Bangladesh Country Office, although some will be in Washington and others in country offices in the region to ensure timely, efficient, and effective IS to the client. Timely monitoring and support to DG Food will be mainly provided by team members in the regional country offices, especially for the first 18 months. Formal supervision and field trips will be carried out semiannually.

146. Detailed inputs from the Bank team are outlined below:

- **Technical inputs**. Construction and geotechnical engineering inputs are required to review bidding documents to ensure fair competition through proper technical specifications in the bidding documents and fair assessment of the technical aspects of

[1] This indicative and flexible instrument will be revised during implementation as part of the Implementation Status and Results Report and adjusted based on what is happening on the ground. The implementation plan should be consistent with the design and riskiness of the operation and should be adequately resourced.

the bids. The task team has contracted individual consultants with these skills. Specialist and high-level procurement skills are required for review of the major works contracts as well as consulting services. During construction and commissioning, technical supervision is required to ensure contractual obligations are met on technical grounds. Field visits by the team will be conducted on a semiannual basis throughout project implementation.

- **Fiduciary requirements and inputs.** Training will be provided by the Bank's FM specialist and procurement specialist. The team will also help DG Food identify capacity building needs to strengthen its FM capacity and to improve procurement management efficiency. Both FM and procurement specialists will be based in the country office to provide timely support. Formal supervision of FM will be carried out semi-annually, while procurement supervision will be carried out on a timely basis as required by the client. DG Food will be provided with consulting services in this area and assisted by Supervisory Consultants. In addition, under the project, funds are available to DG Food for recruitment of specialized skills as needed. The Bank can help in identifying the consultants needed for these required skills.
- **Governance and Accountability Action Plan.** Implementation of the GAAP will be monitored closely and a detailed review will be carried out during each supervision mission. The GAAP monitoring will be a team effort in which all members of the team (procurement, FM, technical, and GAC specialist) will be involved. The team will also provide DG Food staff training in understanding the GAAP's objectives, purpose, implementation, and monitoring. Under component C, DG Food will be provided resources as needed and consulting services for proper implementation and monitoring of the GAAP and for alerting based on early warning signs.
- **Safeguards**. Given the client's capacity, inputs from an environment and a social specialist are required, though the project's social and environmental impacts are limited. Training is required on environmental monitoring and reporting. On the social side, supervision will focus on implementation of the agreed land acquisition and resettlement plans. Field visits are required on a semiannual basis. Both social and environmental specialists are country office-based. Consultants will help in independent monitoring of the safeguard issues and highlighting to the Bank team any issues and possible alternative solutions in a timely manner.
- **Operation**. An operations officer based in the country office will provide day-to-day supervision of all operational aspects and coordination with the client and among Bank team members.

The main focus of IS is summarized in Table 5.1:

Table 5.1: Planned IS for MFSP in Bangladesh

Time	Focus	Resource Estimate (SW=staff weeks)
First year of the project or 18 months	Technical review, procurement review, site review, bidding documents	Construction Engineer (with procurement experience) 7 SWs Procurement Specialist 5-6 SWs
	Procurement training, FM trainings	Procurement and FM Specialist 5 SWS
	SAP/RAP implementation, land acquisition	Social Specialist/ RAP Specialist 3 SWs
	Environmental supervision	Environmental Specialist 2 SWs
	Institutional and capacity building of DG Food Financial strategies etc.	Institutional Specialist 4 SWs Financial Specialist 4 SWs
	GAAP	GAC Specialist 4 SWs
	Team Leader	TTL 10 SWs
Year 2-5 of the project SWs per year	Project construction	Construction Engineer 7 SWs Procurement and contract management 5 SWs
	Environmental and social monitoring	Environmental Specialist 2 SWs Social/RAP Specialist 3 SWs
	Financial management, disbursement and reporting	FM Specialist, Disbursement Specialist 4 SWs
	Institutional arrangements, capacity building of DG Food GAC Specialist	Institutional Specialist 3 SWs GAC Specialist 3-4 SWs
	Task team leadership	TTL 10 SWs

The required staff skills mix for the project is summarized in Table 5.2:

Table 5.2: Staff Skills Mix for MFSP in Bangladesh

Skills Needed	Number of Annual Staff Weeks (SW)	Number of Trips	Comments
Construction Engineer	5	Fields trips as required	International
Procurement	5	Fields trips as required	Country office-based
Procurement Specialist	2	Fields trips as required	International/country
Social Specialist (national)	3	Fields trips as required	Country office-based
Social Specialists	2	Field trips as required	International/Regional
Environment Specialist	2	Fields trips as required	Country office-based
Environmental Specialist	2	Field trips as required	International
FM Specialist	2	Fields trips as required	Country office-based
Institutional Specialist	4	Field trips as required	International
GAC Specialist	4	Field trips as required	International
Task Team Leader	10	Fields trips as required	International/country

Annex 6: Governance and Accountability Action Plan (GAAP)

BANGLADESH: Modern Food Storage Facilities Project (MFSP)

Introduction

147. The Governance and Accountability Action Plan (GAAP) for the project is designed to minimize governance and corruption risks in the project. It outlines a framework for action, institutional arrangements, specific responsibilities, and additional measures to facilitate effective and appropriate use of project funds. This plan is based on Bank experience in addressing governance and anti-corruption issues and, in particular, the Bank's experience in earlier projects financed in the country. The GAAP will be adjusted as necessary during implementation to reflect governance issues which may emerge and/or to strengthen or add actions. This GAAP has been consulted with the implementing agency to take into account the concerns and perspectives of all stakeholders involved.

Country Context and Background

148. Bangladesh is a high-risk environment for governance. It scores poorly on international corruption monitoring indices. Despite some attempts to enhance accountability in the legal framework for corporate governance and public sector regulation, poor performance and abuse of office are common in the public sector, including in state-owned enterprises. Furthermore, its efforts to bolster the empowerment of an Anti-Corruption Commission, passage of an Anti-Money Laundering Act and a law protecting whistle-blowers, and joining the UN Convention Against Corruption have not yet yielded substantial gains. Institutions of accountability are weak and country systems to deter corruption such as asset statements or prosecution of corruption cases are spottily enforced. These capacity and governance shortcomings in the public sector, combined with the susceptibility of large civil works projects worldwide to fraud and corruption, underscore the importance of an action plan that utilizes a robust range of tools to mitigate corruption and poor governance risks.

149. Several GAC measures and robust arrangements have been introduced in this project to provide additional checks somewhat unique to this project, and which may be less transferrable in terms of institutional development to public sector performance as a whole. However, some good practices contributing to successful implementation, such as extensive *suo moto* disclosure as per Bangladesh's Right to Information Act or third party monitoring of procurement practices will serve as a valuable example for other public sector bodies and development projects.

150. The Bank's strategy for improving governance in Bangladesh, laid out in its 2011-2014 Country Assistance Strategy, focuses on developing accountability mechanisms in public sector operations, especially through increased transparency. The Bank seeks to align with government priorities in developing the means of accountability, especially strengthening of public financial management, support for local government, and use of information and communication technology (ICT) and the adoption of a Right to Information (RTI) regime. In particular, the Bank is working with GoB to improve budgeting practices among line agencies in conjunction with enhanced accountability mechanisms. It is working to increase the role and quality of oversight of public finances by the Parliamentary Accounts Committee, improve capacity of the Comptroller and Auditor General's Office, and promote greater public understanding of public financial management to build more informed demand

and ability to hold government accountable. The Bank's strategy also focuses on improving public service delivery, a key component of which is fostering greater accountability to recipients of services, including through a strengthened role for local government. The Bank supports the government's efforts to establish a functioning RTI regime, including building capacity in all agencies to provide information more fully and efficiently. The Bank also continues to emphasize the importance of building demand for good governance among civil society, which in turn requires facilitation of avenues for civil society to engage with, and monitor the performance of, the public sector.

151. The Bank maintains a strong policy against corruption and presses for sanctions on those who engage in it. Similarly, the Bank recognizes the importance of strengthening country systems to prevent corruption from occurring. Given the heightened integrity risks for this project, the GAAP is based on ensuring that every action in the project is identified in detail and subject to heightened multi-party scrutiny. Complementing this GAAP is the Bank's regular system of investigation and potential sanctions for fraud and corruption operated by its Integrity (INT) Vice Presidency. INT's preventive services unit was consulted in defining this project's GAAP.

152. The experience with other large infrastructure projects offers lessons for addressing GAC concerns that have been internalized in the MFSP. These include: (i) designing a procurement plan that allows for extensive scrutiny and obtains the best construction expertise available; (ii) engaging in comprehensive prior consultations and designing an effective communications strategy during construction; and (iii) ensuring multiple, robust monitoring mechanisms. The project monitoring will involve: dedicated staff in the Project Management Unit (PMU) for engineering; construction supervision by internationally recruited Construction Supervision Consultants (CSCs) who will be the "engineer" for the civil works contracts; consultant support for environmental and social aspects; and a safeguards specialist who will independently monitor progress and supervise the Environmental Management Plan (EMP) and Social Action Plan (SAP) activities. It will also involve enhanced Bank supervision, including an in-country consultant who will visit the project site on a regular basis in the first two years of the project, when construction will be taking place, to keep the Bank, the Project Coordination Committee, and the PSC informed of issues arising in project implementation.

153. Institutional arrangements for implementation were determined through analysis of the relevant institutions and lessons learned from the past. So far DG Food has demonstrated a good track record of on-time and on-budget implementation. DG Food also underwent a review of its procurement and financial management systems. This included a procurement capacity assessment with the web-based Procurement Risk Assessment Management System (P-RAM S). The assessment covered the legislative framework, procurement planning, procurement processing, organizational functions and staffing, internal control and support system, recordkeeping, and contract administration. Capacity in all these areas was found to be in need of strengthening. In addition, a review of financial management systems was conducted and identified significant accounting and internal audit weaknesses that will need to be addressed under the project. The capacity building and strengthening of DG Food is supported through ongoing ECRRP. Substantial resources are incorporated in the project (components C1 and C3, totaling about US$10 million) to continue enhancing DG Food's institutional capacity.

Governance and Corruption Risks

154. Four areas of GAC risk have been identified under the project: institutional and organizational weaknesses in the implementing agency; specific procurement risks; contract management and execution risks; and fraud and corruption and financial management risk.

155. **Institutional risks.** DG Food suffers from systemic issues involving the civil service that affect procurement efficiency and performance, including a need for greater accountability. Stronger accountability for performance and internal controls to counter fraud and corruption are needed. Systems for provision of information to the public and handling complaints or feedback from third parties on performance are nascent. As noted above, assessments of capacity for procurement and FM have been identified as areas for strengthening.

156. **Procurement risks.** The primary risk in the project is the procurement of the public storage facilities, which is a high-value contract. Possible risks include fraud, corruption, collusion, and coercion amongst parties involved in the procurement process. For example: collusion among the bidders; corruption involving bidders and government officials; fraudulent documents; corruption between the bidder and the engineer; and corruption between the winning bidder and the approving authority. Conflicts of interest may present a serious problem, most notably through relationships with government officials, whether direct or indirect, including through companies and/or relatives of officials. However, such risks will be minimized by the selection of sites upfront and specifying technical designs and specifications that are standard in the market so that they may be easily verified.

157. **Contract execution and project management risks**. Collusion is also possible between the contractor and the PMU, including but not limited to aspects related to quality assurance, extension of time, and variations to the contract and price adjustment. Collusion can also involve the independent Construction Supervision Consultant (CSC) retained to serve as engineer on the contracts and oversee technical implementation. However, this would be a substantial reputational risk for the internationally recruited consultants; also the Bank Standard Bidding Documents modeled on the FIDIC, Fédération Internationale Des Ingénieurs-Conseils (International Federation of Consulting Engineers) documents have provisions to deal with the possibility of such collusion.

158. **Financial management risks and identification/distribution of household silos/grain management.** Fraud is possible in making payments to contractors, consultants, or suppliers for works or services that are of poor quality, lower value, or provided in lesser quantities than expected in the contracts. This risk will be addressed by the Procurement Panel's role in overseeing contract management and checking the quality of outputs under various contracts. Thorough audits will also be conducted, going beyond the financial aspects to include the checking and verification of technical aspects and quantities.

159. Fraud may also appear if the household silo recipients represent false or “ghost” entries, applying for vouchers under false pretenses (i.e., forging recipient criteria or otherwise manipulating the process). Moreover, after distribution, the household silos may simply be resold for a higher price in the market or used for purposes that have little to do with the purposes of the project. These risks will be addressed by engaging NGOs for screening and selecting beneficiaries, widely distributing the beneficiaries, assigning uniquely identifiable voucher numbers, possibly listing the beneficiaries selected (and rejected) on a website with a

voucher number issued to each beneficiary that can be verified by suppliers and interested citizens, and through annual audits.

160. FM risks are also a serious concern in terms of the management of grain in the public facilities, an issue this project seeks to address. Grain stocks at present are turned over approximately every six months; this will be increased to every three years. The longer time horizon in storage will minimize the frequency by which stocks will be changed, which simplifies management systems. Moreover, component B seeks to improve management practices at the local level, through capacity building and a management information system, which will improve transparency. At the same time, there may be interests in the management of these stocks that will resist the implementation of such information systems and transparency measures. In other words, the lack of information and transparency may not simply represent a technology and capacity concern. The project will take steps to further analyze and adjust to such complex dynamics.

Governance and Accountability Action Plan (GAAP)

161. In view of the above risks, the key elements of the GAAP are: (i) information and public disclosure of all project documents to ensure full transparency of the project activities; (ii) social accountability measures including third party monitoring measures; and (iii) measures to safeguard procurement and financial management including ICT.

162. **Information and Public Disclosure:** In line with the World Bank's Disclosure Policy and Bangladesh's Right to Information (RTI) Act, access to all information in the project shall be made public. This includes: (i) public disclosure of all project documentation, including project information, description, and location information; (ii) disclosure of procurement and other related information; (iii) establishment of a website; and (iii) a centralized information system in Dhaka that will allow the public to access information on the project. DG Food will also designate as per the Right to Information Act an information officer dedicated to MFSP as well as an internal appellate authority (having jurisdiction to hear appeals and review decision) for requests for information. The information officer and appellate officer will be provided with sufficient training on the RTI regime and adequate staff and administrative support to carry out an expansive communications program of proactive disclosure.

