USAID OFFICE OF FOOD FOR PEACE
BANGLADESH
BELLMON ESTIMATION

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PREFACE

In June and July 2009, the Bellmon Estimation Studies for Title II (BEST) team undertook an analysis aimed at generating recommendations for a Bellmon Determination to be made by USAID. The purpose of the analysis was to determine that the direct distribution and monetization of U.S. agricultural commodities provided for use in Bangladesh during FY2010 through Title II meet the criteria set forth in the Bellmon Amendment.

CONTENT

ACRONYMS & NOTES

BCC	Behavior Change Communication
BEST	Bellmon Estimation Studies for Title II
CARE	Cooperative for Assistance and Relief Everywhere
CDSO	Crude Degummed Soya Oil
CIF	Commodity Insurance and Freight
CPI	Consumer Price Index
CSB	Corn Soya Blend
DFID	Department for International Development
EMOP	Emergency Operations
EPZ	Export Processing Zones
FANTA-2	Food and Nutrition Technical Assistance project
FAO	Food and Agriculture Organization of the United Nations
FCS	Food Consumption Score
FDP	Final Delivery Point
FFW	Food for Work
FOB	Free On Board
FSCF	Food Security Country Framework
FY	Financial Year
GDP	Gross Domestic Product
GMO	Genetically Modified Organism
GOB	Government of Bangladesh
GR	Gratuitous Relief
HEB	High Energy Biscuit
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
HYV	High Yielding Varieties
ILO	International Labor Organization
IPP	Import Parity Price
MCN	Mother and Child Nutrition
MDG	Millennium Development Goal
MEWIT	Merchandise Wholesale and Import Trade Enterprise
MFI	Micro-finance Institution
MIS	Market Information System
MOF	Ministry of Finance
MT	Metric Ton = 2,204.62 pounds
MYAP	Multi-Year Assistance Program (PL-480 Title II)
NGO	Non-governmental Organization
NNP	National Nutrition Program
OMS	Open Market Sales
PFDS	Public Food Distribution System

PM2A	Prevention of Malnutrition in Under Two Approach
PRRO	WFP Protracted Relief and Recovery Operations
RMG	Ready-Made Garments
SHOUHARDO	Strengthening Household Ability to Respond to Development Opportunities
TR	Test Relief
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USG	United States Government
VGD	Vulnerable Group Development
VGF	Vulnerable Group Feeding
WFP	World Food Programme
WSB	Wheat Soya Blend

Exchange Rate:

The exchange rate used throughout this report is Taka 69 = US$1 (average July 2009).

Definitions:

Atta (fortified wheat flour)

Upazilas (sub-districts)

1. EXECUTIVE SUMMARY

This report presents findings on the adequacy of ports, storage and transportation, along with monetization and distribution findings, to aid in making a Bellmon determination in advance of a planned FY2010 USAID Title II-funded Multi-Year Assistance Program (MYAP) in Bangladesh. This study is based on desk study and field work conducted in June and July 2009. Since monetization is likely to fund at least a portion of these activities, a market analysis of key commodities was conducted. Current food aid programs were reviewed, potential distribution modalities were outlined and proxy indicators of additionality were investigated to estimate the local production and market impact of a Title II-funded distribution food aid program.

1.1 MONETIZATION ANALYSIS – FINDINGS/RECOMMENDATIONS

Commodities were considered for monetization based on:

- Eligibility for export from the US;
- Eligibility for import to the recipient country;
- Significance of domestic demand;
- Domestic supply shortfalls are filled through commercial imports and food aid;
- Presence of adequate competition for the commodities; and
- Expectations that fair market prices can be obtained.

Out of the top ten food commodities imported into Bangladesh, six were considered as potential candidates for monetization: wheat, crude soya bean oil, lentils, peas, soya beans and maize. For all six commodities, domestic demand exceeds local production, and substantial imports are required so that markets operate at import parity prices (IPP). Maize is imported in substantial volumes at present and is also currently feasible for monetization, but self sufficiency in that commodity may be achieved shortly. Exclusive of maize, the volume and value equivalent to 10 percent of commercial imports is tabulated for indicative purposes below.

Table 1: Monetization Summary

Commodity	10% of Average Imports (MT'000)	Value (US$'000)	Recommended Monetization Process
Wheat	169	33,146	Negotiated Sale to GOB
Crude Soybean Oil	56	32,026	Auction to private sector
Lentils	12	5,848	Auction to private sector
Peas	18	5,745	Auction to private sector
Soya Beans	10	3,128	Auction to private sector

Source: BBS 2008

Recent levels of monetization of wheat ranged from 2.5 to 5.2 percent of total imports. Monetization of grain to the private sector has achieved lower cost recovery than sales to GOB, but prices have been close to IPP. The historical impact of private sector crude soybean oil sales on the market could not be determined, but volumes of wheat sold to the GOB are absorbed into the Public Food Distribution System (PFDS), a GOB social safety net program. An assessment of the negative impact of PFDS food distribution suggests that these are transitory and negligible, while the positive benefits in terms of support to beneficiaries may be substantial.

Domestic wheat production is declining as growers move toward more profitable maize production. Although the Government of Bangladesh (GOB) may increase its import purchases of wheat in the future, the gap to be filled by commercial imports will continue to expand. Maize production has increased as a profitable component of livestock feed or mixed with wheat to form coarse flour, mainly eaten by the poor. Volumes produced in 2009 were more than double those of wheat. Despite the increase, maize imports remain significant.

Soya oil is imported and donor imports constitute a small proportion of commercial imports. Based on the most recent available published data, this type of oil makes up one third of all edible oil consumed in the country,[1] and demand will continue to be met by the refining of imported crude degummed soya oil (CDSO). Bangladesh is the world's largest importer of lentils, with different types of peas also imported. In both cases, domestic demand for these pulses cannot be met by national production, either now or in the foreseeable future so that prices remain close to IPP.

During the last five years, the Awardees, CARE and Save the Children, monetized 314,604 metric tons (MT) of commodities for a total value of $96,064,000. This was made up of 289,203 MT of wheat and 25,401 MT of CDSO. Annual price data suggest that prices achieved were close to commercial import parity prices as determined by LC data.[2] However, with respect to the IPP, prices were generally higher for sales to the GOB (greater than 90 percent) than for sales to the private sector. In terms of performance, past sales have met the criteria set down in the monetization guidelines.

The volume of CDSO monetized by CARE represented 0.86 percent and 0.36 percent of the total edible oil imports to Bangladesh in 2004/2005 and 2005/2006. It is extremely unlikely that monetization at such low levels of importation would have resulted in any noticeable impact on production or marketing of edible oil. The volumes of wheat monetized by the Awardees during the last five years have fluctuated between 51,000 and 65,000 MT, making up between 2.5

[1] Based on a review of both published and unpublished data, the exact share of soya oil within the Bangladesh edible oil market appears to fluctuate quite substantially (between approximately 36% as reported in 2007 and 80% as suggested by more recent data). These fluctuations are likely based on the relative prices of soya and palm oil, and its effect on consumer demand.

[2] The Monthly average LC price for wheat published by the Bangladesh Bank accounts for all the costs included in a CIF Chittagong contract. While it is marginally more expensive than the basis for wheat monetization sales (CnF Chittagong), the LC price provides an accurate record of the import parity price.

percent and 5.2 percent of commercial imports. Out of the total volume of wheat monetized, 9 percent has been sold to the private sector; this volume represented less than 1.3 percent of commercial imports. The remaining 91 percent of monetized wheat has been sold to the GOB and has entered the GOB social safety net program. This is a notable feature of the monetization program in Bangladesh. Monetization provides both financing for the awardees' programs (the direct beneficiaries of Title II food aid), saves the GOB vital foreign exchange *and* improves food security for beneficiaries under the GOB social safety net program (who are thus indirect beneficiaries of Title II food aid).

Either wheat or CDSO monetization would be adequate to finance existing Awardee programs exclusively. However, given the ease of administration and high level of cost recovery achieved through wheat sales to the GOB, together with the minimal impact generated through the distribution of wheat via the PFDS, this monetization process is to be preferred over private sector sales. However, should it be necessary to undertake private sector monetization, the other commodities reviewed could be taken up, although prior experience of wheat and oil sales to the private sector would suggest that these two commodities should be pursued first.

1.2 ADEQUACY OF PORTS, STORAGE AND TRANSPORTATION

Food aid has been delivered to and distributed within Bangladesh for more than 30 years. The national port handling, distribution and storage facilities are sufficient to cope with current food aid import levels, and have been effectively managed by Awardees. A review of Awardees' records indicates that losses have been low (less than 1 percent). Food is presently stored by the two Awardees at central distribution points in Chittagong and in regional warehouses leased from the GOB. The warehouses are well maintained and have high standards of technical and administrative management.

It is important to note that even though food reception, storage and distribution systems currently have high standards and adequate capacities, it is not guaranteed in the future. The existing system is heavily reliant on leasing GOB's well-built storage facilities, but also leases additional storage capacity from private warehouses. The Ministry of Food and Disaster Management's plans to increase food stock levels by 100 percent will fully utilize all GOB storage capacity and require additional space as well. Thus, although it may be possible to obtain new premises from GOB, it appears unlikely at present and may oblige awardees to make greater use of private storage facilities in the future.

The risk of insect infestation is a constraint on the types of commodities that can be used as food if long-term storage (more than two months) in country is part of the delivery system. Commodities such as wheat or maize, which allow gas diffusion between grains, can be readily fumigated, but flours and blended materials packed in sealed bags are not easily fumigated. Paper and polythene-lined bags used to package Corn Soya Blend (CSB) and Wheat Soya Blend (WSB) offer some protection, but they do not provide defense against the many insect pests of Bangladesh, a number of which have evolved as wood-borers. It is therefore generally impractical to fumigate these commodities. To minimize the risk of insect infestation they should be stored in country for no longer than two months.

Unless shipping schedules are revised so that food aid can be imported on a regular bimonthly basis and distribution logistics are changed so that food is not stored for more than two months, blended foods within Bangladesh should be restricted to emergency purposes rather than development applications.

1.3 DISTRIBUTION ANALYSIS – FINDINGS/RECOMMENDATIONS

The BEST distribution analysis is based on the assumption that a well-designed and executed food aid program that targets the needs of beneficiaries will have little-to-no impact on the market or local production incentives. Once effective application of beneficiary criteria has accurately identified households in need of food assistance, maximum food security impact and minimum leakages are ensured when the ration size and composition, as well as the timing and frequency of ration delivery, correspond most closely to a household's perceived food needs.

There is broad scope for an array of Title II-funded development interventions in Bangladesh. Based on official USAID guidance, and field-level discussions with the Mission and potential awardees, there is a general consensus that two main modalities for *distributed* food aid appear most likely for the upcoming MYAP cycle: Food For Work (FFW), particularly in community-level disaster mitigation projects, and a Maternal Child Health Nutrition (MCHN) intervention, likely in the form of a Prevention of Malnutrition in Children Under Two Approach (PM2A). To help ensure proposed programs will not result in substantial disincentive or disruption of markets, the BEST distribution analysis outlines key considerations for the design of FFW and PM2A interventions from a Bellmon perspective. Special emphasis is placed on the aspects of a PM2A activity that are most important from a Bellmon perspective, (1) geographic targeting and program coverage; (2) strategic use of food rations to achieve maximum impact on nutritional outcomes; and (3) choice of commodities for inclusion in ration package.

PM2A Geographic Targeting and Program Coverage

PM2A presents both an opportunity for long-term human capital investment, and a unique challenge to avoid disincentives in the short-to-medium term. While the traditional recuperative approach targets children who are already malnourished and may have severe, irreversible physical and cognitive damage, the PM2A provides food aid to all pregnant and lactating mothers, and all children between the ages of 6 to 24 months within a target geographic area. Because the key PM2A targeting criteria are based on a child's age and a women's physiological status, rather than on an estimated household food deficit, the program has greater potential to provide food aid to households for whom the food aid would not represent additional consumption. Initial geographic targeting of areas with a greater proportion of food-deficit households will help avoid disruption of local production and markets.

On the basis of a proxy indicator of additionality (e.g., poor Food Consumption Score), the two divisions where food aid rations would most likely represent additional consumption are Barisal and Rajshahi. A PM2A activity targeted towards the poorest communities within either one or both of these divisions would be most appropriate from a Bellmon perspective.

Strategic Use of PM2A Food Rations to Achieve Maximum Impact on Nutritional Outcomes

Individual PM2A rations must cover all pregnant or lactating mothers and children under two years of age within a catchment area on a year-round basis, with the size and composition of the individual ration designed to meet their special nutritional needs. Household rations, however, should be designed with the objectives of protecting the individual rations from diversion or dilution, and ensuring household members have an adequate incentive to participate in program activities.

Recent Title II experience with distributed food aid in Bangladesh has focused exclusively on MCHN interventions, while cash-based (monetization funded) aspects of training, community mobilization, livelihood development and disaster preparedness have created an essential framework for increased food security and reduced malnutrition.

Potential awardees will need to conduct formative research to understand issues of intra-household sharing and barriers to participation in order to determine the appropriate size, composition, beneficiary coverage and frequency of delivery of household rations. The preventive approach that was successfully piloted in Haiti provided a household ration composed of blended foods, pulses and oil to all households within the catchment area on a year-round basis, regardless of household wealth status or food deficit.

Future awardees may consider different household ration designs depending on a variety of factors (e.g., community needs, food preferences and logistics, etc.), which may lead to a more strategic use of household rations, both in terms of household ration composition, size, and frequency and timing of delivery. Three such options for the provision of household rations are explored in this report:

1. Target household rations to *all* PM2A-eligible households, regardless of household food insecurity or wealth status

2. Target household rations to *all* PM2A-eligible households, bu*t* limit distribution of the household ration to the lean season months

3. Target household rations year-round but only to ultra-poor households

Based on formative research, future awardees may consider these and other household ration designs, any one of which will require ongoing monitoring and evaluation to ensure the household ration is sufficient to ensure protection of individual rations while maintaining acceptable levels of program participation. Existing programs in Bangladesh have demonstrated that supplementary feeding of ultra-poor households, identified through community-based targeting, can be achieved with minimal disincentive effects. Current programs have also demonstrated that among relatively food secure households, comprehensive improvements in mother and child nutrition can be achieved through the use of small volumes of food to act as an incentive for improved MCHN practices in conjunction with adequate Community Health Volunteer coverage.

The total magnitude of coverage is important from a Bellmon perspective because not only does it translate into a volume of food aid commodities being introduced into a local area (and therefore potentially affecting markets and incentives to produce), it hints at the non-food ration costs that must be available to effectively support all of the other program activities. Behavior Change and Communication, and other health and nutrition services, are essential inputs into any program designed to address many of the underlying causes of early childhood malnutrition which are *not* a function of lack of food availability and access. Particularly where malnutrition is heavily influenced by the status of women and poor feeding practices, as in Bangladesh, sufficient cash resources to support the strategic use of food rations in a PM2A intervention designed to affect long-term nutritional outcomes through behavior change will help ensure the food rations will represent additional consumption at the household-level, and therefore be Bellmon compliant.

Whichever modalities are proposed, it will be important to avoid duplication of ration coverage, on the one hand, and capitalize on complementary services through coordination of development interventions on the other.

Choice of Commodities for Inclusion in Ration Package

The importation of larger volumes of blended foods to provide supplementary feeding to whole communities on a preventative basis may raise issues of both storage and market impact. Given the high levels of malnutrition and micronutrient deficiencies, the cost to beneficiaries of milling wheat into flour and the potential positive impact on local employment of women, a strong case can be made to include locally fortified and milled wheat flour in a PM2A activity in Bangladesh. A combination of the food aid distribution methods and technologies currently employed in Bangladesh (particularly the use of imported wheat to produce locally milled and fortified *atta*), appears more appropriate to current circumstances than importing blended foods as part of a PM2A ration.

2. COUNTRY BACKGROUND & OVERVIEW

2.1 ECONOMIC OVERVIEW

Bangladesh's GDP was $68.4 billion in 2007, and grew annually by 6 percent, on average, during 2003-2007.[3] This growth was accompanied by an increase in incomes, with gross national income (GNI) per capita increasing from $370 in 2003 to $470 by 2007.[4] Increased incomes have resulted in a reduction in the poverty rate, from 49 percent in 2000 to 40 percent in 2005.[5] Income inequality, however, has risen, demonstrated by an increase in the Gini coefficient, from 0.39 in 1991 to 0.46 in 2008.[6] In response to the 2008 global food price increases, the GOB decided to double the scope of the PFDS, to support the most vulnerable populations.[7]

The manufacturing sector, led by the garment industry, has driven export growth. Clothing is Bangladesh's most important export item, valued at $10.7 billion (76 percent of exports) in 2007/2008.[8] Despite this growth, Bangladesh's imports continue to outpace exports. The country depends on remittances and foreign aid to help finance imports. The level of private investment remains low, despite attempts to attract private sector investment including the simplification and reduction of domestic excise duties and tariff rates, along with replacement of the import sales tax with VAT.[9]

2.2 AGRICULTURE OVERVIEW

The crop sub-sector drives agricultural growth (76 percent of total agricultural production by value).[10] Cereals, chiefly rice, wheat and maize, are Bangladesh's main crops. Bangladesh has enjoyed a 50 percent increase in cereal production over the last 10 years, so that total imports now constitute only 10 percent of consumption, allowing Bangladesh to enjoy near self-

[3] The World Bank

[4] Ibid

[5] BBS 2008

[6] Ibid. The Gini coefficient is a measure of income inequality, with 1 = perfect inequality, and 0 = perfect equality.

[7] The GOB policy to provide support to the most vulnerable - largely implemented through the PFDS - has been reduced over the last ten years, compared with 20-30 years ago. The implications of this policy shift have yet to be determined, but should be considered in any future food aid programming.

[8] Bangladesh Garment Manufacturers and Exporters Association Statistics 2009

[9] Most FDI is in energy exploration and production. Other tax reforms have included the removal of import permits, reduction in import controls, reduction in domestic excise and customs duties and tariffs.

[10] BBS 2008

sufficiency in cereal production in years without significant negative weather shocks. Frequent disasters may jeopardize progress towards self-sufficiency in rice. Moreover, wheat production is currently declining in favor of maize for livestock feed. Therefore, although imports of rice may continue to decline over time, wheat imports can be expected to increase. See Annex 3 for further details on rice and wheat production.

Some pulses and oilseeds are produced but pulses and edible oils are also regularly imported because demand considerably exceeds domestic production. There is a small dairy sector, fish farming is extensive, and livestock production includes cattle and small ruminants.

Agricultural production in Bangladesh is labor-intensive; all crops are predominantly produced by small-scale farmers. At least a third of the households in most villages rent or sharecrop the land on which they farm. Census data indicate that the richest 10 percent controls between 25 percent and 50 percent of the land, while the poorest 60 percent controls less than 25 percent.[11] The minimum daily wage for agricultural labor, which is rarely enforced, is 3.28 kilograms of rice, or the cash equivalent. Many laborers are employed on a temporary basis. Approximately 84 percent of farmers and agricultural laborers are also engaged for at least 100 days per year in off-farm work at small businesses, and industrial or service occupations.[12]

The extensive road network has facilitated the integration of cereal markets, which show parallel price movements throughout the country (see Annex 5). Agriculture markets are conventional, with small producers, assemblers, wholesale traders, millers and retail outlets. The number of traders is small, collusion is common, and producers, who are not grouped to any significant extent, tend to be at a disadvantage when negotiating prices.

Despite a series of floods and cyclones in 2008 that destroyed many crops, farmers were incentivized by high market prices (reflecting global market trends) and subsidized fertilizer, to replant extensively. Yields have been high and prices have now fallen considerably.

2.3 POLICY OVERVIEW MATRIX

The GOB's agriculture policies aim to support production and increase the supply of affordable food for the most vulnerable by stabilizing staple food prices. Details of the policy can be found in Table 2, and further discussed in Annex 1.

[11] BBS 2008

[12] Traditionally, most of this employment has been for men; it is rare for village women to take temporary employment outside the household.

Table 2: Government of Bangladesh's Agriculture Policies

		POLICY	PRACTICE	IMPLICATIONS	RECOMMENDATIONS
TRADE & MARKETING POLICIES	**Pricing – Farmgate**	Pricing liberalized	Private traders sell and buy, Government Task Force sometimes sets price for major commodity like rice, jute, wheat	Traders are reluctant to buy at government price, increases producers vulnerability	Needs clear/realistic pricing and effective government intervention
	Pricing – Retail	Pricing liberalized	Controlled by private importers and traders	Millers manipulate production process to hide input costs	Need policy on pricing
	Import/Export Participation	No restrictions on imports, VAT lifted on cereals, export of cereals restricted	Usually rice import low, cereal and oil market mostly import oriented	Grain imported by private commercial traders, and some food aid. Private importers always escalate price	Need clear policy and public-private interaction
	Import/Export Duties	Export duties removed, Import duties gradually reduced	As per policy. GOB does not use duties to protect local industries	Rice farmers supported by intervention buying Otherwise market receives clear price signals	Continue to implement policy
	Domestic Marketing	Liberalized	Some intervention if market fails	Private traders syndicate controls market, market behavior unpredictable	Need transparent policy, public and private interaction
	Food Reserves	Government has a specific target of food reserve for emergency situation, UN and bilateral agencies contributes to emergency food reserve	Government uses food reserve for different safety net program and emergency response	Government response usually during lean season	Safety net programs needs to be expanded
	Futures	Needs clear policy and institutional capacity building	Policy needs to be effective and implementable	Market not yet sufficiently mature to use futures	Need information on this. Policymakers should consult implementers and beneficiaries
	GMO	Active promotion of genetic engineering research, but no clear policy on imports	Confusion if GMO food is being imported	Not clear to importers or consumers	Government needs to take clear policy on GMO
TRANSPORT	**Transport**	Liberalized market, illegal toll collection increases transport costs	Illegal toll collections increases commodity price, very high	Government lacks commitments to cut illegal toll collect, lack of good governance	Implementation of policy reforms need to be monitored
	Transit Fee	Applies	Illegal transaction increases costs		

		POLICY	PRACTICE	IMPLICATIONS	RECOMMENDATIONS
INPUT POLICIES	**Distribution**	Liberalized, sometimes government intervenes to stabilize the market			Improve distribution system and information dissemination
	Pricing (subsidy)	No subsidy, except for fertilizer, highly privatized	Fertilizer distribution often a problem/ lacks information dissemination	Price too high for inputs and there is limited availability of inputs in remote areas.	Improve information system, distribution system, and environment for better participation
	Import/Export Participation	Liberalized	Liberalized	Difficult to get information/political influence	Develop market information system
	Import/Export Duties	Liberalized	Liberalized	Participation problem is information	Need for developing dealers and information network
MACRO-POLICIES	**Foreign Exchange**	Liberalized. No restriction on foreign exchange movements	Central bank watchdog	Needs more information	
	Forex facilities				
	Financing				
	Investment	Commercial banks and MFIs are major stakeholders	Presently GOB providing collateral free agriculture loans (up to certain volume) to promote agriculture growth, GOB is encouraging women entrepreneur growth by providing collateral free loans	Poor access to information	Need improvement in system and information dissemination
	Credit	National Commercial Banks provide credit to farmers/landowners and to traders, food importers, while MFIs provides collateral free loans to the poorer sections	Hard core poor are often left out of the formal credit service	Bureaucracy sometimes makes national commercial banks' credit service inaccessible to the rural poor/small farmers	Need for a sustainable supply of credit.
	Interest Rates	Interest rates liberalized, Banks and MFIs determines their own rates	Interest rate moderate; repayment pressure for MFI credit is very high	Poor farmers suffers	Reduce Interest rates. Need for competition
STRATEGIC FRAMEWORK	**Safety Net Programs**	Government, aid agencies and NGOs are implementing different Safety net program for ensuring accessibility to food for the most vulnerable population, through FFW, CFW, TR, VGD, VGF and OMS during market fluctuations	Time of vulnerable people not properly accounted for	All poor people are not covered which creates frustrations	Coverage to be increased, strong monitoring and supervision needed

		POLICY	PRACTICE	IMPLICATIONS	RECOMMENDATIONS
	Longer-term Food/ Agricultural Sector Recovery Strategy	National Food Policy was approved in August 2006, with 3 objectives: 1. Adequate and stable supply of safe and nutritious food; 2. Increased purchasing power and access to food of the people; 3. Adequate nutrition for all individuals, specially women and children. To implement the food policy a National Food Policy Action Plan (2008 - 1015) was approved in August 2008	Policy document lacks dissemination, not known to many people	Lack of information does not help the beneficiary	Programs need to be developed to implement policy and plans, needs dissemination of policy and plans to stakeholders

3. ADEQUACY OF PORTS, STORAGE & TRANSPORTATION

3.1 LOGISTICAL CAPACITY

Food aid has been delivered to and distributed within Bangladesh for more than 30 years and the national port handling, distribution and storage facilities are adequate to cope with current food aid import levels. The WFP 2009 Logistical Capacity Assessment (LCA) details Chittagong port[13], together with the road and rail networks and inland waterways, an assessment of national haulage capacity (both trucks and water vessels), and of warehouse capacity. Selected data from the LCA is in Annex 8.

The Awardees currently distributing food aid use international shipping vessels, barges, trucks, small boats, rickshaws and even heading to bring food to distribution points. Haulage capacity has been adequate for all volumes distributed to date and it is noteworthy that the regular reliance of distribution systems on water-transport means that floods rarely disrupt the distribution process.

Food is presently stored by both Awardees at central distribution points in Chittagong and in regional warehouses leased from the GOB and from the private sector. The warehouses are well maintained and have high standards of technical and administrative management. Audited losses in storage and distribution are less than 1 percent.[14]

It is important to note that even though food reception, storage and distribution systems currently have high standards and adequate capacities, it is not guaranteed in the future. The existing system is heavily reliant on leasing GOB's well-built storage facilities, but also leases additional storage capacity from private warehouses. Save the Children has rented 7,000 MT-capacity storage centers from the government and renovated them according to the needs of the commodities to be distributed, while CARE rented 6,660 MT capacity warehouses from government agencies (mostly from Ministry of Food and Disaster Management). Both Awardees have leased additional storage capacity from the private sector. Both Save the Children and CARE have renovated the rented warehouses to meet international standards.

Though GOB has storage capacity of 1.49 million MT, roughly 20 percent is unusable, leaving only 1.2 million MT available. The 100 percent increase in food stock levels planned by the Ministry of Food and Disaster Management (in part as a reaction to the global price increases in

[13] Although Mongla is also a viable port for ocean freight it requires the use of lighters and is rarely used by donor agencies.

[14] Based on data provided by CARE and Save the Children.

2008) will fully utilize all GOB storage capacity[15]. Existing warehouse leases are all due to expire within the next two months and GOB has given notice of its intention to reoccupy the premises. Although it may be possible to obtain new premises from GOB it is presently unlikely and this may oblige awardees to make greater use of private storage facilities in the future.

Private sector storage facilities in Bangladesh substantially exceed public warehousing capacity, but vary considerably in their construction and standards. Members of the wheat millers' association indicated that good quality storage is not easy to find or lease. Most warehouses are smaller than the GOB stores (i.e. less than 1,000 MT capacity) and few are as well located or designed. There is little information available regarding either the distribution or capacity of private sector storage[16]. It is possible that the effective storage of food aid by awardees in FY2010 and beyond will require the substantial upgrading of additional private sector facilities and some financial provision should be made for this in future food aid programming.

Current management practice in both CARE and Save the Children warehouses is to fumigate all grains on a 40-45 day basis, using aluminum phosphide. This is necessary because of high insect infestation pressure. Bangladesh is home to at least 17 different species of insects that feed on stored grain, any of which can multiply rapidly in grain left untreated for a period of two months or more. The risk of insect infestation is a constraint on the types of commodities that can be used as food aid if long-term storage (more than two months) in country is a feature of the delivery system. Commodities such as wheat or maize that allow gas diffusion between grains may be readily fumigated, but flours and blended materials packed in sealed bags are not so easily fumigated. Paper and polythene-lined bags used to package Corn Soya Blend (CSB) and Wheat Soya Blend (WSB) offer some protection, but they do not provide defense against the many insect pests of Bangladesh, a number of which have evolved as wood-borers. It is therefore generally impractical to fumigate these commodities. To minimize the risk of insect infestation they should be stored in country for no longer than two months.

Unless shipping schedules are revised so that food aid can be imported on a regular bimonthly basis and distribution logistics are changed so that food is not stored for more than two months, blended foods within Bangladesh should be restricted to emergency purposes rather than development applications.

Further details regarding port and transport capacity can be found in Annex 8.

[15] GOB intends to construct an additional 2 million MT-grain storage, including rice silos of 1.1 million MT capacity, to accommodate its planned increase in PFDS stocks.

[16] A list of the warehouses rented by CARE Bangladesh is in Annex 8

4. FOOD AID OVERVIEW

The GOB spends less than 1 percent of GDP on food-based "safety nets." The food transfer programs are key components of PFDS, which in 2007/2008 channeled 1.35 million MT of wheat and rice to the poor. Challenges facing the PFDS include declining contributions of food aid, storage constraints, limited coverage of vast needs and not enough cash and amounts of food transferred.

Further details on this section of the report can be found in Annex 9.

4.1 PREVIOUS INITIATIVES

Food aid in the past five years has been characterized by support to food-based safety nets, preventive MCHN programs, periodic emergency operations and support to people affected by high food prices and natural disasters. Food aid as a percentage of total imports fell from 28 percent in 1997/1998 to 7 percent in 2007/2008.

NGOs/Awardees operating in country

World Food Program (WFP)

WFP addresses chronic and transitory food insecurity through a combination of a country program, a protracted relief and recovery operation and an emergency operation. WFP reached 5.29 million people with 158,030 MT of commodities in 2008. WFP supports the GOB with the VGD program, for example, by providing training and a monthly ration of 25 kilograms of fortified wheat flour (*atta)* or 30 kilograms of wheat/rice. IFPRI found that *atta* transfers provided the biggest improvement.

CARE

CARE's livelihood and food security program (SHOUHARDO) reaches 400,000 households. The goal is to sustainably reduce chronic hunger and transitory food insecurity through partnerships with GOB, 45 NGOs and the communities themselves. Specific objectives included: livelihoods and governance; health, hygiene and nutrition; empowerment of women and girls; and disaster preparedness. A total of 47,138 MT of food were distributed to pregnant women and lactating mothers, selected at the community level. The rations were combined with health and nutrition training and growth monitoring.

Save the Children

Save the Children's Life and Livelihood Program (Jibon-O-Jibika) targets 470,000 households and focuses on increasing food availability and access at the household level, improving maternal and child health and nutrition, and using food aid as an incentive for pregnant women or mothers to attend MCHN activities. Other activities include homestead gardening and

disaster preparedness. As of June 2009, Save the Children had distributed 22,400 MT of commodities. Save works with three key partners: Helen Keller International, the NGO Forum for Drinking Water and Sanitation and the Cyclone Preparedness Program of the Bangladesh Red Crescent Society.

Total Annual Monetized Food Aid by Donor and by Commodity

From FY2005 through mid-2009, the total volume of food aid monetized was 314,604 MT valued at $96 million. Table 3 provides an overview. More details on monetized food aid are available in Annex 9.

Table 3: Annual Monetized Food Aid

FY	2005		2006		2007		2008		2009		Total	
	MT	$'000	MT	$'000	MT	$'000	MT	$'000	MT	$'000	MT	$'000
Wheat	*56,460*	*9,439*	*51,610*	*11,078*	*64,453*	*19,220*	*57,560*	*26,683*	*59,120*	*17,364*	*289,203*	*83,784*
CDSO	16,795	7,911	8,606	4,369		-	-	-	-	-	25,401	12,280
Total	**73,255**	**17,350**	**60,216**	**15,447**	**64,453**	**19,220**	**57,560**	**26,683**	**59,120**	**17,364**	**314,604**	**96,064**

Total Annualized Distributed Food Aid by Donor and by Commodity

The total volume of food aid provided during the period 2003-2007 was 1,430,784 MT.[17] It is notable that the predominant commodity provided as food aid is wheat, which constitutes about 85 percent of the total volume for this period. A summary overview of donors contributing food aid to Bangladesh is outlined in Annex 9.

GOB National Nutrition Program (NNP)

In addition to NGOs and CSs operating in Bangladesh, the GOB National Nutrition Program, initiated in 2001, aims to significantly reduce malnutrition among poor women and children, through area-based community nutrition, inter-sectoral nutrition and national level nutrition components. The NNP is currently ongoing. Please see Annex 9 for additional details.

4.2 PLANNED INITIATIVES

USAID

Vulnerability of Poor Communities and Households to Natural Disasters

Title II programs are expected to focus on increasing the capacity of households and communities to withstand shocks, thereby reducing the vulnerability of poor households. Food For Work or a combination of food and cash are approaches to help the poor cope better with natural disasters and seasonality of hunger.

[17] WFP Interfais is the source for the information on food aid contributions. www.wfp.org/interfais

Prevention of Malnutrition in Children under Two Approach (PM2A)

The PM2A approach targets pregnant women and lactating women and children under two. It is designed to provide general nutrition and health services for children, a strong behavior change communication strategy, monthly distribution of rations, pre-and post-natal care and home visits, and active case detection and referral for management of severe acute malnutrition for children under five.

WFP

WFP targets 1.75 million beneficiaries in 2009 with the country program and the PRRO, and 1.07 million beneficiaries affected by high food prices and natural disasters.

5. MONETIZATION ANALYSIS

Commodities were considered for monetization based on:

- Eligibility for export from the US;
- Eligibility for import to the recipient country;
- Significance of domestic demand;
- Domestic supply shortfalls are filled through commercial imports and food aid;
- Presence of adequate competition for the commodities; and
- Expectations that fair market prices can be obtained.

Out of the top ten food commodities imported into Bangladesh, six were considered as potential candidates for monetization: wheat, crude soya bean oil, lentils, peas, soya beans and maize.

