

Report No. 36

**BANGLADESH AGRICULTURE AT THE CROSSROADS:
CURRENT CHALLENGES**

Centre for Policy Dialogue

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October, 2000

The Centre for Policy Dialogue (CPD), established in 1993, is an innovative initiative to promote an ongoing process of dialogue between the principal partners in the decision making and implementing process. The dialogues are designed to address important policy issues and to seek constructive solutions to these problems. The Centre has already organised a series of such major dialogues at local, regional and national levels. These dialogues have brought together ministers, opposition front benchers, MPs, business leaders, NGOs, donors, professionals and other functional groups in civil society within a non-confrontational environment to promote focused discussions. The expectation of the CPD is to create a national policy consciousness where members of civil society will be made aware of critical policy issues affecting their lives and will come together in support of particular policy agendas which they feel are conducive to the well being of the country. The CPD has also organised a number of South Asian bilateral and regional dialogues as well as some international dialogues.

In support of the dialogue process the Centre is engaged in research programmes which are both serviced by and are intended to serve as inputs for particular dialogues organised by the Centre throughout the year. Some of the major research programmes of CPD include The Independent Review of Bangladesh's Development (IRBD), Governance and Development, Population and Sustainable Development, Trade Policy Analysis and Multilateral Trading System and Leadership Programme for the Youth. The CPD also carries out periodic public perception surveys on policy issues and developmental concerns.

*As part of CPD's publication activities, a CPD Dialogue Report series is brought out in order to widely disseminate the summary of the discussions organised by the Centre. The present report contains the highlights of the dialogue organised by CPD, which was held at Hotel Sonargaon, Dhaka on July 15, 2000 on the theme of **Bangladesh Agriculture at the Crossroads: Current Challenges.***

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Dialogue on
**BANGLADESH AGRICULTURE AT THE CROSSROADS: CURRENT
CHALLENGES**

i) The Dialogue

The Centre for Policy Dialogue organised a dialogue on the theme, *Bangladesh Agriculture at the Crossroads: Current Challenges*, on July 15, 2000, at Dhaka's Hotel Sonargaon.

Initiating the dialogue, Prof Rehman Sobhan introduced the keynote speaker, Dr Mahabub Hossain, Head, Social Science Division, IRRI, Manila to the participants at the dialogue. He also took the opportunity of welcoming the Minister for Agriculture, Ms Motia Chowdhury, to the dialogue. The paper presented by Dr. Hossain was drawn from Part A, Chapter III of *Independent Review of Bangladesh's Development (IRBD 2000)*.

ii) Resume of the Keynote Presentation

Dr Mahabub Hossain launched his keynote paper through drawing attention to the latest agriculture census with a view to pointing out structural changes in the country's agriculture. As a first step, he dwelt on the agricultural progress recorded in the country in the 1990s. He noted that the economy performed better in the 1990s because of robust performance of the agriculture sector. In his view, the economy grew by 4.1 per cent to 5.6 per cent in the preceding three years. He argued that it was possible owing to agricultural acceleration, particularly in the crop sector constituting rice and wheat.

The growth of staple food production is at present at par with the growth in population. However, it is still subject to cyclical movements. Cereal production witnesses stagnation and then sudden spurts of growth mainly because of price fluctuations which act as incentives (or disincentives) for increasing production. Hossain said agriculture production was hampered in some years when prices were very low or natural disasters damaged crops.

Dr Hossain also pointed out that cereal production registered an increase from about 10 million tonnes to nearly over 22 million tonnes in 1999 at a time when the area under cultivation did not register increase. This shows that the growth resulted entirely from technological progress. He, however, took pains to note that per capita food production had stagnated since the mid-1990s.

Talking about the cyclical order of production, Dr Hossain said in the late 1980s there was a sudden growth of cereal production owing to major changes in agriculture policies. This led significant some people to think about food exports in the early 1990s; it appears that there was some complacency in such optimistic thinking. At the same time, there was a serious food price decline in the early 1990s. As a result, farmers lost the incentive to go for higher production, which was the reason behind the stagnation in agriculture.

Floods and drought came on the heels of this decline in 1994 and 1995. The floods of 1998 only made matters worse. But because of these reasons, prices increased again and the farmers responded to the situation correspondingly. As a result, agriculture output has been growing again for the last two to three years at relatively high rates.

Dr Hossain pointed out that during the current year farmers are again complaining about declining prices and expressed his apprehension that if the price slump could not be arrested, production might decline the following year. Talking about rice prices, he said in the 1990s there had been serious fluctuations which did not have any correlation with international grain prices. There was a period when cereal prices were quite high in international markets, and yet domestic prices registered declined.

Dr Hossain said that cereal production has developed a resilience to natural disasters as was witnessed during the 1998 floods. The farmers have adjusted themselves to disasters and the government machinery too has become more efficient in tackling emergency situations. He then pointed out the change in the crop composition. In the rice sector, the acreage of two crops -- *aus* grown on extreme high land and *aus* grown on low land with broadcast *aman* -- has gone down from 3.5 million hectares to about 1.6 million hectares. At the same time, production of broadcast *aman* declined from 1.8 million hectares to 1 million hectares. The cultivated area for growing these crops has given way to modern variety *boro*, which has grown from one million hectares in the mid-1970s to 3.5 million hectares at the present time. This was possible owing to expansion of irrigation facilities and availability of modern variety seeds, he added.

Dr Hossain went on to point out that a substantial chunk of rice production comes from the dry season, which accounts for about 50 per cent of the total output. Previously, if the farmers lost the *aman* crop to disasters, they had to wait one whole year to recover the loss. At present, however, they can recover their losses by going for wheat in March-April, and then by harvesting *boro* in May-June. As such, this offers the farmers a quick opportunity to recover their losses, he argued.