163. **Social Accountability and Third Party Monitoring**: The project will make use of social accountability and transparency measures to improve project performance through third party monitoring, project-level grievance redress mechanisms, and project-level monitoring to ensure the integration of social accountability measures and the transparency of procurement and implementation. Specific measures will be designed on: (i) consultation, feedback, and grievance-redress mechanisms to alert project staff to problems identified by beneficiaries, affected people, and other stakeholders; and (ii) participatory monitoring to identify problems. The project will have field-level coordinators who will also serve as focal points for complaints and feedback on the project's design, impacts, and implementation. Local communities will be consulted early in the process, and will be elicited to monitor project progress in the construction phases. In addition, the project will explore establishment of an independent and non-government consultative group based in Dhaka that will review all project information and procurement decisions, as well as the use of ICT in project monitoring activities, where applicable.

164. **Procurement and Financial Management:** Procurement under the project will be grouped into large ICB contracts that will be done with a high level of scrutiny by the Bank and the GoB, and under which construction supervision will be undertaken by the international consultants, who will be the "engineer" for works contracts. In addition, bidding documents will require all contractors to disclose their agents and relationships with the implementing entity as well as in Bangladesh. Under the project, a Procurement Panel will be established, made up of two international expatriate experts and one national expert, and will be responsible for key procurement actions, bidding documents, evaluation of bids, and award of contracts. Activities will include shortlisting of consultants, pre-qualification of contractors and suppliers, review and issuance of bidding documents, evaluation of proposals, and recommendation of award. This will also ensure that the bidding process is conducted with full integrity and thoroughness, following appropriate guidelines. Appropriate clauses will also be added to give the Bank the right to audit the contractors.

165. **Independent Evaluation by the Bank.** The major contracts will be thoroughly reviewed by the Bank and independent consultants will be recruited, as needed, to review such contracts at various stages of evaluation and award and to evaluate proposed changes in the contract.

166. Finally, **Financial Management** will be undertaken by a Senior Financial Management Specialist, to be recruited by the project and based in Dhaka. All financial management activities will be undertaken centrally in the PMU office in Dhaka to ensure full accountability.

167. All senior personnel of DG Food, including the Director General, Project Director, and in the PMU, will be required to submit a statement of their financial interests and affiliations at present and in the preceding year as well the analogous affiliations and interests for the same period for their spouses. A standard format for reporting financial interests/affiliations will be agreed in advance with the Bank.

168. Bidding documents including the RFP, instructions to bidders/consultants, and model contracts will include measures to mitigate misconduct. For instance, bidders will be required to: disclose in full *any* agents used by the bidders during the procurement process, along with the terms on which those agents were hired (both scope of work and remuneration); and certify any conflict of interest, most notably relationships with government officials, whether direct or indirect (e.g., via direct relationships with the officials related to the subject tender or via companies and/or relatives of officials). These documents will also define the scope of the Bank's audit rights.

169. Transparency of the procurement process will be enhanced through a package of measures. The designated information officer will develop and implement a detailed plan of *suo moto* disclosure by the project. This will include disclosure of all relevant documentation and plans related to the procurement process with the goal of providing access to information to the wider community beyond interested bidders and supporting design, management, and construction consultants. Part of this plan will include a website in Bengali and English prominently identified on DG Food's website with a dedicated page for summaries of procurement actions, the procurement plan and any updates, and all documentation related to procurement (outside of the proposals themselves). These documents will be placed on the website within one week of their issuance to the public domain (including after a Bank "no objection," in cases where this is required). This documentation will include:

- Pre-qualification documents for ICB contracts of more than US$10 million;
- All Invitations to Bid;
- Bidding documents and drawings;
- Clarification of bids;
- Bid opening minutes;
- Information on contract award; and
- Information about shortlists, including a narrative statement regarding the reasons for inclusion or exclusion of the bidders in the shortlist.

170. DG Food will implement a broader communications strategy that will include information about procurement. Procurement information will be summarized in a quarterly newsletter in Bengali and English produced by DG Food and distributed widely to CSOs in the project region and in Dhaka, as well as to local government officials in the region who will be instructed to make the newsletters available in their communities. DG Food will promote the availability of all procurement information except information protected by confidentiality requirements of the procurement process on its website and in its newsletters as part of a program of periodic updates on the progress.

171. Public scrutiny of procurement will be facilitated. Representatives of civil society and the media will be invited to attend public bid openings as observers and encouraged to provide feedback on the openings.

172. An enhanced complaints receipt and response unit will be established in DG Food to operate throughout the life of the project, including during the procurement stage. The website and newsletters will state clearly how to file complaints through prominently displayed text (see below). DG Food will maintain a log of complaints that will track the status of response or follow-up. Depending on the nature of the complaint, the unit will assign the review to internal auditors or third party auditors, or may transfer the investigation of the complaint to other appropriate investigative bodies such as the police or the Anti-Corruption Commission. All complaints received shall be responded to within five days of receipt, with a copy to the PSC and the Bank. Recording and appropriate referral of all incoming complaints will be undertaken by DG Food with each case generating an automatic, standard format report including the full text of the original complaint to the Bank. In addition, a monthly report tracking the status of complaints and measures taken will be provided to the PSC. Reports summarizing complaint cases that have been resolved will be published on the website. At all times and in all documents the anonymity of the complainant will be maintained.

173. DG Food website and newsletters will state clearly how to file complaints through the following text, to be displayed prominently:

“The contact point for complaints related to the project is:

To:

Secretary, Food
MoFood and DG Food
Government of the People's Republic of Bangladesh
Dhaka.
Tel: Fax: e-mail:

To: the World Bank Fraud and Corruption unit

Email: investigationshotline@worldbank.org
Website: http://www.worldbank.org/integrity
If you prefer to remain anonymous, you may wish to make use of a free email service (such as Hotmail or Yahoo) to create an email account using a pseudonym. This way, we could correspond with you as necessary, to seek clarification or additional information. This would be helpful for us in pursuing your allegation. You may also contact us through a Fraud and Corruption Hotline hired by INT for this purpose: (24 hours/day; translation services are available)
Toll-free: 1-800-83 1-0463
Collect Calls: 704-556-7046
Mail:
PMB 3767, 13950 Ballantyne Corporate Place
Charlotte, NC 28277, United States"

174. **Contract execution and project management risks.** The transparency and enhanced complaints mechanisms put in place for procurement will also apply post-procurement during contract execution. The website will contain monthly updated information about project activities including, *inter alia*, the current estimate of the progress of implementation (e.g., gross estimate of completion as a percentage of works to be carried out), other project-related activities such as workshops, and data concerning complaints and remedial actions. In addition, regular accountability meetings organized by the implementing NGOs in conjunction with DG Food will be held quarterly with CSOs in the region and in the capital to share information. These meetings will be attended by PMU and CSC staff as well as third party entities involved in monitoring execution.

175. **Risks in delivery of household silos.** The proactive information disclosure measures involving the website, newsletter, SMS-messaging services, and the enhanced complaints mechanism will be utilized for the distribution of household silos as well. In addition, as noted in Annex 3, implementation will be through external NGOs with experience and skills to carry out the benefits program. The NGOs responsible for delivery will hold public hearings at least once a quarter on implementation of the plans. Accountability meetings will be held with the public and CSOs in the region to explain the household silos distribution program.

176. Management of payments will be based on vouchers and documents and contracts properly agreed and registered in the presence of NGOs that can be verified at any time. Such records will be maintained for audit and post-review. Annual audits will be carried out on a sample basis to ensure that the agreed criteria are followed on the distribution of household silos, and also to track the distribution and use of the household silos amongst the target population. If distribution systems are not working, DG Food will take necessary corrective action in redesigning the program, based on a technical assessment of the shortcomings in the system. Such redesign may include the distribution system, the costs, or the target population.

177. The concerns with resistance to a MIS will be addressed through a careful assessment of the current grain management system, as well as the changes necessary with the new public silos. The preparation of this new information system should build on careful consultation with the relevant officials involved. Both the technology and the roll-out of such a system must adjust to these interests.

Remedies and Sanctions

178. DG Food independently, or at the direction of the Bangladeshi oversight entities in the form of the PSC, will undertake disciplinary action for dismissal of staff deemed to have violated FM or other procedures. Any of the three entities (DG Food, FPMU, PSC) will, if it is determined that there is credible evidence to launch an inquiry into possible criminal actions (including for corruption), refer such cases for investigation to the Anti-Corruption Commission or police.

179. The Bank will apply sanctions as per its guidelines if it determines incidences of fraud, corruption, collusion, and coercive or obstructive practices. Information on the Bank's sanction process can be found at www.worldbank.org/sanctions. These sanctions may include fines, blacklisting, suspension of disbursements, or ultimately cancellation with respect to that contract. The Bank will seek first to remedy cases of corruption through cooperation with the implementing agency and its oversight entities. Any entity found to have misused funds may be excluded from subsequent funding. Information regarding such cases, where lessons are learned and funds are retrieved, will be widely disseminated.

GAAP Monitoring Arrangements

180. The PMU with support from consultants will be responsible for monitoring and reporting on the GAAP on a quarterly basis. Monitoring shall include quantitative measures of implementation of actions (e.g., numbers of complaints received, followed up and resolved; numbers of persons at accountability meetings), recording of benchmarks (e.g., training of designated Information Officer; establishment of third party monitoring), and qualitative reporting on the efficacy of measures and instances where problems were corrected through these mechanisms. Its reports shall be submitted to the PSC and the Bank simultaneously. Upon clearance by the PSC, summaries of the reports indicating complaints, investigations, and their outcomes, without specific personalized information regarding shortcomings resolved internally, will also be disclosed to the Bank and the public through the project website. DG Food will issue special reports on concerning its independent reviews of significant cases and their outcomes as necessary.

Bank Supervision and Surveillance

181. Supervision arrangements for this project, particularly for procurement and financial management, are extensive. Prior review thresholds will apply to almost all contracts in this case as the contracts are large. The first contract in all categories (goods, consultancy, works, etc.) will be subject to prior review regardless of its value in order to start good-practice procurement and contract management. Post-procurement reviews will be carried out by qualified Bank staff in procurement and contract management, and will be done quarterly for the first 18 months. Bank supervision missions will be more frequent at the start of the project and will involve qualified staff in all disciplines, including procurement, contract management, and FM. The Bank will also conduct regular monitoring between supervision missions, including an in-country consultant who will visit the project site on a regular basis in the first two years of the project, when construction will be taking place, to keep the Bank and the PCC informed of issues arising in project implementation. The Bank will conduct a mid-term review of the project. Detailed plans for supervision by the Bank are given in Annex 5.

182. In addition, the PMU and the CSCs will carry out extensive oversight of the implementation of contracts. An independent team will review overall progress in implementation and report on contract implementation issues to the PSC and the Bank.

183. In terms of monitoring progress on the GAAP, the Bank will conduct six-month reviews for the first 18 months and then successive annual reviews of GAAP implementation. The reviews will assess progress, gauge the efficacy of measures, agree among all parties on areas for improvement, and make adjustments as appropriate. The Bank will update its assessment of GAC risks on an ongoing basis, and anticipates that adjustments to the GAAP will be likely to reflect what will be most effective in the context of the project. Table 6.1 provides the matrix of GAAP-related actions and responsibilities:

Table 6.1: Matrix of GAAP Actions and Responsibilities for the MFSP in Bangladesh

Issues/Risks/ Objective	Actions	Agency Responsible	Timeline	Early Warning Indicators to Trigger Additional Action
Institutional Risks				
Need to strengthen capacity to handle large volume procurement, financial management, contract management, communications, and monitoring functions	Establish PMU with externally hired staff and consultants. Retain independent consultants for design, construction supervision (CSC). Increase frequency of full Bank supervision missions to review operations, including more intensive supervision early in the project.	DG Food DG Food Task team/IDA	Ongoing Ongoing Ongoing	Delays in conduct of procurement, execution of contracts, processing of payments, filing reports
Need to provide/ improve internal accountability mechanisms in DG Food	Establish a Procurment Panel composed of two international expatriate experts and one national expert.	GoB	Upon project initiation	Abrupt and/or large-scale changes in membership of PCC
Need for proactive provision of information and enhanced transparency	Designate Information Officer and appellate authority and provision of support. Undertake regular reporting by PMU on implementation.	DG Food DG Food	Upon project initiation Ongoing	Lack of information officer or frequent replacement Delays in provision of information on website

Issues/Risks/ Objective	Actions	Agency Responsible	Timeline	Early Warning Indicators to Trigger Additional Action
	Maintain website on implementation issues. Produce quarterly newsletter. Hold accountability meetings for CSOs/NGOs/media in target area. Adopt and implement a communications strategy.	DG Food DG Food DG Food DG Food	Regularly updated, at least once a month, all documents w/in one week of their issuance Quarterly Biannually Adopt by first 6 months, implementation ongoing	Delays in implementation of communication strategy
Procurement Risks				
Reduce risk of corruption in procurement	Carefully devise the design, bidding documents, and procurement of contract for public silos. Publish/agree detailed mapping of procurement processes, including finite list of who has access to documents when in the process. Ensure multiple parties are legitimately involved at all stages in procurements: Panel, CSCs, NGO representation. Enforce ICB procurement guidelines for documentation, timelines, and transparency.	DG Food DG Food DG Food, Bank DG Food	Ongoing Project initiation Ongoing Ongoing	Procurement red flags in *ex ante* and *ex post* review Inconsistencies with 'need to know' principles in procurement mapping, evidence of unauthorized access to information Delays in *suo moto*

