

**ASIAN DEVELOPMENT BANK**

**RRP: BAN 32193**

**REPORT AND RECOMMENDATION  
OF THE  
PRESIDENT  
TO THE  
BOARD OF DIRECTORS  
ON A  
PROPOSED LOAN  
TO THE  
PEOPLE'S REPUBLIC OF BANGLADESH  
FOR THE  
NORTHWEST CROP DIVERSIFICATION PROJECT**

**October 2000**

## CURRENCY EQUIVALENTS

(as of 15 October 2000)

|               |   |                 |
|---------------|---|-----------------|
| Currency Unit | – | Bangladesh Taka |
| Taka1.00      | = | \$0.0185185     |
| \$1.00        | = | Tk54.00         |

In this report a rate of \$1.00 = Tk53.75 has been used. This was the rate generally prevailing during the appraisal of the Project.

## ABBREVIATIONS

|       |   |   |
|-------|---|---|
| ADB   | – | Asian Development Bank                                  |
| ASSP  | – | Agriculture Support Services Project                    |
| ASIRP | – | Agriculture Services Innovation and Reform Project      |
| BADC  | – | Bangladesh Agriculture Development Corporation          |
| BARI  | – | Bangladesh Agriculture Research Institute               |
| BCIC  | – | Bangladesh Chemical Industries Corporation              |
| BME   | – | benefit monitoring and evaluation                       |
| BRAC  | – | Bangladesh Rural Advancement Committee                  |
| CIDA  | – | Canadian International Development Agency               |
| COS   | – | country operational strategy                            |
| DAE   | – | Department of Agricultural Extension                    |
| DAM   | – | Department of Agricultural Marketing                    |
| DFID  | – | Department for International Development                |
| FAO   | – | Food and Agriculture Organization of the United Nations |
| FDP   | – | Foodcrops Development Program                           |
| GDP   | – | gross domestic product                                  |
| GKF   | – | Grameen Krishi Foundation                               |
| ha    | – | hectare   |
| HCI   | – | head count index  |
| HDP   | – | Horticulture Development Project                        |
| HTDC  | – | Horticulture Training and Demonstration Center          |
| HPI   | – | human poverty index                                     |
| HVC   | – | high value crop   |
| IFAD  | – | International Fund for Agricultural Development         |
| KRF   | – | Krishi Rin Foundation                                   |
| LGED  | – | Local Government Engineering Department                 |
| MIS   | – | management information system                           |
| NGO   | – | nongovernment organization                              |
| O&M   | – | operation and maintenance                               |
| PKSF  | – | Palli Karma Sahayak Foundation                          |
| PIU   | – | project implementation unit                             |
| PLDP  | – | Participatory Livestock Development Project             |
| PMU   | – | project management unit                                 |
| PSU   | – | project supervision unit                                |
| RAKUB | – | Rajshahi Krishi Unnayan Bank                            |
| RDRS  | – | Rangpur Dingajpur Rural Services                        |
| TA    | – | technical assistance                                    |
| WTO   | – | World Trade Organization                                |

## NOTES

- (i) The fiscal year (FY) of the Government ends on 30 June.
- (ii) In this report "\$" refers to US dollars.

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## LOAN AND PROJECT SUMMARY

|                               |  |
|-------------------------------|--|
| <b>Borrower</b>               | People's Republic of Bangladesh  |
| <b>Project Description</b>    | The Project will reduce poverty and stimulate economic growth in the northwest region of Bangladesh by promoting diversification to high value cash crops among small-scale farmers. The Project will promote the use of new crops and cropping techniques through training, extension, and credit provided by a partnership between the Government and nongovernment organizations (NGOs); upgrade market information services and market infrastructure; promote improved use of market facilities by the private sector; and provide a pilot credit line for postharvest agribusiness activities. The project area covers 16 districts in the northwest region and 3.2 million farmer households, more than half of whom are below the poverty line.  |
| <b>Classification</b>         | Primary - Poverty Reduction  |
| <b>Environment Assessment</b> | Category - B<br>An initial environmental examination (IEE) was undertaken. The summary IEE is a supplementary appendix (available on request) to this report.  |
| <b>Rationale</b>              | <p>The northwest region is one of the Bangladesh's poorest and most backward regions despite its favorable natural resources. It has traditionally been at a disadvantage compared to other parts of the country due to its physical isolation, being separated from the rest of the country by the Jamuna River to the east and the Ganges to the south. The construction of the Jamuna bridge has partly alleviated this physical constraint, and presented new opportunities for increasing agriculture production and the incomes of much of the population of the region. Moreover, much of the area is flood-free and characterized by well-drained soils, adequate supplies of groundwater for irrigation and a varied climate that is suited to a greater range of crops than that in other regions. There is thus scope for diversification to high value crops (HVCs).</p> <p>The present farming system is rice-based. Rice is grown in all three cropping seasons, high yielding varieties cover more than 80 percent of production, and cropping intensity is above 175 percent. There is, thus, little scope for expanding the cropped area or the cropping intensity. Future income enhancement opportunities for the farming community of this region therefore lie in crops that can provide a greater value of production per unit area, than can high yielding varieties of rice.</p> <p>Factors, in addition to physical isolation, that have constrained diversification in the region and kept incomes low and stagnant include inadequate public research and extension on crops other than rice; limited participation of NGOs and the private sector in</p> |

agriculture support services; farmers' lack of knowledge of appropriate crops and varieties; their having inadequate access to planting material and production technologies; a dearth of information on market potentials and prices; and, most importantly, difficulties accessing production credit, especially for the small-scale farmers.

The Project was thus designed to improve the farmers' income levels by assisting them to diversify to HVCs without compromising household food security. The Project will address many of the identified constraints and reach a large number of farmers with information and know-how needed to diversify to new HVCs, with financial resources needed to purchase inputs and equipment, and with assistance to market their produce at better prices. This will benefit the participating farmers and the region's economy as a whole; the labor market, due to increased labor demand; and regional nutrition, as new and more nutritious vegetables and fruits become available.

### Objectives and Scope

The proposed Project is aimed at improving farm incomes and reducing poverty in the northwest region. The specific objectives are to promote production and more efficient marketing of HVCs and to build sustainable partnerships with and capacities of NGOs and the public sector agencies in agriculture extension and crop finance. Poverty reduction objectives will be achieved through direct improvement in incomes for project participants and increased employment opportunities for nonparticipants, brought about by additional farm labor requirements and increased demand for transportation and processing.

The project scope will include (i) farmer training and extension, (ii) farmer mobilization and credit, (iii) adaptive research, (iv) marketing support, (v) a pilot credit line for postharvest agribusiness support, and (vi) support for project management.

### Cost Estimates

The Project cost is estimated at \$66.2 million equivalent, comprising about \$19.5 million in foreign exchange and \$46.7 million equivalent in local currency costs.

### Financing Plan

(\$ million)

| Source        | Foreign Exchange | Local Currency | Total Cost  | Percent    |
|---------------|------------------|----------------|-------------|------------|
| ADB           | 19.5             | 26.8           | 46.3        | 70         |
| Government    | 0.0              | 9.6            | 9.6         | 14         |
| Beneficiaries | 0.0              | 10.3           | 10.3        | 16         |
| <b>Total</b>  | <b>19.5</b>      | <b>46.7</b>    | <b>66.2</b> | <b>100</b> |

|                                    |   |
|------------------------------------|---|
| <b>Loan Amount and Terms</b>       | The equivalent in various currencies of SDR 35,710,000 (\$46.3 million) from ADB's Special Fund resources, with a maturity of 32 years, including a grace period of 8 years, and an interest charge of 1 percent during the grace period and 1.5 percent thereafter, to be paid semiannually.   |
| <b>Period of Utilization</b>       | Until 31 December 2008  |
| <b>Executing Agencies</b>          | (i) The Department of Agricultural Extension (DAE) of the Ministry of Agriculture<br><br>(ii) Bangladesh Bank   |
| <b>Implementation Arrangements</b> | <p>The DAE will be the principal Executing Agency responsible for the implementation of all project activities. DAE will be assisted in project implementation by the Department of Agricultural Marketing (DAM), the Local Government Engineering Department (LGED), and the selected NGOs.</p> <p>The Bangladesh Bank will be responsible for managing and supervising the credit component. It will channel funds to the NGOs for crop finance operations and to the private entrepreneurs for agribusiness pilot activities. Funds will be routed through a financing intermediary, which will initially be the Rajshahi Krishi Unnayan Bank (RAKUB). The arrangement will be reviewed during the project period and the intermediary changed if necessary or desirable. The NGOs will provide and supervise crop finance to participating small-scale farmers.</p> <p>Overall coordination among agencies will be achieved through a project coordination and steering committee chaired by the Secretary of the Ministry of Agriculture. A project management unit (PMU) will be established in DAE, which will be supported during the project period with a team of international and domestic consultants, and some equipment and vehicles. Field activities will be coordinated and monitored by two project supervision units to be established in the region, under the regional additional directors of agriculture.</p> |
| <b>Procurement</b>                 | All procurement under the Project will be done in accordance with ADB's <i>Guidelines for Procurement</i> , including local competitive bidding. The major items to be procured will be equipment, materials, services, and a modest amount of civil works. All procurement will generally be undertaken by the PMU after agreement with the relevant implementing agency on the scope, nature, and specifications of items to be procured.   |

**Consulting Services**

The project will require 582 person-months of consulting services consisting of 124 months of international and 458 months of local expertise. Most of this expertise will be for the formulation of the training programs and for assistance with project start-up and management. All consulting services will be engaged in accordance with ADB's *Guidelines on the Use of Consultants*. Since specialized expertise will be required for formulating and implementing training courses, consultants for this component will be recruited as a team from a reputed agriculture training institution, possibly in combination with a suitably qualified consulting firm. All other consultants will be recruited as teams from qualified consulting firms, except that the adaptive research and seed verification specialists, because of the nature of expertise required, will be recruited as individual consultants.

**Estimated Project Completion Date**

30 June 2008

**Project Beneficiaries**

Project beneficiaries comprise about 160,000 farmers who own and operate 0.2-1.2 hectares. The Project will increase their incomes by an average of \$78, or more than 24 percent, per year through the production of HVCs. About half the farmers in this landholding category are poor. The Project will thus have a significant impact on poverty reduction. Field activities will generate about an additional 4.4 million labor-days of employment per annum.

Other benefits arising from the Project but not quantified include reduced postharvest losses and marketing costs through improvements to growers' markets, and increased production from farmers who do not participate in the Project but adopt HVC production. This will have a positive impact on both off-farm and on-farm incomes and on poverty reduction. Even without the inclusion of these benefits, the Project's economic internal rate of return is 30.7 percent.

Implementation risks have been identified, but the Project has been designed with measures to mitigate them. These measures include (i) the requirement that all farmers taking credit packages have undergone training in HVC production, (ii) the provision of extension support by DAE and the NGOs throughout crop production and marketing, (iii) the requirement for detailed contracts between DAE and participating NGOs and the provision of a DAE-NGO Coordination Committee in the project design, (iv) the provision of consultants to assist with starting the project and formulating the training courses, and (v) the provision for project supervision units for project coordination and supervision at field level.



## I. THE PROPOSAL

1. I submit for your approval the following Report and Recommendation on a proposed loan to the People's Republic of Bangladesh for the Northwest Crop Diversification Project.

## II. INTRODUCTION

2. The construction of the Jamuna bridge with Asian Development Bank (ADB) assistance in 1998<sup>1</sup> provided a road link between the northwest region and the rest of the country, ending the physical isolation of one quarter of the country's population and opening a broad range of economic opportunities. In FY1996, in anticipation of the completion of the bridge, ADB financed a study to investigate the development potential of the northwest region.<sup>2</sup> One of the study's main recommendations was that agriculture development become one of the major strategies for promoting economic growth and reducing poverty in the northwest region. On this basis, the study was followed on in 1999 by technical assistance (TA)<sup>3</sup> to prepare an agriculture development project for possible ADB financing. The draft project preparation report for the TA was submitted by the Food and Agriculture Organization (FAO) Investment Center in April 2000 and has been followed by a series of consultation and fact-finding missions. These culminated in an appraisal mission from 7 to 17 August 2000.<sup>4</sup> During these missions the findings of the TA were reviewed in detail with representatives of the government at central and field levels, nongovernment organizations (NGOs), and other funding agencies active in agriculture, and the original proposal was refined into a focused investment project. This report summarizes the findings of the missions and is based on the recommendations of the original investment study; the findings of the participatory rural appraisals; and extensive field visits and discussions with the NGOs and the farmers in the region to understand their needs, priorities, and constraints. A logical framework for the Project is in Appendix 1.

## III. BACKGROUND

### A. The Agriculture Sector

3. Bangladesh is one of the poorest countries in the world, with a gross domestic product (GDP) per capita of approximately \$265. The population is approximately 120 million, with over 800 people per square kilometer, making it also one of the world's most densely populated countries. Population growth has declined in recent years to just below 2 percent per annum. Although the urban population is growing rapidly by migration from rural areas, Bangladesh remains primarily a rural society with over 80 percent of the population living in the rural areas. With a high population density and a limited land base, poverty, and especially rural poverty, is a pervasive problem. A recent study sponsored by ADB<sup>5</sup> indicates that 51 percent of rural people are poor, whereas only 26 percent of urban people are poor in Bangladesh. The national poverty level is 46.5 percent. The study also noted that the overall progress in the reduction of poverty was slow in rural areas. Because over 80 percent of the country's poor live in rural areas, progress in reducing rural poverty continues to be the key challenge facing the country.

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<sup>1</sup> Loan 1487-BAN: *Jamuna Bridge*, for \$200 million, approved on 8 March 1994.

<sup>2</sup> TA 2545-BAN: *Northwest Region Development and Investment Study*, for \$1.1 million, approved on 21 March 1996.

<sup>3</sup> TA 3230-BAN: *Northwest Agriculture Development*, for \$500,000, approved on 26 July 1999.

<sup>4</sup> Mission comprised P. Dayal (Mission Leader), E. Araneta (Counsel), Edward Breckner (Agriculture Specialist-Consultant), and Dennis Ellingson (Agriculture Economist-Consultant).

<sup>5</sup> Sen, Binayak. February 2000; *Bangladesh Poverty Analysis: Trends, Policies and Institutions*.

4. Agriculture dominates the country's economy and supports the vast majority of the country's population, producing 32 percent of GDP and 23 percent of exports, and employing 60 percent of the labor force. Within the agriculture sector, food crop production accounts for about 75 percent of the value added. An estimated 9.3 million hectares (ha) are cultivated, with a cropping intensity exceeding 150 percent. Rice comprises about 76 percent of the cropped area, with other crops including pulses (5 percent); wheat (4 percent); jute (4 percent); oilseeds (4 percent); and the remainder (7 percent) producing vegetables, fruits, cotton, sugar, tea, and rubber. About 2.93 million ha or 31 percent of the cultivated land is irrigated. This includes large surface irrigation systems (0.20 million ha), shallow tubewells, (1.16 million ha), low lift pumps, (0.64 million ha), deep tubewells (0.44 million ha), and traditional methods (0.44 million ha).

5. Beside crop production, other agriculture-based activities include livestock production, pond and capture fisheries, and forestry. The impact of these activities can be substantial, with livestock production, for example, accounting for 3 percent of total GDP and 10 percent of agricultural GDP, and employment for 20 percent of the rural labor force. Livestock production and fisheries are particularly important in filling the income gap left from crop production and may account for up to 50 percent of household incomes.

6. Based on a rapid increase in irrigation using shallow tubewell technology, combined with the use of high yielding rice varieties in the flood-free winter season, Bangladesh achieved near self-sufficiency in food production in the early 1990s, after many years of severe food deficits. Since then, the Government has emphasized sustained growth of food production. The production of irrigated winter rice crop has nearly doubled since the mid-1980s and now accounts for 40 percent of the country's total agriculture production.<sup>6</sup> In contrast, the country's main cash crop, jute has had stagnant and even declining levels of production throughout the 1990s. In recent years, there has been a notable increase in the production of fruit and vegetable crops and of fodder crops for a growing livestock industry.

## **1. The Northwest Region**

7. The northwest region, which corresponds administratively with the Rajshahi division, comprises about one fifth of the country's land area and supports more than one quarter of the country's population (31.7 million). Eighty-six percent of the population is rural, which is the highest proportion in the country and signifies the predominance of agriculture in the region's economy. Agriculture in the region is characterized by a large number of small holdings (below 1 ha), traditionally focused on the production of rice. Since almost all available land is currently used for cultivation, there is little scope for an increase in the total cropped area. Nonfarm employment opportunities are few and the development of trade, services, and industries has been sparse. Poverty in the region is pervasive, with 62.2 percent of the population below the poverty line, a figure that is substantially higher than the national average. In terms of human poverty indicators, Rajshahi division is noted for the lowest level of adult literacy, life expectancy at birth, and child immunization rate in the country. Much of this is because, until recently, the region had been cut off from the rest of the country by the Ganges River to the south and the Jamuna River to the east. This isolation has historically restricted the region's access to critical inputs, markets, and technologies and has resulted in its slow development and high poverty levels.

8. Despite its current low status of development, the region is well suited to agriculture. It is characterized by relatively fertile, well-drained soils, ample ground and surface water resources

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<sup>6</sup> ADB has contributed significantly to this growth in food production through program and project loans that have helped to liberalize the sector and promote capital investment in agriculture and rural infrastructure.

(except in one area known as the Barind Tract), a varied climate that is favorable to a range of crops (allowing the region to produce 50 percent of the country's wheat), and relatively flat terrain. More than 80 percent of the area is classified as medium to high lands, making it one of the least flood prone regions in the country and allowing the production of diversified crops throughout the year. Thus, the region has a significant comparative advantage for growing high value crops (HVCs),<sup>7</sup> as most other regions of the country are flood prone; have less well drained soils; and have a hotter, more humid climate. In particular, potential exists to produce off-season fruits and vegetables, which could be marketed at high prices to Dhaka and other parts of the country.

9. The potential for further investment in the northwest region was increased with the construction of the Jamuna bridge. The construction of this major transport link ended the region's isolation from the rest of the country, opened access to markets in Dhaka and other urban centers, and enhanced access within the region to modern agricultural inputs. Future investment potential was investigated in detail through the Northwest Region Development and Investment Study, (see footnote 2) approved soon after the bridge construction. The study concluded that "for economic development of the region to be successful there must be a strong agriculture base". It also highlighted the need for increased rural credit and for such credit to reach small-scale farmers who constitute the largest segment of the farming community but are not served by commercial or NGO financing institutions. The study further pointed out the potential for new HVCs in the northwest region, due to its favorable agronomic environment and new access to markets in the rest of the country.

## **2. Crop Production, Diversification, and Market Demand in the Northwest Region**

### **a. Crop Production and Diversification**

10. The northwest region covers a total of 3.45 million ha of which the cultivable area is 2.3 million ha and the cropped area 4.0 million ha (at a cropping intensity of about 175 percent). Of the cultivated area, about 1.4 million ha, or about 60 percent, is irrigated, mostly by shallow tubewells installed within the last 10-15 years. The vast majority of the cropped area is planted to rice, the main "aman" or wet season rice crop accounting for 1.8 million ha, the early or "aus" crop accounting for 238,000 ha, and the winter or "boro" crop accounting for 863,000 ha. Boro season production, in particular, is associated with irrigation since it is the dry season. After rice, the next major crop in terms of cropped area is wheat, which covers 366,000 ha and, like boro rice, is grown in the winter and depends heavily on irrigation. These two traditional crops (rice and wheat) thus take up 82 percent of the cropped area in the region, and, with other traditional crops (jute, pulses, oilseeds, and sugarcane) make up over 90 percent of the cropped area. The balance is used for HVCs: vegetables (50,000 ha), spices and condiments (39,000 ha), fruit (46,000 ha), and root and tuber crops such as potato and taro (60,000 ha).

11. These HVCs, while accounting for only 5 percent of the total cropped area, give a higher return per hectare than boro rice and are the most promising crops for diversification. Until very recently the incentive to grow such crops (despite their higher income return per hectare than rice) was offset by the farmers' priority for food security in the semisubsistence rural economy prevailing in the region. This situation is now changing rapidly. In the last two decades, rice

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<sup>7</sup> High value crops have been defined as any crop that provides higher net returns per hectare to the farmer than high yielding winter rice. These may include hybrid maize; potatoes; vegetables (onion, cabbage, eggplant, tomato pumpkin, radish); spices (ginger, chilies, turmeric, garlic and coriander; and fruits (bananas, papayas, mangoes lychee).

production in Bangladesh and in the northwest has increased dramatically due to the widespread adoption of modern technologies and the use of minor irrigation. In the northwest alone, about 1 million ha have been brought into production during the dry season in the past two decades through the spread of minor irrigation. As a result, the region now produces a large rice surplus and supplies almost 3.0 million tons of unhulled rice annually to other parts of the country.

12. The move from rice deficit to surplus has been accompanied by a decline in the real price of rice.<sup>8</sup> Rice, for many farmers, is now becoming, at least in part, a cash crop to be traded rather than an object of food security to be grown regardless of its comparative financial return. A further transformation in crop production is therefore now beginning to take place. Farmers are starting to diversify to HVCs such as tubers, vegetables, and hybrid maize in place of rice as sources of cash income, thereby increasing their household's and the region's overall economic productivity. At present this transformation is limited to a few areas, but the area for and production of such crops could increase significantly.

#### **b. Market Demand**

13. Bangladesh is a large net importer of agricultural produce. Recent trade statistics (1997) show imports of HVCs and derived processed produce at about \$50 million. Substantial quantities of HVCs and seeds, including less perishable items such as potatoes and spices, enter from neighboring countries into the northwest region and other parts of Bangladesh, indicating a significant room for import substitution in the domestic market. The economy has experienced an annual growth rate of 4-5 percent in recent years. According to World Bank studies,<sup>9</sup> most HVCs have income elasticities well above those for food grains and higher than for pulses and oils. Based on population and income growth, the countrywide demand for HVCs is projected to rise from the current 4.0-5.0 million tons per annum to 5.4-6.5 million tons within the next decade.

14. Studies during Project preparation indicated that, while the opening of the Dhaka market by the Jamuna bridge will provide a marketing stimulus for HVCs outside the region, a major unfulfilled demand for many HVCs exists in the project area. Based on current production levels and levels of import from bordering countries, the per capita consumption of fruit and vegetables (of about 23.5 kilograms per annum) is only about one third of internationally accepted nutritional requirements. The region imports significant amounts of spices and condiments through informal cross border channels, despite growing almost 40,000 ha of these crops. Demand projection analysis (based on projected GDP and population growth) has estimated that by 2007 the regional deficit would be 285,000 tons of potato, 400,000 tons of vegetables and spices, 96,000 tons of edible oils, 36,000 tons of fruit and 120,000 tons of pulses. The demand for diversified crops in the northwest region will thus continue to exceed supply for some time.

15. Other factors will influence crop production and marketing in the future. First, the decline in rice prices is making the relative farm-level returns to cash crop production more attractive to farmers. Second, the livestock industry is expanding and the demand for manufactured livestock feed is likely to increase substantially, partially contributed by the ADB-financed participatory livestock development project,<sup>10</sup> which is operating in the same area. Some NGOs have already

<sup>8</sup> PPA: BAN 22217: Food Crops Development Program, December 1999.

<sup>9</sup> World Bank. 1995. *Agriculture Growth with Diversification: Prospects and Issues*.

<sup>10</sup> Loan 1525-BAN: *Participatory Livestock Development Project*, for \$19.7 million, approved on 19 June 1997.

set up feed mills in the region and are promoting the production of hybrid maize and increasing volumes of hybrid maize produced in the northwest are also being sold to feed mills in Dhaka.

### 3. Agriculture Support Services

16. While agriculture inputs in the project area are provided almost entirely by the private sector on a commercial basis, most agriculture support services are provided by public sector line agencies. These include training and extension support from the Department of Agricultural Extension (DAE); research activities by the National Agricultural Research System (NARS); market intelligence and development by the Department of Agricultural Marketing (DAM); market infrastructure improvement by the Local Government Engineering Department (LGED) and agriculture credit by nationalized commercial banks, special agriculture banks and, recently, NGOs.

