Pradhan Mantri Swasthya Suraksha Yojana

The Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) aims at correcting the imbalances in the availability of affordable healthcare facilities in the different parts of the country in general, and augmenting facilities for quality medical education in the under-served States in particular. The scheme was approved in March 2006.

The first phase of the PMSSY has two components - setting up of six institutions in the line of AIIMS; and upgradation of 13 existing Government medical college institutions.

It has been decided to set up 6 AIIMS-like institutions, one each in the States of Bihar (Patna), Chattisgarh (Raipur), Madhya Pradesh (Bhopal), Orissa (Bhubaneswar), Rajasthan (Jodhpur) and Uttaranchal (Rishikesh) at an estimated cost of Rs 840 crores per institution. These States have been identified on the basis of various socio-economic indicators like human development index, literacy rate, population below poverty line and per capital income and health indicators like population to bed ratio, prevalence rate of serious communicable diseases, infant mortality rate etc. Each institution will have a 960 bedded hospital (500 beds for the medical college hospital; 300 beds for Speciality/Super Speciality; 100 beds for ICU/Accident trauma; 30 beds for Physical Medicine & Rehabilitation and 30 beds for Ayush) intended to provide healthcare facilities in 42 Speciality/Super-Speciality disciplines. Medical College will have 100 UG intake besides facilities for imparting PG/doctoral courses in various disciplines, largely based on Medical Council of India (MCI) norms and also nursing college conforming to Nursing Council norms.

In addition to this, 13 existing medical institutions spread over 10 States will also be upgraded, with an outlay of Rs. 120 crores (Rs. 100 crores from Central Government and Rs. 20 crores from State Government) for each institution. These institutions are Government Medical College, Jammu, Jammu & Kashmir; Government Medical College, Srinagar, Jammu & Kashmir; Kokilat Medical College, Kolkata, West Bengal; Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow; Uttar Pradesh; Institute of Medical Sciences, BHU, Varanasi, Uttar Pradesh; Nizam Institute of Medical Sciences, Hyderabad, Andhra Pradesh; Sri Venkateshwara Institute of Medical Sciences, Tirupati, Andhra Pradesh; Government Medical College, Salem, Tamil Nadu, India; Medical College, Ahmedabad, Gujarat; Bangalore Medical College, Bangalore, Karnataka, Government Medical College, Thiruvananthapuram, Kerala; Rajendra Institute of Medical Sciences (RIMS), Ranchi and Grants Medical College & Sir J.I. Group of Hospitals, Mumbai, Maharashtra.

In the second phase of PMSSY, the Government has approved the setting up of two more AIIMS-like institutions, one each in the States of West Bengal and Uttar Pradesh and upgradation of six medical college institutions namely Government Medical College, Amritsar, Punjab; Government Medical College, Tanda, Himachal Pradesh; Government Medical College, Madurai, Tamil Nadu; Government Medical College, Nagpur, Maharashtra; Jawaharlal Nehru Medical College of Aligarh Muslim University, Aligarh and Pt. B.D. Sharma Postgraduate Institute of Medical Sciences, Rohtak.

The estimated cost for each AIIMS-like institution is Rs. 823 crore. For upgradation of medical college institutions, Central Government will contribute Rs. 125 crore each.

In the third phase of PMSSY, it is proposed to upgrade the following existing medical college institutions namely Government Medical College, Jammu, Jammu & Kashmir; Government Medical College, Rewa, Madhya Pradesh; Government Medical College, Gorakhpur, Uttar Pradesh; Government Medical College, Dharbanga, Bihar; Government Medical College, Kozhikode, Kerala; Vijaynagar Institute of Medical Sciences, Bellary, Karnataka and Government Medical College, Muzaffarpur, Bihar.

The project cost for upgradation of each medical college institution has been estimated at Rs. 150 crores per institution, out of which Central Government will contribute Rs. 125 crores and the remaining Rs. 25 crore will be borne by the respective State Governments.