5.1 PAST PERFORMANCE

Table 4 shows Awardee monetization performance during the last five years, Title II commodities have been monetized by both CARE and Save the Children. The commodities have included crude degummed soya oil (CDSO), soft white winter wheat (SWW) and hard red winter wheat (HRW). Sales have been both to the private sector and to the GOB.

In FY2005 and FY2006 CARE sold bulk CDSO to a consortium of large private sector oil refineries. The sales achieved 72 percent and 85 percent of cost recovery. The oil was refined and sold on the local market. In the same years, both Awardees sold SWW to the GOB for the PFDS. The sales were on a liner-terms basis and the contract was negotiated at 82.5 percent of the value shown on the bill of lading (BL). A similar agreement was made for FY2007 but in this year, CARE also sold HRW to the GOB and also a small amount to private sector flour mills. The private sector sales achieved 68 percent of the BL value. In FY2008 and FY2009, wheat sales to the government by both Awardees were negotiated at 82.5 percent of BL value and CARE sold an additional 8,200 MT of HRW to private sector mills at 80 percent of BL value. There were no private sector sales in FY2009.

Table 4: Monetization Performance

FY	2005		2006		2007		2008		2009		Total	
Units	MT	US$'000	MT	US$'000	MT	US$'000	MT	US$'000	MT	US$'000	MT	US$'000
Wheat SWW												
CARE (GOB)	40,000	6,687	32,000	6,869	25,862	8,317	20,160	9,417	-	-	118,022	31,290
Save (GOB)	16,460	2,752	19,610	4,209	19,460	5,491	3,300	1,541	16,260	5,037	75,090	19,031

FY	2005		2006		2007		2008		2009		Total	
Units	MT	US$'000	MT	US$'000	MT	US$'000	MT	US$'000	MT	US$'000	MT	US$'000
Wheat HRW												
CARE (GOB)	-	-	-	-	-	-	21,200	9,903	42,860	12,327	64,060	22,230
CARE (Private)	-	-	-	-	19,131	5,412	8,200	3,647	-	-	27,331	9,059
Save (GOB)	-	-	-	-	-	-	4,700	2,175	-	-	4,700	2,175
Subtotal (Wheat)	56,460	9,439	51,610	11,078	64,453	19,220	57,560	26,683	59,120	17,364	289,203	83,784
CDSO												
CARE (Private)	16,795	7,911	8,606	4,369	-	-	-	-	-	-	25,401	12,280
Total	**73,255**	**17,350**	**60,216**	**15,447**	**64,453**	**19,220**	**57,560**	**26,683**	**59,120**	**17,364**	**314,604**	**96,064**

In the last five years, 25,401 MT of CDSO and 289,203 MT of wheat were monetized, generating total revenue of $96.06 million. Figure 2 (in section 5.3.2) shows that the prices achieved were close to commercial market prices. However, cost recovery was generally higher for sales to the GOB (greater than 80 percent) than for sales to the private sector. In terms of performance, past sales have met the criteria laid down in the monetization guidelines and have generated between $20 million and $30 million annually to finance the programs of the Awardees.

5.2 IMPACTS OF MONETIZATION

The volume of CDSO monetized by CARE represented 0.86 percent and 0.36 percent of the total edible oil imports to Bangladesh in 2004/2005 and 2005/2006 respectively[18]. It is extremely unlikely that monetization at such low levels of importation would have resulted in any noticeable impact on production or marketing of edible oil.

The volumes of wheat monetized by the Awardees during the last five years have fluctuated between 51,000 and 65,000 MT. During the same period, total private sector imports of wheat have varied between 1.24 million and 2.03 million MT. The volumes monetized have thus represented between 2.5 percent and 5.2 percent of commercial imports. Of the total volume of wheat monetized, 9 percent has been sold to the private sector and 91 percent has entered the GOB PFDS. The volume sold to the private sector represented less than 1.3 percent of commercial imports and it would be impossible to determine any impact on marketing or production from such sales. The PFDS distributes 250,000 to 350,000 MT each year; Title II monetized wheat contributes approximately 20 percent of the volume of wheat in the PFDS. The impact of volumes sold to the GOB is confounded by the end use of this wheat, namely, it is used within the PFDS for VGD, VGF and other safety net interventions. However, provided that the PFDS is itself does not exert significant disincentive effects upon either production or

[18] BBS 2008 data indicates total edible oil imports for 2004/2005 at 1,950,000 MT and for 2005/2006 at 2,364,000 MT.

marketing, monetization of Title II wheat has the additional benefit of improving food security for beneficiaries under the GOB social safety net program (who are thus indirect beneficiaries of Title II food aid).

5.3 FUTURE MONETIZATION OPTIONS

The top ten food commodities imported into Bangladesh ranked by value are shown in Table 5. Those marked in bold type are potential candidates for monetization on the basis that they are considered eligible for monetization by FFP. These include wheat, crude soybean oil, lentils, peas, soya beans and maize.

Table 5: Top 10 Food Commodity Imports by Volume and Value Over 5 Years (2003-2007)

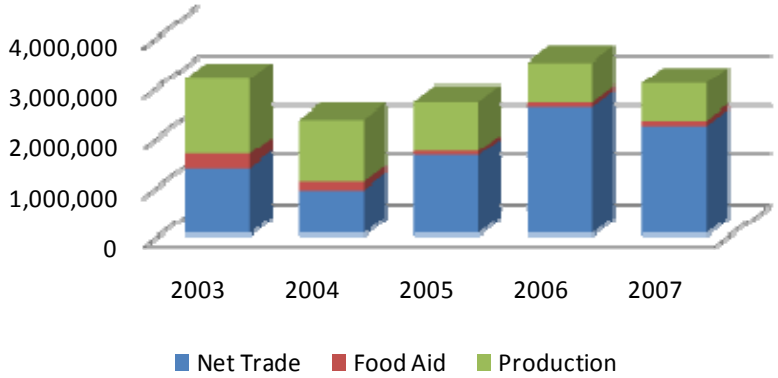
Commodity	MT'000	$'000	Monetization Threshold	Approximate Value
Palm Oil	6,273	2,919,302		
Wheat	8,466	1,657,288	169	33,146
Crude Soybean Oil	2,804	1,601,324	56	32,026
Milled Rice	2,899	792,073		
Lentils	578	292,421	12	5,848
Peas, whole or split	883	287,231	18	5,745
Paddy Rice	858	193,111		
Soya beans	496	156,966	10	3,128
Oilcake and other solid residues	662	151,966		
Maize other than seed	729	115,932	15	2,319

For all the commodities listed above, domestic demand exceeds local production, and substantial imports are required so that markets operate at import parity prices. The approximate revenue that could be raised from the monetization of each commodity is based on average import parity prices and a monetization volume equivalent to 10 percent of average imports over the five-year period from 2003 to 2007.

Rice was not included as a candidate for monetization for two reasons. First, the country is approaching self sufficiency in this commodity, and although substantial volumes are still imported at present, it is quite possible that domestic production might exceed demand shortly. Given that there are three harvests each year, it is quite possible that a call forward might cause an unintended surplus, and hence disincentive, to market prices. This is in marked contrast to wheat, the domestic production of which is consistently declining. Secondly, US rice is not preferred on the Bangladesh market and would therefore achieve poorer cost recovery than commodities such as US wheat, which are specifically favored. Each of the commodities is considered in more detail below.

5.3.1 Wheat Supply

Figure 1: Domestic Wheat Consumption (MT)



Sources: Comtrade, IGC, USDA-FAS, Bangladesh Bureau of Statistics

Almost all wheat is imported in the form of grain, which is sourced mainly from the Ukraine, Canada and Australia. Wheat flour imports averaged 2,600 MT during the past 5 years. Despite a constant increase in the consumption of wheat flour for chapattis, bread and biscuits, due to the ongoing process of urbanization, domestic wheat production is declining[19] as growers move toward more profitable maize production. Although the GOB has stated its intention to expand public purchases of wheat in the future, the gap to be filled by commercial imports can be expected to continue to expand. There are no exports of wheat.

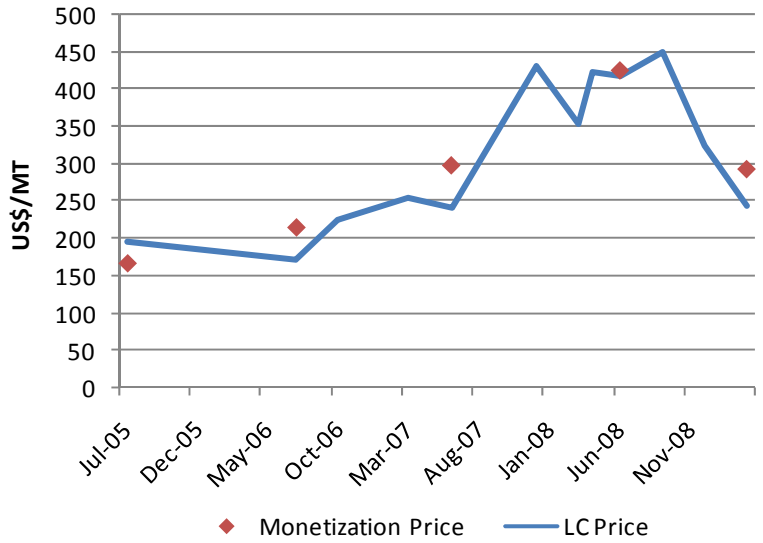
5.3.2 Wheat – Competitive Environment

There are approximately 350 medium to large mills (50-500 MT per day) in Bangladesh. Although wheat and flour markets are liberalized, the wheat miller association is strong and farmers have weak negotiating positions. Both wheat and wheat flour prices are quite uniform across markets.

The domestic wheat market is regularly impacted by the PFDS, which makes both wheat and rice available to beneficiaries through a variety of channels. Traders and millers report that prices and sales are reduced by as much as 10-15 percent following cereal distribution but the impact is transitory (15-30 days), and occurs only occasionally each year and is not considered to be a significant disincentive to business. Past monetization experience indicates that cost recovery was generally higher for sales to the GOB (greater than 80 percent) than for sales to the private sector, which negotiated a monetized wheat sale as a group. Sales to the government have been based on a negotiated agreement whereby the GOB paid 82.5 percent of the BL price in Taka after 90 days (CARE) or 120 days (Save).

[19] Wheat production peaked in 1999 at 1.9 million MT. It is now less than 0.95 million MT, while maize production which was only 85,000 MT in 1999 now exceeds 2 million MT.

Figure 2: Monetization Sales Prices and IPP



Source: Awardees and Bank of Bangladesh

Figure 2 shows monetization prices during the last four years, compared with IPP for wheat delivered on a CIF basis to Chittagong as recorded for commercial transactions by the Bank of Bangladesh. The letter of credit price provides an accurate indicator of the IPP. Monetization sales were made at or in some cases above the letter of credit price, indicating that the mechanism of a negotiated sale to GOB has provided an effective means of achieving a fair market price that would not distort the wheat import trade.

5.3.3 Wheat – Findings

Options for the monetization of wheat include sales to both the GOB and the private sector. The increasing import gap created by falling production and increasing demand would suggest that private sector sales would be most profitable; nevertheless, experience to date suggests that a higher level of cost recovery can be achieved through sales to the GOB at a negotiated fixed percentage of the cost as per the BL. The Ministry of Food and Disaster Management, which acts as an agent for the GOB in the monetization process, normally imports between 200,000 and 300,000 MT of SWW[20]. The volumes of wheat monetized to date comprise roughly 25 percent of GOB imports. The GOB has indicated that although it can purchase SWW more cheaply from Central European countries such as the Ukraine, the ease of the monetization transaction, higher quality of US wheat and ability to make payment in Taka, are factors that together make the purchase of US wheat at 82.5 percent of the BL cost an attractive proposition, and that it would be amenable to an increase in the amount of PL480 wheat purchased. If the total amount of monetized wheat were to remain at less than 10 percent of commercial imports, the volumes might be increased to 169,000 MT per annum, or approximately 65 percent of government purchases. It is possible that GOB may be unwilling to

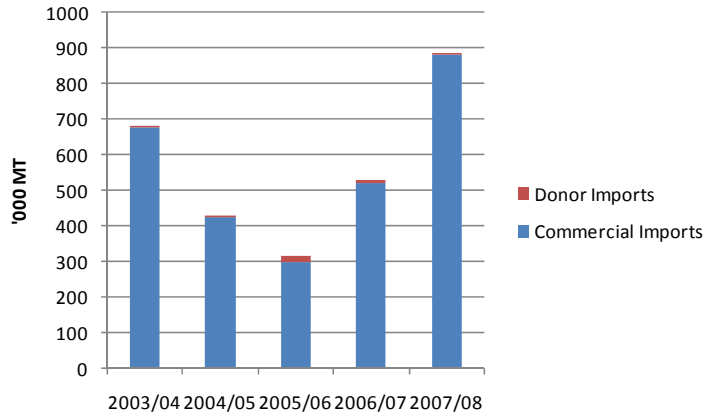
[20] In the five years up to 2009, GOB imported 1,211,778 MT of wheat (average of 242,000 MT)

purchase as much as 65 percent of its wheat imports through monetization, so that some balance might be monetized to the private sector. When canvassed, private sector millers indicated strongly that they would welcome the opportunity to purchase Title II HRW.

5.3.4 Crude Soybean Oil – Supply

Crude soy oil is imported and refined by 17 large refineries within the county. Donor imports (exclusively for distribution in the last three years) are a small proportion of commercial imports but exceed domestic production for the edible oil industry, which is negligible since almost all the small soy bean crop is used by the poultry feed industry. Nevertheless, soybean oil constitutes one third of all edible oil consumed within the country (the remainder comprising mainly palm oil), and demand will continue to be met by the refining of imported crude soya oil, obtained primarily from Argentina and Brazil. Figure 3 shows the level of donor and commercial imports.

Figure 3: Components of Crude Soybean Oil Supply



Source: Comtrade, INTERFAIS

5.3.5 Crude Soybean Oil – Competitive Environment

There are 17 large oil refineries in Bangladesh. Although there is an open market for edible oil, refinery owners dialogue with government through the industry association and prices are often moderated as a result. Nevertheless, crude soybean oil has been effectively monetized in the past, and the volumes that have provided substantial finance to Awardee programs in the past constituted less than 5 percent of commercial imports.

5.3.6 Crude Soybean Oil – Findings

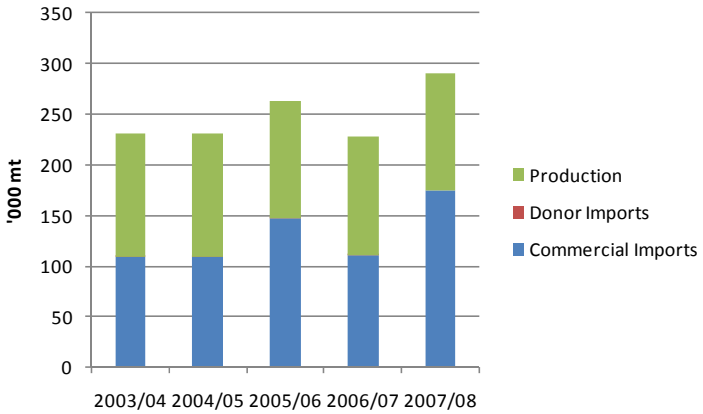
Crude soybean oil constitutes the second most valuable import.

A considerable amount of revenue could be obtained from the monetization of crude soybean oil without distorting the import market. For example, a notional upper threshold of 10 percent of commercial imports would be 56,000 MT valued (at five-year average prices) at $32 million.

5.3.7 Lentils – Supply

Bangladesh is the world's largest importer of lentils. Imports are chiefly red lentils grown in a variety of countries, similar to the locally produced *Masur* lentil. Domestic production and imports are approximately equal in volume. Donor imports are extremely small (less than 0.1 percent) by comparison. Figure 4 shows recent supply volumes.

Figure 4: Components of Lentil Supply



Sources: Interfais and Comtrade

5.3.8 Lentils – Competitive Environment

Bangladesh is a strong and consistent import market for lentils that is completely liberalized; although GOB does make the occasional local purchase and public distribution of lentils, these are extremely small (less than 1 percent of imports) and do not have any effect on the overall market.

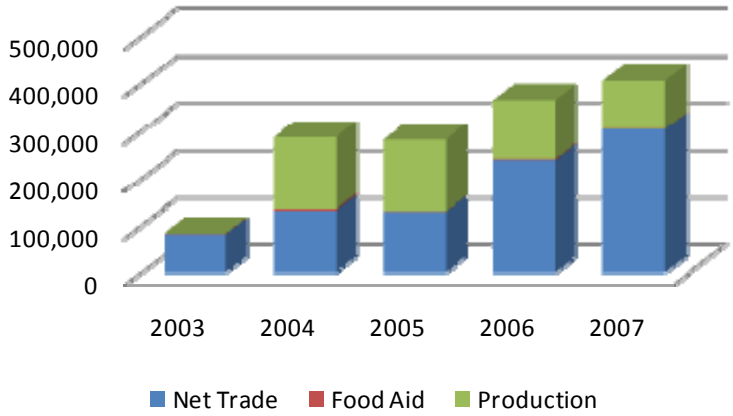
5.3.9 Lentils – Findings

While it is feasible to monetize lentils by either auction or negotiated sale, greater competition and a higher degree of cost recovery would be achieved through small lot auction. Lentils should only be considered if other commodities were not available.

5.3.10 Peas – Supply

Peas are imported as whole peas, split peas and chickpeas, while *Mashkalai and Kheshari* are produced locally. Five years ago, the volume of local production was greater than imports, but in recent years, while demand has increased, production has remained stable and the proportion of the supply filled by imports is now more than double that of local production. Donor imports during this period have remained at very low levels, (less than 1 percent of total supply). The comparative advantage of peas is low as compared with rice, maize or vegetables and it is likely that demand for peas will not be met by national production, either now or in the foreseeable future so that prices remain close to IPP.

Figure 5: Domestic Pea Consumption (MT)



Sources: Comtrade, IGC, Bangladesh Bureau of Statistics

5.3.11 Peas – Competitive Environment

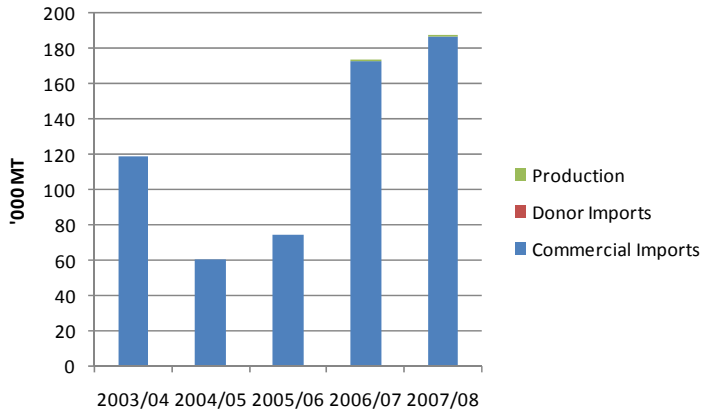
The market for peas is similar to that for lentils, in that it is completely liberalized. There are a large number of traders who will buy peas and sell them into the retail market and the competitive environment can be considered to be sound, particularly if sales could be made by auction of small lots.

5.3.12 Peas – Findings

The potential for the monetization of peas is similar to that for lentils. While it is feasible to monetize peas by either auction or negotiated sale, greater competition and a higher degree of cost recovery would be achieved through small lot auction. Peas should only be considered if other commodities were not available.

5.3.13 Soybeans – Supply

Figure 6: Components of Soybean Supply



Source: Comtrade Data and BBS

The supply of soybeans is completely dominated by commercial imports. As indicated in Figure 6, the average import volume has been 124,000 MT valued at $38 million. There are no donor imports of any significance and local production is minimal (500 MT year). The market has increased substantially during the last four years, as demand for livestock feed has accelerated, and it can be expected that this demand will increase further as the livestock sector increases in response to economic growth.

5.3.14 Soybeans – Competitive Environment

The market for soybeans is open and competitive, since a number of potential buyers for soybeans come from 80 feed mills. The commodity represents a similar opportunity for achieving effective cost recovery if small lot auction sales could be implemented.

5.3.15 Soybeans – Findings

Since the market for soybeans is much smaller than that for wheat or soybean oil in volume, the monetization will raise the same amount of finance that could be achieved through the sale of either wheat or crude soybean oil. The recommended sale mechanism of small lot auctions is also more costly than direct negotiation. It is therefore expected that soybeans would not be monetized unless the sale of wheat or soybean oil were not possible. Nevertheless, there are no grounds to expect a reduction in imports so that the commodity can be considered to be a valid candidate for monetization should preferable alternatives be unavailable.

5.3.16 Maize – Supply

Maize production has increased significantly as a profitable component of livestock feed[21], although it is also mixed with wheat to form a coarse flour consumed by poorer households. Nevertheless, human consumption of maize in Bangladesh remains low and the commodity is not imported to any significant extent by donors. Volumes produced in 2009 were more than double those of wheat. Despite this increase, imports remain significant, although if the current production trend continues, the country may become self sufficient in maize within the next two years.

Table 6: Domestic Maize Consumption (MT)

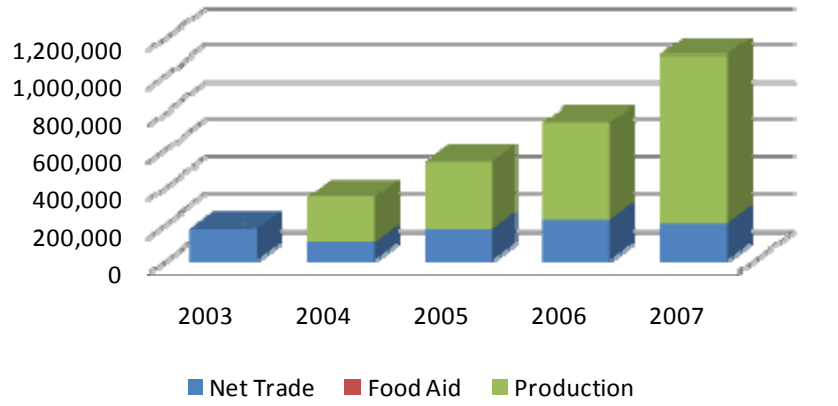
		2003	2004	2005	2006	2007	Average
1	Imports - Maize (corn), other than seed	118,985	87,107	166,040	208,207	148,410	145,750
2	Imports - Maize (corn), seed	48,175	8,083	1,439	4,555	45,830	21,616
3	Subtotal Imports	167,160	95,190	167,479	212,762	194,240	167,366
4	Total Maize Imports	174,598	103,314	174,455	222,420	203,540	175,665

[21] In particular, BRAC has undertaken maize breeding and seed distribution programs in support of maize production to sustain the small-scale poultry sector.

		2003	2004	2005	2006	2007	Average
5	Exports - Maize (corn), other than seed	n/a	n/a	n/a	60	n/a	60
6	Exports - Maize (corn) oil, crude	n/a	n/a	n/a	82	n/a	82
7	Subtotal Exports	0	0	0	142	0	142
8	Total Maize Exports	0	3	0	142	0	73
9	Net Trade	174,598	103,310	174,455	222,278	203,540	175,636
10	Food Aid	0	2	0	0	0	0
11	Production	n/a	241,000	356,000	522,000	902,900	505,475

1) Comtrade; 2) Comtrade; 3) Sum of lines 1 and 2; 4) Comtrade; 5) Comtrade; 6) Comtrade; 7) Sum of lines 5 and 6; 8) Comtrade; 9) Imports minus exports; 10) IGC; 11) Bangladesh Bureau of Statistics, Statistical Pocketbook Bangladesh 2008; 12) Sum of lines 9, 10, 11

Figure 7: Bangladesh: Domestic Maize Consumption (MT)



Sources: Comtrade, IGC, FAOSTAT, Bangladesh Bureau of Statistics

5.3.17 Maize – Competitive Environment

Maize is purchased almost exclusively by the 80 livestock feed mills within Bangladesh. The crop is not exported. The market for the commodity is completely liberalized, and prices remain close to import parity levels. The greatest degree of cost recovery would be achieved through the sale of small lots by auction

5.3.18 Maize – Findings

While the monetization of maize remains feasible at present, it would require more administrative input and associated costs to conduct the small lot sales that would be necessary to achieve open competition. Given the rapid and sustained increase in the production of maize to meet the domestic livestock feed market and the declining volume of imports, It is also possible that the market for imported maize may become too small for useful volumes of maize to be monetized within two to three years. For these reasons it is recommended that maize

should only be considered as an option for monetization if wheat or crude soybean oil are not available.

6. DISTRIBUTION ANALYSIS

6.1 INTRODUCTION

The "Bellmon Amendment" requires assurances that a proposed food aid distribution program would not result in substantial disincentive to or interference with domestic production or marketing in that country. The extent to which distributed food aid has the potential to result in disincentive to local production or in disruption of markets rests fundamentally on whether proposed food aid represents "additional consumption" for beneficiary households, i.e., food consumption that would not have occurred in the absence of the food aid distribution program.[22] If food aid transfers exceed households' perceived needs, the beneficiary is more likely to sell the food aid, reduce market purchases of food and/or increase household farm sales. Such a response could lower market prices and/or reduce local incentives to produce.

This pre-MYAP distribution analysis outlines the most likely distribution modalities for the upcoming MYAP cycle and provides Bellmon-relevant guidance and scenarios of possible coverage, where appropriate, that will help ensure potential impact on production and markets of such food aid distributions are minimized, and therefore Bellmon compliant. The presentation of possible distribution modalities and program parameters are based on a review of official USAID guidance and discussions with stakeholders in the field and in Washington (including USAID/FFP and current Title II Awardees (CARE and Save the Children). These scenarios are meant to serve as illustrative guidance rather than as a prescription given that the potential awardees' MYAP proposals have yet to be finalized and are not available to inform the present Bellmon analysis.

6.2 POTENTIAL FOOD AID DISTRIBUTION MODALITIES DURING FY2010-2014 MYAP CYCLE

There is broad scope and range for an array of Title II-funded development interventions in Bangladesh. As outlined in the Food Security Country Framework (FSCF)[23] the upcoming Title II program in Bangladesh is expected to focus activities to:

- Increase the incomes of poor and extremely poor households.
- Reduce chronic malnutrition among children less than five years old.

[22] Ideally, one would conduct household surveys to assess whether or not food aid would represent additional consumption. However, because household surveys are both extremely expensive and time-consuming, proxy indicators of 'additionality' can be used to assess the potential for leakage. This is the approach taken in the present analysis.

[23] USAID Food Security Country Framework for Bangladesh for FY 2010 – 2014. Food and Nutrition Technical Assistance II Project (FANTA-2), Academy for Educational Development (AED), Washington, DC [date pending].

- Reduce the vulnerability of poor communities and households to natural disasters.

Based on official USAID guidance, and field-level discussions with the Mission and potential awardees, there is a general consensus that two main modalities for *distributed* food aid appear most likely for the upcoming MYAP cycle: Food For Work (FFW), particularly in community-level form of a Prevention of Malnutrition in Children Under Two Approach (PM2A). To help ensure proposed programs will not result in substantial disincentive or market disruption, presented below are: (1) a set of key considerations for all distributed food aid interventions in Bangladesh, and (2) an outline of general guidelines for each of these two most likely modalities. This analysis focuses special attention on PM2A for three reasons: (1) it is an evidence-based MCHN intervention designed to promote long-term human capital outcomes, and therefore a logical focus of any non-emergency Title II program wherever a MCHN intervention is warranted; (2) because PM2A is a new method, not only is there need for broad-based understanding of program design among key decision makers, but probable room for adjustment in ration design among potential awardees; and (3) most important for the present analysis, because it is designed to prevent malnutrition rather than recuperate children and mothers who are already malnourished, it has greater potential to over-provide food rations, which could potentially cause Bellmon concerns.

Key Considerations for all Distributed Food Aid Interventions in Bangladesh:

Finding the right balance between Title II food and cash resources.

For distributed food aid in Bangladesh, as in any other development program, the volume of distributed food rations should be calibrated based on the cash resources necessary to fund all of the inputs required to obtain desired program impact. These resources include staff, non-food ration health and nutrition services and inputs (e.g., community health volunteers, preventive and curative medicines), and ongoing M&E, etc. In the case of PM2A, these necessary cash inputs may be greater than in other feeding interventions.

Each feeding program will involve different levels of food and non-food costs. The BEST Team tabulated estimates for program scenarios to illustrate the potential monthly food cost per beneficiary household. Applying the standard food distribution ration formula used by the WFP for FFA, and BEST calculations for PM2A, the estimated costs of providing monthly rations to each beneficiary household in Bangladesh are presented in Table 7. The estimates show that it would cost $24.07 for FFW, while PM2A with both individual mother/child and household rations distributed year-round would cost $14.95, whereas if mother/child rations are distributed year-round but distribution of household rations to all PM2A-eligible households is either limited to three lean season months or to the one-quarter of households considered ultra-poor, PM2A would cost an average $6.86 per beneficiary month.

Table 7: Estimated Cost of Monthly Rations, by Modality, for Bangladesh

FFW[24]	**PM2A**[25] (mother/child ration plus household ration year-round)	**PM2A** (mother/child ration year-round but household ration limited either to lean season or to ultra-poor households)
$24.07	$14.95	$6.86

The *non-food ration cost* per beneficiary household for *implementation* of each distribution program will vary widely depending on, among other things, awardee capacity, beneficiary coverage and the level of integration of program interventions. Non-food ration costs are excluded for purposes of this illustration. The full cost estimates could be considerably different from those presented in the table. Both PM2A and FFW interventions are expected to play an important part of a much broader and integrated development intervention and, therefore, it is not feasible to accurately estimate such costs.[26]

Local Diet should be considered in the Selection of Appropriate Commodities for Distribution.

Beneficiaries are more likely to optimize the food aid as designed if the commodity is culturally acceptable or the distribution is accompanied by nutrition education and awareness. Interviews with beneficiaries and food aid representatives revealed that Title II wheat and vegetable oil were well-liked and acceptable to beneficiaries. Current beneficiaries reported a dislike for yellow split peas, as red lentils are the preferred pulse in Bangladesh.

Pulses that take a relatively long time to cook will require greater time and monetary resources devoted to cooking, and may contribute to indoor air pollution.

Given the high levels of malnutrition and micronutrient deficiencies, the cost to beneficiaries of milling wheat into flour and the potential positive impact on local employment of women, a strong case can be made for inclusion of locally fortified and milled wheat flour in a PM2A

[24] Based on a monthly ration of 63.13 kilograms per household of six persons and consisting of hard red winter wheat (50 kilograms), lentils (10 kilograms) and vegetable oil (3.13 kilograms); coverage for 6 months

[25] For illustrative purposes only, BEST assumed the following about the size and composition of the PM2A rations: Individual monthly rations of 6 kilograms of Corn Soya Blend (CSB) for pregnant and lactating mothers and 3 kilograms of CSB for children 6-24 months. The importation and storage of blended foods in Bangladesh faces constraints. Partially for this reason, the use of imported wheat grain, milled and fortified in-country, may be the most appropriate alternative for use in individual rations. Monthly household rations of 12 kg per household based on a standard household of 5 persons, and consisting of wheat (6 kg), lentils (4 kg) and vegetable oil (2 kg) distributed either year-round or during three months of lean season. The calculations underlying these estimated ration costs are detailed further in Annex 12.

[26] For a discussion of food ration versus non-food ration costs, please see Maluccio John and Cornelia Loechl. 2006. "Preventive versus Recuperative Targeting of Food Aid: Accounting for the Costs" accessible via http://www.fantaproject.org/pm2a/IFPRI_R2_0306.pdf.

program in Bangladesh. (More details on the potential for importation of Title II wheat, and local milling and fortification are discussed in Annex 11)

6.2 GUIDELINES TO HELP PROGRAMS NOT CREATE PRODUCTION DISINCENTIVE/MARKET DISRUPTION

6.2.1 Food for Work (FFW)

The intent of FFW is to create food-wage employment during slack periods when rural unemployment increases. The rise in unemployment results in lower rural incomes at precisely the time of year when staple prices tend to spike because of food shortages in local markets. FFW activities will vary, but often involve construction and maintenance of productive community assets. Wage payments are made in-kind rather than in cash. If designed correctly, this practice can stabilize the price of staples in the market and improve food consumption and nutrition of participating households. If designed and implemented appropriately, FFW can also increase productivity on semi-subsistence farms.[27]

FFW is an important option for ultra-poor households affected by disasters and cyclical flooding. FFW activities in Bangladesh can and should play the unique and important role of helping to fund community-level infrastructure projects designed to reduce vulnerability to natural disasters, particularly among the ultra-poor. An assessment found that "homestead raising provides major benefits to poor and extreme poor (PEP) households by providing flood-free homestead in an environment where floods are a major annual hazard."[28] Similar findings were reported for wave protection in *haor* areas. These are examples about the types of works that can be used to help overcome disaster preparedness and create assets for communities and households. By directly targeting the poorest, most food insecure communities, FFW activities can be assured of maximum food security impact and minimal to no Bellmon disruptions.

Key considerations to ensure Bellmon compliance of proposed FFW programs:

To encourage self-targeting, the income transfer value of the ration should be set at slightly less than the prevailing rural wage and include slightly less preferred commodities. If the value of the FFW ration is too high, it can disrupt local labor markets by attracting more laborers and the food may not benefit the most needy individuals, women and families. Inclusion of a food used commonly in child feeding may also help in self-targeting women.

Timing of food distribution is critical. FFW commodity distribution will be less disruptive if distributed during the lean season rather than during the harvest season. During the lean period, rural households, especially the poorest, have little reserves of food at home and limited

[27] Abdulai, A., C. B. Barrett, and J. Hoddinott. 2005. "Does food aid *Really* have disincentive effects? New evidence from sub-Saharan Africa." *World Development* 33:10

[28] Assessment of the Effectiveness of Homestead Raising and Mound Protection Works Implemented by the SHOUHARDO Program," Ian Tod, DIl Afroz and Md. Sekender Ali, CARE, March 2008, page viii.

purchasing power to buy from markets because of high prices. By carefully timing FFW activities to coincide with the lean season, FFW will maximize food security impact.

