

BANGLADESH – POPULATION INCREASE, FOOD SHORTAGE

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Bangladesh is now world's seventh populous country having 162.2 million people, but occupying only 3000th part of the world's land space. At current rates of population growth, it is estimated that the total population could reach 195 million by about 2025. Whatever progress been made would be difficult to sustain in view of the growing pressure of population on highly scarce natural resources. Agriculture is the most significant source of economic growth and has a fundamental role to play in the fight against poverty. From this perspective, the question of land ownership together with agrarian reforms is linked to increased agricultural productivity, employment opportunity and other related development-issues. The earning potential of most people is limited by their lack of skills, assets, and access to credit. Given its limited agricultural land, high population density, and frequent natural disasters, Bangladesh faces an enormous challenge in its efforts to reduce poverty. The only lasting way is to ensure sustainable economic growth, by implementing policies to promote financial stability and the efficient use of resources.

Key words: agriculture, Bangladesh, food security, land, population growth, poverty

INTRODUCTION

Agriculture is the major livelihoods source for most Bangladeshis; the most important is to maintain appropriate level of the each of the people's country consumption. Thus the objective of this paper is to describe the main factors mentioned above (population, land scarcity, food production; food shortage especially of the poorest households) and some of their links and changes in the time. The future outlook and the possible ways of solving are involved.

21 percent of the Gross Domestic Product (GDP) comes from agriculture and this sector involves 48 percent of labour force (BBS, LFS 2005–2006). During the 1980s agricultural contribution to GDP was more than 30 percent, with over 60 percent of the labour force (MOF, 2007). Though the contribution of the agriculture to the national economy and employment is diminishing, it remains the single largest contributor to income and employment generation. The country has a total land surface of approximately 14.4 million hectares of which nine million hectares are used for agricultural purpose (BIDS, 2001).

The existing man-land ratio of 1 : 14 decimals shall be reduced during years 2001–2051 to a half. Because per capita availability of arable land will be reduced per person food production will be reduced too.

The National Agriculture Policy indicated that agricultural land has been declining by one percent per year and land quality also degrading due to the reducing soil fertility, soil erosion and salinity. Land resources are showing signs of fatigue, which is a direct result of the lack of

crop rotation. Land reclamations in Bangladesh require less cost-intensive interventions. Artificial interventions can make land reclamation sustainable by accelerating deposition at desired places and holding them there. Bangladesh Water Development Board's (BWDB's) Land Reclamation Project; or Meghna Estuary Studies, were preparatory works for long-term land reclamation activities. Estuary Development Programme (EDP) initiated by BWDB in March'07, with Dutch grant funding, is a logical follow up of land reclamation activities in Meghna Estuary. The project limped for one year and since then is passing through a scaled down phase, for circumstances beyond its control. Invigorating the EDP will put in motion the process of reclamation of hundreds of sq. km of new lands from sea and push the national boundary further south resulting in a geographically bigger Bangladesh and expanding the apparently finite land resource base. The process will go on ensuring food security, in the coming decades, for millions of Bangladeshis.

Five percent of households classified as landless (Agriculture Census 2008 discloses the fact that there are 4.48 million landless households in the country of which 1.22 million are in urban areas while 3.26 million are in rural areas. Data available from previous agriculture censuses reveal that the percent of landless households is steadily increasing in rural areas). Approximately 55 percent of households are having less than 0.2 ha of land. Furthermore, another 30 percent of households have less than one ha, and only ten percent of households have more than one ha of land. According to HIES 2005, on an average around

Tab. 1: Proportion of population below national poverty line by farm size

| Farm size (acre) | 2000 | | | 2005 | | |
|------------------|-------|-------|-------|-------|-------|-------|
| | total | rural | urban | total | rural | urban |
| Landless | 46.60 | 69.70 | 36.60 | 46.30 | 66.60 | 40.10 |
| Less than 0.05 | 57.90 | 63.00 | 38.30 | 56.40 | 65.70 | 39.70 |
| 0.05–0.49 | 57.10 | 59.30 | 27.30 | 44.90 | 50.70 | 25.70 |
| 0.50–1.49 | 46.20 | 47.50 | 27.40 | 34.30 | 37.10 | 17.40 |
| 1.50–2.49 | 34.30 | 35.40 | 10.20 | 22.90 | 25.60 | 8.80 |
| 2.50–7.49 | 21.90 | 22.80 | 9.10 | 15.40 | 17.40 | 4.20 |
| 7.50 and above | 9.50 | 9.70 | 0.00 | 3.10 | 3.60 | 0.00 |
| BANGLADESH | 48.90 | 52.30 | 35.20 | 40.00 | 43.80 | 28.40 |

Source: BBS (2006); HIES (2000, 2005); <http://www.bbs.gov.bd/>

29 percent of household income comes from agricultural sources in rural areas. The share is six percent in urban areas. The average land size of poor household in rural areas is 0.29 ha.

