

FOOD SECURITY-WAY AHEAD FOR A HUNGER FREE BANGLADESH

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INTRODUCTION

With the increase of global population, the demand for food has risen to a height that food “production” cannot meet the demand. Food security issue in contemporary time came under focus only in 1960s with the “Green Revolution” as the World body’s initiative at the wake of frequent famine, poverty, and hunger due to food insufficiency. Earlier food security used to be seen as availability of food only. In 1974 World Food Summit (WFS) a simple definition of food security was agreed upon by the member states. However, it went under several changes over the years to reach to an acceptable definition by WFS 2006. The definition now includes “availability”, “accessibility” and “utilization”.

One hundred percent of rural households’ economy of Bangladesh is agro based while 48% of the country’s employment is consumed by agriculture sector. Bangladesh, being an over-populated country with highest population density suffers the wrath of poverty since its inception in 1971. The country with the utmost hard work of the scientists and farmers grew rice almost three times more than it had grew in 1970s. Bangladesh tried to cope up with the population growth but yet to meet the criteria of food security. Presently 41.2% people are below poverty level rendering inability to buy appropriate food containing correct nutrients resulting prevalence of huge malnutrition. Ignorance, on the other hand, kept the solvent households undernourished too.

Agriculture is also dependent on nature. Experts predict that food security issues might bring changes in world order even wars in future. Disaster prone Bangladesh suffers severe setback in agriculture production due to frequent flood, drought, cyclone, salinity etc. Governments over the years are striving hard to ensure food security in the country. Steps taken to halve poverty under the auspices of Millennium Development Goals (MDG) have been found on track which will directly contribute in attaining food security. Scientific approach to increase production and efforts to keep the cost affordable must go in parallel. Political and diplomatic approaches to global forums against global warming, environmental pollution, bio-fuel issue, hoarding etc will make significant impact in ensuring food security in Bangladesh.

