

STATE AGRICULTURE POLICY, ASSAM

INTRODUCTION :

Assam is predominantly rural and the economy primarily agrarian in nature with almost 70% of the population directly dependent on Agriculture as a source of income and another 15% of the population dependent on allied activities for its living. It is for this reason that any strategy for the development of the State will have to keep agriculture at the centre of its planning process. If we look at the development of agriculture in Assam since independence, the scenario in terms of productivity and production has been mixed. We have achieved self-sufficiency in rice, the staple crop, but we still have a shortfall in overall requirement of oilseed, pulses and wheat. We have a surplus production of fruits and vegetables, but almost 40% of the crop is lost because of post harvest losses. The future of rice production too, is not assured in the State, largely because of poor price realization. If one were to consider the fertility of the land and the abundance of water in the State, the two most important components for agricultural growth, Assam should have been one of the better-developed States in the country. Yet in all the key indicators of Agricultural development, be it irrigation, levels of mechanization, cropping intensity, market access or connectivity of the rural areas, the State today lags behind the rest of the country.

Similarly, while at the time of independence Assam was ahead of the country in all the key indicators of agricultural productivity, today it lags behind the rest of the country in the same.

The terms of trade of agriculture in the past decade also have been un-favourable, which has ensured that profit margins of surplus producers have been steadily squeezed. The farmer is finding it increasingly difficult to ensure increase in productivity, in a scenario where input costs are steadily going up, and price of produce is steadily falling. This position may also deteriorate further because of the WTO Agreements on Agriculture, where many Tariff barriers in agricultural commodities will fall and a number of products of other countries will start entering the country. Already during the Doha round of negotiations, there was pressure from the developed world to reduce subsidies permissible under the “green box”, coupled with the reduction in tariff quotas. We are already facing stiff competition from countries like Sri Lanka and Kenya in Tea, one of our major agriculture based industry, and this situation may worsen further, if we find rice from neighbouring countries like Burma and Thailand coming into the Country. In such a scenario, the support of the State in terms of policy initiative is extremely necessary to ensure that the farmers of Assam are not driven out of the market. Further, a fresh look at agriculture has to be taken not just in terms of self-sufficiency but also from a view of producing for the market. This means that after taking care

of minimal food security and nutritional aspects, a hard look has to be taken to see in which agricultural commodity the State has a comparative advantage and to lay stress in those areas.

Agro-Climatic Zones :

There are six agro climatic zones in the State, namely (1) North Bank Plains Zone, (2) Upper Brahmaputra Valley (3) Central Brahmaputra Valley (4) Lower Brahmaputra Valley, (5) Barak Valley and (6) Hill Zone. The coverage of the districts is:

Name of the Zones	Name of the Districts
1. North Bank Plain Zone	Lakhimpur, Dhemaji, Sonitpur, Darrang
2. Upper Brahmaputra Valley	Sibsagar, Jorhat, Golaghat, Dibrugarh, Tinsukia
3. Central Brahmaputra Valley	Nagaon and Morigaon
4. Lower Brahmaputra Valley	Kamrup, Borpeta, Bongaigaon, Nalbari, Goalpara, Dhubri and Kokrajhar
5. Barak Valley	Cachar, Karimganj and Hailakandi
6. Hill Zone	Karbi Anglong and North Cachar hills

PRESENT STATUS OF AGRICULTURE IN ASSAM :

Of the total 78.44 lakh hectares geographical area of the State, the net cropped area is only 23.86 lakh hectares (leaving out tea garden area), of which 20.7 p.c. is irrigated, 17.58 p.c. chronically flood prone and 3.47 p.c. chronically drought prone.

LAND USE DATA OF ASSAM

1. Geographical Area	78,43,800 Ha.
2. Area under Forest	20,12,319 Ha.
3. Area under Tea	3,15,000 Ha.
4. Net Area Sown	23,86,000 Ha.
5. Area sown more than once	12,50,000 Ha.
6. Gross Cropped Area (excluding Tea)	36,36,000 Ha.
7. Cropping Intensity	152.00%
8. Cultivable Land Waste	88,200 Ha.
9. Chronically Flood Prone Area	4,75,060 Ha.
10. Chronically Drought Prone Area	93,817 Ha.
11. Area Irrigated	4,17,000 Ha.
12. Average land holding	1.24 Ha.

