



National Agriculture Policy

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1. Introduction

1.1 The economy of Bangladesh is primarily dependent on agriculture. About 84 percent of the total population live in rural areas and are directly or indirectly engaged in a wide range of agricultural activities. Agriculture contributes about 32 percent to the country's GDP, about 23 percent of which is contributed by the crop sector alone. About 63 percent of the labour forces are employed in agriculture with about 57 percent being employed in the crop sector.

1.2 The scope of modern agriculture has been widened significantly. Although agriculture used to be originally defined as the cultivation of land for producing crops only, now-a-days, any applied activity through proper utilization of natural resources which relates to the production, development, preservation, processing, marketing and extension of not only crops but also other agricultural commodities such as fish, meat, eggs, forest products, etc. is universally accepted within the purview of agriculture. According to the above definition, crop production, animal husbandry, fisheries, forestry, etc. are integral components of agriculture. But, crops undoubtedly constitute the largest and most important sector of Bangladesh agriculture.

1.3 Although overall agriculture encompasses the development of crops, livestock, fishery, environment and forestry, separate policies on fisheries, livestock, as well as environment and forestry have already been formulated by the respective ministries. In this perspective, Ministry of Agriculture has formulated this policy document in order to provide proper guidelines for various development activities relating to crops, which is the largest sector of agriculture. As expected, policies related to crop production and marketing together with minor irrigation, seeds, fertilizers and agricultural credit got prominence in the document. Since crop sector plays the major role in Bangladesh agriculture and gets the top most importance in various agriculture related programmes of the government, this policy document for the development of crop sector is, therefore, titled as the National Agriculture Policy.

1.4 In Bangladesh, it is possible to reduce rural poverty and raise the living standard of common people by establishing agriculture as a profitable sector. It is, therefore, necessary to reorganize and develop the agricultural production system into a more dynamic and commercially profitable sector. In this context, the primary goal of the National Agriculture Policy is to modernize and diversify the crop sector, in other words the entire agricultural system, through initiation and implementation of a well-organized and well-coordinated development plan.

1.5 The following *opportunities* and *Constraints* prevailing in the agriculture sector have been taken into consideration with a view to framing and implementing an effective agriculture policy:

Opportunities

- Agriculture sector is the single largest contributor to GDP.
- Crop production system is highly labour intensive and there is an abundance of labour supply in the country.

- Agriculture is the largest source of employment for skilled and unskilled labour.
- Favourable natural environment generally exists throughout the year for crop production.
- Wide range of bio-diversity exists for different crops.
- Different crops and agricultural commodities are the main sources of nutrition, including protein, minerals and vitamins.
- Agricultural commodities have comparatively higher value added than non-agricultural commodities.

Constraints

- Agriculture is dependent on the vagaries of nature and is risky.
- Availability of cultivable land is decreasing.
- Lack of proper land use planning.
- Widespread poverty among the population engaged in agriculture.
- Lack of required capital for agricultural activities.
- Agricultural commodities are rapidly perishable and post harvest losses are too high.
- Inadequacy of appropriate technology considering farmers' socio- economic conditions.
- Decreasing yields of different crops due to slow expansion of modern technology as well as unplanned use of soil and water.
- Uncertainty of fair price of agricultural commodities due to underdeveloped marketing system.
- Very weak backward-forward linkage in agriculture.
- Limited knowledge of common people about the nutritional value of agricultural commodities including vegetables and fruits.
- Absence of efficient as well as effective farmers' organization at the grass root level.
- Inadequate use of improved seeds, fertilizers, irrigation and other inputs.

2. Objectives of the National Agriculture Policy

2.1 The overall objective of the National Agriculture Policy is to make the nation self-sufficient in food through increasing production of all crops including cereals and ensure a dependable food security system for all. The specific objectives of the National Agriculture Policy are to:

- ensure a profitable and sustainable agricultural production system and raise the purchasing power by increasing real income of the farmers;
- preserve and develop land productivity;
- reduce excessive dependence on any single crop to minimize the risk;
- increase production and supplies of more nutritious food crops and thereby ensuring food security and improving nutritional status;
- preserve existing bio-diversity of different crops;
- take up programmes for the introduction, utilization and extension of bio-technology;
- take necessary steps to ensure environmental protection as well as 'environment-friendly sustainable agriculture' through increased use of organic manure and strengthening of the Integrated Pest Management (IPM) programme;

- take appropriate steps to develop an efficient irrigation system and encourage farmers in providing supplementary irrigation during drought with a view to increasing cropping intensity and yield;
- establish agriculture as a diversified and sustainable income generating sector through strengthening of 'Farming System' based agricultural production and agro-forestry programmes;
- take effective steps to ensure input supplies to the farmers at fair prices in a competitive market and remove difficulties at the farmers' level which have arisen out of the privatization of input distribution system;
- develop marketing system to ensure fair prices of agricultural commodities;
- introduce an appropriate institutional system of providing credit to ensure the availability of agricultural credit in time;
- produce and supply of agricultural commodities as required by the industrial sector;
- reduce imports of agricultural commodities and find out newer opportunities for increasing exports as well;
- create opportunities for establishing agro-processing and agro-based industries;
- protect interests of the small, marginal and tenant farmers;
- update the agricultural system in the light of the Agreement on Agriculture under WTO, SAFTA and other international treaties by protecting the national interests; and
- develop contingency management system to combat natural disasters.