There must be sufficient supervisory capacity for any proposed FFW activities to minimize possible leakages.

Where warranted and possible, FFW should target female-headed households, as numerous surveys suggest female-headed households are more vulnerable. Prior to such targeting, awardees should investigate the availability of female labor during the typical lean periods to ensure women could participate effectively in such gender-targeted FFW activities.

For further guidance on the appropriate design of FFW activities, see USAID's Commodities Reference Guide: http://www.usaid.gov/our_work/humanitarian_assistance/ffp/crg/module2.html

6.2.2 Prevention of Malnutrition in Children Under Two Approach (PM2A)

There are a number of compelling reasons to implement a Prevention of Malnutrition in Children Under Two Approach in Bangladesh in the upcoming MYAP cycle. First, Bangladesh has among the highest malnutrition rates in the world (43 percent stunting according to the 2007 BDHS), and is making inadequate progress toward achieving Millennium Development Goal (MDG) 1, the eradication of extreme poverty and hunger. Lack of access to and consumption of adequate quality and quantity of food and poor maternal, infant, and young child feeding practices are the primary causes of malnutrition for the rural poor. PM2A is an evidence-based MCHN intervention designed to promote long-term human capital outcomes, and therefore a logical focus of any non-emergency Title II program wherever a MCHN intervention is warranted. Second, both current Title II Awardees are implementing MCHN activities similar in intent to a PM2A, which suggests an institutional capacity for future implementation of a similar approach to addressing malnutrition in children.

Because PM2A is a new method, not only is there need for broad-based understanding of program design among key decision makers, but probable room for adjustment in ration design among potential awardees. Moreover, and perhaps most important for the present analysis, because it is designed to prevent malnutrition rather than recuperate children and mothers who are already malnourished, it has greater potential to over-provide food rations, which could potentially cause Bellmon concerns. Therefore, to help ensure a proposed PM2A activity will not result in substantial disincentive or disruption of markets, the BEST distribution analysis outlines three key considerations for the design of a PM2A activity in the Bangladeshi context from a Bellmon perspective: (1) geographic targeting and program coverage; (2) strategic use of food rations to achieve maximum impact on nutritional outcomes; and (3) choice of commodities for inclusion in ration package.

PM2A Geographic Targeting and Beneficiary Coverage

Because of the localized nature of the impact of distributed food aid, the vulnerability of small markets to disruptions, and the sensitivity of small farmers to production disincentives,

quantities that may appear insignificant compared to a country's total food staple consumption can nonetheless have a major impact on markets and production at the local level.

To assess the relative absorptive capacity of food aid on a sub-national basis in Bangladesh, thereby providing Bellmon guidance on the appropriate magnitude of distributed food aid under a PM2A activity, this report relies on Food Consumption Scores (FCS) as the proxy indicator of additionality. The FCSs are the best available indicators of the relative absorptive capacity of food aid on a sub-national basis for Bangladesh, which is important to inform initial geographic targeting given the nature of the PM2A activity.[29] The FCS is not a quantitative measure of any nutrition gap, which could then be compared with the ration under the proposed food aid program to determine by how much the 'nutrition gap' might be filled (or potentially overfilled) under the program. However, it does provide a snapshot of both the frequency and diversity of household staple consumption and is, therefore, a reasonable proxy indicator of the availability and access dimensions of food security and, to a lesser extent, the utilization dimension.

By geographically targeting areas with a high prevalence of households with poor food consumption scores, a PM2A activity will help ensure that any given PM2A beneficiary household will more than likely increase overall household food consumption, relative to households in other geographic areas with higher rates of acceptable food consumption score.

Table 8 provides an overview of the estimated number of households potentially eligible for a PM2A intervention, and the number of PM2A-eligible households for which food aid would be most likely to represent additional consumption.

Table 8: Estimated Number of PM2A-eligible Households for Whom Food Aid Would Be Most Likely to Represent Additional Consumption

Division	Population (proj. 2010) (per 2001 census)	# HHs (pop / hh size) [2]	% HHs with poor FCS [3]	# food insecure HHs using poor FCS as indicator	est. pop. of eligible children & mothers [4]	# HHs with poor FCS w/ an eligible child & mother
BARISAL	9,644,987	1,729,000	26	449,540	578,699	150,462
CHITTAGONG	28,662,653	4,887,000	25	1,221,750	1,719,759	429,940
DHAKA	46,072,765	9,437,000	20	1,887,400	2,764,366	552,873
KHULNA	17,352,170	3,430,000	25	857,500	1,041,130	260,283
RAJSHAHI	35,638,210	7,654,000	31	2,372,740	2,138,293	662,871
SYLHET	9,368,425	1,533,000	24	367,920	562,105	134,905
TOTAL	**146,739,210**	**28,670,000**	**25.17**	**7,156,850**	**8,804,353**	**2,191,333**

Since an awardee's catchment areas will likely cover only part of one or more divisions, potential awardees must conduct a more careful enumeration of PM2A-eligible households

[29] This analysis draws primarily upon qualitative and quantitative data, including the FCS measures, from the most recent Household Food Security and Nutrition Assessment in Bangladesh (HFSNA2008).

within their proposed catchment areas to determine possible levels of coverage. However, the second column from the right provides a rough estimate of the maximum number of PM2A-eligible households within each division, and therefore provides a guideline for the number of beneficiary households that might be targeted to reach 100 percent coverage by division.

The right-most column, which shows the estimated number of households who are PM2A-eligible and report poor food consumption scores (and therefore most likely to benefit from food aid as additional consumption), provides a rough guideline of the number of households that could be targeted for year-round household rations within each district without introducing Bellmon concerns. These figures are meant to serve as general guidance since they are based on analysis of secondary data which, by its nature, will provide less precise guidance than well-designed and implemented baseline surveys in awardee implementing areas.

By combining poor food consumption scores with several indicators of malnutrition, a ranking system was used to identify divisions in which PM2A rations would (1) most likely represent additional consumption, and therefore would be unlikely to pose any negative Bellmon impact, and (2) address the highest rates of malnutrition at the division level. We use the percentage of households with poor FCS, rates of stunting, underweight and wasting among children less than five years old, and the percentage of women classified as malnourished (those with Body Mass Index – BMI – less than 18.5). Ranking all the divisions by a combination of these indicators, two divisions emerged as clear contenders for a PM2A program: Barisal and Rajshahi. These two not only record the poorest FCS, but also appear in the top three for all four measures of malnutrition. In fact, they are the top two divisions in three of the four measures of malnutrition. More so, their districts featured prominently in the draft FSCF. The other division prominent in the FSCF, Dhaka, doesn't appear anywhere near the top. Of course, these findings at the division level may mask important differences within each division. Sound techniques to target the ultra poor have been developed and refined in Bangladesh. Using a combination of poverty maps, local administrative assistance and participatory community self-assessment, it is possible to identify ultra-poor households with a high degree of certainty so that exclusion errors (not reaching all ultra poor households in a program designed to do so) are more probable than inclusion errors (provision of food aid to households which are not ultra poor).[30]

There are two Title II Awardees (CARE and Save) currently implementing MCHN programs similar in intent to PM2A in a number of *upazilas* within the three divisions of Barisal, Dhaka and Rajshahi. While other potential awardees may propose working in different communities, beneficiary targeting will likely focus on regions identified as chronically food insecure in the FSCF. Further details on the geographic distribution of food insecurity, including regional disparities in food availability, access and utilization, are outlined in the FSCF.

[30] WFP recently updated its poverty maps for Bangladesh, in which *upazilas* are ranked on the basis of poverty and stunting rates. Please see Annex 6 for further details.

Strategic Use of Food Rations to Achieve Maximum Impact on Nutritional Outcomes

Although it is beyond the scope of a Bellmon analysis to develop detailed program designs, the existence of much weaker relationships between wealth and nutritional status in Bangladesh than in many other Title II recipient countries suggests a broad scope for nutritional intervention directed toward all wealth groups, not simply toward those for whom food access is poor. To ensure transparency and support, program design should ideally include community participation. To avoid disincentive effects and/or market disruptions, however, food rations should be used strategically to address the underlying causes of malnutrition of young children and mothers in Bangladesh.

Individual Rations for Mother and Child

Individual PM2A rations are expected to cover all pregnant or lactating mothers and children under two years of age within a catchment area. The purpose of the individual rations directed towards pregnant and lactating mothers and children under two is nutritional supplementation, which narrows the appropriate composition and size of the mother and child rations to those that follow nutritional guidelines for individual physiological needs. For the purposes of the present BEST analysis, the ration is assumed to be composed of blended cereals, while the ration size is assumed to provide approximately 500 kcal per person per day for children 6 to 24 months of age, and 1000 kcal per person per day for pregnant or lactating mothers.[31]

Labeling individual rations as "special" food may help to ensure that food aid is consumed by intended beneficiaries. Nutrition interventions such as PM2A that target pregnant and lactating mothers and children under two may be neutralized if the beneficiary household chooses to reallocate resources away from the mother and child as a result of those household members receiving individual PM2A rations. While there is some evidence[32] that transfers may not always be reallocated away, labeling individual rations as "special" food may help to ensure the nutritional supplements are consumed by the intended individual beneficiaries, which will maximize the nutritional benefits of PM2A interventions.

In accordance with formative research on the underlying causes of early childhood malnutrition, PM2A guidance requires BCC messages and a suite of health and nutrition-related services as integral components of a preventive approach to malnutrition. By delivering the food ration as part of a carefully-designed package of MCHN interventions custom-tailored to beneficiary communities, a PM2A program will increase further the likelihood that direct beneficiaries will

[31] For purposes of the Bellmon analysis, the individual rations and kcal per person per day needs have been utilized for mother and children commodity calculations as indicated. However, please see FANTA-2's PM2A Technical Resource Materials (TRM) and other related guidance on calorie needs accessible via http://www.fantaproject.org/pm2a/index.shtml.

[32] Islam, Mahnaz and John Hoddinott. Feb 2008. "Evidence of Intra-Household Flypaper Effects from a Nutrition Intervention in Rural Guatemala," working paper, accessible via: http://ssrn.com/abstract=1262368; Adelman, S., D. Gilligan and K. Lehrer. 2008. "How Effective are Food for Education Programs? A Critical Assessment of the Evidence from Developing Countries," International Food Policy Research Institute Food Policy Review 9, accessible via: http://www.ifpri.org/sites/default/files/publications/pv09.pdf

consume and correctly use additional food, which will simultaneously maximize nutritional impact and minimize any potential negative Bellmon impacts.

Household Ration

Unlike individual rations, the household ration is not intended to serve as nutritional supplementation; rather, it can serve several different purposes including:

- Protection of mother and child rations from diversion or dilution to other household members
- An additional incentive for the mother and/or other household members to participate in key PM2A activities (BCC messages, attendance at health clinics for growth monitoring or other well visits, etc.)

A critical aspect of food security in Bangladesh is that households may possess adequate resources to feed themselves, but lack the knowledge to distribute/utilize food effectively. Under these circumstances, household rations may be used as an effective incentive to receive health and nutrition training, as well as serving as a message to household decision makers (typically, the husband and mother-in-law) to encourage more equitable intra-household food distribution, particularly during a woman's pregnancy and a child's first two years of life.

A household ration may also act as an additional income transfer which enables extremely poor households to more effectively participate in integrated development programs. Given that PM2A activities (inclusive of ration provisions to individual and household beneficiaries) are intended to form one part of an overarching integrated rural development program, there may, however, be other mechanisms through which awardees would choose to provide such an additional income transfer. Current Awardees have noted that unless additional resources are provided to the ultra-poor, they are unable to participate in development programs. Among such households, there is a clear preference for food-based aid, as opposed to cash-based aid (although a food and cash package may in fact be a preferred combination). Notably, all current Title II beneficiaries interviewed reported a strict preference for food rations over cash. [33]

Precisely because it is not intended as a nutritional supplement and because it can serve several purposes, a household ration is more malleable in terms of contextualization to reflect community norms and needs. The preventive approach that was successfully piloted in Haiti provided a household ration composed of blended foods, pulses and oil to all households within the catchment area on a year-round basis, regardless of household wealth status or food deficit. Future awardees may consider different scenarios depending on a variety of factors (e.g., community needs, food preferences and logistics, etc.), which may lead to a more strategic use of household rations, both in terms of household ration composition, size, and frequency and

[33] During interviews, with only female beneficiaries present, the women reported they would prefer to continue receiving rations even if offered a cash equivalent because 'money can be spent too quickly' and 'because my husband would control it.'

timing of delivery. Based on formative research, future awardees may consider different household ration designs, which will require ongoing monitoring and evaluation to ensure the household ration is appropriately designed to ensure protection of individual rations while maintaining acceptable levels of program participation. To determine the appropriate size of a household ration, potential awardees should review all available evidence of estimated household food gaps within the proposed targeted communities.[34]

Whether it will be critical to the success of a PM2A intervention to provide household rations year-round to all PM2A-eligible households to discourage diversion of individual rations to other household members can only be determined through review of experience among current Title II Awardees. Because current MCHN programs use community-based targeting to provide MCHN rations only to the ultra-poor within communities, it is unclear how provision of rations to all PM2A-eligble households, regardless of wealth status, will impact household behavior on a community-wide scale. While potential awardees must target individual rations to all pregnant and lactating mothers and children under two within a catchment area on a year-round basis, awardees may consider a number of different options for inclusion of household rations. Among the many options, three possible options are:

1. Target household rations to *all* PM2A-eligible households, regardless of household food insecurity or wealth status, but limit distribution of household rations to the lean season months

2. Target household rations to *all* PM2A-eligible households, **but** limit distribution of the household ration to the lean season months

3. Target household rations year-around **but** only to ultra-poor households

Existing programs in Bangladesh have demonstrated that supplementary feeding of ultra-poor households, identified through community-based targeting, can be achieved with minimal disincentive effects. Current programs have also demonstrated and that among relatively food secure households, comprehensive improvements in mother and child nutrition can be achieved through the use of small volumes of food to act as an incentive for improved MCHN practices in conjunction with adequate Community Health Volunteer coverage.

[34] One potential source of estimated food gaps is the new Food and Agriculture Organization (FAO) “depth of hunger” estimates which estimate the national average food deficit (in kcal/person/day) for the undernourished population. The most recent estimated food deficit for the undernourished population in Bangladesh (2003-2005) is 290 kcal per person per day. These figures provide a useful national benchmark which can be used prior to conducting formative research in proposed target communities to determine in more precise detail the average household deficits of beneficiary households. For purposes of cost calculations, described more fully in Annex 12, the household ration assumed for illustrative purposes in this analysis is designed to meet 112% of the estimated household deficit of the average undernourished population, and 15% of the total household monthly caloric requirements.

Whatever coverage and delivery frequency of the household ration is ultimately deemed most appropriate for the target communities, awardees are expected to ensure that household rations are sufficient to protect the woman and child individual rations without reducing participation while minimizing Bellmon concerns.

The sections that follow present three possible PM2A funding scenarios regarding the individual and household rations, with associated commodity volumes and potential beneficiary household coverage. The first scenario is based on the ration design from the Haiti pilot in which a monthly ration was provided to individual beneficiaries (mother and child) and beneficiary households for each month of participation, but the child rations are reduced to reflect the physiological capacity of children under two. The second scenario is based on the same principle of coverage, in which mother and child rations are provided on a year-round basis, and household rations are again provided to all PM2A-eligible households but limited to three lean season months. The third scenario allows for year-round distribution of household rations but limited to only the ultra poor households. For simplicity, the percentage of ultra poor households is assumed a uniform 25 percent of all PM2A-eligible households within a given catchment area.[35]

Whether the scenarios represented in Table 9 below are the most appropriate levels of intervention will depend critically on (1) whether there are sufficient cash resources available to effectively support a PM2A activity, even if appropriately geographically targeted to chronically food insecure communities in Bangladesh; and (2) whether potential awardees determine through formative research and their ongoing monitoring and evaluation efforts that it is necessary to provide household rations year-round to all PM2A households, or only ultra poor households, to achieve desired nutritional outcomes.[36]

Table 9: Funding Scenarios for PM2A Rations in Bangladesh

Country Program Funding Devoted to PM2A Rations	Total Annual Volume of Commodities[37]	Ration	Number of Beneficiary Households Covered Under Program
$12.6 million	16,023 MT	• mother/child rations year-round to all PM2A-eligible HHs • HH rations year-round to all PM2A-eligible HHs	70,234
$16.8 million	21,363 MT		93,645
$21 million	26,705 MT		117,057
$12.6 million	23,822 MT	• mother/child rations year-round to all PM2A-eligible HHs	153,061
$16.8 million	31,765 MT		204,082

[35] This percentage is based on the national average percentage of households who are extreme impoverished (see Table 8 above).

[36] For a discussion of food ration versus non-food ration costs in a PM2A program, please see Maluccio John and Cornelia Loechl. 2006. "Preventive versus Recuperative Targeting of Food Aid: Accounting for the Costs" accessible via http://www.fantaproject.org/pm2a/IFPRI_R2_0306.pdf

[37] A given funding level devoted to rations can purchase a greater volume of commodities and cover more households when the distribution of household rations are restricted either to lean season months or to ultra poor households because of the different unit prices of the commodities in the individual versus household rations.

$21 million	39,705 MT	• HH rations year-round to all PM2A-eligible HHs but limited to lean season	255,102
$12.6 million	23,822 MT	• mother/child rations year-round to all PM2A-eligible HHs • HH rations year-round but limited to ultra poor HHs	153,061
$16.8 million	31,765 MT		204,082
$21 million	39,705 MT		255,102

The hypothetical funding scenarios and the table of the potential beneficiary households show that a funding level at approximately $21 million (50 percent of estimated total funding allocation) could cover approximately 117,057 households if both individual and household rations are provided to all PM2A-eligible households on a year-round basis. If the household ration is instead provided to all PM2A-eligible households but limited to three lean season months, the number of households that could potentially be covered more than doubles to 255,102. If instead the household ration is provided year-round but only to ultra poor households, the number of potential beneficiary households would be the same as when the household rations are provided year-round to all PM2A-eligible households but limited to three months each year (assuming one-quarter of all households are most food insecure, as defined by ultra poverty). Depending on the ultimate size of the indirect household ration, by adding in the additional income transfer throughout the year, program coverage is necessarily reduced, perhaps significantly. However, such an additional income transfer may be very appropriate particularly when targeting communities with a large percentage of extremely poor households.

The level of coverage is important from a Bellmon perspective because not only does it translate into a volume of food aid commodities being introduced into a local area (and therefore potentially affecting markets and incentives to produce), it hints at the non-food ration costs that must be available to effectively support all of the other program activities.[38] BCC and other health and nutrition services are essential inputs into any program designed to address many of the underlying causes of early childhood malnutrition which are *not* a function of lack of food availability. Particularly where malnutrition is a heavily influenced by poor feeding practices sufficient cash resources to support the strategic use of food rations in a PM2A activity designed to affect long-term nutritional outcomes will help to ensure the food rations will represent additional consumption at the household-level, and therefore be Bellmon compliant.

Choice of Commodities for Inclusion in PM2A Ration

An assessment of the adequacy of storage undertaken as part of the BEST analysis revealed a number of potential concerns about the large-scale importation and use of blended foods for use in a distribution program. Given the high levels of malnutrition and micronutrient deficiencies, the cost to beneficiaries of milling wheat into flour and the potential positive impact

[38] For a discussion of food ration versus non-food ration costs in a PM2A program, please see Maluccio John and Cornelia Loechl. 2006. "Preventive versus Recuperative Targeting of Food Aid: Accounting for the Costs" accessible via http://www.fantaproject.org/pm2a/IFPRI_R2_0306.pdf

on local employment of women, a strong case can be made for inclusion of locally fortified and milled wheat flour in a PM2A type of activity in Bangladesh.

Foods such as wheat and oil can be readily made into a baby food and were preferred. Because they are not well-liked by beneficiaries, yellow split peas cannot be as an incentive, although lentils (a preferred pulse in Bangladesh) could likely be used in an effective manner.

Importantly, where such a program had been successfully implemented, the food ration was regarded as important, but not essential to success. One Awardee noted that the same results might have been achieved without the use of food, but that this would have taken longer and required greater expense on non-food items.

6.2.2 A Third Potential Use of Food Aid – Food as a Contingency Against Shock

Where households have been part of a development program and been subjected to an external shock (such as a cyclone) the provision of targeted food aid has allowed households to recover rapidly thereby minimizing the erosion of gains made under the program. The use of food as a contingency to recover food stocks and cover for temporary loss of productive capacity is both essential to the success of development programs in Bangladesh and has potentially no disincentive impacts if targeted appropriately.

This use of food aid has been highlighted by both CARE and Save's activities following cyclones Sidr and Aila. In both cases it was necessary to provide food aid not only to save lives (i.e. as an emergency response), but also to minimize the losses in terms of progress under development programs. Bangladesh is renowned for the frequency with which floods, droughts and cyclones damage or destroy livelihoods, and since those areas that are most disaster prone are generally also very poor, it can be expected that development programs will be located within areas that have a higher than normal risk of disaster. The same logic that suggests that food aid should be provided to the ultra poor in order to allow them to take part in development also applies to whole communities affected by disaster.

The use of contingency food aid for an emergency response within the MYAP should be based upon the principle of additionality, using community-based targeting to assess the degree of loss incurred and the most appropriate food aid activities to ensure that food security is maintained. Although individual households may gain or lose in this assessment, the overall food supply to the community should match the losses in terms of food stocks/ food production capacity destroyed by the disaster.

This is one of the few instances where complete additionality of food aid can be achieved and market/production impacts can be wholly avoided. If the targeting is accurate, timed and the supply response is appropriate in terms of both commodity mix and overall volume then there will be no discernible disincentive effects to either production or marketing.

For further guidance on the appropriate design of MCHN interventions generally, and PM2A specifically, please see USAID's Commodities Reference Guide, accessible via http://www.usaid.gov/our_work/humanitarian_assistance/ffp/crg/module1.html,

and FANTA-2's PM2A Technical Resource Materials (TRM) and other related guidance accessible via http://www.fantaproject.org/pm2a/index.shtml**.**

6.3 Existing Food Aid and Cash Transfer Programs

As outlined in the FSCF, potential MYAP awardees should explore opportunities for collaborating and joint programming to maximize the impact of Title II resources. A roster of current programs and major actors in food security is outlined in the FSCF. As part of their needs assessments, potential awardees should review the status of programs and beneficiary coverage (who the target beneficiaries are and how many are covered, how much food is provided, what types and when, and whether aid is conditional or not) to asses where new program interventions may provide maximum food security impact and, therefore, minimum disruption of markets and production incentives.

ANNEX 1: COUNTRY BACKGROUND & OVERVIEW

Agriculture Overview

Wheat Production: Calculations by DFID[39] suggest that Bangladesh has no absolute advantage in wheat production. The low yielding, high quality wheat varieties grown in Bangladesh are less preferred and more expensive than lower quality imported wheat.

Rice Production: National consumption data suggests that approximately 75 percent of all rice produced is consumed within the village, and only 25 percent reaches open markets. 50 percent of this is produced by 10 percent of the growers. The production of rice has been consistently encouraged through the development of high yielding varieties (HYV), the distribution of subsidized fertilizer, and the intervention of the Ministry of Food and Disaster Management, which has purchased rice at prices designed to incentivize farmers. As a result, rice production has effectively tripled over the last 30 years. On the other hand, despite continuous import parity prices, wheat production has declined, as farmers have switched to more profitable maize, grown to supply the expanding livestock feed sector.

Although the country has no absolute advantage in the production of rice for export, costs of inland transport provide a small advantage for local producers, when compared with imported rice. Agricultural policy has therefore aimed to promote local rice production to the point of self-sufficiency, but not as an export crop. The Government of Bangladesh (GOB) is attempting to support rice prices, buying at $310 per MT; but only a limited number of larger traders are able to access this market, and many farmers are selling at or below breakeven prices. It is expected that this may result in a downturn in production in 2009/10.

Agricultural Policy Overview

The GOB's agricultural policy aims to support agricultural production and increase the supply of affordable food for the most vulnerable by stabilizing staple food prices.

Support to agricultural production constitutes a significant proportion (9.1 percent) of budgeted expenditure, and includes not only support for infrastructural development, research and extension, but also the subsidizing of fuel for irrigation, electricity for agro-industries, substantial fertilizer subsidies, low-cost finance for small-scale producers, and a 30 percent incentive to agricultural exporters. The Department of Food and Disaster Management maintains a domestic reserve of approximately 1.5-2 million MT of grain, which is largely supplied by the purchase of rice from the domestic market, in a manner and at a price designed to prevent a collapse in

[39] Policy Briefs on Market Volatility, Vulnerability and Food Security in Bangladesh DFID, 2009

domestic wholesale prices. The grain is eventually sold through the PFDS open market system (OMS), in such a way as to prevent an undue increase in domestic retail prices. It has been argued that this price stabilization mechanism has failed either to reduce consumer prices, or to support wholesale prices.[40] Other authors have suggested that some degree of price stabilization has been achieved sufficient to encourage increased rice production.[41] Despite any criticisms, this policy has been sustained and, following the global food price rises in 2008, is due to be expanded, effectively doubling the size of the national food reserve.

As for increasing the supply of food to the most vulnerable segments of the population, the GOB has an overt policy to stabilize both producer and consumer prices through a variety of mechanisms. It also increases access to food for vulnerable populations through the PFDS.

With regard to price stabilization, the GOB has implemented a 6-month export ban for rice, effective as of May 2009. This represents the third consecutive such ban. The economic impact cannot be considered substantial, since Bangladesh has very limited absolute advantage in the export of rice and potential export volumes would be minimal, but the effect on agricultural investor confidence may be more subtle and pronounced.

Through the PFDS, the GOB imports significant volumes of both rice (400,000 MT) and wheat (300,000 MT), which are then distributed to vulnerable groups through the PFDS, either through the OMS, or as Food For Work or through other exchange mechanisms.[42] In addition, the Trading Corporation of Bangladesh (TCB) imports a range of other commodities (including edible oil, pulses and sugar), in smaller volumes, for sale at discounted prices. However this is of very limited significance.

Table 10: Bangladesh Agriculture at a Glance

Total families	17,600,804
Total farm holding	15,089,000
Total area	14.845million ha
Forest	2.599 million ha
Cultivable land	8.44 million ha
Cultivable waste	0.268 million ha
Current fallow	0.469 million ha
Cropping intensity	175.97%
Single cropped area	2.851 million ha
Double cropped area	3.984 million ha
Triple cropped area	0.974 million ha
Net cropped area	7.809 million ha
Total cropped area	13.742 million ha
Contribution of agriculture sector to GDP	19.1%
Contribution of crop sector to GDP	13.44%

[40] USAID Bellmon Analysis FY2008

[41] IFPRI MTID Discussion Paper No. 92: Food Policy Liberalisation in Bangladesh – How the Governments and the Market Delivered.

[42] Almost all wheat is distributed through non-priced mechanisms as opposed to open market or subsidized sales.

Manpower in agriculture	62%
Total food crop demand	23.029 million MT
Total food crop production	27.787 million MT
Net production	24.569 million MT

Source BBS 2006 and MOA Handbook.

ANNEX 2: ECONOMIC DATA & TRENDS

GDP/GNP per capita

Bangladesh has made the transition from an aid dependent economy to one based upon manufacturing, services and agriculture. Since the introduction of a liberalized economy over the last ten years, the country has experienced faster GDP growth. After averaging 4.9 percent in the 1990s, the GDP growth since 2001/02 has averaged 6 percent and the manufacturing sector has grown at above 10 percent. GDP growth has been accompanied by a reduction in the percentage of the population living in poverty from 49 percent in 2000 to 40 percent in 2008. Key economic indicators are shown in Table 11.

Table 11: Bangladesh Economy at a Glance (2007-2008)

GDP (US$ million)	76,350
Population (million)	144.5
Per Capita GDP (US$)	528
Per Capita GDP (US$ PPP)	1,400
Population growth rate (%)	1.59
GDP growth rate (%)	6.21
Contribution to GDP:	
Agriculture	19.1%
Manufacturing	28.6%
Services	52.3%
Imports (CIF US$ million)	21,820
Exports (FOB US$ million)	14,050
Remittances (US$ million)	7,914
Inflation (yr on yr CPI basis)	9.9%
Population living in poverty (<2122 Kcal/day, 2005 - million)	56.0
GINI Coefficient (Income)	0.46
Government Revenues (US$ million)	8,825
Foreign Grants & Loans (US$ million)	2,538
Private Investment (US$ million)	15,129
Public Investment (US$ million)	3,961

Source: BBS - including the exchange rate of Tk 68.60 used to convert data to US$

Economic Growth: GDP growth has been steadily increasing in recent years, reaching 6.7 percent in FY2006. Growth has been accompanied by sustained poverty reduction. Poverty declined by about 1.8 percentage points a year between 2000 and 2005 compared with a decline of about only 1 percentage point a year in the preceding decade.

Although Bangladesh has significantly improved its business-friendly environment for sustaining higher GDP growth, infrastructure needs to catch up with other competing countries. Infrastructure constraints, including power and transportation, are critical impediments for moving on to a higher growth path. According to the World Bank's investment climate surveys and *Doing Business 2007*, Bangladesh lags most competing countries in infrastructure development. Bangladesh faces severe power shortages.

Poverty Rates

With a HDI value of 0.55 and HDI rank of 140, the country belongs to the category of medium human development countries[1.] Bangladesh is still struggling to emerge from the realm of poverty. The country ranks 93 among 108 developing countries in terms of the Human Poverty Index (HPI). The HPI is a multidimensional measure of poverty for developing countries; it takes into account social exclusion, lack of economic opportunities, and deprivations in survival, livelihood and knowledge.

Poverty is a fundamental cause of malnutrition. In Bangladesh, poverty reduction is the centre piece of the country's development strategy. The second National Strategy for Accelerating Poverty Reduction [NSAPR] FY2009-11 articulates major strategies and framework for addressing key development challenges the country faces including food security and nutrition.

For Bangladesh, poverty line is measured with reference to the cost of basic needs and considerable progress has been made in reducing poverty over the last two decades[43]. Between 1991-92 and 2000, the incidence of poverty declined from 53 percent to 44 percent in rural areas and from 36 to 26 percent for the urban areas, indicating a rate of reduction of one percent per year. Comparing poverty rates between 2000 and 2005, the second NSAPR[44] indicated a continued and sharp decline of the national head count rate of poverty measured by the upper poverty line from 56.6 percent in 1991-92, 49 percent in 2000 and further to 40 percent in 2005. About 27 million people live in extreme poverty (persisting in deep poverty) in Bangladesh accounting for about 19.5 percent of the total population, while 31 percent of the rural population have been suffering from chronic poverty (i.e. low consumption, hunger and under nutrition, lack of access to basic health services, illiteracy and other deprivations) for more than a decade[45]. Lack of access to resource and knowledge, high vulnerability to natural disasters and growing population through large family size principally characterize the poor.

Chronic Poverty: It is defined by a situation where people live in poverty for a prolonged period of time – often spanning generations. Extreme poverty is a situation where people persist in deep poverty, i.e. at the bottom of the poverty ladder. Household Income and Expenditure

[43] Hossain et al J. of Agricultural and Development Economics, 2005.Vol.2,No.2, p115

[44] General Economics Division, Planning Commission, Government of the People's Republic of Bangladesh. Moving Ahead, National Strategy for Accelerated Poverty Reduction (NSAPR) II (FY2009-11), October 2008, p 2.

[45] GED, NASPR II (FY09-11), p 21

Survey 2005 also estimates that about 27.0 million people live in extreme poverty in Bangladesh, which accounts for about 19.5 percent of the total population.

Regarding chronic poverty, 31 percent of the rural populations have been suffering from the indignity of chronic poverty (i.e. low consumption, hunger and under-nutrition, lack of access to basic health services, illiteracy and other deprivations) for more than a decade, as reported in a report of Bangladesh Institute of Development Studies. About 19 percent of rural households cannot have 'full three meals' a day and about 10 percent subsist on two meals or less for a number of months every year. The report also estimated that 25 to 30 million of the country's citizens are chronically poor. Adverse changes in household structure (e.g. increase in dependency ratio); continuing with agriculture as a means of livelihood but unable to adopt improved practices; decline in natural and financial assets; and suffering from one or more shocks, natural shock, health shock, violence against women, etc. are responsible for the non-poor slipping into poverty. Helping them deal with such shocks more effectively through social protection schemes, better governance and changing attitudes (e.g. health behavior and dowry) could keep many out of chronic poverty.

Further, it is found that the maternal nutritional status is a strong predictor of child nutritional status (and thus the educational status and productivity of the latter). Women's health and well-being are therefore important factors for stopping the transmission of poverty between generations. There are also health shocks that cause a slide into long-term poverty for many people. It is important to ensure the access of the extreme poor and the chronic poor to education, health care and microfinance and remove market barriers to help them get out of poverty.

The HKI study[46] observed that though poverty was the key basic cause of malnutrition, 33 percent of children less than five years old in even the wealthiest 20 percent of households were found to be stunted. The prevalence of stunting among children whose families belong to the wealthiest quintile in Bangladesh was almost the same as the overall prevalence in Myanmar (34 percent) and even higher than the overall prevalence in Thailand (16 percent). Taking note of possible methodological differences, the 2004 BDHS showed the highest prevalence of stunting (54.4 percent) among the poorest households and confirmed a substantial level of malnutrition (25 percent stunting) among the highest wealth group. The HKI study indicated that half of all rural households; including 41 percent of the wealthiest households did not have access to cultivable land and stunting prevalence is significantly higher in households with a smaller size of agricultural land. Thus, access to agricultural land and resources are important indicators of food and security at household and community levels.

[46] HKI, Household and community level determinants of malnutrition in Bangladesh, Nutritional Surveillance Project, Bulletin No.17, and May 2006.