For the segment of the population below national poverty line, income avenues are extremely limited. They depend heavily on selling labour in both agricultural and non-agricultural labour markets for their livelihoods. The seasonal nature of agricultural employment and limited opportunities for non-farm employment cause millions to suffer from chronic and transitory food insecurity. The access to food for these people depends on the trade-based entitlement relationships, i.e. on the wage rate and food prices and their fluctuations in the market.

FOOD SITUATION AT NATIONAL LEVEL

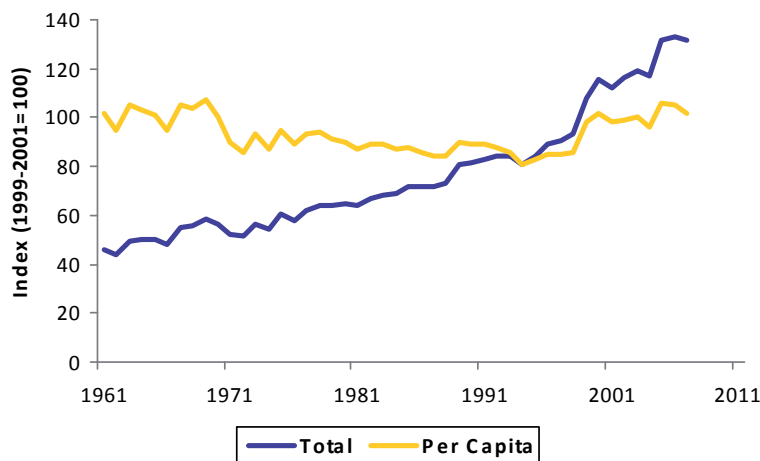
Bangladesh has the fourth highest number of hungry people, after India, China and Democratic Republic of the Congo. An estimated 17.6 million ultra-poor people

survived in 2007 on less than 1 805 kcal per day. Domestic food grain production remains susceptible to floods and droughts thereby perpetuating the threat of major production shortfalls and inadequate food availability. In Bangladesh, agricultural performance and food security in the 1990s has been relatively better as compared to the previous two decades. Over the course of 2007 and 2008, the increase in prices of basic food commodities and fuel exposed the vulnerable segments of society to severe pressure.

Food consumption in Bangladesh is closely linked to food production and access, including price and purchasing power/employment opportunities of households (Ahmed, 1993).

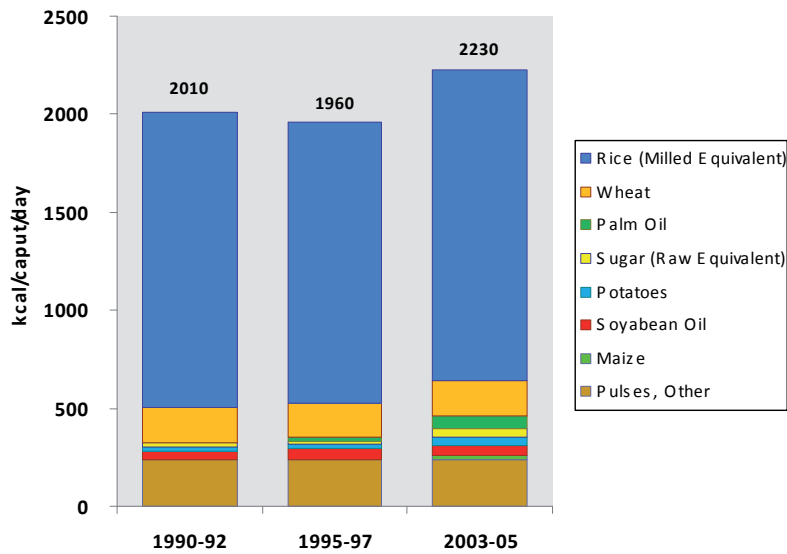
Immediately after independence in 1971, the country’s main focus was the fight against hunger and to increase food production to achieve food self-sufficiency. Bangladesh has been quite successful in terms of food grain (rice and wheat) production. The food production of the country both rice and wheat, was 10.46 million metric tons in the year 1971–1972. Bangladesh attained