17. DAE, and particularly its Field Services Wing, is quite a strong agency in the context of the Bangladesh public sector. It has received considerable support from a variety of external agencies, all aimed at providing an efficient, field-oriented crop production extension service. As a result, a relatively well-trained cadre of about 2,500 field staff supported by 290 specialist extension officers and 123 subdistrict agriculture officers are available in the project area. Moreover, DAE wants to expand its outreach and capabilities through partnerships with other agencies including NGOs. To date, DAE's main focus has been the promotion of improved technology in staple crops, principally rice and wheat, which reflects the Government's priorities. Of late, DAE has recruited horticulture specialists at the level of subdistrict officers to further the promotion of high value horticulture crops.

18. Aligned with and supporting DAE's Field Services Wing is the Food Crops Wing. The Food Crops Wing is specifically mandated to promote horticultural crops and operates 25 horticulture training and demonstration centers, four of which are in the northwest region. These centers, developed under the ADB-financed Horticulture Development Project,<sup>11</sup> have been providing training in horticulture production to landless and marginal farmers and technical support to the staff of the Field Services Wing.

19. The national agriculture research system in Bangladesh comprises the apex agency, the Bangladesh Agriculture Research Council, and 10 government-operated research institutes. In keeping with the country's historical priority on food security, much of the funding for agriculture research has been oriented to traditional staple crops, especially rice, although most research agencies have received significant international assistance and support. Within the system, the Bangladesh Agriculture Research Institute (BARI) is mandated to undertake research on cereals, pulses, tubers, oilseeds, vegetables, fruit, spices and condiments through its 15 research divisions, 6 regional agriculture research stations, and 22 agriculture research centers. The responsibility for the crops being specifically targeted by the Project is divided between the Horticulture Research Center, the Spice Research Center, and the Tuber Crops Research Center. The Spice Research Center is in the northwest and the other two centers have their specialized research stations in the region.

20. DAM is responsible for overseeing the development of marketing in the country. Unlike DAE and NARS, DAM has received limited budgetary and external support has therefore lacked facilities and resources to undertake its mandated tasks. As a result, despite having an important role and professionally qualified staff through to district level, its performance is not

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<sup>11</sup> Loan 1010-BAN: *Horticulture Development*, for \$22.6 million, approved on 21 December 1989.

rated highly. With the increasing focus on HVCs, efficient markets and timely market and price information on a local and interregional basis will increasingly become critical. DAM, which is responsible for information collection and dissemination, engages its district staff for this purpose but the output is largely used for statistical purposes. Still, the DAM staff constitute an existing cadre of personnel who are involved in market research and can be equipped to deliver information to farmers and traders on current market prices and market prospects on a regional and interregional basis. To do this, DAM will need considerable institutional strengthening through role redefinition, staff training, basic communication and information technology, equipment, and budgetary support.

21. The market infrastructure improvement program that has been undertaken by the LGED for general market upgrading, while not oriented specifically to the provision of facilities for HVCs, has had a significant impact on improving market infrastructure efficiency through such measures as paving access roads, improving drainage, providing covered sales and storage areas, and providing loading and unloading areas. More than 300 primary rural markets in the northwest have been upgraded and handed over to local authorities who generally contract them out to private vendors for operation and maintenance.

22. The northwest region is served by over 900 rural bank branches, including 300 branches of the Rajshahi Krishi Unnayan Bank (RAKUB), a specialized agriculture bank focused exclusively on the northwest region. Despite this, like in the rest of the country, only an estimated 10 percent of farm households have access to formal agriculture credit. The banking system in the country, except for the foreign banks (which account for 5 percent of the system), is fragile, with capital adequacy levels below international norms, high levels of nonperforming loans, and low repayment rates. In contrast to the performance of the formal sector, a number of NGOs have demonstrated efficient delivery of microcredit in the project area and are beginning to enter the agriculture sector. However, the most notable characteristic of the agriculture credit situation in the country and in the northwest is that the bulk of the small-scale farmers have been missed by both the formal sector (the banks) and the semiformal sector (the NGOs) because the NGO programs focus on the landless and marginal farmers and the banks require collateral that only the large-scale farmers can provide. As a result, the farmers who have the potential to diversify do not have access to agriculture credit to help them to do so.

#### **4. Nongovernment Organizations in Agriculture**

23. In Bangladesh, about 1,500 NGOs are registered with the NGO Affairs Bureau, of which about 1,000 have microfinance operations. Most of these are small local operations, but data of 495 microfinance NGOs compiled by the Credit and Development Forum, a network of NGOs, indicates (i) a total network of 11 million households,<sup>12</sup> (ii) savings mobilization of Tk14 billion (\$247 million), and (iii) loans outstanding of Tk29 billion (\$568 million). Conservative estimates put the annual disbursement of these NGOs at Tk28 billion (\$549 million). NGOs in Bangladesh thus play a major role in mobilizing rural finance and promoting development activities.

24. Despite the large numbers of NGOs in the country, the 10 largest account for 90 percent of the membership and microfinance operations and the top 5 for 80 percent. These include the Grameen Bank, the Bangladesh Rural Advancement Committee (BRAC), The Association for Social Advancement (ASA), Proshika Manavik Kendra (PROSHIKA), Thengamara Mohila Sabuj Sangah (TMSS), Rangpur/Dinajpur Rural Services (RDRS), and the Grameen Krishi Foundation (GKF). Two of these agencies (RDRS and GKF) focus principally or entirely in the northwest.

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<sup>12</sup> At an average of five persons per household, this would cover nearly 50 percent of the country's population.

Lending operations of these NGOs are funded by (i) members' savings; (ii) borrowings from Palli Karma Sahayak Foundation (PKSF), — NGO apex organization on-lending for poverty reduction projects) and from banks, and (iii) internal accruals and foreign agencies.

25. In contrast to the performance of the agencies in the formal credit sector, the established NGOs have exhibited (i) pro-poor and marked gender orientation, 85 percent of members being poor women; (ii) products and services consistent with the demand profile of the poor; (iii) an emphasis on savings; (iv) repayment rates of well over 90 percent; (v) interest rates on loans that reflect the cost of microfinance delivery (up to 30 percent); (vi) operating surpluses; and (vii) motivated staff. Notwithstanding their impressive achievements, there are concerns regarding sustainability, inadequate transparency, and a high dependence on donor funds. The Government has agreed to institute a regulatory regime for NGOs providing microfinance; ADB is providing support for instituting the regime.<sup>13</sup>

26. Some microfinance borrowings from NGOs are used for subsistence agriculture and for short-term cash crops. However, in the past, NGOs have been reluctant to specifically extend agriculture credit despite the fact that subsistence agriculture is the mainstay of the rural economy. This has been due to (i) their target group being primarily the landless and marginal farming community; (ii) concerns about the politicization of agricultural credit; and (iii) their lack of resources, skills, and capacities to take on agricultural lending. Nonetheless, several of the large NGOs are now moving more and more toward agriculture-based lending and are progressively targeting small-scale farmers, many of whom are classified as poor.

## **B. Government Policies and Plans**

27. The Government's fifth five-year development plan (1997-2002), which was released in March 1998, sets the framework for agriculture and related policies. Other key documents include the National Agricultural Policy (1999), the New Agricultural Extension Policy (1996), and the related DAE Strategic Plan (1999-2002). With regard to the agriculture and rural sectors, the fifth five-year plan emphasizes (i) the alleviation of poverty through accelerated economic growth; (ii) improvement in the quality of life of the rural population through mobilization of the rural masses and the resources at their command; (iii) attainment of food production beyond the self-sufficiency level in the shortest possible time and of higher production of diversified high-value produce; and (iv) the development of hitherto neglected areas like the northwest region, the Chittagong Hill Tracts, and coastal areas. The modernization of agriculture is to be attained through the provision of extension services, training, requisite inputs, and credit to farmers. Another major thrust will be increased irrigation coverage, better water management, and improved varieties of seeds for rice and wheat. Moreover, the plan envisages a major effort to provide adequate marketing, transport, and storage facilities, and recognizes the increasing dominance and potential contribution of the private sector and the NGOs in agriculture.

28. A National Agriculture Policy, issued by the Ministry of Agriculture in April 1999, reiterates the need to intensify and diversify agriculture production. It emphasizes the increase in rice productivity through timely provision of inputs, a move to HVCs where feasible, and the provision of credit to support both. Of particular note is the expressed intention of setting up an agricultural credit foundation (also called the Krishi Rin Foundation) following the PKSF model during the fifth five-year plan. This would act as an apex body for NGOs providing credit for agriculture activities as opposed to the direct poverty related NGO activities of PKSF.

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<sup>13</sup> TA 3078-BAN: *Establishment of the Framework for Sustainable Microfinance*, for \$800,000, approved on 29 September 1998.

29. The New Agricultural Extension Policy emphasizes sustainable technologies, promotion of research-extension linkages, and inclusion of NGOs and the private sector in technology transfer to farmers. The policy envisages a major role for DAE in all aspects of extension but recognizes the need for developing partnerships with NGOs, other government extension providers, the private sector, and education providers for both extension and research-extension collaboration. It proposes the use of multiple extension approaches to facilitate rapid technology transfer, recognizes the potential of public mass media, and recommends strengthening the agriculture information system. Within DAE's Strategic Plan 2000, extension approaches are based on decentralization, responsiveness to farmers' needs, working with groups, and the use of a range of extension methods and partners.

### **C. External Assistance to the Sector**

30. External assistance to the agriculture sector continues to be provided by ADB, the World Bank, United Nations (UN) agencies, and bilateral agencies. Over the past decade or so, ADB's focus has been on enabling the effective functioning of the sector, initially through the Foodcrops Development Program (FDP):<sup>14</sup> and subsequently through a series of rural infrastructure, water resource improvement, and microfinance projects. The rural infrastructure projects focused on the provision of feeder roads and markets, the water resource improvement, projects focused on the provision of irrigation as a critical crop input, and the microfinance projects aimed at supplying critically needed financial resources to the rural poor. In crop diversification, the Horticulture Development Project was implemented to build know-how and capacities in service providers and homestead horticultural producers. The Project was successfully completed in 1999 having trained over 70,000 farmers in horticulture techniques and developed 25 horticulture training and demonstration centers (of which four are located in the northwest). Relatedly, the ongoing Participatory Livestock Development Project (PLDP) aims at broadening the rural income base by supporting small and marginal farmers and women in subsistence livestock production.

31. The World Bank has provided major support to the sector through its Agriculture Support Services Project (ASSP), which provided a major contribution to reorienting the focus of the public extension system and formulating the New Agricultural Extension Policy. This is being followed up under the Agriculture Services Innovation and Reform Project (ASIRP), a learning and innovation loan, which is being cofinanced by the Department for International Development (DFID) and FAO and assisting in the implementation of the new extension policy. The World Bank has also been active in developing the national agriculture research system through a series of agriculture research management projects.

32. United States Agency for International Development (USAID) has completed the first phase of support for an Agriculture Technology Development Project, in which it has supported agribusiness development through training and credit. A second phase of this project has been approved recently, and will commence in early 2001.

33. Support from bilateral agencies has been on either an individual basis or in collaboration with multilateral banks. DFID, for example has been particularly active in supporting the ASSP and the ASIRP. The Government of Denmark has recently announced a Dkr486 million program of agricultural development over five years, which includes crops, aquaculture, and livestock. The Canadian International Development Agency (CIDA) has been active in promoting crop diversification and some success has been achieved with potato. The experience highlighted

<sup>14</sup> Loan 1045-BAN: *Foodcrops Development Program*, for \$125 million, on 6 November 1990.

the need to link cropping decisions to marketing opportunities, CIDA has recently approved a follow-on project, the Farm to Market Enterprise Development Project. Details on external assistance to the agriculture and rural development sector are given in Appendix 2.

#### **D. Lessons Learned**

34. A 1997 study of postevaluated projects in Bangladesh<sup>15</sup> and lessons learned from several ADB-financed agriculture projects highlight the importance of (i) institutional strengthening to ensure institutional capacity and competence of executing agencies, and of regional and district entities and beneficiary groups; (ii) the need to ensure beneficiary participation as early as possible, in the design and implementation of the project, and in post-project operation and maintenance (O&M); (iii) the need for effective sector analysis and project preparation prior to appraisal; (iv) the need for a flexible project implementation system based on a process-oriented approach; and (v) the need to locate the project management team in the project area, with mechanisms for regular contact with beneficiaries.

35. In terms of lessons to be learned from specific Projects, the most relevant project is the PLDP. This project is similar in design to the proposed Project, covers the same project area, and uses the same NGOs. The latest review of the PLDP indicates that implementation is proceeding smoothly, with the NGOs fulfilling their mandate and performing well within target and levels of beneficiary organization, training, and credit provision. The Government-managed components are also proceeding smoothly. The Horticulture Development Project, implemented by DAE (the executing agency for the proposed Project), was successfully implemented and completed in 1999 although implementation took several years longer than originally planned. Delays were due to start-up problems and difficulties identifying and purchasing large contiguous blocks of land for research stations and horticulture training and demonstration centers development training centers. In terms of training in horticulture, the Project surpassed its target, training over 70,000 landless and marginal farmer beneficiaries as opposed to an appraisal target of 60,000.

36. Postevaluation studies revealed that people living within the influence of the improved infrastructure obtained access to agricultural inputs at reduced prices, increased their use of high-yielding varieties, enhanced their agriculture production, and had better access to health and education facilities than prior to the project. Small-scale industries and trade activities also increased. The *Third Rural Infrastructure Project*<sup>16</sup> is currently being successfully implemented and a project preparatory TA for a fourth such project is programmed in the Bangladesh country assistance plan 2001.

#### **E. ADB's Sectoral Strategy**

37. Consistent with the Government's development strategy and ADB's medium-term strategic framework, ADB's country operational strategy (COS) for Bangladesh identified poverty reduction as its overarching objective.<sup>17</sup> This will be achieved by targeting four priority areas (promoting faster private sector-led economic growth, creating better development opportunities for the poor in rural and urban areas, improving human development, and protecting the environment) in 15 subsectors. In the agriculture and rural sectors, the COS supports the move away from an integrated rural development approach and advocates simplicity of implementation. The operational focus in the agriculture and rural sectors will be

<sup>15</sup> *Country Synthesis of Post-Evaluation Findings in Bangladesh*, OEO, 1997.

<sup>16</sup> Loan 1581-BAN: *Third Rural Infrastructure Project*, for \$70 million, approved on 20 November, 1997.

<sup>17</sup> ADB. August 1999. *Bangladesh Country Operational Strategy: Responding to the Challenge of Poverty*.

placed on the crop, agrobusiness, and microfinance subsectors because the major constraints inhibiting agricultural growth identified in the COS lie in these subsectors. These constraints include weak rural development and extension support, lack of high quality planting materials, large unexploited irrigation potential and its suboptimal utilization, lack of effective rural financial services for a majority of small and marginal farmers, lack of marketing channels, and postharvest losses. The strategy in these subsectors is to enhance the capacity of the private sector and NGOs to provide microcredit, extension, and marketing support to the poor for increasing crop intensification and diversification, and agrobusiness. The strategy also emphasized the role of the private sector and NGOs in providing microcredit and rural infrastructure to enhance rural nonfarm growth in order to meet the financing requirements of small and medium enterprises.

38. The poverty reduction objective and strategy were amplified in a poverty reduction partnership agreement recently signed between ADB and the Government.<sup>18</sup> The agreement aimed at achieving both income and nonincome aspects of poverty reduction in the medium term through pro-poor growth, social development, and good governance. An area approach is to be adopted to target assistance to areas of high poverty concentration. The strategy identified measures to enable agricultural growth through diversification into HVCs and noncrop agriculture, research and extension, improvement of small and medium irrigation systems, microfinance, storage and marketing, rural infrastructure, community development, and market liberalization by supporting the Government in hastening reforms to create an environment conducive for greater private sector and NGO participation in rural areas.

39. The Project is consistent with the COS and the poverty reduction partnership agreement in that it aims at increasing agricultural growth to sustain higher income and poverty reduction of small-scale farmers through improving the entire cycle of diversification to HVCs (including training and extension, microcredit provision, adaptive research, and marketing support) with significant participation by NGOs and the private sector. Moreover, the Project will adopt an area approach by targeting the northwest region, which is the poorest area in the country.

## **F. Policy Dialogue**

40. In close coordination with the World Bank and other agencies, ADB has been actively involved with the Government in agriculture sector policy dialogue for more than a decade. The present Project's components cut across three subsectors in which ADB has promoted policy formulation and reform: microfinance, rural infrastructure, and agriculture input supply.

### **1. Microfinance Policies**

41. The main concerns in microfinance include (i) ensuring sustainability and accountability of microfinance institutions, many of which are NGOs that depend on various funding sources (grants, loans, and beneficiary savings) and are not under any real regulatory supervision or control; and (ii) the need for microfinance institutions to better serve farmers in addition to rural off-farm activities, welfare, and subsistence needs. ADB is closely involved in microfinance through its recently-approved Rural Livelihood Project.<sup>19</sup> In addition, ADB is providing TA to help formulate and establish a sustainable legal and institutional framework for microfinance

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<sup>18</sup> Based on TA 3339-BAN: *Partnership Agreement on Poverty Reduction between ADB and the Government of Bangladesh*, for \$95,000, approved on 14 December 1999.

<sup>19</sup> Loan 1634-BAN: *Rural Livelihood*, for \$42.6 million, approved on 29 September 1998.

operations.<sup>20</sup> In relation to agriculture, most NGOs have focused primarily on off-farm activities for the rural landless and marginal farmers. The Government now recognizes the need to increase the access of small-scale farmers to crop finance and to encourage NGOs to provide such services. It has thus proposed the establishment of an apex organization, the Krishi Rin Foundation (KRF) for agriculture financing to NGOs, to assist in their transition, to build their capacities, and to supervise their operations on the lines of PKSF. KRF will be supported in the initial stages with financing from the World Bank and will be closely monitored by ADB. Provision has been made to incorporate KRF as a financing channel for crop credit under the Project, after it has been evaluated and proven viable and effective.

## **2. Rural Infrastructure Policies**

42. ADB has also been active in policy dialogue related to rural infrastructure. The major issues relate to the need for functioning O&M systems and the need to ensure local participation in the selection and management of rural infrastructure. Directly as a result of policy dialogue with ADB, the Government now budgets over Tk1 billion (\$20 million) annually for rural infrastructure maintenance. However, markets, which are of particular concern to the Project, continue to have deficient O&M. Detailed discussions on this issue during project preparation led the Government to agree to implement, with the Project's assistance, a variety of new O&M systems to provide for greater local stakeholder participation and commitment for maintenance. These could include revisions to market leases to make their terms longer than the current standard of one year, a division of lease contracts into management and maintenance responsibilities, and revision of the current practice of retaining the maximum of 25 percent of market incomes for maintenance. These will be implemented first in the markets to be improved under the Project and will thereafter be replicated in the rest of the country.

## **3. Agricultural Input Policies**

43. The ADB's major policy involvement in the agriculture inputs subsector has most notably been through the FDP, which promoted growth in food crop production through the removal of market restrictions on minor irrigation equipment, fertilizer, and seed. The Project Performance Audit Report (PPAR) rated the program partly successful;<sup>21</sup> but, from the point of view of agriculture production, acknowledged significant increases in the production of staple rice and wheat crops.

44. One of the FDP's major achievements that has led to this growth was the removal of all restrictions on marketing of minor irrigation equipment. Another was the removal of the Bangladesh Agriculture Development Corporation (BADC) from any involvement in fertilizer marketing and the freeing of fertilizer marketing for private sector operations. In addition, at the time of the second tranche release, all fertilizer subsidies had been removed including those on domestically-produced urea; and, when the second tranche was released, the Government was moving to close all of BADC's retail seed outlets. Subsequently, however, subsidy on urea was reinstated and some retail seed outlets were continued.

<sup>20</sup> TA 3078-BAN: *Establishment of the Framework for Sustainable Microfinance*, for \$800,000, approved on 29 September 1998.

<sup>21</sup> The FDP was completed in June 1995, two years behind schedule, and ADB persistence was required to ensure satisfactory compliance with Program measures prior to release of the second tranche in May 1994. The principal concerns noted in the Project Performance Audit included the mixed performance of some policy measures; the failure to achieve full food self-sufficiency; and questions about the sustainability of reforms, primarily in the fertilizer market.

45. Two unresolved issues are relevant to the present Project. First, despite the end of BADC's role, there are continuing distortions in the marketing and pricing of urea, with the principal concern being the economic subsidy that has grown as a result of rising world prices. Second, and of much lesser importance, BADC is still involved on a limited scale in retail marketing of seed, despite having committed to terminate this under the FDPL.<sup>22</sup> These issues are subjects of continuing policy dialogue in close coordination with the World Bank which is presently processing an agriculture sector program loan. The policy issues discussed by the Mission and proposed actions are given in Appendix 3.

46. In regard to urea, the paramount objective of the Government is to ensure a secure supply at stable prices throughout the country. Therefore in 1994-1995, when a severe urea shortage occurred in the country, the Government responded by appointing fertilizer dealerships on the basis of specific geographic areas. Since then, no urea shortage had been reported. The Government maintains that a limited public sector intervention in the production and or marketing of strategic agriculture inputs is critical to sustain the productivity of the country's agriculture sector. It is clear that given the economic and political importance of urea, resolution of the subsidy issue will require continued dialogue and strong empirical evidence to support it. The policy dialogue under the Project, therefore focused on controls imposed on urea marketing and the resultant inefficiencies. The Government agreed to reexamine the whole question of fertilizer dealerships and consider any changes, required to improve the efficiency of fertilizer supply to farmers. To this end, the Government will have an independent and comprehensive assessment of the fertilizer distribution system completed by 30 June 2001 and will inform ADB of the outcome and actions planned to be taken.

47. In regard to seed, the Government's view is that a retail marketing role for BADC is justified to ensure a secure seed supply in areas of the country that are unlikely to be served by the private sector. However, during the Project's preparation, the Government agreed to review this role in light of the construction of the Jamuna bridge which has alleviated the isolation of the project area. The Government has agreed to (i) complete a full review of the BADC retail seed outlets by 30 June 2001, and inform the ADB of the outcome and a timetable for further action; and to also (ii) review the mechanism for seed import, testing, and approval in order to identify inefficiencies and suggest streamlined procedures that will encourage greater private sector participation and improve the flow of new seed varieties into the country by 31 December 2001.

#### IV. THE PROPOSED PROJECT

##### A. Rationale

48. The northwest is one of the Bangladesh's poorest and most backward regions despite its favorable natural resources. It has traditionally been at a disadvantage compared to other parts of the country due to its physical isolation, which has been partly alleviated by the Jamuna bridge and additional infrastructure investments under way to improve road links from the bridge to Dhaka and into the heartland of the northwest.<sup>23</sup> These developments have presented new opportunities for increasing agriculture production and the incomes of much of the population of the region. Moreover, the area has good potential for agriculture (para. 8) and scope for diversification away from traditional crops. Although there is little scope for expansion or intensification of traditional crops, farmers could increase their incomes by raising crops, that

<sup>22</sup> At present, BADC accounts for less than 7 percent of the domestic seed trade. Moreover, with the exception of potato, full private sector participation is expected in all areas of seed imports and marketing for the crops to be promoted under the Project.

<sup>23</sup> Loan1478-BAN: *Jamuna Bridge Access Roads*, for \$72 million, approved on 5 November 1996.

can provide a greater value per unit area than can high yielding varieties of rice. There is ample scope to do this without affecting the region's or the households' food security.

49. In addition to the physical isolation, other factors have limited agriculture development in the past, constrained diversification away from traditional crops to HVCs, and thus kept incomes in the region low and stagnant. These include lack of knowledge of appropriate crops and varieties on the part of the farmers; a dearth of information on markets and market potentials for nontraditional crops; most importantly, difficulties in accessing production credit, especially for small-scale farmers, to experiment with new crops and technologies; inadequate focus of public research and extension on crops other than rice; and limited participation of NGOs and the private sector in agriculture support services.

50. The Project was thus designed to break the low income cycle by focusing on HVC production and addressing many of the identified constraints. In this way, the Project will be able to reach a large number of small-scale farmers (men and women), provide them with the information and knowledge needed to diversify to new HVCs, provide them with the financial resources to purchase inputs and equipment, and assist them in marketing their produce at better prices. This will have an overall beneficial impact on the participating farmers and the region's economy as a whole; on the labor market, due to increased labor demand; and on overall regional nutrition as new and more nutritious vegetables and fruits become available at accessible prices.

