

Executive Summary

General

1. The major objective of the Road-Map is to bring about diversification of agriculture production with light duty crops, horticulture crops, medicinal and aromatic plants, developing post harvest management, commercialization of homestead production [bari], and move atleast a third of the landless labourers from un-skilled on-farm to skilled non-farm jobs with concurrent attention to production, processing, packaging and marketing, and for future sustainability, facilitate development of people-centered institutions.
2. Food grains production in India is expected to cross the peak performance level of 212 million tonnes. Juxtaposing the national perspective with that of Assam it seems to have reached a plateau around 40 lakh tonnes.
3. With the globalisation and establishment of WTO, private initiatives have been found to be more visible even in agriculture, extension etc., generally considered the domains of the Government. The role of Government is also considered as one needed to be limited to creating an enabling environment and policy measures conducive for the development of agriculture sector.
4. With the discovery of 'tea plant' in Assam it was a wonder story in the nineteenth century. It then led other States in agriculture development and entrepreneurship skill. However, today, it is a different story. Despite being endowed with rich natural resources like alluvial soil and agro-climatic conditions best suited for agriculture, this State had recorded a very slow growth rate, below the all-India average.
5. With the introduction of large-scale irrigation through shallow tube wells [STWs], requirement of farm power has increased considerably. However, the availability of farm power to the farmers was barely 0.3 hp per ha, which has become one of the inhibiting factors towards increasing area under double or multiple cropping in the State.
6. Though a variety of plantation and horticulture crops have been cultivated since long, the productivity levels are very low due to non-adoption of modern methods of cultivation, negligible use of quality inputs and poor post-harvest infrastructure.
7. The livestock development in the State could not make much headway due to non-availability of adequate good quality animals, other inputs and inadequate provision of technical & extension support. Poultry farming is largely confined to backyard rearing in Assam.
8. With 90% of the population in Assam consume fish as their staple food, fisheries is one of the important sectors of rural Assam. But, the domestic consumption of fish is mostly met by importing fish and fish products from several other states particularly from Andhra Pradesh.

9. At all India level, the rate of growth of employment on current daily status basis declined from 2.7% per annum during 1983-94 to 1.07% per annum during 1994-2000. In rural areas, it declined from 2.4% to 0.67% per annum during the corresponding period. Employment elasticity of output growth in agriculture declined from 0.7% to 0.01%. The situation in Assam is more adverse than all India position.

10. The economic reforms of 90's that swept the country did not bring any significant change in the economic well-being of Assam. While every other State is making efforts to attract foreign direct investments [FDIs], Assam has not received any such investment so far.

Comprehensive agriculture policy - need of the hour

11. Recently, GoA has come out with its Agriculture Policy. It is a step in the right direction. In order to encourage private sector investment, measures taken by different departments would need to be synthesized and a comprehensive state policy on agriculture and allied sector would be needed. It should ultimately lead to commercialization of agriculture by instilling confidence among the investors both national and international.

Adoption of PURA

12. Providing Urban amenities in Rural Areas [PURA] offers an opportunity to develop rural sector through social, economic and technological interventions. GoA has recognised its potential and identified Rangia for pilot testing the concept. This will improve the economic well-being of the rural people in Assam. For Assam, one block in each district can be identified and a plan of action developed for implementing the PURA. While identifying the areas, the presence of good working people's organizations like SHGs, FMCs, Farmers Clubs etc., may be kept in view as this would help in creating a sense of ownership and commitment for the common good of the rural people.

Collaboration with North Eastern Council [NEC]

13. The North Eastern Council [NEC] has been instrumental in setting in motion a new economic endeavour aimed at removing the basic handicaps that stood in the way of development of the region. There is considerable scope for using the NEC platform for leveraging various support systems provided by the GoI and the State Government.

Development of agriculture

14. In order to step up food grain production from the level of about 40 lakh tonnes (2001-02) to about 54 lakh tonnes [about 10% annual growth] by 2005-06, those farmers who are willing to take up a comprehensive farming system adopting such cultural practices and produce for the market should be encouraged to go for paddy cultivation. Others may be sensitized to ***diversify to other food grains or non-food grains or cash crops or to a related sector like livestock or fisheries***. Indefinite production of rice on this scale is no longer an economically viable option

and diversification into other crops particularly during the summer season has to be pursued vigorously. It would also help in attaining food security followed by nutritional security. This would lead to economic betterment of the farmers engaged in production of paddy in a traditional way.

15. At present, the level of farm mechanization in Assam is very limited with a population of just over 6000 power tillers and 1500 tractors. There are practically no threshers, transplanters or other machinery being used in agricultural production.

16. In Assam where a large section of rural population is poor, they should be motivated to custom hire tractors/ power tillers depending upon their need for agricultural operations. They should be sensitized on the advantages of using such machinery for obtaining better productivity and higher return for their produce.