Figure 1: Total and per capita food production index (Relative to the base period 1999–2001)



Source: World Resources Institute – Earth Trends; <http://earthtrends.wri.org/>

Figure 2: Share of food items in Dietary Energy Supply



Source: FAO Food Security Statistics; <http://www.fao.org/economic/ess/food-security-statistics/en/>

self-sufficiency in food production in 1999–2000 with a gross production of rice and wheat of 24.9 million metric tons which marginally met the country’s requirement of 21.4 millions metric tons.

Food grain availability is the sum of net domestic production, imports and food aid received. According to National food balance sheet for November/October 2007/08 the food grain supply situation at national level is satisfactory. With total domestic rice availability and utilization assessed at 32.349 million tonnes and 33.226 million tonnes respectively, estimated required imports amount to 877 000 tonnes. Taking into account the 1.27 million tonnes of commercial imports and the 75 000 tonnes of food aid received so far, there appears a surplus of 469 000 tonnes of rice which will be used as a substitute for wheat imports. A similar exercise for wheat reveals a gap of 814 000 tonnes, bringing the deficit for both cereals to 345 000 tonnes after substituted 469 000 tonnes of rice surplus. If at this stage of the 2007/08 marketing season this shortfall can be met by further commercial imports and/or food aid from the donor community, the overriding issue remains how to address the food needs of those segments of the population whose purchasing power has been severely eroded by soaring rice prices and the food-led inflation in general.

According to FAO- GIEWS the country expects to have another bumper output in 2009, forecast at 33.5 million tones, reflecting good weather and strong government support. The total cereal import requirement in marketing year 2009/10 is forecast at 2.45 million tonnes.

Self-sufficiency in some of the other food-items is still to be achieved. The domestic production of pulses, oilseeds, vegetables and fruits are far below minimum re-

quirements. For example among non-cereal food, 70% of the pulse requirements get imported and Bangladesh produces only 34% of its edible oil.

Apart from the prevailing deficit in total calorie intake, the normal diet of Bangladeshi people is seriously imbalanced, with inadequate consumption of fat, oil and protein, and with more than 80 per cent of calories derived from cereals. Women and children are especially vulnerable due to their greater nutritional requirements. This dietary imbalance reflects insufficient domestic production of non-cereal foods (pulses, oilseeds, fruits, meat, milk and eggs), low incomes, food preferences and lack of nutrition education. Moreover, the general health and sanitary environment and caring practices compound the problem of translation of food consumption into nutrients, contributing to poor nutritional outcomes.

ACCESS TO FOOD

However, hunger and famine occur not from a lack of food but from inequalities built into the mechanisms of distribution. Food security thus covers the whole gamut of activities from production to marketing and consumption. Ensuring food security for all is one the major challenges that Bangladesh faces today. Despite significant achievement in food grain production and food availability, food security at national, household and individual levels remains a matter of major concern for the government.

Larger households are more vulnerable to food insecurity. The HIES 2005 found that the household size is

Tab. 2: Proportion of population below minimum level of dietary energy consumption

| Year | Absolute poverty (2 122 kcal/person/day) | | | Hard core poverty (1 805 kcal/person/day) | | |
|-------|---|-------|-------|--|-------|-------|
| | national | rural | urban | national | rural | urban |
| | 1990 | 47.50 | 47.60 | 46.70 | 28.30 | 26.30 |
| 1995 | 47.50 | 47.10 | 49.70 | 24.60 | 27.30 | 25.10 |
| 2000 | 44.30 | 42.30 | 52.50 | 20.00 | 18.70 | 25.00 |
| 2005 | 40.40 | 39.50 | 43.20 | 17.90 | 24.40 | 19.50 |
| 2007* | 36.80 | 36.80 | 36.10 | 17.60 | 24.20 | 19.30 |
| 2015 | 23.80 | 23.80 | 23.30 | 14.20 | 14.10 | 13.20 |

Note: *calculated by extrapolation

Source: BBS (2006); HIES (2005); <http://www.bbs.gov.bd/>

positively correlated to the incidence of poverty for both rural and urban households. Of the Absolute Poor, one-half (50 percent) are members of households with 6 persons or more, three-quarters (73 percent) are members of households with 5 persons or more. For the Hard-Core Poor, the percentages are nearly identical. Households headed by a female are also vulnerable to food insecurity. These households tend to have a high age dependency ratio, with large numbers of household members dependent upon few income earners. Many female heads of household are illiterate, thus limiting their prospects for gainful employment and self reliance.