It is hoped that consequent to the successful implementation of PMSSY, better and affordable healthcare facilities will be easily accessible to one and all in the country.

Pan India Mobile Tele Network for Spice Growers

A day without the use of spices is unimaginable for Indians. What about a moment without your mobile phone? Can’t even think of it these days. The idea of utilizing this changing life style of modern man, for the benefit of the spice farmers in India was simply an amazing idea put forward by Spices Board. Every single person possesses a mobile phone and carries it with him wherever he goes. Passing a message over mobile phone is easily accessible for a farmer than referring a magazine or an article for farming tips or market price. Moreover these devices can take the messages to farmers in the quickest time possible.

Embracing the mobile technology, Spices Board India takes a new initiative to connect farmers country wide by joining hands with IFFCO Kisan Sanchar Limited (IKSL).

The scheme provides free Green SIM card facility to spice farmers who have registered for the programme. The provision helps to give first hand information to farmers by way of five free voice messages on a daily basis. The farmers also get an opportunity to be in touch with the authorities concerned and get all the latest information regarding spices like market fluctuations in prices, weather forecast, good agricultural practices, latest technological aids etc. IKSL will start a 24 hours call centre for the purpose which would be manned by people capable to answer the queries raised by farmers.

The Pan-India mobile tele-network was launched in Coimbatore. Dr. A. Jayathilak, Chairman, Spices Board India launched the programme in a farmers meet held at Tamil Nadu Agricultural University, Coimbatore. Around 300 farmers across the state attended the programme where around 6000 farmers have already registered in the Tamil Nadu spices community. The purpose of the scheme is to get in direct touch with the spice farmers of the state who are the core section of the society. According to the scheme, the registered farmers of the spice community will have to furnish a photo and his voter ID for connection. There will be a provision for interactive voice mail for the farmers to get their doubts clarified on various aspects related to spice cultivation. For Tamil Nadu, the Spices Board Office at Coimbatore will act as the central point from where the messages will be transmitted to the main IKSL server situated in New Delhi (7am and 4pm daily). The messages will then broadcast to the farmers in voice mode, in their regional language.

The mobile tele-network in association with IFFCO Kisan Sanchar Ltd Kerala was launched in Kerala at Thodupuzha by Dr. A. Jayathilak. The programme started with the registration and subscriptions of mobile networks. Farmers who registered for the programme will be able to enjoy the benefits of the mobile tele network. Dr. A. Jayathilak expressed his hope that the farmers will be more responsive to the idea of tele networking and for getting information about Spices through mobile phones.

The Board will be launching the mobile tele network for spice farmers soon across India covering the States of Rajasthan, Gujarat, Madhya Pradesh, Sikkim, West Bengal besides South India.

[PIB Features]

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Kurukshetra seeks to carry the message of Rural Development to all people. It serves as a forum for free, frank and serious discussion on the problems of Rural Development with special focus on Rural Uplift.

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The north east is often described as a rainbow country with colourful cultures because of the diverse terrain. However despite the diversity of natural resources the area lags behind in number of development parameters.

The government has taken a number of initiatives under various programmes to boost development in the region. The North Eastern Council (NEC) was constituted in 1971 as the nodal agency for the economic and social development of the region, Hill Area Development Programme (HADP) in 1974, Task Force for study of Eco-development in the Himalayan region in 1981 and an Expert Group on National Policy for Integrated Development in the Himalayas in 1992 were set up by the Planning Commission. The North Eastern Development Finance Corporation Ltd. (NEDFi) was incorporated on August 9, 1995 and the Ministry of Development of Northeastern Region (DoNER) was set up in September 2001.

In this issue we discuss how the policies of the government have translated on the ground and what all can be done to better the lives of the people of north east.

The Eleventh Five Year Plan proposed a strategy which consists of creation of critical infrastructure and creation of employment opportunities. Finally there is the North Easter Region (NER Vision) 2020 incorporating the principles of participatory planning.