3. Crop Production Policy

3.1 Although the intensification of food grain production, especially rice- based production system is apparently profitable from the farmers' point of view, this approach has appeared to be harmful in protecting the land productivity. At present, rice covers about 75 percent of the cultivated land in Bangladesh. Area coverage by other crops are as follows: pulses (4.64%), wheat (3.92%), oilseeds (3.77%), jute (3.71%), sugarcane (1.23%), potato (1.11%), fruits (0.84%) and vegetables (1.39%) The production system dominated by a single crop (i.e. rice) is neither scientific nor acceptable from the economic point of view. It is, therefore, necessary to increase the cultivation and production of other crops. However, considering the increasing demand for foodgrains and with a view to ensuring food security, production of rice will continue to get priority in the foodgrain production programmes. In order to increase rice production, supportive programmes will be taken to raise per hectare yield through the use of modern technology and improved cultural practices along with the increased use of HYV seeds.

3.2 In Bangladesh, only 4.14 percent of net cultivable land remain as current fallow, which means that there is hardly any scope for increasing cultivable land. Currently, cropping intensity is around 185 percent. Thus, the only possible option for increasing agricultural production is to increase both the cropping intensity and yields simultaneously. In this respect, policies adopted by the government are to:

- take supportive programmes for inter-cropping in a field instead of single cropping; and

- take appropriate measures in reducing the gap between potential yield and farmers' realized yield of different crops to raise the present level of production significantly.

3.3 Crop diversification is one of the major components of crop production policy. For the overall development of crop sector, special emphasis will be given to crop diversification programme under the crop production policy. The government policies in this respect are as follows:

- Area under wheat has meanwhile reached at 0.8 million hectare. Given the potential for expanding wheat acreage, efforts will continue to encourage farmers to grow more wheat.
- The production of maize has shown prospective results in last two years. Maize has also gained popularity as human food side by side with the poultry feed. Public sector procurement of maize has been introduced like rice and wheat in order to encourage farmers in maize cultivation. The efforts for increasing area and production of maize will be strengthened.
- The programme for increasing area and production of other crops, e.g., potato, pulses, oil seeds, vegetables, fruits and spices will gradually be extended under the crop diversification programme.
- Production of different cash crops including jute, cotton will be increased and efforts will be made to expand their multiple uses.
- Special development programmes will be taken with a view to increasing production of potential crops suitable for the coastal areas and the hill tracts.

3.4 As a matter of fact, increased crop production depends on good quality seeds, efficient irrigation management, use of balanced fertilizers and availability of credit in time. In accordance with the free market economy, the important task of agricultural input distribution has largely been shifted to the private sector. Despite its beneficial effects in general, the privatization process has given rise to considerable inefficiency in some cases, such as, marketing and distribution of minor irrigation equipments and fertilizers. It is alleged that the privatization process has also been accompanied by non-availability, price rise, smuggling and quality degradation of fertilizers. Under this situation the government will seek to:

- establish and consolidate the distribution system for irrigation equipments, fertilizers, seeds and credit in the light of farmers' need; and
- ensure responsibility and accountability of the private sector through strengthening of the relevant legal framework and its enforcement.

3.5 The production of crops, especially *aman* crop is heavily damaged every year due to the inadequate soil moisture regime prevailing in drought affected areas. To combat this situation government has adopted the following policies:

- Supplementary irrigation will be ensured in severe and extremely severe drought affected areas.
- Location specific (including hill tracts) suitable crops will be identified with respect to technological and economic parameters and appropriate strategies will be pursued for cultivating those crops.
- Measures will be taken to minimize post-harvest losses by introducing appropriate technologies.

3.6 Since agricultural production is very expensive and risky, often it is not possible for the farmers to grow crops profitably at the individual level due to the shortage of required labour and capital. Therefore, government will encourage the formation of self-motivated cooperatives for producing and marketing agricultural commodities which should ideally succeed in mobilizing adequate resources (including labour and capital) for more production, income and equity.

4. Seeds

4.1 At present, only a small portion of the required quality seeds for different crops is supplied by the Bangladesh Agricultural Development Corporation (BADC). Rest of the seeds are produced, preserved and used under private management, especially at the farmers' level. Government has already declared the National Seed policy with the objective of promoting seed industry in the private sector. In pursuance of the seed policy, government has revised the Seed Act of 1977 and also formulated seed rules in the light of the Seed Act (Amendment) 1997. In this respect the government will follow the policies mentioned below:

- In the light of the prevailing seed act and seed rules, the government will retain the opportunities already provided to the private sector for production, import and marketing of seeds side by side with the public sector.
- Appropriate mechanism will be devised to improve the technical skill of the private sector with regards to seed treatment, seed preservation at specific moisture level and seed storage management so as to ensure the highest quality of seeds.
- The act of favourable policy preparation, technical supports, training, etc. will be strengthened in order to encourage private sector participation in seed development and seed preservation.
- Improved technology-based seed production, seed multiplication and related farm activities have been declared as industrial enterprises in the present industrial policy. For the development of seed industry this policy will be continued and adequate government support will be provided.
- In addition to the production and marketing of seeds in the public and private sectors, the policies relating to seed production and seed preservation at the farmers' level will continue so that the farmers can easily use good quality seeds. The government has, meanwhile, taken initiative for strengthening the activities of BADC in this regard. Necessary steps will be taken during the Fifth Five Year Plan period to raise BADC's seed distribution programme to the extent of ten percent of the total demand.
- Already introduced seed buffer stock system will continue to ensure the normal supply of seeds of major crops at the time of natural calamities or any other disaster.
- The conditional opportunity that has already been given to the private sector to import hybrid rice seeds for increasing rice production will be further consolidated on the basis of performance analysis. But, special care will be taken to ensure that the private sector produces hybrid seeds locally and that the hybrid seeds offer higher yield and more financial benefits to the farmers on a sustained basis.