Food security for urban households is affected by many factors, including: the participation of household members in the urban labour market; physical access to markets; cost of food items in the market and prevailing wages rates. The size of the households and the ratio of wage earners to dependents, the education level, knowledge/skill and physical capacity of individual household members all influence how effectively a household can secure sufficient food to meet its needs. The IFPRI study of urban food security within major slum areas of Dhaka, Chittagong, Rajshahi and Khulna found that 29 percent of the slum population had expenditure levels associated with more severe food insecurity (< 1805 kcal/person/day), while 47.8 percent were food insecure (< 2122 kcal/person/day).

A substantial proportion of rural households continue to experience chronic as well as transitory food insecurity. A variety of factors contribute to household food insecurity, including: lack of access to land for cultivation; lack of employment opportunity; loan repayment obligations; vulnerability to natural disasters. Also, families not considered to be the ‘poorest of the poor’ may remain outside the food assistance programmes that provide cash or kind to supplement food acquisition capacity. The major livelihood strategy in rural Bangladesh is subsistence agriculture either through agriculture production activities, agriculture labour or both. In terms of expenditure, more than half of rural household

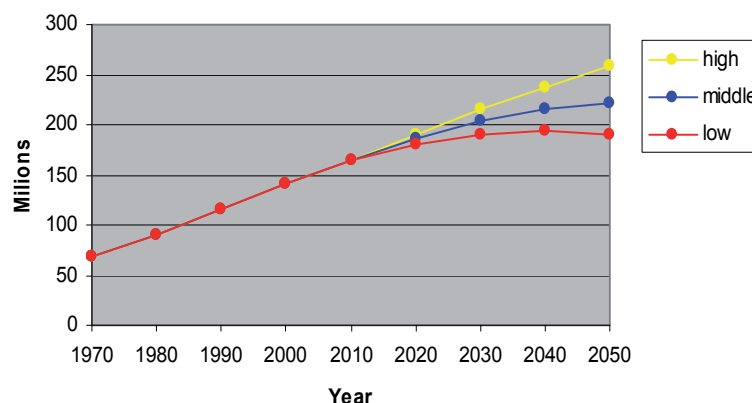
expenditure is for food consumption. The national average food consumption as a share of total expenditure is 54 percent. The bottom 40 percent of households are spending approximately 67 percent of their total expenditure on food, whereas upper income groups are spending proportionately less.

Major efforts are still needed to address nutritional issues more directly. Coordinated programs involving nutrition education, food fortification, improvements in water quality and public health are needed. Increases in food availability and household access to food alone will not be adequate to address the malnutrition problems in Bangladesh. Food and/or cash based targeted programmes are increasingly used to reduce hunger and undernutrition and support human development. The Food for Work (now Cash for Work) programme ensures access to food for the extreme poor and vulnerable by providing employment while building infrastructure for rural development. Other programmes – such as the Vulnerable Group Development (VGD) – help to augment the income of poor households on a more sustainable basis by providing training as well as short-term employment. Other programmes, such as the National Nutrition Programme, aim to increase the sustainable income of the poor by improving nutrition and thereby improving their productivity.

POPULATION GROWTH

Bangladesh is one of the most densely populated countries in the world with a population of 162.2 million. It is expected to reach 164.4 million by 2010 and 222.5 million by 2050 according to middle variant. Bangladesh experienced rapid population growth in the post Second World War period due to improvements in public health and sharp reductions in mortality from famine and certain diseases. The population has more than doubled since 70th years. About 27 percent of the population is urban and 73 percent rural.