- The gross cropped area is 36.37 lakh hectares (excluding Tea area) and the cropping intensity is 152 p.c. Cultivable wasteland is around 80,000 hectares.
- There is a preponderance of small and marginal farmers in the State comprising 26 p.c. and 36 p.c. respectively of the total farmer population. Landless farmers account for 28. p.c. The average size of holding in the State is 1.24 hectares and this figure is showing a declining trend.
- The total food grain production in the State during 2000-01 was 41.73 lakh MT of which rice is 39.99 lakh MT, wheat 0.86 lakh MT, pulses 0.79 lakh MT and others 0.19 lakh MT. Nearly 95% of food grains production is accounted for by Rice. The estimated demand and production gap during 2001-2002 at the end of the 9th Plan period is indicated in the following chart.

Production in lakh M.T				
Crop	Demand	Production	Surplus	Deficit
Rice	39.17	40.30	1.13	-
Wheat	5.22	0.96	-	4.26
Pulses	2.61	1.27	-	1.34
(A) Food grains	47.00	42.53	-	4.47
(B) Oilseeds	3.48	2.35	-	1.13

- The total oilseed production stood at 1.88 lakh MT in 2000-01, with Kharif oilseeds at 0.15 lakh MT and Rabi oilseeds at 1.73 lakh MT, of which production of Rape & Mustard was 1.41 lakh MT.
- The Rice production status of the state is shown below:

AREA, PRODUCTION AND YIELD OF RICE

Rice Variety	1998-1999			1999-2000			2000-2001		
	Area (Ha)	Prodn. (MT)	Av. Yield (Kg/ha)	Area (Ha)	Prodn. (MT)	Av. Yield (Kg/ha)	Area (Ha)	Prodn. (MT)	Av. Yield (Kg/ha)
Autumn Rice (Ahu)	594979	520605	889	557220	514156	938	539665	557764	1050
Winter Rice (Sali)	1635230	22881144	1421	1793994	2692709	1524	1777257	2759652	1576
Summer Rice (Boro)	223913	446113	1992	294654	653783	2219	329255	681027	2068

- The present productivity of the major crops grown in the State are-

Crops	Yield in KG per hect. (Assam)	Yield in KG per hect (All India)
13. Rice	1531	1879
14. Wheat	1219	2671
15. Pulses	556	623
16. Oilseed	554	1013
17. Fruits	1192	-
18. Vegetable	13205	14900
19. Spices	2392	-

- The major cash crops grown in the State are jute & sugarcane. Assam is the second largest producer of jute. The production of jute during 2000-01 was 6.68 lakh bales with productivity at 1730 kg/hect. The production of sugarcane in the State during this period was 9.88 lakh MT (cane) with productivity of 369 qtls./hect.
- The present fertilizer consumption rate is 37.40 kg/ha. While the use of HYV seed in paddy is 55.66 p.c.

- The current farm power availability in the State is about 0.3 H.P. per hect. Present availability of operational Tractors & Power Tillers are only about 900 and 4000 nos.
- The State has about 5.00 lakh hect under Horticultural crops. Among horticultural crops, the State produces 12.50 lakh MT of fruits, 1.88 lakh MT of spices, 6.57 lakh MT of tuber crops and about 1500 lakh nos. of coconut and 55000 dry nuts of area nut annually. However, actual availability in the markets for fruits & vegetables go down by about 35% to 40% due to post harvest losses.
- Irrigation availability in the State is very poor. Presently 20.7 p. c. of the net- cropped area and 37.72 p. c of the gross cropped area are covered by irrigation. About 60% of the irrigated area is covered by STWs only.
- Post harvest technology and facilities like marketing infrastructure including storages and road communication in the State is grossly inadequate. Absence of Agro-processing industry make the farmers vulnerable to market volatility.
- The institutional structure of credit is extremely weak in the State. Most of the Gaon Panchayat Samitees and the Large Areas Multipurpose Societies (LAMPS) in the Hill districts are financially weak and inactive.

- According to the latest survey 36 p.c. of the population of the State is living below the poverty line, as against all India average of 27 %.
- Farmers' training programme in the State is conducted in 7 (seven) Farmers Training Institute in six districts. The departmental Extension Training Centre as well as the Assam Agricultural University imparts orientation training for the field level workers of the department. Currently long duration farmers' training programme for capacity building of the FMCs is being conducted throughout the State through MANAGES, Hyderabad.
- Farmer's organization called Field Management Committees or Pathar Parichalana Samittees have been formed in the State for implementation of schemes/programmes in the State. There are about 25,000 FMC's at village level in the State.