## **B. Objectives and Scope**

51. The Project is aimed at diversifying crops in the northwest region to increase regional and farm incomes and thereby alleviate poverty. The specific objectives are to promote production and more efficient marketing of HVCs and to build sustainable partnerships and capacities of NGOs and the public sector agencies in order to provide extension, training, and credit support to the small-scale farmers. Poverty reduction objectives will be achieved through direct improvement in incomes for project participants and increased employment opportunities for nonparticipants, brought about by additional farm labor requirements and increased demand for transportation and processing.

52. The Project has been designed base on extensive consultations with the farming community, NGOs, and agriculture service providers. It takes into account a holistic assessment of the farming systems in the project area that includes issues such as labor availability, risk-averse behavior of smallholders, and social and gender considerations. The Project will cover all 16 districts of the northwest region, but will be limited to the 60 subdistricts (out of 127) having the highest potential for diversification to HVCs. The list of agreed subdistricts is a supplementary appendix (available on request) to this report.

53. The target group of this project is the small-scale farmers,<sup>24</sup> both men and women. Out of 3.2 million farm households in the northwest, 1.9 million are smallholders and they constitute the largest segment of the farming community. About half of these small-scale farmers are poor<sup>25</sup> and the rest are highly susceptible to downward social mobility.<sup>26</sup> This group has been traditionally overlooked by government and NGO agriculture service providers. Their access to production credit has been sparse as NGOs have focused on the landless and the nonfarm sector and the formal sector has neglected them because of inadequate collateral. Yet, this

<sup>24</sup> Farmers with landholdings of 0.2-1.2 ha.

<sup>25</sup> World Bank. 1998. (*Bangladesh: Counting the Poor and Making the Poor Count*), notes that up to 70 percent of small farmers and 32 percent of medium-scale farmers are poor.

<sup>26</sup> Hossain Zillur Rehman, 1995. *Crisis and Insecurity, the other Face of Poverty*.

group has the land resources to try out new crops and cropping patterns and has demonstrated initiative in the project area to diversify cropping. The Project will support this process and focus on the small-scale farmers to promote HVC production, and will encourage women farmers to actively participate in the Project.

54. The Project will have six components: (i) farmer training and extension, (ii) farmer mobilization and credit support, (iii) adaptive research, (iv) marketing support, (v) pilot agribusiness credit line for post-harvest activities, and (vi) support for project management.

### **1. Farmer Training and Extension**

55. The Project will finance training in HVC production and marketing through a three tier training process: (i) technical training for personnel of DAE and interested participating NGOs, (ii) institutional training for farmers interested in HVC production, and (iii) village-based training for farmer participants unable to attend institutional courses. Staff training and institutional farmer training will be provided at the four existing horticulture training and demonstration centers (HTDCs) constructed under ADB's Horticulture Development Project and other training facilities identified in the region, including those operated by NGOs. The training facilities will be upgraded as necessary. The Project will finance the expansion of training centers where necessary, and the development of (i) training programs for farmers and for staff responsible for training and extension, (ii) comprehensive visual technology packages for HVCs to be disseminated through village-based extension, and (iii) extension support from DAE and NGOs.

56. About 200,000 farmers will participate in training programs over the project period, through institutional and village-based training programs. Since the objective is to demonstrate new cropping opportunities in the project area and equip the identified farming community to implement it, the Project will finance the full costs of farmer training in the first three years of the training program. Options to sustain the training and extension support beyond the project life will be assessed and finalized during the midterm review. These could include contracting or leasing out of all or some training facilities to interested NGOs and the private sector or charging of trainees, including NGO staff and farmer participants.

57. The training courses will be aimed at small-scale farmers and thus will focus on HVCs to be identified by the DAE and NGOs. The HVCs could include field crops such as potato, hybrid maize, legumes, and spices; fruit such as bananas and papayas; and vegetable.

### **2. Farmer Mobilization and Credit Support**

58. Four major NGOs with extensive experience in farmer mobilization, experience in the northwest, and (in some cases) experience in HVCs have indicated their willingness to participate in the Project in partnership with DAE. These are BRAC, GKF, PROSHIKA, and RDRS (Appendix 4). These NGOs all have large memberships, handle large volumes of credit annually, and have sound and trustworthy management. BRAC, for example, has over 3.3 million members and handled a credit program of Tk7.1 billion (\$140 million) in 1998. Similarly, PROSHIKA has 1.4 million members and disbursed Tk2.8 billion (\$54 million) in 1998. Both are already engaged in contracted seed production and HVC programs with farmers. GKF and RDRS are smaller, but both have extensive experience in the northwest and have been working on promoting agriculture.

59. DAE and NGOs will be jointly responsible for publicizing the Project among small-scale farmers and identifying potential participants through participatory assessments and self

selection by qualifying interested farmers. The NGOs will facilitate the formation of farmer groups for training and credit. About \$16 million<sup>27</sup> of credit will be coursed through the NGOs during the project period to finance the short-term credit requirements of the project participants. Credit demand has been estimated on the basis that, on the average, each participating farmer will grow 0.25 ha of HVCs. About 160,000 trained farmers are likely to opt for the credit packages.<sup>28</sup> Given the NGOs' current levels of lending and farmer mobilization this is considered to be well within their capabilities.

60. Since each NGO has its own means of mobilizing farmers and providing credit, the Project will not prescribe any change in their practices and procedures other than to focus project activities on the identified HVCs and on the small-scale farmer target groups.

### **3. Adaptive Research**

61. For many of the HVCs to be promoted by the Project, available technologies will allow much higher yields to be achieved than with traditional varieties and traditional techniques. However, data on such technologies need to be consolidated and some of technologies need to be tested and adapted to conditions prevailing in the northwest. To support the field extension and training program, improve access to better technologies, and ensure the supply of high quality planting materials for a wide variety of HVCs, the Project will support adaptive research by various research agencies (Bangladesh Agriculture Research Institute [BARI], universities, the private sector, NGOs) throughout the northwest.

62. Activities to be financed under the adaptive research program will be (i) the preparation of an electronic data bank on HVC varieties and technologies through the identification and compilation of existing research results in Bangladesh research institutions and the identification and procurement of relevant existing technologies and HVC varieties from international research centers;<sup>29</sup> (ii) the provision of some funding to horticulture research facilities in the region; and (iii) adaptive research carried out on a contract basis by suitable research agencies. The topics for adaptive research contracts will be based on proposals received from the field extension workers. Mechanisms for research-extension collaboration and farmer participation in farm trials and demonstrations will be detailed in the contracts to be awarded by the project management unit (PMU).

### **4. Marketing Support**

63. A key aspect of the promotion of HVC production will be assistance for improved marketing. While a market for high value produce already exists in the region, support is needed to provide farmers with up-to-date price information so they can maximize their returns and increase output with better quality standards. Marketing support will have two elements: (i) strengthening DAM to allow it to collect, collate, and disseminate accurate, dependable and timely information on the prices and demand for HVCs; and (ii) renovating and upgrading primary village markets and providing model growers' markets in areas producing large volumes of HVCs.

64. Support will be provided to DAM (in the form of consultancies and training) to assist it (i) to develop a market information strategy and train its staff to implement the strategy, (ii) in developing market information and broadcast modules, and (iii) in financing market broadcasts

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<sup>27</sup> Base cost.

<sup>28</sup> On project completion, this will result in at least 40,000 ha of incremental cultivation of HVCs.

<sup>29</sup> Such as: Asian Vegetable Research Development Centre (AVRDC), International Centre for Research in Semi-Arid Tropics (ICRISAT), and International Centre for Potato (CIP).

during the project period. A strengthened DAM will disseminate market information to a wide audience throughout the region through regular market radio broadcasts, providing current market prices and trading volumes.

65. Sixty primary village markets will be renovated and upgraded in subdistricts producing large volumes of HVCs and where the Project is active. In addition, 16 large growers' markets<sup>30</sup> will be constructed throughout the region consisting of one market per district, each in an area of existing or potential HVC production. Markets will be provided with loading and unloading areas, covered areas for produce display and storage, a fresh water supply, and sanitation and waste disposal facilities. To promote efficient operation of the upgraded market facilities, the Project will finance a market management study and implement more efficient market management systems. This subcomponent will assess other market management systems operating in the neighboring countries especially for HVCs, formulate adaptable models, and assist in their implementation and evaluation.

### **5. Pilot Agribusiness Credit Line**

66. The production of increased levels of HVCs under the Project is likely to increase requirements for postharvest storage, processing, and transport enterprises. At the same time, an expansion of such enterprises in the project area will act as a stimulus to farmers diversifying to HVCs by expanding the size and nature of the markets available to them. Additional cold storage, feed mills, and vegetable and fruit processing plants, for example, could allow farmers to grow larger volumes of high value produce and to choose a broader range of crops.

67. One impediment to the establishment of agribusiness enterprises has been limited access to credit, especially for private and individual entrepreneurs interested in medium-sized ventures. ADB is considering an agribusiness development project preparatory TA, programmed for 2003. This major thrust to support medium-sized agribusiness could help alleviate many of the constraints being faced by medium-sized entrepreneurs and provide technical and institutional support for the new entrants. In this context, at the request of Government, a pilot credit line has been included in the Project to test the feasibility and viability of some representative enterprises and the implementation and institutional arrangements for agribusiness lending. This component will also help stimulate the market for agricultural produce within the project area and provide guidance in designing the forthcoming agribusiness loan.

68. The credit line of about \$1.0 million will be on-lent through RAKUB, a bank that specializes in agriculture exclusively in the northwest region. This pilot activity will focus on the establishment of downstream agribusinesses in the region in order to support the HVC production under the Project. Activities to be supported will include cold storage, feed mills, packing and packaging enterprises, seed processing and storage, and specialized transport for HVCs. The technology for all of these enterprises is available in the country.

### **6. Project Management Support**

69. A project management unit (PMU) will be established within DAE to supervise overall Project implementation and monitoring. The PMU will be supported with necessary equipment, transport, and a team of national and international consultants to guide and support project activities. Two regional project coordination and supervision units will be established, one at Rajshahi and one at Rangpur. The units will oversee operations in the field and interact with beneficiaries. Project implementation units (PIUs) will be established in each implementing agency and operational support will be provided to them through the Project.

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<sup>30</sup> Wholesale markets where traders purchase HVCs in high volumes from farmers and traders.

### C. Cost Estimates

70. The total cost of the Project is estimated at \$66.2 million equivalent including about \$2.2 million for taxes and duties. The foreign exchange cost is estimated at \$19.5 million, or about 29 percent of the total, including \$1.3 million for interest during construction on the ADB loan. Local currency costs are estimated at \$46.7 million equivalent, or about 71 percent of the project total. Cost estimates are summarized in Table 1 and detailed in Appendix 5.

**Table 1: Project Cost Estimates**  
(\$ million)

| Component                              | Foreign Exchange | Local Currency | Total Cost  |
|--|------------------|----------------|-------------|
| <b>A. Base Cost</b>                    |                  |                |             |
| 1. Training and Extension              | 4.9              | 7.8            | 12.7        |
| 2. Farmer Mobilization and Credit      | 5.2              | 20.6           | 25.8        |
| 3. Marketing Support                   | 2.6              | 6.0            | 8.6         |
| 4. Adaptive Research                   | 0.4              | 0.3            | 0.7         |
| 5. Pilot Agribusiness Credit           | 1.0              | 0.7            | 1.7         |
| 6. Project Management Support          | 1.7              | 1.6            | 3.3         |
| <b>Subtotal (A)</b>                    | <b>15.8</b>      | <b>37.0</b>    | <b>52.8</b> |
| <b>B. Contingencies</b>                |                  |                |             |
| 1. Physical <sup>a</sup>               | 0.5              | 0.8            | 1.3         |
| 2. Price <sup>b</sup>                  | 1.9              | 8.9            | 10.8        |
| <b>Subtotal (B)</b>                    | <b>2.4</b>       | <b>9.7</b>     | <b>12.1</b> |
| <b>C. Interest During Construction</b> |                  |                |             |
| <b>Subtotal (C)</b>                    | 1.3              | ---            | 1.3         |
| <b>Total</b>                           | <b>19.5</b>      | <b>46.7</b>    | <b>66.2</b> |

<sup>a</sup> Physical contingencies are based on 5 percent of base cost of all items, except agriculture credit and pilot agribusiness credit.

<sup>b</sup> Price contingencies are applied to all components and based on average annual escalation of 2.4 percent for foreign exchange and 6.4 percent for local currency cost.

Source: Mission estimates.

### D. Financing Plan

71. The proposed financing plan is shown in Table 2. It is proposed that ADB provide a loan of \$46.3 million equivalent from its Special Funds resources to finance 70 percent of the total cost of the Project. The loan will finance \$19.5 million equivalent of the foreign exchange costs and \$26.8 equivalent in local currency costs. The remaining project costs, amounting to \$19.9 million, will be met by other sources including the Government (\$9.6 million) and beneficiaries (\$10.3 million). The loan will have a repayment period of 32 years, including a grace period of 8 years, and will carry an interest charge of 1.0 percent per annum during the grace period and 1.5 percent thereafter. The Borrower will be the People's Republic of Bangladesh. The foreign exchange risk for the loan proceeds will be borne by the Borrower.

72. The Project has a high local cost component because it aims at developing the poorest region of Bangladesh by enhancing the region's capacity to produce and market HVCs. Thus, a large portion of investment is needed to improve research and extension programs, farmers' training, microfinance, and marketing facilities; all of which require local cost items. Given the country's weak financial position with overall lack of domestic budgetary resources in the sector, much of the local cost of the Project must be financed externally to avoid increasing pressure on the Government budget. As such, ADB assistance for local cost financing for this Project is considered justified.

**Table 2: Financing Plan**  
(\$ million)

| Source        | Foreign Exchange | Local Currency    | Total Cost  | Percent      |
|---------------|------------------|-------------------|-------------|--------------|
| ADB           | 19.5             | 26.8              | 46.3        | 70           |
| Government    | 0.0              | 9.6               | 9.6         | 14           |
| Beneficiaries | 0.0              | 10.3 <sup>a</sup> | 10.3        | 16           |
| <b>Total</b>  | <b>19.5</b>      | <b>46.7</b>       | <b>66.2</b> | <b>(100)</b> |

<sup>a</sup> Consisting of farmer and paid labor.

Source: Mission estimates.

## E. Executing Agencies

### 1. The Department of Agricultural Extension

73. DAE of the Ministry of Agriculture will be the principal Executing Agency. DAE has considerable experience in execution of similar Projects, including the ADB-financed Horticulture Development Project and the Command Area Development Project. DAE has also had a major role in the seminal Agriculture Support Services Project and the Agriculture Services Innovation and Reform Project. Both projects were financed by DFID and the World Bank, and have been instrumental in bringing about a major reform of the provision of agriculture support services in the country. DAE is currently managing 35 projects, of which 13 involve bilateral or multilateral funding. The agency is essentially a field organization with most of its staff consisting of 10,500 extension block supervisors stationed in the 468 subdistricts of the country, supported by 5 specialist officers in each subdistrict. DAE also manages the HTDCs provided under the Horticulture Development Project. While previously somewhat wary of NGOs and the private sector, DAE's new strategic plan recognizes its limitations as a Government agency and envisages close cooperation with NGOs and the private sector in extension activities. This is already being put into practice, particularly with NGOs involved in agriculture.

### 2. Bangladesh Bank

74. Bangladesh Bank will be the second executing agency and will manage the funds for the credit components of the Project. Bangladesh Bank serves as the country's central bank, and thus is ultimately responsible for credit refinancing and supervision of the country's financial institutions. The apex channeling agency for NGOs (PKSF) did not wish to extend its scope to include agriculture and the small farmer category. The new apex NGO agency for agriculture, the Krishi Rin Foundation (KRF) is not yet established, the financial status of the banking institutions in the country was considered unsatisfactory, and the financial intermediation by the NGOs in the Project is an innovation that will need to be monitored. This arrangement was also considered appropriate because it will allow for a change in the on-lending agency, if necessary or desirable during project implementation.<sup>31</sup> The Agriculture Credit Project Department of Bangladesh Bank is familiar with the requirements of implementing externally-assisted projects and has been involved in several ADB-financed Projects, including (i) the Northwest Rural

<sup>31</sup> This would accommodate, for example, the use of the proposed NGO agriculture financing apex organization, the Krishi Rin Foundation, as an implementing agency during the latter part of the Project.

Development Project,<sup>32</sup> (ii) the Second Aquaculture Development Project<sup>33</sup> and (iii) the Northeast Minor Irrigation Project.<sup>34</sup>

## **F. Implementation Arrangements**

### **1. Project Management**

75. The proposed project management structure is given in Appendix 6. The principal Executing Agency for the project, DAE, will be assisted in project implementation by two other Implementing Agencies: DAM, and the LGED of the Ministry of Rural Development and Local Government. In addition, several NGOs will have a central role in the Project as part of a public-private partnership with the DAE. The four participating NGOs: (BRAC, GKF, PROSHIKA, and RDRS) will be responsible for providing credit packages to project beneficiaries and will work with DAE in the mobilization, training, and provision of post-training extension support to participating farmers. As the principal executing agency, DAE will be responsible for overall project management and execution. It will be specifically responsible for implementing the extension and training component through its Food Crops and Field Services wings, in partnership with the participating NGOs. DAE will also be responsible for implementing the adaptive research component. DAM will implement the market information and the market management subcomponents, while LGED will implement the provision of market infrastructure (primary and grower markets), working in conjunction with DAE, DAM, and the relevant local level authority (district, subdistrict, municipality, or groups of villages as the case may be).

76. Bangladesh Bank will be responsible for relending, supervision, and monitoring of the credit funds to participating NGOs; the pilot agribusiness credit line; and management of the revolving funds for credit repayments from the NGOs and the agricultural entrepreneurs. Bangladesh Bank will be assisted by RAKUB to channel funds to the NGOs and administer the pilot credit line. A channel was necessary because the Bangladesh Bank's charter does not allow it to directly on-lend funds to NGOs. RAKUB is a suitable agency for this task since it is, by mandate and charters an agriculture development bank focusing on the northwest region. Further or alternative channeling agencies may be selected by agreement between the Government and ADB if considered necessary or desirable during project implementation.

### **2. Interagency Coordination**

77. Overall coordination among agencies will be achieved through a project coordination and steering committee chaired by a secretary of the Ministry of Agriculture and consisting of all agencies involved in the Project plus the Economic Relations Division of the Ministry of Finance, the Planning Commission, the Implementation Monitoring and Evaluation Division of the Ministry of Planning and a representative of the Divisional Commissioner of Rajshahi Division. This committee will meet at least twice a year to discuss the progress of project implementation, resolve issues of interagency coordination, and provide overall guidance to project management.

78. To provide smooth operation of the farmer mobilization, training, and credit component a DAE-NGO coordination committee will be established. This committee will be chaired by the head of the PMU and will consist of representatives from the DAE PIU, each participating NGO,

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<sup>32</sup> Loan 615-BAN: *Northwest Rural Development Project*, for \$45.0 million, approved on 14 November 1982.

<sup>33</sup> Loan 821-BAN: *Second Aquaculture Development Project* for \$45.46 million, approved on 16 December 1986.

<sup>34</sup> Loan 1125-BAN: *Northeast Minor Irrigation*, for \$73.0 million, approved on 21 November 1991.

and RAKUB. The terms of operation for this committee will be prepared by the PMU in cooperation with the participating NGOs, within six months of loan effectiveness.

79. An interagency coordinating body is necessary to ensure that all involved agencies, the PMU, DAM, LGED, and local authorities participate fully in the planning, execution, and operation of the marketing component. Market committees will thus be set up for this purpose in each subregion covered by a regional project supervision unit (PSU). These committees will be chaired by the regional head of PSU and will consist of representatives from DAM, LGED, local authorities in the districts covered by the PSU, and representatives of market vendors. Terms of operation of the market committees will be prepared by the PMU within six months of loan effectiveness.

### **3. Project Management Unit**

80. Day-to-day project supervision will be through a PMU set up within DAE headquarters in Dhaka. DAE is the appropriate location for the PMU since the intent and direction of the Project is very much within the mandate and purview of DAE and its operations. A Dhaka-based PMU is appropriate in view of the need for the PMU and its staff to liaise with a number of agencies' head offices.

81. The PMU will be responsible for (i) planning, budgeting, supervising, and monitoring the project implementation work of all public sector implementing agencies (DAE, DAM, LGED, and the contracted research agencies); (ii) entering into and monitoring contracts and agreements with the NGOs with relation to farmer mobilization, for credit provision and follow on extension support; (iii) in cooperation with Bangladesh Bank, monitoring the flow of credit to NGOs, farmers, and private entrepreneurs; (iv) procuring equipment and recruiting consultants for all components; (v) accounting for all loan funds, commitments, disbursements, and reimbursements; and (vi) liaising with ADB.

82. The PMU will be headed by a full-time, experienced, senior project director, to be appointed by the Ministry of Agriculture, and will comprise five units: (i) budget, planning, and coordination with ADB; (ii) interagency coordination; (iii) procurement; (iv) accounting; and (v) monitoring and evaluation. Each unit will be headed by competent staff of adequate seniority and experience.

83. For effective project implementation and coordination with the PMU, appropriately staffed project implementation units (PIUs) will be set up within the executing and implementing agencies. This will entail PIUs in Bangladesh Bank, DAE, DAM, LGED, RAKUB, and each participating NGO. In addition, to ensure a field-level presence for project supervision and coordination, two regional PSUs will be set up, one at Rajshahi and one at Rangpur, each under the regional additional director of agriculture. These units will be responsible for overseeing and coordinating project implementation in the field and will work under the guidance of the PMU.

84. The PIUs will be responsible for the individual day-to-day implementation of the project components and for reporting progress under these components to the PMU and will be established within one month of loan effectiveness.

#### **4. Specific Implementation Arrangements**

##### **a. Farmer Training and Extension Component**

##### **i. Formulation of Training Courses**

85. DAE's Food Crops Division, under the supervision of the PMU, will be responsible for the formulation of training programs suitable for promoting HVC production. Several types of training courses will be developed. These will include courses (i) aimed at training new and existing staff of DAE and participating NGOs who will be carrying out institutional training programs; (ii) intended to equip field staff to provide village-based training; (iii) aimed at DAE and NGO staff who will be providing follow-on extension support; and (iv) aimed at the majority of the intended beneficiaries, who will be small-scale farmers. Staff of the Food Crops Division will be assisted in course formulation by a team of international and local consultants.

##### **ii. The Training Facilities**

86. The Project will use existing facilities that will be upgraded to accommodate an increased number of farmer trainees. These facilities include the four HTDCs under DAE at Chapai Nawabganj, Natore, Pabna, and Rangpur; two agriculture training centers under participating NGOs (BRAC at Dinajpur and GKF at Rangpur); two horticulture training centers under BADC at Rajshahi and Bogra and the Rural Development Academy that provides agriculture training at Bogra. All of these training facilities will be used under the Project. Terms and conditions for the use of these facilities will be agreed upon and finalized between the DAE and the facility operator prior to loan disbursement. All training facilities will be supported under the Project and needs for any upgrading, equipment, and operational requirements will be assessed based on curriculum design and number of institutional trainees intended for each facility. Assistance will be provided through local consultants for designing the upgrading works required.

##### **iii. The Training Programs**

87. Training programs will be designed to cover all farmers interested in HVC production and will be oriented to less risky field crops like tubers, hybrid maize, sunflowers, legumes, spices, hardy vegetables, and fruit crops such as banana and papaya. Village-based training courses will also be designed for farmers not able or willing to participate in the institution-based training program. Courses designed for village-based training will resemble the institution-based courses for the small-scale farmers but will be implemented in accordance with a schedule developed in consultation with the participating farmers.

##### **iv. Follow-Up Activities**

88. Follow-up field training for participants will be provided during crop production and marketing. This will be organized by DAE in coordination with NGOs and will use the DAE field staff (block supervisors), supplemented by NGO staff trained in horticulture. Wherever possible, participants will be encouraged to form marketing groups to help defray marketing costs and negotiate bulk purchasers. Some NGOs already have vertically integrated programs, which include the marketing of produce grown by participating farmers or grown on a contract basis. Where possible, the PMU will try to locate focus areas of the Project where such programs are active, especially in the early years of project implementation.