- At present, Seed Certification Agency (SCA) is the only legal authority to certify seeds. With a view to increasing supply of quality seeds, private sector agencies participating in the seed production programmes will be allowed to market their '*truthfully labeled seeds*' side by side with the government agencies. The Seed Certification Agency will have the legal authority and responsibility to closely monitor the entire seed labeling and certifying process of the respective private sector organisations. The Seed Certification Agency will take membership of the International Seed Testing Association (ISTA) so that the opportunities for exporting internationally standard seeds are created.

5. Fertilisers

5.1 Chemical Fertiliser is one of the main inputs required for increasing crop production. The expansion of modern agricultural practices together with intensified cultivation has led to an increasing demand for fertilisers. It is therefore, necessary to ensure timely supply of fertilisers to match the demand. As a result of unbalanced use of fertilisers, the fertility of land is declining on the one hand and the potential yield is not achieved on the other. In this respect, it is extremely important to adopt and implement such policies so as to encourage the farmers in using balanced fertilisers and at the same time protecting the soil fertility. As a broad principle of fertiliser use, a sustained increase in the productive capacity of land and its preservation in the long run will get priority over the immediate yield improvement. In order to strengthen fertiliser management, following policies already adopted by the government will be continued:

- Steps already taken to popularize the use of granular urea as a means of reducing excessive use of urea fertilisers will be strengthened.
- The rules on 5-grades already introduced by the government in order to ensure the use of blended fertilisers will remain in force.
- Enforcement of concerned rules and regulations will be strengthened in order to ensure good quality of fertilisers at the farmers' level.
- Appropriate programmes for training, field demonstration, publicity, etc. will be extended further so as to encourage farmers in using balanced fertilisers.
- The use of organic manure, bio-fertilisers and compost will be encouraged. Measures will be taken to update agricultural extension, training and motivational work at the farmers' level so that the farmers can follow suitable cropping patterns to maintain the natural balance of soil nutrients.
- Production, importation, sales and distribution of any fertiliser harmful to soil environment will be banned.
- Distribution system of fertilisers in the private sector will continue. But, the public sector will import fertiliser, if necessary, to ensure its supply and availability in time.
- The district and Thana Committees already formed by the government will continue to monitor fertiliser distribution at the farmers' level.
- The present practice of fertiliser buffer stock system will continue.

- Realistic steps will be taken to ensure the use of phosphatic and potassium fertilisers as well as various micronutrients. The use of DAP (Di-amonium Phosphate) fertiliser, already introduced by the government, will be encouraged in this regard.
- The Soil Resources Development Institute (SRDI) will be strengthened and soil-testing programmes will be started in five-year phases based on soil and Agro-ecological Zones (AEZ). Besides, the use of existing 'Soil Health Card' will be further extended for improving soil quality.

6. Minor Irrigation

6.1 Irrigation is the leading input for increasing yield and production of foodgrains and other crops. About 90 percent of the total irrigated area of the country are covered by minor irrigation. A well-planned irrigation management programme is, therefore, essential for gradual increase of cropping intensity as well as yield. It is in this background that the National Agriculture Policy has given special emphasis on the development of minor irrigation.

6.2 As a result of liberal importation of irrigation equipments, shifting of irrigation management to the private sector and withdrawal of siting restrictions and standardisation of irrigation equipments, total area irrigated and number of irrigation equipments have significantly increased, which has appeared to be the driving force for increasing production of food crops, especially rice and wheat. The major source of irrigation expansion has, however, been the groundwater technologies, predominantly Shallow Tubewells; irrigation by Deep Tubewells has virtually not increased in the recent years. Although there is much prospect for the surface water irrigation but it has not been expanded to 'any significant scale. Instead, the withdrawal of siting restriction and standardisation of irrigation equipments has resulted in some negative impact on the efficiency of irrigation management. For example, in some places much larger number of equipments have been installed than technically required and many of those installations turned out to be physically and technically inappropriate. Such phenomena have resulted in capacity underutilisation of pumps and increased the cost of irrigation which in turn increases the production costs. In this respect, appropriate steps will be taken for the development and extension of minor irrigation system in the light of National Water Policy and Water Resources Development Plan.

6.3 Although minor irrigation is largely in the domain of the private sector, the onus of improving irrigation efficiency still lies with the government. In this context, primary goal of the minor irrigation management under the purview of Agriculture Policy is to accelerate crop intensification and increase yields through planned utilisation of surface and groundwater in an environment friendly atmosphere. To achieve this goal, activities of various agencies involved in surface and groundwater irrigation programmes will be coordinated at the national level. Specifically, the following steps will be taken to strengthen irrigation management:

- Efforts will be made to reduce irrigation cost by improving irrigation efficiency, promoting appropriate technology, increasing irrigation command area and upgrading irrigation management.