The keynote speaker also noted that the expansion of private sector irrigation has reduced the impact of drought on *aman*. He stated that the impacts of both drought and floods have been circumvented through technological advances. He attributed output growth to modern irrigation, pointing out that the percentage of private shallow tubewell irrigation had gone up from almost a negligible 19 in the mid-1970s to 55 now. This is a factor that has helped farmers reduce their losses from drought. He further said that price incentives have become a major factor in helping farmers to grow more. Dr Hossain noted that these are the factors which affect the production of foodgrains. It was his opinion that the improved capability of the government machinery and the NGOs towards implementing rehabilitation programmes is also making significant contribution in this area.

Talking about the factors affecting agricultural diversification, Dr Mahabub Hossain said the accelerated growth of non-crop sectors such as livestock greatly influenced it. The fisheries sector also registered good growth, accelerating from 2.3 per cent in the first two decades since the country's independence to 7.2 to 8 per cent in the 1990s.

Such factors contributed to perceptible structural change within the agriculture sector. At the same time changes were also visible in terms of production of the various agro-products. Crops accounted for four-fifths of the total sectoral output in 1973-74. By contrast, it accounts for 58 per cent at present, while output of the fisheries sector increased from eight per cent to 18 per cent and that of forestry from four per cent to 11 per cent. As a result, these sub-sectors have now become quite significant in promoting accelerated growth in Bangladesh agriculture.

Dr Hossain pointed out that there has not been much diversification within the crop sector. While rice, potatoes and vegetables posted good growth, all other crops witnessed a decline in absolute production. Consequently, instead of diversification, there has been a concentration on rice and wheat. Dr Hossain posed the question as to why there has been a considerable degree of diversification within agriculture as a whole but little diversification within the crop sector. To explain this, one has to look at the pattern of demand of different agricultural goods. He said it is a common phenomenon that once a person has enough of rice, he will look for other things like vegetables and fish. He said there are two factors that determine demand: one is the population growth which increases demand, the other is the income growth which results in income-driven demand.

He also mentioned a study that said a 10 per cent increase in income would increase demand for cereal by only two per cent. But this 10 per cent increase in demand would increase the demand for meat and milk by 15 per cent.

Talking about the situation in the 1970s, Dr Hossain said there was only one per cent growth in per capita income during this period. But in the 1990s, the per capita income growth was very substantial with more than 5 per cent growth in GDP and the population growth coming down to about 1.7 per cent. This resulted in a three per cent growth in the per capita income. So, within a decade, the per capita income increased by nearly 40 per cent. He pointed out that demand growth in the 1970s was definitely dictated by population growth. But in the 1990s, the income induced demand growth became a major factor for higher agricultural productivity. This also resulted in dissimilar growth in demand for different agriculture products. The demand for cereal is not increasing at any significant rate, while that of fish and livestock is increasing very fast.

Hossain also mentioned that if production is not increased beyond the demand growth, then the market takes over and prices will be adjusted accordingly. So, as rice and wheat production increased more than the demand growth for these items, the prices declined. In the fisheries sector, the supply is still lower than the demand growth and, as a result, fish prices are maintaining a high momentum. So, Dr Hossain observed, rice farmers have lost out in the process while those producing fish have actually won. He then directed his attention to the nutritional intake situation as a result of such circumstances. For rice and wheat, the needed per capita nutritional intake amount is 400 grams a day while the country had achieved a consumption level of 522 grams per day. The country needs to focus on an increase in production in the areas where a gap in meeting the norms

still exists. This means that the country needs to diversify its agriculture for balanced nutrition. Diversification is also needed to maintain a high growth in agriculture, he suggested. Diversification will also contribute to generating more employment.

The keynote speaker also said that Bangladesh could eye the export market of vegetables and fruits by diversifying its agriculture. This will also generate a higher growth in agriculture. But even if the country can maintain 1.7 per cent growth rate in crops, forestry at 3.2 per cent, fisheries at 3.5 per cent and livestock at five per cent, this will then give a long-term growth of three per cent in agriculture. Under such a scenario, by the year 2020, the contribution of the crop sector would come down to 47 per cent, fisheries 21 per cent and livestock 20 per cent. He thus argued that these sectors would take over the crop sector within the next 20 years.

Dr Hossain also shed light on the resource base for agriculture, saying that land has been shrinking alarmingly. During 1983-84 and 1995-96, there had been only a 1.3 per cent growth in farm holdings, showing that a lot of migrations are taking place from rural to urban areas. However, the land base remained constant till the 1980s and since then there has been a serious erosion. Cultivable land virtually declined from 8.2 million hectares in 1983-84 to about 7.2 million hectares in 1995-96. As a result, the size of agriculture holdings has declined sharply from 1.7 hectares in 1960 to 0.68 hectares at present. Thus, every year, 82,000 hectares of land are going out of agriculture practices, which is alarming since at this rate in 35 years' time, available farm land will just come down to half of today's size. He also pointed out that the growth of cities and municipalities is largely responsible for the shrinking farm land. Land acquisition by the government, river erosion and building of new houses in rural areas are also contributing to this phenomenon.

Dr Hossain also observed that labour is moving out of the crop sector and in to non-crop activities which have grown at a high rate over the last 12 years. These are, however, positive signs stimulated by agriculture growth linkages and improvement of rural infrastructure. With the expansion in rural road communication, opportunities have opened up for trade and transport in the rural areas.