Developing farmers for technology transformation

17. A paradigm shift in the perspective on transfer of technology and dissemination of value-added information for agrarian prosperity is the need of the hour. *A holistic rural extension, which integrates farm and non-farm enterprises, would bring about the much desired pace of growth in the agriculture sector and rural development.*

Diversification- a development paradigm

18. *In order to encourage the farmers for diversifying to non-food crops or cash crops, farmers may be offered incentive for the first three years on the lines of the cash incentive scheme proposed in Punjab. Such measures may encourage farmers of Assam who are growing paddy to diversify to non-food crops or adopt organic farming.*

Food & Agro processing – a value addition and better commercial proposition

19. Highly perishable primary foods, like fruits and vegetables should be processed, atleast to an intermediate stage, at the village level where the raw materials are grown. Assam is the fourth largest producer of cabbage in the country, with a production of 4.72 lakh mt in 1999-2000. Processes such as lactic fermentation will offer tremendous scope for increasing the value of the vegetable crops, entailing higher financial return to the farmers.

Plantation and horticulture [including bamboo]

20. Assam accounts for **55 per cent of the area under horticulture covered in the NE Region**. Eventhough most of the horticulture crops can be commercially produced for meeting the demand for export market through further processing and value addition, these are produced by farmers without any knowledge of market requirements. The State has to gear itself by encouraging private investments in the area of post-harvest technologies and processing of various horticulture crops.

21. Among the various vegetable crops, ginger offers tremendous scope for commercialization in Assam. The GoI has announced the Agri Export Zone for ginger in 8 districts of Assam. It is estimated that if the potential for ginger in

Assam is properly exploited, the volume of business could be more than **Rs.200 crore** per annum.

22. The farmers cultivating ginger should be educated to grow the right type / variety of ginger with arrangements with processors / exporters.

23. The potential ornamental crops are **dendrobium, gladiolus, anthurium, tuberose, rose, chrysanthemum and Gerbera**. Though the climate in Assam may be suited for cultivation of a variety of ornamental flowers, it could be undertaken only by those farmers who have specific buy back arrangements for their crops. It would also need to ensure availability of complete value chain so that the flowers would fetch the best price [both inside and outside India] for the entrepreneur. The government could provide various facilities and incentives for private entrepreneurs to take up in suitable areas in the State.

24. A large number of medicinal and aromatic plants can be cultivated in Assam [**Patchouli, geranium, citronella, lemon grass, vetiver, palma rosa**]. NABARD has also conducted studies on patchouli cultivation in two districts viz., Sonitpur and Nagoan. Care should be taken in cultivation of patchouli as it requires good shade, higher elevation, adoption of proper farm practices and good storage facility. An integrated approach for commercial cultivation and processing would help increase the income of the farmers cultivating patchouli and similar other crops in Assam.

25. Bamboo covers **8.96 million ha** of forest area. In Assam the major use of bamboo is **paper manufacture** by Hindustan Paper Corporation Ltd. The Planning Commission in the *National Mission on Bamboo Technology and trade development*, suggested to raise **2 million ha** bamboo plantation in 10th plan period and has estimated fund requirement of **Rs.2608 crore**. The estimated demand is **26.69 million tonnes** against the supply of **13.47 million tonnes**. A two-pronged strategy is suggested to meet the gap i.e., proper harvesting from forest areas and fresh plantations in **6 m ha**.

26. NABARD has done considerable work in increasing the economic well being of the bamboo farmers. It opened dialogue with the two paper mills viz. Cachar Paper Mill and the Nagaon Paper Mill and developed specific bankable projects covering planting of bamboo in about 5000 acres with an outlay of about Rs.5 crore in 6 districts. It has used effectively the contract farming mode in bringing together the farmers, paper mills and the bankers so that the entire business chain functions smoothly.

27. There is need to diversify the very use of bamboo from using it for paper manufacturing to other uses which would provide higher value addition. What is needed is a policy from the GoA for encouraging investments from the private sector in bamboo based industries. NABARD would play a catalytic role in bringing together the prospective entrepreneurs and the bankers and if need be, develop suitable projects for consideration of banks.

Contract farming- better design for small farmers

28. In different parts of the country, the corporates have taken up agriculture as one of their main business ventures and market the high value products [processed] both

within the country and export to various countries. In Punjab, multi-crop multi-year contract farming has been adopted in a number of agricultural activities. Assam offers tremendous scope for cultivation of ginger, pineapple and various horticulture crops. It also offers scope for animal husbandry to grow through contract farming.

29. With a large segment of small and marginal farmers it would be advantageous to adopt contract farming among the farmers who go for cash crops \ commercial crops.