Issues/Risks/ Objective	Actions	Agency Responsible	Timeline	Early Warning Indicators to Trigger Additional Action
	Designate Information Officer and implement plan for *suo moto* disclosure of information. Establish and maintain website, newsletters. Enhance complaints mechanism with reporting established and follow-up guidelines. Bank will undertake independent review of major contracts, at evaluation, and award stage and for making major changes to the contracts and for that may recruit independent consultant.	DG Food DG Food DG Food, PCC, Bank (reviewing) Bank, OPRC	Designate Dec 2013 Website by Dec 2013 Complaints unit in place by March 2013 Ongoing	disclosure plan issuance/implementation Website and newsletter are delayed or not updated Nature and frequency of complaints
Evaluate potential for for or reduce risks of conflict of interest among participants in procurement	Declarations of no conflict of interest by DG Food personnel, including members of panel for procurement. Review statements of financial interest encompassing key project staff. Require bidders' statements concerning agents	DG Food DG Food, PCC DG Food	DG Food personnel by effectiveness; bidders at submission Within one month of submission At bidding stage	

Issues/Risks/ Objective	Actions	Agency Responsible	Timeline	Early Warning Indicators to Trigger Additional Action
	and other possible connections to persons involved with procurement.			
Contract Execution and Project Management Risks				
Potential for collusion of parties involved	Involve independent panel and CSC involved with transactions, approving works and disbursement. Require financial interest statements of key senior PMU staff. Ensure third party monitoring by NGOs from the Bank side.	Panel, CSC DG Food, Bank IPOE, NGOs, Bank	Ongoing By project initiation Ongoing upon appointment	Monitoring reports identify anomalies
Need for greater capacity in PMU to exercise oversight	Disseminate information dissemination measures (website, newsletters). Establish enhanced complaints mechanism, including ICT.	DG Food DG Food, Project Integrity Advisor	Launched within 3 meetings of effectiveness Dec 2013	
Fraud and Corruption in Delivery of Household Silos				
Potential for improper targeting of beneficiaries and/or false delivery	Engage experienced NGOs with reputable track record for similar programs for implementation. Ensure third party monitoring .	DG Food, NGOs Bank	Contracts in place Upon project	Reviewers (DG Food, Bank) receive plausible complaints borne out by frequency or other corroboration

Issues/Risks/ Objective	Actions	Agency Responsible	Timeline	Early Warning Indicators to Trigger Additional Action
			initiation	
	Conduct survey among beneficiaries, with regular local consultations.	NGO	Unit in place by effectiveness or before	Survey results identify improprieties
	Enhance complaints mechanism, including use of ICT.	DG Food, Bank supervise	Designated office in place by effectiveness	
	Suo moto disclosure of information.	DG Food	Begin implementing expanded disclosure plan three months after effectiveness	
Management of Public Silos				
Resistance to implementation of information systems	Complete assessment of the present management systems, potential points of resistance to changes	DG Food, with support from consultant	By end of year 1 of project	No assessment complete
	Conduct consultations with the relevant officials involved.	DG Food	By end of year 1 of project	No consultations complete
Limited transparency in stock holdings, transfer, and management	Develop and install a widely accessible stock monitoring system.	DG Food	In two years	Old system continues after two years without any change

Annex 7: Economic Analysis

BANGLADESH: Modern Food Storage Facilities Project (MFSP)

184. The MFSP envisages building storage silos of different capacities in up to eight locations in Bangladesh for long-term storage of food grains, generally up to three years. Six silos will be built for rice storage and two for wheat. Since wheat is basically imported, it is proposed that the wheat storage facilities be built near the sea port in the southern areas of the country. The total storage capacity of public silos at the eight proposed sites will be about 535,500 tons.

185. Since the proposed investments in public grain storage facilities are considered as non-revenue-generating for the most part (except when opportunities arise to auction stored grain with a positive margin), financial analysis was deemed inapplicable; only economic analysis was carried out. This analysis was conducted in a two-step process. First, three options (steel silos, concrete silos, and traditional warehouses) were subjected to a least-cost analysis on the basis of their discounted construction and O&M costs. Second, the emerging least-costly option served as the basis for computing the project's economic rate of return (ERR), benefit-cost ratio (BCR), and net present value (NPV). Finally, sensitivity analysis was carried out by varying investment requirements and net benefits.

186. **Least-Cost Option:** For identification of the least-cost option, three different technologies were compared: (i) conventional CSD godowns; (ii) concrete silos – four of which have been in operation for the last 40 years for storing wheat in Bangladesh, while one more is being constructed near Mongla Port; and (iii) steel silos – two of which are in existence under private ownership.

187. Tables 7.1, 7.2, and 7.3 show the investment costs, operating costs, and discounted cost flows for the three investment options. Apart from O&M, the analysis also includes the costs associated with grain losses under the traditional godowns. The steel silo option has the lowest discounted costs at US$143 million, followed by concrete silos at about US$207 million, with the conventional CSD godowns the most expensive, at US$455 million. While the cost of equipment and machinery is lowest for conventional CSD godowns, the land requirement and the cost of construction are high. Moreover, the quality of the food grain deteriorates in conventional storage systems if grain is stored for more than a year. The land requirement is less for steel silos, which can also store grain without deterioration in quality for a longer period (up to three years), a feature essential for attaining sustainable food security in post-disaster periods. Against these economic backdrops, a steel silo system for storing food grain was selected for this project.

Table 7.1: Comparative Investment Costs of Different Storage Options Based on a 50,000-ton Storage Facility

Item	Conventional CSD Godown	Concrete Silo	Steel Silo
Capacity (tons)	1,000 MTx50 =50,000	50,000	50,000
Land Valuation			
I. Area	14 acres	3 acres	3 acres
II. Cost (Tk. 5 lac/dec)	7,000	1,500	1,500
Civil Works	19,115	11,044	4,619
Machinery and Equipment, incl. installation	372	5,880	5,880
Total	26,487	18,424	11,999
Avg. Cost: BDT/ton	52,487	36,848	23,998
Avg. Cost: US$/ton	**662**	**461**	**300**
For reference, avg. cost: US$/ton without land valuation	487.2	423.1	262

Table 7.2: Comparative Investment and O&M Costs of Different Storage Options Computed for all 535,500 Tons Proposed under the Project

Item	Conventional CSD Godown	Concrete Silo	Steel Silo
Investment Base Costs (US$ Millions)			
Implicit Cost of Land	93.71	20.08	20.08
Civil Works	255.90	147.85	61.84
Machinery & Equipment	4.98	78.72	78.72
Total:	**354.59**	**246.65**	**160.64**
Annual Operation and Maintenance Costs (US$ Millions)			
	4.93	6.96*	6.00
Value of Annual Grain Loss in Traditional Godowns			
Avg. weighted grain price (US$/ton)	534.46		
Assumed percentage grain loss	12%		
Amount of grain (tons) that would be lost out of the 535,500 tons if it was all to be stored in traditional godowns	64,260		
Value of grain lost (US$ millions)	34.3		
Annualized Grain Loss in Godowns			
Unloading, bagging and loading	2%		
Quality deterioration	4%		
Discoloration loss	4%		
Loss due to natural calamities	2%		
Total	**12%**		

Based on the average cost over the past three years for the concrete silos in Narayanganj.

Table 7.3: Discounted Financial Costs of Three Investment Options for 535,500 Tons of Grain Storage

	Steel Silo			Concrete Silo			Traditional Godown			
Year	Inv. Cost	O&M Cost	Total Cost	Inv. Cost	O&M Cost	Total Cost	Cost	O&M Cost	Grain Loss	Total Cost
1	8		8	12		12	18			18
2	16		16	25		25	35			35
3	32		32	49		49	71			71
4	40		40	62		62	89			89
5	40		40	62		62	89			89
6	24	3	27	37	3	40	53	2	17	73
7		6	6		7	7		5	34	39
8		6	6		7	7		5	34	39
9		6	6		7	7		5	34	39
10		6	6		7	7		5	34	39
11		6	6		7	7		5	34	39
12		6	6		7	7		5	34	39
13		6	6		7	7		5	34	39
14		6	6		7	7		5	34	39
15		6	6		7	7		5	34	39
16		6	6		7	7		5	34	39
17		6	6		7	7		5	34	39
18		6	6		7	7		5	34	39
19		6	6		7	7		5	34	39
20		6	6		7	7		5	34	39
21		6	6		7	7		5	34	39
22		6	6		7	7		5	34	39
23		6	6		7	7		5	34	39
24		6	6		7	7		5	34	39
25		6	6		7	7		5	34	39
26		6	6		7	7		5	34	39
27		6	6		7	7		5	34	39
28		6	6		7	7		5	34	39
29		6	6		7	7		5	34	39
30		6	6		7	7		5	34	39
PV(10%)			**143**			**207**				**455**

188. **Economic Cost:** The economic capital cost of the project is estimated by excluding the taxes and duties and price contingencies from the financial costs and applying a Standard Conversion Factor (SCF) of 0.9. Accordingly, the economic cost is US$149 million.

Table 7.4: Economic Cost Calculation (US$ Millions)

Financial Cost	247
Taxes and Duties	62
Price Contingencies	20
Economic Cost with SCF of 0.9	149

189. **Benefit Analysis:** The principal assumption in the "*without project*" scenario was that the government will continue to construct more traditional warehouses, with their associated high grain losses. Therefore, the project's benefits in the "*with project*" scenario derive from the reduced losses that characterize traditional warehouses. These losses emanate from manual loading and unloading, quality deterioration, and weight loss. Ventilation exists but appears inadequate. Moisture is higher than the standard, particularly in the wet season. As a result, there is quality deterioration in the form of discoloration. Sometimes rice in the godowns is attacked by pest and insects. In addition, there can be emergency losses due to natural calamities such as cyclones, flooding, etc.

190. Although good data are hard to obtain, there appears to be a generalized perception in Bangladesh that the percentage losses in government warehouses range from the high teens to the low 20s. Some sources put losses in the upper single digits. For the purposes of the benefit analysis, a conservative figure of 12 percent was assumed to reflect the potential savings in modern silos. Estimation of the value of the grain (rice and wheat) losses reduced used the import price, with adjustments for freight cost, transportation cost, etc., since both rice and wheat are traded commodities and imported by Bangladesh. The rice price is estimated at US$588 per ton and wheat at US$438 per ton. Assuming about 0.19 million tons of wheat and 0.35 million tons of rice will be stored in public storage, a weighted average price of US$534 per ton of grain saved was used. For household silos, the losses saved are a bit higher (i.e., 20 percent) and all storage is assumed to be of rice.

191. **Operations and Maintenance (O&M) Cost**: Some concrete wheat silos in Bangladesh have been operated by DG Food since the 1970s. Hence, DG Food has good experience in running concrete wheat silos. The proposed steel silos are new in Bangladesh, but have been operated in different parts of the world for many years. Given DG Food's experience in running wheat silos and the technical specifications for steel silos both for rice and wheat, it is estimated that about US$6 million is needed for O&M of the facilities established by the project.

192. **Calculation of Economic Parameters**: Given the assumptions above, the projected economic rate of return (ERR) is 19 percent. The NPV of the costs, benefits, and net benefits at a 10 percent discount rate are estimated to be US$133, US$288, and US$95 million, respectively, and the estimated BCR is 1.7. These results support strong economic justification for this project. Summary results of the benefit-cost analysis are presented in Table 7.5.

193. **Sensitivity Analysis:** Various scenarios were run to test sensitivities. Essentially, these scenarios determined that the project returns are robust and not sensitive to reasonable cost overruns, reduced benefits, or a combination of both. The ERR is 17 percent with a 10 percent increase in project costs *or* a 10 percent decrease in benefits. When costs increase and benefits decrease simultaneously by 10 percent, the ERR is still 16 percent. The impact of cost overruns and a reduction in benefits is summarized in Table 7.6.

194. **Switching Values:** Analyses for switching values indicate that the ERR for the project would fall to 10 percent if the costs increased by more than 72 percent *or* if the benefits decreased by more than 42 percent, or if costs increased by 26 percent *and* benefits decreased by 26 percent simultaneously.

195. **Employment and Non-Quantified Benefits**: During the construction phase,

approximately 1.3 million person-days will be required. Wage income amounting to US$6.3 million will be earned by workers, both skilled and unskilled, which will be spent for purchasing goods and services. Concurrently, the demand for local construction materials and transportation services will increase. All of these will bring about a compound effect on economic activities in the country. Moreover, after construction, several hundred jobs will be directly created for ongoing O&M of the silos. Construction of silos will also improve citizens' sense of security during natural calamities in the country. The silos will enable higher quality and faster movement of food grain in times of emergency and natural calamities. Currently, the government does not have adequate space to store food grain procured from farmers during bumper production. Implementation of this project will increase the food grain storage capacity for DG Food, enabling the government to provide price support to farmers at desired levels during the harvesting season.

196. **Revenue Generation**. As stated above, the steel silo operations are principally non-revenue-generating, insofar as they are primarily for disaster relief, and grain due for normal rotation can be used for normal food safety net distribution. However, when such needs can be met from the traditional godowns, which will continue to function alongside the steel silos, then grain from long-term storage in steel silos that is being rotated could be auctioned. Such funds will complement GoB's budget, ensuring smooth O&M of the new facilities. GoB should also consider leasing the unused capacity of its silos when such capacity is available. The project will support TA to define the framework of such revenue-generating opportunities.