Dr Hossain pointed out yet another positive trend which was capital accumulation in agriculture. More private investments are being made in irrigation equipment, power tillers and tractors. He said there has been about 11 to 12 per cent of capital accumulation growth in agriculture.

Dr Hossain noted that a kind of pauperisation has been coming into the ownership of land and that the number of big farm houses is declining by 3.4 per cent per year. Large farms having more than 3 hectares of land also declined by 3 per cent. On the other hand, the number of small farms has increased by 3.6 per cent. At the same time, the population of functionally landless increased from 46 per cent to 56 per cent. Additionally, more than 70 per cent of households are small and marginal farms showing the process of pauperisation. At the same time, Dr Hossain argued that because of migration from rural

to urban areas, the percentage of tenanted land also increased from 17 per cent to 23 per cent.

Noting that one of the most critical challenges before Bangladesh is to identify way to arrest the decline in land availability for agriculture, Hossain noted that land use planning can be practised in order to achieve economy in non-agriculture uses of land. This will reduce pressure on the agriculture land. Instead of going for horizontal expansion of non-agriculture, the country can go for vertical expansion. At the same time, use of land in development projects can also be economised, he suggested. Technical interventions to reduce salinity in the coastal areas and developing more saline resistant varieties of crops and plant can help reclaim some land in the coastal areas for cultivation.

However, Dr Hossain said the long-term vision should be the reclamation of land from the Bay of Bengal. He said pressure will increase for farmers to go for more intensive cropping. But there are costs associated with intensive cropping, and it is especially soil fertility which goes down under pressure. Accordingly, scientists have to find out if mixing agriculture with livestock farming can sustain the natural fertility of land which is under intensive cropping.

Dr Hossain also advocated efficient use of water in irrigation. If water use can be economised, then more land can be irrigated through using the same resources and infrastructure. He further said that as agriculture labourers are moving out to non-crop sectors with the development of the urban economy, there is a need for mechanising the farming system. Instead of looking at generating employment, the policy should be shifted to generating more productive employment.

It has also been observed, said the keynote speaker, that with growth in literacy, people move out from manual labour to non-manual work. Therefore, with the mechanisation of agriculture, literate people can still be retained in farm work. He also said that the government should adopt a policy to slowly go for higher level of capital intensive agriculture techniques. The school dropouts should at the same time be given credit support so that they can get meaningful employment within the agriculture sector.

The government should also adopt policies to utilise the floodplains, which remain inundated for three months of the year, to produce some specific species of fish. Common property resources such as ponds and *beels* should be utilised by using some institutional mechanism to share costs for the benefit of the village community.

Hossain was also of the opinion that subsistence-level cattle and poultry raising activities should be encouraged which would benefit the low-income group people and particularly women.

For agricultural diversification, issues of proper marketing are of utmost importance. All villages should be electrified and roads developed. Telecommunication facilities should be taken to villages for quicker dissemination of market information. On the question of giving subsidy, Hossain said it is important to ensure that such allocations go to the high-

end of the agriculture sector through development of infrastructure. He also talked about Government—NGO partnership in livestock and fisheries sectors. He said the productivity growth in cereals should be higher than the demand so that resources could be released for use in other crop sectors. This, he said, is needed to stimulate crop diversification. Agricultural growth should come from efficiency in the use of inputs, not from the expansion of input use. Improved water management is needed in this regard. This sort of growth needs use of knowledge-based technology.

Only 0.2 per cent of our agriculture income is spent on research. Of the rice sector income, only 0.08 per cent is spent on rice research. Livestock and fisheries sectors also do not enjoy much investment in research activities. As a result, Dr Hossain said, more resources should be spent in these areas. He suggesting striking a balance between basic and strategic research versus applied research. This is important because with the limited resources the country will never be able to develop good technologies on its own. However, there are improved technologies available in the international resource centres. Bangladesh's scientists should get to know these and then adjust these technologies to the country's own situation, he opined.

Global experience shows that in the 1990s, the private sector invested huge monetary resources in agriculture research, spending many times more than the international research centres. But to get benefit out of such private research, the country should promote the international property right law. The country should review its seeds policy to ensure that it encourages private sector seed companies in technology infusion. Hossain suggested that the government also consider whether or not to give subsidy to irrigation and fertiliser or use that money to develop rural infrastructure.

Regarding development fund for agriculture, Dr Hossain noted that in the mid-1990s, there was quite substantial reduction in allocation of money to the sector due to reduction of subsidies. He underpinned the need for more resources to agriculture and particularly to rural infrastructure through the local governments. He said the land reforms undertaken so far have been virtually all on paper since they have not been implemented. He said successful land reform would make for more equity in agricultural income. Through land reforms, the land administration should be simplified and streamlined because many people are harassed through litigation owing to outdated land records. He called for computerisation of land records to reduce such harassment.

iii) Discussions

Crop Sector Stagnation

Dr Quazi Shahabuddin, Research Director, Bangladesh Institute of Development Studies (BIDS) agreed with Dr Hossain's observation that the agriculture sector had shown good performance in the second half of the 1990s. However, decomposition of this could reveal virtual stagnation in the crop sector, especially in rice production. Crop sector growth rate was negative in the first half of the 1990s, while it was over 4 per cent in the

second half of the decade. Agriculture growth was also one per cent in the first half of the 1990s and 4.5 per cent in the second half.

Foodgrain production increased from 19.01 million tonnes in 1995-96 to 21.9 million in 1998-99 and further to 23.4 million in 1999-00. He thought that it is now important to know the reasons for the sharp deceleration in crop production in the first half of the decade.