- With a view to expanding irrigation facilities the present policy of liberal imports of irrigation equipment will continue. Measures will be taken to reduce prices of irrigation equipments by creating favourable conditions for a competitive market and encouraging the private sector participation in irrigation development programmes.
- With a view to increasing efficiency of overall irrigation management, applied education programmes for the farmers will be taken in line with the National Water Resources Development Plan.
- Irrigation from surface water will get priority and suitable programmes will be taken up for the expansion and consolidation of appropriate technology. Emphasis will be given on the conjunctive use of ground and surface water in accordance with the National Water Policy and Water Resources Development Plan of the government.
- Infrastructures will be built for capturing surface water from khals, beels and small rivers and increasing availability of irrigation water by using high capacity power pumps. Besides, small rivers, khals, dighi, derelict ponds, etc. which have been silted up will be re-excavated so as to augment water flow for expanding irrigation facilities. Such water bodies will be used for fish production while tree plantation will be done on the two sides of khals.
- Since the cost of irrigation by electrically operated equipments is lower with higher efficiency, priority will be given to electricity connections and supplies for irrigation pumps.
- In severe and extremely severe drought affected areas, government decision for strengthening supplementary irrigation during the transplanted *aman* season will continue. Also required technical supports for electricity reconnection to irrigation pumps during the *aman* season will be provided along with other forms of assistance.
- Location specific special programmes will be taken for the improvement of irrigation system. Irrigation programmes will be undertaken following proper strategy according to the availability of surface and groundwater. Farmers will be motivated in harvesting rainwater for irrigation, and appropriate programmes will be taken for promoting rain-fed farming. Suitable projects will be taken up for building water reservoir to capture tidal water and thereby expanding mechanised irrigation facilities in the coastal areas. In this regard, participatory programmes for the local beneficiaries will be undertaken.
- In backward and underdeveloped areas, the government will initially take up irrigation programmes. Gradually the private sector will be motivated and provided necessary supports for developing ways and means of expanding irrigation along with the marketing and installation of appropriate irrigation technologies.
- Private sector initiatives for repair and maintenance of irrigation equipment at the local level will be encouraged further. Special programmes will be undertaken to provide technical assistance for increasing technical competence including credit support for the promotion of mechanics' services at the local level.
- Necessary training and technical assistance will be given to the farmers for reducing water loss through increased efficiency of the irrigation system and increasing command areas per pump.

- For ensuring optimum utilisation of water, intensity of crop production will be increased through crop diversification programme based on the identification of suitable cropping patterns. Under the crop diversification programme, farmers will be motivated through the introduction of suitable irrigation methods for growing different crops.
- Irrigation management system will be regularly monitored and the required data will be collected and analysed in order to provide guidelines for improvement. Adequate steps will be taken to deliver information on irrigation equipments regularly to the farmers and traders who are investing in irrigation equipments.
- Coordinated steps will be taken in collaboration with the concerned agencies to effectively monitor how underground water level fluctuates over time or what possible impact it might have on irrigation development in future.
- Measures will be taken to minimise any adverse impact of the withdrawal of siting and standardisation requirements through proper advice to the farmers and creating awareness about the technical and financial implications of the dense installations of irrigation equipments.
- Research will be strengthened in order to assess the present status and determine future programmes on the availability of irrigation water, utilisation and impact of irrigation technologies, etc.
- Reservoirs will be built-up to tap water from the year-round stream flow in hilly areas and appropriate infrastructure will be developed for irrigation as well as fish culture.

7. Pest Management

7.1 Integrated Pest Management (IPM) will be the main policy for controlling pests and diseases. More importance will be given to the following activities for pest control under the Agriculture Policy:

- Farmers will be motivated to use more pest resistant varieties of crops. Modern cultivation practices will be followed so that the incidence of pest infestation is reduced.
- Use of mechanical control measures such as light trap, hand net, etc. will be increased and popularised. Biological control measures will be used to destroy harmful insects and preserve the useful ones.
- Regular training and discussion programmes on IPM will be conducted among the farmers under the supervision of Union Agricultural Development Committee with a view to successful introduction and popularisation of the method at the farmers' level.
- Pest surveillance and monitoring system will be strengthened.

7.2 Chemical pesticides will only be used in cases where IPM fails to control the pests. The following measures will be taken in respect of distribution and use of chemical pesticides in the light of existing rules and regulations:

- Production, import, distribution or use of any chemical pesticide will be banned which is directly or indirectly harmful for human, animal and aquatic health.
- Use of any chemical pesticide harmful for natural environment will be discouraged and eventually banned.
- The system of approval of pesticides at the national level will be continued and its monitoring along with the testing of effectiveness of approved pesticides will be strengthened.

8. Agricultural Mechanisation

8.1 The serious scarcity of draft power necessitates the use of mechanical power for agricultural production activities. The government has, therefore, attached special importance to agricultural mechanisation. To encourage the use of machines in agriculture testing and standardization restrictions have already been withdrawn in the free market distribution system. As a result the use of agricultural machinery has increased significantly and immense potential is created for further increase. In order to accelerate the current trend of agricultural mechanisation, various facilities including exemption of import duties on agricultural machinery have been provided and the same will continue.

8.2 The following steps will be taken to promote agricultural mechanisation:

- The type of agricultural machines or the level of mechanisation needed in any region depends on the socio-economic condition of the people, number and quality of draft animals and availability of agricultural labour in that region. Measures will be taken to collect and publicize these informations through the mass media in order to attract private investment in this sector.
- In order to gradually reduce dependence on draft power, efforts will be made to grow farmers' interest on mechanisation as well as to provide credit facilities. To achieve this goal, information relating to increasing potential demand for and profitable investment in agricultural machinery will be publicized through the mass media so that the private sector can play an active role in creating a competitive market.
- Despite increasing use of mechanical power in agriculture, the use of animal power will continue in future depending on the socio-economic conditions of the farmers in different regions. Therefore, improved 'power delivery system' (meaning delivery of energy from the shoulder of the draft power to the agricultural implement) will be evolved through research so that the scarce draft power can be utilized more efficiently.
- Production and import of agricultural machines will be especially encouraged so that the farmers can procure machines from the market according to their choice and convenience. Machinery workshops and industries engaged in agricultural mechanisation activities will be provided with appropriate taxes/duties facilities for the import of necessary raw materials. This is expected to keep the machine prices within the purchasing capacity of the farmers.