Figure 3: Population 1970–2050, low, medium, high variant



Source: UN World Population Prospects: The 2008 Revision Population Database; <http://esa.un.org/unpp>

The country has made significant strides in lowering its population growth rates from an average of 2.7 percent in the 1970s to around 1.6 percent today (2009) through successful campaigns to promote smaller families. Bangladesh population growth rate has not declined much during the last one decade or so owing to stagnation in fertility and mortality with the result that there has been little change in population growth rate. It has been hovering around 1.7% to 1.6% during the preceding decade. The estimated crude birth rate was 26/1000 population (BDHS, 2007) and crude death rate (CDR) is estimated to be 10/1000 population.

Death matters no less than birth – indeed more, to demographers. As public health measures are likely to further improve, deaths decline particularly among the infants and thus, more babies will live to grow up. So a country’s population becomes more youthful as in the case now in Bangladesh. More young adults mean more births. Birth rate may decline further through family planning program efforts reinforced by non-family planning measures like female education, skill training, use of media etc. All these measures will eventually help create a conducive environment to reduce birth and death rates leading to population stabilization. But when? In seeking answer to this question, analysts offer a range of projections. Variant 1 assumes replacement level fertility (i.e. just over 2 children) in 2012. Variant 2 and variant 3 assume the same fertility level in 2016 and 2021 respectively.

The timing of population stabilization depends on the time when replacement level fertility will be achieved. In our present case, if Bangladesh can achieve NRR = 1 by 2016, population will stabilize by 2070 at around 230 millions, followed by a stationary population in next 12–15 years, (i.e. number of births will be equal to number of deaths and resultant growth rate is zero). In medium variant projection, status of stationary population

in Bangladesh is likely to be achieved around 2086 and thereafter, number of deaths will exceed number of births i.e. minus growth rate will begin which will eventually decelerate the country’s population as is the case with Russia, Germany and some of the European countries now. The deceleration process (i.e. minus-growth rate) in Bangladesh shall start according to variant-2 after 2080, and by this time, population shall grow up to 240 million.

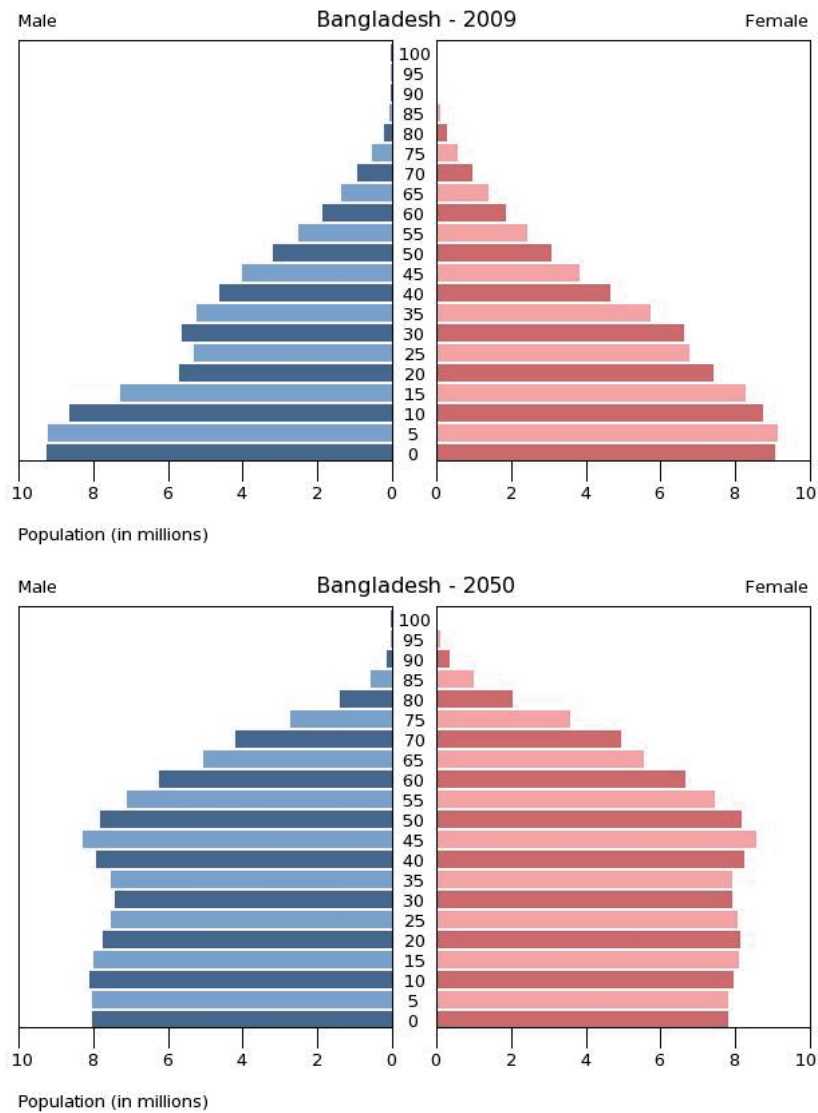
A great deal of population momentum is coming from low income families, such as poor, ultra poor and other lower income groups who together comprise 50 percent of the society. These are the people among whom infant mortality and maternal mortality rates are the highest. Total fertility rate is twice as much of the upper, middle and high income groups. They are the ones who have very little access to education beyond primary, health care services and other benefits which government and society usually offer to the individuals. So if the goal of replacement level fertility is to be achieved any time in the next decade, our policies, programmes and resources should be directed towards their welfare.