Dr K A S Murshid, Research Director, BIDS noted that not only agriculture, but the entire Bangladesh economy as well has been undergoing structural changes. He observed that the relative role of agriculture in the economy has declined over the last 20 to 25 years. Trade and services have been playing a major role in our GDP and it is essential to know what role agriculture plays in the growth of such services and trade. He felt that as in matters of land, the issue of unequal distribution of non-land assets such as livestock and fisheries should also be properly addressed in order to assess their implications for income distribution.

Sustainability of Agriculture Growth

Dr Quazi Shahabuddin argued that it was important to know to what extent the vastly improved agriculture growth performance could be attributed to government policies and to what extent to favourable weather. It is also important to know whether such accelerated foodgrain production is sustainable or not. It is also important to know whether there has been a permanent shift in agriculture production, or it is a short-term production cycle.

Former Finance Minister, Member CPD Board of Trustees, Mr M Syeduzzaman noted that, except for Singapore and Hong Kong, few countries have developed economically without first going for development in domestic agriculture. Economic growth based on exports is not sufficient for broad based development and reduction of poverty. Export led economy often helps a small segment of people and remains vulnerable to external situation, he pointed out. Syeduzzaman said this is why it is important to continue the emphasis on agriculture and build upon the success of the last few years. He also mentioned that international donor support to the agriculture sector has been declining and private companies are expected to come forward with investments. He felt that it is the responsibility of the national government to stimulate agriculture growth at a rate which was much faster than that in neighbouring countries.

Agricultural Diversification

Dr Quazi Shahabuddin acknowledged that the faster growth of the non-crop sector led to diversification in the agriculture sector. He, however, pointed out that according to the new GDP series the actual growth of the livestock sector rather low, only 3-4 per cent, when compared to the 7 per cent estimated according to the old series. In contrast, the growth rate in fisheries is much higher in the new series compared to the old one. Such confusions have to be dispelled for the non-crop agriculture to play its due role, he felt.

Land Reforms

About land reforms, Shahabuddin said that because of the low land-man ratio and the pattern of land ownership, there is not much to gain from a redistribution of land. If a ceiling is imposed on land ownership exceeding 3 hectares, the surplus land available for redistribution among 10 million landless household would be only about 0.9 million hectares. This would hardly make any significant dent in the livelihood of rural landless household.

Dr Rushidan Islam Rahman, Senior Research Fellow, BIDS thought the government should concentrate on giving more access to land to small and marginal farmers who tend to make better use of land.

Sajjad Zohir Chandan from Communist Party of Bangladesh (CPB) called for taking a political view of the land reform programme. He said land reform should be viewed as an integral part of the radical restructuring of the rural life. He said as part of the reform programme, the genuine farmers should possess the farm land and absentee land ownership should not be allowed. He also stressed the need for redistribution of the surplus land and launching of cooperative farming system. Rightful wages should be ensured for the farm workers and jobs throughout the year should be ensured for them. He mentioned that mechanisation and modernisation of agriculture is also part of the land reform programme.

Emphasis on Non-Crop Sector

Dr Quazi Shababuddin pointed out that non-crop agriculture produces much more value addition in post-harvest processing and marketing and as such can create productive employment opportunity for landless poor. He therefore emphasised a shift of public support from crop to non-crop agriculture for higher agriculture growth and poverty alleviation.

Subsidy and Challenges of WTO

Dr Quazi Shahabuddin observed that Bangladesh is committed to WTO rules and regulations pertaining to many issues which concerned the agriculture sector. These include domestic support and market access which have a direct impact on agriculture production, processing, consumption and trade. He said a thorough understanding of the importance and consequences of the multilateral trade negotiations covering the Agriculture Sector which would soon begin in the WTO is needed. Such understanding is not only important for the ministry of agriculture, but also for other agencies; and it is for the private sector to take full advantage of any agreement reached in the WTO. This is also needed to take precautionary measures as well against possible adverse impacts.

Begum Motia Chowdhury, Hon'ble Minister for Agriculture, at this stage intervened to strongly defend subsidy to agriculture. She pointed out that Bangladesh provides only 3.1 per cent subsidy in agriculture while it can give up to 10 per cent subsidy as per WTO

rules. Bangladesh is probably one of the lowest agriculture subsidy providing countries among SAARC nations, she argued, adding that the on and off attack on the negligible amount of subsidy given to agriculture is just a problem of the mindset and is due to the donors' objection to subsidy. She also strongly protested against suggestions which called for reducing agriculture subsidy.

Dr M Asaduzzaman, Research Director, BIDS observed that the expenditure in agriculture has to be kept now within the parameters set by the WTO. He pointed out that a lot of decisions would depend on whether or not Bangladesh is still an LDC. As long as it remains an LDC, the country can simply ignore some of the binding constraints within the WTO. But the moment Bangladesh loses her LDC status, it will have to go by certain obligations for which it has to be ready, he stated.

Following establishment of the WTO, the developing countries have increased exports of commodities such oil seeds, fruits and edible oil, Dr Asaduzzaman noted. But Bangladesh is not yet ready to export these items. Global rice export has also increased and will go up further with the withdrawal of subsidy in the developed world. These developments have opened up opportunities for Bangladesh to enter the export market, he observed.

Abu Abdullah, D.G. BIDS, argued against using subsidy in agriculture and said this encourages wasteful use of fund. He mentioned that with the subsidy being reduced on urea, farmers have become more attentive to the appropriate use of the fertiliser. This shows that with urea prices becoming more market oriented, farmers are making more efficient use of the input.

Dr Z Karim, Chairman, Bangladesh Agricultural Research Council (BRAC) differed with Abu Abdullah, saying that the logic of not providing subsidy may be correct for one or two minor items. However, subsidy ought to continue for developing infrastructure, gas supply, agro-processing facilities, etc. He also pointed out that cereal seeds are subsidised in almost all the countries.