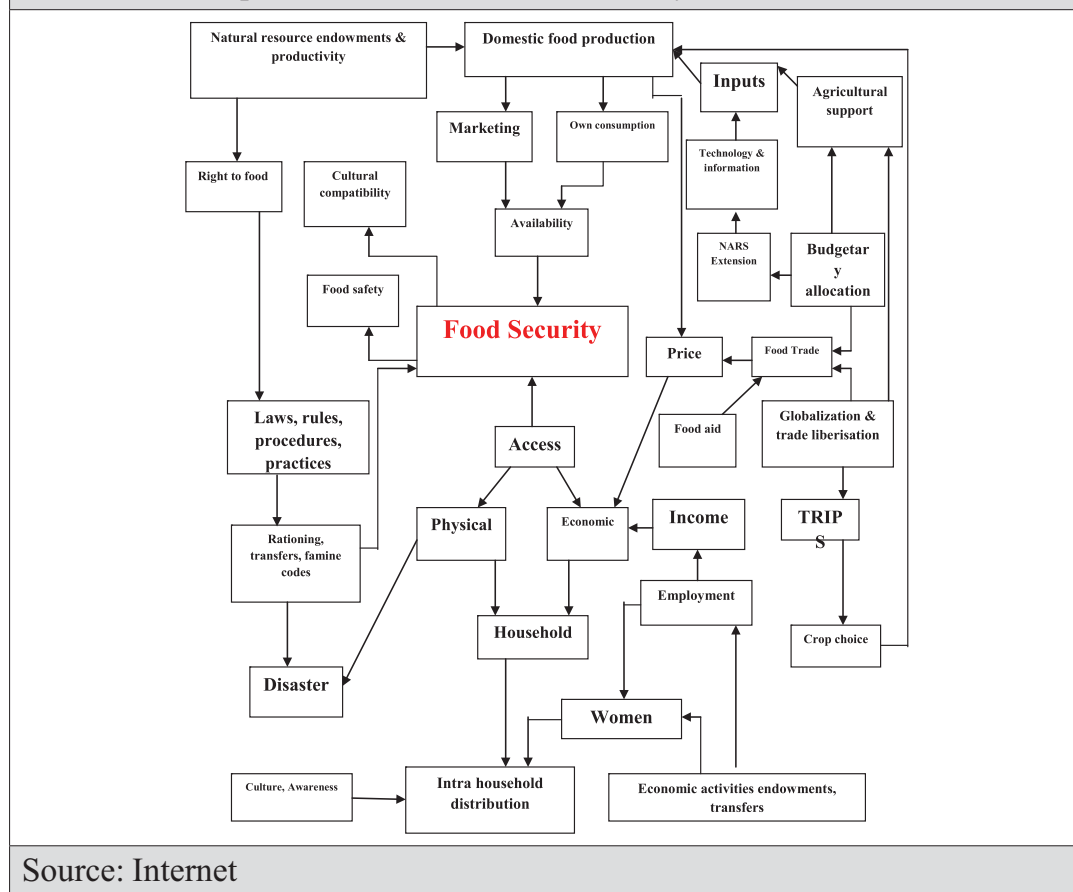
CONCEPT OF FOOD SECURITY AND ALLIED GLOBAL ISSUES

Concept and Definitions of Food Security

Food security is not a new concept rather it had been a concern for many centuries. Thomas Robert Malthus (1766-1834), in known history, first said about food security in his famous theory “*An Essay on the Principles of Population*, shortly known as *First Essay*, 1798. Neo-Malthusians argue that more than two centuries since the first essay the simple theory of Malthus was not proved true till 1980s and 1990s when the world at last had reached a critical turning point (Dyson, 1999, p.11). The debate on the concept of food security prolonged for a long period.

Food security does not mean food only. The diagram below shows that food security encompasses economical, social, political and cultural values directly influencing dietary habit, food production, distribution system, market facilities, natural disaster etc.

Table 1: A Complex Dimension of Food Security



Source: Internet

Food Security: Food security was defined in WFS held in 1974 as “availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices” (UN, 1975). The WFS at Rome in 1996 adopted a more viable and composed definition, “Food security, at the individual, household, national, regional and global levels [is achieved] when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO, 1996). A widely accepted definition thus stood hitherto as “Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 2006). It thus has three distinct components, “availability, “access” and “nutrition”.

Food “Availability”: Nutritious food should be obtainable by households of all levels in adequate quantity at all time of the year may be at home or at market. On the other hand it is the sum of domestic production, imports (both commercial and food aid) and changes in national stock (Gerald, 2003).

Food “Access”: Access means individual’s affordability to acquiring appropriate food for a nutritious diet.

“Utilization (Nutrition)”: Food utilization relates to the capacity of an individual to absorb and utilize the nutrients in the food she/he consumes and is determined by practices, beliefs, eating habits, hygiene, sanitation and health (Gerald, 2003).

Causes of Food Insecurity

The core reason of food insecurity arises when the demand and the supply equation varies. The population growth in the world is in the rise as a natural phenomenon which increases pressure on the supply curve. In the projected population growth of the world, birth rate is more than the death rate as such there are growth of population (Dyson Tim, 1996). Nature and environment play vital role in food grain production. Deforestation, cutting of hills, construction of dams etc has distressed the nature to support cultivation. Manmade pollution now is standing as direct cause of food security. Poverty, including the associated vulnerability of natural or man-made shocks is the root cause of food insecurity and nutrition. Food security, nutrition and population growth stand in a particularly complex long term relationship.

FOOD SECURITY – BANGLADESH PERSPECTIVE

Food Security Scenario in Bangladesh

Having seen the global scenario of food security an overall purview of Bangladesh can easily be predicted. Bangladesh is an agrarian society with the country's 76% of total population living in the rural areas. 90% of the villagers are directly related to agriculture. According to Bangladesh Bureau of Statistics (BBS) 2005/2006, the agriculture sector employs about 48% of the total labor force of the country and provides over 90% of the total rural employment (Kabir, Husain and Hossain, 2009, p 180). Crop sub-sector contributed more than 11.72% to the GDP in 2006-2007. Most agricultural production still is concentrated on a limited number of crops, with rice accounting for about 79% of total cultivated area. Other major crops include wheat (5%), jute (3.2%), pulses (4%), sugarcane (1.2%), and oilseed (3%) and high value crops including vegetables, fruits, spices and potatoes (Hossain, 2010). Presently, due to poverty, 41.2% of the population cannot afford the meal of required (2122) kilo calories.