POPULATION’S AGE STRUCTURE

A country’s growth potential is built in the age structure of its population. Currently age structure is heavily pyramidal with a large base of young age population.

Notwithstanding an elaborate and modestly persuasive family planning program, fertility reduction to replacement level may be difficult to achieve by 2016 unless far more vigorous efforts are made at the grass root level by the health and family planning workforce. Assuming that public and private sectors efforts in this respect shall continue and that public health measures will augment considerably to thwart the menace of deadly diseases,

Figure 4: Population pyramids – 2009 and 2050



Source: U.S. Census Bureau – International Data Base (IDB); <http://www.census.gov/ipc/www/idb/country.php>

Bangladesh is quite likely to achieve its demographic goal of $NRR = 1$ by 2016. If the current pace of progress continues, life expectancy at birth is likely to increase anywhere between 68–70 years by then.

Just over 34.6 percent of the population is below 15 years of age and 2/3 the population (61.4%) is between the ages of 15 and 64. Population is slowly aging. Population of 65 years and above represents about 4.0 percent of the total. As life expectancy will be gaining, the size of the elderly population will increase. Although in recent years there has been tremendous improvement in some demographic parameters, demographic pressures will continue to be a serious obstacle to poverty and food shortage alleviation efforts.

CONCLUSION

There is now wide recognition that the best path towards food security in agriculture dominated countries can be provided through the accelerated growth of food and other agricultural products. Furthermore, in such countries even modest productivity growth in the agricultural sector may contribute to boost employment and income growth in other non-farm activities through consumption linkages, with consequent impacts on rural poverty outcomes. In total for agriculture and rural development and for the promotion of decent employment the total estimated costs are BDT (Bangladesh Taka) 1871.07 billion (USD 27.52 billion) for the period

2009–2015 at an average per capita cost of 1557.46 BDT (USD 22.77) in 2009 to BDT 1934.85 (USD 28.29) in the year 2015.

In the face of decreasing farm sizes, degrading soil quality and limited water resources, the main challenge for the country is to maximize production in order to improve food availability from domestic sources. One major challenge is to harness productivity gains by making breakthroughs in yield frontier technology (i.e. hybrids/crossbreeds, biotechnology, genetic engineering in crop, livestock, fisheries and forestry).

Against the backdrop of decreasing water resources and increasing irrigation costs due to rising fuel/energy prices, an emerging challenge is to improve water use efficiency in rice production and to shift to water-efficient food crops.

With 63.0 million people living below the poverty line, Bangladesh has a formidable challenge to strike a balance between ensuring adequate incentives for the numerous small producers on the one hand and keeping food prices low for poor consumers on the other.

While there has been an overall improvement in food availability at the household level, intra-household food entitlements between men and women (especially lactating women), and between adults and children remains an issue to be addressed.

The already vulnerable food security situation worsens when food production (crops, livestock and fisheries) drops due to natural disasters. This means that the country needs to bolster its capacity in agriculture production to guarantee food security, especially in vulnerable disaster-prone areas.

With the increase in population, increases in the production of fish, milk, meat and eggs, and self-employment of fishermen and livestock-rearing farmers are important to supply balanced food for a growing population, possibly through encouraging small holders and private sector promotion in poultry, dairy and fisheries sub-sectors.

There is a clear need to diversify food sources both in terms of land/environmental sustainability, development of the rural economy and increased consumption to achieve improvements in the nutritional status of the people of Bangladesh.

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