The realization of people’s vision of development requires a paradigm shift in the planning process in which investments are made according to the needs of the people.

The 12th Five-Year Plan would focus on better connectivity in the Northeast coupled with emphasis on developing better linkages to the neighboring countries.

Though the 11th Plan, too, had emphasized on connectivity in the region, the 12th Plan would look at further development of connectivity with a focus on improved linkages between the Northeast and the neighboring countries.

The majority of the region shares its borders with China, Mynamar, Bhutan, Bangladesh and Nepal. As such the region has greater scope for development of the region with economic integration with Asia which is reflected in the Look East policy of the government. The Chief Ministers of the Northeastern states have been advocated greater integration of the region with the neighboring countries.

The economy is essentially agro-based with 77 per cent of the working population engaged in agricultural activities. The region is an untapped reservoir of potential for development of horticulture which can contribute in a big way to boost the horticulture growth in the country.
The North Eastern (NE) States, occupy about 8% of the total geographical area of the Country and account for about 4% of the country’s total population.

Due to its peculiar physical, economic and socio-cultural characteristics, the economy of the North East has a distinctive identity. Despite its rich natural endowments, this region represents one of the least developed regions of the country.

In view of being a strategically and geopolitically sensitive frontier, Government of India is emphasizing on bridging the gaps in infrastructure, communication, health, education and other integral areas of development of the region with the rest of the country.

The North Eastern region is ethnically distinct from the rest of India. Linguistically the region is distinguished by a preponderance of Tibeto-Burman languages. The most marked characteristic feature of this region is the low density of population in all areas other than Assam and Tripura. The low densities in many parts of the region are attributable to the nature of the terrain. North East India is the gateway to South East Asia and plays a crucial role in the strategic and economic partnership.

Approximately 4500 km of boundary is shared with the neighbouring countries viz. Nepal, China, Bhutan, Mynamar and Bangladesh. The problems including insurgency, unemployment, drug addiction, and lack of infrastructure are
pulling the states into the backwardness. Since the beginning of the economic liberalization in the 1990s, various studies have shown that this region is lagging behind the others in terms of development.

Various organization, programmes, groups were set up to boost the development of the region. The North Eastern Council (NEC) was constituted in 1971 as the nodal agency for the economic and social development of the region, Hill Area Development Programme (HADP) in 1974, Task Force for study of Eco-development in the Himalayan region in 1981 and an Expert Group on National Policy for Integrated Development in the Himalayas in 1992 were set up by the Planning Commission. The North Eastern Development Finance Corporation Ltd. (NEDFI) was incorporated on August 9, 1995 and the Ministry of Development of Northeastern Region (DoNER) was set up in September 2001.

It is recognised recognition among policy makers that the main stumbling block for economic development of the Northeastern region is the disadvantageous geographical location. The coming of globalization propagates deterritorialisation and a borderless world which is often associated with economic integration. The 98 percent of its borders shared with China, Mynamar, Bhutan, Bangladesh and Nepal, the Northeast India has better scope for development in the era of globalisation. As a result, a new policy developed among intellectuals and politicians that one direction the Northeastern region must be looking to as a new way of development lies with political integration with the rest of India and economic integration with the rest of Asia, with East and Southeast Asia in particular as the policy of economic integration. With the development of this new policy the Government of India directed its ‘Look East Policy’, towards developing the Northeastern region. This policy is reflected in the Year End Review 2004 of the Ministry of External Affairs, which stated that: “India’s Look East Policy has now been given a new dimension by the UPA Government. India is now looking towards a partnership with the ASEAN countries, both within BIMSTEC and the India-ASEAN Summit dialogue as integrally linked to economic and security interests, particularly for India’s East and North East region.”

The North East states conceal some interesting paradoxes. Some of them have excellent demographic characteristics like a high literacy rate and consequent access to education. Yet at the same time they all suffer from high infant mortality as hospital care for the mother and child are few and far between. The region has splendid swathes of forests harbouring massive varieties of fauna and flora. Yet development of the states could mean cutting into those regions, as there are few alternatives to not do so.