Agriculture Minister Motia Chowdhury explained the government policy regarding the subsidy and said that the government's strategy in this regard is to intervene in order to facilitate the growth of agriculture. She said the government has acted in areas where the private sector would generally be reluctant to come forward. In this regard, she cited the example of fertiliser import. The Minister mentioned that despite repeated exhortations, the private sector had not come forth to import important soil nutrients like SSP and DAP. So, in the end the BCIC had to take up the task of importing the DAP. The government did not make any profit from selling the fertiliser. Later, the private sector realised the business opportunity in DAP and finally imported the item last year. Thus, good governance means paying attention to the neglected areas in the agriculture sector. A democratic government is bound to provide the needful subsidy for the farmers and no theory can overrule this logic, Motia Chowdhury stressed.

Aminul Alam, Deputy Executive Director, BRAC, made a point that the fertiliser support of Tk 500 per tonne is not actually a support to the farmer, but to the industry. He said if fertiliser is imported, it would be cheaper compare to the BCIC produced fertiliser. He argued that by not allowing fertiliser import and by giving subsidy, the government is actually supporting the fertiliser industry.

Harun-or-Rashid Howlader, General Secretary, Bangladesh Krishak League said that the government support in input may not be looked upon as subsidy, but as an investment which will promise more output.

Input Market Privatisation

Dr Sattar Mondal, Member, Planning Commission said that the privatisation of input markets of fertiliser, equipment, seeds, etc, had a very positive impact on the crop sector. This also created employment and contributed to income distribution.

Food Price Intervention

Regarding foodgrain price changes, Dr Sattar Mondal, Member, Planning Commission said large scale government intervention combined with private sector participation in food grain procurement, food management along with intervention such as safety net programme have stabilised agri-prices in recent years. During the 1998 floods, the large volume of private sector imports coupled with government import helped stabilise prices and keep them within the purchasing power of the people.

Dr Carlo-Del-Nino, from IFPRI taking part in the dialogue noted that high demand for fish and livestock has led to high prices of these products. This has given incentives to farmers to increase production. However, in case of rice, price has been going down. Something should be done to stop the decline in production in the coming years, he emphasised. He also observed that the most important issue at present in staple food production is how to increase the yield. He said efficiency in rice production should be improved.

Fatema Zohra of the Bangladesh Unnayan Parishad maintained that the emphasis should be on agriculture output marketing. She said the difference in price between the growers' level and the retailers' level is about 300 per cent which should be reduced if the benefits of higher growth in agriculture is to be transmitted on to the farmers.

Livestock Statistics

Major General M Majid-ul-Huq (rtd), former Minister for Agriculture mentioned that the livestock population is being depleted due to natural calamities like floods and cyclone. He was of the opinion that the slaughter of cattle on a mass scale during religious festivals also causes a dent in the cattle population.

Dr Rushidan Islam Rahman pointed out that the current agriculture census report shows that the number of animals was static between 1983-84 and 1995-96. The number of milk producing cows also has stagnated during the period. This contradicts with the claim of high growth rate in the livestock sector. She said one answer to the puzzle may be that livestock quality improved during the period, but there is no data on quality either. She said one explanation to the BBS growth rate is that it has been calculated by counting the number of animals slaughtered every year. She said such accounting is incorrect as this includes imports of cattle from neighbouring countries.

Dr Mahabub Hossain also agreed with Dr Rushidan that the cattle population remained static over the years and that the per capita cattle availability declined by one third from the 1960s onward. But there has been a 300 per cent growth in poultry between 1984 and 1996. However, he said that it is necessary to determine the share of poultry in the livestock sector.

Need for New Technology and Agriculture Mechanisation

Dr Rushidan Rahman contradicted Dr Hossain's proposal for mechanising agriculture, saying that this may have a disastrous impact on wage rates. The poor labourers will be the worst sufferers as a result of such a policy, she argued. She said introduction of tractors or power-tillers has to be pursued carefully so that this does not lead to poverty proliferation.

Dr S M Al Hussainy, Chairman, Swanirvar Bangladesh, said because of land degradation, the country's agricultural output must grow much faster than the present rate, and this will require a more meaningful adaptation of new generation technology such as bio-tech and gene-engineering.

Dr Abdur Razzak, Director General, Bangladesh Agriculture Research Institute (BARI) pointed out that delays in the rice harvest reduce output. He suggested that modern technology like harvesting machines be used to harvest crops in time. He also informed that the research institutions are trying to develop rice varieties suitable for the southern regions with high salinity.

Cropping Intensity and Diversification

Speaking on cropping intensity and sustainable agriculture, Dr Rushidan Rahman said that cropping intensity has declined as reflected in the two agricultural census and this may be linked to the low diversification of crop production. Farmers tend to concentrate on cereal production which in turn constraints crop diversity.

Dr Murshid of BIDS said that a lot of investments have taken place in the crop sector in terms of drainage, technologies and irrigation. He suggested that while consolidating the growth in the crop sector, new investments should be made in more exotic areas of agriculture.

Dr Abdur Razzak said that for the sake of crop diversification, introduction of improved technology is a must. Crop diversification will also lead to higher income growth of farmers who can sell their products in high-price markets. There should also be emphasis on introducing high-value crops such as spices which could help farmers earn more from the same piece of land.