Bangladesh's production of food grain has shown a steady increase since independence, increasing from 11 million metric tons in the 1970s to 33 million metric tons in 2009. Records show that in 1970s, 70% population was under the food consumption poverty line (MoFDM and WFP, 2005). Table below shows that except pulse and wheat all crops increased in production as the time passed.

Table 2: Production of Different Food Crops in Recent Past (In lakh mt)				
Crops	2004-2005	2005-2006	2006-2007	2007-2008
Rice	251.57	265.309	273.19	289.31
Wheat	9.76	7.35	7.37	8.44
Maize	3.56	5.22	9.02	13.46
Potato	48.56	41.61	51.67	66.48
Pulses	3.16	2.79	2.71	2.05
Oil seeds	11.80	5.95	6.25	6.42
Vegetable	65.31	57.32	69.67	86.85
Spices	10.00	11.82	14.05	13.68
Total	403.72	397.36	433.93	486.69
Source: BBS 2008, Bangladesh Economic Review 2008 and Hossain, Ismail 2010				

According to the WB, approximately 33 million of the 150 million people in Bangladesh cannot afford an average daily intake of more than 1800 kilocalories (minimum standard for nutrition as set by the WFP). About 50% of country’s population, mostly poor, lives in the disaster prone areas, complicating their already vulnerable situation further. During natural disasters, families often lose what few possessions they own and deepen their level of poverty.

Is Bangladesh Food Secured Country?

Despite huge population increase there has not been any incident of death due to hunger since last three decades. Can Bangladesh be termed as hunger free or food secured country then? The answer is probably not that easy to find out. To get a prudent and ingenious answer, indicators of food security (availability, access and utilization) are examined in Bangladesh context subsequently.

Availability: Bangladesh National Food Policy (NFP), 2006 and its Plan of Action (PoA) have set “adequate and stable supply of safe and nutritious food” as an objective to ensure this core dimension of food security in Bangladesh. Table below shows per capita availability of food grain is more in 2007 than in 2001. It also reveals that food gap existed till late 2001 while it improved through mid 2000s, again reduced up to 2007 i.e. food production is not a sustained phenomenon in Bangladesh.

Table 3.1: Food Grain Availability and Requirement								
Financial Year	Net Production	Mid Year Population	Food Requirement	Food Gap	Import/ Aid & Procurement	Domestic Procurement	Availability	Per Capita Available
01/02	23315	133.00	22020	1295	2752	1053	25013	515
02/03	24025	135.00	22351	1674	4402	947	27480	558
03/04	24699	137.54	24549	150	3467	843	27323	544
04/05	23520	139.76	24945	-1425	4377	899	26968	529
05/06	24539	141.80	25309	-771	3510	945	27103	524
06/07	25250	143.91	25686	-436	3689	1140	27799	529

Note: 1. Seed feed and waste has been calculated @ 10%. 2. Population figures are adjusted by population census 2001. 3. Per capita intake has been calculated @453.6 gm from 1997/98 to 2002/03 and @ 489 gms from 2003/04 to 2006/07

Source: FPMU, 2009

Access: The poverty at national level has been marked at 41.2% in 2010 (Mahmud, 2010). Poor don't have access to food even when available at the market because of lack of purchasing power. On the other hand 39.8% people are in food security risk of whom 19.2% are in transitory risk while 80.8% are in chronic food insecurity (Mahmud, 2010). A good percentage of people of the country can not afford required food for some period of time or throughout the year.

Nutrition: Bangladesh has maximum malnourished people i.e. they consume less than 2122 kilo calories or earn less than one and a quarter dollar a day. The financial condition doesn't permit poor to go for balanced diet. At the same time preference of rice over other crops is a social practice contributing incessant shortfall of other nutrient in the diet. Bangladesh falls short in fulfilling other factors of health and hygiene issues which are vivid in all the social indicators, like 36% of population have access to adequate sanitation (2006), 47% to safe drinking water (2007), under five mortality rate is 61% (2007), infant mortality rate is 47% (2007) (FAO, 2010).

It thus can be said that though at national level there exists no deficiency of food but difficulties and disparities are in abundance at household and individual level.