- To speed up the process of agricultural mechanisation both producers and users of machines will be provided with necessary credit supports.
- Use of machines, which are usually expensive, is not often affordable by the individual farmers. In order to popularize mechanisation in addition to the use of draft power, farmers will be motivated in purchasing or taking lease of agricultural machines through the cooperatives. Formation of such self-motivated cooperatives will be encouraged and necessary supports will be extended to mechanised cultivation based on cooperatives.

9. Agriculture Research

9.1 A well – coordinated research plan is essential for the rapid development of the crop sector. With a view to transforming crop production system into a profitable and sustainable sector, a two-dimensional agricultural research management programme will be followed. On the one hand, priorities will be given to develop low-cost appropriate technologies for the small, marginal and medium farmers including women with a view to resolving their identified problems. While, on the other hand, applied research will be strengthened through advanced research methodology by providing necessary research facilities. The following steps will be taken to fulfill the expected goals of agricultural research:

- Social, economic and marketing research programmes of all the National Agricultural Research Institutes and the Department of Agricultural Marketing (DAM) will be strengthened in order to determine the economic importance of crop production.
- The National Agricultural Research System (NARS), already established by the government, will be further strengthened and coordinated through periodic evaluation.
- The programme already undertaken to transfer and popularise the technologies evolved by different agricultural research institutes through the private sector and NGOs at the field level will continue.

9.2 National Agricultural Research Institutes will, in principle, give priorities to the following subjects in preparing their time-bound and target oriented research programmes:

- Soil and agro-ecological Zone (AEZ) specific research;
- Research relating to the development and application of fertilisers which are harmless for soil quality, environment and health;
- Research on preservation and development of land productivity in different regions;
- Region-wise research on irrigate and rain-fed cultivation;
- Farm management research with a view to minimising production cost and maximising farmers' income;
- Research on identifying different regions of the country from the economic point of view as the most suitable and profitable for specific crops and cropping patterns;
- Research on preservation of existing bio-diversity of different crops;

- Research relating to IPM and development and application of pesticides from indigenous plants;
- Research on improving quality and utility of various crops;
- Research on meeting the increasing demand for food-based nutrition through increasing crop diversity;
- Agro-economic research on the trend and impact of domestic and export demands for different crops;
- Research on preservation and processing of crops and reduction of crop losses;
- Research on enhanced participation of women in agricultural activities and removal of constraints;
- Research relating to the development of crop varieties and technologies suitable for drought and flooded conditions;
- Research on developing short duration improved varieties of seeds for different crops;
- Agronomic and economic research on crop diversification;
- Research on the development of improved crop varieties and technologies suitable for cultivation in coastal, hilly, water logged and salinity affected areas;
- Research on developing improved varieties and technologies for the deep water rice;
- Research on developing technologies for integrated rice cum fish culture; and
- Research on marketing and price trends of different crops.

10. Agriculture Extension

10.1 Agriculture extension is one of the main components of the National Agriculture Policy. There is a need for strengthening agricultural extension service for ensuring proper use of agricultural land and improving land productivity. The Department of Agricultural Extension (DAE) has got the responsibility of providing information on appropriate technologies to the farmers; educating the farmers through proper advice and training; and, thereby motivating the farmers to adopt improved technologies. To strengthen the above mentioned extension services, following steps will be taken:

- The New Agricultural Extension Policy (NAEP) is currently under implementation with the objective of promoting sustainable technology for a gradual development of the improved crop production system. The implementation of NAEP will be reinforced through necessary monitoring.
- Agricultural research-extension linkage will be further strengthened with a view to transferring new technologies to the farmers, Private sector entrepreneurs, NGOs and farmers will also be involved in strengthening this linkage.

10.2 The present agricultural extension set-up is sufficiently broad-based and bolstered by efficient manpower. The following measures will be taken to make this organization more efficient and effective:

- DAE will prepare feasible and compatible programmes for the proper use of cultivable land on the basis of demand for different crops and their production targets.
- DAE will regularly monitor the supply and availability of quality seeds, fertilizers, irrigation, pesticides, etc, in order to facilitate the cultivation of different crops. Besides, DAE will prepare an anticipated report on the increase/decrease of crop-wise demand for different inputs and apprise the authorities at the national level.
- The use of public mass media i.e. radio, television, newspaper, etc. will be increased for rapid extension of agricultural technologies. In this connection Agriculture Information Service will be strengthened.
- Proper use of Annual Development Plan (ADP) allocations to local government will be ensured. Block-wise establishment of demonstration farms which is already in practice will be strengthened. Suitable crops, compatible with the overall conditions of the farms will be determined by DAE. Visits to demonstration farms and interaction with the farmers by the extension workers at an important time of the respective cropping season will be further strengthened.
- To facilitate rapid transfer of agricultural production technologies, multiple extension approaches such as agricultural fair, field day, farmers' rally, etc. will be widely practiced.
- Agriculture extension service will be strengthened to encourage self motivated cooperative system of production.