Stress on Agri-based Industries

Dr S M Elias, Director General of Bangladesh Jute Research Institute (BJRI), underscored the need for more agriculture processing industries in order to promote both value addition and employment. For this purpose, more attention should be given to industrial crops like jute since the export earning from this crop has been increasing over the years. He also pointed out that Bangladesh needs to increase its domestic consumption of jute as has been the case in India.

Dr Z Karim said the country must eye the international supermarkets for its agricultural produce. For this, he maintained, investment is needed in infrastructure and agro-industries. He pointed out that India has a separate ministry for the agro-industry and she has today captured a large chunk of the world agro-product market.

Ershadul Huq, former Secretary, Ministry of Education suggested that the government should also support the new entrepreneurs in agri-business with adequate loans. These new entrepreneurs often do not have the collateral and they lack access to formal capital channel. He said the government should create an enabling environment for private entrepreneurs to come up in the agri-industry sector. He recalled the recent positive steps in this regard and said these have yielded good result.

Major General Amjad Khan Chowdhury (rtd) from Bangladesh Agro-processors' association, noted that since the private sector leads the agriculture sector for its growth, there should have been more private sector representation in the dialogue. He said as the agro-processing industries are developing in the country, there should be a private sector institution to guide the farmers on how to make good use of the agro-processing facilities. Chowdhury pointed out that agro-processing industries are capable of enhancing the scope of value addition in any crop and can potentially create millions of new jobs. He said the role of the government is important in developing agro-industries.

Irrigation and Arsenic

Dr Murshid of BIDS pointed out that issues like arsenic may force the government to change its entire policy on irrigation which will have long-term impact on agriculture strategy.

Dr Z Karim said water resource management should be strengthened specially in view of the fact that about 70 per cent of the water is wasted.

Major General M Majid-ul-Huq (rtd) claimed that the southern part of Bangladesh is witnessing a very rapid desertification process due to the loss of flushing velocity of the river Padma. This has also increased the siltation process of the river. He also said that despite the water treaty, water flow would continue to dwindle because the two water-hungry states of Bihar and Uttar Pradesh in India will lay claim to all the water coming down the mountains. He said the big challenge is how to divert the water from these states to Bangladesh. This is why, he said, Bangladesh should plan a water conservation strategy. Elaborating this point, he said water must be stored during the monsoon when Bangladesh has an abundance of it. This water would then be channeled to dry fields during the lean period.

Dr Ainun Nishat, Country Representative, International Union for Conservation of Nature (IUCN) argued that instead of considering irrigation as a stand alone issue, the approach should be a comprehensive one addressing the total gamut of water control issues that encompasses irrigation, flood management and drainage together. Whatever be the crops that farmers grow, these three types of water related activities are essential ingredients to the process of cultivation.

Dr Nishat put forth the case for an integrated crop management system encompassing public and private sector interventions in irrigation, flood control and fertiliser and pesticide application. He, however, drew the attention of the participants to the need for resolving the issue of coordinating private sector interventions with the public sector infrastructure in this regard.

Nishat also said that the local government institutions should be strengthened to facilitate irrigation and water control activities. The traditional system of irrigation in which water holes were dug in the paddy fields to supply water throughout the year has to be reintroduced. He said that an agreement must be reached among researchers about the impact of arsenic in agriculture because the irrigation system is now largely dependent on underground water. When the underground water is contaminated with arsenic, this may also affect crops and subsequently the people and the livestock.

Mr. Harun-or-Rashid Howlader observed that irrigation, flood control and natural fisheries will not be successfully done unless the navigability of the rivers is improved. From this angle, he called for taking up massive river dredging programmes.

Call for Allocation of More Funds for Research

Major General Majid-ul-Huq said that for continued growth in agriculture, indigenous research is needed and in order to promote research it was essential that more fund should be allocated to the research institutes.

Dr S M Al Hussainy said there are two types of expenditures involved in agriculture. One is the year to year expenditures incurred on account of subsidy and infrastructure development. Of no less importance is the need for expenditure in research and extension

which are also highly important areas and where government is not currently doing enough.

Today, wasteful expenses are being made in agriculture by excessive use of fertiliser and inefficient irrigation which also lead to an increase in the output cost. To reduce such wastages, extension works need to be done.

Dr M Asaduzzaman suggested that Bangladesh should concentrate on investing in research, extension and technology without falling into the pitfall of subsidy since this was discouraged by the WTO. So, he said the country needs to think carefully whether to spend money in subsidy or in such areas as extension and research.

Dr Z Karim also stressed that adequate investment should be made for the development of farmers. Pointing out that 40 per cent of the farmers still remain out of reach of the extension works, he mentioned that importing training to farmers is of utmost importance.

Dr Karim thought that the role of the international research centres is diminishing day by day. Such centres work with national governments only in the area of cereal research, although there was an urgent need for strengthening the research on livestock and fisheries. He also pointed out that at present funds allocated for research is too meager for any serious break through. He lamented that whatever be the support which is given in one year, may be discontinued a few years down the line. He also stated that research fund is often spent up in giving salary to researchers and very little money is left for real research. Because of such a situation, many researchers have migrated to developed countries, he said. He also argued that while donor support can be sought for infrastructure development, the government must provide funds from its own coffers for core research activities.

M A Hamid Miah, Director General, Bangladesh Rice Research Institute (BRRI) said that whatever is being invented through research, not all of it is suitable for farmers because there are many technologies which are profitable only in the experimental stages. He felt that the farmers should be motivated to adapt new technologies. Accordingly, farmer's needs should be analysed first before going for new technologies. A participatory approach to agriculture extension was thus needed. He also said the farmers have to be informed about the various technologies and the respective returns from adoption of the technologies. He also opined that Bangladesh should initiate research according to its own priorities, and should not be dictated by donors in this regard. He also suggested that Bangladesh could go for collaborative upstream research with international organisations so that a part of the research is done in Bangladesh while more fundamental research could be carried out abroad. He felt that total engagement in adaptive research would not be of much help to Bangladesh.