Causes and Challenges of Food Security - Bangladesh Perspective

Overpopulation: Domestic demand is bounded by population growth and inelastic demand (inelastic to price as well as income) for agricultural products (Faruqee, 1998). Population growth is 2 million per year while the land is decreasing by 1% annually. The crop production vis a vis the demand is going through a line between deficiency and surplus. Any of the negative factors would cause less food production and affect the determinants of food security.

Poverty: Food insecurity is an analogy of poverty in Bangladesh. According to the statistics about 41.2% of 114 million people of Bangladesh live below poverty level i.e. their daily calorie intake is less than 1800 k cal as set by the World Bank. Table below shows improvement in poverty scenario from 2000 to 2005. However, the scenario has deteriorated in 2010 where the poverty level has increased to 41.2%.

Table 3.2: Poverty in Bangladesh				
Survey Year	Residence	DCI Method	CBN Method	
			Upper Poverty Line	Lower Poverty Line
2005	National	40.4	40.0	25.1
	Rural	39.5	43.8	28.6
	Urban	43.2	28.4	14.6
2000	National	44.3	48.9	34.3
	Rural	42.3	52.3	37.9
	Urban	52.5	35.2	20.0

Source: FPMU, 2009

Natural Disaster: By nature Bangladesh is a disaster prone country. The numbers of disaster like tornado, flood, cyclone, and drought have increased in number destroying not only the standing crop but also diminishing the purchase power of the people, a scenario of recent disasters in Bangladesh is shown below:

Table 4 : Economic and Human Losses in Major Disasters in Bangladesh			
Year	Disaster	Economic Loss	Death
1970	Cyclone	n/a	500000
1987	Flood	US\$ 1000 million	n/a
1988	Flood	US\$ 1200 million	1708
1991	Cyclone	n/a	138868
1998	Flood	US\$ 2800 million	918
2004	Flood	US\$ 2200 million	747
2007	Cyclone (Sidr)	US\$ 1642 million	3406
2007	Flood	US\$ 1100 million	800

Source: Razzaque, 2010

Use of Chemical and Loss of Soil Fertility: There has been indiscriminate use of fertilizers and other chemicals, and poor irrigation management causing extensive depletion of organic matter in the soil in croplands and in fact, most

of the soils of the country have reached a state of impoverishment and sickness (Ahmed and Hassanuzzaman, 1998).

Slow Pace of Modernization: Bangladesh produces 1 to 2 tons of rice per hectare where as China and developed countries in the same size of area produce 8 to 10 tons of rice by utilizing modern technology (Kabir, Husain and Hossain, 2009). The irrigation equipments like shallow and deep tube wells, tractors were first introduced before 1971 but were not much taken by the farmers till today.

Poor Infrastructure, Market Linkage and Bank Loans: The biggest constraints for the poor farmers in accessing food is not technology only but more basic inputs such as land, water, energy, and other resources, access to local markets, decent roads, grain stores, affordable credit, rural extension services and as a whole, adequate and well functioning infrastructure (Weekly Holiday, 13 February, 2004). Mostly farmers, in absence of market linkage fall prey to the middlemen (retailers, whole sellers, traders) who take greater than 60% market share of agricultural products, while government and cooperatives are able to buy only 20% of it (The 200-Village Project, 2010). Corruption of the loaning authority forces the peasants to fetch loans from NGOs at times at very high interest rate causing further rise in production cost.

Effects of Climate Change: The seasons are becoming extinct due to climate change. Average temperature and rainfall have changed increasing frequency and intensity of natural disasters. Decline of precipitation resulted droughts and less water in the rivers. As a result there is scarce of surface water especially in the rivers causing salt water from the Bay of Bengal to penetrate (has penetrated ~100 kilometer; average water salinity increased by more than 172%). The scenario will be worsening further if adequate measures are not taken in time. (Mustafa, 2009).

Not Adhering to the Rules/Laws: There exist numbers of rules and laws especially on food safety enacted by the governments. These rules are not adhered by all concern, as a result consumable food remains at the risks of being adulterated there by compromising its nutrient value.