Constraints :

From a reading of the present status of agriculture, it is apparent that the majority of the land in the State is owned by Small and Marginal farmers, practicing subsistence agriculture and at present they have very little connection with the market. The farmers are also hampered by a low level of capita formation, coupled with very low availability of credit. The level of mechanization, fertilizer usage and irrigation in the State is also very low, which is preventing

the farmers from increasing their productivity of their land as well as improving the cropping intensity. This is the reason that although of late the State has managed to become self sufficient in rice production, there is still a significant shortfall in the production of Wheat as well oil seeds and pulses, a gap which is showing an indication of increasing rather than decreasing. Further, as rice is the main crop of the State, in the present scenario of depressed price of rice coupled with low productivity, low cropping intensity and a lack of diversification as well as the possible adverse impact of the new WTO Agreement on Agriculture, the future of the farmers of the State does not look positive. Considering the above, diversification of Agriculture into other crops while undertaking measures to improve productivity of rice as well as lowering costs of production are an urgent need for the farmers of the State.

OBJECTIVES OF THE STATE AGRICULTURE POLICY :

Keeping in mind the above-mentioned constraints of the Agriculture Sector in Assam and in consonance with the National Agriculture Policy the Government of Assam wishes to lay down the following Policy Objectives, in the Agricultural sector.

1. The Agriculture and allied sector grows at the rate of 4 p.c. per annum for the next decade to provide food security and to improve the nutritional intake of the

people of the State as well as significantly decrease the population below the poverty line.

2. To increase the productivity of all-major crops, particularly that of rice, wheat, pulses and oil seeds.
3. To increase the cropping intensity in the sector through increase in irrigation facilities as well as giving a boost to mechanization in the State, to make it at par with the rest of the country by the end of the 10th Plan.
4. To diversify into other crops, specifically wheat, Oil seeds, and partly pulses, as well as improve our production of horticultural crops.
5. As the bulk of the population in the State lives in the rural area and most of the people are dependent on agriculture and allied sectors for their livelihood, the Government sees this sector as the engine for growth of the economy in the long run and wishes to treat the agriculture sector as an **area of maximum employment generation** in the State.
6. It should be recognized that increased cropping intensity and improvements in productivity and production for the market can only be sustained if the links of the farmers to the market are good, the market infrastructure well developed and the farmers get a

remunerative price for their produce, it will be the endeavour of the State **to develop marketing and processing infrastructure** by focusing on development of rural roads, apni mandis, terminal markets, district level markets for agricultural produce as well as to focus on value addition of agricultural produce in the State essentially through facilitating private enterprise in the food processing sector. The development of a marketing infrastructure and value addition has tremendous potential for developing the economy of the State, considering the strategic location of the State and the potential markets, which exist for our produce in neighbouring countries like Bangladesh and in parts of South East Asia.

7. Since the resources at the disposal of the State are limited, the endeavour will be to converge the resources available under various government schemes like JGSY and PMGSY etc. to ensure that funds are spent keeping in view the long term growth of the agriculture and allied sector in the State.
8. **The State has a remarkable human resource in Field Management Committee,** which have been functioning as an Extension Wing of the Agriculture Department. They shall be further strengthened and developed to function as SHGs to further strengthen the extension activities in agriculture. They shall also function as focal points for disbursement of agricultural

credit and as entry points for extension activities of other allied sectors like livestock and fisheries.

To ensure that the growth in agriculture is sustainable economically, environmentally and socially.

Strategy for the Agriculture Sector :

Short Term :

The State intends to raise the productivity of all crops in Assam primarily by ensuring increase in irrigated area through the use of Shallow Tube Wells and increase in mechanization through power tillers and tractors, availability of good quality seeds and fertilizers and other inputs in the market by encouraging private enterprise as and better co-ordination in research and extension activities. This would increase the cropping intensity in the state and will also result in high yields, as has been witnessed through the interventions made through STW's in the state. In those areas where STW's are not feasible, the State would focus on appropriate strategies of better utilization of surface water, to ensure that agricultural growth is not limited on this account. Further it is also recognized that modern day agricultural practices have become increasingly reliant on more and more use of pesticides, which not only increase the cost of production but also are also extremely harmful and have and adverse impact on the environment. Keeping this fact in mind the State shall propagate Integrated Pest

Management practices to ensure that this growth in agriculture is environmentally friendly.