While discussing the problem of development of North East a look at the region’s balance sheet will be of interest.

On the CREDIT side the region has :-

(a) large natural resources and tremendous potential for growth in the agro-horti-forestry sector including extensive bamboo plantation and exotic flora;
(b) substantial mineral deposits (in Assam and Meghalaya);
(c) unique bio-diversity;
(d) vast water resources including hydel power potential with more than 50,000 MW identified capacity;
(e) great promise for tourism development;
(f) proximity to one of world’s fastest-growing economies, the S. E. Asia;
(g) a literate population;
(h) a rich heritage of handloom and handicrafts; and
(i) a democratic traditional system of local-self government with community spirit permeating the entire social system.

On the DEBIT side are :

(a) inadequate basic developmental infrastructure;
(b) geographical isolation and difficult terrain that reduces mobility;
(c) high rainfall and recurring flood in the Brahmaputra valley;
(d) lack of capital formation and proper enterprise-climate;
(e) slow technology spread;
(f) absence of a supporting market structure and adequate institutional finance structure; and
(g) low level of private sector investment.

During the last nearly fifty years the general approach to the problems of the region, the growth path and strategy adopted seem to have been dissonant from the needs and aspirations of the people and appear to have lacked proper appreciation of the ground realities as also the real development needs of the region. There had been ad-hoc response to situations as they emerge, there being little in-depth study and analysis of problems and practically no planning perspective. Years of planned development efforts and flow of huge fund (between 1992 and 2002 alone Central fund totaling close to Rs. 38,000 crore under Five Year Plans, BAPD, NEC grant, NLCPR etc. has been released to the states in the region) have failed to keep pace with the aspirations of the people and address the basic needs of the 32 million people living in rural North East which continues to be plagued by endemic unemployment and poverty. Disturbingly close to 30 per cent of the people still remain below poverty level. NSDP growth rate remain somewhere around four per cent and even that has not led to shared prosperity, for it has benefited only about 13 per cent of the population. Spatial inequity has widened over the years — as against rural poverty, urban prosperity is palpable.

The reasons for such a state of affairs are basically two:
(a) Imprudent utilization of resources. Unimaginative resource utilization has led to a fall in development expenditure and rise in non-development expenditure.
(b) Poor governance. Transparency in administration is rare, time and cost overrun of projects is a common phenomenon; ‘seepage’ of fund rampant and monitoring and evaluation are predominantly subjective.

**Strategies for Growth**

Given the socio-economic state of the region, its poverty will need a multi-pronged approach. It is not only that the region’s natural resources are yet to be properly tapped and industrialization is at infancy, what is more worrying is that the basic socio-economic infrastructure without which the problem of poverty itself cannot be addressed in any meaningful manner, has remained at a very poor level.

A revolutionary change needs to be brought about in the total farm sector — both agriculture and allied areas like pisciculture, live stock, dairy farming, forestry and horticulture. Though much scope may not be there for large industries to grow on the local input base barring in the infrastructure areas of water resource management and electricity generation, there is a huge scope of development of small and medium scale sectors.

Apart from this, two most important areas requiring large attention are education and rural development. While the system of education should undergo a thorough overhaul to base it on an inter-disciplinary approach together with orientation of computer knowledge from early stage of education itself, it must give English language its original status on the one hand and its management must be freed from political influence on the other. Secondly, while rural development must receive topmost priority, involvement of Panchayti Raj institutions should be at the heart of development process. However, for this purpose, the Panchahat system itself require a substantial improvement.
Infrastructural Growth

Poverty removal programme is fundamentally related to growth of infrastructure like transport, communication, power generation, water resource management, education, health, sanitation, man-power build-up, etc. It is not only that such development process itself will create employment opportunities, but also that it will prepare the ground for much larger productivity in primary, secondary and tertiary sectors helping reduction of poverty and unemployment.