## **b. Farmer Mobilization and Credit Component**

### **i. Identification and Mobilization of Farmers**

89. Identifying and mobilizing farmer participants for the Project will be an interactive process entailing coordination between the staff of DAE and the NGOs. This will involve the participating NGOs and DAE publicizing the Project; and the NGOs selecting participants based on agreed selection criteria and undertaking group formation. NGOs will be encouraged to identify and mobilize households headed by women, and progressive women farmers to participate in the Project, wherever possible. The Project beneficiaries will be those who (i) own and operate landholdings of at least 0.2 ha and no more than 1.2 ha, (ii) have landholdings in subdistricts identified as having good potential for HVCs, (iii) have access to primary markets, (iv) indicate a willingness to participate in group activities, and (v) have not already received support for HVC from some other source.

### **ii. Credit Provision for Crop Diversification**

90. About 160,000 of the planned 200,000 trainees<sup>35</sup> will opt to take credit packages from participating NGOs after completing their initial training program. Selection criteria for the provision of credit (in addition to criteria for participation in the training program) will include successful completion of the institutional training course or a minimum number of village-based training sessions, plus any other reasonable criteria a particular NGO may wish to impose. The credit packages will be based on farmers' proposals and will depend to a large extent on the type of crop to be grown and the area to be planted. A maximum loan size of Tk10,000 (\$200) will be allowed. Terms and conditions of the credit packages will be based on each individual NGO's practices, which currently entail interest rates of 15-20 percent. In the interest of equity among participating beneficiaries, some broad standards will be maintained for the size of credit packages provided, interest rates, and repayment periods. The Government has agreed to coordinate with and among the NGOs to develop acceptable and standard terms and conditions for the provision of subloans to beneficiaries. The allocation of funds to each NGO for credit provision will be based on the number of farmers to be covered and will be decided by agreement between DAE and each NGO, and incorporated in the contracts. Disbursements will be made on the basis of agreed annual work plans.

### **iii. Interaction with Participating NGOs**

91. A final selection of NGOs to participate in the Project was confirmed during loan negotiations. Furthermore, as a condition of loan disbursement, contracts will be signed between the PMU and the selected NGOs specifying, among other things, the subdistricts in which the NGOs will operate, the roles of the NGO and of DAE in farmer mobilization and training, the operational and coordination arrangements between DAE and the NGO, the target number of farmers per subdistrict, agreed selection criteria for participating farmers, the size of credit packages to be promoted, general parameters relating to interest rates and repayment periods of the credit packages, and the fee to be provided to the NGO for its services.

### **iv. On-Lending and Relending Conditions for Farmers' Credit**

92. The Government will make the agriculture credit funds available to Bangladesh Bank under a financing agreement, with interest at the rate of 2 percent per annum and a repayment

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<sup>35</sup> Assuming a drop out rate of 20 percent based on NGO experience and discussions with extension staff and farmers in the field.

period of 20 years including a grace period of 5 years. The Bangladesh Bank, in turn, will channel the funds to the selected NGOs, through RAKUB (para. 76), on terms and conditions laid down in a subsidiary loan agreement between them, satisfactory to the Government and ADB. Similar agreements will be signed between RAKUB and the NGOs, detailing the terms and conditions for relending and repayments. NGOs will be provided funds at the prevailing PKSF lending rates to NGOs with a repayment period of up to two years.<sup>36</sup> Disbursements to the NGOs will be made semiannually and will be based on agreed annual work plans submitted by the PMU to Bangladesh Bank. The NGOs will provide funds to participating farmers at agreed terms and conditions satisfactory to the Government and the ADB.

93. Any decision to use a credit channeling agency other than RAKUB will require ADB's prior approval, and the proposed agency will be required to meet qualification criteria agreed upon by the Government, Bangladesh Bank, and ADB.

**c. Adaptive Research component**

94. The adaptive research will be undertaken under the supervision of the PMU. The PMU will assess and finance the upgrading requirements of the horticulture research centers in the northwest region; finance the establishment of a horticulture data bank at the Bangladesh Agriculture Research Institute (BARI); and (based on proposals and requests from the extension workers, NGOs and DAE, or the HTDCs), contract adaptive research projects to research agencies in the region. The operation of the contract research system will be designed in the first year of project implementation by the research management consultant to be recruited in the PMU.

**d. Marketing Support component**

**i. Market Information**

95. The market information subcomponent will entail formulating a market information and dissemination strategy, training DAM staff in market information collection and dissemination, preparing broadcast modules for the dissemination of market information by radio, and training DAM staff to do market surveys. Consulting services, staff training, vehicles, and equipment support will be provided to assist DAM with the market information and dissemination. The preparation of broadcast modules will be contracted out to an appropriately qualified media company.

**ii. Market Infrastructure**

96. The preliminary identification of primary and growers' markets for upgrading will be done by DAM based on market surveys and studies, some of which are already completed and some of which will be undertaken under the Project. Candidate markets for upgrading will be proposed to the market infrastructure committees, and recommendations of the committees will be discussed with the relevant local administration (districts in the case of growers' markets and subdistricts in the case of primary markets) prior to final funding approval by the PMU. Market construction/upgrading will then be arranged directly between the PMU and LGED. The LGED PIU will be responsible for implementation.

97. With regard to market O&M, the PMU will direct a regionwide market management study, using international and domestic consultants. On the basis of the study's

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<sup>36</sup> The current PKSF rate for large NGOs is 7.0 percent.

recommendations and consultation with local authorities and representative private sector stakeholders, management options will be developed, implemented, and monitored. The options will be adjusted, as appropriate throughout the project implementation period. In developing the options, particular emphasis will be placed on governance and on developing viable and sustainable public-private partnerships in market management.

#### **e. Pilot Agribusiness Credit component**

98. The pilot agribusiness component will be undertaken by RAKUB. Potential borrowers will be identified through advertisements in newspapers in Dhaka and the northwest region. The advertisements will explain the nature of the component, the types of enterprises to be provided credit, the counterpart financing requirements, and the need for preinvestment technical and financial feasibility studies.

99. Funds for the credit line will be made available from the Government to Bangladesh Bank, at interest rate of 3 percent and repayment period of 20 years including a grace period of 5 years. Bangladesh Bank will on-lend the funds to RAKUB at the Bangladesh Bank rate.<sup>37</sup> RAKUB in turn will relend the funds to interested agribusiness entrepreneurs at their standard commercial terms and conditions. The entrepreneurs will be registered within the existing legal framework for the establishment and operation of agribusiness enterprises (packaging, cold storages for potato, vegetables, feed mills, seed processing, specialized refrigerated transportation, etc.), and will provide at least 25 percent of the equity from their own resources. The maximum loan size will be \$150,000. Any loan above \$100,000 will require the prior approval of ADB. Interest rates will be the market rates prevailing for similar commercial RAKUB loans and repayment periods will be agreed between RAKUB and the entrepreneur, based on projected cash flows of enterprise to be financed. To secure a loan, the Borrower will be required to provide collateral acceptable to the lending institution. ADB will review the component fully after 50 percent of funds under the credit line have been disbursed.

### **5. Project Implementation Schedule**

100. The Project is innovative in implementing the DAE-NGO partnership for extension and training and bringing the NGOs into agricultural credit for small-scale farmers. Some components may therefore take time to be set up and become fully operational. Training programs and training materials will need to be formulated; DAE staff and NGO staff will need to be trained; and, before the program can begin, the training facilities will need to be upgraded and the program publicized in the project area so that farmers can express interest and commitment. Market surveys will be needed before the marketing infrastructure component can begin. A seven-year implementation period has therefore been planned, with the first year considered a start-up phase and the remaining six years as the implementation phase. Some of the market information work, the adaptive research work, the market infrastructure work, and the pilot agribusiness credit provision could, however, commence within the first year. An implementation schedule is given in Appendix 7.

### **6. Procurement**

101. Goods and services financed by ADB will be procured in accordance with ADB's *Guidelines for Procurement*. The major items to be procured will be equipment and materials, as well as a relatively modest amount of civil works. Equipment will consist of office, training, and research equipment for the PIUs, HTDCs, village-based training program, and horticulture

<sup>37</sup> Bangladesh Bank rate is the rate at which the Central Bank lends funds to commercial banks.

research centers. A modest number of vehicles will also be procured to allow mobility of field and headquarters staff and consultants. Materials to be procured will largely consist of training materials for the training programs, including approximately 200,000 copies of training and field manuals for farmer participants. Civil works contracts to be awarded will consist of the upgrading of HTDCs, and the construction/upgrading of primary and growers' markets.

102. All procurement will generally be undertaken by the PMU after agreement with the relevant PIU on the scope, nature, and specifications of the items to be procured. Items procured by the subborrowers under the pilot agricultural credit line will be procured through direct purchase in accordance with established commercial practices. Since all civil works procured under the Project will be simple in nature, dispersed throughout the northwest region and relatively small in size,<sup>38</sup> an international firm is not likely to be interested in bidding for them. Moreover, works of this nature can be successfully completed to acceptable standards by local contractors. Civil works will thus be awarded through local competitive bidding procedures acceptable to ADB.

103. Vehicles and equipment will be procured through international shopping for packages costing more than \$100,000 and less than \$500,000, and by direct purchase for packages costing less than \$100,000. Service contracts and contracts for training materials will be awarded on the basis of local competitive bidding among prequalified local firms, institutes, and agencies using ADB guidelines. Service contracts for NGOs will be by direct purchase, negotiated on the basis of preselection of NGOs according to selection criteria agreed between the Government and ADB (see Appendix 8) and with payments of standard fees per participating farmer. Appendix 9 gives an indicative list of procurement packages showing size and method of procurement.

## **7. Consulting Services**

104. The project will require 582 person-months of consulting services consisting of 124 person-months of international and 458 person-months of local expert services. Most of this expertise will be for the formulation of the training programs and for assistance with project start-up and management. Some local and international expertise will also be provided to DAM for designing a program of data collection and dissemination and to provide associated training. Consulting services will also be provided to assist local authorities in formulating and testing improved management systems for primary and grower markets. Service contracts will include contracts between the PMU and participating NGOs, contracts with a media company to prepare broadcast modules for the DAM, a contract to prepare the horticulture research data bank, contracts with horticulture research centers to undertake adaptive research, and contracts for periodic project benefit monitoring and evaluation. Indicative terms of reference for consulting services are presented in Appendix 10.

105. All consulting services will be engaged in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB for the engagement of domestic consultants. Since specialized expertise and experience will be required for the formulation of training courses and implementation of training programs, consultants for this component will be recruited as a team from a reputed agriculture training institution, possibly in combination with a suitably qualified consulting firm. All other consultants will be recruited as teams from qualified consulting firms in accordance with the packages shown in Appendix 10, except for the adaptive research and seed verification specialists who, because of the nature of expertise required, will be recruited as individual consultants.

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<sup>38</sup> The largest single contract is unlikely to exceed \$350,000.

106. The Government will advance action in respect of consultant recruitment procedures to the stage of shortlisting, to expedite the Project once the proposed loan is approved.

## **8. Training**

107. Training activities will be an integral part of the Project with one whole component devoted to the training of DAE and NGO field and extension workers as well as farmer participants. Under this component, about 600 professional staff of DAE and the NGOs will receive training in the production and marketing of HVCs and in extension and farmer mobilization techniques. About 200,000 small-scale farmers will receive training at centers upgraded by the Project or village-based training through their NGO groups, supplemented by input from DAE staff. In addition, in the Project provides for the training of DAM staff. This will include on-the-job training by local and international consultants and study tours to observe market management and information dissemination systems in relevant neighboring countries.

## **9. Operation and Maintenance**

108. As the Project is largely credit based and will, to a considerable extent, use existing facilities and services (HTDCs; the staff of DAE, DAM, and LGED; the staff of participating NGOs; and the services of Bangladesh Bank and RAKUB) large incremental O&M costs are not envisaged. The major operational expenditures will be the costs of the training program (about \$400,00 per year over the project period), the O&M costs of the upgraded HTDCs (about \$100,000 per year) and the O&M costs of the markets (about \$10,000 per market per year for primary markets and \$20,000 per market per year for growers' markets).

109. The Project will cover training program O&M costs during the project period, but will firm up modalities and arrangements to make the training program and the HTDCs self-financing. The Government has agreed that various modalities will be investigated during the project period, including possible rental of the facilities to NGOs/private sector entities, and will be agreed upon during the mid term review.

110. The O&M of market facilities in Bangladesh and in the northwest region in particular is already undertaken following established procedures that entail leasing the facilities by local authorities to private sector management contractors on an annual basis. This allows some of the fees collected to be returned through O&M financing. However, considerable amounts of the fees are lost. This situation will be addressed under the Project through a study on market management which will present alternative O&M formulations to local authorities. During the project period, local authorities participating in the market infrastructure component will be encouraged, under the guidance of staff of DAM, LGED, and the PMU, to implement different O&M formulations until optimal solutions are found. In doing so, particular emphasis will be placed on developing public-private sector partnerships in market management. The options will then provide demonstration cases to other local authorities, giving an incentive to improve and upgrade market management throughout the region. The Government has indicated that a commitment to improve market O&M procedures will be a part of the market upgrading agreement signed with local authorities prior to market improvement.

## **10. Sustainability**

111. Large incremental O&M costs are not envisaged (para. 108). Upon project completion, the only facilities that will require continued financial support by the Government will be the training centers. The Government has agreed to investigate modalities to make the centers self-financing (para. 56). Even if no means of financing the centers are formulated, the cost of running them is expected to be modest (about \$100,000 per annum).

112. The main operational costs after the project period will be the costs of agricultural inputs the farmers use for continued diversified crop production and the operating costs for markets upgraded under the Project. On Project completion, the participating NGOs should be able to continue their agriculture credit and training activities with funds generated from other sources, including the interest spread on their microfinance activities and borrowings from the proposed Krishi Rin Foundation. In the case of markets, while the cost of market construction will be met by the Government during the project period, the cost of market maintenance will be borne by the private sector users of the market facilities, through fees to market lessees who are contracted by the market committee to operate them.

## **11. Beneficiary Participation**

113. The Project is designed to be demand-driven and participatory, especially the training and extension and the farmer mobilization and credit components. The program and qualification criteria for these components will be publicized within the target subdistricts by the DAE and the NGOs, and farmers who meet the selection criteria will be encouraged to enlist in the Project. Once enrolled in the program, participating farmers will decide which of the training courses to attend, which crops they will grow, how much land will be planted to HVCs, and the size of the credit package they will receive from the NGOs (depending on the crop and area to be planted). Given the important role played by women in crop production in the project area, the NGOs will ensure that farmers' groups include both men and women, in mixed or separate groups, as appropriate. Project monitoring activities will be designed to include feedback so that the experience and views of farmers who have participated can be reviewed by the PMU, allowing appropriate changes in design, the training program, or the credit provision to be made during the midterm review. The pilot agribusiness component has also been designed so that participants enroll themselves, and similar feedback mechanisms will be built into the monitoring procedures. For market upgrading, beneficiary participation will consist of interaction between the local government authority planning the market, market users and the LGED, which will be preparing individual market designs. Subdistrict and district market committees will be the forum for this interaction for the primary and growers' markets, respectively.

## **12. Disbursement Procedures**

114. To ensure the timely release of loan proceeds and counterpart funds and to expedite project implementation, the Government will, immediately after the loan becomes effective, establish three imprest accounts in Bangladesh Bank, one for the PMU to cover funding requirements for the public sector agencies with an initial amount of not more than \$1,000,000 equivalent, one for Bangladesh Bank to provide for the flow of credit funds to the participating NGOs with an initial amount of not more than \$500,000 equivalent, and one for Bangladesh Bank to finance the pilot agribusiness credit line with an initial amount of not more than \$100,000. Payments may be made from and to the accounts for all eligible expenditures under the Project. The first account will be operated and managed by the PMU and the second two by the Bangladesh Bank, in accordance with *ADB's Loan Disbursement Handbook*. ADB's statement of expenditure procedure will be used for liquidating advance payments from the imprest accounts, not exceeding \$50,000 equivalent.

### **13. Revolving Funds**

115. Two revolving funds will be set up within the first year of project implementation to allow for continued use of funds provided under the crop production credit and the agribusiness credit line. The revolving funds will be established in the Bangladesh Bank rather than RAKUB to allow flexibility to change the credit channeling agency, if necessary, during the project implementation. The revolving funds will be operated by the Bangladesh Bank throughout the project life and for a further 10 years after project completion. The Bangladesh Bank will assign and retain one senior officer to manage the two funds.

### **14. Accounts, Audits, and Reports**

116. Each PIU will establish and maintain accounts and records of project progress and expenditures to facilitate the identification of income and expenditures related to the Project. The PIU staff will each be assisted in this by staff from the PMU, which will have an adequate number of accounting staff, including two accountants dedicated solely to monitoring project expenses, reimbursement, and accounts. The PMU will be responsible for consolidating all accounts and submitting all reimbursement requests to ADB. Audited accounts and financial statements, together with the report of the auditor, will be submitted to ADB within 6 months of the close of the related financial year.

117. Each PIU will prepare quarterly progress reports, which the PMU will consolidate into project reports. The reports will detail the achievements related to the implementation schedule, targets and plans for the next reporting period, problems requiring resolution, and the steps being taken to resolve them.

118. Within three months of project closing, DAE will prepare a project completion report for submission to ADB. The report will detail the results and achievements of the Project, provide an analysis of the funds spent, and indicate measures to ensure the sustainability of project investments.

### **15. Benefit Monitoring and Evaluation**

119. Project benefit monitoring and evaluation (BME) will take place at two levels. The first level will be that of the individual farmer participant and will be based on reports provided by the participating NGOs on the progress and success in HVC production by their participating farmer beneficiaries. This will be measured by factors such as the level of repayment and the number of repeat loans, as well as through participant farmer surveys, using the high ratio of staff to beneficiary's characteristic of NGO operations. At a broader, more general level, BME surveys will be undertaken annually during the second phase of the Project by an institution or agency contracted by the PMU. The factors to be monitored will include the number of beneficiaries attending the institutional and village-based training programs, the overall number of people receiving credit, overall repayment rates for all NGOs, changes in income levels for participants, and cropping patterns in participating subdistricts. A baseline survey covering this information will be undertaken at the beginning of the Project to provide a benchmark. Major indicators will be developed based on the benchmark survey by the BME consultant for monitoring during the project period.

## **16. Midterm Review**

120. A comprehensive midterm review will be undertaken at the end of the third year of implementation. The purpose of the review will be to critically evaluate the progress of the Project, the validity of the implementation procedures, the efficiency of the flow of funds to NGOs and their ability to use them effectively, the performance of the training programs, and the performance of the pilot agribusiness credit line. Also during the midterm review, a decision will be taken regarding whether to involve other financing agencies, such as the proposed Krishi Rin Foundation. Following the review, corrective measures will be introduced as appropriate to remedy weaknesses.

### **G. Environmental and Social Measures**

#### **1. Environment**

121. An initial environmental examination was undertaken for the proposed Project to identify environmental issues and required mitigating measures. Overall, the Project is unlikely to have any major negative environmental impacts. However, attention will need to be paid to the effective and safe use of fertilizers, pesticides and groundwater. The commercial production of HVCs tends to be input intensive and could lead to higher levels of pesticide, fertilizer, and groundwater use than would occur with some traditional crops (although water use would be less than with rice). While the overall area to be brought into the production of HVCs is quite small (50,000 ha out of some cultivated area of 4.0 million ha) localized concentrations of HVC production may cause some concern. To mitigate against any problems arising, the training programs for participating farmers will place a strong emphasis on appropriate and safe pesticide and fertilizer use (including integrated pest management measures)<sup>39</sup> and on the efficient use of irrigation water. The Project will construct training centers, minor markets, and growers' markets. This will, however, be a small portion of the total activities and the overall impact is likely to be limited. Markets may have a few longer-term impacts during operation due to waste water and waste production disposal. These issues will be addressed through improved market operation and management systems, which will be developed and implemented during the Project. The Project also provides for a domestic consultant to monitor the environmental impact of project activities throughout the implementation period.

#### **2. Social Measures**

122. Eighty-six percent of the population of the northwest region (27.3 million people) is rural and thus dependent on agriculture for a livelihood. The 1996 agricultural census reported 3.2 million farm households in the northwest region, and 1.9 million landless rural households. Landholding households include 2.5 million small and marginal farmers (.02-1.0 ha), 0.6 million medium (1.0-3.0 ha) and 0.1 million large farmers (over 3.0 ha). With increasing population, farm sizes have decreased and landlessness has increased. With few sources of income outside of agriculture, farm size and productivity is directly linked to levels of poverty and prosperity. Thus, while the landless and marginal landholding families are, almost by definition poor, many small-scale farmers waver on the boundary between poor and non-poor; a marginal drop in their income levels could place them into a poverty trap. Lack of employment is also a severe problem. Agriculture does not generate enough full-time employment opportunities and off-farm employment opportunities are limited. Poverty is, therefore, pervasive. The incidence

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<sup>39</sup> Taking into account ADB's *Handbook for Incorporation of Integrated Pest Management in Agriculture Projects*.

of poverty measured by the head-count index of poverty<sup>40</sup> indicated that 62.2 percent of the total population of Rajshahi Division was poor during 1995-1996, which was substantially higher than the national figure of 53.1 percent.

123. One of the main outcomes of the Project is expected to be a decrease in the levels of poverty in the project area through increased incomes of small-scale farmers and an increase in business and employment opportunities. Although the project benefits will be distributed primarily to small-scale farmers, landless laborers and marginal farmers will benefit through increased employment opportunities in planting, harvesting, and transport, as well as indirectly through employment generated by agroprocessing and marketing.

124. Women's participation in income generating activities in the Project area is constrained by cultural and religious traditions, burdensome household duties, early marriage, and child-rearing. These also prevent women from continuing their education and their exposure to skill enhancement and economic opportunities remains limited. Nonetheless, women play an important role in agricultural activities, especially in small landholding families. Furthermore, about 11-15 percent of the households in the project area is headed by women.<sup>41</sup> The project design has thus taken into account the opportunities the project will open for women in the project area.

125. Notably, the NGOs that will participate in the Project already have a strong bias toward women in their programs: more than 50 percent of their lending activities have historically been for women. This has led to a change in the perception of women in the project area, and the NGOs often employ women extension workers and field trainers. Beneficiary and training groups comprising both men and women are common and accepted. During project implementation, efforts will be made to ensure full access to the training, extension, and credit programs for women. To assist in this, a gender specialist consultant has been included in the PMU. A summary gender strategy is placed in Appendix 11.

## **V. PROJECT JUSTIFICATION**

### **A. Financial and Economic Analyses**

126. Financial and economic analyses have been undertaken for increased HVC production from farmers who are expected to participate in NGO programs for crop diversification and intensification, the main quantifiable benefit arising from the Project. Other economic benefits accruing from the Project but not quantified include loss reductions and reduced marketing costs through improvements to the growers' markets, reduced costs of marketing and higher produce values at village markets, increased value added due to the pilot agribusiness credit line, and increased production from farmers who do not participate in NGO programs but adopt HVC production. Detailed economic and financial analyses have been carried out and the results are summarized in Appendix 12.

127. Over the seven-year project life, about 160,000 farmers are expected to form HVC production and marketing groups, undergo field and institutional training, and take credit packages from participating NGOs. On this basis, at maturity, the project will provide a total incremental value added to the sector of \$27.9 million per annum.

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<sup>40</sup> The head count index (HCI) measures the percentage of the population living in households with per capita consumption that is less than the poverty line, based on calorie intake data.

<sup>41</sup> Estimated by the Department of Women's Affairs.

## 1. Financial Analysis

128. Illustrative crop budgets have been formulated to assess the profitability of individual crops. Project cost and benefit estimates are based on reasonable assumptions and are well below potential under ideal conditions using recommended technical packages. Farm model financial analysis has been undertaken for six potential farm models, representing two farm sizes (1.0 ha, and 0.5 ha) and three diversification options. Return on investment is projected at an average of 39 percent for 1 ha farms and 48 percent for 0.5 ha farms. Average annual net farm incomes are expected to increase to about \$284 for the 0.5 ha farms, and \$525 for the 1.0 ha farms compared to their current income levels of \$217 and \$434, respectively. The average annual labor requirement is expected to increase by 18 days for the 0.5 ha farms and 37 days for the 1.0 ha farms, while returns per labor-day are expected to increase by 19 and 10 percent respectively. The incremental returns per incremental labor-day are well in excess of the prevailing daily wage rate for unskilled agricultural labor in all farm models. The increased labor demand is well within the capacity of typical small farm households. For larger farms, seasonal farm labor is also available for hire in the project area.