Medium-term :

Assam today is predominantly rice producing state and it is recognized that even in the future the bulk of the agricultural land will continue to be under rice. However, in the past few years, it has been seen that there is a surplus of rice production and the price of rice has become quite depressed, leading to distress selling and hardship to the farmers. In such a scenario it is now imperative that agriculture in the State is diversified and this over dependence on one crop be reduced. While continuing with Rice production, the aim is to give special emphases to **production of wheat, oilseed and** *** es, where the State is deficient and also lay stress on the **growth of the horticulture sector** especially through value addition as it would lead to an increase in area under horticulture crops, where Assam has a comparative advantage over the rest of the country.

Long-term :

Our aim is to be at par with the rest of the Country in all key indicators of agricultural growth, especially productivity, cropping intensity, levels of irrigation and levels of mechanization and a market leader in the production and

value addition of those horticulture crops where we have a comparative advantage. The State intends to **promote value addition** by encouraging private players to set up food-processing **industries** in the State through development of our infrastructure and marketing network for our horticulture produce, and having an industrial policy, which is particularly attractive to entrepreneurs. This would encourage industries from outside the State to invest here, thereby ensuring that agriculture and allied activities as well as related industries become the main source of employment generation for the state.

1. Food Security : —

- i. Food and nutritional security not only mean adequate availability of basic food products in the State but it includes people's access to basic nutritional requirement both physically and economically. Food security, as well as poverty alleviation is inseparable components of sustainable development. In view of the declining trend in net sown area, emphases will be placed on increasing the productivity of land and maximization of benefits to farmers. Keeping this in mind, productivity of kharif or Sali rice, the main crop of Assam will have to be increased significantly. Although the cost of production of kharif rice is low, so is the productivity, largely because the farmers are hesitant to provided

adequate inputs to this crop for fear of flood. Here the main emphasis will be on the development of proper technologies for introduction of new varieties of rice, which would do well in fold situation, as well as development of appropriate technologies for pest management and nutrient fixation in hot wet and humid condition. In addition, emphasis will have to be given to the research and extension activities of the State through proper co-ordination between the State agricultural University and the Agriculture and allied Departments to ensure that benefit of research reaches down to the farmer's field.

- ii. Almost 80,000 ha. Of land in the State has been identifies as cultivable wasteland. Apart from this there are large tracts of land in two hill districts of the State where scientific agriculture is not practiced and no crop is grown during the dry season due to lack of water. These areas of the State shall be covered with appropriate watershed and land management technologies to ensure better productivity and give relief to the small and marginal farmers of the State.
- iii. The State recognizes that the main crop of the State is rice and in spite of the need of diversification, it will continue to be the single

most important crop of the State in the long term. It is also an accepted fact that the State has significant comparative advantages in the production of this crop owing to the unique soil and agro-climatic conditions in the State, when compared with the rest of the country, as well as a ready market for its produce in the other north eastern states as well as in neighbouring countries. However, the farmers of the State face a crisis today on account of the lack of procurement of surplus rice by the FCI at the Government of India Minimum Support Price, and the sale of subsidized rice in the State through payment of wage employment schemes in kind. It shall be the endeavour of the State to ensure that procurement of surplus rice is started at the Government of India declared Minimum Support Price, by the FCI, on a priority basis.

2. Diversification : —

The State is marginally surplus in production of rice. In order to reduce the gap in requirements of other food grain crops like wheat pulses and oilseeds, a diversified growth of agriculture in different agro-climatic condition with assured irrigation facilities will be encouraged where there is a comparative advantage

in terms of cost of production. The endeavour shall be to increase the production of mustard, pulses and wheat over a five-year period through area expansion as well as modern technology driven agricultural practices. For this purpose, R&D facilities of AAU, ICAR and other such bodies as well as the departmental laboratories will be utilized on a continuing basis for research purposes and the Department will chalk out a comprehensive extension strategy to ensure availability of appropriate seeds, inputs and technical expertise for the same.

3. Development of Horticulture, Spices and Floriculture : —

- i) The major thrust will be on **development of horticulture** in the State. Assam is considered as a high potential area for production of horticultural crops, especially cashew nut, orange, banana, pineapple, spices (black pepper, ginger, and turmeric), vegetables and flowers including varieties of orchids. It is seen that the cost of production of the above crops is much cheaper in the State compared to other parts of the country, yet the production is low.