Table 7.6: ERRs for Different Cost and Benefit Change Scenarios

Scenario	ERR (%)
Base Case	19
Costs increase by 10% or benefits decrease by 10%	17
Increase in costs *and* decrease in benefits by 10%	16
Costs increase by 72%	10
Benefits decrease by 42%	10
Costs increase by 26% *and* benefits decrease by 26%	10

Table 7.5: ERR Analysis

Year	Investment Cost	O&M Cost	Total Cost	Benefits from Losses Avoided in New Silos	Benefits from Losses Avoided in House Hold Silos	Total Benefits	Net Benefits
1	7		7			0	-7
2	15		15			0	-15
3	30		30		2	2	-28
4	37		37		2	2	-35
5	37		37		3	3	-34
6	23	5	28	34	3	37	9
7		5	5	34	3	37	32
8		5	5	34	6	40	35
9		5	5	34	6	40	35
10		5	5	34	6	40	35
11		5	5	34	6	40	35
12		5	5	34	6	40	35
13		5	5	34	6	40	35
14		5	5	34	6	40	35
15		5	5	34	6	40	35
16		5	5	34	6	40	35
17		5	5	34	6	40	35
18		5	5	34	6	40	35
19		5	5	34	6	40	35
20		5	5	34	6	40	35
21		5	5	34	6	40	35
22		5	5	34	6	40	35
23		5	5	34	6	40	35
24		5	5	34	6	40	35
25		5	5	34	6	40	35
26		5	5	34	6	40	35
27		5	5	34	6	40	35
28		5	5	34	6	40	35
29		5	5	34	6	40	35
30		5	5	34	6	40	35
NPV(10%)	103		133			228	95
						ERR	19%
						B/C	1.7

Annex 8: Environmental and Social Assessment

BANGLADESH: Modern Food Storage Facilities Project (MFSP)

197. The physical components of the MFSP that involve social and environmental impacts include: (i) public storage facilities in the form of modern grain storage silos; and (ii) household storage facilities or family silos, particularly in the disaster-prone areas of the coastal zone. The three subcomponents (Component A1: Construction of Modern Public Food Grain Storage Silos; Component A2: Household Silos; and Component A3: Implementation of Social and Environmental Management Plans) are expected to trigger environmental and social impacts.

198. Under Component A1, the steel-bolted silos used in all climate zones will be constructed. These types of silos allow for speedy construction and have temperature control and fumigation systems, automated mechanical handling, and a central computerized control system. The household silos under Component A2 are containers made of food-grade plastic. Aspects of the household silo component that may have an environmental and social footprint include: (i) the choice of drum material, which needs to be of food-grade plastic; (ii) the choice of gasket material to make the lid airtight; (iii) creation of a user-friendly design to facilitate safe holding/pulling/carrying; (iv) social benefits from enhanced climate resilience to withstand natural calamity; and (v) inclusion of all groups in project benefits irrespective of gender, ethnicity, and vulnerability. Activities under Component A3 that may be needed to mitigate any social and environmental issues for construction of public silos (under Component A1) can only be addressed during identification of the need-based activities.

199. Eight sites have been proposed for detailed review under Component A1. Criteria applied for the selection of the proposed sites included:

a. Strategic storage location for distribution of food grain stocks in emergency relief situations or for the pre-positioning of such stocks;
b. Rationality of increased storage capacity at the site based on existing and anticipated food grain movements to ensure proper rotation of stocks; and
c. Avoidance of land acquisition issues and environmental issues (putting the priority on existing DG Food storage sites where land is available for construction of silos with high storage efficiency).

200. **Environmental Assessment Category**: According to World Bank policies, the MFSP is considered a Category B project due to the risk associated with the extent of foundation construction, construction of a superstructure from prefabricated steel sheets, the demolition of existing godowns, environmental and occupational health and safety issues, and the use of low doses of fumigants during project operation. The project triggered the environmental safeguards policy for environmental assessment (OP/BP 4.01). The steel silos will introduce modern cooling facilities which will reduce the presence of rodents and need for insecticides. DG Food is already using fumigants in the existing godowns. Fumigants may be needed during the operation phase of the silos. Use of a fumigant application mechanism should follow U.S. Environmental Protection Agency (USEPA) and World Health Organization (WHO) guidelines.

201. The preliminary social assessment (SA) confirms that the land on which the silos at the proposed eight sites will be constructed is owned by the Government of Bangladesh.

However, additional private land or displacement of people may be involved, pending the detailed design for each site. Thus, the Bank's OP 4.12 on Involuntary Resettlement is triggered for this project. According to the preliminary SA, no tribal people are living on or around the land for the sites proposed for silo construction. Therefore, the Bank's OP 4.10 on Indigenous Peoples is not triggered. If such groups are identified before the start of construction, the associated site will be dropped from the project and possibly replaced by another site.

202. **Environmental and Social Assessment and Management Framework (ESAMF):** A single document has been prepared covering the social, environmental, and safeguards aspects. The ESAMF provides the project's Environmental Framework, Environmental Assessments of the sites proposed, and Environmental Management Plan. It also provides the Social Management and Resettlement Policy Framework (SMRPF), a methodology for screening social and environmental safeguard issues and for preparing SMPs and RAPs. Though these frameworks and plans are individually referred to in various parts of the PAD and Annex 8, they are all contained in the ESAMF.

Addressing Environmental and Social Issues

203. DG Food will conduct environmental impact assessments (EIAs) for all selected sites. To date, DG Food has conducted EIAs at the selected eight sites based on the available technical design. The EIAs will be updated once all the aspects of technical study and design are completed. If there is a change in site or the ground situation changes, the existing ESAMF should be used as a reference guide to determine environmental and social issues. An EMP for overall and site-specific issues has also been developed. The EIAs and implementable EMP will be key determinants for final site selection and final design approval.

204. **Environmental Management Framework:** DG Food prepared an Environmental Management Framework (EMF) that provides guidelines for: (i) environmental screening; (ii) assessment; (iii) consultation and disclosure; (iv) an environmental code of practice; (v) an EMP; (vi) preparation and implementation of EAPs with budgeting; (vii) a report; and (viii) institutional responsibilities.

Environmental and Social Assessment (ESA)

205. **Environmental assessments:** The baseline environment for the proposed sites was assessed with respect to project activities that relate to area-specific conditions pertaining to: (i) the physical environment – topography, physiography and geology, seismicity, hydrology and drainage, air quality, and noise quality; (ii) the biological environment – terrestrial ecology, aquatic ecology, biodiversity, and national conservation site of importance; and (iii) the socio-economic environment – land use/ownership patterns, water supply and sanitation, fisheries, industries and commerce, and cultural and archeological resources. Baseline water, air, and noise quality were measured at each site; this will play a key role in decision making regarding final selection of sites and during project monitoring. None of the sites show any indication of air, water, or noise pollution. Except for Madhupur, the proposed sites for the silos are all near rivers. Other than Madhupur, all areas have natural drainage systems. A number of social establishments have been found within 500 meters of Ashugang, Barisal, Dhaka Madhupur, Maheswarpasha, and Narayanganj.

206. **Social Assessment:** The social assessment comprised: (i) a review of the policy framework; (ii) a beneficiary assessment; (iii) a stakeholders' consultation; and (iv) impact assessments. The beneficiary assessment established: baseline socio-economic profiles at the project areas; the current status of grain storage facilities at the public and household levels; and the need for improved storage facilities and distribution mechanisms. The districts where the modern silo facilities are proposed are considered the project area, while the disaster-prone areas are considered target areas for distribution of household silos. The social assessment identified key stakeholders at different levels in the project area and helped to reveal their expectations, issues, and concerns. The social assessment also included impact assessments and a risk analysis. The results were used to design the social management and resettlement policy framework addressing social safeguards, thus ensuring positive and sustainable project benefits.

207. **Review of Policy Framework**: Infrastructure development projects using land in Bangladesh are designed and implemented under the legislative and regulatory framework to compensate affected persons due to land acquisition using the power of eminent domain. Whenever it appears to GoB that any property in any locality is needed or is likely to be needed for any public purpose or in the public interest, the property is acquired using eminent domain. Land acquisition is governed by the Acquisition and Requisition of Immovable Property Ordinance, 1982 (Ordinance II of 1982). This ordinance supersedes earlier laws, including the Land Acquisition Law of 1894 and others in force between 1947 and 1982. In addition to the Ordinance, acquisition of any land or forest area in Chittagong Hill-Tracts (CHT) districts require consent under the Chittagong Hill-Tracts (Land Acquisition) Regulation 1958, the CHT Regional Council Act 1998, and the Forest Act (1927). There is no national policy in Bangladesh governing social effects of infrastructure development projects on the project area communities. However, the Constitution of Bangladesh and the national development strategy (Poverty Reduction Strategy Paper 2005-2009) provide some rights to affected persons, communities, and groups that are not upheld in the Ordinance II of 1982.

208. **Beneficiary Assessment**: The districts where the modern silos facilities are proposed are considered as the project area or project districts. The project districts have a total population of 38.80 million, or 27 percent of the national population (144.043 million) according to the 2011 Census. The project areas has an average population density of 2,384 persons per square kilometer, more than double the national average (2.35 times the national average of 1,015 persons per sq km). Average household size in the project area is 4.5 (persons per household), higher than the national average of 4.4. According to the Population and Housing Census 2011 (PHC 2011), the project area population has a literacy rate of 55.43 percent, which is higher than the national average.

209. About 1.6 million Bangladeshis belongs to one of 45 different, small ethnic groups. These people are concentrated in the north and in the Chittagong Hill Tracts (CHT) in the southeast of the country, and are commonly known as tribal people. However, tribal people are also scattered in small proportion all over Bangladesh. A total of 116,926 tribal people live in the eight project districts, of which only 35.72 percent live in urban areas.

210. **Gender Issues**: Gender roles and relations between men and women in the project areas are typical of Bangladeshi society at large. Women constitute 49.6 percent of the total population in the project area. Compared to men, women lag by 4.17 percent in literacy achievements and constitute 15.94 percent of the total employed population. Interactions and simple assessment by consultation revealed that employed women earn about 15 percent less

than their male counterparts. The gender gap in education is closing at an impressive rate at the primary and secondary levels, but the gap still persists at higher secondary and tertiary levels.

211. Women constitute 45.6 percent of the total farming population. They maintain the dual responsibility of farm and household production. Despite their routine domestic work, women are actively involved in agricultural work ranging from selection of seeds to harvesting and storing of crops. About 60-70 percent of women from landless and near-landless households work as agricultural wage laborers. The role of women in rice production is already substantial and is expanding further.[2]

212. **Poverty and Food Insecurity**. Food security in Bangladesh is characterized by considerable regional variation. Exposure to natural disasters is one of the major factors of food insecurity. According to Poverty Map 2005, there is a similarity between levels of poverty and levels of food insecurity. Poverty persists in the coastal belt due to frequent disasters and lack of infrastructure. According to a 2007 World Food Programme (WFP) survey, the coastal population is largely poor: 47 percent consider themselves as extreme poor; 41 percent are poor; 11 percent are middle clss; and less than 1 percent are well-off. According to the 2005 Household Income and Expenditure (HIES) survey, about 52 percent of the households in Barisal division were poor in 2005, of which an estimated 36 percent were below the lower poverty line, and described as extreme poor. HIES 2010 assessed that poverty incidence in the coastal area reduced to 39 percent in 2010.

213. **Grain Storage in Rural Areas**: The major cereal grains in Bangladesh (rice, wheat, and maize) are often kept in storage for a considerable period. Cereal grains are stored by farmers to meet their own consumption and for seeds. The produce thus retained is estimated to vary from 10-100 percent of the production, with an average retention rate of about 70 percent. Cereal grains are stored either in containers or in bulk. The containers in Bangladesh include *matka* or large earthen pots, and gunny bags. According to Banglapedia, there are about eight different types of storage systems used at the farm level in Bangladesh. Among these, *dhangola* (medium and large sized cylindrical or rectangular bins), *bed* (cylindrical medium capacity bins), and *dole* (small capacity cylindrical bamboo-made structures) are common types of storage systems. Among bamboo structures, the most commonly used ones are *dole* and *bed*. The *dole* has a bottom as an integral part, but the *bed* and *dhangola* do not.

214. The level of avoidable post-harvest losses of stored cereal grain in Bangladesh is still unacceptably high and varies from 10-25 percent (Banglapedia 2006). The loss occurs partly due to insect and fungal attack during storage. Reducing post-harvest losses depends on proper threshing, cleaning, drying, and storage. Cereal grains in Bangladesh are dried through the traditional method of sun drying. Various assessments after Cyclone Sidr in 2007 found that many of the affected households in the coastal area lost their food and crop seed stocks in the disaster. The WFP study indicates that about 25 percent of households in the coastal zone had crop seed stock before the cyclone. The cyclone completely damaged the seed stock of 10.5 percent of these households, while another 11.5 percent experienced partial loss.[3]

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[2] Oxfam International, "Food Insecurity of Women in Bangladesh- The Causes, Effects and Solution." Posted at Oxfam website: http://oiyp.oxfam.org.au/blog/food-justice/ accessed on November 14, 2012.

[3] WFP, "Food Security Assessment after Sidr Cyclone." December 2007.

Impact Assessment and Mitigation

215. **Environmental Impact:** The major potential environmental impacts are classified in the pre-construction, construction, and operational stages. The possible impacts that need to be considered during the design phase are: (i) risk of flooding and inundation; and (ii) loss of agricultural and grazing land. Considerable losses are likely to take place in case of flooding. Establishment of construction camps, pile driving and other civil works for construction of silos, stockpiling of construction material, and increased traffic during construction and operation will impact the existing social infrastructure in the vicinity if not addressed properly during the design phase. The establishment of construction camps will put additional pressure on existing natural drainage and sewerage systems. The design consultant will ensure that these issues and the associated mitigation measures are addressed during the design phase.

216. During construction, a number of trees will be removed at the proposed sites. To address this issue, the contractor should prepare a tree plantation plan. The project will create noise and vibration in the surroundings due to pile driving, namely at the Dhaka and Mymensing locations, where demolition of structures will likely cause severe dust pollution. In addition, construction machinery and project vehicles will release exhaust emissions containing carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen oxide (NO_X), and particulate matter (PM). Other anticipated environmental issues due to construction work include blocked access routes, stockpiling of construction material, soil and water contamination, and vehicular traffic increase.

217. Occupational health and safety is the major concern during construction and operation of the steel silos. The construction activities will involve operation of heavy construction machinery, vehicular traffic, excavation, filling operations, and demolition of structures. These activities may pose some safety hazards to the local population. The fuel storage at the camp sites may also pose safety hazards for construction staff as well as for the surrounding population. Stockpiling of construction material in all sites and debris from the demolished structure may lead to serious accidents affecting construction workers and other people in the vicinity. Falling materials or tools during construction may also pose significant hazards. DG Food uses fumigants regularly in godowns. Fumigation is not expected in silos storing chilled rice. If fumingants are needed, they should be used in accordance with USEPA and WHO guidelines. DG Food will share the plans for fumigation usage before their application.