## 2. Economic Analysis

129. The Project's economic viability was estimated on the assumption of a project life of 20 years, an investment period of 6 years, and an opportunity cost of capital of 12 percent. Financial prices of nontraded commodities have been converted to economic prices by using a standard conversion factor of 0.89. As there is a surplus of labor in the project area, shadow pricing of wage rates has been applied at 80 percent of the basic daily wage rate in the analysis.

130. Incremental economic benefits for each farm model were assessed using the appropriate economic prices for inputs and outputs, and the results were aggregated based on expectations of the frequency that each type of diversification strategy would be adopted and the size distribution derived from the 1996 agricultural census. Economic costs of Project inputs, excluding credit, were estimated by deducting taxes, duties, and price contingencies, and converting local prices to economic values using the standard conversion factor.

131. On these assumptions, the economic internal rate of return for HVC production was estimated at 30.7 percent. Standard sensitivity analyses indicate that the Project is sufficiently robust.

**Table 3: Economic Analyses and Sensitivity Analyses**

| <b>Details</b>                                  | <b>EIRR (%)</b> | <b>Switching Values (%)</b> |
|---|-----------------|-----------------------------|
| Base Case                                       | 30.7            |                             |
| 10% Cost Overrun                                | 20.3            | 17.3                        |
| 10% Decline in Benefits                         | 16.8            | 13.2                        |
| Combination of Benefit Decline and Cost Overrun | 4.0             |                             |
| 1 year Delay in Benefits                        | 26.5            |                             |

Source: Mission estimates.

## **B. Environment**

132. The Project is not expected to have any major negative environmental impacts. While increased production of HVCs has an inherent danger of increased and inappropriate use of pesticides and fertilizers, the crop production packages to be promoted under the Project will emphasize appropriate inputs and the use of integrated pest management in line with Government policy. Diversification away from rice and into HVCs will result in more efficient use of irrigation water, which will be environmentally positive. Where possible, the Project will promote further efficiencies in water use and the adoption of improved technologies. Careful attention will need to be given to ensuring appropriate rotations as repeated production of a crop on the same piece of land is likely to have negative impacts on soil quality and pest and disease occurrence. The proposed extent of HVCs in the farm plans should allow adequate opportunities for rotations. Many HVCs also produce a significant amount of residues and unmarketable produce, which should be recycled. However, care will need to be taken to minimize the promotion of plant diseases from crop wastes.

133. Investments in primary and grower markets will result in the concentration of large amounts of perishable plant material in a small area. Without proper waste disposal, this may result in an environmental hazard. Proper management of the waste will be a concern of the support given to market management.

134. While the activities to be refinanced under the agribusiness pilot credit line are not yet identified, their impact is likely to be localized due to the small size of the ventures to be financed. Impacts of concern will be waste disposal, dust, and noise. These will be monitored to ensure that acceptable standards are maintained.

## **C. Social Impact**

135. Under the training and credit support program, the Project will reach approximately 160,000 farm households whose landholdings are about 0.2-1.2 ha each. Given the strong correlation of poverty with land ownership<sup>42</sup> in the project area, about 50 percent of the small farm households are poor. About 75,000 poor farm households are thus estimated to benefit directly from the Project.

136. While small-scale farmers will directly benefit from technical assistance to diversify into cash crop production and enhanced credit access provided by the Project, some indirect benefits through employment generation are also expected. Improved crop production will require an additional 4.4 million labor days per annum. Additional labor of family members is likely to suffice for a large portion of the labor requirement. However, the employment generation impact will be positive and crucial, especially on the 1.9 million landless households in the region who heavily depend on income from paid agricultural labor, as small landholders commonly hire agricultural seasonal labor, especially during harvest season. In addition, noncrop income generating activities are expected to emerge as a linkage effect of HVC production. Such income generating activities have already been practiced in a small scale in the project area, and the generation of additional business opportunities is likely to benefit the entire rural population.

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<sup>42</sup> According to *the World Bank (1998) Bangladesh From Counting the Poor to Making the Poor Count*, the poor population account for 43-70 percent among small-scale farmers, 32 percent among medium-scale farmers, and 9 percent among large-scale farmers in rural area.

137. No large adverse impact of the Project is expected and several positive indirect impacts are likely to benefit the entire rural population. While small-scale farmers directly benefit from the Project, landless and marginal landholders will benefit from increased agricultural employment and business in the project area. Women and ethnic minority groups will directly and indirectly benefit from the Project.

138. With technical, physical, financial, and marketing support of the Project, the current environment provides ample opportunities for small-scale farmers in the project area to benefit considerably from producing HVCs, and many of them will gradually diversify their crops during the project period. As the early participants achieve improved incomes, even relatively risk adverse farmers can be expected to gradually diversify their crops. Given the prevalent unemployment and underemployment situation, the need for income-generating sources is acute and the demand for crop diversification is strong in the project area. The opening of the Jamuna bridge has improved the distribution and domestic trading of agricultural produce of the project area, and provided a new opportunity for export marketing.<sup>43</sup> Some cold storage facilities have been established, and the distribution network of vegetable and fruits through middlemen has expanded. Although the expanded trading has tended to benefit the traders more than farmers, farmers in the project area now recognize that they have more options for marketing of their produce.

#### **D. Risks**

139. To minimize the risks involved in implementation, the project design has been built firmly on the ongoing reforms and the new extension policy of the Government. This involves, in particular, decentralized extension, increased involvement of the NGO and private sector in agriculture support services, improvements to marketing, and promotion of agribusiness involvement in output processing in order to increase value added. Nevertheless several risks could affect the overall success of the Project.

140. First, failure of the participating farmers to successfully use credit could lead to a reduction in the projected incremental income of subborrowers, which, in turn, would reduce the Project's benefits to individual farmers as well as its overall benefits. The project design is therefore based on the provision of credit only to farmers who have undergone adequate training in HVC production. In addition, the project design provides for follow up support for the participating farmers covering crop production and marketing by DAE and the NGOs.

141. Second, it is important that training courses are formulated in the early part of the Project, and DAE and NGO staff undergo training in the promotion and technical aspects of HVC production. Any delay in completing these activities may impede the full-scale start of project activities, and, given the seasonal nature of much HVC production, could result in a year's loss of activities. To avoid delays in this important start-up activity, international and domestic consulting services are provided to help the PMU design and implement the training program.

142. Third, the Project will entail an innovative partnership between DAE and participating NGOs. Initiating this partnership and operating it will have risks. The first steps in DAE-NGO cooperation for the Project have already been through a joint workshop organized during the appraisal mission. Based on discussions with all participating NGOs and the staff of DAE, a coordination committee has been included in the project design to meet regularly and resolve practical implementation problems. To further minimize the risks and ensure clear delineation of

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<sup>43</sup> For instance, BRAC has assisted qualified farmers in the project area under its Vegetable Export Program.

responsibilities, the formulation of draft contracts between the DAE and the NGOs was a condition of loan negotiations and the signing of such contracts is a condition of loan disbursement.

143. Fourth, is the risk of poor coordination between agencies at the field level. The project design takes this risk into account and has provided for (i) two coordination committees, one for DAE-NGOs and the other for market infrastructure; and (ii) two project supervision units in the project area.

## **VI. ASSURANCES**

### **A. Project Specific Assurances**

144. In addition to the standard covenants and assurances the Government has agreed to the following:

- (i) The Government will establish the PMU at Dhaka, headed by a full-time, senior, experienced project director; appoint a sufficient number of staff with adequate seniority and experience for the PMU's operation; and provide the support necessary for full supervision and management of the Project.
- (ii) The Government will establish PIUs in each implementing agency and two project coordination and supervision units in DAE facilities in the northwest region, and provide them with requisite staff and operational and logistical support.
- (iii) From the third year of the Project, the Government will devise alternative sustainable financing arrangements to make the HTDCs at least partially self-financing.
- (iv) Starting with markets upgraded by the Project, the Government with the local authorities, will implement improved market management and financing procedures to ensure proper market maintenance.
- (v) The Government will ensure that full financing is available in DAM's annual budget for continued operation of the communication equipment and daily broadcasts.
- (vi) Agreements will be reached between DAE and operator of identified training centers on the use of their facilities for training staff and beneficiaries under the Project.
- (vii) Terms of reference for the DAE-NGO coordination committee and the market coordination committees will be formulated by the PMU, in coordination with concerned NGOs within the first six months of loan effectiveness.
- (viii) Two separate revolving funds will be set up, within Bangladesh Bank, for recovered loan funds from the crop production credit, and for the pilot agribusiness credit line, to allow these funds to be recycled for continued use.
- (ix) The Government will undertake a comprehensive assessment of the existing BADC retail seed outlets and of the fertilizer distribution system, and will provide to ADB by June 2001 the outcome and timetable for further action. The Government will also reassess and reformulate the procedures for seed imports, testing, and approval by December 2001.

- (x) The Government will not make any plan or implement debt amnesty or other forgiveness of loan repayment obligations under crop production or agribusiness credit.
- (xi) The Government will ensure the compliance of the Project gender strategy.

**B. Conditions for Loan Effectiveness**

145. Two conditions the Government has agreed to meet prior to loan effectiveness are
- (i) PMU will have been set up and staffed satisfactorily to ADB, including the project director and heads of all units in the PMU; and
  - (ii) financing agreements for crop production and agribusiness credit will have been signed between the Ministry of Finance and the Bangladesh Bank, setting out the terms and conditions for relending from the Government to Bangladesh Bank.

**C. Conditions for Disbursement**

146. Three conditions the Government has agreed to meet prior to the first loan disbursement are that
- (i) agreements will have been signed between the Government and the participating NGOs, setting out the terms of cooperation for project implementation, the subdistricts in which particular NGOs will be active, the parameters for determining the on-lending rate from NGOs to participating farmers and the target number of farmer participants which each NGO will aim to bring into the Project;
  - (ii) for the crop production and agribusiness components, subsidiary loan agreements will have been signed between the Bangladesh Bank and RAKUB, setting out the terms and conditions for lending from the Bangladesh Bank to RAKUB and from RAKUB to the NGOs; and
  - (iii) for the training component, terms and conditions for using the identified farmer training facilities will have been finalized between DAE and the facility operators.

**VII. RECOMMENDATION**

147. I am satisfied that the proposed loan would comply with the Articles of Agreement of ADB and recommend that the Board approve the loan in various currencies equivalent to Special Drawing Rights 35,710,000 to the People's Republic of Bangladesh for the Northwest Crop Diversification Project, with a term of 32 years, including a grace period of 8 years, and with an interest charge at the rate of 1 percent per annum during the grace period and 1.5 percent per annum thereafter, and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan and Project Agreements presented to the Board.

TADAO CHINO  
President

25 October 2000

**APPENDIXES**

| <b>Number</b> | <b>Title</b>  | <b>Page</b> | <b>Cited on<br/>(page, para.)</b> |
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| 1             | Project Framework                                     | 37          | 1,2                               |
| 2             | External Assistance to Agriculture in Bangladesh      | 41          | 9,33                              |
| 3             | Policy Dialogue on Agricultural Inputs                | 43          | 12,45                             |
| 4             | Participating Finance Agencies                        | 45          | 14,58                             |
| 5             | Detailed Cost Estimates                               | 51          | 17,70                             |
| 6             | Project Management Structure                          | 53          | 19,75                             |
| 7             | Project Implementation Schedule                       | 54          | 24,100                            |
| 8             | Eligibility Criteria for Participating NGOs           | 56          | 25,103                            |
| 9             | Indicative Procurement Packages                       | 57          | 25,103                            |
| 10            | Indicative Terms of Reference for Consulting Services | 58          | 25,103                            |
| 11            | Gender Strategy                                       | 64          | 30,125                            |
| 12            | Financial and Economic Analyses                       | 65          | 30,126                            |

**SUPPLEMENTARY APPENDIXES**

(available on request)

|   |   |
|---|---|
| A | Summary Initial Environmental Examination                       |
| B | Social Assessment of the Project Area                           |
| C | Detailed Project Costs  |
| D | Farm and Crop Budget Analysis                                   |
| E | List of Project Subdistricts                                    |
| F | Agriculture and Marketing in the Northwest Region of Bangladesh |
| G | Assessment of Proposed Credit Channeling Agencies               |
| H | External Assistance to the Agriculture Sector                   |

### PROJECT FRAMEWORK

| Design Summary   | Verifiable Indicators  | Means of Verification  | Assumptions/Risks   |
|--|--|--|---|
| <p><b>Sector/Area Goal</b></p> <p>To raise farm incomes, alleviate poverty, and stimulate the region's economy by tapping the potential for high value crop production (HVC)</p>   | <p>Increase in incomes of participating small-scale farmers (owning between 0.2 and 1.2 ha) by 30 percent</p>  | <p>Beneficiary surveys by participating nongovernment organizations (NGOs) and independent verification through benefit monitoring and evaluation (BME)</p>  | <p>Willingness of potential beneficiaries to participate; effective project implementation</p>  |
| <p><b>Purpose</b></p> <p>Promotion of production and marketing of HVCs among small-scale farmers</p> <p>Build NGO and public sector capacities and partnerships to provide training and credit support for small-scale farmers</p> | <p>Overall increase in the production of HVCs</p> <p>Overall increase in the volume of HVCs reaching local markets</p> <p>Increased level of agroprocessing</p> <p>Functioning training, extension, and credit programs for small-scale farmers in place and operating</p> | <p>Village and subdistrict statistics, BME result</p> <p>Postproject market surveys, market monitoring through fee collection, BME</p> <p>Progress reports and reviews of marketing credit component</p> <p>Progress reports, review missions, project completion reports, postproject performance audit reports</p> | <p>Markets remain stable, training and credit programs are effective</p> <p>Planned training, adoption, and production levels are met; no major natural disasters</p> <p>Entrepreneurs are willing to invest, banks willing to participate</p> <p>The horticulture training and demonstration centers (HTDCs) built as required, training programs formulated, good relations prevail between NGOs and Department of Agricultural Extension (DAE)</p> |
| <p><b>Components-Outputs</b></p> <p>Training centers upgraded, courses formulated, institutional training, village training, and follow-up extension undertaken</p>  | <p>Eight training centers upgraded; courses formulated; 600 DAE and NGO staff trained; 200,000 farmer participants trained by 2008</p>   | <p>Physical observation, review missions, progress reports, project completion report</p>  | <p>Efficient implementation of physical works; appropriate training courses formulated on a timely basis; farmers organized and selected; training courses run competently</p>  |

| Design Summary                                    | Verifiable Indicators  | Means of Verification  | Assumptions/Risks   |
|---|--|--|---|
| Farmers mobilized and provided with credit        | 160,000 small farmers join farmer groups, receive training, credit packages, guidance in crop production and in marketing by 2008<br><br>40,000 incremental ha of HVC cultivated | Progress reports, credit disbursement reports, review missions<br><br>Field surveys  | Participating farmers receive adequate training; NGOs and DAE organizers and trainers work effectively  |
| Adaptive research program implemented             | Physical facilities of research centers upgraded; adaptive research on HVCs undertaken with financing from research fund   | Physical observation, progress reports, funding reports from research fund, research output  | Upgrading needs of research centers properly identified, research fund supervisory committee staffed with competent personnel   |
| Marketing support provided                        | Capacity of Department of Agricultural Marketing (DAM) improved to provide timely and accurate market information<br><br>16 growers' markets and 60 village markets upgraded     | Enhanced provision of market information by DAM (e.g., radio and TV broadcasts)<br><br>Physical observation, progress reports, review missions | Competent consultants recruited, DAM personnel amenable to revised role<br><br>Markets sites appropriately identified, good quality and effective construction by the Local Government Engineering Department (LGED), markets properly managed and maintained |
| Pilot agribusiness credit line disbursed          | Agribusiness ventures operating  | Progress reports, physical inspection  | Entrepreneurs willing and interested to invest in agribusiness ventures   |
| Project management unit established and operating | Incremental staff and consultants in place and working   |  |   |

| <b>Activities</b>  | <b>Inputs</b>  | <b>Verifiable Indicators</b>            | <b>Assumptions /Risks</b>  |
|--|--|---|--|
| 1. Project management unit set up and operating                | Incremental staff, equipment, office space provided  | Progress reports and project reviews    | Potential beneficiaries are interested,  |
| 2. Expansion of training facilities                            | Civil works and equipment provided   | NGO disbursement records                | Civil works appropriately identified, properly bid and competently undertaken              |
| 3. Formulation of training programs                            | Local and international consultants  | Training packages prepared              | Competent consultants recruited  |
| 4. Development of 50 complete visual technology packages       | DAE staff, local and international consultants   | Participating bank disbursement records | Potential beneficiaries are interested   |
| 5. Training of NGO and DAE staff                               | DAE trainers assisted by local and foreign consultants   | Progress reports                        | Consultant recruitment procedure proceeds efficiently and effectively                      |
| 6. Mobilization of farmers by NGOs                             | NGO and DAE staff time plus transport and administrative support                                 | Procurement and reimbursement requests  | NGOs committed to program  |
| 7. Training of farmers   | Horticulture training development center staff, DAE staff, NGO staff plus administrative support | HTDC records<br>Farmer surveys          | Potential beneficiaries are interested.  |
| 8. Provision of credit to farmer trainees                      | Credit funds, NGO staff plus administrative support  | NGO disbursement records                | NGOs committed to program  |
| 9. Follow-up assistance during production and marketing        | DAE staff, NGO staff, DAM  |   |  |
| 10. Upgrading of DAM staff and activities                      | Local and international consultants  |   | Participating public sector agencies receive appropriate budget and are adequately staffed |
| 11. Identification of primary and grower markets for upgrading | DAM staff, DAE staff, NGO staff, local authorities and LGED staff                                |   |  |
| 12. Market construction and upgrading                          | Civil works supervised by LGED   |   |  |

|   |  |                                       |   |
|---|--|---------------------------------------|---|
| 13. Market management   | DAM staff and local authorities  |                                       |   |
| 14. Upgrading needs at horticulture research agencies identified and undertaken | Ministry of Agriculture staff, agency staff, civil works and equipment | Funding approvals and research output |   |
| 15. Administration of horticulture adaptive research fund                       | Ministry of Agriculture staff, research funds (\$1.2 million)          |                                       | Competent proposals are prepared by research bodies and submitted for funding |
| 16. Agribusiness ventures identified  | Rajshahi Krishi Unnayan Bank staff                                     |                                       | Entrepreneurs interested in investing in the northwest region                 |
| 17. Agribusiness credit disbursed and supervised                                | Rajshahi Krishi Unnayan Bank staff                                     |                                       |   |

## EXTERNAL ASSISTANCE TO AGRICULTURE IN BANGLADESH

| Source/<br>Project/Purpose/Technical Assistance  | Amount<br>(\$ million) | Year<br>Committed | Date<br>of Closing |
|--|------------------------|-------------------|--------------------|
| <b>Asian Development Bank (ADB)</b>  |                        |                   |                    |
| Horticulture Development   | 22.60                  | 1989              | Oct-99             |
| Foodcrops Development Program  | 125.00                 | 1990              | Jun-95             |
| Northeast Minor Irrigation   | 73.00                  | 1991              | Jun-99             |
| Second Rural Infrastructure Development  | 83.40                  | 1992              | Jun-00             |
| Participatory Livestock Development  | 19.70                  | 1997              | Jun-03             |
| Third Rural Infrastructure Development   | 70.00                  | 1997              | Jun-05             |
| Rural Livelihood   | 42.60                  | 1998              | Jun-05             |
| Northwest Regional Development and Investment Study (TA)   | 1.10                   | 1996              | May-00             |
| <b>World Bank (WB)</b>   |                        |                   |                    |
| Agriculture Research Management  | 50.00                  | 1996              | Dec-01             |
| Agricultural Services Innovation and Reform  | 5.00                   | 1999              | Mar-03             |
| <b>United Nations Development Programme (UNDP)</b>   |                        |                   |                    |
| Horticulture Research and Development  | 3.70                   | 1992              | Oct-99             |
| Assisting Transformation to Irrigated Agriculture  | 1.70                   | 1991              | May-99             |
| Thana Cereal Technology Transfer and Identification  | 4.42                   | 1995              | Dec-00             |
| Integrated Pest Management   | 3.50                   | 1995              | Dec-00             |
| Integrated Maize Promotion   | 1.20                   | 1992              | Dec-00             |
| Utilization of Agro-Ecological Zone (AEZ) Data Base and installation of GIS for Agricultural Development by BARC | 2.10                   | 1995              | Jun-01             |
| <b>The Australian Centre for International Agriculture Research (ACLAR)</b>                                      |                        |                   |                    |
| Nutrient and Irrigation Management for sustainable Rice-Wheat Cropping System in Bangladesh                      | 0.43                   | 1996              | Dec-01             |
| Economic, Social and Environmental Implications of Integrated Shrimp-Rice Cropping System in Bangladesh          | 0.12                   | 1997              | Dec-99             |
| Genetic Diversity and Propagation of Mangroves   | 0.65                   | 1997/cancelled    |                    |
| <b>United States Agency for International Development (USAID)</b>  |                        |                   |                    |
| International Agricultural Research Centers (IARCs)  | 5.70                   | 1993              | Oct-00             |
| NGO Gardening, Nutrition Education and Surveillance  | 7.60                   | 1992              | Sep-02             |
| Management of Aquatic Ecosystems Through Community Husbandry   | 5.00                   | 1998              | Sep-03             |
| International Maize & Wheat Improved Center (CIMMYT)   | 0.40                   | 1997              | Sep-01             |
| <b>Netherlands Development Cooperation Program (NDCP)</b>  |                        |                   |                    |
| Crop Diversification Agency  | 5.50                   | NA                |                    |
| Chittagong Homestead Agro-Forestry Project (CARE Bangladesh)   | 1.50                   |                   |                    |
| <b>Food and Agriculture Organization (FAO)</b>   |                        |                   |                    |

| <b>Source/<br/>Project/Purpose/Technical Assistance</b>   | <b>Amount<br/>(\$ million)</b> | <b>Year<br/>Committed</b> | <b>Date<br/>of Closing</b> |
|---|--------------------------------|---------------------------|----------------------------|
| Development and Use of Hybrid Rice  | 0.20                           | 1997                      | Apr-99                     |
| Improvement of Agriculture Marketing Information  | 0.20                           | 1998                      | Not yet signed             |
| Integrated Horticulture and Nutrition Project   | 6.00                           | 1998                      | Apr-05                     |
| Community Empowerment for Sustainable Food Security   | 7.00                           | 1998                      | Not yet signed             |
| Strengthening of National Vegetable Seed Program through<br>Increased Participation of Private Sector | 2.15                           | 1996                      | Apr-99                     |
| <b>Canadian International Development Agency (CIDA)</b>   |                                |                           |                            |
| Bangladesh-Canada Crop Diversification Project  | 10.00                          | 1995                      | Dec-99                     |
| <b>Danish International Development Agency (DANIDA)</b>   |                                |                           |                            |
| Increased Soil Fertility and Fertilizer Management Project  | 36.600                         | 1993                      | Jun-00                     |
| Soil Testing, Management and Development of SRDI Project  | 46.600                         | 1994                      | Jun-03                     |
| Strengthening of Seed Pathology Laboratory at BAU,<br>Mymensingh                                      | 3.800                          | 1994                      | Mar-01                     |
| Strengthening Plant Protection Services   | 36.600                         | 1997                      | Jul-05                     |
| Integrated soil Fertility and Fertilizer Management Project,<br>Phase 2                               | 53.600                         | 1998                      | Jun-05                     |
| Strengthening of Seed Pathology Laboratory, Phase 2   | 1.000                          | 1998                      | NA                         |
| <b>Department for International Development (DFID)</b>  |                                |                           |                            |
| Agricultural Support Services Project   | 8.300                          | 1998                      | Jun-99                     |
| Local Initiatives in Farmers Training   | 0.780                          | 1998                      | Jun-99                     |
| <b>European Community (EC)</b>  |                                |                           |                            |
| Cereal Seeds II   | 11.16                          | 1990                      | 1998                       |
| Intensive Jute Production and Marketing Projects  | 40.00                          | 1993                      | 1997                       |
| <b>World Food Program (WFP)</b>   |                                |                           |                            |
| Rural Development Project-Forestry Sector   | 7.11                           | 1997                      | Dec-00                     |

Sources: LCG Subgroup on General Agriculture, Lead Agency: The World Bank, Dhaka, Bangladesh

## POLICY DIALOGUE ON AGRICULTURAL INPUTS

1. Policy dialogue during the Project's preparation centered on three areas of particular relevance to the Project: (i) microfinance, (ii) operation and maintenance (O&M) of rural infrastructure, and (iii) agricultural inputs. Of the first two, satisfactory agreements were reached on improvement of farmer access to production credit through nongovernment organizations (NGOs) and to planning for O&M of market infrastructure to be developed under the Project. This appendix provides details on the unresolved issues and the steps agreed to be taken in regard to agricultural input policies.