- ii) **Vegetables :** Assam produces close to 32 lakh metric tones of vegetables on an annual basis, of which almost 40% is lost because of post harvest losses. The soil and climatic conditions of the State are ideal for the production of tomatoes, cauliflower, cabbage, green peas, brinjal, ladyfinger, and cucumber. However there is no processing or storage industry of these products in the State. The result is that during the off-season these products are not available and during season there is a glut resulting in prices crashing and farmers having to leave their produce in the field because the prices on these commodities do not cover even the plucking and transportation cost.
- iii) **Fruits :** The State is well suited for production of oranges, pineapple, bananas, guavas, litchis etc. Here also, the emphasis has been on production of these crops for consumption in the local market, and they have not been viewed as an exportable surplus. As a result, there has been very little effort on production of varieties, which are good for processing or which have a longer shelf life.
- iv) **Spices and Tubers :** The soil and climate of the State is conducive for the production of turmeric, ginger, black pepper, cashew nut and

coconut. The State has one of the highest yields in the country of ginger and turmeric and yet whatever growth has taken place in this sector has been largely because of private initiative rather than because of any defined Government policy. Similarly, for cashew nut while there is great potential for production of cashew in Goalpara and Dhubri District, yet here also, the growth has occurred as a result of private enterprise, rather than because of any concerted effort on the part of the state.

- (v) It should be emphasized that **Horticulture and Food Processing is one area where the State has the maximum potential for growth** and this is the main area where profit maximization for the farmers can occur and the sector also has tremendous potential as an avenue of employment generation as well as for the industrialization of the State. However, the full potential of this sector has not been utilized in the State because of lack of adequate focus and support to this sector from the Government. To ensure that proper focus is given to this sector, **the Government will consider setting up of a separate Department of Horticulture and Food Processing**, which would go a long way in providing the required back up and support. Further, In order to improve the quality and

yield of these crops and thereby increase the income per unit area, following multi pronged activities will be undertaken in the coming years.

- a. Selection and production of planting materials of outstanding merit. Increase in use of tissue culture for production of planting materials by encouraging private enterprise in this area.
- b. Introduction and field application of latest technologies in India and abroad through greater emphasis on research and extension.
- c. Special emphasis will be given to increase the area, production and productivity of fruits and vegetables and **the strategy will be to grow a particular crop in a compact belt with a view to assist the growth of agro processing industries for that crop in that region.** Increase in area under horticultural crops especially in the watershed projects with thrust on production of spices, cashew nut, orange and high value vegetables and flowers would be required. Of late it has be seen that on account of the special benefits

given to small tea growers in the State, large tracts of horticultural land of the State have been diverted to tea growing at the cost of horticulture. **The same benefit as provided to small tea growers would also be provided to horticulture sector** and this would give a boost to horticulture production in the State.

- d. Balanced development of all sub sectors of the horticultural industry, viz. post harvest handling, post harvest quality control, processing storage and marketing. An effort shall also be made to improve the storage facilities at farms through dissemination of knowledge about better handling and storage practices.
- e. Major thrust will be on the processing front. The existing small scale processing units in the Government and private sector will receive immediate attention to make them viable.
- f. Setting up of agro-processing unit in producing areas to reduce wastage, increase value addition and creation of non-farm employment in rural areas will be promoted.

- g. The establishment of cold chain and cold storages (modulated atmosphere/control atmosphere storages) in the wholesale market will be given priority. The defunct as well as semi completed cold storages of the department will be rehabilitated and handed over to private entrepreneurs on lease basis.
- h. To promote and encourage cultivation of Medicinal and Aromatic plants in the State. Herbal parks with small processing facilities will be encouraged.
- i. Promotion of Agricultural Export —
Agricultural export will receive special attention as this area offers greater potential for increasing farm income as well as tackling unemployment.

4. Organic Food : —

The State will also encourage farmers to continue and expand the production of high value indigenous varieties of rice like Joha Chawl, Bora Chawl and Komal Chawl, as well as to popularize these varieties of aromatic rice outside the State. This

will ensure that the farmers get a ready market for their produce as well as remunerative price. It has been seen that of late there has emerged a very profitable market for agricultural produce grown organically. **It shall be the endeavour of the State to actively encourage such Organic farming practices** and at the same time take all possible steps to find a ready market for this produce of the farmers of the state, especially for exports. A special emphasis will be given for the use of biomass, organic manure and Integrated Nutrient and Pest Management, which would be low cost and effective in improving, yields of the kharif crop.