218. **Social Impacts:** Key social issues relating to project implementation are: (i) avoidance of adverse social impacts in site selection, design, and implementation; (ii) participation by project functionaries, business groups, NGOs, civil society, and local communities; (iii) inclusion, particularly of the poor and vulnerable sections including ethnic minorities; (iv) identification of unavoidable adverse social impacts and mitigation; (v) social conflicts and grievances during construction; (vi) capacity building of key local stakeholders; (vii) gender issues and community needs; and (viii) communication to address these issues.

219. **Environmental Management Plan:** A comprehensive site-specific EMP should suffice in managing the potential construction and operation phase-related impacts. The EMP will be attached with the Bidding Document. The environmental management parameter along with budgeting will be included in the Bill of Quantities. The contractor will develop a site-specific EAP in line with the developed EMP. Since many contractors do not have a clear understanding of the need for environmental management, some quote very low prices for

implementation of the EMP and eventually cannot implement it. To avoid this problem, Fixed Budget Selection will be assigned for EMP implementation. Contractors may need orientation on the requirement for an EMP in the pre-bidding meeting. Contractors need to submit an EAP based on the EIA, EMP, and EMF in line with the construction schedule and guideline. The EAP needs to be reviewed by the supervision consultant and cleared by DG Food and the Bank.

220. Extensive monitoring of the environmental concerns of the MFSP project will be required as per the Bank's guidelines. The monitoring program will help to evaluate: (i) the extent and severity of the environmental impacts relative to the predicted impacts and baseline; (ii) trends in impacts; (iii) overall effectiveness of the project's environmental protection measures; and (iv) effectiveness and timeliness of environmental, health, and safety measures. The monitoring plans should be included in the EMP for specific subprojects. Moreover, for all types of monitoring, a comprehensive database of the site-specific environmental impact and monitoring information should be created to more easily evaluate the impacts.

221. **Social Management and Resettlement Policy Framework:** The ESAMF includes a Social Management and Resettlement Policy Framework (SMRPF) developed in compliance with the Bank policy on involuntary resettlement (OP 4.12). DG Food will proceed with construction of public silo facilities at sites having no impacts on tribal populations (indigenous people) and no or manageable involuntary resettlement. According to the preliminary SA carried out during preparation, the eight sites proposed have no social safeguards issues. However, the SMRPF provides basic principles and guidance for DG Food to address social safeguards compliance issues identified during detailed engineering design and implementation, and in case the site-specific situation evolves or sites are changed. For each site, DG Food will assess the social impacts of project interventions (SIAs) and prepare SMPs and RAPs where needed, following the SMRPF.

222. **Basic Planning Principles:** In consideration of the potential adverse impacts associated with land acquisition and displacement of authorized and unauthorized private activities from its own (and other public) lands, DG Food will select, design, and implement all activities in accordance with the following principles:

(i) Prior to starting construction on a specific site, DG Food will undertake community and stakeholder consultations on their objectives, scopes, and social safeguard implications, especially with respect to land acquisition and displacement of businesses, trading, and other activities from its own lands (and other public lands, if they are also likely to be used by the project).

(ii) Unless absolutely required, the project will avoid private land acquisition and limit its activities, to the extent feasible, within the existing land of DG Food to minimize displacement of economic and other activities from private and public lands.

(iii) DG Food will avoid, to the extent feasible, project activities that will: threaten the cultural way of life of tribal people; severely restrict their access to common property resources and livelihood activities; and affect places/objects of cultural and religious significance (places of worship, ancestral burial grounds, etc.).

(iv) DG Food will undertake social screening of all sites to identify potential social safeguards issues, and adopt and implement impact mitigation measures consistent with the Bank's OP 4.12.

(v) Special attention will be given to female affected persons in the resettlement process and to the vulnerability of women and children in the project areas to social exclusion, trafficking, and risk of HIV/AIDS infection following the policy guidelines of the Bank on gender.

(vi) Special attention will be given to vulnerable communities and destitute groups in selecting beneficiaries and making family silos available based on needs.

223. **Social Screening and Impact Assessment:** DG Food will screen each site prior to the bidding process to identify the potential social impacts associated with the construction of silo facilities to determine applicability of the OP 4.12 and the required SMP and any RAP. Where adverse impacts cannot be avoided entirely, DG Food will select, design, and implement the project in accordance with the guidelines below.

224. **Exclusion Criteria:** To ensure that the project meets its overall objectives, and that the national legal as well as the Bank's safeguard requirements are met, silo sites will be excluded from project finance if they:

(i) Require involuntary land acquisition that affects private homesteads that cannot be relocated in available lands;

(ii) Affect mosques, temples, graveyards, cremation grounds, and other places/objects that are of religious and cultural significance;

(iii) Significantly restrict access to common property resources and livelihood activities of groups and communities; or

(iv) Threaten the cultural/traditional way of life of tribal people, restrict their access to common property resources (forests, water bodies, etc.) and livelihood activities, or affect their places/objects of cultural and religious significance (places of worship, ancestral burial grounds, etc.).

225. **Methodology of Social Impact Assessment:** Social impacts and risks including land acquisition, resettlement, and other social impacts will primarily be identified during the initial social screening of silo sites. Once social impacts are noted, a census of affected persons and assets will be conducted following the site boundary and, where applicable, the land acquisition plan in compliance with SMRPF guidelines.

226. Prior to the start of the bidding process, a detailed SIA following the initial social screening will be undertaken to identify all project beneficiaries, impacted people, and other relevant stakeholders. The SIA will utilize a well-planned and all-inclusive communication and consultation strategy and survey methodology to lay out a detailed socioeconomic survey covering the prevailing status of income, employment, education, age, skills, and other socioeconomic aspects, along with cultural and community aspects in the areas. The following methodological elements may be adopted:

(i) The SIA will be carried out for all proposed sites and subsequent works packages in accordance with the civil works timetable;

(ii) Community/stakeholder consultations will be held at locations with habitations and documentation made of such consultations;

(iii) Focus group discussions will be held with beneficiaries, key affected persons, and their communities;

(iv) A census and socioeconomic survey will be undertaken among the project's affected households;

(v) Data and information to address key issues following SMRPF will be assimilated and analyzed;

(vi) The information gathered shall be recorded on strip maps and computerized, and photography/videography will be used to document existing structures and landholding and other impacts in the corridor of impact;

(vii) The final alignment on the Mauza maps will be updated and the land acquisition plans finalized; and

(viii) All data will be disaggregated by gender, age, and ethnicity where necessary. A gender analysis will also be undertaken.

227. **Project Resettlement Policy:** In addition to following the law on land acquisition in Bangladesh, the project will apply the following added mechanisms to meet the Bank's requirements:

(i) *Avoid or minimize resettlement:* The law only implicitly discourages unnecessary acquisition, as lands acquired for one purpose cannot be used for a different purpose. However, there are no mechanisms to monitor if this condition is actually adhered to.

(ii) *Eligibility for compensation*: The law stipulates compensation only for persons who appear in the land administration records as owners. It does not recognize the rights of those, such as squatters, who do not possess legal title to the lands they live on or make a living from.

(iii) *Compensation*: The law provides compensation for lands and other objects built and grown on them (structures, trees and orchards, crops and any other developments like ponds, built amenities, etc.). No provisions are there to assess and restore lost income streams or income sources that acquisition causes to the affected persons, be they legal titleholders or others like squatters, tenants, and employees of affected businesses.

(iv) *Compensation standards*: Although the law stipulates "market prices" of the acquired lands as the just compensation, the legal assessment method almost always results in prices that are far below the actual market prices. Certain pricing standards, which are regarded as unrealistic, are used to assess other losses like structures and various built amenities, trees, crops, and the like.

(v) *Relocation of households and other establishments*: No legal obligation is there to relocate, or assist with relocation of, those whose homesteads have been acquired or whose place of residence or livelihoods have been affected. Such persons/households, be they titleholders or squatters, are left on their own.

(vi) *Ensuring payment of compensation*: Lands are legally acquired and handed over to the project execution agency as soon as the acquisition authority identifies the owners (or "awardees") by examining the records and sends a legal notice advising them to claim the compensation (or "awards"). It is the obligation of the affected landowners to prove, by producing an array of documents, that the acquired lands legally belong to them. As gathering these documents is a long, expensive, and cumbersome process, many landowners may remain unable to claim their awards.

(vii) *Socioeconomic rehabilitation:* The law shows no concern whatsoever about the long-term socioeconomic changes the affected persons and households might undergo in the post-acquisition period. There is no provision in the law except compensation to ensure economic rehabilitation and social reintegration of the displaced persons.

228. **Preparation of SMP/RAP:** The results of the census, socioeconomic survey, and community consultation will be basic elements in selection of the design, size, and location of

the sites. An SMP will be prepared for each site covering social development issues like inclusion, participation, transparency, and social accountability. RAPs will be prepared for sites with potential resettlement impacts including land acquisition and/or population displacement using the data from the SIA and consultation with project affected people and all other relevant stakeholders. If a site for a silo facility under a phase of civil works construction affects less than 200 people, an abbreviated RAP may be prepared.

229. DG Food will prepare and submit to the Bank for safeguards review, clearance, and public disclosure, the site-specific SIA and any RAP for each phase of civil works program. A social screening report will be prepared for all specific sites based on the SMRPF. All SIAs, SMPs, and RAPs will be disclosed locally and on the Bank InfoShop in due course for finalization of the documents before award of civil works contracts.

230. **Institutional Responsibility and Report Requirement:** The implementing agency has very limited capacity on environmental management and is not familiar with the Bank's safeguards procedures. The PMU will have a dedicated Senior Environmental Specialist (SES) and a Senior Social Specialist (SSS) to ensure implementation of the EMP and other environmental and social management responsibilities. The SES and the SSS will maintain liaison with the Bank's safeguards team, regulatory agencies, and other stakeholders during project implementation. The SES and SSS have to be on board as soon the PMU is set up. The SES will be responsible for ensuring the adequacy of the environmental component in the Bidding Document (BOQ) and ensure the quality of the EAP prepared by the contractor. The field-level SES and SSS should be on board before commencement of the field work.

231. The construction contractors will have dedicated, properly qualified, experienced, site-based Environment Supervisors (ESs) at each construction site. The ESs will be responsible for implementing various aspects of the EMP, particularly the mitigation measures, to ensure that the environmental impacts of the construction works remain within acceptable limits.

232. The Supervision Consultants will have a dedicated, properly qualified, experienced, site-based Environment and Social Monitor (ESM) at each construction site. The ESMs will monitor and supervise the EMP, SMP, and any RAP implementation at the field level.

233. The HSE (Health, Safety and Environment) function will be a key element of the O&M arrangements at each silo facility. Dedicated HSE personnel will be part of the O&M staff and will be responsible for preparing and then implementing the relevant parts of the Operations Manual for ensuring health and safety during project operation.

234. DG Food will prepare the quarterly reports on environmental management and will share them with the Bank for review. The contributing development partners may also join the field visits to understand the environmental compliance of the project. In addition, the effectiveness of screening, monitoring, and implementation of the EMP will be carried out by the third party monitoring firm along with the project component activity of annual monitoring. The Environmental Audit Report prepared by the third party monitoring firm will be shared with the safeguards secretariat.

235. **Grievance Redress Mechanism:** A grievance can be defined as an actual or perceived problem that might give grounds for complaint. As a general policy, DG Food and the PMU will work proactively towards minimizing grievances through the implementation of impact mitigation measures and community liaison activities that anticipate and address potential

issues before they become grievances. The grievance redress mechanism (GRM) will have an information and communications strategy to ensure that project affected people and communities are fully informed about their rights to offer suggestions and make complaints, and the different mechanisms through which they can do so, including grievances related to land acquisition, the resettlement process, and environmental management. This will be the responsibility of the PMU, the CSCs, and contractors and persons designated responsible for stakeholder liaison.

236. Any stakeholder (individual or organization) will be able to submit a grievance to the project if he/she believes a practice is having a detrimental impact on his/her community, the environment, or on his/her quality of life. Stakeholders may also submit comments and suggestions. The CSC will primarily receive the grievance cases from the communities and other stakeholders and will process a resolution.

237. The CSC will be required to log grievances as received directly and have a formal logging system. The CSC will prepare a standard form to record complaints that are received from individuals or organizations by any means including site visits, telephone calls, or written correspondence. In addition to the contact information and complaint details, the logging system needs to track the action taken by the contractor and project staff to investigate the cause of the complaint and bring about corrective action if justified, as well as the date of reply to the complainant, with a file reference to any correspondence.

238. **Stakeholders' Consultation:** According to the objectives of the project, the prime beneficiary is the population in the disaster-prone areas of Bangladesh, which is spread across the coastal zone, flood-prone areas, and drought-prone areas. Residents living close to the eight proposed sites will be impacted during construction and operation of the silo facilities. Local leaders, traders, millers, transporters, and wage laborers have expressed their interest in the project. Project stakeholders, including women and vulnerable groups, were consulted at two points: first during identification of the public silo facility sites and again after finalization of the eight sites for the first phase of construction. Community meetings and consultations with local people were conducted at the sites. The consultants and DG Food staff at the local level organized and conducted the community meetings and the consultant discussed various pertinent issues with local community representatives during site selection. Outside the silo sites, communities in two villages in Patuakhali were also consulted on current practices of grain storage at the family level and the need for interventions for improved and safe storage facilities. The same consulation procedure will be followed as a part of the EIA and SIA for any site considered.