Global/Regional Economic Linkages/ Memberships/ Agreements/ Partners

Bangladesh emerged as an independent country and tried to build up relationship with different countries in terms of its development in trade and commerce, communication, and in other important sectors. It has successfully negotiated the following three regional trade agreements:

The Agreement on South Asian Free Trade Area (SAFTA): The Framework Agreement on South Asian Free Trade Area (SAFTA) was signed on 6 January 2004 in Islamabad during the Twelfth SAARC Summit. The Agreement on SAFTA includes the countries in the South Asia Region namely, Bangladesh, Bhutan, Nepal, Maldives, India, Sri Lanka and Pakistan. It covers trade in goods. *SAFTA* came into force on 1 January 2006 upon completion of formalities, including ratification by all contracting states and issuance of a notification thereof by the SAARC Secretariat. This Agreement superseded the Agreement on SAARC Preferential Trading Arrangement (SAPTA).

Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC): BIMSTEC is a regional grouping of economic cooperation comprising of Bangladesh, India, Nepal, Bhutan, Sri Lanka, Myanmar and Thailand . A Framework Agreement on BIMSTEC-Free Trade Area (BIMSTEC-FTA) was concluded on 8 February 2004. Bangladesh signed this Agreement as a founding member on 25 June 2004. BIMSTEC-FTA on Trade in Goods was effective from 1 July 2006. The Agreement covers trade in goods, services and investment.

Asia Pacific Trade Agreement (APTA): The Bangkok Agreement, a preferential trading arrangement, was established in 1975. Member countries are Bangladesh, India, Sri Lanka, China, the Republic of Korea and Lao People's Democratic Republic. Lao People's Democratic Republic has not exchanged tariff concessions with other members. Third round of trade negotiations under this preferential trading bloc was completed in 2004. The Bangkok Agreement has recently been revised and renamed as the Asia Pacific Trade Agreement (APTA). The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) functions as the secretariat to this regional bloc. The APTA will come into force from 1 July 2006.

TPS-OIC: Bangladesh is the member country of OIC. Fifty seven (57) countries are the members of OIC. Frame Work Agreement on TPS/OIC (Trade Preferential System among the Members of OIC) was agreed during 6th session of the standing committee for COMCEC (standing Committee for Commercial and Economic Cooperation). Since the adoption of the Agreement, 23 members signed the Agreement. Bangladesh signed the Agreement in 1997 and ratified it in January 2004.

COMCEC is the supervisory body of the Framework Agreement on TPS/OIC. Special Meeting of the Trade Negotiating Committee (TNC) was held at Turkey on 23 November 2005. The meeting finalized the Protocol on the Common Preferential Tariff Scheme (PRETAS) of TPS-OIC. Three member countries have already signed the Protocol. Bangladesh actively considers signing the Protocol.

Committee for Commercial and Economic Cooperation (COMCEC)

- Economic and Commercial Cooperation of the Islamic Conference (COMCEC) was formed in the third summit of OIC held in Saudi Arabia. The COMCEC is responsible for the overall management of Economic Affairs in view of the functions entrusted to the Committee.
- The main theme of the 20th COMCEC is Trade Transport facilitation among the OIC member States.
- The 20th session of the COMCEC held on 23-26 November 2004 at Ankara, Turkey.
- The 21st session of the COMCEC was held on 22-25 November 2005 at Islamabad. The main theme of the 21st Session was "Role of Tourism for cooperation among the OIC Member Countries".
- The 22nd meeting of the follow up committee of the COMSEC was held on 23-25 May 2006 at Islamabad and the 22nd session of the standing committee of COMSEC was held on 13-16 November 2006 at the same place.

Islamic Common Market

- Bangladesh mooted first idea of Islamic Common Market. The President of Bangladesh presented the idea at the third Islamic summit held in Taif in 1981. Since then Bangladesh has been consistently raising the issue in all relevant OIC meetings.
- Bangladesh attached utmost important to the concept of establishment of Islamic Common market. This has been reflected in all the resolutions adopted on this issue by the OIC summits and ICFMS supporting the establishment of Islamic Common Market.
- The 19th session of COMCEC, SESTRCIC gave a detailed account of the various implications of establishing the Islamic Common Market that were summarized as follows:
- Liberalization of Trade in Goods and services amongst the member of the OIC;
- Free flow of factors of Production;
- Coordination of Economic policies;
- Promotion of Regional stability and solidarity.

Developing-8

Developing-8, popularly known as D-8 was established in 1997 with 8 (eight) Muslim majority countries namely- Bangladesh, Egypt, Iran, Indonesia, Malaysia, Nigeria, Pakistan and Turkey. The Grouping formed to accelerate economic growth and development among member countries through enhanced co-operation, including a **Foreign Trade Agreement (FTA–2)** to promote preferential trading arrangements between D-8 members, and an agreement to promote trade and cooperation with the EC.

Bangladesh-India trade and investment agreements: Two trade related agreements between Bangladesh and India were signed on February 9, 2009. One of these agreements is a renewal of the bilateral trade agreement, under which both countries are able to use their waterways, roadways and railways for transportation of goods between two places in one country through the territory of the other (Bilateral trade agreement signed in 2006). The other is a new treaty, a Bilateral Investment Promotion and Protection Agreement (BIPA), which includes a most favored nation (MFN) clause.

Bangladesh-Nepal Trade: Bilateral trade between Bangladesh and Nepal began in 1976 under a Trade and Payment Agreement, a Transit Agreement and a protocol to the Transit Agreement. The Agreements are automatically renewed for every three years. Although more than two decades have passed, bilateral trade between the two countries has not grown much, and the volume of trade has remained insignificant.

Major Products and Service Industries

The following major products and service industries play an important role in the economy.

Mining: The main commercial natural resource in Bangladesh is natural gas. Total gas reserves are estimated at 21,000 billion cubic feet. In 2000 Bangladesh utilized 370 billion cubic feet, mainly for domestic consumption. The major gas fields are situated in Greater Sylhet district, the Bay of Bengal, and Greater Chittagong district. The Bangladesh government has resisted attempts to export the gas, due to estimates showing that the reserves could run out within 30 to 40 years.

Manufacturing: In the 1990s two major changes affected the development of the industrial sector in Bangladesh. First, the establishment of civil government brought in political stabilization, which attracted direct international investments and encouraged the inflow of foreign aid. Secondly, the policy of economic liberalization, structural adjustment, and privatization helped to increase the competitiveness of the local industries and encouraged them to search for new overseas markets. In order to promote the attractiveness of the Bangladesh economy, the government established special export processing zones (EPZ), situated in Chittagong, Dhaka, Chalna (near Mongla port) and in Comilla, where investors are given access to well-developed infrastructure and enjoy tax breaks and other privileges. By the year 2000, the EPZs had attracted around US$415 million worth of foreign investments and more than 150 firms had moved there.

The manufacturing sector in Bangladesh comprises mainly small, privately-owned, often unmechanized enterprises or large, state-owned, often loss-making enterprises. The main industrial centers are Dhaka, Chittagong, Khulna, and Rajshahi, which have (by local standards) well-developed transport infrastructure, including access to seaports and railways and the sizeable and very cheap unskilled and skilled labor force. The industrial enterprises concentrate mainly on the production of jute goods, ready-made garments, foodstuff processing, and chemical production.

During the twentieth century, the Bangladeshi government promoted state-led industrialization combined with heavy state involvement in and state control of enterprise activities. More recently (from 1993) however, a policy of liberalization has been adopted. At the beginning of 2001, manufacturing contributed about 24.3 percent of the GDP, providing employment to 6.2 million people or 11 percent of the workforce. Between 1989 and 1999, the manufacturing sector in Bangladesh grew at an average annual rate of around 7.2 percent, albeit from a very low base. The cheap, reliable, and abundant labor available in Bangladesh is attractive to the world's leading transnational corporations, but regular industrial unrest by trade unions, poorly developed infrastructure, red tape, and a very small local market have slowed foreign investments.

Most of Bangladeshi jute goods are produced in large state-controlled enterprises for export to the United States, Europe, and other markets. According to the *EIU Country Profile,* Bangladesh accounts for 90 percent of world jute fiber exports. Although the sector declined in importance during the 1990’s renewed interest in organic fibers has resulted in resurgence of exports during the last five years.

During the last two decades Bangladesh has found a strong niche in ready-made garments (RMG) and became one of the world's leading exporters of these products. There are around 2,600 small and medium-size garment-manufacturing enterprises, providing employment for about 1.4 million workers, mainly women. Access to cheap and reliable local labor makes Bangladeshi RMG manufacturers very competitive in the international market. (In 2000 Bangladesh imported 160,000 MT of cotton from the United States).

According to the U.S. Department of State, total clothing exports reached about US$5 billion in 1999-2000, mainly to the United States, Europe, and Canada. Bangladesh especially benefited from the multi-fiber arrangement with the United States and the generalized system of preferences with the European Union, which set special quotas for the RMG imports from Bangladesh. The RMG sector has oven garment exports has increased by 13 percent year over year (to USD 4.1 billion). Although the downturn in the global economy and international trade liberalization in the garment sector has been expected to reduce this rate of growth, there has been no sign of such a reduction by the end of 2008/09. The main challenges facing the thriving garments subsector are emerging social compliance issues including labor unrest and infrastructure constraints.

There is a well-established food processing sector, which relies on domestic agricultural production and is oriented mainly to domestic markets. It includes sugar refining and milling, production of edible oils, processing and preserving of fruits and fruit juices as well as fish

processing, especially shrimp and prawns. As a tropical country, Bangladesh is well-endowed with exotic fruits and sea species.

The US State Department stated that the United States is the single largest foreign investor in Bangladesh with total fixed direct investment of about $750 million. The major investment projects were in the chemical, electronics, and electrical industries. The United States is followed by Malaysia, Japan, and the United Kingdom and the next tier of investors are Singapore, India, Hong Kong, China, and South Korea. The U.S. State Department estimates U.S. investment in Bangladesh will be about $2.5 billion in 2 to 4 years.

Service Industries in Bangladesh

Tourism: Tourism is a small sector of Bangladeshi economy. According to the International Labor Organization (ILO), together with the wholesale and retail sector it provides employment for almost 6 million people (1996), or around 10.8 percent of the labor force. Government statistics state that 215,539 tourists visited the country in 2007, contributing US$ 554 million to the national economy. Most visitors were from India, Australia, Germany, the United Kingdom, and the United States.

Financial Services: The financial service industry remains underdeveloped in spite of a decade of major reforms conducted under the Financial Sector Reforms Program. According to the BBS, this sector provides employment for 700,000 people and contributed 1.7 percent of GDP in 2007-08. The local banks are often accused of providing poor financial services and being beset by corruption, inefficient management and capital inadequacies. Bangladesh lags behind in the introduction of computerized banking payment systems, the development of electronic payment systems, and electronic banking. There are now 31 local and 9 foreign commercial banks. The Agrani Bank, Janata Bank, Rupali Bank and Sonali Bank are the main financial institutions still under state control. They account for almost half of all deposits.

In 1999 the government launched a Commercial Bank Reform Project intended to improve the functioning of the private commercial banks.

Retail: Small- and medium-sized businesses have been built around the retail sector and are often associated with small shops and restaurants. The retail sector provides employment for a large number of people, but it still remains relatively underdeveloped, due to a generally low level of income among the population. A number of small family-run traditional shops and cafes sell mainly locally-made products.

Major Shifts in Policy, Structure or Performance

Food and nutrition policies and programs: The GOB has established the necessary policy and institutional frameworks for accelerating nutrition improvement in Bangladesh[47]. In 1997, the Government approved the National Food and Nutrition Policy and the National Plan of Action for

[47] GED, NASPR II (FY 2009-11), October 2008

Nutrition. In 2006, it approved the National Food Policy and the National Plan of Action for Food. The National Food Policy reflects the commitment of the GOB to meet the MDG target of reducing the number of poor people to half by the year 2015 by addressing all aspects of food security. Efforts to address these aspects include: greater efficiency of domestic agriculture and enhanced availability of food; assistance to attain increased food access by the food insecure; sustained increase in the incomes of the poor and distressed to enhance their access to food; adequate supply of safe food, and appropriate programs to reduce malnutrition through increased effectiveness and proper utilization of consumed food.

It has reactivated the Bangladesh National Nutrition Council and instituted the Bangladesh National Nutrition Project (NNP) to cover broader aspects of the nutrition and utilization problems[48]. For development of human resource potential, the government has put nutrition considerations as one of the top-most priority agenda in the first and second poverty reduction strategy papers.

National Population policy: The government has adopted the Bangladesh Population Policy with the objectives of improving the status of family planning and maternal and child health and of improving the living standards.[49] The objectives of the population policy include the following: reduce the total fertility rate (TFR) and increase the use of family planning methods among eligible couples through raising awareness of family planning; attain a net reproduction rate equal to one by the year 2010 so as to stabilize population around 2060; improve maternal health with emphasis on reduction of maternal mortality; reduce infant and under-five mortality rates; reduce maternal and child malnutrition; promote and actively support programs for elimination of gender disparity in education, health, and nutrition.

Current strategies by the GOB to address food security and nutrition issues based on NASPR II: Several authors[50] and the GOB through the second Bangladeshi Poverty Reduction and Strategy Paper have made recommendations and provided directions pertinent to improving current food and nutrition security situation in Bangladesh through a range of integrated and multi-sectoral and cross cutting policy actions and programmatic interventions. Some of these strategies and recommendations are highlighted below.

Strategies to improve food security: A major challenge the Government of Bangladesh seeks to address is that of crop diversification. GOB is addressing this challenge through: (a) the vertical expansion of high value crops like vegetables, fruits, spices and potatoes through crop diversification, relay, mixed and intercropping[51]; (b) increased production of fruits that has increased significantly during the 2005 to 2007; (c) introduction of ecologically fit crops, like lemon, pineapple and orange in hilly areas as well as salinity resistant varieties; (d) crop improvement through biotechnology and the development of GMOs; (e) agribusiness

[48] Ministry of Food and Disaster Management, National Food Policy, 2006. p1-14

[49] 2004 BDHS

[50] HKI,HOSSAIN, NASPR II

[51] GED, NASPR II (FY09-11), October 2008, p 57-58

development through the group marketing approach and developing of markets directly connecting growers, promoting agribusiness opportunities in rural areas by involving rural poor women; and (f) improving the fishery and livestock sectors. Remarkable growth of poultry sector has resulted in engaging disadvantaged women in vaccination.

Other actions identified to ensure food security especially for the extremely poor include: maintaining an optimum level of food stocks, ensure access to food for the hard core poor and other disadvantaged groups, operating special programs in disaster prone regions, increasing awareness about safe and nutritious foods through the mass media and school education and encourage supply of nutritious foods including pulses and oil seeds through high quality seeds, technology, credit support to farmers, and improving food management and monitoring in the domestic and world markets to avert future crises.

Strategies to improve food consumption, health and nutrition of children: The GOB has identified the some priority programs to be implemented to improve dietary intake, health and nutrition in Bangladeshi children.

(1) Public health activities including eradication of polio, elimination of measles and neonatal tetanus and maintain immunization at 90 percent, (2) Improvement of nutrition and strengthening the school health program including sensitizing pupils and students on reproductive health issues, healthy practices and worm infestation, and supplying iron to and folic acids to school girls, (3) transforming the Integrated Management of Childhood Illnesses (IMCI) into a program to control childhood diseases like ARI and CDD, (4) investment in food fortification for sustainable reduction of micronutrient deficiencies, (5) strengthen vitamin A supplementation to reduce night blindness to 1 percent, (6) implement Behavioral Change Communication (BCC) to increase the consumption of iron rich foods amid promoters of iron absorption

Strategies to improve health, nutrition and family planning: Based on the NASPR II, the National Nutrition Program guided by the National Food and Nutrition Policy currently covering over 100 *upazilas* will be expanded to cover another 123 *upazilas* totaling 233 under the program. Total population coverage is currently 2.9 million and it is expected to cover 7.5 million after expansion. Ongoing micronutrient program will be reviewed for emphasis on access of poor and vulnerable women and children. Further integrating nutrition activities into other health sector activities like community-centered immunization, community based integrated management of childhood illness and hospital services for referral of severely malnourished children are recommended.

Others include exploring Urban Primary Health care and Smiling Franchise Project to cater for urban malnutrition Strengthening multi-sectoral links of the MOHFW' nutrition initiatives with programs by other ministries for food fortification, income and food security. Promoting home stead gardening for combating malnutrition, Addressing maternal and reproductive health through expansion of comprehensive emergency and obstetric care services to more *upazila* health complexes, training of community skill birth attendants, demand-side financing by providing maternal vouchers in 33 *upazilas*.

Other strategies include promoting the value of women's status, improving child health, Improve maternal and reproductive health, Control of Communicable Diseases, control of non communicable diseases, Nutrition, food safety and quality, population planning and Health education and program.

Strategies to empower women and improve food security, nutrition and general wellbeing: One important strategy of the second NASPR is to support women's advancement and health. This covers achieving improvement in women's health and nutrition, improvement in maternal and child health services, reproductive health care service, breastfeeding, safe drinking water and ageing women care, The GOB aims at improving women life expectancy from 66 in 2006 to 70 in 2011; reduce women's morbidity rate by 27 percent in 2011, and reduce women's mortality rate from 5.2 per 1000 in 2006 to 4.5 per 000 in 2011, and reduce maternal mortality ratio from 3.37 per 1000 live births to 2.4 per 1000 live birth in 2011.Other relevant efforts include creating a policy and legal framework for achieving equal rights for women advancement, encouraging women's participation in productive employment, allocation of funds to provide affordable utility, infrastructure and social services to save women's time to participate in the labor market, eliminating violence against women and strengthening institutions to ensure gender mainstreaming.

Policy Research and Review: The HKI study[52] attributed the declining prevalence of stunting to the effects of the Green Revolution, economic growth and liberalization of the commodity market. This supports the position that macro-economic food policies have the potential to reduce malnutrition by improving access to food through increased efficiency in food production which lowers prices and leads to better affordability of a balanced diet, generates employment and income, and improved food security. The decline could also be associated with the modest progress Bangladesh has made over the past two decades improving the status of women and girls, through improved access to education, basic health services and a range of efforts made to improve infant and young child feeding practices[53].

[52] HKI, Household and community level determinants of malnutrition in Bangladesh, Nutritional Surveillance Project, Bulletin No.17, and May 2006

[53] GED, NASPR II (FY09-11), October 2008

ANNEX 3: AGRICULTURE SECTOR

Production Base and Trends

Landholding: The distribution of landholdings by size is shown in Table 12. The majority of the land is held by a relatively small number of growers. Almost 60 percent of the land is held by 24 percent of the growers and the poorest 62 percent of growers hold no more than 25 percent of the total area.

Table 12: Farm Holding Sizes (2005)

Size of Farm in acres	(ha)	Number ('000s)	%	Area ('000 ha)	%	Average Farm Size (ha)
<0.5 acres	(<0.2 ha)	5,829	38.63	1,011.74	11.20	0.17
0.5-1.0 acres	(0.2-0.4ha)	3,553	23.55	1,398.38	15.49	0.39
1.0-1.5 acres	(0.4-0.6ha)	2,112	14.00	1,284.21	14.22	0.61
1.5-2.5 acres	(0.6-1.0ha)	1,858	12.31	1,696.36	18.79	0.91
2.5-7.5 acres	(1.0-3.0ha)	1,561	10.34	2,727.53	30.20	1.75
>7.5 acres	(>3.0ha)	177	1.17	912.15	10.10	5.15
Total		**15,090**		**9,030.3644**		

Source: BBS Statistical Handbook 2008

While 59.7 percent of holdings are farmed by owners, 40.3 percent are subject to tenancy or sharecropping arrangements. The high rainfall and extensive use of irrigation allows much of the land is cropped more than once (Table 13) so that the total cropped area exceeds the physical area by nearly 60 percent.

Table 13: Land Utilization (2006-07)

	Waste	Fallow	Single Cropped	Double Cropped	Triple Cropped	Net Cropped	Total Cropped
ha	256.68	612.96	2,844.94	3,976.52	978.54	7,800.00	13,733.60
%	2.96	7.07	32.81	45.87	11.29	89.97	158.41

Source: BBS Statistical Handbook 2008

Crop Production: The areas and production of the main crops grown in Bangladesh are shown in Table 14 and Table 15.

Table 14: Areas Sown to Main Crops in Area ('000 ha)

	Cereals			Pulses	Oilseeds	Cash Crops			
Year	Rice	Wheat	Maize			Jute	Sugar Cane	Tea	Tobacco
2002-03	10,775.30	706.88	29.15	448.58	399.60	436.84	165.99	50.61	30.77
2003-04	10,828.34	642.11	50.20	421.05	344.13	408.10	163.56	51.01	30.36
2004-05	10,372.87	558.70	66.80	383.40	348.18	390.69	157.09	53.44	29.96
2005-06	10,533.60	479.35	98.38	337.25	342.11	402.02	152.63	52.63	31.58
2006-07	10,583.81	400.00	151.01	311.34	340.49	418.62	150.20	na	30.77

Source: BBS Statistical Handbook 2008

The predominant crop is rice, which occupies more than 75 percent of the total area, followed by Jute and wheat, both of which comprise less than 5 percent of the cropped area. Pulses include lentils, chick peas, peas and gram, while oilseeds are mainly mustard and rapeseed, linseed and groundnut.

Table 15: Production of Main Crops in Metric Tons

	Cereals			Pulses	Oilseeds	Cash Crops			
Year	Rice	Wheat	Maize			Jute	Sugar Cane	Tea	Tobacco
2002-2003	2,5188.00	1,507.00	117.00	349.00	368.00	799.54	6,838.00	57.00	37.00
2003-2004	2,6190.00	1,253.00	241.00	333.00	270.00	794.30	6,484.00	57.00	39.00
2004-2005	2,5157.00	976.00	356.00	316.00	587.00	731.47	6,423.00	58.00	40.00
2005-2006	2,6530.00	735.00	522.00	279.00	597.00	838.09	5,511.00	58.00	43.00
2006-2007	2,7318.00	737.00	903.00	259.00	683.00	885.10	5,770.00	na	39.00

Source: BBS Statistical Handbook 2008

Yields of rice are typical for small scale growers in the region and average less than 3 MT per hectare while wheat yields less than 2 MT per hectare. However, maize yields are relatively high at more than 5 MT per hectare. Similarly while pulse yields are approximately 800 kilograms per hectare, oilseed yields have increased from less than 1 MT per hectare to more than 2 MT per hectare.

In addition to these main crops, Bangladesh also produces substantial volumes of fruit and vegetables. Table 16 shows the volumes of fruit produced.

Table 16: Production of Main Fruits

	2002-03	2003-04	2004-05	2005-06	2006-07
Banana	650	707	899	909	1005
Jackfruit	276	279	175	712	926
Mango	243	243	662	640	767
Pineapple	154	213	235	254	238
Guava	77	81	149	196	152
Papaya	48	51	99	105	96
Melon	85	89	31	41	42

	2002-03	2003-04	2004-05	2005-06	2006-07
Citrus	11	12	10	19	17
Other	37	49	146	87	76

Source: BBS Statistical Handbook 2008

Bananas and jackfruit are the main fruits produced (approximately 1 million MT each). While substantial volumes of mangoes are also produced. These three fruits constitute over 80 percent of the total production.

Vegetable production is concentrated in potatoes, which make up more than 70 percent of total production, as noted in Table 17, below. All other vegetable crops each constitute less than 5 percent.

Table 17: Production of Main Vegetables

	2002-03	2003-04	2004-05	2005-06	2006-07
Potato	3,386	3,907	4,856	4,161	5,167
Brinjal	370	368	340	334	333
Radish	199	211	223	229	236
Cabbage	118	129	142	176	183
Pumpkin	118	126	138	161	158
Arum	139	178	182	152	157
Cauliflower	84	101	109	138	139
Tomato	102	120	122	131	137
Gourd	95	99	101	110	117

Source: BBS Statistical Handbook 2008

Livestock: The livestock sector contributed 2.31 percent of GDP in 2007-08[54]. In this sector, large ruminants (cattle and water buffalo) exceed goats and sheep in number, but both are eclipsed by the substantial poultry sector, as shown in Table 18.

Table 18: Livestock Numbers (2005)

	Total Number ('000)	No. Per Holding	No. Per Capita
Buffalo and Cattle	25,135	0.89	0.18
Sheep and Goats	17,459	0.62	0.13
Ducks and Poultry	188,398	6.69	1.37

Source: BBS Statistical Handbook 2008

Fisheries: Bangladesh has a substantial fishing industry, which accounted for 3.74 percent of GDP in 2007-08 (i.e. more than 50 percent greater contribution than that of the livestock sector).

[54] Bangladesh Bureau of Statistics Statistical Handbook 2008

The industry is based on the inland waterways (more than 75 percent), although some marine fish are also caught. The main sectors are shown in Table 19, below.

Table 19: Main Fish Caught/Reared (2006-07)

	Inland Waterways	Marine	Total	%
Major Carp	535,492		535,492	22.28
Exotic Carp	292,961		292,961	12.19
Other Carp	9,821		9,821	0.41
Catfish	58,588		58,588	2.44
Snakehead	102,686		102,686	4.27
Live Fish	58,158		58,158	2.42
Other Inland Fish	643,160		643,160	26.76
Hilsa	82,445	196,744	279,189	11.62
Bombay Duck		36,009	36,009	1.50
Jew Fish		35,214	35,214	1.47
Other Marine Fish		130,651s	130,651	5.44
Shrimp/Prawn	169,262	51,869	221,131	9.20

Source: BBS Statistical Handbook 2008

Seasonality of Activities and Prices

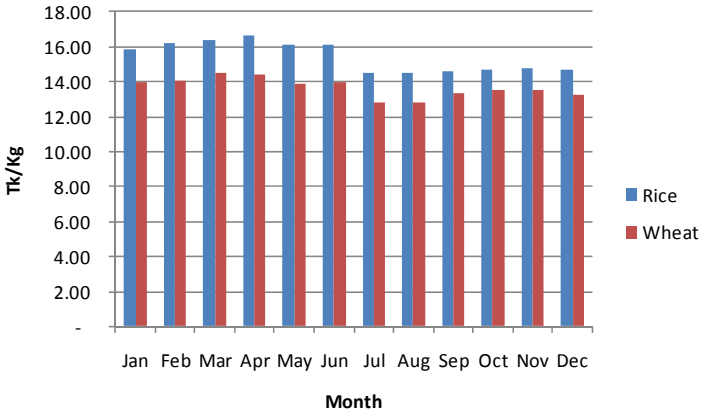
The climate of Bangladesh provides most areas with a dry and relatively cool winter season from November to February, a hot and humid summer from March to early June, and a warm monsoon season from June to October. With the exception of the drier Rajshahi region, most of the country receives two meters or more of rainfall, 80 percent of which falls in the monsoon season, although the seasonality and volume of rain can be highly variable for any given location.

The seasonality of agricultural production in Bangladesh is driven mainly by the need for seedbed moisture, which tends to concentrate production into three overlapping seasons: *rabi* from November through to early April, *kharif* from late March to early September and *haimantic* from August to November. Rice may be grown in any of these seasons, while other crops are specific to only one or two. Thus aus rice, maize, pulses and jute are the crops of *kharif* season, while aman rice is traditionally the main crop, grown in *haimantic* season and boro rice is a crop of increasing importance, grown under irrigation in *rabi* season together with rain fed wheat, maize and pulses. Other oilseed, pulse and vegetable crops are frequently cultivated as catch crops if the land is not sown to rice and water is available. Land is regularly cropped twice in one year and on occasions three times. Timing of the main activities for each of the main crops is shown in Figure 8.

Figure 8: Seasonality of Cropping Activities

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Season	Rabi										Rabi	
								Haimantic				
			Kharif									
Crop												
Aus Rice												
Boro Rice												
Aman Rice												
Wheat												
Maize												
Pulses												
Legend	Planting		Weeding		Harvesting							

Figure 9: Ten-Year Average Prices (Dhaka City Wholesale: 1998-2008) for Wheat and Rice

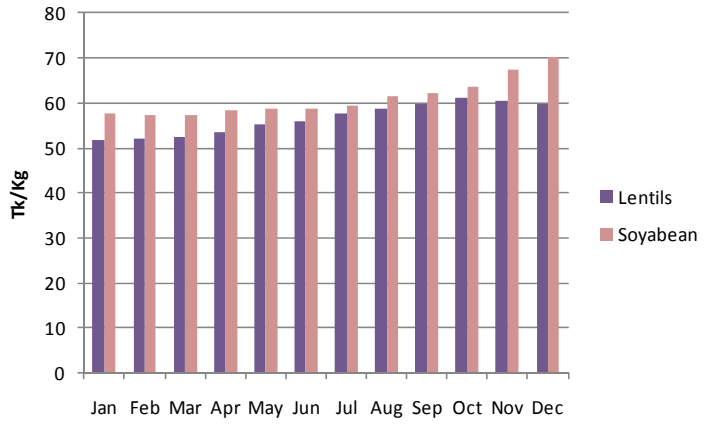


Source: Department of Agricultural Marketing

Figure 9 shows the seasonal variation in wheat and rice prices. The price cycle for both crops is driven largely by the availability of rice, although wheat prices are also affected by global markets and remain close to import parity throughout most of the year. Although individual seasons may show some variation, cereal prices are generally at their lowest when the *kharif* crops are harvested in July and August. Thereafter they rise slightly until the aman rice is harvested, when they again decline, climbing slowly until they reach their highest levels in March/April, after which time boro production comes onto the market.

Pulse and oilseed crop prices tend to be more variable; although they too are largely tied to import parity prices (Bangladesh produces less than half of either its pulse or oilseed requirements). Figure 10 shows monthly average price movements for 2005-2007.

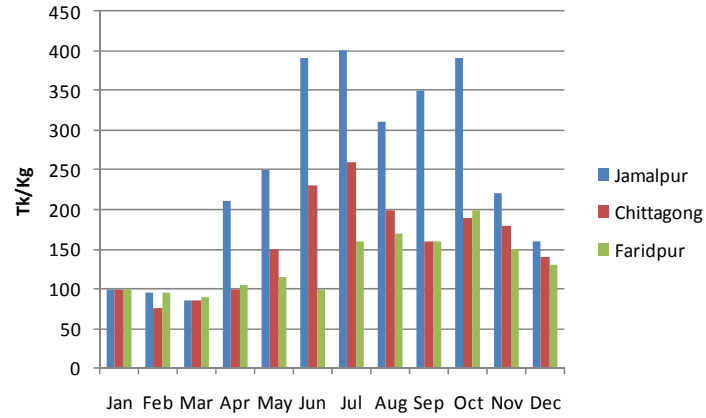
Figure 10: Three-Year Average Prices (Dhaka City, Wholesale) of Lentils and Soya Bean



Source: Department of Agricultural Marketing

Vegetable prices are the most variable and fluctuate considerably by crop and by location throughout the year according to local availability.

Figure 11: Three-Year Monthly Price Indices for Eggplant in Three Markets



Source: DAM

Overall, commodity prices tend to be driven by import parity price pressure, moderated by the availability of local production. This is clearly the case for wheat, oilseeds and pulses, but for vegetables (which are not substantially imported) and rice (for which total imports are a small proportion of local production), prices are determined more by the seasonal availability of local production alone.

Domestic Production and Processing of Inputs

Seed: The seed industry in Bangladesh comprises of both public and private sector initiatives. In the private sector, there are more than 100 companies involved, with over 5000 registered seed dealers operating across the country. The recent expansion of the private sector seed companies has resulted in the engagement of thousands of contract farmers into the formal seed production chain, leading to improved livelihoods amongst the rural community.

Government agencies involved in this sector include Bangladesh Agricultural Development Corporation (BADC), Bangladesh Agricultural Research Institute (BARI), Bangladesh Rice Research Institute (BRRI), Bangladesh Jute Research Institute (BJRI) and Department of Agriculture Extension (DAE). The government has recently given the seed sector a "priority" status.

Of the locally produced vegetable seeds, nearly 90.5 percent is accounted for by the private sector. (The government agency most actively involved in vegetable seed production is BADC). Recent initiatives from the private sector have emphasized the development of vegetable varieties suitable for growing during the hot and wet summer months between March and October, enabled by the production of off season vegetable seed varieties.

The past decade has also been marked by a transition from Open Pollinated to Hybrid varieties with potential for considerable increase in production. With regards to rice seed this year, an additional 1 million hectares of land have been brought under hybrid rice production. This required 11,400 MT of seed; of this, 1,800 MT were locally supplied while the rest was imported. The production, marketing and import of the entire volume of the hybrid rice seed was undertaken by the private sector. However, hybrid rice seed accounts for less than 5 percent of total rice seed requirement.

Recent trends indicate a shift towards the production of high yielding varieties of both vegetables and rice. Locally produced varieties including Red Amaranth, Stem Amaranth, Yard Long Bean, Bitter Gourd and Cabbage have found markets in Europe and some countries of South East Asia.

There is considerable demand for seed in Bangladesh. Table 20 shows the main sources of seed. It is clear that the demand is not yet met from domestic sources and the gap between local production and demand for seed amounts to nearly 87 percent. Imported seeds thus play a major role in the seed sector of Bangladesh. Most of this is sourced from India and Thailand, or through the use of home-saved seed.

Table 20: Seed Market and Sources of Supply (MT)

	Demand	Public Sector	Private sector	Total Supply
Rice	313,955	74,314	3,350	77,664
Wheat	72,000	19,051		19,051
Maize	3,300	233	3,000	3,233
Jute	3,570	456	1,350	1,806
Pulses	21,350	245		245
Oilseed	13,500	398		398
Vegetable seed	2,700	63	728	791
Spice Seed	101,875	42	65	107
Potato	400,000	9,231	5,000	14,231
Total	**932,250**	**104,033**	**13,493**	**13,493**

Source: Seed Wing, Ministry of Agriculture 2006.

Fertilizer: Bangladesh has six state-owned, ammonia/urea factories with an aggregate annual capacity of 2.3 million tons urea serving the domestic market, plus one export-oriented ammonia/urea factory. In addition, the country has one state-owned TSP/SSP complex, which relies entirely on imported rock phosphate and sulphur. If the six plants were to produce at full capacity, the entire demand for urea could be met domestically. However, urea output has always been restricted due to uncertainty of gas supply. There is currently no potash or mixed fertilizer production facilities in Bangladesh. Domestic production over the five years to 2007-08 is shown in Table 21.