### A. Fertilizer Pricing and Marketing

2. During project preparation, the Government clarified that the appointment of fertilizer dealerships for specific geographic areas was undertaken in response to a crisis situation that developed in 1994-1995 after the completion of the policy measures on the Foodcrops Development Program (FDP).<sup>1</sup> One of the FDP measures was to allow any private individual to purchase urea in bulk directly from Bangladesh Chemical Industries Corporation (BCIC) fertilizer factories. According to the Government, a cartel bought up large volumes of urea and was controlling the market and the retail price. To exacerbate the situation, world urea prices reached very high levels in 1994-1995 and large amounts of urea were exported to take advantage of these prices. This led to severe shortages within the country and especially in some of the more isolated regions, and turned into a major political and economic crisis. The Government clarified that the present fertilizer marketing system has evolved in consultation with the private fertilizer dealers association and no urea shortage has since been reported from any part of the country. At the same time, the Government recognized that this matter was of concern to the Asian Development Bank (ADB) and other external agencies.

3. The situation pertaining to the urea subsidy is more complex than that of distribution. Providing inputs for agricultural production at subsidized prices is a stated policy of the current party in power. Also, analysis of the financial subsidy on urea is difficult since most of the urea used in the country is produced in Government-owned factories, which set their own pricing. It is also difficult to determine exactly what the financial subsidy is, due to the differential pricing in the country for natural gas the main raw material for urea production. The Government acknowledged that imported urea is being subsidized to bring prices into line with local BCIC prices, but noted that imported urea accounted for only 5-10 percent of the national consumption. Moreover, it felt that to bring BCIC prices in line with world market prices was not necessarily desirable since these prices tend to fluctuate unpredictably.

4. The Government also noted that Bangladesh is a member of the World Trade Organization (WTO) and a signatory to its agreements. WTO rules allow agriculture sector subsidies of up to 10 percent of the production value of the sector. In Bangladesh, agriculture sector subsidies currently amount to less than 3 percent of the sector's total production value and, thus, are viewed as being compliant with WTO agreements.

5. Given the economic and political importance of urea in the agricultural economy of Bangladesh, resolution of these issues will require persistent effort on the part of ADB and other agencies. Nonetheless, the Government agreed during the Project's preparation to reexamine the whole question of fertilizer dealerships and consider any changes that may be required to improve the efficiency of fertilizer supply to farmers.

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<sup>1</sup> PPA: BAN 22217: *Food Crops Development Program*, December 1999.

## **B. Seed Marketing**

6. On the question of seed, the Government has, in contradiction to the provisions of the FDP, retained a role in retailing crop seed through Bangladesh Agriculture Development Corporation (BADC). The Government's view is that, given the slow development of private seed production and trade, this measure is essential to ensure a secure seed supply in isolated regions of the country. The Government explained that it was, however, willing to review the need for these retail sales in the project area in the light of the construction of the Jamuna bridge, which has alleviated the isolation of a large part of the country. On the seed notification process, it was clarified that except for the five notified seeds (rice, wheat, sugar, jute, and potato), all import, production, and marketing of seeds was open. On notified seeds, the approved varieties were open but imports of new varieties required permission, testing and verification, for which a system has been put in place. In the context of the crops to be promoted under the Project, seed notification is of concern only for potato. Overall, BADC's role in the domestic seed market is minor, comprising only an estimated 6.5 percent of the total trade.<sup>2</sup>

## **C. Specific Agreed Actions**

7. Other funding agencies in the sector have had extensive discussions with the Government on these matters over the past few years. Some progress on the issues could be expected, but the question of urea subsidy was unlikely to be resolved in the near future, due as much to the complexity and uncertainty about the size and nature of the subsidy as anything else. ADB action on these policy issues will need to be closely coordinated with other agencies. The World Bank has ongoing discussions on all of the issues with the Government under a policy-based agriculture and rural development program loan that is likely to be processed by the third quarter of 2001. Seed and fertilizer production and marketing policies have been specifically flagged under this loan, which will be prepared in consultation with ADB.

8. With regard to specific actions on the fertilizer and seed issues, as a result of discussions during appraisal, the Government has agreed to (i) complete a full review of the existing BADC retail seed outlets by 30 June 2001 and inform ADB of the outcome and a timetable for further action; (ii) have an independent and comprehensive assessment of the fertilizer distribution system completed by 30 June 2001 and inform ADB of the outcome and actions planned to be taken; and (iii) review the mechanism for seed import, testing, and approval in order to identify inefficiencies and suggest streamlined procedures that will encourage greater private sector participation and improve flow of new seed varieties into the country.

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<sup>2</sup> PPA: BAN 22217: *Food Crops Development Program*, December 1999.

## **PARTICIPATING FINANCE AGENCIES**

1. Under the Project credit will be provided to small-scale farmers from four large established nongovernment organizations (NGOs), all of which are currently working with the Asian Development Bank (ADB) (under similar arrangements as proposed for the Project), to help implement the Participatory Livestock Development Project in the same Project area. Funds for the NGOs will be channeled from Bangladesh Bank through the Rajshahi Krishi Unnayan Bank (RAKUB), a specialized agricultural development bank servicing the northwest region. Pertinent information on the NGOs, Bangladesh Bank, and RAKUB is provided in this appendix.

### **A. The Credit Channeling Agencies**

#### **1. Bangladesh Bank**

2. The Bangladesh Bank is the apex of the country's financial system and serves as its central bank. It is the authority primarily responsible for monetary management and for establishing relevant rules and issuing related directives to financial institutions. These mainly relate to licensing, interest rates, liquidity, loan classification, credit and capital adequacy. Bangladesh Bank also has overall responsibility for the planning and execution of credit programs in support of the Government's declared agricultural credit policy and priorities. Through the specialized agricultural development banks, the Bangladesh Krishi Bank (BKB) and RAKUB, Bangladesh Bank provides a refinance facility at preferential interest rates to encourage the disbursement of credit to the agriculture sector.

3. Two of Bangladesh Bank's departments are active in agricultural credit. The Agricultural Credit Project Department is responsible for implementing, monitoring, and supervising agriculture sector projects financed with foreign credit and grant assistance. The Agriculture Credit Department is responsible for agriculture policy issues and conducts performance assessments of private and nationalized commercial banks' agricultural lending activities as well as those of the specialized agricultural development banks. Bangladesh Bank has its head office and two branch offices in Dhaka, and seven other branch offices, in Barisal, Bogra, Chittagong, Khulna, Rajshahi, Rangpur, and Sylhet. The bank had 6,178 staff at the end of the FY1999.

4. Bangladesh Bank used to act mainly as a conduit for channeling funds to the banking system; however, subsequently it adopted a more proactive role in project implementation. The bank was to have been the executing agency for ADB's Agricultural and Rural Credit Project, and, as such, would have been responsible for implementation of policy reforms in the financial and agricultural credit sectors. However, the Project was not implemented due to the Government's failure to meet conditions of loan effectiveness. Currently, among project activities, Bangladesh Bank supervises the activities of other banks that are providing credit for, inter alia: semi-intensive shrimp cultivation and shrimp culture development, establishment of cottage industries and agri-businesses in the private sector; programs for supporting banana plantations, salt mills, and rural transport; and cyclone relief.

5. Bangladesh Bank is familiar with the requirements for implementing externally assisted projects. It has been the executing agency for several ADB-financed projects, including the Second Aquaculture Development Project and the North-West Rural Development Project. These projects commenced in the 1980s and have subsequently closed although recovery of

credit to subprojects financed by these loans continues under the direction of the Bangladesh Bank.

6. More recent projects executed by the Bangladesh Bank include the ADB-financed Northeast Minor Irrigation Project and the Marginal and Small Farms System Crop Intensification Project in the Kurigram District of the northwest region. The first project, approved in 1991, provides a credit facility for private equipment dealers to finance small-scale irrigation equipment. The second, which commenced operations in 1987, is financed by the International Fund for Agricultural Development (IFAD) with the German Technical Cooperation (GTZ). Funds are channeled through participating financial institutions, including RAKUB, to increase agricultural production and develop financial status of marginal and small-scale farmers.

## **2. Rajshahi Krishi Unnayan Bank (RAKUB)**

7. RAKUB was established under the President's Ordinance No. LVIII of 1986. It began operations in 1987, when it was split off from the Bangladesh Krishi Bank and took over its operations and assets that were within the Rajshahi administrative division of the northwest region of the country.

8. RAKUB's head office is in the city of Rajshahi, which is about 280 kilometers northwest of Dhaka. RAKUB manages an extensive network of 300 branches in the northwest region as well as one liaison and deposit-taking branch office in Dhaka. RAKUB plans to open 30 more branches in the northwest region in the near future. Activities of the branches are supervised and controlled by 18 field-level offices that undertake internal audit functions of the smaller branch offices. RAKUB has 3,736 staff of whom 1,674 are professional staff officers. RAKUB branches offer a range of commercial banking services including acceptance of deposits, remittance of funds, and foreign exchange dealings.

9. RAKUB's lending is specialized for agricultural purposes, with 60 percent of its loans portfolio in crop lending. Fisheries, livestock, irrigation, and farm machinery are also important lending activities. RAKUB has a small program of financing collateral-free microcredit for employment generation and poverty alleviation in conjunction with Rajshahi/Dingajpur Rural Services in the Kurigram District. It has also recently embarked on promotion of agro-based industries for the preservation, processing, and marketing of primary production. RAKUB has provided loans for cold storage, packaging, and transport for distribution of produce as well as for poultry, dairy, fertilizer blending, and engineering workshop projects.

10. Though faced with severe financial problems nearly since its creation, the financial performance of RAKUB has improved significantly since a change in management and replacement of some board directors in mid-1999. After 7 years of losses and an ever-increasing portfolio of bad debts, the financial statements for fiscal year June 2000 although as yet unaudited, show a small profit and an improvement in the number and amount of classified loans.

11. To address its lack of a performing loans, RAKUB management set a target to increase lending by 20 percent per annum over a five-year reform period and to increase the number of new borrowers by 20 percent. The aim was also to diversify the loan portfolio with targets for increased lending to priority sectors other than crop production. RAKUB achieved this target during the first year it was set and, despite a shortfall in some of the selected priority sectors, its performance was significantly better than in the previous year. This will ultimately lead to greater diversification of the loans portfolio.

12. In an attempt to recover the Tk8.4 billion of the nonperforming loans on its books, RAKUB set a target of 20 percent recovery per annum and embarked on a loan collection incentive program known by the acronym, "MIRACLE" which stands for "maximum recovery of a classified loan entirely." One of the main features of the program is that any RAKUB employee is eligible to participate in the recovery of classified loans. An employee who is instrumental in the closure of a classified loan and the recovery of all outstanding principal and interest on the loan, receives 10 percent of the realized interest. In the first year of the program, a target of Tk1.68 billion was set for recovery and of this target Tk1.07 billion was achieved. While this is only 64 percent of the target set, it is more than four times the previous year's collection performance when only Tk0.25 billion worth of classified loans were recovered.

13. As at the end of FY1998, RAKUB was indebted to the Bangladesh Bank by Tk10.4 billion. This came about through the previous management's practice of financing much of RAKUB's operations and disbursements out of funds received from the Bangladesh Bank refinance facility. This unsustainable practice has been discontinued under the reform program. In the first year of the program, RAKUB did not draw any funds from the Bangladesh Bank refinance facility and repaid Tk32.6 million of its outstanding debt. This compares favorably with previous years when the debt to the Bangladesh Bank continued to grow with funds drawn greatly exceeding repayments. RAKUB set a target of 10 percent net increase of deposits per annum. This was to be achieved through measures including the promotion of small saving and teacher's saving schemes. The first year's target deposit increase was Tk1.1 billion against which Tk1.03 billion was achieved. This is a 94 percent achievement and compares to a relatively small increase in the previous year of only Tk0.17 billion. The deposit balance at the end of FY1999 was Tk5.05 billion compared to Tk3.67 billion FY1998.

14. Finally, steps have been taken during RAKUB's first year of a reform program to initiate improvements in conditions, staff management, and training. These include an attempt to expedite the resolution of personnel matters including the timely preparation of annual performance assessments, delegation of personnel functions to the branches, preparation of new job descriptions, and implementation of a new training and career development program.

## **B. The Nongovernment Organizations**

### **1. Bangladesh Rural Advancement Committee (BRAC)**

15. BRAC is the country's largest NGO. It was founded in 1972 as a relief agency and has evolved in to a large, multifaceted development organization with the objectives of "poverty reduction and empowerment of the poor."

16. With a membership of 3.3 million households in all 64 of the country's districts in 1999, an annual budget of \$131 million, and a full-time staff of 24,700, BRAC truly is a national institution.

17. BRAC's ongoing activities cover several programs including a rural development program (aimed primarily at the landless and particularly landless women), an education program, a health and nutrition program, an agriculture program, a microenterprise lending and assistance program, and an urban poor program. It operates primarily through group formation and mobilization for training and for the provision of microcredit to finance productive activities. By the end of 1999, its cumulative disbursement of credit (from 1979) amounted to \$965 million

and in 1999 alone it disbursed \$219 million, of which \$141 million is still outstanding. The historical repayment rate is 98 percent. Members groups savings are \$58 million, and the lending rate for credit is 15 percent.

18. Of particular interest to the Project is BRAC's agriculture program. This program consists of the long-running vegetable program, which has been expanded to include assistance in growing rice, wheat and maize; the social forestry program; the vegetable export program; the seed production and marketing program; and the tissue culture laboratory. This program trains agriculture extension workers (many of whom are women) to assist village organization members and small-scale farmers by providing training and technical assistance, and supplying inputs such as high quality seed and disease free seedlings. In 1999, this program employed 8,525 village extension workers who assisted 111,160 village organization members and 50,757 small-scale farmers to grow vegetables, rice, maize, and wheat. Moreover, BRAC's seed production program distributed 99 tons of 22 different kinds of vegetable seed, 100,000 potato microtubers, and 500,000 banana plantlets. Contract growers also supplied potatoes, chillies, and a range of vegetable crops for export to Singapore and Europe.

19. In the past few years, BRAC's management has made a policy decision to begin to target not only the landless and marginal segments of society, but also the poor small-scale farmer, in the realization that this segment of society (to date neglected in terms of credit provision) will provide much of the economic growth in the rural areas.

20. BRAC is well-represented in the project area, with active programs in every district and training facilities in Dinajpur.

## **2. PROSHIKA Manavik Kendra**

21. PROSHIKA is the country's second largest NGO. Established in 1976 PROSHIKA has a similar mandate to BRAC but in practice has a somewhat narrower focus on the landless and marginal landholding groups. It also has a focus on group formation and mobilization and its membership comprises 51,713 women's groups and 35,947 men's groups with a total household membership of about 1.7 million (or about 7 million beneficiaries). PROSHIKA is active in 50 of the country's 64 districts (including all of the project area), has a total staff of over 4,000, almost all of whom are field staff, and an annual budget of close to \$100 million. In 1998, PROSHIKA disbursed \$56 million in credit to 33,000 of its member households and has cumulatively (since inception) disbursed \$189 million. In comparison with BRAC, PROSHIKA has a lower emphasis on microcredit provision and a greater emphasis on group formation and education and training.

22. PROSHIKA has a wide range of programs. These include a universal education program, an employment and income generating program, an environmental protection and regeneration program, a health and education program, an urban poor program, and a disaster management program. Of importance for the Project are the employment and income generation program and the environmental protection and regeneration program, which include activities such as irrigation, livestock development, fisheries development, sericulture, apiculture, and ecological agriculture. The ecological agriculture component includes ecological cropping based on farming without chemical fertilizer and pesticides, and homestead gardening. To date, 537,000 farmers have been trained in ecologically sound cropping practices and these practices have been successfully implemented on about 50,000 hectares (ha) of crop land. Moreover, through homestead gardening training, about 62,000 members were trained in vegetable and fruit production in 1998-1999 alone. PROSHIKA also has a seed production and

marketing program for vegetable seed. Like BRAC, PROSHIKA is well-represented in every district of the project area.

### **3. Grameen Krishi Foundation (GKF)**

23. The GKF is an offshoot of the Grameen Bank, set up in 1991 to take over privatized tubewells from the Bangladesh Agriculture Development Board and the Bangladesh Water Development Board and run them as cooperative farms owned by landless and marginal farmers. GKF is very much agriculture oriented in its outlook and includes among its objectives the following: "(i) to increase income and employment within the rural sector for men and women; (ii) to enable the poor to gain equitable access to the use of irrigation and other agricultural equipment for productive purposes; (iii) to enhance crop diversification for effective utilization of under-utilized fallow land; (iv) to promote private sector seed production at farm level; (v) to provide credit for crop production and for both on-farm and off-farm activities for landless, marginal and small farmers; (vi) to promote marketing of mostly non-traditional and also traditional crops at home and abroad."

24. Unlike BRAC and PROSHIKA, GKF covers only a limited target area: 14 districts, including part of the project area. Within this area, GKF has 18,000 groups comprising 90,000 members and who cultivate about 50,000 ha either individually or collectively. Of these 90,000 members, 85,000 currently have loans. GKF has disbursed about \$10 million in loans with a 99.5 percent recovery rate. Group fund savings total just over \$1.1 million. GKF's program is run by a staff of about 1,200 with an annual budget in 1999 of about \$436,000.

25. GKF's field program is crop production oriented although it does include livestock development. One of the most relevant aspects of the agency's work, with regard to the Project, is an emphasis on crop diversification. Of the approximately 50,000 ha in production under GKF's guidance, about 13,000 ha was in non-rice crops, primarily, vegetables, potatoes, and fruits. GKF is also active in the promotion and production of improved seed for a range of vegetables, fruit, and hybrid maize.

### **4. Rangpur/Dinajpur Rural Services (RDRS)**

26. RDRS was set up in 1971 by the Lutheran World Fellowship. In 1976, a sectoral development program was devised to assist the "poorest of the poor" in agriculture, community development, health, and women's economic activities while at the same time continuing a construction program for roads, bridges, markets, and schools. In 1988, RDRS divided its activities into a Rural Works Project (concentrating on infrastructure) and a Comprehensive Project with a stress on social, educational, and economic factors. RDRS still has strong ties with its original international NGO founders and depends to a large extent on bilateral and international NGO funding for its programs. It is currently involved in 31 bilaterally funded projects with donors ranging from the Republic of Ireland and the Federal Republic of Germany to the World Food Program and Japan. Its current program amounts to about \$38 million, which is substantial given the limited area of operation (29 subdistricts).

27. RDRS works through groups of representatives of poor households, which receive awareness training, skills training, and credit distribution for income generating activities. RDRS has about 280,000 group members. In 1999, about \$67 million was disbursed to about 110,000 borrowers, including about 2,000 small-scale farmers. (Notably, about 3,400 participants in ADB's Participatory Livestock Development Project received microfinance from RDRS in 1999). Historically, the repayment rate for microcredit loans has been about 92 percent.

28. RDRS has a range of programs from education to health and disaster preparedness, and is active in agriculture, livestock, and fisheries. Of particular relevance to the Project is an IFAD-financed project in Kurigram and Thakurgaon districts which is expanding the basic RDRS group work to small-scale farmers, focusing on farms of 0.5-1.2 ha. RDRS's publications acknowledge the need to work with farmers in this landholding group and the institution intends to expand work with its small-scale farmer groups.

## DETAILED COST ESTIMATES

**Table A4.1: Project Cost Estimates**  
(\$'000)

| Component                                    | Foreign<br>Exchange | Local<br>Currency | Total Cost    |
|--|---------------------|-------------------|---------------|
| <b>A. Base Cost</b>                          |                     |                   |               |
| <b>1. Training and Extension</b>             |                     |                   |               |
| a. Capacity Expansion in Training Facilities | 847                 | 1,328             | 2,174         |
| b. Course Formulation and Training           | 3,943               | 5,789             | 9,731         |
| c. NGO Support                               | 160                 | 640               | 800           |
| <b>Subtotal (1)</b>                          | <b>4,949</b>        | <b>7,756</b>      | <b>12,706</b> |
| <b>2. Farmer Mobilization and Credit</b>     |                     |                   |               |
| a. Credit Packages                           | 5,161               | 11,164            | 16,325        |
| b. Farmer Contribution <sup>a</sup>          | 0                   | 9,481             | 9,481         |
| <b>Subtotal (2)</b>                          | <b>5,161</b>        | <b>20,645</b>     | <b>25,806</b> |
| <b>3. Marketing Support</b>                  |                     |                   |               |
| a. Primary Markets                           | 840                 | 3,360             | 4,200         |
| b. Growers Markets                           | 480                 | 1,920             | 2,400         |
| c. Support to DAM                            | 1,269               | 704               | 1,972         |
| <b>Subtotal (3)</b>                          | <b>2,589</b>        | <b>5,984</b>      | <b>8,572</b>  |
| <b>4. Adaptive Research</b>                  |                     |                   |               |
| a. Upgrading Horticulture Stations           | 120                 | 30                | 150           |
| b. Horticulture Databank                     | 0                   | 100               | 100           |
| c. Contracted Research                       | 245                 | 161               | 406           |
| <b>Subtotal (4)</b>                          | <b>365</b>          | <b>291</b>        | <b>656</b>    |
| <b>5. Pilot Agribusiness Credit</b>          |                     |                   |               |
| a. Credit Packages                           | 1,000               | 0                 | 1,000         |
| b. Equity Contribution                       | 0                   | 667               | 667           |
| <b>Subtotal (5)</b>                          | <b>1,000</b>        | <b>667</b>        | <b>1,667</b>  |
| <b>6. Project Management Support</b>         |                     |                   |               |
| <b>Subtotal (6)</b>                          | <b>1,694</b>        | <b>1,585</b>      | <b>3,278</b>  |
| <b>Subtotal (A)</b>                          | <b>15,758</b>       | <b>36,927</b>     | <b>52,685</b> |
| <b>B. Contingencies</b>                      |                     |                   |               |
| 1. Physical <sup>b</sup>                     | 480                 | 781               | 1,261         |
| 2. Price <sup>c</sup>                        | 1,957               | 8,974             | 10,931        |
| <b>Subtotal (B)</b>                          | <b>2,437</b>        | <b>9,754</b>      | <b>12,192</b> |
| <b>C. Interest During Construction</b>       |                     |                   |               |
|  | <b>1,334</b>        | <b>-</b>          | <b>1,334</b>  |
| <b>Total</b>                                 | <b>19,529</b>       | <b>46,682</b>     | <b>66,211</b> |

DAM = Department of Agricultural Marketing, NGO = nongovernment organization.

<sup>a</sup> Consisting of farmer and paid labor.

<sup>b</sup> Physical contingencies are based on 5% of base cost of all components except Farmer Mobilization and Credit, and Pilot Agribusiness Credit.

<sup>c</sup> Price contingencies are applied to all components and are based on average annual escalation of 2.4 percent for foreign exchange and 6.4 percent for local currency cost.

Source: Mission estimates.