5. Marketing :

In order to ensure better price of his produces at farmer's level, provisions of the Regulated Market Act of the State should be strictly enforced. A major thrust has to be on development of marketing infrastructure in the State to ensure that the genuine producer gets a remunerative price for their produce. There is a vast market for existing and potential horticultural crops of Assam. Besides, regional and national market, there also exists wide scope for exporting these commodities. In order to minimize distress sale of food grains and other crops be the farmers, a framework for Post Harvest Marketing Management would be evolved and

implemented in consultation with all stakeholders including the Central Government, State Agencies, PPS (FMCs) etc. Market Yards, Apni Mandi, Transit Storages etc. in different locations in the State will be established by involving the Market Committees under the State Marketing Board and other agencies including private players as well as the FMC's. The lack of proper marketing infrastructure where the farmer is ensured reasonable price stability for his produce for rice as well as horticulture crops is the single largest impediment to profit maximization of the farmers. Today the market infrastructure in Assam is totally dominated by the middleman and the farmer has very little say in the price that he will get for his produce. The development of a proper market mechanism where the farmer has some say in the fixation of price of his produce would go a long way in solving this problem. The development of a genuine farmers marketing co-operative especially for highly perishable commodities like fruits and vegetables along the lines of milk co-operative would be promoted by the State.

The State has just made a beginning to set up Information Technology infrastructure, which would be of assistance to farmers to get the best price for their produce. **It shall be the endeavour of the state to invest in the field of Information Technology particularly with a view to assist in developing the**

marketing network of agricultural produce in the state.

6. Institution Building : —

The Field Management Committees (FMC), an association of farmers at the field level, is a unique organization in the State. There are 25000 FMC's, which were effectively used, in the Shallow Tube Well programme. The State shall take up a massive capacity building programme to make these the instruments for all extension initiatives and dissemination of knowledge on the latest agriculture and allied sector technologies and practices at the field level. They would also function as effective SHG's for profit maximization of the formers, in addition to the existing network of the Department and the University. In fact, the FMC's are an organization on which a considerable amount of resources of the State has been spent in the recent past. This is a human resource of the State, which can be exploited by all other development arms of the State such as Veterinary, Fishery, Co-operation etc. as an entry point at the field level instead of remaining as a mere adjunct of the Agriculture Department.

As of today the base level Co-operative of the State, i.e. the GPSSs are exceedingly weak and are not carrying out any activities apart from distribution of

PDS articles. If credit delivery has to be increased, there is an urgent need to revitalize these institutions and to strengthen them through fresh infusion of capital and proper training of their manpower resources to ensure that they become effective Co-operative institutions. **The Co-operative Societies Act of the State also requires to be modified immediately** to ensure that after revitalization and training, these institutions function along democratic line with minimum intervention from the State Government.

7. Seed and Input Management : —

Production and distribution of improved varieties of seed with private sector's participation will be a major focus of attention. As of today the seed programme of the State is in serious disarray. There are only a few farms in the State, where certified seeds are grown and only a few farmers grow certified seeds for the Assam Seed Corporation. The Seed Certification Agency of the State is also very weak and unable to ensure that what the farmers grow, is of the requisite quality. It shall be the endeavour of the State to strengthen the Assam seed Certification Agency, while at the same time encouraging private initiative in providing certified seeds. The In order to increase the

area under high-yielding variety seeds, the present seed replacement rate of about 3 p.c. needs to be raised to 15 p.c. over the next decade. To supplement the requirement of foundation seed suitable to the conditions of a particular area, State farms and institutional sources have to be strengthened. **The present seed village concept for the production of certified HYV seeds will be further expanded** to cover more villages in each AEO circles to meet the demand of seed in the State. The existing seed testing facilities along with seed certification programme has to be further augmented to prevent spurious seeds. **The role of Assam Agriculture University in developing and promoting the appropriate seeds for the State as well as production of sufficient quantities of breeder seeds will be strengthened.** It has also been seen that even when appropriate seeds has been developed they are not used at the field level because of the fact that co-ordination between AAU and the Extension Wing is lacking. This will be further strengthened. The State has already started to construct a Seed Bank.

Special emphasis will be given to increase the balanced use of NPK fertilizer with appropriate advice based on soil testing result to the farmers. The FMCs will get preference for licenses to sell seed, fertilizer and plant protection chemicals. Use of bio-fertilizers will be encourage private entrepreneurship in this area

to ensure that adequate availability of quality seeds and fertilizers are no longer a bottleneck.