239. **Consultation during Site Identification**: Consultations with local communities and institutional stakeholders were carried out at all potential sites in Barisal, Narayanganj, Dhaka, Ashuganj, Madhupur, Mymensingh, Maheshwar Pasha, Chittagong, Mongla, Dinajpur, Naogaon, Bhaghabari, Khulna, and Govindaganj. Key issues discussed in the community level during site identification were: (i) project objectives and intended benefits; (ii) project components related to silo facilities; (iii) need for participation of the communities in site selection and project design; (iv) criteria for site selection; (v) likely impacts on assets and income; (vi) provision of national law and Bank policy on social safeguards; and (vii) possible mitigation measures. The consultations revealed that despite some concern for adverse impacts of the project, the communities were very positive about the project. They expressed pride at having a project of national importance in their area.

240. The communities recognized the benefits of the silos in terms of improved food security, price control, enhancement of transport business, and increased procurement, encouraging more production and more employment. People believe that the project will create new employment and increase women's mobility, enhancing family income. However, they expect appropriate measures to be taken to safeguard their interests and to mitigate any inconveniences and adverse social impacts, including any land acquisition and displacement of people.

241. **Consultation at the Proposed Sites**: Site-level consultations were carried out after initial identification of the eight silo facility sites during January 2013 in Dhaka, Narayanganj, Comilla, Chittagong, Tangail, Mymensingh, Khulna, and Barisal sites. A total of 387 men and women (including traders, transport workers, wage laborers, farmers, unemployed youth, transport operators, farmers, millers, teachers, religious leaders, elected representatives, dealers, service holders, students, mechanics, rickshaw pullers, autorickshaw drivers, trade union leaders, and port traders) participated in discussions at the eight sites.The communities at all eight sites were found to be enthusiastic about the modern public silo facilities. They expressed full support from their part for construction of the silo facilities. They perceive that the modern silo facilities will ensure food security of the country during emergencies and natural disasters like flood and cyclones. They expect that new employment will be generated for local communities during and after construction. They also identified community infrastructure (including roads, educational institutions, religious institutions, and social establishments) within a 500-meter periphery of the proposed silo sites that needs improvement and they expect project support for this to the extent feasible.

242. The communities at the proposed sites understand that construction for civil works may involve a sudden increase of migrant laborers at the construction sites. The influx of the non-local workers may pose a threat to the local public health environment if a safe work environment cannot be maintained.

243. **Consultation at the Village Level in Patuakhali**: The coastal zone, including Khulna, Barisal and Patuakhali districts, is prone to natural disasters like cyclones and tidal inundations. Communities in two different villages in two unions in Patuakhali were consulted during January 2013 to understand the current practice and problems with family-level grain storage. The villages were visited on January 3, 2013, by local DG Food officials and consultants. A total of 143 persons in two villages including local elected representatives, farmers, and women participated in the consultation meetings. The community practice on grain storage at the household level and their choices and expectations regarding the family silos were communicated during the consultation.

244. **Disclosures**: In accordance with the Bank's disclosure policy, the ESAMF (both English and Bengali versions) was uploaded to DG Food's website on March 12, 2013 (www.dgfood.gov.bd/esamf silo.php) and to the Bank InfoShop on March 29, 2013. Any subsequent EMP/SMP/RAP has been and will be discussed locally with stakeholders and disseminated widely and made available on the project's portal and on the Bank InfoShop before award of civil works contract.

Annex 9: Overview of Grain Sector Operations in Bangladesh

BANGLADESH: Modern Food Storage Facilities Project (MFSP)

Introduction

245. Agriculture plays an important role in Bangladesh's economy, employing nearly half of the workforce and providing 45 percent of total household income. Clearly, the performance of the agriculture sector has major implications for the national economy in the areas of employment generation, poverty alleviation, food security, and human resource development. Bangladesh's national agricultural policy therefore focuses on: (i) increasing agricultural productivity, diversification, and value addition; (ii) improving factor markets, access to assets, and natural resource management; and (iii) strengthening rural institutions and livelihood support. Bangladesh's vulnerability to natural disasters poses significant risk to its agricultural production and productivity given that every year about 20-30 percent and every few years about 40 percent of the country is flooded, causing serious damage to infrastructure, crops, and the overall economy. Projected climatic changes and a rise in sea level are likely to worsen the situation. In this context, the Government of Bangladesh accords high priority to maintaining sufficient quantities of food grains in reserve – through local procurement and imports -- to meet the consumption needs of the population that may be affected by potential disasters, including the poor and vulnerable, and other beneficiaries of social safety nets (SSNs), who are usually the most affected by natural disasters.

Grain Production[4]

246. Rice remains the country's major food crop, followed by wheat. Corn is produced mainly for purposes of poultry feed. Rice has three planting seasons. About 55 percent of the production is from the *Boro* crop (planted in Dec/Jan and harvested in May/June, 18.4 million tons), about 38 percent from *Aman* (planted in July/Aug to harvested in Nov/Dec, 12.8 million tons) and about 7 percent from *Aus* (planted in March/April and harvested in June/July, 2.33 million tons). During 2011-12, the production of milled rice equivalent was about 33.5 million tons, up from 18.5 million tons in 1996-97 and production of wheat was about 1.1 million tons. During 2013-14 (May-April), rice production is expected to be around 34 million tons. Bangladesh rice yields range from 1.25 tons per hectare for local varieties (*Aus*) to 4.5 tons for hybrids (*Boro*). Rice yields have generally increased over the years due to improvements in access to irrigation, mechanization, fertilizer use, and other agrochemicals. However, while the growth in rice productivity and production have become increasingly dependent on irrigated areas under *Boro* crop, this process seem to be constrained due to growing exploitation of groundwater and the declining water table. GoB is now focusing on expanding rain-fed *Aus* rice production, encouraging the introduction of saline and submergence-resistant varieties.

247. Wheat production during 2011-13 was about 1.15 million tons versus 972,000 tons in 2010-11 and 995,000 tons in 2011-12.[5] The area under wheat also increased from 328,000 ha in 2010-11 to about 410,000 ha in 2012-13, in response to higher market prices as well as emerging scarcity of groundwater for the *Boro* crop, which induces farmers to shift to wheat cultivation. While wheat accounts for about 12 percent of the total cereal production, it is the second most important cereal for Bangladesh after rice. The wheat growing season overlaps with *Boro* rice and other remunerative crops like corn, potatoes, and winter vegetables. However, wheat cultivation remains a preferred option for farmers, particularly in non-

[4] Sources: Bangladesh Ministry of Agriculture data base and USDA Grain and Feed Annual 2013.
[5] The annual data refer to USDA marketing year, April-May, and may not tally with Bangladesh annual data for grain trade.

irrigated lands which require low input use. New wheat varieties introduced by the Bangladesh Agricultural Research Institute (BARI) have helped to increase the yield of wheat from an average of 2.17 tons/ha to 2.77 tons/ha.

Grain Imports

248. During 2011-12 (May-April), Bangladesh imported about 635,000 tons of rice (89 percent by the government) and 1.6 million tons of wheat (approximately 32 percent by the government and 68 percent by the private sector). In May 2012, rice stocks were about 1.6 million tons and wheat stocks about 1.8 million tons. According to USDA global analysis, due to strong domestic production, sufficient stocks on hand, and relatively low prices in the country, Bangladesh imported only about 40,000 tons of rice during 2012-13; most of these imports were made by the private sector of superior varieties of rice (Basmati and others) generally consumed by higher-income groups.

249. During 2013-14, GoB has so far imported about 4,000 tons of rice but it may import more. In 2011-12, GoB imported about 464,000 tons of rice (82 percent of total imports) to assure a steady supply of grain and to contain rising domestic prices of rice (especially of coarse rice consumed by the poor and low-income groups). In CY 2011, GoB imported 1.48 million tons of rice in response to the scarcity situation created by Cyclone Sidr (2007) followed by Cyclone Aila (2009), which led to low levels of grain reserves in the country, and government concerns about the prospects for domestic rice production. It is estimated that Bangladesh's annual import requirement of rice will be around 500,000 tons on average (including Basmati and other superior qualities of rice) over the next several years.

250. Bangladesh meets about 75 percent of its wheat consumption needs through imports, sourcing lower quality wheat from India, Russia, and Ukraine and higher-quality wheat from Canada, Australia, and the U.S. With the lifting of the export ban by India in September 2011, the import of wheat from this country is expected to increase to about 78 percent of the total imports expected during 2013-14, at about 3 million tons (700,000 tons by GoB and 2.3 million tons by the private sector). During 2012-13, Bangladesh imported 2.6 million tons of wheat, about 47 percent higher than in 2011-12.

Grain Consumption

251. Bangladesh's average annual consumption of rice is estimated at about 30-34 million tons and of wheat, 4 million tons. During Marketing Year (May-April) 2013-14, the country's total rice consumption is expected to increase to about 34.7 million tons, about the same as in 2012-13. As for wheat, the consumption during 2012-13 (May-April) was about 4 million tons; during the current year, 2013-14, it is expected to be at the same level. The quality wheat consumption among high-income groups is around 100,000 tons. There is a close relationship between the ratio of consumption of rice to wheat and the relative market prices of the two commodities. Broadly, the consumption of wheat is lower if the market price of rice is lower than that of wheat.

Grain Procurement

252. GoB's Public Food Distribution System (PFDS) involves procurement of both domestic and imported food grains, storage of grain in good condition, and distribution of grains through various channels to complement the overall objective of ensuring food and nutrition security especially for the poor and vulnerable, and in the event of a natural disaster,

for the affected segments of the population. The government undertakes domestic procurement of grains (mainly coarse rice and to an extent wheat) and imports both rice and wheat to meet the local demand. As the majority of Bangladesh's farm families do not have on-farm or in-house grain storage facilities and remain concerned about potential damages to their limited food stocks resulting from natural disasters, they tend to sell their produce (paddy rice) at harvest to local millers and buy back milled rice from them in small lots for day-to-day consumption during the rest of the year. Nearly 60-70 percent of the rice produced domestically is consumed by farming and other communities in rural and urban areas, leaving a marketable surplus of about 30-40 percent of total produce of about 30-34 million tons for sale in open markets by private traders and PFDS.

253. Generally, GoB reduces the quantity of rice procured annually if that will result in increasing domestic prices and affect consumer welfare, both in rural and urban areas, especially for the poor and the vulnerable. The private sector in grain (particularly rice) comprises more than 100,000 small-scale rice mills, of which about 30,000 rice mills are annually contracted by GoB to supply milled grain for PFDS. GoB's grain procurement prices are set in such a way that producers get a reasonable surplus over the production costs while private sector millers get a required margin to cover their milling costs and make a reasonable profit through the sale of rice at wholesale prices (Table 9.1).

Table 9.1: Procurement and Wholesale Prices and Production Costs of *Aman* and *Boro* Rice

(Taka/Kg)

Cost/Price	2007-08		2008-09		2009-10		2010-11		2011-12	
	Aman	*Boro*	*Aman*	*Boro*	*Aman*	*Boro*	*Aman*	*Boro*	*Aman*	*Boro*
Cost of Production	16.73	19.98	20.75	21.17	20.17	21.65	22.41	23.06	24.75	24.27
Procurement Price	20.00	28.00	26.00	22.00	22.00	22.00	Na	29.00	28.00	28.00
Wholesale Price	24.10	29.60	24.70	18.00	21.80	25.40	31.01	28.96	25.81	23.65

Source: NFP Plan of Action and Country Investment Plan, Monitoring Report 2013. As for wheat, the bulk of government procurement consists of imports.

Food Planning

254. MoFood makes its annual food distribution plans based on estimates of quantities required for meeting the needs of potential post-disaster relief and recovery programs and various food-based SSN programs (some of which serve people affected by disasters). Correspondingly, MoFood prepares its procurement targets for rice and wheat taking into account factors such as prevailing/prospective domestic and international prices, the production cost of grains, the quantity of grain required for distribution under SSN programs, and the potential impact that government grain procurement and distribution operations may have on price expectations and market behavior. In this context, the National Food Policy (NFP) and the National Disaster Management Program (NDMP) are expected to remain important pillars of GoB's overall, unified, national food security strategy.

255. As for GoB's food planning capability, GoB has recently completed a study that provides new estimates of parameters that must be taken into account to develop a national food budget. While this study represents a significant step forward, further actions are needed including: (i) expediting construction of enhanced (modern) storage facilities (as proposed in the MFSP); (ii) increasing effectiveness of domestic procurement; (iii) estimating private stocks of grain for effective food planning and management; (iv) introducing country-wide

computerized food stock management; and (v) developing an early warning food information system with potential integration with Global Information and Early Warning System (GIEWS) and Famine Early Warning System (FFWS).[6] The technical assistance being provided by the two ongoing IDA-assisted projects – the Employment Generation Program for the Poorest Project (P118701) and the Social Safety Net Systems for the Poorest Project (P132634) as well as by the proposed project on better planning and monitoring of food stocks – will take this work further.

Public Food Distribution System

256. GoB's NFP requires that its PFDS always remains ready to meet the food security needs of disaster-affected people – including women, children, and the poor and vulnerable. PFDS is also obligated to maintain adequate stocks of food grains for distribution to a range of GoB's SSN programs and priority groups such as the military, the police, and low-paid public servants, many of whom live and work away from home for extended periods.

257. As for disaster management, GoB established a comprehensive legal framework by passing the Bangladesh Disaster Management Act, 2012 and updating its standing orders on disaster (SOD), outlining the roles and responsibilities of various government committees, ministries, and other organizations operating at the national, regional and local levels for disaster risk management. Since 2004, GoB has been implementing a Comprehensive Disaster Management Program (CDMP) with a technical assistance from UNDP, U.K.'s DFID, and the EU, focusing on: (i) Capacity building of MoFood & Disaster Management (since split in to two separate ministries, MoFood and Ministry of Disaster Management and Relief); (ii) Partnership development and mainstreaming; (iii) Enhancing Community Empowerment; (iv) Expanding risk reduction across a broader range of hazards; and (v) Response Management. This is improving Bangladesh's overall effectiveness and disaster preparedness by strengthening disaster management capacity, coordination, and networking at all critical levels, addressing issues in risk exposure to the most disadvantaged livelihood groups in targeted, disaster-prone districts, and mainstreaming disaster risk reduction and the climate change adaptation agenda in sectoral policies, plans, and budgetary frameworks. MoFood is an active participant in designing and implementing MoDMR's disaster management strategies, including purchase, storage, and distribution of food for post-disaster relief and recovery programs.