11. Agriculture Marketing

11.1 Marketing of agricultural commodity is inextricably related to its production. But the Department of Agricultural Marketing (DAM) remains as the weakest of all the existing organizations in the agriculture sector. Markets for agricultural commodities are generally under middlemen's control, which is very discouraging for the farmers. This is not at all favourable for boosting agricultural production. To develop agricultural marketing system, following steps will be taken by the government:

- Proper marketing network will be established to facilitate timely marketing of agricultural commodities. To this end, development programmes will be taken up to promote processing of agricultural commodities and ensure fair prices of crops to both the growers and the consumers.
- The Department of Agricultural Marketing will be restructured with the provision of required manpower for its smooth functioning. A separate institution named 'Agriculture Price Commission' will be established for preparing adequate marketing programmes, giving proper guidelines and implementation of marketing activities along with strengthening of the DAM.

11.2 In preparing marketing programmes the following points will be taken into consideration:

- Crops will be stored and preserved in proper conditions to ensure their uninterrupted supplies throughout the year as well as to cope with the over production of crops. The use of any harmful chemical in this process will be controlled.
- Timely supply of right quantities of crops at right places will be ensured through the development of transportation system.
- Processing facilities will be developed to reduce wastage of rapidly perishable crops, increase utility and maintain quality of agricultural commodities.
- Export of agricultural commodities will be increased through grading and standardization. Also, to increase local consumption of such crops, necessary measures will be taken for grading, standardization, labeling and quality development according to consumers' taste and preference and food value.
- Efficiency and effectiveness of marketing programmes will be improved through proper development of market places and related physical infrastructure.
- Market related information would be supplied to the farmers, traders and consumers through strengthening of market information service.
- Consumers/users, traders and processors will be informed about the production, utilization and processing technology, etc. of new crops.
- Necessary assistance will be provided in solving marketing problems at the government and non-government levels by establishing marketing database and analysing the data.
- Agricultural Commodity Market Control Act of 1964 (revised in 1985) will be updated and implemented.
- To ensure fair prices of crops, measures will be taken to establish linkage among the producers, traders, exporters and processors through 'contract sale' of crops.
- Self-motivated cooperative marketing system will be encouraged.
- Necessary output price supports will be provided and foodgrain procurement will be strengthened in order to ensure fair price of crops during the harvesting season and to stabilize price when any crop damage or over production occurs.

12. Land Use

12.1 Government has the primary responsibility of ensuring optimum use of land. Although land is a privately owned property in general, its use has to be compatible with the overall social goals and utility. Moreover, it is important to consider that the interests of small arid marginal farmers and the sharecroppers are protected, as they constitute the majority of farmers.

12.2 Following steps will be taken to ensure planned utilization of land for crop production:

- Land zoning programme will be taken up by the Soil Resources Development Institute (SRDI) on a priority basis. Integrated approach of SRDI will be further strengthened for this purpose.

- To ensure maximum utilization of land, bottom up planning through people's participation and its implementation will be started from the mouza or village level.
- In most areas the same land is suitable for more than one crop. Therefore, farmers will be encouraged to grow more profitable crops as an alternative to only rice-rice cropping pattern.
- Fertile agricultural land is going out of cultivation due to its use for non-agricultural purposes such as private construction, house building, brickfield, etc. Appropriate measures will be taken to stop this trend in the light of the Land Policy of the government.
- Maximum utilization of land will be ensured through promotion of inter-cropping with the main crops.
- Acquisition of land in excess of requirement for non-agricultural purposes will be discouraged.
- Programmes will be taken up to motivate the landowners not to keep their land unused without any acceptable reason.
- Appropriate measures will be taken in the light of the Land Policy so that the interests of small and marginal farmers and the sharecroppers are protected and that the agricultural land is not kept fallow for a long period.

13. Agricultural Education and Training

13.1 One specific objective of the Agriculture Policy is to develop efficient manpower in agricultural disciplines in order to increase the rate of production on a sustained basis. To expand the scope of agricultural education Bangobondhu Agricultural University has been established side by side with the Bangladesh Agricultural University. In the light of the National Education Policy, policies adopted by of the government for expansion of agricultural education and training are as follows:

- Steps will be taken to improve and strengthen the administrative and academic management of agricultural colleges established by the government. Appropriate measures will be taken, if necessary, to facilitate coordination and reforms in the administrative management of these colleges;
- Number of agricultural education institutions will be increased up to the required level. A pre-determined standard and facilities will be ensured for establishing and managing any agricultural college.
- All the agricultural colleges will be managed according to the curricula and examination rules of the relevant universities. Adequate measures will be taken to facilitate higher studies, research and on the job promotion for the teaching staff of agricultural colleges.
- Steps will be taken to strengthen the technical standards, administration and management of 13 Agricultural Training Institutes (ATI) offering diploma courses.

- Departmental training for the agriculture officials will be further strengthened and efforts to upgrade the practical knowledge of the Block Supervisors through regular in-service training will be continued.

14.1 It has been concluded in different studies that the agricultural credit advanced by the financial institutions (banks) is not easily available to the farmers. On the other hand, Grameen Bank and quite a number of NGOs are giving credit to the farmers, although much of that credit is being used for non-agricultural purposes. However, the major proportion of agricultural credit still comes from the financial institutions. But the amount of credit that is available from this institutional source fulfills only an insignificant portion of the total credit requirement.