Table 21: Domestic Fertilizer Production Volumes

'000 MT	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
Urea (1)	1,986	1,878	1,730	1,817	1,477
TSP (2)	66	54	56	50	47
DAP (2)	6	8	5	5	3

Source:1. Petro Bangla 2. Bangladesh Chemical Industries Corporation

Exports

Bangladesh does not have a strong agricultural export sector. Most of the agricultural production is consumed locally. The main export commodities are jute and jute products, prawns and shrimps, hides, leather and leather products, tea and spices. The main products are listed by volume and value in Table 22.

Table 22: Agriculture Exports

	2003-04		2004-05		2005-06		2006-07	
	Volume '000 MT	Value US$ million	Volume '000 MT	Value US$ million	Volume '000 MT	Value US$ million	Volume '000 MT	Value US$ million
Raw Jute	326	85.31	351	100.14	497	143.91	667	172.90
Jute Yarn		100.35		145.19		170.26		198.14
Jute Fabric	365	266.80	524	315.49	277	216.41	654	189.65
Hides and Skins		212.62		239.46		269.83		266.97
Leather and Leather Goods	19	214.53	30	84.18	35	109.31	35	133.20
Prawns and Shrimps	36	368.58	34	343.25	44	472.31	64	560.42
Tea	9	12.40	13	17.18	9	12.29	5	6.96
Spices		0.62		3.21		2.31		3.23

Source: BBS Statistical Handbook 2008

Taken together, jute and jute products are the largest and most valuable exports, although prawns and shrimps are the most valuable single raw material. It is noteworthy that there are no exports of any staple products (oilseeds, pulses or cereals).

Table 23: Domestic Wheat Consumption (MT)

		2003	2004	2005	2006	2007	Average
1	Imports - Wheat and Meslin	1,307,205	889,307	1,565,362	2,539,045	2,164,233	1,693,031
2	Imports - Wheat and Meslin Flour	11,057	89	1,439	54	347	2,597
3	Subtotal Imports	1,318,262	889,397	1,566,802	2,539,100	2,164,580	1,695,628
4	Total Wheat Imports	1,318,321	889,401	1,566,834	2,539,147	2,164,684	1,695,677
5	Imports - Wheat and Meslin	n/a	n/a	n/a	n/a	n/a	n/a
6	Imports - Wheat and Meslin Flour	n/a	n/a	n/a	n/a	n/a	n/a
7	Subtotal Exports	0	0	0	0	0	0
8	Total Wheat Exports	0	0	0	0	0	0
9	Net Trade	1,318,321	889,401	1,566,834	2,539,147	2,164,684	1,695,677
10	Food Aid	285,250	156,499	94,868	99,934	111,715	149,653
11	Production	1,510,000	1,253,000	976,000	820,000	737,000	1,059,200

1) Comtrade; 2) Comtrade; 3) Sum of lines 1 and 2; 4) Comtrade; 5) Comtrade; 6) Comtrade; 7) Sum of lines 5 and 6; 8) Comtrade; 9) Imports minus exports; 10) IGC; 11) USDA-FAS; 2007, Bangladesh Bureau of Statistics; 12) Sum of lines 9,10,11

ANNEX 4: NATIONAL HOUSEHOLD CONSUMPTION & EXPENDITURE

Sources of Food/Local Diets/Main Staples

Food consumption in Bangladesh is closely linked to food production and access, including price and purchasing power or employment opportunities of households[55]. About 40 percent of the Bangladeshi population live below the food consumption based poverty line, lacking sufficient resources to afford diet of 2122 kcal person per day[56]. Most of the food items are produced in Bangladesh with a few imports from India, Thailand, USA and other countries. Thus, food utilization, rather than availability and accessibility, is the major food security problem in the country.

Major items in the Bangladeshi food basket are rice, wheat, pulses, potato, vegetables and fish. Rice is the main staple food contributing approximately 70-80 percent of energy intake, 65 percent of total protein intake and 69 percent of total iron intake[57]. The normal Bangladeshi diet is seriously imbalanced: with inadequate consumption of fat, oil, and protein. A small percentage of the grain intake comes from wheat, which is consumed more frequently in the northern wheat producing areas of the country and in urban areas in the form of chapatti and processed foods. Consumption analysis shows that in general wheat is considered to be an inferior food by most of the population in Bangladesh[58].

BBS data for 2005-06 indicates that fish, milk, meat, eggs, pulses, oil and fats and other highly nutritious foods account for less than 10 percent of daily energy intake. The share of animal products is less than 4 percent therefore indicating that the diet in Bangladesh is mainly based on vegetable products which provide respectively, 97 percent, 87 percent and 82 percent of the total energy, protein and fat supplies.

This dietary imbalance reflects insufficient domestic production of non-cereal foods such as pulses, oilseed, fruits, meat, milk and eggs. Women and children are especially vulnerable due to their greater nutritional requirements; intra-household food distribution is often unequal where women and the girl children have less food than men and boys.

[55] FAO Country Nutrition Profiles, Bangladesh, March 25, 1999.FAO, Rome.

[56] Hossain et al, 2005.

[57] Ahmed, 1993

[58] Ahmed 1993

Sources of Income

The major sources of income among the Bangladesh population include agriculture, business and commerce, professional wages and salary, housing services, gift and remittances and others. The proportion of income of households by major income sources are shown in the following table.

Table 24: Percent Share of Income of Households by Source of Income

Residence/ survey year	Total	Agriculture	Business/ commerce	Professional wages/salary	Housing services	Gift and remittance	Others
National							
2005	100	20.0	23.1	31.3	6.7	9.8	8.7
2000	100	18.0	25.9	29.4	7.8	10.9	8.0
1995-96	100	26.3	20.3	30.3	6.8	9.1	7.2
1991-92	100	33.4	14.8	24.3	9.4	10.3	7.8
Rural							
2005	100	28.7	17.3	28.1	5.1	12.0	8.7
2000	100	25.5	22.4	27.7	5.0	11.0	8.4
1995-96	100	35.4	14.7	27.7	6.5	9.6	6.1
1991-92	100	40.1	12.4	21.1	9.1	10.6	6.7
Urban							
2005	100	5.8	33.1	36.9	9.5	5.9	8.7
2000	100	3.7	32.4	32.6	13.1	10.6	7.5
1995-96	100	4.8	33.4	36.6	7.4	7.9	9.9
1991-92	100	5.9	24.7	37.9	11.0	9.1	11.4

Source: BBS, Household Income and Expenditure Survey 2005, p. 30.

At the national level, the share of household income from agriculture increased to 20 percent in 2005 from 18 percent in 2000. In the rural areas, the share of agriculture as a source of income was 28.7 percent, the same was 5.8 percent in urban areas. In 2005, the share of business and commerce was 23.1 percent; 17.3 percent in the rural areas and 33.1 percent in urban areas.

The highest share of household income came from professional wages and salary at 31.3 percent, 28.1 percent in rural areas and 36.9 percent in urban areas in 2005. The housing services recorded a share of 6.7 percent of national income, 5.1 percent in rural areas and 9.5 percent in urban areas. Household income from gifts and remittances accounted for 9.8 percent; 12.0 percent in rural areas and 5.9 percent in urban areas.

Table 25: Income Distribution, 2000 and 2005
(Percentage of income)

Income accruing to	2005			2000		
	Total	Rural	Urban	Total	Rural	Urban
Lower 5%	0.77	0.88	0.67	0.93	1.07	0.79
Bottom 40%	14.36	15.84	13.3	15.96	18.31	13.61
Top 10%	37.64	33.92	41.08	38.01	32.81	41.32
Top 5%	26.93	23.03	30.37	28.34	23.52	31.32
Income Gini Coefficient	0.467	0.428	0.497	0.451	0.393	0.497

Source: BBS, Household Income and Expenditure Survey 2005

The lower 5 percent of the population receives 0.77 percent of the total income, which is down from its previous level of 0.93 percent in 2000. The bottom 40 percent of the population, which coincides with the poverty line, receives only 14.36 percent of the total income. On the other hand, the top 5 percent of the population receives more than a quarter of the total income. However, the income shares of both the lower 40 percent and the upper 10 percent of the population have declined, while those of the population belonging to 5th to 9th deciles have increased, the highest income gains accruing to the 9th decile. The worsening income distribution is a matter of concern because it may generate social discontent and impede development. More importantly, it exerts a negative impact on the poverty reducing effects of growth.

Expenditure Pattern/Budgets

The expenditure pattern among the Bangladeshi population is mainly noticed in different household surveys. The share of food was 53.81 percent of the total consumption expenditure at the national level in 2005, as compared to 54.60 percent in 2000. This share was 58.54 percent for rural areas and 45.17 percent for urban. The share of housing and house rent increased significantly from 9 percent in 2000 to 12.25 percent in 2005. The share of cloth and footwear decreased to 5.51 percent in 2005 from 6.28 percent in 2000. The share of fuel and lighting decreased to 5.98 percent in 2005 from 6.81 percent in 2000.

Table 26: Percent Distribution of Different Components of Expenditure

Items	2005 (%)			2000 (%)		
	National	Rural	Urban	National	Rural	Urban
Food and beverage	53.81	58.54	45.17	54.60	59.29	44.55
Cloth and footwear	5.51	5.54	5.48	6.28	6.53	5.73
Housing and house rent	12.25	9.77	16.78	9.00	5.70	16.05
Fuel and lighting	5.98	6.10	5.76	6.81	7.19	6.00
Household effect	2.05	1.80	2.49	1.41	1.22	1.81
Miscellaneous	20.37	18.22	24.29	20.32	18.23	24.80

Source: BBS, Household Income and Expenditure Survey 2005, p. 38

Food Expenditure: Food expenditure patterns incurred by households in different years are presented in the following table. The total monthly food expenditure was increased to Tk 3209 in 2005 from Tk. 2477 in 2000. The bulk of the food expenditure is incurred on cereals, 39 percent.

Table 27: Percentage share of food expenditure by residence and major food items

Food Items	National		Rural		Urban	
	2005	2000	2005	2000	2005	2000
Total food expenditure	3209	2477	3023	2300	3756	3175
Cereals	39.00	38.02	42.25	41.23	31.30	28.87
Pulses	2.65	2.92	2.39	2.78	3.28	3.29
Fish	12.24	12.48	11.46	12.06	14.11	13.66
Meat and eggs	8.51	8.02	7.64	6.97	10.56	11.01
Vegetables	8.38	9.21	8.34	9.44	8.48	8.57
Milk/milk products	3.74	3.95	3.46	3.62	4.41	4.89

Food Items	National		Rural		Urban	
	2005	2000	2005	2000	2005	2000
Edible oil	4.25	3.71	4.07	3.62	4.67	3.97
Condiments/spices	7.52	7.13	7.18	7.22	8.31	6.87
Fruits	3.23	2.97	2.97	2.57	3.83	4.10
Sugar	1.56	1.34	1.54	1.29	1.62	1.49
Beverage	0.68	1.97	0.45	1.57	1.21	3.10
Miscellaneous	8.25	8.29	8.25	7.62	8.23	10.18

Source: BBS, Household Income and Expenditure Survey 2005, p.36

Fish was the second largest component of the food basket at 12 percent. Other consumption expenditures were on meat and eggs, milk and milk products, edible oil, sugar, fruits and beverages.

Aggregate Food Consumption Data

In 2005, the national average quantity of selected food items consumed was estimated at 947.8 grams per capita per day. The average daily food intake per capita in rural areas was 946.3 grams in 2005 and 898.7 grams 2000. In urban areas it was 952.1 grams in 2005 and 870.7 grams in 2000. The quantity of food intake per capita per day increased by 6.12 percent.

The per capita daily consumption of cereals was 469.2 grams in 2005. Intake of both rice and wheat decreased by 18.9 grams in 2005 over 2000. National level consumption of other food components like potato, vegetables, milk and milk products, meat, poultry, egg, fish, and fruits increased in 2005 over the year 2000.

Potato consumption increased because of its growing popularity. The per capita daily consumption of leafy vegetables significantly increased from to 43.4 grams in 2005 from 20.5 grams in 2000, a change of 111 percent. Also consumption of milk and milk products increased from 29.7 grams in 2000 to 32.4 grams in 2005, resulting in an increase of 9 percent. The consumption of edible oil increased significantly from 12.8 grams in 2000 to 16.5 grams in 2005, resulting in an increase of 28.9 percent. Intake of soybean oil increased significantly, while consumption of mustard oil decreased.

Fish consumption per capita per day increased to 42.1 grams in 2005 from 38.5 grams in 2000, an increase of 9.35 percent. On the other hand consumption of pulses declined to 14.2 grams/cap/day in 2005 from 15.6 grams/cap/day, which reflects decreased consumption due to the very high price of pulses in 2005.

Table 28: Average per Capita per Day Food Intake (grams) by Food Items and Residence

Selected food items	2005			2000		
	National	Rural	Urban	National	Rural	Urban
TOTAL	**947.7**	**946.3**	**952.1**	**893.1**	**898.7**	**870.7**
CEREALS	**469.2**	**485.6**	**419.3**	**486.7**	**502.8**	**422.4**
Rice	439.6	459.7	378.5	458.5	478.8	377.7
Wheat	12.1	8.0	24.5	17.2	14.0	30.1
Others	17.5	17.9	16.3	11.0	10.0	14.6

Selected food items	2005			2000		
	National	Rural	Urban	National	Rural	Urban
POTATO	**63.3**	**61.9**	**67.5**	**55.0**	**54.7**	**58.4**
VEGETABLES	**157.0**	**156.5**	**156.7**	**140.5**	**141.1**	**137.9**
Leafy vegetable	43.4	43.8	42.2	20.5	19.5	24.4
Others	113.6	112.7	116.5	120.0	121.6	113.5
PULSES	**14.2**	**12.7**	**18.6**	**15.6**	**15.0**	**19.0**
Lentil [Masoor]	8.3	6.2	14.7	6.6	5.1	12.8
Khesari	2.0	2.4	0.9	2.0	2.4	1.4
Peas/others	3.9	4.1	3.0	7.0	7.5	4.8
MILK/MILK RODUCTS	**32.4**	**31.0**	**36.6**	**29.7**	**29.0**	**32.6**
EDIBLE OILS	**16.5**	**14.3**	**22.9**	**12.8**	**11.3**	**19.1**
Mustard	3.8	4.6	1.5	4.1	4.7	1.7
Soybean	12.6	9.6	21.3	8.6	6.5	17.3
Others	0.1	0.1	0.1	0.1	0.1	0.1
MEAT, POULTRY, EGG	**20.8**	**17.6**	**30.7**	**18.5**	**15.4**	**31.0**
Mutton	0.6	0.6	0.7	0.5	0.4	0.7
Beef	7.8	6.4	12.0	8.3	6.9	14.0
Chicken/duck	6.8	5.8	10.1	4.1	3.2	7.7
Eggs	5.2	4.4	7.4	5.2	4.6	7.9
Others	0.4	0.4	0.5	0.4	0.3	0.7
FISH	**42.1**	**39.7**	**49.6**	**38.5**	**37.8**	**40.9**
CONDIMENTS/SPICES	**53.4**	**50.2**	**63.1**	**50.0**	**48.5**	**56.1**
Onion	18.4	16.1	25.3	15.4	14.1	20.7
Chilies	9.7	9.7	9.9	9.1	9.0	9.5
Others	25.3	24.4	27.9	25.5	25.4	25.9
FRUITS	**32.5**	**32.4**	**32.9**	**28.4**	**26.5**	**35.6**
SUGAR/GUR	**8.1**	**7.5**	**9.7**	**6.9**	**6.4**	**8.8**
Sugar	6.1	5.1	9.0	4.3	3.4	7.8
Gur	2.0	2.4	0.7	2.6	3.0	1.0
MISCELLANEOUS	**38.0**	**36.9**	**42.5**	**10.0**	**10.2**	**8.9**

Source: BBS, Household Income and Expenditure Survey 2005, p.48

The food consumption pattern in rural areas is not identical to that of urban areas. The rural consumption of rice was 21.45 percent higher than that of urban areas. All other food items like potato, vegetables, pulses, milk and milk products, edible oils, meat, poultry, egg, fish, condiments and spices, fruits, and sugar were consumed more in urban areas. Overall, post harvest food intakes were 23 percent higher than pre harvest intakes.

In rural areas, the consumption of rice reached a level much higher than the minimum requirement – with marginal deficit for tubers, vegetables and fish, and substantial deficits for pulses, oils and livestock products that are major sources of protein and micronutrients. For the lower 40 percent of the population, only the consumption of rice has continuously increased

over the years. This implies that the intake of unbalanced and inadequate diet has worsened over the years.[59]

The expenditure data at a national level masks the expenditure patterns of the poor and ultra poor that constitute 40 percent and 19 percent respectively of the population of Bangladesh. A consensus of available data indicates that the poor spend between 65 percent and 75 percent of their available income on food, while the ultra-poor spend 75 percent to 103 percent of their income on food[60] (the deficit is supported by borrowing). The food purchased by the poor and ultra poor has very limited diversity (less than five different foodstuffs) is of low vitamin content and consists predominantly of rice and a small amount of pulses.

[59] Hossain M, Naher F and Shahabuddin Q, Food security and nutrition in Bangladesh, progress and determinants. J. of Agriculture and Development Economics; Vol. 2; No. 2, p112.

[60] BRAC CFPR-TUP Baseline Study 2003

ANNEX 5: GEOGRAPHY, DEMOGRAPHY & INFRASTRUCTURE

Land Characterization, Position, User

Land Characterization: Most of Bangladesh consists of low, flat and alluvial soil. The most significant feature of the landscape is the extensive network of large and small rivers that are of primary importance to the socioeconomic life of the nation. Chief among these are the Ganges-Padma, Brahmaputra-Jamuna, and Megna rivers. The Padma and Jamuna rivers essentially divide the country into the current six administrative regions. In addition to the vast delta, Bangladesh has two hilly areas, in the northwest bordering Assam (Sylhet division) and Chittagong Hill Tracts near Myanmar border (Chittagong division).

The land suitability assessments made for 48 crops provide an indication on the different degree of potentiality of land for sustainable production of major crops. Accordingly the land is classified according to the different characteristics shown in the following table.

Table 29: Classifications of agriculture land in Bangladesh

Land Class	Area (million ha)	Characteristics
Class I – Very good lands	0.16	No limitations for production of crops throughout the year
Class II – Good lands	3.48	Moderate limitations of crop productions during one season of the year, either due to deep flooding in monsoon or drought in the dry season.
Class III – Moderate lands	3.85	Either severe limitations of crop production during one season of the year or moderate limitation throughout the year, deep or rapid flooding, drought in the dry season, erosion or salinity hazards.
Class IV – Poor or marginal lands	1.62	Several kinds of limitations, deep flooding with late drainage, heavy soil consistency, severe drought, high salinity, toxicity, shallow soil depth, steep slopes.
Class V – Very poor and non-agricultural lands	1.74	Very steep slopes of the hill and unstable char lands of large rivers.

Source: AEZ/GIS Database System of Bangladesh Agricultural Research Council (BARC)

Bangladesh is divided into 34 physiographic units and subunits which have been further grouped into 30 agro-ecological zones/regions. Soil conditions determine important properties of plant growth as moisture supply and root aeration as well as nutrient supply. The agro-ecological zones/region meet seasonal flooding, thus the inundation characteristics against land type is important. The depth of flooding and inundation characteristics is defined as follows:

Table 30: Land Types in Bangladesh

Land Type	Inundation/flooding characteristics
Highland (H)	Land above normal inundation level
Medium Highland (MH)	Land normally inundated up to about 90 cm depth.
For some purposes, MH is divided into:	
MH-1	Inundated up to 30 cm depth.
MH-2	Inundated from 30 – 90 cm depth.
Medium Lowland (ML)	Land normally inundated from 90-180 cm.
Lowland (L)	Land normally inundated from180-300 cm.
Very Lowland (VL)	Land normally inundated deeper than 300 cm.

Classification of inundation land types has a major role to play in determining agricultural cropping and land productivity. The land type, area (in Ha) and proportion in the country are shown in the following table.

Table 31: Area of land types

Land Type	Area (Ha)	Proportion (%)
Highland	4,199,952	29
Medium Highland	5,039,724	35
Medium Lowland	1,771,102	12
Lowland	11,101,560	8
Very Lowland	193,243	1
Total soil area	12,305,581	85
River, Urban, Homesteads, etc.	2,178,045	15
Total Country area	14,483,626	100

Source: AEZ Report No.2, FAO, Rome.

A complete spectrum of agro-ecosystems, from very lowlands to highlands exists – giving floodplain areas opportunities for diversified agriculture over various classes of lands. Thirty-five percent of the net cropped area (NCA) is flood free and this land area is suitable for all types of crops. Another 35 percent of the NCA is shallowly flooded with soil and hydrological situation more favorable than that of flood free land. This land area takes larger share in Transplant Aman, wheat, jute, Transplant Aus, pulses and other minor crops. About 29 percent of NCA of Bangladesh is deeply flooded where deep water rice is the predominant *kharif* crop.

Most of the agricultural lands are being used by the farmers for production of agricultural products, fish, poultry and cattle. About 15-20 percent of land is being used for housing, rivers, roads and communication, etc. The agricultural lands are being gradually reducing due to the developmental construction, spreading of administrative areas and industries, and accommodation of the increased population.

The climate of Bangladesh is dominated by seasonal monsoons. The country experiences a hot summer season with high humidity from March to June; a somewhat cooler but still hot and humid monsoon season from July through early October; and a cool, dry winter from November to the end of February. Annual flooding during the monsoon brings essential soil nutrients for this agriculture based countries, but at times, also causes devastation and suffering as in 1988

and 1998. In addition to flooding, Bangladesh is plagued by other natural calamities such as cyclones, tidal surges, drought and tornadoes.

Population

Bangladesh is a densely populated country of the world. The country has an area of 147,570 square kilometer and a population of about 140.6 million, with a corresponding population density of about 979 per square kilometer. Bangladesh is now Asia's fifth and the world's eighth most populous country. Among the population 68.6 million are male and 70.0 million are female. The population growth rate is 1.39. The population of Bangladesh is almost evenly distributed throughout its 64 districts except for the three Hill Tracts districts which are rather sparsely inhabited.

Table 32: Demographic profile

Indicators	Number / Rates / Ratios
Country area	1,47,570 sq. km.
Total Population	140.6 Million (BBS 2007)
Female male population ratio	105 : 100 (BBS 2007)
Population Density (Per sq. km.)	979 Persons (BBS 2007)
Number of Eligible Couples (Excluding City Corporation)	23.0 million (MIS March 2009)
Population growth rate	1.39 (BBS 2007)
Crude birth Rate (CBR) per 1000 live births	20.6 (BBS 2007)
Crude death Rate (CDR) per 1000 live births	5.6 (BBS 2007)
Total Fertility Rate (TFR) per 1000 live births	2.7 (BDHS 2007)
Contraceptive Prevalence Rate (CPR)	55.8% (BDHS 2007)
Life Expectancy Rate (LER) at birth:	
Male	64.4 years (BBS 2007)
Female	66.0 years (BBS 2007)
Maternal mortality rate (MMR) per 1000 live births	3.0 (BMMS 2007)
Neonatal Mortality Rate (<1 Month)	37% (BDHS 2007)
Infant mortality rate (IMR) (0~1 yr) per 1000 live births	52 (BDHS 2007)
Child mortality rate (<5 yrs.) per 1000 live births	65 (BDHS 2007)
EPI Coverage of Children	81.9% (BDHS 2007)
Delivery by medically trained personal	18% (BDHS 2007)

Regionally, the eastern districts have a slightly higher density than the western ones. On average, a district has a population of about 1.8 million, a thana has 230,000, a union 25,000 and a village 2,000. There are 481 upazilas, 499 thanas, 4,498 unions and 59,990 villages. The number of households is about 20 million. On average, a household consists of 5.5 persons.

There are 6 metropolitan cities and 308 municipalities in the country. The level of urbanization is low at 20 percent. The capital city of Dhaka has an estimated population of 8.58 million. The annual growth rate of the population has come down to 1.7 percent with the acceptance of family planning practices rising to 48.7 percent. The crude birth rate per 1000 is 20.6 and the death rate is 5.6. Life expectancy at birth is 64.4 years for male and 66 years for female. The rate of child mortality per 1000 has come down to 65 and that of maternal mortality to 3.0. The sex ratio is 100 males for every 105 females. The gender ratio and age structure of the Bangladeshi population are shown below:

Gender ratio

- At birth: 1.04 male(s)/female
- Under 15 years: 1.01 male(s)/female
- 15–64 years: 0.9 male(s)/female
- 65 years and over: 0.94 male(s)/female
- Total population: 0.93 men to 1 women (2009 est.)

Age structure

- 0–14 years: 32.9 percent (male 24,957,997/female 23,533,894)
- 15–64 years: 63.6 percent (male 47,862,774/female 45,917,674)
- 65 years and over: 3.5 percent (male 2,731,578/female 2,361,435) (2006 est.)

Religion

Muslims constitute almost 90 percent of the population of Bangladesh, Hindus constitute about 9 percent, and others constitute about 1 percent. The national language of Bangladesh is Bangla, which is spoken and understood by all

Malnutrition Rates

Bangladesh has among the highest malnutrition rates in the world and is making inadequate progress towards achieving MDG 1. Existing high rates of maternal and child malnutrition are threatened by the effects of the global financial and food crisis. Lack of access to and consumption of adequate quality and quantity of food and poor maternal, infant, and young child feeding practices are the primary causes of malnutrition for the rural poor.

High levels of both stunting and wasting indicate that children in Bangladesh suffer from both longer-term, chronic malnutrition and acute food deficits throughout the year. More recent data suggests that the prevalence of malnutrition has increased over the past year as a result of the drastic rise in food prices. A 2008 DFID/WFP study indicates that 26 percent of children under five are wasted – nearly double the emergency threshold for acute malnutrition.

Table 33: Key Nutrition Indicators

Key indicators, BDHS 2007	
Children under five underweight:	41%
Children under five stunted:	43.2%
Children under five wasted:	17.4%
Maternal BMI <18.5:	29.7%

Key indicators, BDHS 2007	
Low birth weight	22%[61]
Initiation of breastfeeding	42.6%
Exclusive breastfeeding under six months	42.9%
Median duration of exclusive breastfeeding	1.8 months
IYCF Practices (6-23 months)	41.5%
Vitamin A supplementation coverage	88.3%
Maternal anemia, pregnant women	45.5%[62]
Child anemia	49.2%[63]

Estimates in the mid 1990s have attributed two-thirds of childhood deaths in Bangladesh to malnutrition[64]. However, an analysis of trends over a period of 15 years (1990-2005) show a remarkable decline in the prevalence of under nutrition, though, the national trends conceal differences across the divisions and among various socioeconomic groups[65]. Bangladesh is judged to be on course to achieving the MDG of reducing underweight by 50 percent relative to the 1990 levels in 2015. There are however, indications that even if Bangladesh achieves this goal, rates will still remain above the threshold for "very high prevalence" based on WHO standards. Bangladesh also has one of the highest prevalence of low birth weight children (less than 2500g) in the world[66].

Stunting: Based on the WHO Child Growth Standards, the preliminary results of the 2007 BDHS[67] reported that overall, 43 percent of the Bangladeshi children are stunted and 16 percent severely stunted. An analysis of the 2007 BDHS result by age group shows that stunting is as high as 19 percent in children younger than six months, 41 percent among children 12-23 months and highest (54 percent) among children 36-47 months. Severe stunting is also highest for children age 36-47 months (23 percent) and lowest for those less than six months old (6 percent). Stunting rates are lower in the urban (36 percent) than in the rural areas (45 percent), and by divisions are highest in Barisal (47 percent), followed by Chittagong (46 percent) and Sylhet (45 percent).The prevalence of stunting is lowest in Khulna (35 percent), followed by Rajshahi (42 percent). Stunting reflects failure to receive adequate nutrition over a long period of time and may also be caused by recurrent illness.

[61] MICS data, re-analyzed by UNICEF 2007

[62] HKI, 2003

[63] Ibid

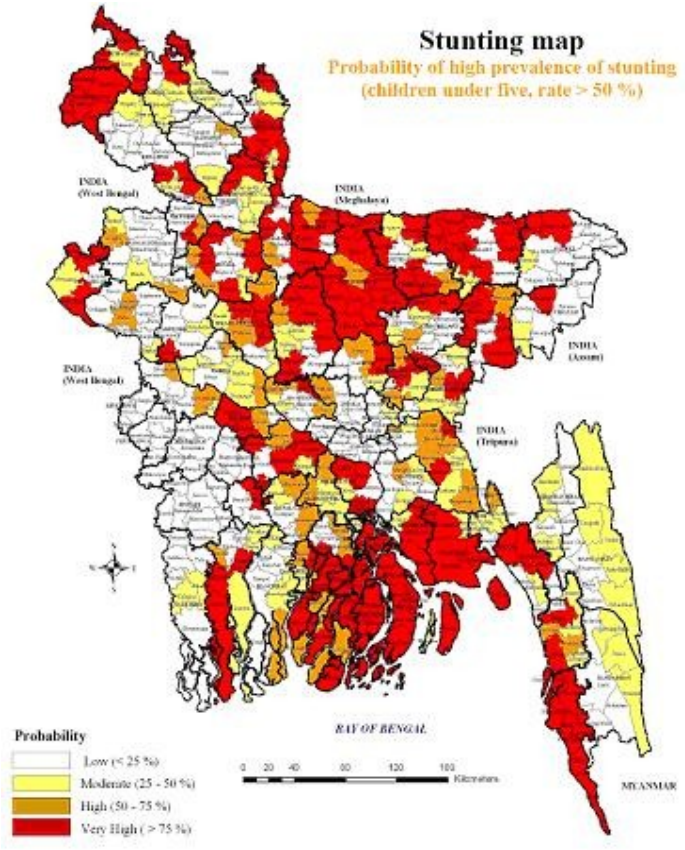
[64] Pelletier DL et. al., The effects of malnutrition on child mortality in developing countries, Bulletin of the World Health Organization .73:443-448

[65] HKI, Trends in child malnutrition, 1990 to 2005, Nutritional Surveillance Project, Bulletin No.19, August 2006.

[66]Hossain M, Naher F and Shahabuddin Q, Food security and nutrition in Bangladesh, progress and determinants. J. of Agriculture and Development Economics;Vol2;No. 2, p106 and Benson T, 2020 Discussion Paper 37, 2004, p8

[67] National Institute of Policy Research and Training (NIPORT), Mitra and Associates, and ORC Macro. 2007. Bangladesh Demographic and Health Survey 2007. Dhaka, Bangladesh and Calverton, Maryland (USA); Also see Annex 1

Figure 12: Probability of high prevalence of stunting map



Dietary diversity measured by the nutrition sufficiency ratio was substantially low as only 4 percent of households could afford adequate diet. Data on the frequency of consumption of specific food items show a relatively low nutritional quality and limited diversity of diet even among the wealthiest households as less than 25 percent of these households consumed eggs, meat or chicken on at least three days per week. Nutrition education and behavioral change measures may be important given the prevalence of limited dietary diversity even among the wealthiest households.

The HKI study[68] and the 2007 BDHS linked stunting to poor infant feeding practices and level of maternal education. The HKI study reported that prevalence of stunting among children 6-11 months was significantly higher among those who were not breastfed than among those who were breastfed. The proportion of children exclusively breastfed below six months of age was similarly low across all wealth quintiles, though stunting declines as wealth increases. Mother's level of education has a strong inverse relationship with stunting levels. The 2007 BDHS

[68] HKI, Household and community level determinants of malnutrition in Bangladesh, Nutritional Surveillance Project, Bulletin No.17, and May 2006

reported that children whose mothers have no education are more than twice likely to be stunted (51 percent) as children of mothers who have completed secondary school and higher (22 percent). According to the HKI study, more than 46 percent of women in rural Bangladesh never went to school and among the poorest households, 66 percent of the women never attended schools, compared with 26 percent of women from the wealthiest families.

Prevalence estimates show that during 1990 to 2005, there were steady reducing trends in the prevalence of both underweight and stunting among children less than five years old in rural Bangladesh[69]. Stunting prevalence reduced by 29.1 percentage points (from 68.3 percent to 39.2 percent) reflecting an average rate of reduction of 1.9 percentage points per year. The overall reduction in stunting and underweight rates is attributable mostly to reduction of severe under nutrition as prevalence of moderate under nutrition remained virtually stagnant over the entire period. Comparing 2007 BDHS results with that of the previous studies using the same NCHS standards confirmed the declining trend in the prevalence of stunting in Bangladesh[70]. Stunting prevalence has decreased from 55 percent to 36 percent over a 10 year period.

Underweight: Weight for age is a composite index of height for age and weight for height and thus, does not distinguish between acute malnutrition (wasting) and chronic malnutrition (stunting). It is one of the MDG indicators for monitoring the reduction of hunger by half in 2015 relative to the 1990 levels.

In Bangladesh, 41 percent of children under five are underweight and the proportion of severely underweight children is 12 percent[71]. A 2006 HKI/NSP report had indicated an underweight rate of 46 percent[72]. While the HKI NSP report indicate that underweight prevalence is highest among children of 12-23 months old (59 percent), most recent estimates (BDHS 2007), indicate a prevalence of 39 percent among this age group with highest prevalence among children 36-47 months old (46.8 percent). Based on the 2007 BDHS, prevalence of underweight was higher in the rural areas (43 percent) than in the urban areas (33 percent). Of the six divisions, the divisions with the highest burden of child underweight include Barisal (46 percent); Rajshahi (43 percent) and Sylhet (42 percent).The two studies indicated lowest prevalence rates in Khulna.

An analysis of trends in underweight prevalence from 1990-2005 showed that during this period, prevalence of underweight was reduced by 25.2 percentage points (from 70.9 percent to 45.7 percent[73]. The average rate of reduction was 1.7 percentage points per year. The highest levels of underweight were observed between June and September, a lean period for agricultural production and seasonal unemployment mostly due to the monsoon; whereas during December to March, the post harvest period with increased dietary diversity, underweight levels were found lowest.