258. GoB uses diverse SSN programs to alleviate poverty and reduce vulnerability through both food-based and cash-based transfers with due linkages to development impacts and outcomes, including in the areas of livelihood, infrastructure, education, and employment (Box 9.1). During 2008-12, the average annual expenditure on the five largest food-based SSN programs (OMS, VGF, VGD, TR, and FFW) was around US$500 million in real terms while expenditure on the three largest cash-based programs (Old Age Allowance, EGPP, and PESP) increased from about US$200 million in 2008 to US$225 million in 2012.

[6] Bangladesh Institute of Development Studies (BIDS), "Estimates of Parameters Needed for Integrated and Effective PFDS Planning in Bangladesh" 2012.

Table 3. Key Social Safety Net Programs

- Public Works Programs. The Food for Work (FFW) and Test Relief (TR) programs distribute food grains (rice and wheat) as wage payments for both male and female workers for labor-intensive infrastructure development. Additionally, a Rural Opportunity for Public Asset (REOPA) provides cash wages and training for income-generating activities to participating female beneficiaries. In 2008, GoB introduced an Employment Generation Program for the Poorest (EGPP), an entirely cash-based workforce program, that provide short-term employment on community sub-projects to enable households to better cope with vulnerability. The EGPP and a similar Rural Maintenance Program (RMP) are self-targeted programs because the poor are typically the only people willing to take on onerous, low-paying jobs requiring manual labor.

- Training Programs. The Vulnerable Group Development (VGD) program targets poor women and provides a monthly food ration for 24 months for training in income-generating activities and awareness-raising including in social, health, and nutrition issues – integrating food security with development.

- Education Programs. The Food for Education (FFE) program, established in the early 1990s, used to distribute monthly food grain rations to poor households that send their children to primary schools. This program was, however, replaced in 2002 by a cash-based, Primary Education Stipend Program (PESP). The School Feeding (SF) program distributes micronutrient-fortified energy biscuits to primary school children. Another program, the Female Secondary School Assistance Program (FSSAP), provides conditional cash transfers for their attendance.

- Relief Programs. These programs are designed to mitigate the consequences of disasters like floods, cyclones, and other natural calamities and include Vulnerable Group Feeding (VGF) and Gratuitous Relief (GR) – there are no pre-set criteria or conditionality for participation for these programs, which help the poor cope and smooth consumption during times of natural disaster.

- Programs for Disadvantaged Groups. These programs provide unconditional cash transfers and include the following: Old-Age Allowance Scheme; Allowance for Widowed, Deserted and Destitute Women; Honorarium for Insolvent Freedom Fighters; Funds for Housing for the Distressed; Funds for Rehabilitation of Acid Burnt Women and Physically Handicapped; and Allowance for Distressed and Disabled Persons.

- Open Market Sales. This self-targeted SSN program is designed to sell coarse rice at a subsidized price up to 5 kg per household using designated dealers; currently, the government procures rice from millers at Tk 29/kg, which amounts to Tk 32/kg with handling charges included; sells the rice to designated dealers at Tk 22.5/kg; and designated dealers sell this rice to eligible buyers at Tk 24/kg. The government subsidy is about Tk 8/kg.

Grain Distribution

259. The public distribution of grains was about 2.3 million tons in 2010-11; 2.1 million tons in 2011-12; and an estimated 2.8 million tons in 2012-13. Of this, the distribution of rice was 1.6 million tons in 2010-11; 1.4 million tons in 2011-12; and an estimated 1.7 million tons in 2012-13. The distribution of wheat in the corresponding years was 722,000 tons, 684,000 tons, and 1.05 million tons, respectively – much of which was imported. Thus, GoB annually distributes about 2-2.7 million tons of food grains (rice and wheat) under major SSN programs, including the Open Market Sales (OMS) program, which is a kind of self-targeted SSN to make grain available to low-income groups – up to 5 kg per person at a reasonable price. This grain is sold on open trucks located mainly in urban areas where the poor live. PFDS's targeted distribution channels include monetized eight SSNs and seven non-monetized SSNs, besides self-standing post-disaster relief and recovery programs implemented when the event happens. Non-monetized SSNs account for three-fourths of PFDS's grain distribution.

260. A recent evaluation of the Employment Generation Program for the Poorest (EGPP) demonstrated that cash-based SSNs are more effective in terms of reaching targeted beneficiaries with minimal leakages and costs. GoB is moving toward increasing the share of

cash-based SSNs in its total social protection budget, but a complete switch from food-based SSNs to cash-based SSNs is not feasible at this time as this will involve a major reshuffling of PFDS operations, which have been in place for over five decades. Moreover, electronic databases on beneficiaries (which would need regular updating) and the banking infrastructure required to switch to cash-based SSNs in its entirety are unlikely to be developed in the foreseeable future. Any abrupt move to cash-based SSNs will jeopardize the smooth conduct of PFDS food grain procurement, storage, and distribution functions; they will remain critical to serve the needs of both disaster relief and recovery and SSN programs. Moreover, as SSN programs shrink due to increases in per capita incomes and further reduction of poverty, GoB will have the option to rent out its surplus storage capacity, either in the existing flat storages (mainly for paddy rice) or in the modern steel silos to be constructed under the MFSP.

Grain Storage

261. Table 9.2 shows the key indicators of GoB's PFDS:

Table 9.2: Public Food Distribution System Indicators

Key Indicators	2007-08	2009-10	20109-11	2011-12	Source
Effective grain storage capacity at the close of the fiscal year (thousand metric tons)	1,493	1,529	1,572	1,620	ITDS, Food Directorate
Average use of effective government food storage capacity	38%	65%	52%	80%	MISM, Food Division
Actual Procurement (thousand metric tons)	706	1,196	563	978	MISM, Food Division
Wholesale price during *boro* procurement target as a % of *boro* per unit production cost 1/	145%	86%	129%	117%	Whole sale price (DAM); Production cost (MOA)
Opening stock as % of budget target	64%	114%	47%	107%	National budget, FPMU
Quantity of rice distributed through Open Market Sales (OMS) as % of total domestic supply	0.90%	0.96%	2.96%	1.00%	MISM, DG Food, BBS

1/ *Boro* crop accounts for the overwhelming share of total food grain procurement. Source: NFP Plan of Action and Country Investment Plan, Monitoring Report 2012

Existing and Proposed (Modern Steel Silo) Storage

262. Over the past four years, GoB's effective storage capacity has increased by about 127,000 tons, to 1.62 million tons. This increase in storage capacity is part of GoB's policy response to the food price crisis it faced in the wake of Cyclones Sidr (2007) and Aila (2009). Much of the existing storage capacity (about 1.60 million tons) is in the form of traditional brick and mortar, flat godowns where the average shelf-life of grain is about 12 months. This necessitates a rapid turnover of stock, if necessary, by increased distribution of grain through SSN programs, including OMS.

263. Also, the annual loss of grain (due to leakages and loss of quality) in traditional storage is reportedly very high – about 17-20 percent in value terms. The deterioration in quality of grain is caused mainly by the lack of proper moisture and temperature control in these storages. These losses in stored grain are over and above the variable cost of public funds locked in grain stocks procured as well as fixed administrative overheads on salaries and allowances to staff employed for management of storages. GoB therefore does not have

the luxury of storing more grain than that absolutely needed for the intended purposes without serious fiscal consequences in terms of increases in the overall cost of the PFDS.

264. Over the next decade or so, as much as 30-40 percent of the existing capacity of 1.5 million tons in traditional flat storages could go into disuse unless they are periodically repaired and properly maintained.[7] On the other hand, for logistical reasons of ensuring timely delivery of food grains to local communities, the government does want to rehabilitate the existing storages to the extent feasible, thereby retaining the total food grain storage capacity in traditional godowns up to 1.9 million tons, with flexibility to store grain only to the extent needed to meet the food distribution needs of SSN programs and post-disaster relief and rehabilitation programs.

265. Building on this network of CSDs and LSDs (with some potential consolidation over time), MoFood wants to increase the overall storage capacity to 2.2 million tons by 2015 and 3 million tons by 2021. In this context, over the past two years, 140 new traditional, flat godowns with a storage capacity of 110,000 tons (for meeting short-term, local needs) have been built. Construction of 261 godowns with a total storage capacity of 219,000 tons is underway in different parts of the country. Work is in progress for the construction of a concrete grain silo of 50,000 tons capacity (for wheat) at Mongla Port.[8]

266. Given the need to establish an integrated approach to storage of grain required for both SSN programs and post-disaster relief and rehabilitation programs, GoB needs to place a structured program to repair and rehabilitate traditional storages as needed from its own funds. The government could also potentially begin renting surplus capacity in existing storages to private sector rice millers or producer groups to store rice paddy instead of rice, as the former has a much longer storage life in traditional storages relative to that of milled rice.

267. The MFSP envisages construction of eight silos (six for rice and two for wheat) with a total 535,500-ton capacity. This project is part of the government's broader grain storage expansion strategy – the main difference being that the proposed project is designed to make use of new technologies to allow grain storage for longer periods (more than one year and up to three years, with about one-third of stocks rotated at least once a year from Year 3 onwards). The new steel silos will help minimize losses in grain stored in terms of both quality and quantity and will reduce the need to rotate grain stocks frequently (within one year of storage) as is done in the case of traditional, flat storages, and in turn reduce unwanted open market sales, which, if in excess of the desired level, could potentially distort the market. As a complementary effort, the proposed project will also promote and finance the use of low-cost, durable, storage facilities at the household level to enhance resilience of both food grain consumption and production in response to increasing climatic vulnerability.

268. DG Food estimates that by 2020, grain storage requirements of the PFDS will be about 3 million tons for a population of about 170 million people. Based on the existing and project-funded storage availability, this is expected to result in estimated shortages of grain storage space of about 1.7 million tons by the year 2020. However, given the current implementation capacity of DG Food, and to avoid overstocking, GoB is expected not to undertake any expansion of storage facilities beyond the proposed establishment of modern steel silos with a storage capacity of 535,000 tons under the MFSP without a prior review of

[7] The proposed steel silo in Dhaka city will replace the dilapidated flat storages. Elsewhere, the steel silo facilities will be additional to (and not a replacement of) the flat storages.
[8] Source: National Food Policy Plan of Action and Country Investment Plan, Monitoring Report 2013.

the experience with the usage of new steel silo capacity and a reassessment of the needs of food-based SSNs and disaster relief and recovery programs. By then, the private sector may be able to invest in the development of modern steel or cement silo grain storage capacity to fill the emerging gaps.

Private Sector in Grain Market

269. In Bangladesh, except for the grain procured by the government for SSNs, including disaster relief and rehabilitation (about 10 percent of total grain annually produced), the rest of the grain industry is entirely in the hands of the private sector – some 30,000 rice millers supply grain to the government and sell the rest in the open market besides doing rice milling work for producers/farmers on a custom basis. Many of these and other smaller existing mills are old and inefficient. The private sector is now beginning to invest in automatic rice mills. As for private sector investment in large-scale, silo-based, modern grain storages, two silos of 50,000-ton capacity are currently under construction. However, the private sector is not yet ready to invest in building large storages capacities on a scale proposed by GoB on its own because of the risks involved, both actual and perceived, including: (i) the high cost of establishing modern silos including the cost of land; and (ii) low margins on grain storage and trade.

270. On the other hand, the private sector does need storage facilities and may be willing to rent or lease these from GoB to cope with its year-round involvement in grain production, procurement, and marketing. The use of a PPP model for the proposed project seems difficult given that: (i) the proposed steel silos will be constructed on government land; and (ii) these silos will be used to store grain mainly for SSN programs and post-disaster relief and recovery, not generating any revenue on storage activity *per se* except perhaps for the rental income. Further, as Bangladesh becomes a middle-income country and is in a position to reduce its involvement in SSN programs, GoB will be required to store grain only for emergencies (i.e., for post-disaster relief and rehabilitation), at which point, GoB will be able to rent out or to divest some of the proposed investments in modern steel silos to the private sector. GoB will systematically explore the prospects of private sector involvement in the grain industry using the TA provided for in the MFSP.

271. GoB is aware that public stocks are not a cost-effective instrument to increase food supply. Also, the government may not necessarily be able to make use of the available grain stocks to simultaneously serve the three objectives of providing adequate safety nets for the poor, stabilizing market prices, and providing emergency relief. There are inevitable trade-offs between the three objectives. For example, an emergency following a major natural disaster may require grain stocks to be drawn down so low that normal distribution of grain for other programs may not be feasible and must be postponed or even cancelled or be more targeted to those most in need.[9] Thus, acceptable stock levels need to be analyzed for each purpose separately, together with a review of alternative instruments available outside the PFDS. This is what MoFood should be concerned with and it is in this area that the project will provide substantial TA for addressing the policy implications of its operations in the grain sector.

[9] Bangladesh Institute of Development Studies, the Policy Brief, Number 0902, May 2009.

Optimum Site and Logistics

272. Locating the storage and logistics is extremely important to minimize cost and losses, to reach target beneficiaries, and to ensure effective and timely distribution. Use of food stocks in the case of emergencies and disasters requires that distribution can be done promptly, leaving more time available for transporting or restocking. Indeed, such stocks should be kept as long as possible and filled slowly during the time between disasters to avoid shortages in the country that could result from speedy stocking. The sites selected should have appropriate transportation links for distribution and restocking the storage facilities, with proper means for handling distribution and collection of food grain. The eight sites currently selected for the construction of the proposed silos include: Basiral, Narayangonj, Dhaka, Ashugonj, Mymensing, Moheshwarphasha, Chittagong, and Madhupur. The Moheshwarphasha and Chittagong sites will have wheat silos; the other six sites will have rice silos.