Lack of Policies and Concerted Efforts: The spectrum of food security is wider than agriculture. Until recently the matter was confined to agriculture only. Contributions of Government Organizations (GO), Non Government Organizations (NGO) and private sectors are vivid but seem not well harmonized. On the other hand food production did not increase in Bangladesh as of Thailand, Philippines and Vietnam as they; (1) brought maximum land under irrigation system, (2) adopted commercial farming, (3) ensured crop insurance, guaranteed crop marketing, guaranteed power supply, health of children under 5 etc.

Measures of Bangladesh in Ensuring Food Security

Bangladesh Constitution (article 15 a) made food as a fundamental right of its citizen and warranted the government to ensure it. Ministry of Food and Disaster Management (MoFDM) is the lead ministry to pursue the task. The objective of the Bangladesh government is to provide food to all at all times, as food is required for an active and healthy life. These commitments of the government have also been spelt out in international forums such as GATT Uruguay Round and the MDG (2000) to reduce the number of poor people by the year 2015 (Kabir, Husain and Hossain, 2009). Fighting food and nutrition insecurity is considered by the Government a key mean for the country to become a middle income country by 2025 (Food Division, 2010).

Policy, Reforms and Strategies: Government has taken different policies which emphasized intensification of cereal production, diversification of high value crops, processing of agriculture products, raising the production of fishery and live stock products. Poverty Reduction Strategy Paper (PRSP) has placed special emphasis on technological advancement in agricultural research and strengthening capacity of National Agriculture Research System (NARS) and through fortifying agricultural research-extension linkage (Hossain, 2010). Besides, there are number of laws and regulations regarding food safety in vogue to maintain good health and safety standard. The National Food Policies 2006 represents a follow-up to the National Food Policies of 1998. It has been approved by the Cabinet in August 2006. The goals and objectives of the policy are:

Objective -1: To ensure adequate and stable supply of safe and nutritious food

Objective -2: To enhance purchasing power of the people for increased food accessibility.

Objective -3: To ensure adequate nutrition for all (especially women and children).

Modus Operandi: Food security being a challenge the governments went all out in achieving self sufficiency in food by 2013. Various steps taken to ensure food security are:

Subsidies and Incentives in Agriculture: An amount of 7649 crore taka was allotted in the budget (2008-09) for agricultural development. Amount of subsidy in respect of fertilizer both Urea, and non urea has been increased by 15%. 144.39 crore taka was allotted for rehabilitation purpose in 2008-09. Government has exempted electric bill for irrigation and agriculture purpose up to 20%. Interest rate of cultivating crops like pulse, oilseed and spices has also been reduced from 8% to 2% (Bangladesh Economic Review, 2009).

Banks Credits: Every farmer now can open bank account with only 10 taka for better and safe transaction of loan or grant money. The table below reveals that despite good amount of money remains unrecovered the governments kept on increasing the loan amount every year.

Table 5: Agriculture Credit Disbursements and Recovery (in Crore Tk)			
Fiscal Year	Target	Distributed	Recovery
2004-05	5537.91	4956.78	3171.15
2005-06	5892.21	5496.21	4164.35
2006-07	6351.30	5292.51	4676.00
2007-08	8308.55	8580.66	6003.70
2008-09	9379.23	9284.46	8377.62

Source: Ministry of Finance 2010, “Bangladesh Economic Review 2009”,

Of late the Bangladesh Bank has declared its “Farm Loan Policy 2010-11” with the target to disburse tk 12,617.40 crore. In fiscal year 2009-2010 the target was taka 11,500 crore (Bangladesh Economy, 2010).

Constructing Embankments and Roads: These infrastructure issues are well taken care by Local Government Engineering Department (LGED), Roads and Highways (R & H), MoFDM.

Carryout Research on Climate Resilient High Yield Varieties of Crop and Technical Innovation: To date, BRRI has developed 47 modern variety (MV) to suit the ecological conditions of all three rice growing seasons including saline water and drought resilient paddy (Hossain, 2003). BARI and Bangladesh Institute of Nuclear Agriculture (BINA) developed 27 varieties of wheat, 30 potatoes, 35 oilseeds, 32 pulses, 36 fruits, 44 vegetables, 12 spices 114 other crops. While Bangladesh Jute Research Institute (BJRI) released so far 40 varieties of jute and Bangladesh Livestock Research Institute (BLRI) has developed 53 technologies for animal disease control and increasing livestock production (Hossain, 2010).