[69] HKI, Trends in child malnutrition, 1990 to 2005, Nutritional Surveillance Project, Bulletin No.19, August 2006. p2

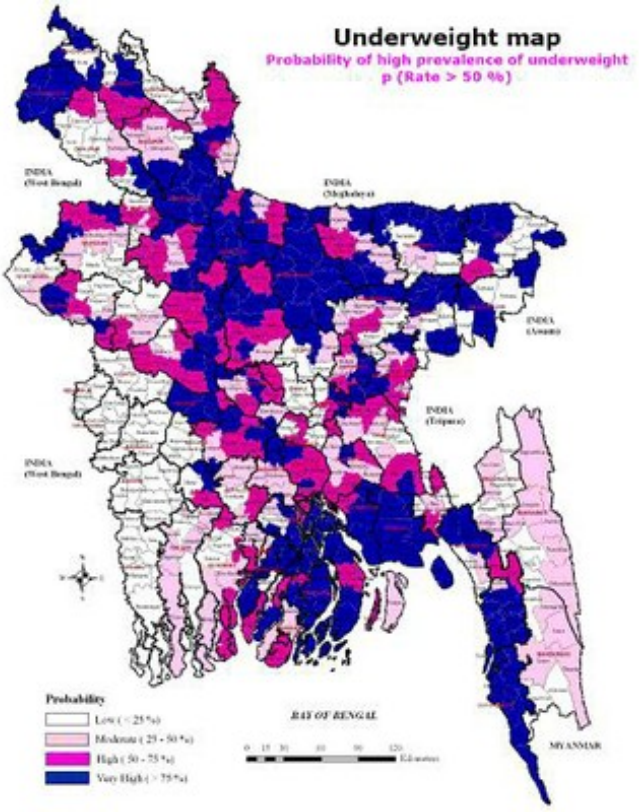
[70] BDHS 2007, p34

[71] 2007 BDHS, p33

[72] HKI, Trends in child malnutrition, 1990 to 2005, Nutritional Surveillance Project, Bulletin No.19, August 2006, p1-4

[73] Ibid

Figure 13: Probability of High Prevalence of Underweight



The HKI/NSP report showed that while underweight was reduced by 20.3 percent point in Sylhet (from 69.3 percent in 1998 to 49 percent in 2005); there was only 14.6 percentage point reduction in Rajshahi (from 61.1 percent to 46.5 percent). In some thanas or sub districts in Rajshahi where food security conditions are considered to be worst[74], the average weight for age z-score (WAZ) was still below -2.0 in 2005, with over 60 percent children underweight. The following districts are said to have the highest burden of under nutrition and account for about 50 percent of all malnourished children in the country: Sylhet, Comilla, Faridpur, Tangail, Jamalpur, Noakhali and Chittagong[75]:

Wasting: Weight for height measures body mass in relation to body length and describes current nutritional status. A child below -2SD from the reference median for weight for height is considered too thin for his/her height or "wasted," a condition reflecting acute malnutrition. In Bangladesh, 17.4 percent of children are wasted and the proportion of severely wasted children is 3 percent[76]. Wasting is over 10 percent across all age groups and highest at age 10-23

[74] World Food Program, The food security atlas of Bangladesh. Towards a poverty and hunger free Bangladesh. Dhaka: United Nations World Food Program and the Bangladesh Planning Commission.

[75] Hossain M, Naher F and Shahabuddin Q, Food security and nutrition in Bangladesh, progress and determinants. J. of Agriculture and Development Economics;Vol2;No. 2, p112

[76] 2007 BDHS, p33

months (over 22 percent). Wasting rates are over 15 percent across all divisions with highest rates in Rajshahi (19.1 percent), Khulna (18.8 percent), Sylhet (18.3 percent) and Barisal division (18.0 percent). Acute malnutrition exhibits a strong seasonal pattern in Bangladesh. The rates of malnutrition are highest during the monsoon season (June to August) and are lowest in December/February during the winter harvest (rice, vegetable). Prevalence of wasting declined from 18 percent in 1996-97 to 10 percent in 2000 but has risen to 16 percent in 2007 based on NCHS standards[77]. Prevalence of 15 percent wasting and above is considered critical by WHO standards.

Nutritional status of women: The BMI or Quetelet index is used to measure thinness or obesity. It is weighed in kilograms as divided by height in meters squared. Only 57 percent are normal (BMI 18.5 -24.99), 34 percent are thin (BMI less than 18.5) with 9 percent overweight or obese[78] (BMI = greater than 25.0). Proportion considered thin in rural area is 37-50 percent higher than in urban areas. Urban women are more than three times more likely to be overweight or obese than rural women. Overweight and obese women are among those highly educated, and in the highest quintile of the wealth index. The proportion of overweight or obese women is low among women under 30 and varies little among older women (11-13 percent). Among divisions, Sylhet has the highest proportion of women who are thin (48 percent), and Khulna has the least (29 percent). The proportion of nonpregnant mothers in the chronic energy deficiency situation declined from 52 percent in 1996-97 to 44.2 percent in 2000 and to 32.2 percent in 2005[79].

Micronutrient deficiencies in mothers and children: Micronutrient malnutrition is still a problem of unacceptable proportions in developing countries. Iron and Vitamin A deficiencies are the most widespread nutrition deficiencies, affecting as many as 3.5 billion people[80]. Because they disproportionately affect children and women during their reproductive years, these deficiencies hinder the development of human potential and nations' social and economic development

Vitamin A deficiency, supplementation coverage and other interventions: Vitamin A also known as retinol is an essential micronutrient required for normal health and survival. Children under three years of age and pregnant and lactating women are the most at risk of vitamin A deficiency. Physiological vitamin A deficiency still affects 30 percent of women and children[81], though clinical vitamin A deficiency had declined significantly in the past two decades among preschool children in Bangladesh[82]. The relatively remarkable decline was attributed to successful vitamin A capsule distribution campaign, home gardening and other food based approaches[83]. Bangladesh has instituted a Vitamin A supplementation program that provides

[77] 2007 BDHS, p34

[78] 2004 BDHS, p182-183

[79] GED, NASPR II (FY2009-11), October 2008. p129

[80] Ruel, MT, Can food based strategies help reduce vitamin A and iron deficiencies. A review of recent evidence, Food Policy Review 5, 2001.

[81] National Food Policy Plan of Action (2008-2015),2008, p19

[82] Food and Agriculture Organization (FAO),Country Nutrition Profile, Bangladesh, 1999, p19

[83] HKI/NSP, 1998

Vitamin A capsules twice yearly (once every 6 months) through its healthcare system[84]. The current policy is to begin vitamin A supplementation after a child completes the first 9 months of life. Children 9-11 months are first provided vitamin A supplementation at the time of the measles vaccination, and those age 12-59 months receive the supplementation once every six months during National Immunization Days and Vitamin A campaigns.

The 2007 BDHS[85] showed 88 percent coverage of targeted children in the six months preceding the survey. Studies in Bangladesh and other South Asian countries have associated vitamin A supplementation with about 20 percent reduction in infant and child mortality rates[86].

Iron Deficiency Anemia: Nationally representative data on iron deficiency is limited in Bangladesh and the BDHS did is not cover iron deficiency anemia. However, some past surveys indicate that anemia is a severe problem in Bangladesh among most age, population and geographic groups[87]. It is estimated that nearly 50 percent of the Bangladeshi population is affected by iron deficiency anemia[88].

A study had reported 50 percent prevalence of anemia among pregnant women and 45 percent among non pregnant women[89]. The overall prevalence of anemia among preschool children in Bangladesh was 47 percent and prevalence of anemia was higher among younger children: 78 percent of children 6-11 months and 64 percent 12-23 months. No significant difference by gender was observed. The HKI 2006 report[90] on a 2004 survey in rural Bangladesh showed that overall 68 percent of children under five years of age are anemic, with the highest prevalence among those 6-11 months.

Iodine Deficiency Disorders (IDDs): Iodine deficiency disorders (IDDs) include the clinical and sub clinical manifestations of iodine deficiency. Iodine deficiency affects 36 percent of women and children in Bangladesh[91]. Another study showed that 47 percent and 53 percent of boys and girls respectively were classified as having grade 1 or 2 goiter[92]. Among adult sample, the total goiter rate was 33.6 percent for men and 55.6 percent for women. Visible goiter rates were highest and prevalence of cretinism was higher in hilly ecological areas of the country.

[84] 2004 BDHS

[85] 2007 BDHS. p28

[86] Bhutta et.al., What works? Interventions for maternal and child under nutrition and survival, Lancet 2008, 371:49

[87] HKI, The burden of anemia in rural Bangladesh: The need for urgent action, Nutritional Surveillance Project, Bulletin No.16, April 2006

[88] Bangladesh Bureau of Statistics/UNICEF (2004). Anemia Prevalence Survey of Urban Bangladesh and Rural Chittagong Hill Tracts, 2003., National Food Policy Plan of Action (2008-2015), p19

[89] FAO, Country Nutrition Profile, Bangladesh, 1999, p20

[90] HKI, The burden of anemia in rural Bangladesh: The need for urgent action, Nutritional Surveillance Project, Bulletin No.16, April 2006

[91] IPHN/BSCIC/DU/UNICEF/ICCIDD (2007), National IDD and USI Survey of Bangladesh, 2004-2005.

[92] FAO, Country Nutrition Profiles, 1999. p19

Water, Sanitation and Hygiene Access

Water

The MDG target for access to save water is to ensure that 86 percent of Bangladeshis have access to safe water by 2015. The share of the population with access to safe water source was estimated at 98 percent in 2004, a very high level for a low-income country. This has been achieved, mostly, through the installation of tubewells in the rural areas and some cases in urban areas. Bangladesh government and donors have contributed to this achievement. However, it was discovered that 97 percent of the rural population and a significant share of the urban population's drinking water sources (tubewells) are naturally contaminated with arsenic. It gradually emerged that 70 million people drank water which exceeds the WHO guidelines of 10 micrograms of arsenic per liter, and 30 million drank water containing more than the Bangladesh National Standard of 50 micrograms per liter, leading to chronic arsenic poisoning (WHO 2008). Taking arsenic contamination into account, it was re-estimated that 74 percent of the population had access to arsenic-free drinking water, in 2004 (WHO & UNICEF 2006). Arsenic contamination imposes a challenge on achieving the MGD goal, ensuring 86 percent of peoples' access to safe drinking water. Surface water as an alternative source is usually expensive as it is often polluted and requires treatment.

The GOB adopted a National Water Policy for ensuring safe drinking water and improving water quality in 1998. The policy focuses on 6 main objectives:

1. To address the use and development of groundwater and surface water in an efficient and equitable way
2. To ensure the availability of water to all parts of the society
3. To accelerate the development of public and private water systems through legal and financial measures and incentives, including appropriate water rights and water pricing rules
4. To formulate institutional changes, encouraging decentralization and enhancing the role of women in water management
5. To provide a legal and regulatory framework which encourages decentralization, consideration of environmental impacts, and private sector investment
6. To develop knowledge and capability for improved future water resources management plans and encourage user participation.

The government adopted a National Policy for Arsenic Mitigation in 2004. The policy emphasizes on public awareness, alternative safe water supply, proper diagnosis and management of patients, and capacity building. The policy gives preference to surface water over groundwater but much reliance on surface water would be expensive as it is often highly contaminated with pathogens.

UNICEF Bangladesh, with funding support from DFID (USD 68.8 million), is implementing a Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B) project which aims to reach 30 million people in five years (2007- 2011). UNICEF and its implementing partners are addressing the problem of naturally occurring arsenic contamination in groundwater by:

1. Testing more than 1 million tube wells, with blanket testing in 45 Upazilas (districts),
2. Providing alternative safe water in 68 upazilas, under SHEWA-B, and
3. Implementing public information and awareness campaigns on arsenic mitigation.

Sanitation

The Bangladesh MDG target for sanitation is to ensure that 60 percent of population has access to improved sanitation by 2015. In 2004, the government declared “Sanitation for All by 2010” as its national target and adopted a reward scheme for communities that achieved open defecation free (ODF) status. The campaign is considered central to the reduction of child mortality and morbidity from water and sanitation-related diseases, protection of the environment and poverty reduction in Bangladesh. To achieve this national target for total sanitation by 2010, WHO and other development partners, NGOs, Community Based Organizations (CBO), private entrepreneurs, civil society and community have been working together under the GOB lead umbrella

The national government earmarked 20 percent of its annual development budget to promote sanitation, releasing funds for the first time directly to the local government units in the form of cash rewards for ODF. In 2004, it was found that 39 percent of population has access to improved sanitation. Bangladesh has made progress in both sanitation and water, but low levels of sanitation coverage and arsenic contamination in groundwater remain important public-health threats. Although sanitation coverage remains low at 39 percent, the number of people defecating in the open and in hanging latrines (which directly goes into water sources) has halved since 2003. Convincing people to defecate in a fixed place is a first step in sanitation improvements. The community led total sanitation approach, implemented by several NGOs, has significantly attributed to this achievement. Presently, the Department of Public Health and Engineering (DPHE) of GOB has combined both ‘improved latrine’ and ‘pit latrine with slab but no water seal or lid’ for reporting on national coverage, thus it has estimated that coverage of improved latrine is 82 percent. This statistics warrants careful assessment of real situation and program strategy formulation.

Major actors both national and international working on water and sanitation are encouraging people to invest in quality latrines that completely isolate excreta from the human environment.

A SHEWA-B program baseline study (2008) documented that among the sampled households only 23 percent use improved latrine but the households in Chittagong Hill Tracts region are

less likely to use an improved latrine[93]. The report further documented a strong correlation between households' poverty status and latrine type. The program will categorically target extreme poor households for whom getting clean water and good sanitation is almost impossible. The program under its school component provides separate and appropriate toilets for boys and girls and promotes hygiene education. The program believes sanitation facilities have a major impact on girls' attendance at school.

Hygiene

In Bangladesh use of sanitary latrines is increasing but promotion of hygiene practices still remains a challenge. Solid-waste management is emerging as an important environmental problem, particularly in urban areas. The SHEWA-B baseline study (2008) report suggests though 43 percent of households has an appropriate waste water disposal system, only 3 percent had an appropriate solid waste disposal system. Appropriate water and solid waste disposal systems were less common among the poor and among residents of Chittagong Hill Tracts and coastal areas. Poor hygiene behavior and sanitation is considered as a major cause of infant and child mortality, as almost 100 children still die each day from diarrhea. Poor access to safe sanitary options can also cast a negative impact on children's, especially girls' school attendance and academic performance. The SHEWA-B baseline study (2008) documents that though 56 percent of the surveyed people responded for proper hand washing behavior only 17 percent were observed to do so. Less than one percent is seen to wash their hands before preparing food. Proper hand washing, with soap, is also constrained by poverty, where 83 percent people lives on less than US$2 a day. Nonetheless, poor awareness level is seen as a major constrained for proper hygiene behavior practice.

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[93] The most common type of improved latrine was a pit latrine slab with a water seal.

ANNEX 6: FOOD INSECURITY

Livelihood Zones

General Description: Bangladesh has not been divided into Livelihood Zones.

Current IPC Assessments: There is no Integrated Phase Classification Assessment for Bangladesh.

Dominant Livelihood Strategies

General Description: The term livelihood is often understood as an income generation activity or means of living pursued by an individual, such as, micro- enterprise, agriculture, retail shops, and jobs from which a person can earn his/ her living. This is only one aspect of livelihoods system. A livelihoods system is much broader than this. “A livelihood comprises the capabilities, assets and activities that are required for a means of living. A livelihood is sustainable which can cope with and recovers from shocks and stress, and maintains or enhances its capabilities and asset both now and in future, while not undermining the natural resource” (Chambers & Conway 1991).

The definition above talks about capabilities and assets and the ability of people to maintain them and recover from possible shocks and stress. Assets or Capitals are defined in a broader terms comprising economic, social, physical and natural assets within SL Framework. Capabilities constitute skills and knowledge of people and the ability to develop social and political networks that influence the livelihoods of people.

In rural Bangladesh the livelihoods system has transformed significantly. A greater number of rural households are involved in non-agricultural livelihoods than in agriculture and constantly diversifying strategies, increasingly earning incomes from multiple sources. The share of agriculture in GDP declined from 32 percent in 1981 to 25 percent in 2000 (Rahman 2000). The area of cultivated land declined from 8.16 million ha in 1983 to 7.19 million ha in 1996 – a loss of nearly one million ha of cultivable land since the early 1980s (Saha 2002).

The greatest expansion in the non-agriculture sector has occurred in the services sector. The number of small shops, including tailoring, craft enterprises and petty trading, have increased substantially in the villages and local bazaars. Rickshaw, van and small motorized vans have been extended to villages or union centers. The growth of rural transport and service sectors has significantly minimized the rural-urban divide. Migration to secondary cities and Dhaka has been a major seasonal livelihoods strategy. Migration abroad is increasing gradually, more than 3 million Bangladeshi nationals were employed from 1976 to 2000, and all of them are temporary migrants.

Women migrants, mostly as agriculture and construction labors are increasing significantly. The readymade garment (RMG) industry absorbed more than 1.5 million workers during the past

decade; more than 90 percent of these were women. NGOs are also source of major women employment. The changing trend of livelihoods system has altered the economic roles of women and they are more visible in the external world.

Macro-level data further demonstrates the trend of livelihoods transformation. Saha (2002) documented that the share of rural household incomes derived from agriculture decreased from about 63 percent in 1987 to 54 percent in 1994, while the share derived from non-agricultural activities increased from 37 percent to about 48 percent for the same period. The percentage of the population economically active in agriculture also decreased from about 66 percent to 55 percent and increased from 35 percent to 45 percent in non-agricultural activities over the same period. These figures should not disguise the fact that, for many people today, livelihood strategies comprise both agricultural and non-agricultural contributions.

Informal institutions, social structures and class formation in rural communities are transforming rapidly. Social networks are breaking down and there are signs of change in social structures, with women increasingly visible in institutional space and elected representatives being drawn from outside established elites.

Informal institutional change has occurred also in the land tenure arrangements, mostly in last two decades. Sharecropping arrangements are giving way to fixed-rent tenancy and medium-term leasing arrangements. Saha (2002) notes that the area under tenancy has declined from about 74 percent in 1983-84 to about 62 percent in 1996, whereas the area under fixed-rent and other tenancy arrangements has increased from about 26 percent to 38 percent.

However, a growing range of different institutions, business (primarily garment factories) and service sectors are replacing the rural-urban divide with rural-urban continuum, dramatically. While this is true that the poor rural households are intrinsically connected with national, and further with global economic forces the policy making institutions are significantly disconnected from local institutional realities. The centrally determined policies often fail to influence or respond appropriately to changing livelihood needs. Policies surfacing livelihoods system should consider should consider rural, urban, national and international contexts and decide interventions in order to ensure sustainable livelihoods.

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Chambers, Robert and Gordon Conqya. 1991. "Sustainable Rural Livelihoods: Practical Concepts for the 21st Century," IDS Discussion Paper 296, UK: Institute of Development Studies.

Rhaman, Rushidan. 2003. Rural poverty: patterns, processes and policies. In Hands not land: how livelihoods are changing in rural Bangladesh, ed. Toufique and Turton. Dhaka: Bangladesh Institute of Development Studies.

Saha, Bimal Kumar. 2003. Rural development trends: what the statistics say. In Hands not land: how livelihoods are changing in rural Bangladesh, ed. Toufique and Turton. Dhaka: Bangladesh Institute of Development Studies.

Seasonality Of Activities and Prices

The climate of Bangladesh provides most areas with a dry and relatively cool winter season from November to February, a hot and humid summer from March to early June, and a warm monsoon season from June to October. With the exception of the drier Rajshahi region, most of the country receives two meters or more of rainfall, 80 percent of which falls in the monsoon

season, although the seasonality and volume of rain can be highly variable for any given location.

The seasonality of agricultural production in Bangladesh is driven mainly by the need for seedbed moisture, which tends to concentrate production into three overlapping seasons: *rabi* from November through to early April, *kharif* from late March to early September and *haimantic* from August to November. Rice may be grown in any of these seasons, while other crops are specific to only one or two. Thus *aus* rice, maize, pulses and jute are the crops of *kharif* season, while *aman* rice is traditionally the main crop, grown in *haimantic* season and *boro* rice is a crop of increasing importance, grown under irrigation in the *rabi* season together with rain- fed wheat, maize and pulses. Other oilseed, pulse and vegetable crops are frequently cultivated as cash crops if the land is not sown with rice and water is available. Land is regularly cropped twice in one year and on occasions three times. Timing of the main activities for each of the main crops is shown in Figure 14.

Figure 14: Seasonality of Cropping Activities

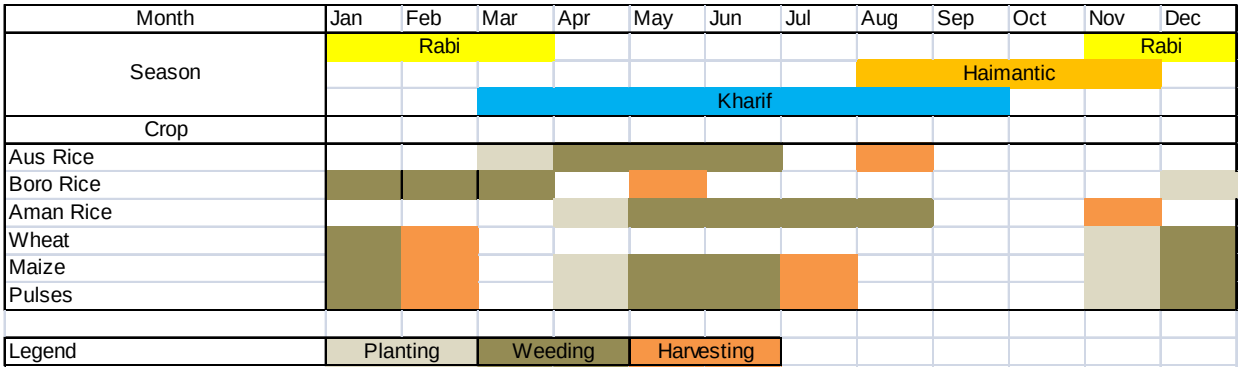
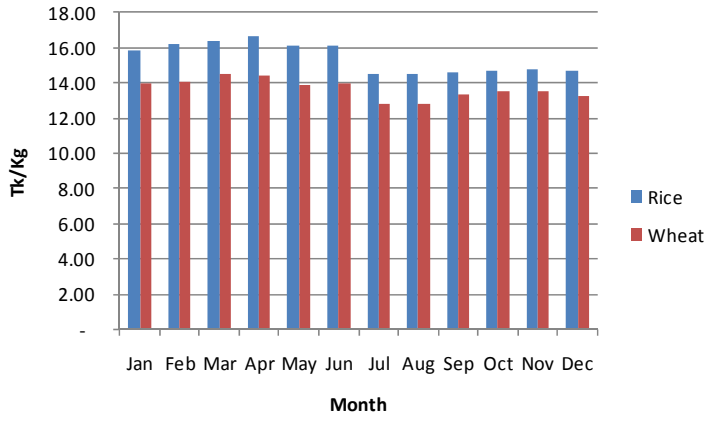


Figure 15: Ten-Year Average Prices (Dhaka City Wholesale: 1998-2008) for Wheat/Rice



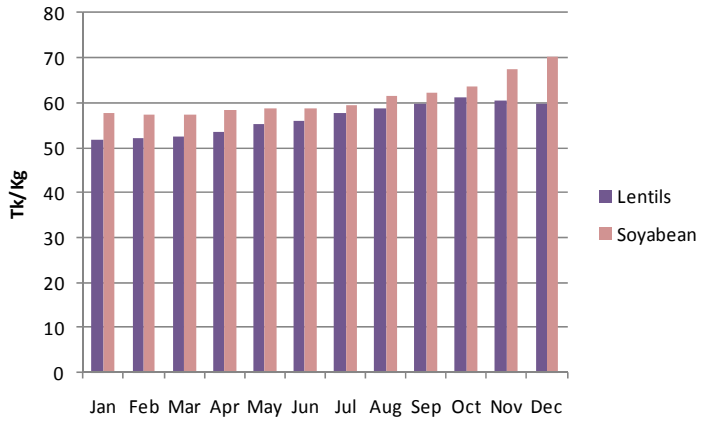
Source: GOB Department of Agricultural Marketing

Figure 15 shows the seasonal variation in wheat and rice prices. The price cycle for both crops is driven largely by the availability of rice, although wheat prices are also affected by global markets and remain close to import parity throughout most of the year. Although individual seasons may show some variation, cereal prices are generally at their lowest when the *kharif*

crops are harvested in July and August. Thereafter they rise slightly until the *aman* rice is harvested, when they again decline, climbing slowly until they reach their highest levels in March/April, after which time *boro* production comes onto the market.

Pulse and oilseed crop prices tend to be more variable, although they too are largely tied to import parity prices (Bangladesh produces less than half of either its pulse or oilseed requirements). Figure 16 shows monthly average price movements for 2005-2007.

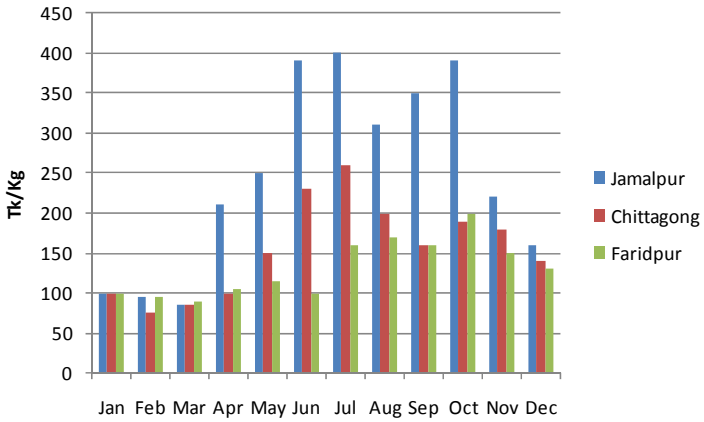
Figure 16: Three-Year Average Prices (Dhaka City, Wholesale) of Lentils and Soya Bean



Source: GOB Department of Agricultural Marketing

Vegetable prices are the most variable and fluctuate considerably by crop and by location throughout the year according to local availability.

Figure 17: Three-Year Monthly Price Indices for Eggplant in three Markets

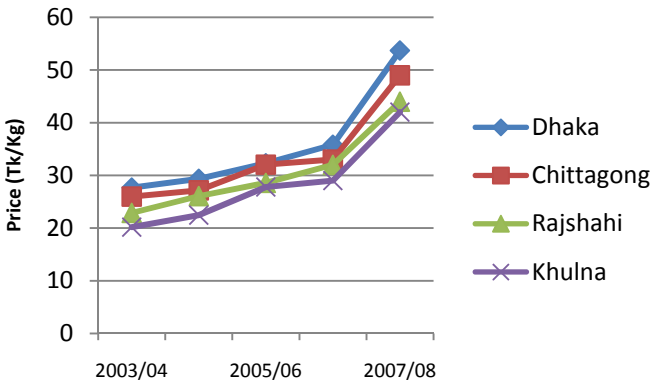


Overall, commodity prices tend to be driven by import parity price pressure, moderated by the availability of local production. This is clearly the case for wheat, oilseeds and pulses, but for vegetables (which are not substantially imported) and rice (for which total imports are a small proportion of local production), prices are determined more by the seasonal availability of local production alone.

Market Integration

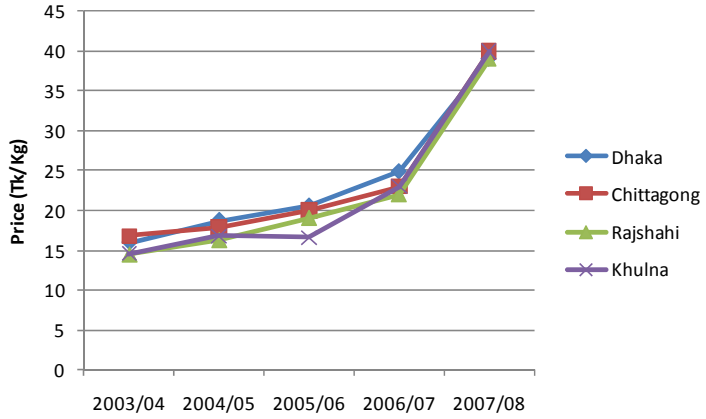
A detailed analysis of market integration in Bangladesh[94] found that following market liberalization in 1992, grain markets evolved rapidly, becoming more spatially integrated, although the volatility of prices also increased as speculation became more common. It was concluded that wholesale markets for both rice and wheat function as a unified system, but rice markets are more integrated during the dry (post *Aman*) season. Although the pure, 'Law of One Price', does not hold, over 80 percent of price changes were found to be transmitted between market pairs within two weeks. Figures 18, 19 and 20 show parallel price movements over the long and short-term for rice and wheat.

Figure 18: Annual Average Rice Prices in Regional Markets



Source: Bangladesh Bureau of Statistics

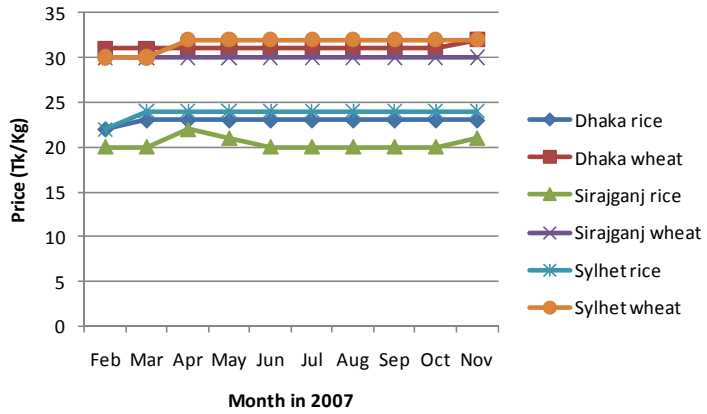
Figure 19: Annual Average Wheat Prices in Regional Markets



Source: Bangladesh Bureau of Statistics

[94] "Testing for the law of one price: rice market integration in Bangladesh": P. J. Dawson, P. K. Dey: Journal of International Development, Volume 14 Issue 4, Pages 473 – 484

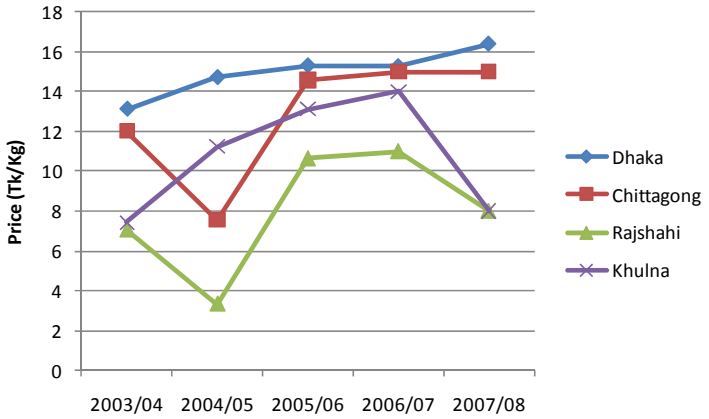
Figure 20: Monthly Fluctuations in Regional Cereal Prices



Source: GOB Department of Agricultural Marketing

However, the same degree of integration does not exist for vegetables in either the short, or even the long-term. Figures 21, 22 and 23 show that not only do seasonal price indices for different regions move quite differently, but even annual prices can fluctuate independently between major market centers. An analysis of vegetable production and marketing[95] found that poor integration of vegetable markets to be caused by a number of factors including the limited availability of transport necessary to move fresh vegetables in a timely fashion, limited numbers of traders and weak linkages between traders within the sector.

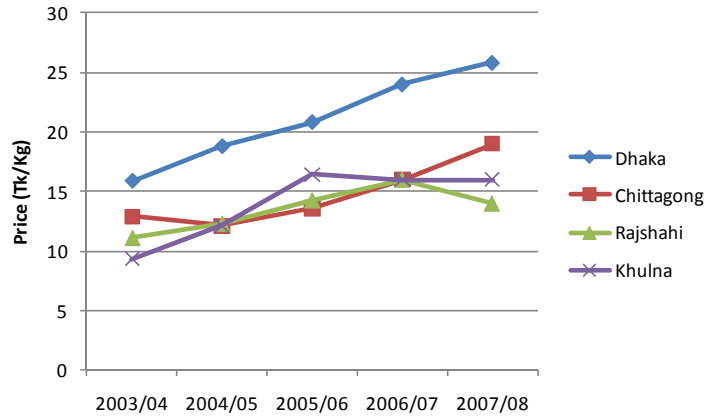
Figure 21: Annual Average Cabbage Prices for Regional Markets



Source: Bangladesh Bureau of Statistics

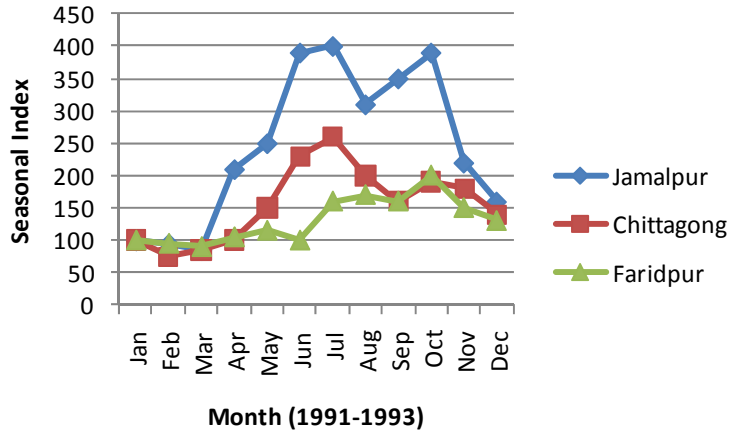
[95] Dynamics of Vegetable Production, Distribution and Consumption in Asia - Bangladesh: S.M. Elias & M.S Hussain, 2000. AVRDC – The World Vegetable Center

Figure 22: Annual Average Eggplant Prices for Regional Markets



Source: Bangladesh Bureau of Statistics

Figure 23: Monthly Fluctuations in Regional Vegetable Prices



Source: GOB Department of Agricultural Marketing

The market price data suggest that while the availability of grain throughout the country is rapid and effectively driven by market forces, the market is less perfect for perishable commodities such as vegetables, so that while the level of food security is fundamentally determined by access and utilization as far as grains are concerned, issues of availability may still play a role in the consumption of vegetables.