Soil Fertility

Dr Z Karim mentioned that the increase in production is leading to a loss of soil fertility. He suggested that gas should be immediately supplied to rural areas so that crop residues and cow dung could be used as soil fertiliser.

Aminul Alam, Deputy Executive Director, BRAC in his turn, also felt that the government must pay attention to increasing soil fertility. He said soil must be tested and fertiliser applied in a balanced manner for increased productivity.

Major General Majid-ul-Huq said too much of chemical fertiliser has reduced soil fertility. He said it is important to plan a way of using bio-fertiliser along with chemical ones to recover the nutrition balance of the soil.

Need for Good Seeds

Dr Z Karim said that public sector investment must continue in development of rice seeds as no private companies have been addressing this issue.

He said that the role of public and private sectors is equally important in the seed sector. Modern seeds like transgenic ones are being rapidly introduced all around the globe and transgenic rice will soon be introduced in the country as well. This all the more raises the importance of public and private sectors' collaborative efforts.

Dr Karim further pointed out that the current seed policy encourages the private sector to come to the seed business. He welcomed private sector investment in the seed sector.

He also said that the role of the *Seed Certification Agency* in ensuring quality is important and that this organisation should be strengthened.

Regarding the private sector involvement in seeds, Motia Chowdhury said that the government controls only five per cent of the market while 95 per cent is controlled by the private sector. But even the NGOs are reluctant to engage in the seed business.

Aminul Alam emphasised research on seeds because the private sector is not bringing in high quality seeds. He said that seeds should be developed and grown in a scientific way to increase productivity.

Enayetullah Khan, Editor, *Holiday* also supported government investment in seed technology.

Dr M A Sattar Mandal expressed the opinion that the government should not withdraw completely from the seed sector and should continue some sort of control and monitoring of seed importation by the private sector.

Fatema Zohra pointed out that the government's quarantine department should be activated to check import of low quality seeds.

Dwelling on the issue of good seeds, Dr M A Hamid Miah said that since 95 per cent of the seeds are produced by farmers themselves, as such, they need to be trained in preservation, thrashing and other related aspects in order to ensure higher output. He said women could be trained in seed technology.

He also pointed out that a number of private organisations like Novartis and BRAC have signed MOU with local research institutions for producing quality seeds. This is a beginning which will encourage the private sector to come forward to the service of the farmers.

He said the private sector should be encouraged to produce seeds within the country because imported seeds pose many dangers like introduction of new varieties of disease. He also said attention has to be given to reduce the gap between the potential output and real output of a particular variety of seed.

Harun-or-Rashid said that while privatising the seed business, the quality of seeds must be ensured for higher yield.

Decline in Public Investment

M Syeduzzaman pointed out that India has been able to double its food production between 1970 and 1995. The government of West Bengal had taken a strategy to double its agriculture production in 10 years which is largely based on public investment in irrigation and infrastructure. This programme is based on subsidy of which 52 per cent goes to power for irrigation alone.

Ershadul Huq agreed that there has been a stiff decline in public investment in agriculture between 1970 and now. Looking at the portfolio of public investment in agriculture, it is apparent that the investment was in inputs. However, in the 1990s, while agriculture growth was high, there was also large-scale privatisation of production and distribution of key inputs, he stated. So, as a result of this private sector investment, public investment also declined, he suggested.

Agriculture output growth can also be attributed to the privatisation of the sector. Similarly, subsidies in fertiliser and irrigation have been replaced by private investment and as a result, public expenditure declined on these heads, Ershadul Huq observed.

If it is accepted that privatisation of agriculture had contributed to the growth of the sector, especially of the non-crop sector, then a choice has to be made about the future course of action, he argued. For example, there is no public sector investment in poultry and yet it has tripled between 1984 and 1996. Similarly, pond fisheries are also fully supported by the private sector.

Ershadul Huq said that while public investment in agriculture should continue, the government should also give incentive to private entrepreneurs who, he thought would seize the opportunity very quickly. He also suggested that the government investment should be for market access and technology import.

Dr Ainun Nishat argued that the infrastructure must be improved to make agriculture risk-free from natural calamities. If this can be done then the farmers would get good results in all seasons, be it *aman*, *boro* or *rabi*. He also suggested that the southwest and south central regions need urgent infrastructure investments because agricultural growth is the lowest in those regions of the country.

Input Commercialisation

Ershadul Haque mentioned that when the fertiliser market was privatised, the government started a credit line for the distributors and dealers to support their business. This was initiated with a Tk five million fund and later it was increased to Tk 16 crore. He claimed that the recovery rate of this credit was about 98 to 99 per cent.

But Agriculture Minister Motia Chowdhury contested the statement and asked if the repayment rate had been so good, then why did the BCIC introduce the system of Tk two lakh deposit before giving fertiliser to the dealers?

Export Potential

Abu Abdullah, Director General, BIDS felt that Bangladesh should design her agri-sector development strategy by deciding on whether it would go for export of rice. Till now this decision has depended on whether there was a shortage or glut in rice production. But to become a rice exporter, the country must develop credibility in the world market. The country needs to resolve this uncertainty as regards export of rice.

Price Support

Abu Abdullah also added that price support through rice procurement gives farmers a wrong signal about the market and they may go for further production next year even when the market did not warrant this. Such strategy would create more problems than solving them, he said. He stressed the farmers should be free to respond to the market situation rather than responding to artificial signals transmitted by procurement drives.