Social Safety Net Programs: Various arrangement has been kept to make food available to the marginal and poor farmers (including fisherman, livestock farmers), calamity affected population. Food for Works (FFW), Vulnerable Group Feeding (VGF), Vulnerable Group Destitute (VGD), Test Relief (TR), Open market Sale (OMS) and normal relief are some of the initiatives by the government.

Water Management and Irrigation: Every year efforts are made to bring more land under irrigation for better production. Beside regular dredging efforts are made to undertake capital dredging for holding more water and reduce flash flood. The table below shows government efforts of increasing irrigated cultivable land every year:

Table 6: Areas under Irrigation Up to 2008.					
Types of Irrigation	2004-05	2005-06	2006-07	2007-08	2008-09
A)Surface Water: Major irrigation, Traditional, etc (A)	1550947	1588390	1565640	1682295	1832360
Underground water: Deep Tube Well, Light Tube Well (B)	3814088	3821269	3935788	4125107	4220580
Total (A&B)	5365035	5409659	5501428	5807402	6052860
Source: Ministry of Finance 2010, “Bangladesh Economic Review 2009”					

Storage and Procurement: Government has taken up a project of increasing food grains storage capability from 1.5 million mt in 2010 to 2.2 million mt by 2015 and to 3million mt by 2021¹.

Health, Nutrition and Persuasion of MDG: Health and nutrition is one of the most important aspects of food security. Government is actively pursuing the MDGs set for the country. As far as targets like, access to pure drinking water and sanitation are concern Bangladesh is on track according to midterm progress report of 2008 while in other sectors the progress is not encouraging.

Other Initiatives: There are many other facilities and incentives offered by the government to keep the food grains available and affordable to the poor people of the country. Exporting agro items are encouraged by the government. The country earned US\$832.27 and US\$ 987.56 million in FY 2006-07 and 2007-08 by exporting agro product which is 6.83% and 7.00% of total export earning respectfully (Ministry of Finance, 2008).

1. Talukder Ruhul Amin, additional Director, FPMU, Dhaka, interview on 27 July 2010.

CRITICAL ISSUES AND CHALLENGES - ANALYSIS

Overview

Bangladesh's journey towards food security is not easy. Besides numerous programs by government, international and regional forums/bodies and by the resilient farmers of the country the expected result is yet to be achieved. There remain several dilemmas and challenges that hinder the tall task of achieving food security in the country. The issues are critical but imperative to ensure sustained food security. An analytical study on the issues discussed in preceding chapters has been made in subsequent paragraphs with a view to formulating a viable discourse for food security in Bangladesh.

Increase Food Growth to Feed Increasing Mouths: Bangladesh is in the risk of food insecurity at any point of time of the year owing to natural disaster or unstable international market. In late 2000s the population grew at a rate of more than 2%, coupled with global price hike and natural disaster the situation got precarious. More growth of food grain (not more enough to mitigate the loss incurred in cyclone Sidr-2007 and subsequent flood) could not solve the problem. Government had to undergo difficult situation in feeding its population. Such situation is likely to be repeated with more critical and insecure dimensions. So, increasing food growth only would not serve the purpose, food security also needs equal importance to other sectors like population control, eradication of poverty etc.

Nutrition from Food Intake, Dietary Habit and Empowerment of Women: Rice dominates 88% of the menu which does not full fill the requirement in proper nourishment. Fat, protein, other minerals and vitamin are also required which is available in fish, meet, oil seed, fruits, chicken, eggs etc. It is seen that intake of cereals and vegetables reached near adequate level though serious inadequacy of pulses, oils and livestock products in rural area prevails. Empowerment of women is a better option to ensure food safety at household level. Changing dietary habit and safe food need education, motivation, social and cultural revolution.

Food Diplomacy - Food Aid and Food Import: Absence of trusted and tested food diplomacy with other food exporting countries has put the country into deep trouble in case of global or domestic crises as we experienced in 2007 and 2008.