Remittances and other Access to Financial Capital

Remittances are a key factor in the livelihoods strategies of many resource-scarce households. Remittance can earned from both overseas and domestic migration. Overseas migration is formal and generally longer than domestic migration, which tends to be rather seasonal and is adopted by many of the ultra-poor households to supplement their income. Remittance serves to even out fluctuations in the income of such households.

Remittance from overseas is a significant component of the national economy, constituting almost 10 percent of GDP. Between 1995 - 2003, on average 250,000 people migrated annually as overseas workers. The Ministry for Expatriates' Welfare and Overseas Employment (EWOE)

data show that from 1976 to 2003, more than 3 million Bangladeshis were working as short-term migrant workers, and 99 percent of them were men. The Bangladesh Bank (central bank) data shows that the remittances from overseas have grown from US$ 23.71 million in 1976 to a peak of US$9.0 billion in 2007/08 fiscal year, but initial reports suggest that the level has stabilized in 2008/09 with the decline in the global economy.

Utilization of remittance varies according to wealth group. Among the poorest households the major portion of remittance money is used for food and loan repayment. Utilization becomes more diverse amongst relatively better off households. A recent study[96] indicated that the majority of the sampled households spent 20.45 percent of remittance in food and clothing, nearly 5.97 percent in medical treatment and children's education, and 16.43 percent in property acquisition (purchase of homestead or agricultural land purchase or mortgage, housing construction and repair, etc). Little remittance money (4.75 percent) is used in business investment. Nearly, 7.19 percent of the remittance money is used in financing migration of other family members. Remittance is also used for social services, such as, for social festivals, paying dowries, or burial services.

Seasonal migration within the country is prominent among the poorer households. Seasonal migration is a major livelihood coping strategy for the ultra-poor households, especially those in the *Monga* areas. Family members may migrate to undertake agriculture labor, rickshaw pulling, construction work, etc., sometimes for periods of less than a month. Remittance from this sort of migration is mainly used for food consumption and loan/ debt repayment.

The garment industry is a major source of rural-urban remittance flow within the country. Nearly, 1.5 million workers, 90 percent of them are women are employed in the garment sector. For some employment is on a short-term basis, but for many, such employment may last for periods of three years or more.

Other Sources of Finance

Microfinance institutions (MFIs) are the major formal source of financial capital for the millions of poor households, mostly rural. Haque and Rashid[97] suggest that there are nearly 1500 MFIs, including the Grameen Bank, reaching about 14 million clients (12 million female and 2 million male) with a loan portfolio of USD 5.5 billion (cumulative); most MFIs claim a loan recovery rate above 95 percent.

Microfinance is frequently seen as an engine of growth, and access to microfinance a route to escape poverty. However, this is not a universal impact. A recent study (Marino 2003 cited in Begum 2005) on Grameen Bank suggests that while nearly 42 percent of its borrowers had substantially improved household incomes and effectively escaped poverty, microfinance had

[96] Siddiqui, Tasneem 2004 : Efficiency of Migrant Workers' Remittance: The Bangladesh Case, Professor, RMMRU, University of Dhaka and Asian Development Bank, Manila.

[97] Cited in Begum Shawkat 2005 : Impacts of Debt on the Livelihoods of Poor Rural Households in the Northwest Bangladesh. Unpublished – MA Thesis, School of Anthropology, The University of Arizona, AZ, USA.

generated a downward mobility for some poor households. Karim and Osada (1998 cited in Begum), in their evaluation of Grameen Bank members, found that 88 percent borrowers who were in the seventh year of membership did not rise out of poverty, rather many of them showed a downward decline in living standards. The evidence suggests that access to microfinance alone may not ensure positive livelihoods outcomes.

Many vulnerable households, often termed as ultra-poor/hard-core poor depend on the social safety nets programs, such as VGD, VGF, RMP.

Poor households may also depend upon informal financial institutions, such as *Mohajons/dadondara (*moneylenders), who are the key players in the rural credit market, together with grocery shopkeepers, clubs, savings groups, relatives, and friends. Mohajons are either large land-holding farmers or businessmen with a regular and surplus income source. These agents dominate the informal credit market, often operating at exorbitant interest rates, (up to 200 percent). The extreme poor households are frequently obliged to borrow from the mohajons since MFIs often exclude them as they are considered incapable of loan operation.

Key food Insecure/Vulnerable Populations

The World Food Summit (1996) defines food security, *"food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life".* The definition unpacks the complexity of food security conditions. It encompasses issues ranging from food production and distribution to food preferences and health status of individuals. Food security at household level is essentially related to its means (assets/capitals and strategies) of acquiring sufficient and nutritious food. To understand household food security condition, a conceptual framework has been used – it offers three distinct but inter-related dimensions of food security: food availability, food access, and food utilization. These dimensions of household food security are influenced by external shocks/stresses, institutional behaviors, and inter-personal knowledge, attitude and practices.

National or regional level food availability attained through domestic production, net food imports and national food stocks does not guarantee food security for every household or individual. A number of factors may prevent poor households or individuals from accessing the food, even when aggregate food supplies are adequate. Their income levels may be too low to purchase the necessary foods at prevailing prices in the market, they may not have access to land for own cultivation, or may lack the necessary assets or access to credit to help them through difficult times. Furthermore, they may find themselves outside any public assistance or other program that provides them with in-kind or cash transfers to supplement their food acquisition capacity.

Nonetheless, national availability of, and household access to food alone are not sufficient to guarantee food security. It is also important how household members utilize the food. Women, children, the elderly and the disabled often suffer from inequalities in food distribution within a household: often they eat last and least. Access to proper sanitation and health care, general nutritional awareness, and caring practices are important determinants of an individual's

capacity to absorb and utilize the nutrients in the diet and ultimately of his/her food security status.

Food insecurity has temporal, structural, and spatial dimensions, too. Households/individuals may suffer from *transitory* (seasonal) or *chronic* (long-term) deficit in food consumption. Transitory food insecurity is associated with seasonal variation in food production and natural hazards such as floods, cyclones and droughts. Depending on its asset endowments, a household adopts different strategies to cope with these events. Coping behavior often involves borrowing money, and the sale or consumption of productive assets. These practices may undermine the long-term productive potential of poor households and may eventually lead to chronic food insecurity or complete deprivation. Transitory food insecurity, famine in extreme, is more visible and draws more attention than chronic food insecurity.

Chronic food insecurity is linked with larger problem - closely associated with social and structural factors. Households vulnerable to food insecurity generally lack productive assets and depend on irregular income from daily wage labor, such as landless agricultural day laborers, casual fishermen, seasonal migrant laborers, beggars, etc. Yet, within households, widow, the disabled, elderly, pregnant women, nursing mothers, and children face relatively high nutritional risks.

Other households/ individuals are vulnerable to food insecurity as their livelihood is influenced by spatial dimension. They live in certain regions that are susceptible to natural disasters or characterized by inequitable distribution and poor quality of agricultural land, poor access to education and health facilities, inadequate infrastructure development, poor employment opportunities, etc. Similarly, indigenous peoples' homeland areas are usually out of adequate services such as health facilities, appropriate schooling, and proper sanitation and, therefore, they are always among the poorest population of the country.

In Bangladesh food insecure **vulnerable people are disproportionately distributed in different agro-ecological zones**:

Nearly 3 million food insecure people live in **the northern *chars*** (unstable lands in river beds) around the Brahmaputra and Jamuna rivers. People in these chars are constantly vulnerable to high flooding, erosion, instability, limited infrastructure development and services facilities. Some parts of northwestern region is experiencing regular drought, too

Marginalized lands, limited agriculture facilities and low wage rates often deny the poor households' access to food. In northwest region, the wage rate for agriculture labor is far below the national average. It is Tk. 40 (USD 0.50) a day. Even though agriculture production is satisfactory, poor households experience a very pronounced lean season, known as '*monga*', from October to November each year. In order to cope with *monga* poor households borrow from local moneylenders at high interest rate, which contributes further to the poverty and makes highly susceptible to hunger, malnutrition, and illness. Unemployment rate during non-agriculture seasons becomes very high.

The westernmost parts of Nawabjanj, Rajshahi and Noagaon districts, just north of the Padma river, susceptible to drought. Though this is a major cash crop producing region droughts due to prolong dry season affects both farmers and agriculture laborers. Limited and expensive irrigation options exacerbate this problem further. There are a few wealthy landowners, and a large number of poor agricultural laborers. The wage rates for agricultural labor are comparatively low in this area. During non-agricultural period, people shift their livelihoods strategy - rickshaw pulling, non-agriculture labor, and out- migration.

Limited access to safe water and proper sanitation facilities contributes to illness.

Northeastern region, greater Sylhet and Mymensingh districts, is a natural depression area that becomes submerged from May to October with in-country rainfall and flash floods from Indian hills. Fishing and winter season *boro* rice are only two crops. However, absentee landowners control majority of fisheries and paddy cultivation - giving limited opportunities small scale marginal farmers.

The region seriously lack infrastructural, including road network and other service facilities. Major employing sector is agriculture – *boro* paddy production. However, marginal farmers can hardly generate good food stock, even, if there is a good harvest, much of the household income is used to pay for the rent of the land. *Boro* production cannot employ all the agriculture laborers, so, even in the peak season daily wage rate hardly exceed Tk. 200.

Poor access to safe water and proper sanitation facilities in this area. There are few tube wells in the region and people needs to walk great distances to access safe drinking water. Therefore most inhabitants of the *haor* use the same water for washing, cooking and drinking. Also open hanging latrines contaminate the water bodies. As a result a high incidence of diarrheal illnesses is very common among them.

Flash flooding, usually occurs at the end of the dry season in April can have a devastating effect on the *boro* rice crops and significantly disrupt the main livelihood source of the area and intensify food insecurity.

Nearly 5 million food insecure people live in the **southwestern coastal region** though it used to be a granary of Bangladesh. In recent decades the area has been suffering from water logging, siltation/river bed rising, river erosion, salinity. Tropical storms and intense tropical cyclone seriously ravage the livelihoods base of the most natural resource base communities and increase food insecurity.

Agriculture, including shrimp farming is the main source of livelihoods. However, more than half of the people are functionally landless and they depend on their labor capital. Other opportunities for employment are very limited, as there are no factories or cottage industries in this area. However, some people are able to earn a living in the service industry, particularly in transportation. Limited access to safe drinking water and hygienic latrines exacerbates to health problems. Poor economic and social service facilities make the vulnerable households food insecure.

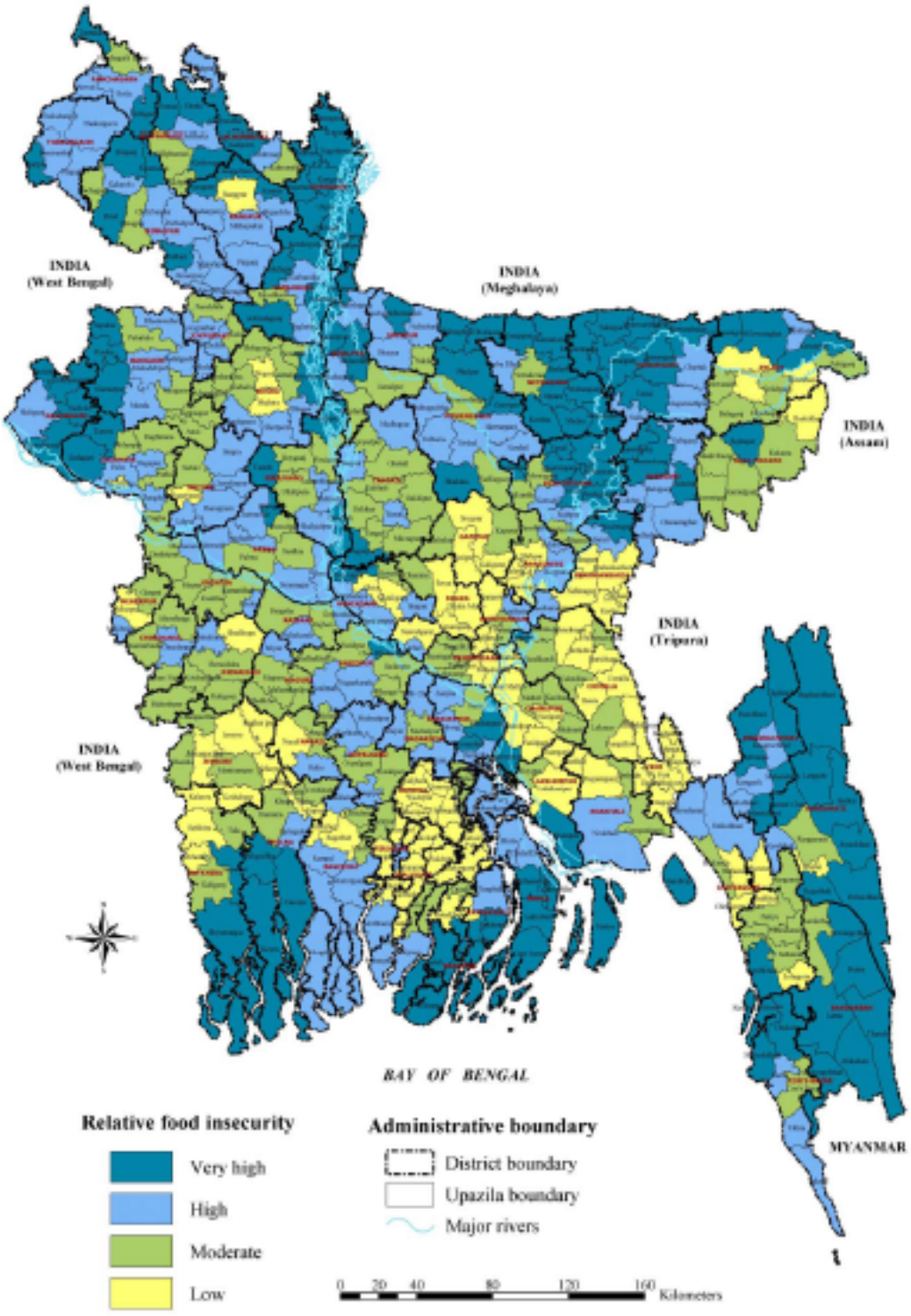
The **Chittagong Hill Tracts** region, home to indigenous people is a highly food insecure area. Traditional agriculture system, shifting cultivation, has been disrupted due to different political and social reasons. The region continues to be chronic food insecurity and instability with a large number of internally displaced people in need of resettlement. Much of the population is located in very remote areas, making access to basic services difficult. Additionally, although most people in the area are agricultural laborers, the lack of access to cultivable land and harvest very low yield.

Poor road and transportation system together with the terrain makes it almost impossible for the farmers to bring their produce to market. As a result, they are forced to sell their crops to a middleman, who pays a much lower price than would be received commercially. Market facilities are also generally limited. A combination of the security situation, the poor infrastructure and the inadequate transportation system has discouraged private sector investment in the CHT.

Crop production/ agricultural work is being affected by storms and anomalous rainfall. Illegal logging has lead to deforestation and soil erosion, increasing the area's vulnerability to landslides and reducing the availability of arable land.

Figure 24 below provides relative food insecurity conditions in Bangladesh:

Figure 24: Relative Food Insecurity Map



Source: The Food Security Atlas of Bangladesh: 2004, World Food Program and the Bangladesh Government, Dhaka Bangladesh

Underlying Causes of Food Insecurity

The nature and causes of food insecurity in Bangladesh have been well documented in numerous reports[98] and will be briefly summarized here. Considering the three elements of food insecurity: Availability, access and utilization, it is evident that in Bangladesh, the availability of food is not a major concern. The country is almost self-sufficient in food, the road network is extensive and markets function well in most areas so that food is widely available. Only in the most remote areas such as parts of the Chittagong Hill Tracts or of the *haor* region, or after a natural disaster such as floods or cyclones is there sufficient disruption of transport and markets to restrict food availability. However, despite the relative availability, many households lack access to adequate food supplies by virtue of their limited purchasing power.

It is lack of access to food that is the main determinant of food insecurity in Bangladesh. This in turn is primarily a function of poverty. Bangladesh has a high proportion of extremely poor people. Variously classified as "ultra-poor" or "hard-core poor" 43.8 percent of the population exists below the extreme poverty threshold[99], while 40 percent of the population would meet the conventional criteria of poverty. These levels reflect three characteristics of the Bangladesh economy, the limited level of investment in both agricultural and other sectors of the economy, the high population and the socio-economic structure that in conjunction with limited investment and high population, fosters a skewed distribution of wealth.

Overlaid upon these three basic factors are other issues including vulnerability to natural disasters, availability and seasonality of rural employment, access to urban markets, and access to education, all of which will affect poverty levels to varying extents. These factors have been analyzed and mapped in Bangladesh. The resulting "poverty maps" produced jointly by the Bangladesh Bureau of Statistics and WFP allow the main areas of poverty to be accurately located and give some indication as to underlying causes in each case. Given the direct linkage between poverty and food insecurity, the maps provide a sound basis for the initial targeting of food security programs.

During the last 18 months, the temporary substantial increase in global food prices resulted in an equally substantial increase in the number of households that were unable to achieve adequate access to food. This has been extensively documented and a number of interventions were launched to mitigate the increase in prices. However, the long-term impact of both the price increase and subsequent interventions are as yet uncertain.

It is important to recognize however, that household access is not the only factor determining food security and particularly nutrition in Bangladesh. Household utilization is also critical. In particular the following factors affect individual food security and nutrition levels:

- Distribution of food within the household

[98] Bangladesh Food Security Programming Strategy FY2010-2014

[99] The extreme poor are unable to afford an adequate diet and other basic necessities.

- Nature and composition of the diet
- Feeding practices
- Health and sanitation

The distribution of food within the household is perhaps the most critical, yet poorly defined aspect of utilization. The practice of wives and young children feeding on what remains after the men and older male children in the family have eaten may contribute to lower weights in (first) adolescent girls and (secondly) wives, leading to lower birth-weights, and lower weights of weaned children (6-60 months). This practice is not only widespread, and hard to modify, but also mitigates against supplementary feeding interventions, since additional food may not reach those family members who are most in need, unless accompanied by intensive education and supervision.

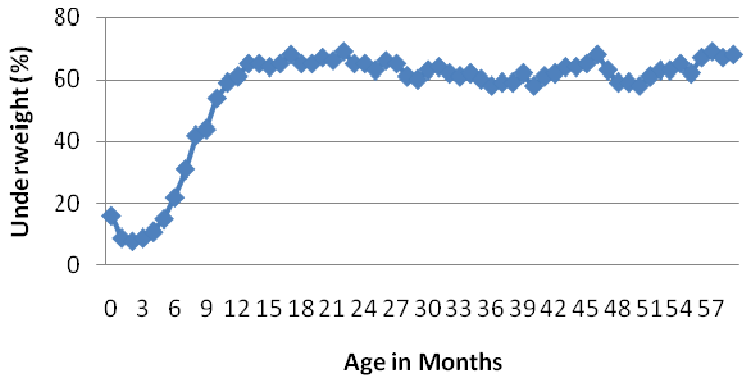
The composition of the traditional diet in Bangladesh is very limited. Rice is the main ingredient accounting for 68 percent of all calories consumed on a national basis and 71 percent of the rural diet. The significance of dietary diversity is highlighted by the fact that urban calorie consumption is actually *lower* (at 2194 Kcal/day) than that in poorer rural areas (2253 Kcal/day), but the urban diet is substantially more diverse. The urban diet contains only 82 percent and 97 percent respectively of the rice and vegetables consumed in rural areas, but three times as much wheat, 45 percent more pulses, 60 percent more oil, 74 percent more meat and 36 percent more fish[100]. The limited diversity of the rural diet is one factor that negatively impacts on nutrition contributing to anemia, night blindness and iodine deficiency (although the prevalence of the last two has been substantially reduced over the last 20 years), and to overall stunting amongst children.[101]

Feeding practices in rural areas also impact negatively on particularly children. Although the majority of mothers breastfeed for at least six months, subsequent complementary breastfeeding of weaned children is less commonly practiced and children over the age of six months frequently depend upon a porridge of rice flour, pulses and sugar. Neither the required diversity of diet, nor the necessary frequency of feeding are regularly practiced, with the result that there is a three-fold increase in the percent underweight between six and 12 months old (Figure 25).

[100] Report of the Household Income and Expenditure Survey 2005

[101] "Development of a Food Security Program Strategy for Bangladesh" USAID Presentation 19 March 2009

Figure 25: Increase in Percent Underweight Between 6-12 Months



Source: Helen Keller Institute 2001.

Finally, health and sanitation can significantly affect malnutrition levels in Bangladesh. Although safe drinking water is widely available, other aspects of sanitation remain poor. Less than 25 percent of rural households have access to improved sanitation facilities and open-air defecation in crowded communities has been a major source of disease, especially diarrhea. The level of worm infestation is particularly high. Parasitic worms are rated as the second most significant cause of morbidity in children after diarrhea. Sanitation facilities are unavailable and basic hygiene practices are unpracticed in many communities. In addition, the availability of healthcare is severely limited. There are officially ten doctors at each upazila level hospital, catering for on average 330,000 people, but in practice only half this number are commonly available, and although government plans to place an additional 12 doctors within each upazila, many view rural positions as hardship postings and do not remain on-station.

The consequence of these four factors (uneven intra-household food distribution, limited dietary diversity, poor feeding practices and limited health and sanitation facilities) is that within those households that have limited access to food, mothers and children under five are the most vulnerable to food insecurity. Moreover, even within those households that on the basis of income might be considered to have adequate access to food, poor utilization can result in individual food insecurity and consequent malnutrition.

In summary, food insecurity may occasionally be caused by limited food availability especially following natural disasters. However, it is limited access to food caused by poverty, combined with poor food utilization, that are the two main causes of food insecurity in Bangladesh.

Typical Hazards/External Shocks

The number and intensity of disasters is increasing globally. The recorded number of disasters, number of people affected and asset losses have all risen since reliable record keeping began in 1960s. The UNDP (2004) report suggests the economic costs (in absolute terms) of disaster from US$75.5 billion in the 1960s has increased to US$659.9 billion in 1990s. However, the social costs of disaster are far more catastrophic and often remain beyond estimation. Catastrophic disasters result in the destruction of fixed assets and physical capital, interruption of production and trade, diversion and depletion of savings and public and private investment.

Disasters affect the poor nation states and poor communities disproportionately given their fragile socio-economic capacity.

In recent decades, the frequency and intensity of climate related disaster events have increased significantly. Between 2000 and 2004 an average 326 climate-related disasters were reported each year. These affected approximately 262 million people annually – more than double the levels reported in the early 1980s (FAST FACTS, UNDP 2008). The number of catastrophic disasters will increase as global temperature will continue to raise and result in climatic variability.

The geographic setting of Bangladesh, the Himalayan mountain chain on the north and the funnel shaped ocean corridor in the south, offers the country a dynamic geomorphology but makes it very susceptible to natural disasters. Between 1960 and 2007, the country experienced 36 strong tropical cyclones that claimed 662,750 lives; the 1971 cyclone alone killed 500,000 people (Ericksen, et al. 1997). The 2007 cyclone Sidr, equivalent to a high-end category 4 hurricane that hit the country affected 8.9 million people and destroyed crops on 1.6 million acres land while the 2007 monsoon flood displaced 7 million people. This is well documented in the IPCC (2001) report that Bangladesh will experience more severe disasters due to climate variability.

Table 34: Matrix on Major Hazards/External Stress on Bangladesh Rural Livelihoods

Indicators	Micro	Meso	Macro
Natural Weather/climatic & environmental	Salinity Aridity Arsenic contamination Pest attack	Water-logging River erosion Deforestation Cyclone Epidemic Land degradation Land slide	Climate change Sea-level rise Flood Drought Tornado

Hazards/natural disasters impact on livelihoods by disrupting economic activities, destroying household assets, and causing health problems. Even after the disaster is over problems continue with the shortage of essentials commodities, consequent rises in price, destroyed infrastructural facilities, etc.

ANNEX 7: DIVISIONAL RANKING OF MALNUTRITION INDICATORS

Table 35: Bangladesh Demographics

Geographic Unit Name	Pop-2010	#HHs 2010	HAZ	rank
BARISAL	9,644,987	1,729,000	52.9	1
CHITTAGONG	28,662,653	4,887,000	51.5	2
SYLHET	9,368,425	1,533,000	47	3
RAJSHAHI	35,638,210	7,654,000	45.7	4
KHULNA	17,352,170	3,430,000	43.6	5
DHAKA	46,072,765	9,437,000	42.9	6

Geog.	WHZ	rank
RAJSHAHI	16.6	1
DHAKA	15.3	2
SYLHET	15.4	2
BARISAL	14.7	3
CHITTAGONG	13.4	4
KHULNA	8.4	5

Geog.	WAZ	rank
BARISAL	41.6	1
RAJSHAHI	41.1	2
SYLHET	40.5	3
CHITTAGONG	39.7	4
DHAKA	39.6	4
KHULNA	35.1	5

Geog.	women bmi<18.5	rank
RAJSHAHI	37.3	1
SYLHET	37	1
BARISAL	31.7	2
CHITTAGONG	30.8	3
DHAKA	29.8	4
KHULNA	27.7	5

Geographic Name	Pop. 2010	#HHs 2010	# of times in Top-3	# of times in Top-2
BARISAL	9,644,987	1,729,000	4	3
CHITTAGONG	28,662,653	4,887,000	2	1
SYLHET	9,368,425	1,533,000	4	2
RAJSHAHI	35,638,210	7,654,000	3	3
KHULNA	17,352,170	3,430,000	0	0
DHAKA	46,072,765	9,437,000	1	1

ANNEX 8: STORAGE & HANDLING CAPACITY

The following tabular data is compiled by WFP and listed in the 2009 Logistical Capacity Assessment for Bangladesh.

Table 36: Logistical Capacity Assessment – Chittagong Port Authority

Capacity			
	Bulk (MT/month)	**Container (MT/month)**	**General Cargo (MT/month)**
Total handling capacity of the port	-	9,39,047	1,36,125
Monthly activity of the port	-	7,51,238	1,08,900

Discharges Rates		
	Bulk (MT/Day)	**Bagged (MT/Day)**
to warehouse (silo)	3,500 – 4,000	Bagged cargo is not discharged in bags
to trucks	Bulk cargo is not discharged in trucks	2,000 – 2,500
to rail-wagons	Bulk cargo is not discharged to rail-wagons	750 – 1,000
to barges	Bulk cargo is not discharged to barges	Bagged Cargo is not discharged into barges
to bagging	Bulk is not bagged at the port	

Port Specifications					
	Nb	**Bulk**		**Conventional**	
		Min (m)	**Max (m)**	**Min (m)**	**Max (m)**
Berths	31	2.2 m	186 m	2.2 m	186 m
Anchorages	No limitations	8 ½ m	11 ½ m	8 ½ m	11 ½ m
Draught at anchor	meters	8.5 m	11 ½ m	8.5 m	11 ½ m
Draught at Berth	meters	8.55 m	9.2 m	8.55 m	9.2 m
Length Over All	meters	No limitations	186 m	No limitations	186 m
Beam (maximum)	meters	No limitations	No limitations provided length is 186 m	No limitations	No limitations provided length is 186 m

Port Cargo Equipment (Operational)		
	Quantity	**Capacity**
Shore Cranes	03 ton 02 ton	11 Nos. 15 Nos.

Mobile Cranes	50 ton 20 ton 10 ton	02 Nos. 06 Nos. 20 Nos.	
Bagging Machines	Chittagong Port does not have any bagging machines		
Silo Facilities	01 Silo Nos.	1,70,000 MT	
Vacuvators	16 75	10 tons an hour 15 tons an hour	m^2
Available Storage (covered) (in square meters)	Transit Sheds 1-9 Warehouses A, B, D, F, P, R, O Car Sheds Open Dumps	52,069 26,746 5,082 90,000	m^3
Available Storage (open air)	Warehouses 6 Open Dumps	32,500 2,00,000	m^3
Other (specify)			

Container Facilities			
		20 ft	**40 ft**
Container facilities		√O Yes O No	√O Yes O No
Daily off-take capacity	Number of containers	600	500
Container Freight Stations (CFS)		√O Yes O No	√O Yes O No
Number of CFS		04	04
Capacity of CFS		13278 TEUs	13278 TEUs
Refrigerated Container Stations		√O Yes O No	√O Yes O No
Number of Stations		01	01

Silos				
	Silo 1	**Silo 2**	**Silo 3**	**Units**
Max. capacity	1,70,000			MT
Daily Discharge	4000			MT
Draft (Height)	50			Metres
Free out into Silo	33 US $ [includes Landside, Transportation, Storage & Handling cost (LTSH)]			US$

Table 37: Road Length by Classification and Surface Type:

Classification	Kilometers
National Highway –	3,485.34
Regional Highway	5,273.67

Classification	Kilometers
Zilla Road	13,126.89
Total Road Length	21,885.90
By Surface Type	**Kilometers**
Bituminous	13,722.54
HBB	475.98
Earth	98.71
Total Paved Road Length	13,871.25
Total Unpaved Road Length	475.98
Total Surveyed Road Length	4,347.23
Length of Road Not Surveyed	7,538.67

Table 38: The RHD Road Network in Bangladesh

Zones	National Highway (Km)	Regional Highways (Km)	Feeder Roads – A (Km)	Total Length (Km)
Dhaka	540	272	2,655	3,467
Comilla	628	229	3,431	4,288
Chittagong	405	104	2,271	2,780
Rangpur	595	257	1,784	2,636
Rajshahi	376	217	1,372	1,965
Khulna	341	373	1,580	2,294
Barisal	259	294	2,871	3,424
Total (Km)	**3,114**	**1,746**	**15,964**	**20,854**

Table 39: Rail Network

Key Indicators: (2006/07)

Railway Locomotives	Broad Gauge	Meter Gauge
Broad Gauge	77	208
Freight Wagons	2,686	9,757
Track Km Operated	933	2,557
Stations	134	307
Goods Carried	3,057,000 MT	

Table 40: Inland Water Transport

Key Indicators: (2006/07)

Type	Vessels
Bangladesh Inland Water Transport	195
Organized Private Cargo	1898
Individual Private Cargo	67,000

Table 41: Storage Capacity

Data excludes Chittagong Port Storage Capacity

Public Sector	Number	Effective Capacity (MT)
Local Supply Depot	632	919,470
Central Supply Depot	12	347,277
Silos	5	225,800
Total		**1,492,547**
Private Sector (Estimated minimum*)		3,000,000

**Estimate based upon 6 weeks storage capacity of cereal need as assessed by IFPRI MTID Discussion Paper No. 92: Food Policy Liberalisation in Bangladesh – How the Governments and the Market Delivered.*

Table 42: List of Private Sector Warehouses used by CARE

Sl#	Warehouse Location	Usual Capacity (MT)
Tangail Region: (Mid Char)		
1	Sirajgonj	150
	Prop: Shib Narayan Sarda	
	S/o, late Manik Chand Sarda	
	Mujib Road (Maroary Potti), Sirajgonj	
2	Bogra	400
	BRDB Bogra Sadar	
	Upazila Parishad, Koigari Goil Road	
	District: Bogra, Bangladesh	
3	Pabna	600
	Prop: Md. Shariful Islam	
	BSIC industrial estate Pabna	
	Plot # A-35 Shed # 1, (Islami Auto Rice Mill)	
4	Sherepur LSD	500
	Khorom Pur, LSD Godam (GOB)	
	Sherepur	
5	Jamalpur	500
	Sarishabari LSD Godam (GOB)	
	Hospital Road	
6	Tangail	500
	Tangail Sadar, Bishasbitka	
	Bishasbitka LSD godam (GOB)	
	Total (Space):	**2650**
Rangpur Region: (North Char)		
7	Rangpur	320
	Muza: Alam Nagar	
	C/o, Mahabubar Rahman	
	Thana: Rangpur	
8	Nilphamary	600
	C/o, Abdul Siddique	
	Gasbari, Nilphamari Sadar	
	Nilphamari	
9	Kurigram Warehouse	200

Sl#	Warehouse Location	Usual Capacity (MT)
	Kurigram town	
	Distirct, Kurigram	
10	Rowmari (Kurigram)	250
	Luck Chinama Hall Road	
	C/o, Abdus Salam	
	Thana: Rowmari	
	District: Kurigram	
11	Gaibandha Warehouse	650
	Palasbari Road	
	C/o, Abdul Latif Hkkani	
	Thana:Gaibanda Sadar, Gaibanda	
	Total (Space):	**2020**
Kishorgonj Region: (Haor)		
12	Bairab Warehouse	1,100
	Alhaj Mohd. Ful Miah	
	Opposite of Upazilla Parishad, Bairab	
13	Hobigong	500
	Syastagonj L.S.D godam (GOB)	
14	Sunamgonj LSD (GOB)	1,000
	Mallikpur L.S.D	
15	Netrokona LSD (GOB)	500
	Baowshi, Barhatta Upazila	
	Netrokona	
	Total (Space):	**3,100**
Chittagong Region: (Coastal Zone)		
16	Central Warehouse (Private)	6,500
	Sadarghat Jetty	
	Sadarghat Road	
	Chittagong-4000	
17	Chittagong District Warehouse	600
	Bayzeed Bostami,	
	Chittagong	
18	Noakhali LSD (GOB)	1,000
	Noakhali Sadar Upazila	
	Sonapur LSD	
19	Cox's Bazar LSD (GOB)	1,000
	Cox's Bazar Sadar Upazila	
	Jilongja, Cox's Bazar	
	Total (Space):	**9,100**
Island Warehouse:		
20	Hatiya	850
	HASI, Oskhali Bazar, Hatiya, Noakhali	
	(Commodity will be Received from Noakhali District LSD)	
21	Sandip	60
	SDI Office, Haramia Complex	

Sl#	Warehouse Location	Usual Capacity (MT)
	P.O. Sener Hat, Swandeep, Chittagong.	
	(Commodity will be Received from Central Warehouse, Chittagong)	
22	Kutubdia	30
	COAST SHOUHARDO Office	
	Boroghop main Sarak	
	Kutubdia, Cox's bazar	
	(Commodity will be Received from Cox's Bazar District LSD)	
23	Moheskhali	30
	RIC SHOUHARDO Office	
	Gourab Ghata, Behind Dak Banglo	
	Moheshkhali, Cox's bazar.	
	(Commodity will be Received from Cox's Bazar District LSD)	
	Total (Space):	**970**
	Grand Total (Space):	17,840

ANNEX 9: DETAILS OF PREVIOUS & PLANNED FOOD AID INITIATIVES

In Bangladesh, there are five types of social safety net programs: cash support, food aid, special program for poverty reduction, self-employment through micro-credit and some specific programs for poverty alleviation. According to the World Bank, safety net programs reach about 4 to 5 million people annually and are expanded in response to natural disasters. “Even if the interventions were perfectly targeted that would still mean that less than 10 percent of the poor receive benefits – due to mistargeting and leakages, only about 6-7 percent of the poor are actually covered.”[102] The GOB spends the equivalent of less than 1 percent of GDP on the safety nets; “the ratio of expenditures on safety net programs as percentage of GDP and public expenditure has been declining.”[103]

The food transfer programs include Vulnerable Group Development (VGD), Vulnerable Group Feeding (VGF), Test Relief (TR), Gratuitous Relief (GR) and Food for Work (FFW). These are key components of the Public Food Distribution System (PFDS), which also includes other categories of distribution channels like Open Market Sales (OMS). The focus of the food-based safety nets has shifted over the years towards less of a ration-based (sales) more to non-sales channels. The PFDS is managed under the Ministry of Food and Disaster Management but implemented with various ministries.