30. In Assam, in order to encourage adoption of contract farming, the Government should develop suitable policy measures and increase the confidence level of farmers.

Use Information, Communication and Technology [ICT] for bringing farmer closer to market

31. In order to reap the benefits of modern technology a paradigm shift in the perspective of transfer of technology and dissemination of value added information for agrarian prosperity is the need of the hour in Assam. A holistic rural extension, which integrates farm and non-farm enterprises, would bring about much needed pace of growth in the agriculture sector and to the other spheres of rural development. **Special emphasis should be given to eco-friendly technologies, Intensive Integrated Farming Systems [IIFS], precision farming technologies and value addition at the farm level through adoption of information technology.**

32. e-Choupal of ITC offers farmers real time prices of commodities and helps them in price discovery of commodities - Soya in MP, Wheat in UP, Fisheries in AP, Coffee in Karnataka.

33. Assam should also create conditions for corporates like ITC ltd., to set up e-Choupals in potential areas which offer them their market driven agri-products like wheat, oil seeds, etc. A dialogue with such corporates of international presence would help in opening new opportunities for the farmers who traditionally produce some food grain crops without any direction.

34. Assam should take steps to use ICT and create a more dependable data base on all agricultural matters including land records and make available to the farmers. All blocks should be linked through its network which should be extended to all the villages in the state over a period of 2-3 years. Absence of providing proper land records is often a hurdle to credit flow from institutional sources.

35. The State should also have a Kisan Call Centre for providing all the qualitative information to the farmers.

Organic farming and Agri-exports

36. Assam possesses the potential to contribute significantly to the country's agricultural exports. The state possess certain unique characteristics, which could be used to its advantage, for example, organic farming.

37. Assam has a locational advantage in exporting agro-products to the neighbouring countries especially to Bangladesh and Myanmar. If we plan to link the North East

with the South East Asian countries through Myanmar, it would open tremendous opportunity for Assam. The measures that would encourage promoting organic farming in Assam may include : awareness of the rigorous standards of cultivation required for organic products, certification standards, certification procedures etc.

38. Suitable interventions for developing infrastructure would be necessary for commercial bio-fertilizer, bio-pesticide units, agro forestry, vermi compost, post harvest infrastructure with quality testing facilities.

Marketing of agri-products

39. The existing marketing system in Assam has not matched the growth in production of various agriculture crops particularly, plantation and horticulture crops. This is evident from the huge post-harvest losses of agriculture produce.

40. With Commodity Exchanges like National Commodities Derivatives Exchange [a NABARD supported initiative] and others, there is need to prepare the farmers in Assam to meet the global challenges in marketing of agricultural commodities.

41. A two pronged strategy of promoting both production of quality produce and its skillful marketing would help the state to realize its potential.

42. International certifying agencies should be encouraged to open certification centers in the state for offering various services to the region.

43. Cost of certification could be partly subsidized by the State/Central Governments. Information on export opportunities, guidance on international quality standards, training of human resources and better supply chain management would be very important to realize the full export potential of the State.

44. Encouraging producers to form their own organisations would help in smoothening the market imperfections and bring better return to the farmers. . Besides e-choupals of ITC in different parts of the country, co-operative marketing or developing producers organisations could greatly help in bringing efficiency in the market system.

Developing rural agro industrial complexes

45. Setting up of food parks, agri-business centers and agri-clinics, establishment of rural agro-industrial complexes based on science and technology would help to accelerate the pace of development of rural economy in Assam. There should also be interdisciplinary spearhead teams to prepare business plans for the agro-industrial complexes. Such teams may be guided by local Farmers' Advisory Groups, consisting of both men and women farmers [may be new generation FMCs may take this role].

Livestock-a study in contrast

Dairy, poultry and piggery

46. Despite the fact that the animal-man ratio is higher in Assam as compared to the national figure [there were 50.2 cattle, 3.9 buffaloes per 100 persons in

Assam as against the national average of 46.4 and 3.7 respectively], production of milk, eggs, meat, etc., are minimal. Livestock situation in Assam is a study in contrast.

47. Breeding infrastructure would need to be strengthened with the private participation. This can be tried by encouraging the unemployed veterinary graduates to open private veterinary clinics and mobile AI centres in potential areas.

48. For providing quality AI services some reputed NGOs like Bharat Agro Industries Foundation [BAIF], Urulikanchan, Maharashtra should be roped in.

49. To develop good quality replacement stock, calf rearing should be popularised in the state. This will be economical in places where availability of fodder is abundant.

50. Area based projects of dairy covering all the aspects like introducing quality animals, provision of breeding and veterinary aid, milk procurement and supply of feed and fodder should be developed so that the processing plants already set up could be utilised to their optimum capacity.

51. Over dependence on traders for supply of inputs as well as marketing of produce is the bane of the poultry farmers in the state.