Health infrastructure is woefully poor in the region with infant mortality per 1,000 live births at 70 in Assam as against 63 in the country as a whole. This has to be improved.

Water Resources

Water resource management is one of the poorest in the region. The turbulent nature of waterflows particularly in Assam and Arunachal Pradesh together with heavy rainfall in the region offer an excellent opportunity to generate hydro power to the extent of more than 30 per cent of the country’s total potential of 90,000 MW, but only 3 per cent has been utilized so far. And the region’s industrial as well as domestic sectors continue to badly suffer from shortage of power supply. Hydro-power development plan must be framed with time-bound implementation schedule of generation projects.

The other important areas of concern are lack of irrigation, regular devastation of floods and deficiency of water supply. With respect to irrigation, the small projects of shallow tube well-type have failed in most areas and, hence, large and medium types of river water canalisation projects have to be undertaken to get the fruit of natural fertility of soil. Devastation of flood or drought and the havoc associated with it is almost an annual recurrence. If the fate of framers has to be changed for the better, flood has to be controlled at any cost.

There is need for an integrated scheme encompassing all the three aspects – flood control, irrigation and water supply within it and the same should be implemented either under public sector management or under public-private partnership.

Farm Sector

In the basically agro-based economy of north-eastern region where 87 per cent of people live in rural areas, cultivators form 60 per cent of work force, agricultural labourers comprise another 10 per cent and 8 per cent earn their livelihood from allied agricultural activities. However, the farm sector continues to suffer from poor productivity due to poor input-base, poor technology, excess labour in agriculture, lack of entrepreneurial approach and underutilization of allied agricultural capacity.

There is a strong case for reorganization of agriculture on cooperative lines under the management of panchayati raj institutions.

Allied Agriculture

The north-eastern region offers a great scope for allied agricultural activities. With enough of grazing land in hill areas, livestock farming is a distinct advantage. Cattle population in the region is more than 4 per cent and milch cattle is around 5 per cent of the country’s total, though milk production is less than 2 per cent due to unscientific rearing. Equally, there are high prospects for fish and egg production which presently works out to 4 per cent of all India production though demand for them is much larger. With respect to horticulture, the region’s all India production-share is 3.6 per cent in vegetables and 6 per cent in fruits, grown mainly Assam, Meghalaya and Tripura. Special mention may be made of pineapple production in which the region has almost a monopoly position with 40 per cent of country’s total production.

The region has rich forestry resources which can be utilized in a highly profitable way if they can be properly nursed and maintained. Apart from
valuable tree plants, the most important resources of the forests are bamboo, rubber medicinal plants and aromatic plants. Studies have confirmed that medicinal plants are abundantly grown, and R&D activities should be encouraged. It is important to note that the region commands over 60 per cent of the country’s bamboo crop. If modern technology can be used for industrial utilization of these resources, it can substantially raise the income level and employment in this region.

**Industrialisation**

The region is much behind the rest of the country in industrialization. Barring tea, petroleum, coal, paper and cement, large industries could not emerge in the region. The upcoming Gas Cracker Plant in Assam will, however, be a new addition. Again, the tea industry which employs a large labour force is not in proper shape and requires revitalization. The share of manufacturing sector in net state domestic product in the region has in recent years declined from 8.5 per cent in 1995-96 to 7.0 per cent in 2001-02.

However, if sincere efforts are made, the region can demonstrate impressive growth in small and medium industries and creation of employment opportunities, particularly in the areas of agro-based processing, plastic and metal products, steel fabrication, printing, stationary, sericulture and handloom, handicrafts, khadi and village industry products and in the areas of down-stream products of oil, tea and gas cracker industries. It may be repeated here that bamboo and cane industries has a vast commercial potential if the plantation is properly sustained and appropriate industrial technology is adopted.

Special emphasis has to be given on information technology industry. Without its development, employment for educated job seekers will be difficult. A separate IT policy for the region is perhaps necessary.