Infrastructural Development: Bumper production of crop can't be utilized to the fullest due to lack of adequate and appropriate storage facilities. Communications from the growing field to the market is very poor rendering it difficult for the farmers to get profit on their investment. Market linkage,

roads, processing industries, etc are linked with the other hence need a multi dimensional approach for solution.

Efficient Water Management: Ours is a rain fed and surface water dependent agriculture. Indiscriminate urbanization, filling up water catchment areas, lifting water by the upper riparian countries and effects of climate change has made irrigation very difficult. Unsystematic lifting underground water is posing threat to availability of safe drinking water. Holding excess flood water to utilize in dry season and recharging the underground water aquifers have become a real challenge.

Policy Issues: Enabling objectives of the components of food security i.e. availability, access, and utilization (nutrition) are very much common to the objectives of MDG, perspective development plan of ADP or objectives of PRSP. Possibility of overlapping or question of “nobody’s business” might jeopardize the goals of ensuring food security. Moreover the existing PoA has over sighted the following aspects:

- Impacts of climate change.
- Affects of shrinking trend of food aid.
- Inadequate focus on public food management.
- Weakness of governance in food and agriculture sectors seem has lost sight.

Harnessing Related Efforts to Achieve Dividend: More than dozens of ministries/divisions and NGOs are involved in pursuing the targets of MDG and food security. Efforts of all these organizations/institutions are not harnessed under single umbrella. It calls for intimate coordination; efficient management else accomplishing the objective might be at jeopardy.

Small Household Cultivation vis-a-vis Commercial Farming–A Dilemma: Most of the food surplus and exporting countries got success in increasing production through commercial farming. Bangladesh’s agriculture on the other hand has progressed through small level farming and cooperatives by small households and marginal farmers. Shifting to large/commercial farming is a requirement to increase food production. In Bangladesh the socio-cultural scenario won’t allow any other means but cooperative system.

Inappropriate Policy on Budget: The budgetary allocation is allotted to various sectors like agriculture, food, livestock, health etc. Harmonized and efficient management of so many sectors are required to accomplish the components of food security, which Bangladesh lacks. Budget, if allocated theme wise, could probably become easy to achieve the thematic issues like food security.

Effects of Boro Cultivation: Boro cultivation though brought revolution in increasing food production in Bangladesh, has made several negative effects on environment, like; (1) pushing out major non-cereal crops-such as pulse and oilseeds-that were important sources of protein and micronutrients for the poor; (2) decline in soil fertility due to raising two MV rice crops, which are heavy users of soil nutrients; (3) heavy use of pesticides, which have led to adverse impacts on the quality of surface water and fish habitats; (4) over-exploitation of groundwater resources leading to adverse impacts on the supply of drinking water; and (5) the arsenic contamination of groundwater that is widely prevalent in Bangladesh (Hossain M, 2009).

WAY AHEAD FOR BANGLADESH

Crop Diversification and Increase of Rice Production Including Outsourcing vis-a-vis Poverty Alleviation and Population Control: The crop needs to be produced making highest utilization of the land; however there will be an optimum time and production for which long term plans of other social indicators like poverty, illiteracy, population control, etc to be undertaken right away. Increasing human resource may be utilized to grow crop in overseas land and add to own production. Crop has to be diverse to lift dependency on rice, on other hand high value crop including sources of fat, protein and other vitamins for living a healthy life are to be produced at large.

Revamping NFP 2006: The NFP-2006 has rooms to improve upon following issues:

- **Climate Issue:** The climate is a colossal factor which needs well thought plan to face its cynical impacts. The dimensions and severity of climate has to be appropriately anticipated by the planners and take remedies accordingly. The aspects of compensation should not lose sight too. This money should be utilized for building infrastructure, research, ICT and buying equipment.

- **Food Aids/Grants:** At the wake of shrinking food aids proper food diplomacy with rice surplus/exporting countries should be engaged for guaranteed support. USA, ASEAN countries and China are better options in this regard.

- **Public Food Management Strategy:** Public food management will encompass giving input to the farmers, ensuring energy for irrigation in time, adequate procurement, establishing farmer friendly market that ensures guaranteed sale of their produces and storing as buffer stock, ensuring implementation of safety net programs, import in time and keeping the essential food grains within affordable reach. An elaboration will be needed in the PoA to make the plan viable.