14.2 In the past Agricultural Credit Committees were formed at the district, thana and union levels to monitor credit distribution. But, except the district level committee, two other committees have virtually become ineffective. Even the district committees are not performing their monitoring job regularly in all the districts. There is no such institutional structure for monitoring agricultural credit programme at the national level, except the Bangladesh Bank. However, the status of monthly loan disbursement and its recovery is being monitored by the Finance Division besides Bangladesh Bank. In this situation, government policies regarding agricultural credit are as follows:

- To achieve the desired goal of the Agriculture Policy, regular monitoring at all levels of credit distribution will be strengthened. A monitoring and evaluation committee will be formed at the national level under the chairmanship of the Honorable Finance Minister for this purpose. The Honorable Minister for Agriculture will act as the alternate chairman for this committee. This committee will consist of the Governor of the Bangladesh Bank, Secretary of the Finance Division, Secretary of the Ministry of Agriculture, Member (Agriculture) of Planning Commission, Managing Directors of all the government financial institution, Director General of the Department of Agricultural Extension (DAE) and Director General of the Bangladesh Rural Development Board (BRDB). One representative from the private: sector organisations, one each from Farmers' Organization and Krishibid Organization and three representatives from the NGOs involved in agricultural development activities, nominated by the government will also be included in the committee as members. This committee will provide overall guidelines for the implementation of institutional agricultural credit programme and make recommendations to the government for necessary actions through reviewing the overall credit situation. Besides, the committee will regularly monitor the status of agricultural credit at the national level.
- Activities of the district agricultural credit committee formed under the chairmanship of the Deputy Commissioner will be strengthened. The district level regional managers/highest officials of all nationalized and specialized banks. Deputy Director of DAB of the respective district. District Rural Development Officer of BRDB, Regional Manager of BADC, representative from NGOs involved in agricultural development activities and two progressive farmers nominated by the government will be included as members of this committee. Regional Manager/highest official of the nationalized lead bank will act as the member-secretary of the committee. This committee will regularly monitor and review the agricultural credit programme for its successful implementation at the field level. The

committee will determine the demand and target for agricultural credit on the basis of recommendations made by the thana and union committees and accordingly recommend to the national committee.

- Thana and union level committees will be activated. Thana Nirbahi Officer will be the Chairman of the thana committee. All union parishad chairmen of the respective thana, managers of all the thana level government banks, Thana Agriculture Officer and Thana Rural Development Officer will be the member of this committee. Manager of the thana level government lead bank will act as the member- secretary of the committee. Besides, this committee will be strengthened by including two progressive farmers of the respective thana and a representative from the NGOs involved in agricultural development activities as members who will be recommended by the district committee in consultation with the concerned member of the parliament. This committee will review the performance of agricultural credit distribution and recovery through the union agricultural credit committee and take necessary actions locally for improving the situation.
- Union parishad chairman will be the Chairman of the union agricultural credit committee. Respective ward member of union parishad and Block Supervisor of DAE will be included in this committee as members. Local bank manager or the field supervisor will be the member-secretary of the committee. In order to strengthen the committee one representative from the local NGOs and two progressive farmers will be included in the committee. The responsibilities of this committee will be to: (i) prepare a list of potential recipients of agricultural credit on an annual basis; (ii) fix the target for agricultural credit and recommend that to the higher authority; (iii) monitor regularly whether the credit is being distributed in time; and (iv) provide necessary assistance for loan recovery.

14.3 In each of the union, thana, district and national agricultural credit committees, women representatives nominated by the government will be included as members. The inclusion of elected women representatives in the union and thana agricultural credit committees will be made compulsory.

14.4 The government has been continuing efforts to simplify the procedures of agricultural credit disbursement. Meanwhile, some new policies have already been introduced to this effect. But the banks/financial institutions have to direct their credit distribution system by maintaining a balance between the simplification strategy and credit recovery as those institutions are to ensure recovery of disbursed credit, which constitutes the depositors' money. The committees on agricultural credit at different levels will basically act as the facilitators in disbursing and recovery of credit by monitoring, motivating people in repaying loans, recommendations through enquiry of complaints and overall coordination, etc. While the loan sanction will solely remain with the concerned Bank and the respective branch of that Bank will be liable for recovery.

14.5 In order to make agricultural credit more accessible, programme of advancing bank loan with an increasing rate will be continued. Besides, the Ministry of Agriculture has prepared an outline of an institution titled 'Agricultural Credit Foundation' following the model of Palli Karma Shahayak Foundation to strengthen the agricultural credit system. The Agricultural Credit Foundation will be a non-profit organization under the Company Act of 1994 with the primary objective of increasing investment in agricultural activities through

meeting the demand for credit by the landless, marginal and small farmers; and at the same time to alleviate, poverty and raise the overall living standard by creating new employment opportunities through intensification of crop cultivation and agricultural diversification. Programmes will be taken up to identify different government, semi-government, non-government development agencies and social organisations as the 'partner organisations' to channel micro credit through them for this purpose. Necessary steps will be taken during the current Fifth Five-Year Plan (FFYP) period for establishing this institutional entity.

15. Government Support for Agricultural Production and Contingency Plan

15.1 It is necessary to take up supportive programmes by the government for encouraging farmers in using modern technologies in order to increase crop production. Steps to be taken by the government in this respect are:

- Government support may be provided to farmers in a number of ways, such as, reducing prices of agricultural inputs, ensuring fair prices for agricultural products, exempting duties and taxes, sharing the cost of supplementary irrigation, lowering the rates of interest on agricultural credit etc. A provision of block allocation for the Ministry of Agriculture will be kept in the Annual Development Programme (ADP) for this purpose. This money will only be used for the agricultural support programmes of the government.
- Government will undertake contingency support programmes to make of the farmers' loss due to any natural disaster. A provision of block allocation will be kept in the revenue head for the Ministry of Agriculture for this purpose.
- The Ministry of Agriculture will have a contingency plan for taking up emergency agricultural rehabilitation programmes (ARP) to recover from the crop losses due to any natural disaster at both the farmers' and national levels.
- Early warning system will be strengthened to inform the farmers about their roles in an adverse weather condition on the basis of specific information analysis. A plan is being prepared by the Department of Agricultural Extension (DAE) for providing 'extension message' on the basis of agro-meteorology. An agro-meteorological centre will be established in the DAE for this purpose. The main function of this centre will be to analyze agro-meteorological and agro-climatic data and forecast the sowing/transplanting time and possible yields of crops to the farmers as well as to provide agro-meteorological advises.