8. Land and Water Management : —

Productivity of crops in the State is very low despite abundant water availability. Thus, a strategy needs to be evolved to increase the productivity potential of the State bringing it on par with the rest of the country. The major thrust will be on drainage management, increase in irrigation facilities, improvement of input delivery system and management, increase in irrigation facilities, improvement of input delivery system and appropriate farm mechanization through tractors and power tillers. For sustainability of the mechanization process and maintenance of the irrigation networks of STWs, DTWs etc., agro-service workshops will be promoted in each block by motivating and training up educated unemployed rural youth. All arable wasteland need to be treated and converted into agricultural land besides conversion of cultivable wasteland to cultivable land. Assured irrigated area will be increased through optimal utilization of the ground water and surface water potential. **The State shall also draw up a detailed water resource map of the entire State, which will go a long way in assisting planners, formulate the strategy to increase the irrigated**

area of the State. It is also an accepted fact that the per hectare cost of irrigation is cheaper through electricity powered STW's and there will have to be a gradual shift from the existing dependence on diesel powered pump sets.

9. Research & Extension : —

The research efforts needs to be accelerated through promotion of biotechnology, genetic improvement of crops including hybrid technology, post harvest technology etc. In agricultural education, thrust should be on human resource development through upgrading training facilities. The existing infrastructure for transfer of technology needs to be made more effective and responsive to meet farmer's needs. **R&D support from AAU, ICAR etc. has to be garnered for development of flood tolerant, drought resistant rice varieties along with extended dormancy period of summer rice variety of the State.** The research and extension linkages need to be strengthened to improve the effectiveness of research and extension system for pulses and oil seeds. Development of appropriate storage technologies and acid tolerant varieties of pulses also will be developed. **The State will also actively promote the concept of Agri-Business and Agro-Service Centre** and actively encourage private

enterprise to start playing a crucial role in providing agri-input and extension activities. The existing Krishi Vigyan Kendras will also be further strengthened.

10. Credit : —

Agricultural credit is disbursed through a multi agency system consisting of Commercial Banks, Regional Rural Banks and Co-operatives. During the past few years, it has been noticed that ground level credit flow in the State has been falling and in absolute terms credit flow to agriculture and allied sectors of the State either through Government Scheme or through Kisan Credit Card is very low compared to the rest of the country. Co-operative credit institutions have remained the primary institutional agencies for extending agricultural credit. Several developments over a period have left the co-operative credit structure unviable and unable to meet the requirements of credit of the farming community. There is a need for an appropriate supplementary credit delivery system in the form of Self-Help Groups with a view to evolve location specific approaches to meet the aspiration of the resource poor farmers. FMCs being compact and member driven organisations have to be encouraged to play the role of SHG's in obtaining credit from financial institutions. **It shall be the endeavour of the state to setup a legal and administrative framework through which the FMC's**

as an organisation can avail of credit facilities for agricultural operations and asset creation.

Greater credit flow has to be ensured to meet the investment requirement of the farming community for stepping up growth. Crop Insurance Scheme as an instrument of providing security for small and marginal farmers of the State should also be the focus of attention. It is imperative that overall credit to the agriculture sector is increased substantially and use of Kisan Credit Card be increased exponentially to ensure that the growth rate of 4% per annum in the agriculture sector is achieved. In this connection, it also needs to be emphasized that during the past few years, especially after the introduction of new prudential norms in the banking sector, banks have been hesitating to invest in the agricultural sector of the state. This is largely because of poor recoveries and has resulted in a severe decline in GLCF during the past few years. This scenario is unlikely to improve unless the recovery scenario in the state improves significantly. **It shall be the endeavour of the State to improve the recovery position** by creating a greater awareness about the problem as well as gearing up the administrative machinery to pay special attention to recovery.

11. Mechanization : —

The augmentation of higher production can be achieved with a number of critical inputs associated with the production of crop. Along with assured irrigation, farm mechanization is also a critical input, which facilitates the economy to grow at a faster rate for achieving sustainable production. Next to irrigation, farm mechanization is the most critical factor associated with adoption of multiple cropping patterns with higher cropping intensity. While timely agricultural operation is a key to higher level of production, the available power cannot ensure timely cropping sequence. Further, agricultural operation needs to be covered within a short span of the cropping season, and therefore, it becomes difficult on the part of the farmer to cover all the areas under his cropping schedule in time.