**Employment, Tourism, IT**

Apart from strengthening of farm sector of both agriculture and allied activities together with expansion of small scale sector, the development of infrastructure requiring huge construction works in large projects could absorb a huge skilled as well as unskilled labour force. For the educated section of job seekers, the largest avenues should be provided by IT development centers, small and medium scale industries, self-help employment programmes and, of course, development of tourism sector. Needless to mention, tourism industry has a great potential not only in Assam and Arunachal Pradesh, but innumerable tourist destinations could be developed in other states like Tripura, Manipur, Meghalaya, Mizoram, Nagaland and Sikkim.

Thus, poverty eradication strategy for the North-East will need a multi-dimensional approach in an integrated manner. The most important requirements are a revolutionary change in agriculture and allied sectors including flood management and irrigation, development of socio-economic infrastructure, fuller utilization of natural resources, development of bio-diversity and forestry management, growth of agro-based and processing industries, small and medium enterprises, tourism and IT center development and reorganization of PSU’s. Since the strategy outlined above will necessarily call for huge public expenditure, a clean administration, both civil and fiscal, under strict accountability, discipline and transparency, however, will be the most important pre-requisites.

With properly defined targets, clear outcomes, strategies and coordinated planning for the region as a whole, the North East can be revitalized to become increasingly self-sufficient and a net positive contributor to the national exchequer and the country’s economy. Concerted efforts of the Central and the State Government are helping in providing a thrust to the process of socio-economic development of the Region. These efforts have to be sustained by all concerned, with the State Governments playing a pro-active role to ensure both speedy implementation and a planned future development.

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The North Eastern region (NER) of India comprising eight states namely Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim has vast physiographical variations, which are represented in 6 agro-climatic zones. The NER of India covers an area of 2.62 lakh sq. km. It accounts for 7.9 per cent of total geographical area of the country. The hills account for about 70 per cent area and accommodate about 30 per cent of population of the region and the plains constituting the remaining 30 percent of area hold about 70 per cent of its population. With a total population of 45.59 million, it accounts for 4.0 per cent of total population of India.

The growth rate of ‘Gross State Domestic Product’ GSDP of North-Eastern region in the 11th Five Year Plan was 9.95 per cent which is higher than the national average of 7.9 per cent. Among these States, Mizoram is having the GSDP of 11 per cent during this period. The region is rich in natural resources, covered with dense forests, has the highest rainfall in the country, with large and small river systems nesting the land and is a treasure house of flora and fauna. Wide variation in altitude coupled with abundance of rainfall has given rise to wide variations in climatic conditions within the region which in turn has endowed the region with rich bio-diversity.

Scope of Horticulture

Growing population and rise in income level will lead to increase in demand of high-value agriculture produce like fruits. In India, horticulture sector contributes about 30.4 per cent of the agriculture Gross Domestic Product, besides providing employment for 19 per cent of the labour force. The
annual growth rate in domestic demands for fruits is estimated at 3.34 per cent and output per hectare of land from fruits is reported to be Rs 135,000 against that of Rs 18,000 in the case of fine cereals. The economy of the NE Region is essentially agro-based having 77 per cent of the working population engaged in agricultural activities.

The North-Eastern Region of India is an untapped reservoir of potential for development of horticulture which can contribute in a big way to boost the horticulture growth in the country. This region is abounding in crops like Banana, Pineapple, Cashew, Citrus, Ginger and Onions which have high commercial value. Passion fruit cultivation is of special importance to Mizoram, Nagaland, Manipur and Sikkim which has great potential for exports. Kiwifruit is another fruit and it is being cultivated in Arunachal Pradesh in some sizable area but other states like Sikkim, Meghalaya, and hills of Manipur have vast potential for successful cultivation of kiwifruits. High growth in horticulture in the region can highly contribute to generation of gainful and permanent employment for the people of the region. There has been 70 per cent growth in horticultural sector in the region which triggered economic growth among the people. Central Government has declared 2012 as the year of horticulture to highlight the significant achievements of the horticulture sector and to give it a renewed thrust. Hence, Rs. 1850 crore have been allocated for implementation of National Horticulture Mission (NHM) and Horticulture Mission on North East and Himalayan States (HMNEH) in 2012-13.