GOs and NGOs-Complimentary to Each Other in Micro Management: NGOs are playing a vital role in eradicating poverty, ensuring hygiene and sanitation etc at the micro level and have brought significant impact. Government may explore the capability, resources and network of NGOs to distribute microcredit, enhance extension system, build awareness regarding health and hygiene, and popularize ICT and many other efforts in a bid to enhance food security.

Modernization of Cultivation: The tractors, power tillers, harvesting machines etc should be made available at very less price. Petty items like leaf color chart, drum seeder etc must be made available at affordable price. The extension service should be IT based and taken to the doorsteps like “KIOSK” of India where peasants will be able to know the market price of their produces, advice on disease, fertilizer, weather forecast etc. HYV, GM, bio-tech MV should be invented and given to the farmers adequate in number.

Food Security a Part of MDG: Many of the food security components are included as social indicators and taken care by MDG targets. On the other hand all 48 ministries and 50 divisions including line ministries for food security (MoFDM, MoA, MoH and MoFL) are involved in attaining MDGs. Their works are not well harnessed due to difficulty in coordination among so many organizations. Hence, food security, if included in MDG will reduce overlapping of efforts and help implement the entire gamut under one umbrella program.

Research, Develop and Popularize HYV and Weather Resilient Varieties: To face the harmful impacts of climate, research should be undertaken to invent adverse climate resilient variety of rice, wheat and other food grains and livestock. The yield period and gap if lessened would increase crop intensity. Researchers and the research institutions should be set free with all kinds of assistance including money both by government and international bodies.

Ensure Food Safety: Existing rules and laws of food safety need revision, update and strict enforcement. Besides, motivation at all level including infusion into the education curriculum may bring positive result in long term. At household level, in the rural areas women who make meals should be motivated about safety and nutrient value of food being served. NGOs and electronic media will be of good use in this regards.

Commercial Farming Though Cooperative System: To cope with the future challenges best practices in other countries like commercial farming (crops and cattle) may be followed. Instead of replicating their system large scale farming may be ensured by putting entire cultivable land under cooperative zone/sub-zones.

Change in Dietary Habit: Rice based menu don't offer all nutrients required for healthy life. More incentives and motivation to be rendered to sensitize people take varied food in their menu. Households should be encouraged to rear and culture fat and protein sources. Proper and true implementation of "Ekti Bari Ekti Khamar" project will be of good use in this regards.

Thematic Area Development Budget: To avoid complexity of coordination and duplication of efforts/resources government should allocate budget on thematic area like food security as package. A supervisory or controlling authority may be formed with the representatives of the line ministries, divisions and experts to coordinate the efforts and allocated resources in this regard.

Sectoral Cultivation: Basing on cost effectiveness of production crop should be cultivated in appropriate land/area. Like, Boro should be cultivated in low-lying area where irrigation is gainful.

CONCLUSION

In the constitution of Bangladesh the government has been bestowed with the responsibility of ensuring food for all its citizens. Food security issue can't be seen in isolation as "feeding people" only, it has relation and influence of other health, social and economical aspects. Food security essentially does not mean production of sufficient food only. It means that food should be available at the market for the households to procure as much as required at affordable price. These foods should be containing adequate and appropriate nutrients to maintain a healthy and active life. Lastly the people should have access to proper sanitation, pure drinking water and hygienic lifestyle.

Last three decades the country tripled its food production, mainly rice, to feed its population. 41.2% people being below poverty line the country is in a vicious cycle of poverty, over population and food insecurity. The poor households are unable to consume balanced food with required nutrient value because they are either not available and (or) not affordable.

Natural disaster and climate change imprint huge impacts on food production and impede poverty eradication process. Governments of Bangladesh over the period have under taken various means to ensure food for all in the form of self sufficiency in food but could not be successful in all aspects. The country achieved success in exterminating starvation but could not do away with hunger and malnutrition. A great progress has been made in increasing crop intensity and inventing weather resilient crop varieties. But what will happen at the breakeven point is a serious question to be thought upon. However, food security seems not a far cry for Bangladesh; it needs to be brought in a comprehensive package.

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