**Table A4.2: Project Components, by Year**  
(\$'000)

| Component                                    | 2001         | 2002         | 2003          | 2004          | 2005          | 2006         | 2007         | Total Cost    |
|--|--------------|--------------|---------------|---------------|---------------|--------------|--------------|---------------|
| <b>A. Base Cost</b>                          |              |              |               |               |               |              |              |               |
| <b>1. Training and Extension</b>             |              |              |               |               |               |              |              |               |
| a. Capacity Expansion in Training Facilities | 905          | 1,039        | 10            | 54            | 167           | -            | -            | 2,174         |
| b. Course Formulation and Training           | 1,491        | 1,751        | 1,233         | 2,026         | 1,710         | 1,294        | 227          | 9,731         |
| c. NGO Support                               | 0            | 80           | 160           | 200           | 160           | 120          | 80           | 800           |
| <b>Subtotal (1)</b>                          | <b>2,396</b> | <b>2,870</b> | <b>1,403</b>  | <b>2,279</b>  | <b>2,037</b>  | <b>1,414</b> | <b>307</b>   | <b>12,706</b> |
| <b>2. Farmer Mobilization and Credit</b>     |              |              |               |               |               |              |              |               |
| a. Credit Packages                           | 0            | 1,633        | 3,265         | 4,081         | 3,265         | 2,449        | 1,633        | 16,325        |
| b. Farmer Contribution <sup>a</sup>          | 0            | 948          | 1,896         | 2,370         | 1,896         | 1,422        | 948          | 9,481         |
| <b>Subtotal (2)</b>                          | <b>0</b>     | <b>2,581</b> | <b>5,161</b>  | <b>6,452</b>  | <b>5,161</b>  | <b>3,871</b> | <b>2,581</b> | <b>25,806</b> |
| <b>3. Marketing Support</b>                  |              |              |               |               |               |              |              |               |
| a. Primary Markets                           | 0            | -            | 1,050         | 1,050         | 1,050         | 1,050        | -            | 4,200         |
| b. Growers Markets                           | 0            | -            | 750           | 750           | 750           | 150          | -            | 2,400         |
| c. Support to DAM                            | 834          | 502          | 163           | 190           | 83            | 100          | 100          | 1,972         |
| <b>Subtotal (3)</b>                          | <b>834</b>   | <b>502</b>   | <b>1,963</b>  | <b>1,990</b>  | <b>1,883</b>  | <b>1,300</b> | <b>100</b>   | <b>8,572</b>  |
| <b>4. Adaptive Research</b>                  |              |              |               |               |               |              |              |               |
| a. Upgrading Horticulture Stations           | 150          | -            | -             | -             | -             | -            | -            | 150           |
| b. Horticulture Databank                     | 100          | -            | -             | -             | -             | -            | -            | 100           |
| c. Contracted Research                       | 250          | 138          | 18            | -             | -             | -            | -            | 406           |
| <b>Subtotal (4)</b>                          | <b>500</b>   | <b>138</b>   | <b>18</b>     | <b>-</b>      | <b>-</b>      | <b>-</b>     | <b>-</b>     | <b>656</b>    |
| <b>5. Pilot Agribusiness Credit</b>          |              |              |               |               |               |              |              |               |
| a. Credit Packages                           | 0            | 200          | 400           | 400           | -             | -            | -            | 1,000         |
| b. Equity Contribution                       | 0            | 133          | 267           | 267           | -             | -            | -            | 667           |
| <b>Subtotal (5)</b>                          | <b>0</b>     | <b>333</b>   | <b>667</b>    | <b>667</b>    | <b>-</b>      | <b>-</b>     | <b>-</b>     | <b>1,667</b>  |
| <b>6. Project Management Support</b>         |              |              |               |               |               |              |              |               |
| <b>Subtotal (6)</b>                          | 706          | 904          | 354           | 384           | 294           | 294          | 342          | 3,278         |
| <b>Subtotal (A)</b>                          | <b>4,436</b> | <b>7,328</b> | <b>9,566</b>  | <b>11,772</b> | <b>9,375</b>  | <b>6,879</b> | <b>3,329</b> | <b>52,685</b> |
| <b>B. Contingencies</b>                      |              |              |               |               |               |              |              |               |
| 1. Physical <sup>b</sup>                     | 222          | 221          | 187           | 233           | 211           | 150          | 37           | 1,261         |
| 2. Price <sup>c</sup>                        | 96           | 532          | 1,371         | 2,422         | 2,606         | 2,468        | 1,436        | 10,931        |
| <b>Subtotal (B)</b>                          | <b>318</b>   | <b>753</b>   | <b>1,558</b>  | <b>2,655</b>  | <b>2,816</b>  | <b>2,618</b> | <b>1,473</b> | <b>12,192</b> |
| <b>Interest During Construction</b>          |              |              |               |               |               |              |              |               |
|  | 0            | 33           | 90            | 168           | 269           | 354          | 421          | 1,334         |
| <b>Total</b>                                 | <b>4,754</b> | <b>8,114</b> | <b>11,213</b> | <b>14,595</b> | <b>12,461</b> | <b>9,851</b> | <b>5,223</b> | <b>66,211</b> |

DAM = Department of Agricultural Marketing, NGO = nongovernment organization.

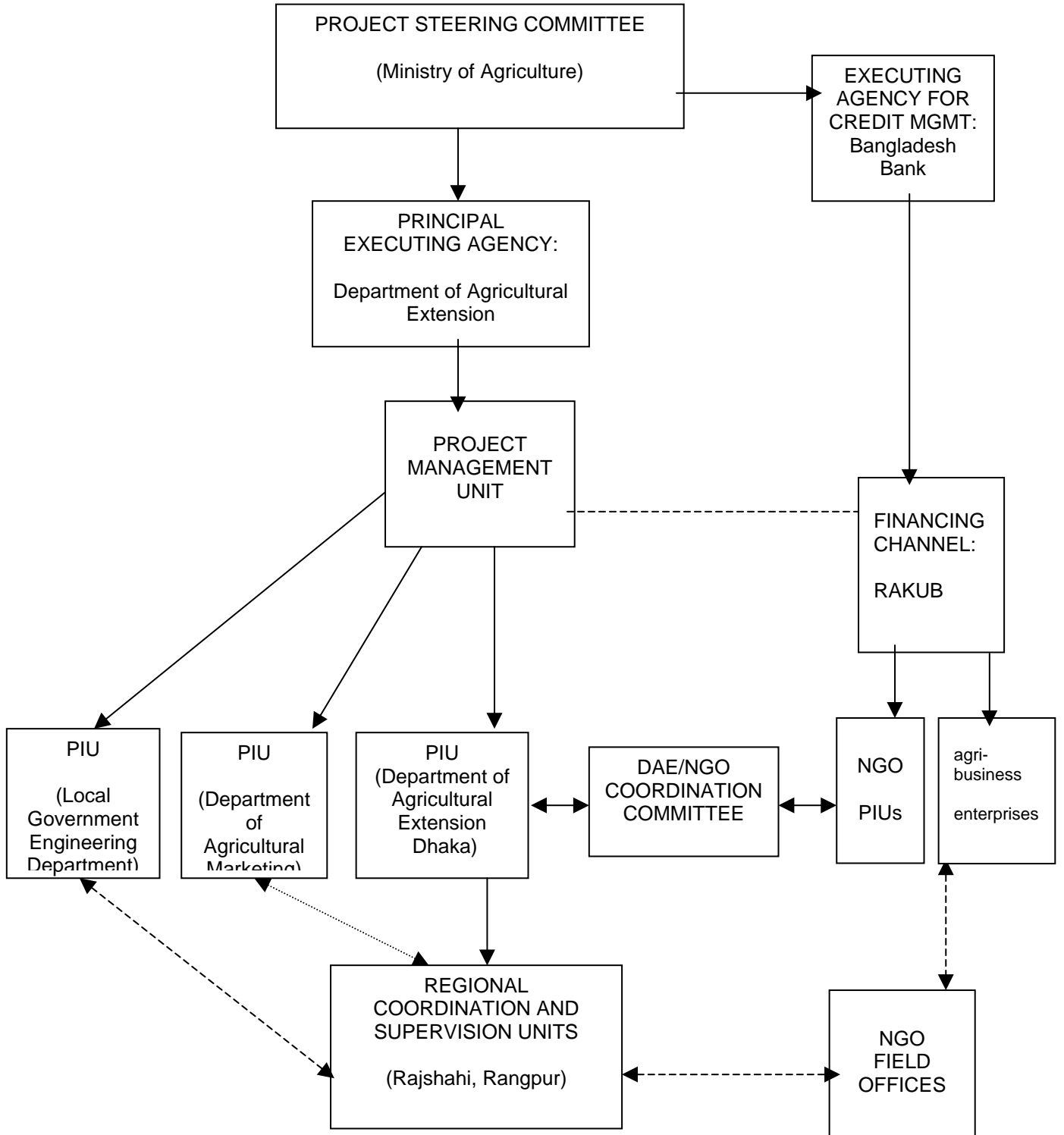
<sup>a</sup> Consisting of farmer and paid labor.

<sup>b</sup> Physical contingencies are based on 5% of base cost of all components except Farmer Mobilization and Credit, and Pilot Agribusiness Credit.

<sup>c</sup> Price contingencies are applied to all components and are based on average annual escalation of 2.4 percent for foreign exchange and 6.4 percent for local

Source: Mission estimates.

**PROJECT MANAGEMENT STRUCTURE**



DAE = Department of Agriculture Extension, NGO = nongovernment organization, PIU = project implementation unit, RAKUB = Rajshahi Krishi Unnayan Bank.

**PROJECT IMPLEMENTATION SCHEDULE**

| <b>Component/Item</b>                              | <b>Year 1</b> | <b>Year 2</b> | <b>Year 3</b> | <b>Year 4</b> | <b>Year 5</b> | <b>Year 6</b> | <b>Year 7</b> |
|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>1. Training and Extension</b>                   |               |               |               |               |               |               |               |
| a. Assess HTDC Upgrading Requirements              | █             |               |               |               |               |               |               |
| b. Formulate Training Programs                     | █             |               |               |               |               |               |               |
| c. Upgrade HTDC Facilities                         | █             | █             |               |               |               |               |               |
| d. Train DEA and NGO Trainers                      | █             | █             |               |               |               |               |               |
| e. Undertake Institutional Training                |               | █             | █             | █             | █             | █             | █             |
| f. Undertake Village-Based Training                |               | █             | █             | █             | █             | █             | █             |
| g. Undertake Follow Up Training                    |               | █             | █             | █             | █             | █             | █             |
| h. Revise and Update Training Program              |               |               | █             | █             |               |               |               |
| <b>2. Farmer Mobilization and Credit Provision</b> |               |               |               |               |               |               |               |
| a. Promotion of Program by NGOs and DAE            | █             | █             | █             | █             | █             | █             | █             |
| b. Farmer Recruitment and Orientation              | █             | █             | █             | █             | █             | █             | █             |
| c. Training Supervision and Guidance               |               | █             | █             | █             | █             | █             | █             |
| d. Provision and of Credit Packages                |               | █             | █             | █             | █             | █             | █             |
| e. Marketing Support                               |               | █             | █             | █             | █             | █             | █             |
| <b>3. Market Improvement</b>                       |               |               |               |               |               |               |               |
| a. Formulation of Market Info Strategy             | █             |               |               |               |               |               |               |
| b. Formulation of DAM Training Program             | █             |               |               |               |               |               |               |
| c. Implementation of Training Program              |               | █             | █             | █             | █             | █             | █             |
| d. Preparation of Broadcast Modules                |               | █             |               |               |               |               |               |
| e. Implementation of Market Info Program           |               | █             | █             | █             | █             | █             | █             |
| f. Identification of Markets for Upgrading         | █             | █             |               |               |               |               |               |
| g. Detailed Design of Markets                      |               | █             | █             | █             | █             | █             | █             |
| h. Market Construction                             |               | █             | █             | █             | █             | █             | █             |
| i. Market Management Survey                        |               | █             | █             | █             | █             | █             | █             |
| j. Experiment with Management Methods              |               |               | █             | █             | █             | █             | █             |
| <b>4. Adaptive Research</b>                        |               |               |               |               |               |               |               |
| a. Assess Hort. Station Upgrading Needs            |               | █             |               |               |               |               |               |
| b. Collate Hort. Data Bank                         |               | █             |               |               |               |               |               |
| c. Identify Research Needs                         |               | █             | █             | █             | █             | █             | █             |
| d. Undertake Contract Research                     |               |               | █             | █             | █             | █             | █             |

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| Component/Item                            | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 |
|---|--------|--------|--------|--------|--------|--------|--------|
| 5. Pilot Agribusiness Credit              |        |        |        |        |        |        |        |
| a. Promote Credit Line                    | ■      | ■      |        |        |        |        |        |
| b. Assess Proposals                       |        | ■      |        |        |        |        |        |
| c. Provide and Supervise Credit           |        | ■      | ■      |        |        |        |        |
| d. Assess Impact                          |        |        | ■      |        |        |        |        |
| 6. Project Management                     |        |        |        |        |        |        |        |
| a. Staffing of PMU                        | ■      |        |        |        |        |        |        |
| b. Equiping of PMU                        | ■      |        |        |        |        |        |        |
| c. Staffing of PIUs                       |        | ■      |        |        |        |        |        |
| d. Equiping of PIUs                       |        | ■      |        |        |        |        |        |
| e. Preparation of Implementation Plans    |        | ■      |        |        |        |        |        |
| f. Finalization of Interagency Agreements |        | ■      |        |        |        |        |        |
| g. Project Management Activities          |        |        |        |        |        |        |        |
| h. Undertake PBME                         |        | ■      |        |        |        | ■      | ■      |
| i. Participate in Midterm Review          |        |        |        | ■      |        |        |        |
| j. Prepare Project Completion Report      |        |        |        |        |        | ■      | ■      |

### **ELIGIBILITY CRITERIA FOR PARTICIPATING NGOS**

Each nongovernment organization (NGO) being considered for participation in the project must have:

- (i) been operating a successful rural credit program for a minimum of five years;
- (ii) a membership of at least 100,000 with a strong potential to expand;
- (iii) equity of at least Tk100 million (including foreign grants, retained earnings, etc.);
- (iv) a debt-equity ratio not exceeding 2.5:1;
- (v) an established organizational structure and experienced management;
- (vi) a strong and transparent accounting, management information system, and internal audit system;
- (vii) its accounts audited annually by a reputable external auditor and audited statements available for the last three years;
- (viii) maintained a loan recovery rate of 95 percent and proven financial stability over the previous five-year period;
- (ix) had experience in agriculture promotion programs and technically qualified staff for undertaking agriculture training; and
- (x) engaged in field activities in at least two of the greater districts of Rajshahi division.

**INDICATIVE PROCUREMENT PACKAGES**

| <b>Item</b>  | <b>Base Cost<br/>(\$'000)</b> | <b>Procurement<br/>Method</b> |
|--|-------------------------------|-------------------------------|
| Upgrading of HDTCs (6 civil works contracts)                         | 1,450                         | LCB Contract                  |
| Primary Markets Upgrading and Renovation (60 civil works contracts)  | 4,200                         | LCB Contract                  |
| Growers' Markets Upgrading and Renovation (16 civil works contracts) | 2,400                         | LCB Contract                  |
| Vehicles (14 vehicles; 64 motorbikes)                                | 460                           | IS                            |
| Office Equipment (communications/ computers/ software)               | 365                           | IS                            |
| Office/ Laboratory/ Field Trial Equipment (technical)                | 301                           | IS                            |
| Field Equipment  | 72                            | IS                            |
| Production of Training Materials/ Guidebooks                         | 1,550                         | IS                            |
| Farmer Credit Support to NGOs  | 800                           | Service Contract              |
| Market Studies and Promotion   | 180                           | Service Contract              |
| Establishment of Horticulture Database                               | 100                           | Service Contract              |
| Regional Adaptive Trials and Demonstrations                          | 250                           | Service Contract              |

HDTC = horticulture training and demonstration center, ICB = international competitive bidding, IS = international shopping, LCB = local competitive bidding, NGO = nongovernment organization.

## INDICATIVE TERMS OF REFERENCE FOR CONSULTING SERVICES

### Table A10: Summary of Consulting Services Requirements

| Component                                      | Expertise   | Person-months  |
|--|---|--|
| 1. Training and Extension                      |   |  |
| a. Expansion of Training Facilities            | Domestic<br>Agriculture Training Specialist<br>Civil Engineer   | 6<br>9   |
| b. Course Formulation and Training Supervision | Domestic<br>Crop Production Specialist<br>Agriculture Information Specialist<br>Extension Training Specialist<br>Integrated Pest Management Specialist<br>Post harvest and Marketing Specialist<br><br>International<br>Crop Production Specialist<br>Agriculture Information Specialist<br>Extension Training Specialist<br>Integrated Pest Management Specialist<br>Post harvest and Marketing Specialist | 72<br>48<br>24<br>24<br>24<br><br>25<br>10<br>10<br>10<br>10 |
| 2. Marketing Information Training              |   |  |
| a. Support to DAM                              | Domestic<br>Market Information Specialist<br>Communications Technology Training Specialist<br>International: Market Information Specialist  | 12<br>12<br>12   |
| b. Market Management                           | Domestic<br>Market Management (Primary)<br>Market Management (Growers')<br>International: Market Management   | 12<br>12<br>12   |
| 3. Adaptive Research                           | Domestic: Research Programming<br><br>International: Research Programming   | 12<br><br>4  |
| 4. Project Management Support                  | Domestic<br>Agriculture Project Management<br>Seed Verification Specialist<br>Monitoring and Evaluation<br>Gender Specialist<br>Environmental Monitoring Specialist<br>Accounting<br>International<br>Agriculture Project Management<br>Seed Verification Specialist<br>Monitoring and Evaluation   | 72<br>2<br>25<br>6<br>14<br>72<br>20<br>2<br>9               |
|  | <b>Total</b>  | <b>582</b>   |
|  | <b>Domestic= 458 International=124</b>  |  |

## **A. Expansion of training facilities**

1. Consultants will be recruited to assist the project management unit (PMU) to supervise the works involved in upgrading the training centers. Their work will consist primarily of detailed design of the upgrading requirements and the preparation of contract packages. They will be hired from a domestic consulting firm.

### **1. Domestic Civil Engineer (9 person-months)**

2. The engineer will (i) review the upgrading requirements for the four horticulture development training centers and two other training centers as outlined in the project preparation report; checking works recommended and cost estimates and making adjustments as necessary; (ii) discuss specific building needs and design parameters with staff of the Department of Agricultural Extension (DAE), the agriculture training specialist consultant (para. 4), and the team of consultants preparing training curricula and training materials, and review design parameters on this basis; (iii) prepare detailed designs for upgrading training centers; (iv) prepare contract packages for bidding for the upgrading works; and (v) supervise the letting of the packages and the awarding of bids.

### **2. Domestic Agriculture Training Specialist (6 person-months)**

3. The specialist will (i) liaise with the team of consultants preparing training curricula and review the specific building needs and design parameters for the training centers; (ii) liaise with the staff of DAE and individual training centers to ensure that their requirements are included in the detailed upgrading designs of the centers; and (iii) assist the civil engineer (para. 3) in formulating the design of training facilities, dormitories, storage and service facilities, access road layouts, etc.

## **B. Course Formulation and Training Supervision**

4. A team of international and domestic experts (Table A10) will be recruited from a reputed agricultural institution or university, possibly in conjunction with a qualified firm, to prepare training programs and modules suitable for (i) the training of DAE staff, (ii) the training of nongovernment organization (NGO) staff, (iii) institutional training of farmer participants; (iv) village-based training of farmer participants, and (v) follow on training during crop production and marketing. The training will cover all aspects of HVC production from the selection of suitable crops to crop production techniques; integrated pest management; the safe use of agricultural chemicals; proper harvesting; storage; and packaging; and marketing aspects.

5. The experts will (i) assess existing curricula and training materials available for HVC production from the point of view of training of trainers and the institutional and village-based training of farmer participants; (ii) through field visits throughout the region, observe current HVC production methods, and postharvest and marketing techniques and constraints; (iii) visit farmers and farmer groups and discuss their current production techniques and information needs, and interest in and concerns about HVC production; (iv) prepare a series of integrated training packages using visual aids and actual field demonstrations and participatory group activities to the maximum extent possible; (v) participate in the training of trainers and the first round of field- and village-based farmer training; (vi) on the basis of feedback from trainers and trainees as well as course observations, revise training materials and curricula as required; (vii) make recommendations for the upgrading of training centers in order to accommodate the needs of the training program and maximize output; (viii) periodically review and revise training program as required during the Project; and (ix) provide advice and guidance to the crop

production specialists (international and domestic) on the training program throughout the project period.

### **C. Marketing Information Training**

6. Under the marketing support component, consulting services will be required to train Department of Agricultural Marketing (DAM) staff in the collection and dissemination of market information using modern techniques. International and domestic expertise will be recruited from a firm for this purpose.

#### **1. International Market Information Specialist (12 person-months)**

7. The specialist will (i) assess the current market information collection system and identify deficiencies and upgrading needs; (ii) identify the most appropriate market survey techniques for DAM and undertake staff training in these techniques; (iii) determine appropriate communications equipment needs of DAM field offices and formulate a plan and timetable for the provision of equipment and training in its use; (iv) help procure modern communications equipment for all DAM offices nationwide; (v) formulate training courses on the preparation of information packages for use by broadcast media and provide on-the-job training at Dhaka and in regional DAM offices where broadcast facilities exist; (vi) oversee the preparation of broadcast modules by a contracted media company; and (vii) oversee the training program in the use of communications equipment.

#### **2. Domestic Market Information Specialist (12 person-months)**

8. The specialist will (i) assist the international market information specialist in his or her duties; and (ii) undertake follow-up reviews and inspections of DAM offices that have received upgraded equipment and where training courses have been carried out.

#### **3. Domestic Communications Technology Training Specialist (12 person months)**

9. The specialist will provide (i) hands-on training in the installation, use, and maintenance of modern communications equipment at the DAM district offices; and (ii) back-up and trouble-shooting support during the first few months of equipment operation.

### **D. Market Management**

10. Consulting services will be provided to assist DAM and local authorities in improving the management of grower and primary markets. This will include studies of the ongoing management system and the preparation of improved management options. International and domestic expertise will be recruited from a firm for this purpose.

#### **1. International Market Management Specialist (12 person-months)**

11. The specialist will (i) review current practices and procedures for market management and market management finance in the country and particularly in the northwest region, with particular attention to improving operation and maintenance operations; (ii) undertake a series of interviews with major agencies concerned with market management (DAM, local authorities at union, municipal, subdistrict, and district level) to determine the state of market management in the country and particularly in the northwest region; (iii) assist DAM to organize a series of stakeholder workshops to discuss market management concerns and explore options for improvement; (iv) organize study tours to relevant neighboring countries to view options in

market organization and management; and (v) in cooperation with DAM, formulate a series of market management options for testing by DAM and local authorities.

**2. Domestic Market Management Specialist (Growers' Markets) (12 person months)**

12. The specialist will (i) work with the international market management consultant and assist him or her in looking at market options from a growers' market point of view; and (ii) assist DAM in initiating new market management options in representative growers' markets.

**3. Domestic Market Management Specialist (Primary Markets) (12 person months)**

13. The specialist will (i) work with the international market management specialist and assist him or her in looking at market options from a primary village market point of view; and (ii) assist DAM in initiating new market management options in representative primary village markets.

**E. Adaptive Research**

14. Expertise will be required to determine upgrading needs of horticulture research centers in the northwest region and to help DAE determine research programs to support through adaptive research. An international and a local expert will be recruited individually.

**1. International Research Programming Specialist (4 person-months)**

15. The specialist will (i) visit horticulture research centers and facilities in the northwest region and assess needs for upgrading; (ii) prepare procurement lists for needed equipment for regional horticulture research facilities and assist with procurement through the PMU; (iii) working with DAE, determine adaptive research needs and formulate them into research packages; and (iv) work with DAE in contracting the packages to research agencies and reviewing initial research activities.

**2. Domestic Research Programming Specialist (12 person-months)**

16. The specialist will (i) assist the international research programming specialist; and (ii) continue to work with DAE in formulating research packages and overseeing research activities after the departure of the international expert.

**F. Project Management Support**

17. A team of international and domestic consultants will be recruited to work with the project management unit (PMU) to assist it with project start-up, and advise on policies and procedures. The team will be recruited from a firm.

**1. International Agriculture Project Management Specialist (20 person-months)**

18. The specialist will (i) assist the PMU with start-up activities including the initial implementation budgeting and planning, the recruitment of consulting services, preparing of procurement packages, and setting up of an imprest account; (ii) assist in setting up a monitoring and reporting system including putting in place the procedures to allow full reporting to the Asian Development Bank (ADB); (iii) advise on the start up of various components and the coordination with various agencies; (iv) assist in setting up and starting of project

implementation units (PIUs) and their budgeting and reporting systems; (v) advise on any changes or adaptations required to the project design, which become evident in the early months of implementation and make recommendations for pertinent changes in scope or implementation arrangements; (vi) monitor the initial progress of project implementation and advise on measures to avoid or prevent implementation delays; and (vii) during years 3-6, make periodic visits to Bangladesh to assist and advise on any implementation difficulties.