The amounts of wheat and rice channeled through the PFDS are given in Table 43. Totals for the last three financial years ranged from 1,246,000 MT in 2005/2006, to 1,481,000 in 2006/2007 and to 1,359,000 in 2007/2008. In July 2009, the government announced its plans for the financial year (July 2009 – June 2010) of providing 550,000 MT through the VGF channel, 400,000 through Test Relief, 265,000 through VGD, 64,000 through Gratuitous Relief and 75,000 for other programs for a total of 1,354,000 MT. In order to store larger quantities of wheat and rice, the government is seeking funding to build additional warehouses and silos in various parts of the country.

Challenges facing the PFDS, among others, include declining contributions of food aid, storage constraints as the amount of food commodities is increased, limited coverage of vast needs of the large numbers of poor, and inadequacy of amount of food and cash transferred.

The proportion of food aid from donors distributed under the PFDS has declined since the late 1990s when food aid met on average 74 percent of food distributed under the safety nets. From

[102] “Social Safety Nets in Bangladesh: An Assessment,” Bangladesh Development Series No. 9, World Bank, January 2006, page 20.

[103] Ibid. page 16.

2000/2001 this proportion fell to an average of 30 percent. Figure 26 shows the trend since 2002/2003.

Figure 26: Proportion of Food Aid Distributed Under PFDS

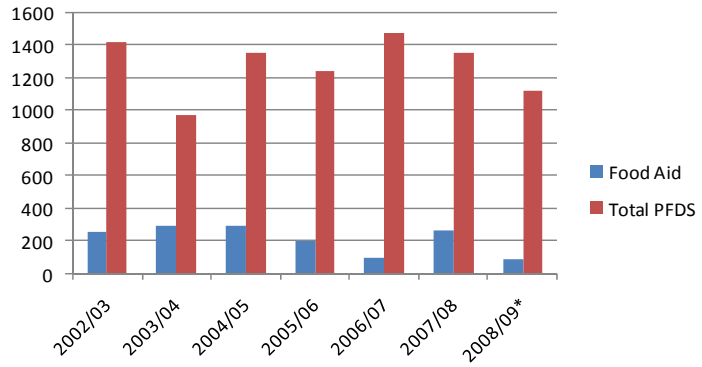


Table 43: Food Aid Distributed Under PFDS (MT)

Rice							
	2002/03	**2003/04**	**2004/05**	**2005/06**	**2006/07**	**2007/08**	**2008/09***
OMS	183	0	238	18	408	268	187.524
Ration and FM	133	145	151	208	170	157	102.165
FFE	0	0	0	0	0	0	0
FFW	177	177	134	227	123	86	66.745
VGD	12	39	111	168	117	204	105.678
VGF	64	81	214	128	230	187	327.93
TR, GR, Other	192	185	254	259	241	201	70.05
Total	761	627	1,102	1,008	1,289	1103	860.092

Wheat							
	2002/03	**2003/04**	**2004/05**	**2005/06**	**2006/07**	**2007/08**	**2008/09***
OMS	204	0	0	0	0	0	0
Ration and FM	123	122	116	120	126	95	58.871
FFE	0	0	0	0	0	0	0
FFW	122	25	1	6	2	49	19.883
VGD	163	138	92	77	46	70	77.61
VGF	1	2	0	0	0	1	0.129
TR, GR, Other	50	61	44	35	18	41	109.75
Total	663	348	253	238	192	256	266.243
Total PFDS	**1,424**	**975**	**1,355**	**1,246**	**1,481**	**1,359**	**1,126.335**

Food Aid from							
USA	55	140	56.4	51.2	6.6	93.7	15.8

WFP	117.7	52	132.6	57.3	71.6	115.2	50
Canada	31.9	39	51.8	0	0	0	0
EC	0	13	0	0	0	0	0
Australia	49.5	45	45	57.8	0	0	0
India	0	0	0	27.9	13	32.1	15.5
Pakistan	0	0	0	0	0	12	0
Italy	0	0	0	0	0	5.2	0
Total	**254.2**	**289**	**285.8**	**194.2**	**91.2**	**258.3**	**81.3**

Previous Initiatives

This section outlines previous initiatives as well as initiatives anticipated during the next 1-2 years.

NGOs/Awardees Operating in the Country

WFP continues to help address Bangladesh's chronic and transitory food insecurity through its Country Program, Emergency Operations (EMOP) and Protracted Relief and Recovery Operation (PRRO). In total in 2008 WFP reached 5.29 million beneficiaries with 158,030 MT of commodities.

The Country Program (2007-2010) supports the government in improving household food security, the nutritional well-being of women and children, education, skills development and livelihoods diversification and risk mitigation of the ultra-poor. In 2008, WFP assisted 1.92 million beneficiaries under the Country Program alone, distributing 78,499 MT of commodities.

The Vulnerable Group Development Program (VGD) activity targets ultra-poor women with two years of assistance and training. During this two-year cycle each VGD woman receives a monthly ration of 25 kilograms of micro-nutrient fortified wheat flour (*atta)* or 30 kilograms of cereals (rice/wheat). To address high malnutrition rates among VGD women, WFP introduced *atta,* which has reduced leakage, increased income transfer by 30 percent and eliminated the need for VGD women to pay for milling of wheat themselves. Currently, around 230,000 VGD participants receive the *atta*. The food ration is combined with a development package. In a study carried out by the International Food Policy Research Institute (IFPRI) the results showed that "among the different forms of transfer, the biggest improvement in the food security of the extreme poor, and women in particular, is achieved through *atta* transfers….."[104]

Community nutrition interventions included 23,004 ultra-poor women, adolescent girls, pregnant women, lactating mothers, and children (6 to 24 months). This activity provides micro-nutrient fortified blended food supplements complemented by various community nutrition initiatives encouraging the participants to increase participation in preventive health programs and

[104] "Relative Efficacy of Food and Cash Transfers in Improving Food Security and Livelihoods of the Ultra Poor in Bangladesh," International Food Policy Research Institute, November 2007, pages 120-121.

increase their understanding of nutrition. The monthly ration consists of 6 kilograms of wheat soya blend (WSB) per participant (or the equivalent of 200 gm a day).

Food For Education (FFE) activities include both primary and pre-primary school children. In 2008, approximately 527,768 primary school children were provided with a 75 gm pack of biscuits each school day. WFP provided the biscuits to about 22,232 pre-primary school children.

Activities to enhance resilience of households to natural disasters benefited 186,170 people from the most food-insecure, disaster-prone districts and households affected by rodents in the Chittagong Hill Tracts.

Under a PRRO, WFP continued to assist 23,862 Rohingya refugees in the Cox's Bazar area, distributing 4,566 MT of commodities in 2008.

The EMOP to assist cyclone Sidr- affected people reached a distribution level of 74,515 MT in 2008 covering 3.42 million beneficiaries.

CARE: CARE's livelihood and food security program, "Strengthening Household Ability to Respond to Development Opportunities" (SHOUHARDO) reaches 400,000 food insecure and vulnerable households in Bangladesh. Key partnerships with the GOB and 45 NGOs are built on a strong base in the communities in the coastal, *haor* (seasonally flooded areas)and mid and north *char* (sand islands) areas. The program goal is to sustainably reduce chronic and transitory food insecurity. A key component in achieving this goal is community mobilization through a people-centered approach. The specific objectives include: livelihoods and governance; health, hygiene and nutrition; empowerment of women and girls; and disaster preparedness, mitigation and response.

Program participants are selected though a community well-being analysis, including selection of pregnant and lactating women eligible for food rations. The monthly ration consists of 12 kilograms of wheat, 0.5 kilograms of yellow split peas and 1.5 kilograms of vegetable oil. Along with the monthly distributions, there are key messages imparted through training on health and nutrition and growth monitoring activities. The food aid distribution at the village level is handled by local committees under the supervision of CARE.

Food For Work (FFW) activities were planned to create employment opportunities for the extreme poor in remote villages covered by the SHOUHARDO program. A food package was used as a wage for construction of community assets and infrastructure like dikes, homestead raising, flood shelters, access roads and the like. This activity was implemented from June 2006 through June 2007, covering 155,184 beneficiaries with 2,882 tons of food commodities. However, these activities were discontinued for lack of sufficient resources. CARE organized distribution of commodities through multi-modal transport including trucks and boats to remote locations (final delivery points, or FDPs). The logistics and commodity management systems are well organized.

The total number of beneficiaries who received food rations from FY2006 through May 2009 reached 219,000 pregnant women and lactating mothers. The tonnages distributed are given below.

Table 44: SHOUHARDO Program Commodities Distributed

Fiscal Year	Distributed to FDPs (MT)				Remarks
	Wheat	Veg. Oil	Peas	Total	
FY2005	-	-	-	-	
FY2006	1,739	227	76	2,041	
FY2007	16,524	2,116	705	19,346	
FY2008	14,302	1,742	635	16,679	Including 1,092 MT for cyclone Sidr quantity
FY2009	7,776	972	324	9,072	As of May'09
Total	40,341	5,057	1,740	47,138	

Save the Children: Save the Children's "*Jibon-O-Jibika*" (Life and Livelihood) program promotes food security in three coastal districts of Barisal Division in the south-central region of Bangladesh. *Jibon-O-Jibika* aims to increase food availability and access at the household level, improve maternal and child health and nutrition and improve community disaster preparedness. This program is implemented through three partners: Helen Keller International, the NGO Forum for Drinking Water and Sanitation and the Cyclone Preparedness Program (CPP) of the Bangladesh Red Crescent Society. The J-O-J program aims to reach a total population of 2.6 million people from 470,000 households with a specific focus on children less than two years old and pregnant women in the targeted upazilas (sub-districts).

The MCHN component focuses on improving dietary intakes of children under two and of women. Key maternal and child health and nutrition practices are included in the trainings. This component targets about 72,000 pregnant women and 180,000 children under two as direct beneficiaries. The monthly food ration consists of 3 kilograms of wheat, 0.5 kilograms of yellow split peas and 0.5 kilograms of vegetable oil. The ration functions as an incentive for any pregnant woman to participate in regular ante-natal care or for the mother of a child under two who attends growth monitoring promotion activities.

The homestead food production component focuses on increasing the availability of food and increasing household purchasing power. The strategy is to increase consumption of green leafy vegetables, pulses and animal protein among the targeted populations, which includes 31,240 direct beneficiaries from 29,040 households. Monitoring data show that this consumption has doubled since the baseline. Furthermore, the mid-term evaluation reported that there was better utilization of food consumed as a result of participation.[105]

[105] Mid-Term Evaluation, page 1.

Save has a well organized food distribution system. One notable innovation was the use of scanning for ration cards. In total, as of June 2009, Save the Children has distributed 22,400 MT of commodities. The breakdown by year is given below:

Save the Children

Table 45: Save the Children Commodities Distributed

Year	FY2005	FY2006	FY2007	FY2008	FY2009
MT	4,050	4,590	5,261	7,888*	2,060

**Including SIDR responses*

Table 46: Total Annual Monetized Food Aid by Donor and by Commodity

FY	2005		2006		2007		2008		2009		Total	
Units	**MT**	**$'000**	**MT**	**$'000**	**MT**	**$'000**	**MT**	**$'000**	**MT**	**$'000**	**MT**	**$'000**
Wheat SWW												
CARE (GOB)	40,000	6,687	32,000	6,869	25,862	8,317	20,160	9,417			118,022	31,290
Save (GOB)	16,460	2,752	19,610	4,209	19,460	5,491	3,300	1,541	16,260	5,037	75,090	19,031
Wheat HRW												
CARE (GOB)							21,200	9,903	42,860	12,327	64,060	22,230
CARE (Private)					19,131	5,412	8,200	3,647			27,331	9,059
Save (GOB)							4,700	2,175			4,700	2,175
Subtotal (Wheat)	56,460	9,439	51,610	11,078	64,453	19,220	57,560	26,683	59,120	17,364	289,203	83,784
CDSO												
CARE (Private)	16,795	7,911	8,606	4,369							25,401	12,280
Total	**73,255**	**17,350**	**60,216**	**15,447**	**64,453**	**19,220**	**57,560**	**26,683**	**59,120**	**17,364**	**314,604**	**96,064**

Total Annualized Distributed Food Aid by Donor and by Commodity

In addition, the quantity of vegetable oil is 34,183 MT, or only 2.4 percent, and peas reach only 13,500 MT, or 0.9 percent of total volumes. WSB was provided in the amount of 9,837 MT, or 0.69 percent and High Energy Biscuits (HEB) amounted to 8,015 MT, or 0.56 percent, which are foods targeted for vulnerable groups. Fortified wheat flour (*atta)* is subsumed under the wheat quantities as the flour is milled and fortified after arrival in the country. The GOB contributes to the WFP for the VGD program, which in 2008 amounted to 54,900 MT of wheat.

GOB National Nutrition Program (NNP): In addition to NGOs and CSs operating in Bangladesh, the GOB has a National Nutrition Program (NNP), which it initiated in 2001 with support from the World Bank and is now part of the Bangladesh Health, Nutrition and Population Sector Program (HNPSP). The nutrition component aims to improve the nutritional status of children under two and build the capacity of families and communities to care for children. The program aims to significantly reduce malnutrition, especially among poor children and women. NNP has three major components: area-based community nutrition (ABCN), inter-sectoral nutrition, and national-level nutrition components. The ABCN activities at community level include: weight monitoring and promotion of pregnant women; growth monitoring and promotion of under-2 children; supplementary feeding of severely malnourished and growth faltered children, and low

BMI pregnant women; iron-folate supplementation to pregnant women and adolescent girls; vitamin A supplementation to post-partum mothers; organizing forum meetings of newly-wed couples, adolescents, fathers/ mothers-in-law, husbands of newly-wed and pregnant women for counseling; home visits and referrals.

VGD-NNP Activities: The vulnerable group development (VGD) and NNP collaboration was implemented during 2007-2008 in 12 cyclone Sidr-affected upazilas of five districts in Barisal and Khulna divisions. Four NGOs conducted two-day trainings of 10,000 VGD women on vegetable cultivation and rearing of poultry under the community awareness and income generation activity. After successful completion of the training they received Taka 400 as non-refundable grant for purchasing poultry chicks, vegetable seeds and fertilizer.

During the 2008-2009 financial year, a total of 30,000 VGD women in 24 upazilas in 11 districts in *char* (unstable lands in riverbeds), *haor* (vast areas flooded during the monsoon) and river erosion areas received two-day trainings on vegetable cultivation and poultry rearing. Each participant received Taka 300 grants to purchase vegetable seeds, fertilizer and poultry chicks. Eight NGOs conducted this training.

The NNP project provides Taka 3.50 for preparation of a local product (roasted rice powder, roasted pulses powder, molasses and oil) known as "*pushti.*" On average each packet provides 150 kcal. The taka amount provided is becoming insufficient to cover costs so in some community nutrition centers the packets are no longer available. Two packets of "*pushti*" (300 gm) is supposed to be given to each child at the community nutrition centers and each pregnant or lactating woman is supposed to receive four packets (600 kcal) over six days.

Planned Initiatives

USAID: *Vulnerability of Poor Communities and Households to Natural Disasters*

In a disaster prone country like Bangladesh, Title II programs are expected to focus on increasing the capacity of households and communities to withstand shocks. Reducing the vulnerability of poor households, often living on marginal lands more prone to natural disasters like flooding and erosion, involves infrastructure development, asset creation and preparedness activities. Helping communities to plan better and prepare to manage natural disasters through community-based organizations is one focus of such a program. Food for work or a combination of food and cash are approaches to help poor households cope better with natural disasters and with seasonality of times of hunger. Repairing, rehabilitating or building infrastructure at community level can contribute both to disaster mitigation but also to creation of productive assets. These will contribute to better disaster risk reduction to the extent possible and at the same time to greater food security in the communities. These assets and infrastructure should be built after consultation with the communities, particularly the poor and women. There is a long history of such works in Bangladesh, for example, in raising homesteads, latrines and tubewells above flood levels, building cyclone or flood shelters or building dikes, protecting river banks or mounds from erosion. One advantage is that food for work is self-targeting as only the poor will be interested to work in such programs.

USAID: Prevention of Malnutrition in Children under Two Approach (PM2A)

The Prevention of Malnutrition in Children under Two Approach (PM2A) targets pregnant women and lactating mothers, and children up to the age of two years. The program is designed to provide the following services to the targeted population:

1. General nutrition and health services for children including vitamin A supplementation, de-worming, management of diarrheal diseases, malaria prevention strategies (if applicable), immunization, prevention and treatment of iron deficiency and growth monitoring and promotion;

2. A strong behavioral change/communication strategy focusing on improved preventive practices in feeding, care, hygiene and the seeking of health services for infants and young children up to 24 months of age, as well as for pregnant women and lactating mothers;

3. Active case detection and referral for treatment of children under 5 years with severe acute malnutrition;

4. Monthly distribution of food rations to beneficiaries;

5. Pre- and post natal care;

6. Home visits to pregnant women, mothers of newborn infants, severely malnourished children and/or children with faltering growth.

WFP

The WFP Country Program (2007-2010) and the PRRO together are targeting a total of 1.75 million beneficiaries in 2009 with 88,040 MT of food . Included under this target are the VGD program, food for education, community nutrition, and enhancing resilience and the PRRO plans to reach Rohingya refugees.

The EMOP, “Emergency Safety Net for Vulnerable Groups Affected by High Food Prices and Natural Disasters in Bangladesh,” provides targeted relief assistance; nutrition interventions; school feeding; employment generation and technical assistance to strengthen the capacity of government to design and manage effective safety nets.

Targeted relief assistance is designed to meet the immediate food needs of vulnerable groups in high food insecure urban and rural areas. The nutrition intervention is designed to reduce and/or stabilize acute malnutrition among targeted beneficiaries. School feeding assistance is designed to improve enrolment, attendance and learning by reducing short term hunger in primary schools in remote high food insecure rural areas and in urban slum catchments. Employment generation activities are designed to improve access to food through income transfers using both food-for-work and cash-for-work.

The EMOP has been extended through 31 December 2009 to reach 1.07 million beneficiaries with 83,666 MT of commodities.

Table 47: Distributed Food Aid Products

Commodity	Donor	2003	2004	2005	2006	2007	Total	%
Various (<0.5% each)	Various	1,361	1,872	1,352	336	2,394	7,315	0.51
High energy biscuits	The Netherlands	0	1,796	830	0	0	2,626	
High energy biscuits	United Kingdom	0	1,097	616	0	0	1,713	
High energy biscuits	Switzerland	176	44	962	0	0	1,182	
High energy biscuits	Various (<5% each)	0	606	35	0	275	916	
High energy biscuits	Norway	0	600	0	0	0	600	
High energy biscuits	Australia	0	0	42	400	137	578	
High energy biscuits	Spain	0	0	0	0	399	399	
Subtotal		**176**	**4,143**	**2,485**	**400**	**811**	**8,015**	**0.56**
Plain dried skim milk	US	30	3,030	0	1,000	4,500	8,560	
Plain dried skim milk	Various (<5% each)	0	0	0	3	0	3	
Subtotal		**30**	**3,030**	**0**	**1,003**	**4,500**	**8,563**	**0.60**
Wheat-Soya Blend	US	106	2,749	0	0	0	2,855	
Wheat-Soya Blend	United Nations	1,504	0	0	0	108	1,612	
Wheat-Soya Blend	European Community	0	0	1,518	0	0	1,518	
Wheat-Soya Blend	China	0	1,000	0	144	0	1,144	
Wheat-Soya Blend	Sweden	200	195	515	92	12	1,014	
Wheat-Soya Blend	Norway	500	0	0	460	0	960	
Wheat-Soya Blend	Various (<5% each)	150	85	0	209	290	734	
Subtotal		**2,460**	**4,029**	**2,033**	**905**	**410**	**9,837**	**0.69**
Peas	US	787	350	780	1,120	2,413	5,450	
Peas	United Kingdom	20	3,632	0	32	0	3,684	
Peas	Various (<5% each)	238	542	285	246	1,683	2,994	
Peas	European Community	0	0	0	0	1,372	1,372	
Subtotal		**1,045**	**4,524**	**1,065**	**1,398**	**5,468**	**13,500**	**0.94**
Vegetable oil	US	377	200	17,440	10,770	2,925	31,712	
Vegetable oil	Various (<5% each)	176	1,769	144	148	235	2,472	
Subtotal		**553**	**1,969**	**17,584**	**10,918**	**3,160**	**34,183**	**2.39**
Rice	Japan	0	2,753	12,528	7,516	5,310	28,107	
Rice	India	0	0	0	27,500	0	27,500	
Rice	Various (<5% each)	2,940	1,471	1,000	1,281	14,749	21,441	
Rice	United Kingdom	0	14,709	0	0	2,446	17,155	
Rice	United Nations	0	0	0	0	16,442	16,442	
Rice	US	0	9,889	2,727	1,059	0	13,675	
Rice	Sweden	1,540	2,000	3,650	2,419	559	10,168	
Subtotal		**4,480**	**30,822**	**19,905**	**39,775**	**39,506**	**134,487**	**9.40**

Commodity	Donor	2003	2004	2005	2006	2007	Total	%
Wheat	USA	236,320	12,100	105,854	83,910	73,939	512,123	
Wheat	Australia	45,000	86,268	60,150	75,393	47,930	314,741	
Wheat	Various (<5% each)	92,225	16,552	64,429	0	22,160	195,366	
Wheat	Canada	78,680	60,300	18,630	14,000	21,045	192,655	
Subtotal		**452,225**	**175,220**	**249,063**	**173,303**	**165,074**	**1,214,885**	**84.91**
TOTAL		**462,331**	**225,608**	**293,486**	**228,037**	**221,322**	**1,430,784**	

Source: INTERFAIS DATA

ANNEX 10: DETERMINING IMPACT OF A DISTRIBUTION PROGRAM

The “Bellmon Amendment” requires assurance that a proposed food aid distribution program would not result in a substantial disincentive to or interference with domestic production or marketing. The extent to which distributed food aid has the potential to result in disincentive to local production and markets rests fundamentally on whether or not proposed food aid will represent "additional consumption" for beneficiary households, i.e., food consumption which would not have occurred in the absence of the food aid distribution program.

Why Would Food Aid Introduce a Substantial Disincentive to Local Production and Markets?

Though food aid beneficiaries are expected to consume the food provided, households may respond to the receipt of food aid in a number of ways depending on prices, local diet preferences, and perceived needs for non-food goods and access to local markets. A beneficiary household may:

- Consume the food aid without reducing its regular market purchases or small-scale production to compensate for a food deficit in the normal diet caused by insufficient purchasing power, in which case the food aid represents additional consumption;
- Use a portion or all the food aid to displace market purchases that otherwise would have been made;
- Use a portion or all the food aid to substitute for the home consumption of own production and sell the released production in the market; or
- Consume some portion (or none of) the food aid and sell the other portion (or all) on the market, and use the income generated from that sale to consume other food and non-food goods.

Effective targeting of food-deficit households will avoid substantial disruption of local production and markets caused by providing food aid to households who would reduce market purchases and/or household production of staples after receiving food aid.

In the case of a distribution program such a PM2A, which has a very specific goal of preventing early childhood malnutrition, and therefore targets pregnant women, lactating mothers and children under two years old, ‘effective targeting’ from a Bellmon perspective would involve initial geographic targeting based on household food deficits, followed by targeting households based on PM2A program eligibility (i.e. all children 6-23 months and all pregnant/lactating women).

How Can We Determine Whether A Specific Proposed Food Aid Distribution Program Would Introduce a Substantial Disincentive?

The key to determining whether or not food aid would result in a substantial disincentive is to assess whether or not food aid would represent additional consumption. Ideally, one would conduct household surveys to determine whether or not a household would consume the food aid without changing their production and purchasing behavior, which would indicate whether or not food aid would represent additional consumption for the household. However, because household surveys are expensive and time-consuming, proxy indicators of 'additionality' can be used to assess the potential for leakage. This is the approach taken in the present analysis.

Among the other possible proxy indicators of additionality are an estimated nutrition gap, food consumption score (or some other measure of actual consumption), sources and levels of income, malnutrition rates and other food insecurity classifications (e.g., IPC), or some combination of these indicators.

Nutrition Gap

A nutrition or food gap estimate provides a measure of the difference between available food (proxied by domestic food production) and the amount of food needed to support a specific per capita daily nutritional standard (generally 2100 kcal per person per day, although FAO estimates have been revised and are now country-specific). If estimated on a more localized level (i.e., at the level closer to the communities in which a cooperating sponsor would implement a distributed food aid program), a nutrition or food gap can provide a very useful measure of that volume of food which is not currently supplied by local production and/or markets, and which would represent an appropriate volume under a proposed Title II non-emergency food aid *distribution* program to assure minimal to no disincentive effect. In order to estimate a sub-national food or nutrition gap, it is necessary to collect data on population, production and trade flows within relevant catchment areas. Collection of trade flow data at a sub-national level is an extremely time-consuming and expensive undertaking and outside the present BEST scope of work. For the purposes of the distribution analysis, one or more proxy indicators of 'additionality' are used to characterize the *relative* food or nutrition gap at the sub-national level.

One source of estimated food deficits is FAO's new "depth of hunger" estimates, which provide national averages for the estimated food deficit of undernourished population in countries across the globe. According to the most recent estimates for Bangladesh (2003-2005), the estimated food deficit for the undernourished population is 290 kcal per person per day based on a Minimum Daily Energy Requirement of 1750 kcal per person per day. These figures provide a useful national benchmark which can be used prior to conducting formative research in proposed target communities to determine in more precise detail the average household deficits of beneficiary households. While this report makes use of these figures to develop an illustrative household ration under PM2A, the analysis nevertheless maintains the use of proxy indicators of 'additionality' to characterize the *relative* food or nutrition gap at the sub-national level in order to provide initial geographic targeting guidance.

Prevalence of Malnutrition in Children

While analysis of livelihood strategies may allow food insecurity to be assessed on the basis of the availability of and access to food, the analysis can ignore other effects including the degree to which food is effectively utilized. The relation between income and food security is context- and location-specific, with livelihood strategies as intervening variables. Such factors as disease, food hygiene, social customs and food storage and preparation practices can all influence the extent to which available food is effectively utilized and will contribute to the ultimate level of nutrition. Where wealth and nutrition outcomes are strongly and positively correlated, improving food access will help to improve nutritional outcomes. Conversely, where wealth status and nutritional status are only weakly correlated, increasing access alone will very likely be an insufficient intervention to reversing malnutrition. Where intra-household resource allocation, poor feeding practices, or disease burdens are a significant underlying cause of malnutrition, distributed food aid will be more effectively used, as an incentive to attend nutrition and health training.

The direct determinants of child malnutrition (breastfeeding, complementary food, disease incidence and access and utilization of healthcare) may be more important factors in determining the prevalence of child malnutrition than household food security.

ANNEX 11: FORTIFICATION OF WHEAT FLOUR

Given the high levels of malnutrition and micronutrient deficiencies, the cost to beneficiaries of milling wheat into flour and the potential positive impact on local employment of women, a strong case can be made for inclusion of locally fortified and milled wheat flour in a PM2A type of program in Bangladesh. In a trial wheat fortification program under the VGD program, the USAID Micronutrient Program (MOST) "found that over 95 percent of recipient households found the wheat flour ration more convenient than the prior ration of whole grain wheat. The shift to wheat flour averted the need for milling, and the packaging by which the wheat flour was delivered made pilfering more difficult." [106]

Currently beneficiaries receiving wheat have to pay from Taka 2-4 per kilogram to mill the grain into flour and also pay for transport to the local mills. For example, transporting and milling the ration under the CARE Shouhardo program of 12 kilograms a month, can result in a poor woman beneficiary having to pay up to Taka 48 for the milling plus an average of Taka 10 for transport costs.

The transformation process from wheat to *atta* (whole wheat flour) includes mixing of vitamin premix into the whole meal flour in appropriate proportions. The premix contains seven components: five vitamins (A, B1, B2, Niacin and Folic Acid) and two minerals (Iron and Zinc). This can meet 60-80 percent of the daily recommended nutrients intake of common vitamins and minerals. The *atta* provides 340 kcal of energy per 100 gm. The wheat can be milled in local mills near to distribution sites and sent out in polypropylene bags.

To ensure adequate storage under the humid conditions faced in Bangladesh require a minimal time in warehouses. The MOST final report reinforced this point: "The moisture level of the *atta* (above 10 percent) had to be reduced by drying of *atta* prior to blending of fortificants. This finding points to the conclusion that moisture management will be a critical part of the milling process in Bangladesh, especially when the fortified *atta* has to be stored for a few weeks prior to distribution."[107]

Currently WFP contracts four NGOs at 29 sites to produce and deliver the commodity to 240,000 VGD beneficiaries. The cost is $5 per MT for the premix. Total costs, including the premix, the milling and transport to distribution points, costs $27 MT. The annual cost of operation of a mill is $40,000.

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[106] "Wheat Flour Fortification Program in Bangladesh: Final Report," MOST, USAID Micronutrient Program, October 2003, page viii.

[107] Ibid, page 8.

The advantages of local milling are several, including short delivery period and steady supply from nearby mills to the beneficiaries. Wheat can be delivered from Chittagong to NGO regional warehouses and then on to the mills.

Note: for every 30 kilograms of wheat in VGD, the beneficiaries get 25 kilograms of atta (extraction rate of around 15 percent).

ANNEX 12: RATION COST CALCULATIONS

The assumptions made to calculate monthly PM2A ration costs are outlined below. These scenarios are meant to be illustrative only of the general differences in commodity volumes and potential beneficiary coverage since the ration size, composition (and delivery frequency of household rations) that might be proposed for any upcoming PM2A is unknown at this time.

HAITI PILOT (for reference):

Ration size and composition as used in preventive interventions in Haiti trial:

- Individual mother ration, individual child ration and household ration provided on year-round basis to all households within catchment area
- 29 kilograms per month per beneficiary household composed of CSB, WSB, pulses and oil

INDIVIDUAL RATIONS:

As noted previously, although CSB is used for purposes of illustration, potential awardees should consider substituting fortified wheat flour (*atta*) in lieu of CSB due to storage and food safety constraints in the Bangladesh context

- Ration size and composition based generally on ration used in preventive interventions in Haiti trial, but scaled down partially to reflect maximum physiological capacity of children under 23 months of age
- Mother's ration of 6 kg of CSB per month provided for 12 months (assuming detection of pregnancy in 4th month of gestation through exclusive breastfeeding period of infant's first 6 months of life)
- Child's ration of 3 kg of CSB per month provided for 18 months (between 6 – 23 months)
- One child 6-23 months of age or one pregnant or lactating mother per household
- July and August 2009 Commodity Calculator food and freight costs

HOUSEHOLD RATIONS:

According to FAO "depth of hunger" estimates for Bangladesh for 2003-2005, the estimated food deficit for the undernourished population is 290 kcal per person per day based on a Minimum Daily Energy Requirement of 1750 kcal per person per day. For purposes of ration cost calculations, the household ration assumed in this analysis is designed to meet 112% of

the estimated household deficit of the average undernourished population, and 15% of the total household monthly caloric requirements.

- 12 kilograms per month per beneficiary household, composed of 6 kg of wheat, 4 kg of lentils and 2 kg of vegetable oil
- For calculations involving distribution limited to lean season, a four-month lean season is assumed
- One child 6-23 months of age or one pregnant or lactating mother per household
- July and August 2009 Commodity Calculator food and freight costs

While specific commodities were assumed for purposes of this illustration, please consult with Food For Peace to determine if a specific commodity, particularly a specific pulse, is available in sufficient quantities to fulfill program needs.

ANNEX 13: CONTACT LIST

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Md Ruhul Amin, Director General, FPMU, Ministry of Food & Disaster Management	MOFDM	1-Jul-09	FPMU Office	Dhaka	88027164144	ruhul.amin@nfpcsp.org
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Name	Organization	Meeting Date	Address	City	Phone 1	E-mail
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