Agricultural mechanization in Assam will enhance the cause of ushering in an era of green revolution along with irrigation potential created during the next decade. After the significant increase in irrigated area in the State, mechanization as a means of increasing productivity and diversification shall be an area of prime focus for the State. The State shall evolve a comprehensive Strategy to rapidly

increase the availability of farm power in the State, preferably by using the institution of FMC's.

12. Participation by Women Farmers : —

It is seen that while women form an important component of the agricultural workforce, there are fairly few women entrepreneurs in the farming sector. The time is now right to encourage women farmers to function, as participants in the decision-making process for increasing agriculture production will be emphasized. Necessary training and skill up-gradation of women farmers will be ensured.

13. Hill Agriculture : —

In view of the varied agro-climatic condition in the Hill Districts of the State, appropriate research and development will be taken up on a large scale for development of improved technology suitable to the condition of the hill areas. Replacement of jhuming in the hill areas through alternative high income generating avenues like horticultural crops and plants and value addition thereof through well planned, efficient & scientific production and management practices will be promoted.

14. Issues of Sustainability : —

It is important, that when a policy is being considered for the rapid growth of the Agriculture and Allied sectors of the State, which would ensure that these sectors become the main source of employment generation for the economy, the strategy adopted for achieving these ends do not have an adverse impact on the ecology and are economically viable in the long run. In addition, it is crucial, that the changes that they bring to the rural economy do not cause significant social unrest and are acceptable to all section of the population.

In Assam, it has been seen that because of the extreme pressure on land, the beautiful forest cover of the state is being destroyed and increasingly, erstwhile forestland is being degraded and is being brought into agricultural use. If the existing pressure on land has to be reduced, especially in a situation where the land holding size is small, the **first and foremost requirement is to ensure that the existing fragmented land holding of the state are consolidated on a priority basis.** It is after the land holdings are consolidated that we can take up modern agricultural practices on sustained basis. It has been noticed, that after the increase in irrigation brought on by the STW programme, some amount of informal

consolidation of land holding has already started taking place on account of the economics of market production. This process needs to be documented as well as accelerated.

To reduce the rate of deforestation in the state, something, which is leading to extreme soil degradation in the state particularly in the districts of Lakhimpur and Dhemaji, it is important that the local community view these forests as an asset to them. Here it is important that concept of Joint Forest Management, and a policy, which ensures that the local community gets the benefits from the forests, which they protect and build, is introduced. The government should also draw up a strategy that would ensure the improvement in quality of the land and soil resources of degraded lands, particularly in the districts of Lakhimpur and Dhemaji. This can be done through proper water management, introduction of appropriate social forestry and agricultural crops, which would regenerate the soil in these areas and restore its fertility.

In the district of North Cachar Hills and Karbi Anglong where the sudden increase in the intensity of jhuming has resulted in decrease in forest cover and degradation of top soil, immediate attention needs to be paid to development of horticulture and a

watershed approach which would ensure that the trend of deforestation is halted and reversed.

A proper strategy has also to be adopted to harness the abundant water resources of the state. In large parts of the Brahmaputra Valley, where water tables have increased to alarming levels and incidence of water logging has increased, utilization of ground water through DTW and STWs need to be continued and accelerated and use of surface water discouraged. Similarly, in areas where use of ground water is not possible, an attempt should be made to use surface water through check dams, flow irrigation schemes etc.

Finally, agriculture in Assam should benefit from the experience of other states where agricultural revolution came early and which are now facing problems of sustainability of their growth, faced as they are, with a scenario of increased reliance on inputs for diminishing returns on their investments. Special attention has to be paid that the State does not fall into the trap of blindly following targets of production, which are based simply on extremely high usage of water and chemicals to fuel the growth in agriculture in the short term but which can not be sustained over a long period of time. It shall be the endeavour of the State to ensure that whatever growth takes place is sustainable on a long-term basis and

does not degrade the environment and is based on an approach, which is at one with our ecology and our society, while still being commercially viable to our farmers.

N.B. Creation of a new Directorate and Deptt. of Horticulture and Food Processing were formally communicated to the Director of Agricultures vide Govt. in the Agriculture Deptt. Letter No. AGA (AQ) 10/2001/101 dt.11-3-2004.

- ♦ - ♦ - ♦ - ♦ - ♦ - ♦ - ♦ -