## **2. International Monitoring and Evaluation Specialist (9 person-months)**

19. The specialist will (i) assist the PMU to set up a management information system (MIS) and a system to monitor project progress, (ii) train PMU and PMI staff in the use of the management information system and in project monitoring, (iii) assist in identifying benchmark indicators for benefit monitoring and evaluation (BME) and oversee the benchmark survey, and (iv) set up a system of regular BME for the project period.

## **3. Domestic Agriculture Project Management Specialist (72 person-months)**

20. The specialist will (i) assist in interagency coordination at start up and throughout the project implementation period; (ii) assist the project manager and PIU heads to establish working links with the participating NGOs both at the field, and at PMU level; (iii) monitor the operation of the MIS and the financial reporting system; (iv) ensure that the system for reporting to ADB is in place and functioning; (v) assist in overcoming any major impediment to smooth project implementation; (vi) ensure smooth liaison with other projects in the northwest region of the country which may interact with the Project; and (vii) advise on required changes to project scope or implementation arrangements in conjunction with or in the absence of the international agriculture project management specialist.

## **4. Domestic Monitoring and Evaluation Specialist (25 person-months)**

21. The specialist will (i) assist the international monitoring and evaluation specialist in setting up a management information system and in setting up a system for BME; (ii) supervise the initial PBME benchmark survey; (iii) supervise the annual BME exercise; and (iv) liaise with participating NGOs to compile and analyze their BME, and MIS data and to provide feedback to them on the results of the PMU-sponsored independent BME exercise.

## **5. Domestic Gender Specialist (6 person-months)**

22. The specialist will (i) examine the respective roles of men and women in the project area with particular attention to their roles in agriculture production activities and in decision making for agriculture production; (ii) determine the role of women in HVC production in areas where such crops are already produced versus the role of women in traditional staple crop producing areas; (iii) examine the project design and discuss in detail with DAE and the NGOs their plans for involving women in the training and agriculture production components; (iv) suggest improvements in project design and implementation procedures that could ensure the maximum participation and involvement of women while still maintaining the project objectives of maximizing family incomes through HVC production; (v) identify any project implementation activities or procedures that could prove harmful or inimical to women and children in the project area, and prescribe measures to avoid or mitigate such occurrences; and (vi) monitor the first months of project implementation to assist in implementing measures aimed at maximizing women's involvement and preventing negative impacts on women or children.

## **6. Environmental Monitoring Specialist (14 person-months)**

23. The specialist will (i) examine the project design and the Summary Initial Environmental Examination and determine likely project impacts, the need for environmental monitoring, and

the type and frequency of monitoring required; (ii) examine the environmental safeguards in place or to be put in place for market construction and operation, HVC production, and the pilot agribusiness component; (iii) make recommendations for improvement in the environmental safeguards for the project; (iv) design a monitoring program to ensure environmental soundness of project activities and to alert the PMU to any likely negative impacts; and (v) monitor the project and its activities annually and report the results to the project director and ADB.

#### **7. Domestic Accounting Specialist (72 person-months)**

24. The specialist will (i) assist the PMU accounting staff to set up a financial reporting and monitoring system for the project, taking into account the needs for each component and agency and the need to report regularly to ADB; (ii) assist the PMU accounting staff to monitor the use of the Project's imprest accounts; (iii) ensure that quarterly and annual accounts are prepared and submitted to ADB as required; (iv) ensure that withdrawal applications and requests for replenishment of imprest accounts are submitted to the ADB on a timely basis; and (v) undertake any other activities needed to ensure the financial soundness of project management and the use of project funds.

#### **G. Seed Verification Review**

25. An individual international and an individual domestic consultant familiar with seed verification procedures and the issues involved in seed import and verification will be recruited to assist the Government to review current practices in seed import and verification.

##### **1. Seed Import and Verification Specialists (2 person-months each)**

26. The specialist will (i) document current seed import and verification regulations, procedures, and practices, including time restrictions on imports of needed seed lines and varieties and the time allotted to each stage of the verification process; (ii) interview public, private, and semi-private (i.e., NGO) organizations involved in seed importation and document their experience and concerns with current import and verification practices; (iii) determine the main countries from which imported seed is obtained and examine their seed verification procedures and standards to determine if, in some cases, verification can be waived if the seed is obtained from certified sources abroad; (iv) review the overall efficiency of the seed import and verification process and make recommendations for any improvements that might enhance the procedures while maintaining safeguards for seed standards and quality; and (v) report the results of the review to the Ministry of Agriculture and ADB.

## **GENDER STRATEGY**

1. Rural women play an important role in agriculture production and food security in Bangladesh. Women from small-scale farm families in the project area work on the family farms in different agriculture activities. Their work in the agriculture field covers all activities from seed to harvest. Women are also managing grain storage and processing and fruit and vegetable production, especially in and around their homesteads. In some nongovernment organization (NGO) programs in the project area, women participate in seed, sunflower, and maize production. Given that women are significantly involved in crop production, the Project is designed with specific mechanisms and features to facilitate and ensure full participation of women in the Project.
2. Prior to the commencement of project activities, the gender specialist, in coordination with the NGOs, will develop and supervise a gender assessment in the project area, focusing especially on the high value crops selected for promotion under the Project. This assessment will gather first hand information on gender division in production activities relevant to the Project. Field observations and interviews will be conducted with both men and women farmers.
3. Based on the outcome of this assessment, a gender strategy will be prepared for the mobilization and group formation of farmers, both men and women. The number of mixed or separate groups will be determined based on the findings of the gender assessment. The gender strategy will also determine the type of extension training to be provided to the women.
4. In the village-based training to be provided under the Project, the Department of Agriculture Extension and the NGOs will ensure that women farmers working in the project area are adequately targeted and represented.
5. The Project includes a gender consultant to be placed in the project management unit to design and undertake the initial gender assessment in the Project area, and design the implementation strategy and the monitorable indicators for ensuring women's full participation in project activities.
6. The village-based training and extension services will be specifically designed to meet the needs of the women farmers.

## FINANCIAL AND ECONOMIC ANALYSES

### A. Economic Rationale

1. The Northwest Crop Diversification Project is justifiable on the following grounds:
  - (i) Equity. The northwest region remains one of the poorest regions in the country.
  - (ii) Market Failure. Public services: varietal information, production technology, and access to credit are lacking for small-scale farmers. The Project will focus on such farmers as they have the land resources needed to raise high value crops (HVCs) but are not served by the existing microcredit and formal credit programs. The marketing support component will increase competition, increase marketing opportunities, reduce postharvest losses, and increase farmers' knowledge of produce prices.
  - (iii) Complementary Externalities. (nonquantifiable) The Project will enhance the impact of other ADB projects in the region, e.g., the Jamuna Bridge Project, Third Rural Infrastructure Development Project, Horticulture Development Project, and Participatory Livestock Development Project.
  - (iv) Other Effects. (nonquantifiable) The Project will also benefit the region's economy as a whole due to increased labor demand and overall regional nutritional status as new and more nutritious vegetables and fruits become available at accessible prices.

### B. Project Benefits and Beneficiaries

2. The main quantifiable benefits arising from the Project are increased HVC production by farmers who are expected to undergo training and take production loans. Other economic benefits accruing from the Project but that are not quantified include reduced losses and marketing costs through improvements to growers' markets, reduced costs of marketing and higher produce values at village markets, and increased production from farmers who do not participate in the project but adopt HVC production. Most of people who take loans and benefit from higher crop production will be small-scale farming households with holdings of 0.2 to 1.2 hectares (ha). Approximately 160,000 small-scale farm households are expected to directly benefit from crop diversification, training, extension, and credit under the Project. It is difficult to precisely quantify the number of the households who will benefit from the renovation and upgrading of primary and growers' markets, although these will include much of the general population living near these facilities.

3. Seven years after project implementation, the Project's field activities will give rise to production of approximately 370,000 tons of HVC per annum which, after deducting the value of rice taken out of production, will have an incremental value estimated at \$27.9 million. At the end of the Project, the field activities will generate an additional 4.4 million labor-days of employment per annum.

### **C. Sector Policy Context**

4. The Government agricultural policy on some issues has been reversed from the agreements for the Food Crops Sector Program (FCP), especially those related to fertilizer subsidy, publicly controlled marketing of fertilizer and public sector seed production. These issues will have to be addressed in coordination with other agencies such as World Bank, but the outcome will affect the economic viability of the Project only marginally at best (See paras. 43-47 in the main text).

5. On rural finance, the Agricultural Credit Department of Bangladesh Bank has confirmed that there is no interest rate ceiling or restriction of eligibility to agricultural credit in terms of farm size. Previously imposed restrictions of this nature have been removed, and the interest rate ceiling was removed in July 1999. Currently, the Bangladesh Bank only issues yearly guidelines that list indicative credit size per hectare depending on crop category, farm size, and farm input requirements.

### **D. Comparative Advantage**

6. The northwest region has large tracts of flood-free highlands with desired agro-ecological zones and good, deep, free-draining lighter textured soils ideally suited to HVCs. Sixty target subdistricts have been selected based on factors including altitude, soil condition, availability of irrigation water, farm size (land holdings), access for marketing and input procurement, and current land use.

7. For vegetables and spices, while some of the districts (Bogra, Pabna, and parts of Rangpur) in the northwest have started growing these crops, the greater districts of Dinajpur and Rajshahi and more northern parts of Rangpur offer good opportunities for diversification. The major opportunity gap is in summer vegetable production in which the drier and cooler areas of the far north of the northwest region can excel. Also, the northwest should be able to produce earlier crops of cool season vegetables. A recent study<sup>1</sup> shows that potatoes, vegetables, chillis, and onions provide high financial returns and have a comparative advantage. These and other crops are being focused on under the Project.

8. Hybrid maize is considered very promising as a substitute for imports used in livestock feed, and has significant potential to increase farm incomes. The ongoing Participatory Livestock Development Project (started in early 1998) is expected to support more than 400,000 small households raising poultry and cattle in the northwest and north-central regions. This will create a significant surge in demand for the animal feed. Nongovernment organizations (NGOs) such as Bangladesh Rural Advancement Committee (BRAC) operate their own processing facilities for hybrid maize to support livestock enterprises.

9. In addition, fruits with good potential for commercial production in the northwest region include banana, coconut, guava, lemon, lime, lychee, mandarin, mango, orange, papaya, pineapple, sapodilla, sweet tamarind, and sour tamarind. All of these fruits have a comparative advantage for production in the highland, flood-free areas of the northwest. Technical and socioeconomic constraints can be overcome by the project (based on available information in Food and Agriculture Organization (FAO, TA Report).

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<sup>1</sup> Shahabuddin. 1999. *Comparative Advantage in Bangladesh Agriculture*.

## **E. Project Design Features**

### **1. Realistic Packaging**

10. Agricultural processing and agribusiness was originally considered as one of the Project components but has been scaled down to the level of a pilot activity. A small line of credit will be extended through Rajshahi Krishi Unnayan Bank (RAKUB) to agribusiness projects that comply with strict eligibility criteria. This will test the feasibility and viability of some representative enterprises and test the implementation and institutional arrangements for agribusiness lending.

### **2. Marketing Management**

11. Previous projects in Bangladesh with a marketing component have tended to concentrate on the physical improvement of market infrastructure without due attention to management aspects. This approach has limited the benefits to growers. The Project will support strengthening of Department of Agricultural Marketing in collecting, collating, and disseminating timely and accurate information on markets and prices. It will also develop and implement improved market management systems.

### **3. Strategic Beneficiary Targeting for Optimum Poverty Impact**

12. The beneficiary target for the Project (farmers with landholdings of 0.2-1.2 ha) has taken into consideration the specific rural poverty situation in Bangladesh. The rural poor in Bangladesh fall into three distinct bands taking into consideration the key indicators of per capita income, land ownership, and food deficit status:<sup>2</sup> (i) extreme poor (about 23 percent of rural poor); (ii) moderate poor (about 29 percent), (iii) tomorrow's poor (about 21 percent). Thirty to forty percent of the third category, with land ownership of up to 0.6 ha, are said to be above the income poverty line. But this group is vulnerable to income erosion pressures and in danger of descending into poverty as was the case for a sizable percentage of these households during 1987-1994. A group of households immediately above this layer (0.6-1.2 ha) is equally vulnerable. Only those who move upward from this category move away from danger of falling below the poverty line. The Project will therefore target this layer of the poor (0.2-1.2 ha), of which 60-70 percent are below the income poverty line or in danger of falling below it. This group has not been served by NGO microcredit or by formal credit. More importantly, from the regional development perspective, this group is the entrepreneurial segment of the poor who will be able to contribute to internally driven sustained regional economic growth once they have a greater sense of security brought about by technical knowledge transfer. They are not averse to commercial development of HVCs, as has been shown in some regions in the northwest. Marketing is the major missing link to realize their entrepreneurship and requires the type of support provided by the Project.

## **F. Demand Analysis**

### **1. Demand for HVCs**

13. Bangladesh is a large net importer of agricultural produce. 1997 trade statistics 1997 show imports of HVCs and derived processed produce at about \$50 million. Substantial

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<sup>2</sup> Rahman, H.Z. 1995. *Dynamics of Rural Poverty in Bangladesh* (and interview in person).

quantities of HVCs and seeds, including less perishable items such as potatoes and spices, enter from India to the northwest region and other parts of Bangladesh, indicating significant room for import substitution in the domestic markets. The economy has experienced an annual growth rate of 4-5 percent in recent years. According to World Bank studies,<sup>3</sup> most HVCs have demand elasticities well above those for food grains and higher than for pulses and oils. Based on demand elasticity, population, and income growth from the studies, the countrywide demand for HVCs is projected to rise from the current 4.0-5.0 million tons per annum to 5.4-6.5 million tons in 2007. Using the same parameters, the HVC demand in the northwest region will increase from the current 1.9 million to 2.5 million tons.

14. HVC production from the Project would build up gradually and is estimated at 370,000 tons at full development in 2008, which would account for only about 6 percent of the projected national total demand and about 15 percent of the expected total demand in the northwest region. Currently most HVCs such as fruits, vegetables, and spices are consumed in and close to the production areas. While future market and price developments would determine the HVC cropping pattern, considering the small share of the incremental production from the Project in the expected total demand, it is highly unlikely that the Project would upset long-term price trends. Much of the incremental production from the Project is therefore expected to be absorbed within the region. The extent of reduction in transaction costs associated with Jamuna bridge and other marketing network developments that link the produce from the northwest region to Dhaka and Chittigong urban areas has yet to unfold. Although such interregional marketing will be a further benefit from the Project, for the time being it suffices to consider the demand within the northwest region.

## 2. Demand for Credit

15. Farmers' credit requirements are based on the crop budgets and farm models (paras. 14-21). Each participating household on average could increase HVC production by 0.25 hectares, on which representative HVCs are to be grown. The average production costs per 0.25 hectares are estimated at \$102 (excluding family-owned labor costs), and this amount is taken as the household credit requirement. The credit disbursement schedule is to be synchronized with the farmers. As such, the credit demand flow by year is projected in Table A11.1, with the aggregate amount of \$22.6 million, inclusive of price contingencies.

**Table A11.1: Credit Requirements**

| Item                         | Y1 | Y2     | Y3     | Y4     | Y5     | Y6     | Y7     | Total   |
|------------------------------|----|--------|--------|--------|--------|--------|--------|---------|
| No. of Farmers Taking Credit | 0  | 16,000 | 32,000 | 40,000 | 32,000 | 24,000 | 16,000 | 160,000 |
| Credit Required (\$'000)     | 0  | 1,854  | 4,023  | 5,448  | 4,714  | 3,818  | 2,745  | 22,601  |

Source: Mission estimates.

## G. Financial Analysis

16. Illustrative crop budgets have been formulated to assess the profitability of individual crops. Project cost and benefit estimates are based on reasonable assumptions and are well below potential under ideal conditions using recommended technical packages.

<sup>3</sup> World Bank. 1995. *Agriculture Growth with Diversification: Prospects and Issues*. Washington, D.C.

17. Subproject financial viability was estimated based on a yearly production cycle with recurrent incremental costs and revenues, and no major capital investments. Local values are converted into foreign exchange equivalent at an exchange rate of Tk51/\$1. Labor costs are based on the basic daily wage rate of Tk50 per day. For traded commodities, economic prices have been estimated based on the World Bank's commodity price forecasts, projected to 2005 in constant terms (Year 2000=1.0), with adjustments for local handling and transport costs.

18. Farm model analysis was carried out to project incremental farm incomes and return to family labor on a selection of subprojects to be supported under the Project. As it is difficult to accurately predict, the composition of HVCs that the participating farmers will adopt, six indicative farm models were evaluated. The analysis was carried out for farms of 1 ha and 0.5 ha size diversifying into HVCs and increasing cropping intensities from 180 percent without the Project to 200 percent with the Project. The HVCs are hybrid maize, hybrid potato, and mixed vegetable-spices cropping.

19. Hybrid maize was selected as its demand is expected to increase with an increased demand for livestock feed. Hybrid potatoes are already an important crop in the area and have a demonstrated comparative advantage. Mixed vegetable-spices have been included to indicate the average performance of the envisaged potential vegetable and spice crops that could be expanded under the Project. These include cabbage, chilli, onion, ginger, tumeric, string bean, radish, tomato, cucumber, and cauliflower.

20. Farmers are expected to apply their own family labor on the farm which, on average, is equivalent to approximately 30 percent of the total subproject cost. For the balance of the subproject cost (70 percent), loan financing for a period of six months with an average interest rate of 22 percent per annum, is assumed.

21. Analysis of the farm models indicate that labor requirements would increase by about 12 percent to 355 days on 1 ha farms and by about 11 percent to 177 days on 0.5 ha farms. The increases appear to be well within the capacity of typical small farm households to meet, which have an average labor availability of 450-550 days. Seasonal farm labor is available for hire in the project area during the months when labor requirements exceed the available family labor.

22. The results of the subproject financial analysis are summarized in Table A11.2. As shown, return on investment, net incomes, and returns to incremental labor applied are projected to be proportionately higher for farmers with the smaller (0.5 ha) land areas. The assumption is that regardless of the farm size, diversification would take place on plot sizes of 0.25 ha. All farms would easily be able to service the debt incurred and provide a positive net farm income after financing their respective subprojects. After loan repayment, net incomes of farmers on 0.5 ha landholdings who diversify into 0.25 ha of HVC increase by approximately \$66 per annum (31 percent higher than those without the Project). Net incomes of farmers with 1 ha landholdings rise by approximately \$91 per annum (21 percent higher than those without the Project). The projected returns on investment and returns to additional labor applied are satisfactory for all subprojects analyzed. In particular, the calculation of incremental income for each additional day of labor applied with the Project shows a return well above the prevailing daily wage rate for unskilled agricultural labor in all farm models.

**Table A11.2: Summary of Subproject Analysis**

| Size of Farm | HVC Enterprise    | Return on Investment | Increase in Net Farm Income | Income per Increased Labor-day |
|--------------|-------------------|----------------------|-----------------------------|--------------------------------|
| 1 ha         | Maize             | 48 percent           | \$71 (16%)                  | \$2.53                         |
|              | Potato            | 24 percent           | \$95 (22%)                  | \$2.22                         |
|              | Vegetables/Spices | 60 percent           | \$106 (24%)                 | \$2.66                         |
|              | Average           | 39 percent           | \$91 (21%)                  | \$2.47                         |
| 0.5 ha       | Maize             | 71 percent           | \$46 (21%)                  | \$5.24                         |
|              | Potato            | 26 percent           | \$71 (33%)                  | \$2.97                         |
|              | Vegetables/Spices | 83 percent           | \$82 (38%)                  | \$3.93                         |
|              | Average           | 48 percent           | \$66 (31%)                  | \$4.05                         |

HVC = high value crops.

Source: mission estimates.

## H. Economic Analysis

23. Estimation of project economic viability was based on the assumption of a project life of 20 years, an investment period of 7 years, and an opportunity cost of capital of 12 percent. Financial prices of nontraded commodities have been converted to economic prices by using a standard conversion factor (SCF) of 0.89. As there is a surplus of labor in the project area, shadow pricing of wage rates has been applied at 80 percent of the basic daily wage rate in the analysis.

24. Incremental economic benefits for each farm model were assessed using economic prices. Tradable inputs and outputs were based on import or export parity prices, and nontradable components of inputs and outputs were adjusted using the standard conversion factor of 0.89. Taxes, duties, and contingencies were also deducted. The results were aggregated based on expectations of the frequency of adoption of each type of diversification strategy and the size distribution derived from the 1996 agricultural census.

25. The overall project economic internal rate of return (EIRR) is estimated at 30.7 percent, indicating economic viability. This is based wholly on the quantifiable benefits derived from the component for farmer mobilization and credit. The benefits of the noncredit components are largely nonquantifiable and in some cases would apply to a wider range of project beneficiaries. Nevertheless, a major portion of the economic costs of these components was added to the quantifiable costs and benefits of the credit component to arrive at the overall project EIRR. Noncredit costs wholly related to the Project, such as the costs of project management, were fully included in the analysis, while components with a wider range of beneficiaries are included at a level proportionate to their assumed contribution to the Project. In the case of the training and extension component, about 40 percent of the costs are for the formulation of training courses and the production of training materials. Assuming half of this amount has a wider application to other beneficiaries, only 80 percent of the total cost of this component is included in the analysis. Similarly, the cost of renovation and upgrading of primary and growers markets constitutes 80 percent of the cost of the marketing support component. Again, assuming that half of this cost can be applied to the benefit of others external to the Project, only 60 percent of the cost of this component is included. The same applies to the adaptive research component, where 40 percent of the cost has a wider application so that only 80 percent of the component cost is included in the analysis. While there would presumably be net incremental benefits derived from the agribusiness credit component, given the pilot nature of this activity, there was no attempt to quantify these and the full cost of this component is included in the analysis.

## I. Sensitivity Analysis

26. Sensitivity analysis was carried out to test the effects of higher costs and a decline in benefits on the Project. The results of the sensitivity analysis for the overall Project EIRR are shown in Table A11.3. Due in part to the inclusion of the costs of the noncredit components, which constitute a major portion of the costs in the early years of project implementation, the overall project EIRR is sensitive to cost increases. A 17.3 percent increase in costs would result in an EIRR below the 12 percent threshold opportunity cost of capital. The Project is also sensitive to a decline in benefits with a 13.2 percent decline resulting in an EIRR below the threshold level. In the unlikely event of a combination of a 10 percent cost overrun and a 10 percent decline in benefits, the Project would become unviable. Delays in the realization of benefits however, do not have much impact on the project viability.

**Table A11.3: Results of Sensitivity Analysis, EIRR (%)**

| Details   | EIRR (%) | Switching Values (%) |
|---|----------|----------------------|
| Base Case                                       | 30.7     |                      |
| 10% Cost Overrun                                | 20.3     | 17.3                 |
| 10% Decline in Benefits                         | 16.8     | 13.2                 |
| Combination of Benefit Decline and Cost Overrun | 4.0      |                      |
| 1 year Delay in Benefits                        | 26.5     |                      |
| 2 years Delay in Benefits                       | 23.3     |                      |

Source: Mission estimates.

## J. Financial Sustainability

27. As discussed in the main text (paras. 108-110) large incremental operation and maintenance costs (O&M) are not envisaged. The major recurrent expenditures after the project investments have been made will be on (i) O&M of the upgraded horticulture training and demonstration centers (HTDCs) and (ii) O&M for the primary and growers' markets. The Project will cover O&M during the implementation period and evolve methods of self-financing after the Project. Similarly, market management improvements will focus on O&M.

28. In addition, sufficient government counterpart fund is expected to be allocated during the project implementation period. According to the 1999-2000 Development Program, Tk3,780 million (\$74 million) has been allocated for the crop subsector for implementation of 78 projects (64 investment projects and 14 technical assistance projects) in FY2000. Out of this amount, for example, Tk106 million (\$2.1 million) is allocated to the ADB-assisted Horticulture Development Project (which closed in 1999) against the total project cost budgeted at Tk1,795 million or \$36 million. For the proposed Project, the average Government counterpart fund, net of beneficiaries contribution, is estimated at about \$1.5 million per annum (total \$9.3 million). This is smaller than the Government funding allocated to the above project and therefore considered well within an affordable range in the portfolio of its crop subsector development plan for the coming years.