Reacting to Abu Abdullah's comment on the need to pursue market-oriented policy, Agriculture Minister Motia Chowdhury said that the government just cannot sit and wait for the market to develop in such way as to give enough impetus to farmers to increase their rice production. She said that if the market is allowed to play according to the wishes of individuals, then there would be another famine in the country. She acidly commented that many would love to see such a situation. She argued that the government

will provide subsidy to the farmers, who in return will pay back to the government and the country.

She asked why the market does not get distorted if the USA gives subsidy, while the same is supposed to happen if and when Bangladesh does the same. She also noted that Japan also gives heavy subsidy to some sectors.

Motia Chowdhury strongly emphasised that agriculture and farmers cannot be left at the whims and mercy of the market which is often ruled by profit motive only, and often this was illegal profit.

Al Hussainy supported the idea of government support for infrastructure development in order to help the agriculture sector and said the government cannot just sit back and watch things happen.

A M A Muhith, President, POROSH thought that infrastructure development and reduced regulatory constraints rather than subsidy played the key role in spurring agricultural growth. Farmers are now not restricted so much on account of access to irrigation or fertiliser. He argued that through an enabling environment, agriculture could register sustainable higher growths.

Enayetullah Khan said that BADC played a role in stabilising fertiliser prices with subsidy support. He also said government intervention should come whenever agriculture is in a critical situation. He also argued that the government has a role to make the market a profitable place for farmers and create infrastructure so that farmers do not have to sell their produce in times of abundance. This would allow them to preserve their crops for marketing at a later stage at good prices. The government should also provide price support to encourage farmers to grow more food.

Noohul Alam Lenin, Member, Central Committee, Bangladesh Awami League, a political leader, observed that improvement in fertiliser management rather than subsidy has made it possible for the farmers to get fertiliser in time. He, however, observed that some type of subsidy must be given to the agriculture.

Land Reclamation

Talking about land reclamation as suggested by the keynote speaker, Dr Ainun Nishat said that attention could be paid to increasing crop output on the *char* lands. Dr Nishat, however, termed the plan to reclaim land from the Bay of Bengal as unrealistic and thought this is not possible in the near future. He also observed that the *beels* are being totally dried up during the lean season which adversely affects the following year's fish population.

Doubt about BBS Statistics

Major Gen Majid-ul-Huq (rtd) expressed doubts about the authenticity of the Bangladesh Bureau of Statistics supplied data pertaining to higher agriculture growth. To support his view, the former minister said the BBS officials collect agriculture related information from the block supervisors who cook up the answers so that the higher authorities are not displeased. He also differed with the keynote speaker's observation that economic growth increased owing to a decline in population growth. He cast doubt on the official population growth figures and said one must not get too complacent about figures which show that population growth has slowed down.

Concluding Remarks of Minister for Agriculture

Begum Motia Chowdhury, in her concluding remarks, clarified the government's position regarding many of the issues raised during the open discussion.

First of all, she mentioned that agriculture sector was always spearheaded by private sector farmers and the government's role was limited to the level of support it lent to the sector. This is why there is no scope for debate on whether or not agriculture should be brought under cooperatives.

Regarding land reforms, she said that this should be done based on a clear logic and rationale for undertaking such reforms rather than by initiating unrealistic programmes.

Mapping the challenges before the agriculture sector, she emphasised that the problems relating to decline in farmland area and reduction in farm labourers must be solved.

She also differed from Professor Ainun Nishat on the issue of land reclamation. Admitting that it is a costly effort, she said there is no reason to shelve this plan for an indefinite period just because of the cost involvement because the population is increasing rapidly. She also pointed out to the need to contain river erosion through effective measures.

Explaining the reasons for higher agriculture growth, the Minister said this happened because of the supply of good seeds, input supply and irrigation management. She pointed out that the proportion of HYV seeds in rice has increased from 34 per cent to 53 per cent in the last four years thanks to government intervention. Subsidised electricity supply for pumps also increased the area under irrigation significantly. These have increased the boro rice output drastically from about 80 lakh tonnes to above one crore tonnes.

Begum Motia Chowdhury observed that *aman* output has also increased during the same period, and this has made Bangladesh self sufficient in food. She mentioned that the farmers decided whether to produce more or not depending on the price, availability of inputs and weather. She said that the government has played its role in ensuring timely availability of inputs which has also reduced the uncertainty factor of the farmers.

Regarding seeds, the Minister found that the government's improved quality seed programme contributed positively to agriculture and companies which would import hybrid seeds to the country will have to produce the seeds in Bangladesh within three years of introduction.

She also contradicted the notion that agriculture must be free of controls. She cited the example of government control on carrying of fertiliser from one thana to another. She stated that this is a much needed regulatory exercise which was welcomed by the people. Such controls are bad from the angle of open market economy, but at the same time it is also necessary to ensure fertiliser to the farmers.

She said government interventions are intended to help the farmers get fair prices for their produces. In such cases, economic theories can never be more valuable than the practical needs on the ground.

She also contradicted Dr Hossain's recommendation that public sector control on seeds be relaxed for the benefit of farmers and consumers. She said this suggestion is bereft of any ground reality and rather supports the donors' views. She pointed out that under the amended seed law, the private sector can freely import the approved seeds. The importers have to conduct trial of the seeds for one season following which they can market the same. She stated that this policy was adopted so that unscrupulous importers could not cheat the farmers. She strongly defended the idea that the government must protect the farmers from any such fraudulent elements.

The chair Professor Rehman Sobhan, Chairman, CPD thanked all the participants for their contribution to the dialogue and concluded the session.

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