273. The ESAMF (see Annex 8) provides the environmental framework, environmental assessments of the sites identified, and environmental management plans. It also provides the Social Management and Resettlement Policy Framework (SMRPF), a social assessment of each site, a methodology for screening social and environmental safeguards issues, and the preparation of RAPs. The environmental aspects of each of the eight individual sites were explored with reference to: (a) site description; (b) physiology, geology, and topography; (c) existing structures; (d) transportation links; (e) utilities (power, water, and gas supply); (f) food production (rice and wheat, rice milling, wheat milling); (g) seismicity; (h) hydrology and drainage – including local water bodies (ponds and low-lying areas); (i) air quality; (j) noise quality; (k) monuments and memorial services; (l) terrestrial ecology; (m) fisheries; and (n) cyclones and flooding. The project feasibility study used the following three main criteria for the selection of the eight sites, out of a total 14 sites reviewed (see Annex 8):

(a) Strategic value of the storage location for distribution of food grain stocks in an emergency relief situation or for the pre-positioning of such stocks;
(b) Rationality of increased storage capacity at the site based on existing and anticipated food grain movements by the client for all uses to ensure proper rotation of stocks; and
(c) Avoidance of land acquisition issues that could delay the start of the project.

274. Based on these criteria, the feasibility study looked at a range of aspects to determine the suitability of the sites in particular divisions including: geographical area served; quantities of grain produced and marketed; government food procurement and distribution operations; rice supply, milling, and distribution systems including the role of CSDs and LSDs in the area; wheat supply, milling, and distribution systems; vulnerability of the area to natural disasters; transport infrastructure; and supply of power, water, and other services. The feasibility study concluded that all eight sites were suitable for the proposed silo development.

275. Clearly, one of the important considerations in this selection was that these sites were located on the land already owned by DG Food, avoiding the need to undergo tedious and lengthy processes of land acquisition which would have inordinately delayed the project implementation. Moreover, these sites have been used for grain storage in traditional flat godowns for over 30-50 years; the clientele for stored grain – rice millers and agencies implementing SSN programs – are already accustomed to these sites; there is enough extra land/space available at these sites to construct the proposed silos; and the communities living

around these sites, which have gradually grown to become semi-urban or urban localities (except Madhupur, which is primarily located in a semi-urban/rural area), seem to have no objection to having the new silos at the selected sites (as confirmed by the SA). Finding new rural locations would require substantial expenditures on development of new infrastructure such as land development, access roads, power supply, and water supply, which would require substantial budgetary funding by agencies other than MoFood – which is not likely to happen within the foreseeable future.

276. Besides, Bangladesh's population density is generally high across the country – irrespective of rural and urban classification. The Bangladesh Bureau of Statistics (BBS) defines urban areas as "developed areas around (i) an identifiable central place where (ii) amenities like paved roads, communication facilities, electricity, gas, water supply, sewerage, sanitation, etc. usually exist, (iii) which are densely populated and a majority of the population are non-agricultural and (iv) where community sense is well developed." There are four different types of urban areas in the country (BBS 2003): 1. Megacity: (metropolitan area having population above 5 million); 2. Statistical Metropolitan Area (City Corporation and adjacent areas having urban characteristics); 3. Pourashava or municipality (incorporated and administered by the government as urban area under the Pourashava Ordinance, 1977); and 4. Other Urban Area (Upazila 9 Sub-district) headquarters and the development centers which have urban characteristics. The rural areas are under upazilas. The demarcation of rural areas is union parishad and villages under union parishad. The definition of a "rural area" is very narrow to begin with. In Bangladesh, the Bangladesh Environmental Conservation Rule (ECR 1997) and Bangladesh National Building Code define the requirements that have been considered in the assessment of the sites proposed for the project.

277. Also, this project is serving mainly consumers – beneficiaries of SSNs (two-thirds of supply) and disaster relief and recovery, who live both in rural and urban areas; accordingly, the new sites are located across the country serving both rural and urban areas through 670 CSDs and LSDs. Producers in rural areas supply paddy to rice millers who are closer to rural areas – the rice millers store, dry, and mill the paddy and bring the milled rice to local and district stock depots. In reality, the producers in rural areas will deal with rice millers, not directly with the modern steel silo sites. GoB deals with producers directly and stores grain in rural areas given that the consumers of government grain are located across the country, in both urban and rural regions, and they are reached through CSDs and LSDs. Disrupting this link can be very costly; moreover, the government does not want to put private sector rice millers out of business. The infrastructure investments (including land acquisition costs) needed to locate the steel silo sites in remote rural areas are too high to make the proposed investments financially and economically viable and even technically unnecessary.

278. Further, in terms of ESAMF and SMRPF, any key unfinished environmental reviews must be done upfront – until then no site selection can be considered as final and IDA, in consultation with GoB, will have the option to remove a site from further consideration if the cost of mitigation is too high to render the site viable. Also, IDA will prepare a "generic cost budget," based on engineering designs currently under preparation, before the bids are invited, to include the cost of any environmental mitigation work. Since detailed engineering designs for each of the individual sites are still under preparation, all needed mitigation measures will be included in these designs and provided for in the cost estimates for development of silos and other infrastructure at the concerned site. Any site that has major social or resettlement issues will be excluded from the project and if possible will be replaced by another site.

Grain Storage Technology

279. The food grain stocks in Bangladesh are mostly stored in warehouses and godowns. Most of the rice growing countries in Asia (for example, India, Pakistan, Indonesia, the Philippines, Malaysia, and Thailand) are gradually switching to large, modern, integrated, bulk handling grain storage facilities in the form of silos. The main reason for this switch is better controls, lower cost, higher operational efficiency, minimum losses, the need for less space (and, by extension, land), higher security, and a greater likelihood of minimum insect pest infestation and grain molds. With modern storage facilities like silos, which offer storage and treatments and bagging facilities, rice can be stored for two to three years (see Annex 2 for details on technology used). Such a period for storage would be optimal as it would minimize the turnover requirements and transportation costs. In addition, a two to three year storage period matches well with the cycle of disasters faced by Bangladesh.

Storage of Seed Paddy

280. The design of the silo storage facilities, including drying and chilling, will also be suitable for storage of emergency reserves of seed paddy in a cooperative arrangement between the DG Food and BADC (Bangladesh Agricultural Development Corporation). One of the critical needs of farmers after a cyclone or flooding is replacement of seed paddy for the next crop sowing. The state-owned entity BADC produces about 20 percent of the improved rice varieties supplied to farmers every year. They operate a network of warehouse facilities where the seed paddy is kept in bags. The same grain drying and chilling technology in the project design will make long-term storage of seed paddy in bulk possible, reducing storage losses from insects and moisture. At certain sites, up to 20 percent of the storage capacity could be devoted to seed paddy. While storing paddy in the new silos will be technically possible, it might not be economically feasible. Storing paddy takes 30 percent more space. Milled rice is 70 percent of the weight of paddy. It is not economical to store commercial paddy in climate-controlled steel silos. Traditional, flat godowns could be used to store paddy, but those stocks would then have to be moved to private rice millers for milling unless the government enters the milling business as well, which also may not be economically feasible. However, in principle, GoB should rent out surplus capacity in traditional flat storages to private sector rice millers or individual and groups of rice or wheat producers.

Monitoring and Management of Food Stocks:

281. Within MoFood, DG FPMU and DG Food perform independent but complementary roles. DG FPMU is responsible for monitoring the food situation (or food security) in the country and implementing related government policies, while DG Food is responsible for physical procurement and management of government food stocks in accordance with agreed food security policies. Both DG FPMU and DG Food report to the Secretary of MoFood and the Food Minister. In Bangladesh, four main bodies are charged with formulating and implementing the country's food security policies, including the NFP and its associated Action Plan. These include:

(i) A Cabinet-level Food Planning and Monitoring Committee (FPMC) is chaired by the Food Minister, with membership of various ministers and secretaries; this committee provides overall leadership and oversight in the formulation of food security policies;

(ii) Food Policy Working Group (FPWG) is an interministerial coordination mechanism that facilitates cross-sectoral participation in implementing the NFP and its associated Action Plan;

(iii) FPMU is a government unit under MoFood that acts as a secretariat of the FPMC, and is chaired by the Food Minister; and

(iv) Thematic Teams (TTs) are specialized interministerial bodies (4) led by the FPMU that focus on each dimension of food security and facilitate cross-sectoral collaboration; they monitor the implementation of the NFP's Action Plan and the Country Investment Plan (CIP), which provides a roadmap for investments in agriculture, food security, and nutrition.

282. Acting as a Secretariat, the FPMU provides support to ministries/institutions engaged in the implementation of the NFP besides providing technical support to the FPWG, TTs, and institutions involved in implementing the CIP for the food sector, including the National Committee (NC) chaired by the Food Minister. Besides government officials, NC includes representatives of NGOs, universities, research institutions, the private sector, and development partners for overseeing the implementation of the CIP in food security and monitoring the food situation.

283. DG Food, on the other hand, is responsible for management and operation of the country's overall food system; implementation of NFP strategies; establishment of a dependable food security system; assurance of an uninterrupted supply to food chains; preparation and execution of various development projects in the food sector (such as the MFSP); and oversight of the food supply position in the country (channeled through 640 LSDs and some 30 CSDs).

284. DG Food also works closely with the newly created MoDMR which was previously a department in MoFood. Both MoDMR and the MoFood are now operationally independent but are expected to coordinate to ensure food security to people affected by natural disasters in the short to medium to long term as needed. GoB's Disaster Management Planning Framework includes hazard-specific plans, agency-specific (corporate) plans (of action), and Sector Development Plans. DG Food is an important part of this framework, responsible for preparation of food plans (designed to respond to earthquakes, tsunamis, cyclones, and other hazards) with details laid out for individual administrations including cities, districts, upazilas, unions, and municipalities.

285. MoDMR gets self-standing budgetary allocations to procure food from MoFood for meeting its post-disaster needs – MoDMR does not purchase or store food grains on its own but depends upon MoFood to play this role. Thus, while MoDMR may administer delivery of food under specific disaster relief programs in the short term, many disaster-affected rural and urban families continue to receive food grains under the SSN programs regularly administered by MoFood. This is in line with DG Food's overall responsibility to ensure an adequate supply of food grains to a range of SSN programs, including VGD, VGF, FFW, TR, and GR.

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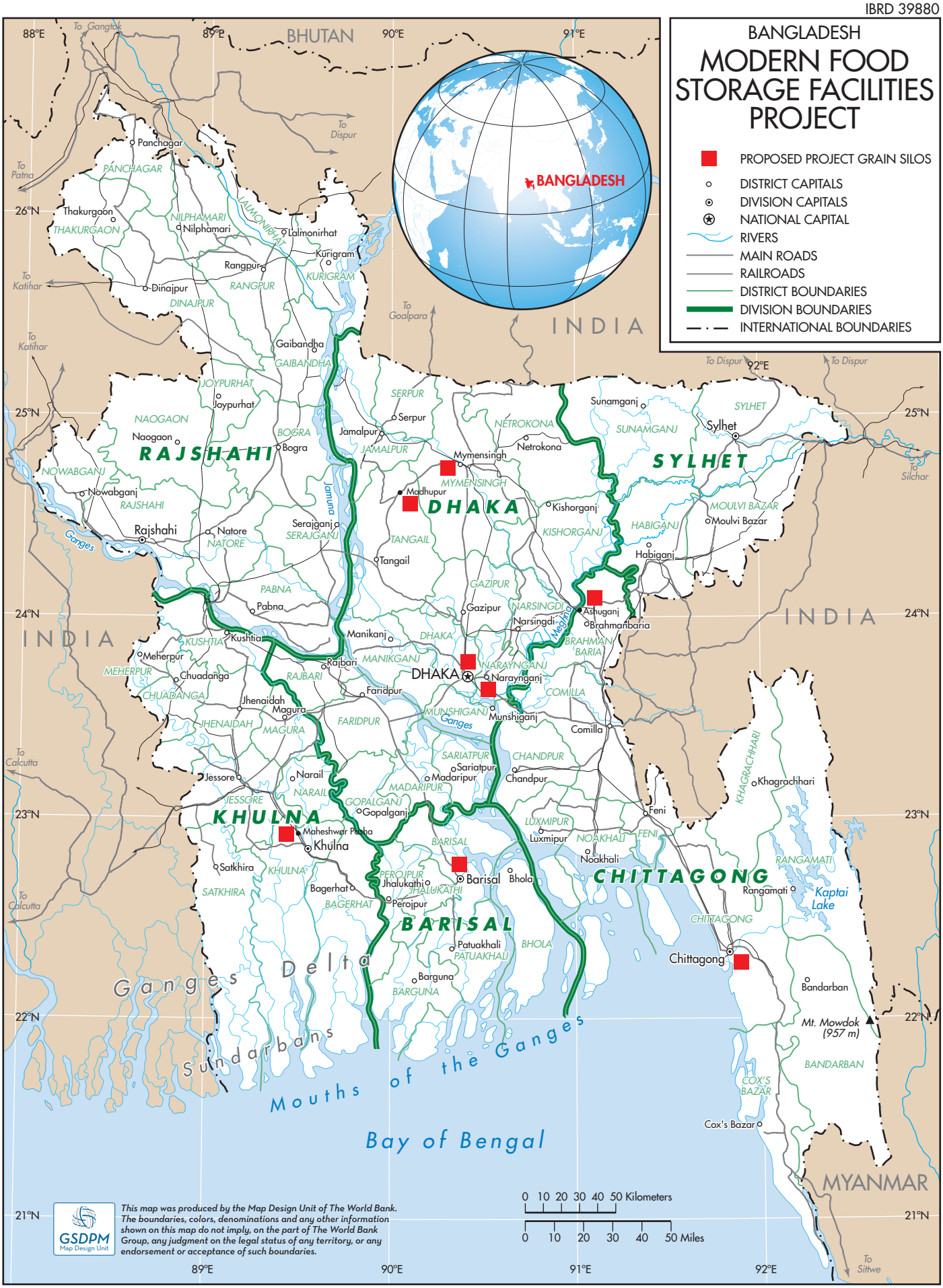

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