52. To develop the poultry sector in a competitive way in Assam, creation of basic facilities relating to hatching (hatchery cum breeding units or custom hatching units) and feed mixing centres are essential. Setting up of commercial breeding cum hatchery units can solve the problem of high cost of DoC's in the state.

53. At present, a large number of small and marginal farmers get their paddy hulled by mills for their food requirement of rice. They not only pay for the dehusking of paddy to the mill owners, but also lose the valuable rice bran and broken rice with the mill owners. These farmers should be educated to know the value of broken rice and the rice bran and also their use as cattle feed or poultry feed in their own farms. This will greatly help in considerable savings to the farmers.

54. Setting up of nucleus breeding piggery farms and multiplier farms in the private sector may be encouraged. These farms can act as a supply point for good quality piglets for breeding as well as fattening for the piggery farmers.

Fisheries

Beels, fresh water prawns, ornamental fisheries

55. Beels are major fishery resources contributing to about 25 % of the fish production in Assam. However, major portions have been rendered unproductive due to excessive siltation and growth of weeds and only about 33 % of the potential is being utilised for fisheries.

56. Development of beels could be achieved by desiltation, deepening of connecting canals, dewatering and suitable changes in leasing policies. The private entrepreneurs should be encouraged to take up fisheries in beels by providing long

term lease. Perhaps, SHGs/JLGs/FMCs could be encouraged to take up beel fisheries development with certain incentives.

57. In addition to the existing water bodies, low lying/ water logged lands and brick kiln areas under private ownership can be developed into fish ponds with less investments for scientific fish culture.

58. Development of ornamental fisheries requires measures involving sustainable exploitation of the existing natural resources and breeding of native and exotic varieties under controlled conditions. The ultimate aim is to develop quality ornamental fishes both for the export and indigenous market.

59. Culture of fresh water prawn has been successfully taken up in Tripura and can be introduced in Assam. Private entrepreneurs should be encouraged for undertaking polyculture of prawn with fish.

Integration with people's organisations

Develop new generation FMCs

60. It is estimated that there are about 26000 FMCs. However, most of them are either defunct or dormant. However, some the good working FMCs can be used as '**change agents**'. There is a need to have a relook at the functioning of FMCs.

61. In order to make FMCs banker friendly, they should be developed with the characteristic features of SHGs and if need be, new generation FMCs can be formed. In two years [2004--06], atleast 500 such new generation FMCs could be developed which could create a demonstration effect in the neighbourhood and make the not so efficient FMCs to transform themselves into the newly designed FMCs.

Development through PRIs/Voluntary organisations

62. Much of the developed market efforts for the transformation of agriculture in West Bengal in the recent past could be attributed to the local level organisations like PRIs and other voluntary organisations. In Assam, such organisations will have to come forward to be instrumental in forming viable and efficient groups and co-ordinate their access to credit and non-credit inputs.

Flood Assam with SHGs

63. NABARD conceptualized the SHGs in the late 80's and brought together the bankers and the unserved and underserved rural poor. In Assam with about 35% of the people living below the poverty line, it is reasonably possible to promote and link atleast 1.20 lakh SHGs.

64. In order to take this movement further in Assam, the banks should popularize this scheme vigorously as they do for their various financial products in the urban and metropolitan segments. *The banks can declare the year 2004-05 as the year of SHGs and all the commercial banks may work out their strategies in increasing the stock of SHGs during the current year. Government, from its side may provide support by making SHGs as their priority institutions for implementing various developmental programmes.*

Form Joint Liability Groups [JLGs] to access formal credit

65. NABARD has come out with an innovative financial product called “Joint Liability Groups” [JLG]. It is being pilot tested in different parts of the country through identified banks. The JLGs are small Groups of people [5-10 members for each JLG] who are not in a position to offer collaterals to the banking system for undertaking economic activities. Given the banking products in Assam and the outreach of rural clientele, adopting JLG mechanism would greatly increase the flow of credit without any concomitant problems of high default of loans and high transaction costs of financing such large number of poor farmers.

Farmer Clubs - Bankers' Friend in Need

66. The problem of banking sector in recovering loans defaulted by the borrower farmers is well known. Unless this situation is changed quickly, it may choke the entire credit delivery system in the State. Vikas Volunteer Vahini [Farmers' clubs] introduced by NABARD helps to address this problem. In order to make the farmers access credit from the banking system, it is necessary to form a large number of farmers clubs in the State. Assam has about 25,000 inhabited villages. Therefore, it should be possible to promote at least 1000 farmers clubs in about two year period.

Water Users' Associations [Pani Panchayats]

67. In order to organise various irrigation systems on efficient lines and to ensure reliable development and distribution of water resources, Water Users' Associations [WUAs] may be formed in the respective areas.