16. Food-based Nutrition

16.1 As a follow up to the World Declaration of the International Conference on Nutrition, 1992, the following agriculture related programmes are identified:

- Improving nutritional objectives, components and considerations into development policies and programmes.
- Improving food security down to the household level.
- Protecting consumers through improved food quality and food safety.

16.2 The government has already approved the National Food and Nutrition Policy and the National Plan of Action on Nutrition in the light of unanimously adopted resolutions of the above-mentioned conference. In this perspective efforts are being made to increase production and supply of nutritious crops and thus improve the status of food-based nutrition through implementing nutritional programmes in the agriculture sector. These development activities will be continued.

17. Environmental Protection in Agriculture

17.1 One of the objectives of the National Agriculture Policy is to create awareness so that the chemical fertilizers and pesticides used for increased crop production do not turn out to be responsible for environmental pollution.

17.2 Water logging and salinity are appearing to be a serious problem in some parts of the country including the coastal areas which is not only a threat to the agricultural activities in those areas but also can cause a great damage of the overall environment. The steps to be taken by the government in this respect are:

- Measures will be taken to resist water logging and the farmers will be motivated to follow appropriate crop rotation as well as to practice crop and fish culture by turns.
Salt tolerant crop varieties will be developed and extended along with possible measures to resist salinity.
- Considering the environmental hazards associated with the implementation of crop production policy, necessary steps will be taken to protect the environment in the light of the approved National Environment and Water Policies.
- Although earning of foreign exchange is largely attributed to the shrimp culture in the southern saline areas, saline water together with shrimp disposals in shrimp enclosures and adjacent areas have been appearing as a source of environmental pollution. In this respect, realistic steps will be taken in the light of the already formulated Fisheries Policy.

18. Women in Agriculture

18.1 In the socio-economic context of Bangladesh, involvement of women in agriculture is very important. It would be easier to control rural-urban migration by engaging women in agricultural activities to a greater extent. Considering women's involvement in agriculture, the following programmes will be taken up for enhancing their role under the scope of the National Agriculture Policy:

- Agriculture related activities like post harvest operations, seed preservation, nursery business, jute stripping, vegetable cultivation, homestead gardening, floriculture, production of horticultural seeds, establishment and management of cottage industries based on locally produced agricultural commodities, etc. are very suitable for women. Extensive training programmes will be

conducted and capital support will be provided to encourage women's interest and improve their skill in such activities.

- Separate extension programme will be organized for women in the light of the New Agricultural Extension Policy (NAEP), as they also take part in the production of field crops.
- Appropriate research programme will be undertaken to identify constraints with regard to women's participation in agricultural activities and measures will be taken to remove those identified constraints.

19. Coordination among the Government, NGOs and Private Sector

19.1 It is not possible for the government or NGOs or the private sector alone to solve the whole range of problems or to fully explore the prospects of the agriculture sector. Since the problems are complex and widespread in agriculture on the one hand, and available resource base is very limited on the other, the activities of government, private, farmers and non-government organizations will be coordinated in the following manner for the overall development of agriculture sector:

- Private sector agencies and NGOs will have the opportunity to participate in any programme related to the development of agriculture sector. But the government will reserve the right to postpone or ban any activity, which is considered to be inconsistent with the National Agriculture Policy.
- Activities of the government, private organization and NGOs involved in agricultural development will be brought under a well-organized monitoring system and will be coordinated from the national to field level. One agriculture committee will be formed at each of the national, district, thana and union levels to consider the issues related to overall agriculture as well as to coordinate the activities of all concerned ministries and agencies involved. The National Agriculture Committee will be formed under the chairmanship of Hon'ble Minister for Agriculture. Similarly, from the district to union levels, respective chairman of the local government institutions will be responsible for holding the chair of the agriculture committees at each of the district, thana and union levels. One representative from the farmers' organization will be included as a member in the agriculture committees at each level.

20. Reliable Database

20.1 Successful implementation of a development programme largely depends on the availability of reliable data and information in time. Following measures will be taken by the government under the National Agriculture Policy to build up a reliable database:

- Adequate physical facilities will be created at the district level DAE offices.
- District level DAE offices will collect, compile and preserve all information related to crop sector through their official channels. For this purpose, adequate computer facilities and skilled manpower will be mobilized.

- Agriculture related information would be preserved and displayed publicly.
- Government, private sector agencies and NGOs involved in agriculture sector will in principle agree to exchange information among them.
- Bangladesh Bureau of Statistics will organize training programmes on appropriate methods of data collection and preservation for the concerned agencies and provide advice in this regard.

21. Conclusion

21.1 The proper implementation of the National Agriculture Policy will transform the crop production system, and for that matter the overall agriculture into a dynamic sector over time, which is expected to bring about significant positive changes in the economy of the country. In respect of time, The National Agriculture Policy will be evaluated and reviewed in the context of overall economic condition of the country and the changing agricultural production system and accordingly measures will be taken to update this Policy.