Progress of Horticulture

Horticulture has got a major boost with the launch of National Horticulture Mission in 2005. It was one of the important and major steps taken towards a planned approach for development of horticulture sector. Among the states of the NER, in terms of fruit production and area, Assam occupies the first place by Arunachal Pradesh and Tripura. Similarly in vegetable production Assam has occupied the in production and covered area under the crop. Special mention may be made like introduction and cultivation of tissue culture banana plants, improved verities of apple, kiwi and other temperate fruits in higher elevation, commercial cultivation of flowers like orchids, anthurium, roses, gerbera, lilium etc. Area expansion under horticultural crops has been the major achievement and an additional area of 4.44 lakh ha has been brought under various horticulture crops including rejuvenation/replacement of plantation, since its inception in 2001-02 till 2009-10. The major expansion in the acreage to the tune of 50 per cent has been in the case of fruit crops. An additional area of 28153 ha was brought under Floriculture under the Mission since inception to 2009-10. The Greenhouse Technology/Protected horticulture cultivation has clear edge over the open field conditions as it protects the plants from the adverse climatic conditions. The Greenhouse Technology/Protected Cultivation of Horticulture crops have not taken off as yet as its use is at a very low level in the region. Scope, therefore, exists for large-scale expansion of nursery activity under favourable micro-climate created in cost-effective low cost structures. It may, however, be necessary to take into consideration the effect of the local climate while selecting the technology for different locations of the region. The Extension Agencies of the States need to educate and guide farmers to fill up knowledge gap in this regard to popularize a large scale adoption of the Greenhouse technology.

Potential of Floriculture

North-eastern region is also promising for growing ornamental crops. This region is blessed by nature with tremendous biodiversity and extremely congenial climate for growing of various kinds of ornamental crops. Thus, floriculture in particular holds high promise for improving the economy of these regions. Scenario of floriculture has been different in all the States of the region. In Assam, farmers were earlier growing crops like marigold, gladioli, tuberose and gerbera. During last two years, two new crops were introduced to cultivators under greenhouse condition. These crops are dendrobium and anthurium. In Arunachal Pradesh, State Department of Horticulture is emphasizing on cultivation of top ten cut flowers like gerbera, anthurium, rose and carnations, etc. At present, area covered under floriculture is about 1220 ha, producing about 286 million stems. In Manipur, commercial cultivation of flowers like anthurium, gerbera, roses and dendrobium was started from 2007-08. The floriculture in Manipur is characterized by cultivation of traditional flowers (loose flowers) and cut flowers under both open field conditions and protected environment conditions. The State also has a great potential in dry flowers. Of the total flower produced in the State, about 86 per cent flowers are grown under open condition and the remaining 14 per cent under protected conditions. The orchids are believed to have evolved in the state,
are an important feature of the vegetation here. Out of 1300 species of orchids, about 700 species are concentrated in the region and out of which, 251 species are found in the State of Manipur alone. In Meghalaya, the launching of the Horticulture Mission resulted in the introduction of cut flower cultivation of anthurium, roses, carnations, liliums and orchids. The introduction of polyhouses further boosted the adoption of cut flower cultivation across the state. Presently, area under protected floriculture (roses, anthurium, gerbera, carnations, liliums, etc) went up from almost negligible, in the premission days, to 35 ha during 2009-10 with an annual production of 62 lakh cut flowers. There is good scope for new flower crops like heliconia, chrysanthemum, zantedeschia, iris, gladioli and foliage plants of leather leaf fern, Xanadu, Golden Rod, Limonium, as these are slowly gaining acceptance amongst the farming community. In Mizoram, there are 37 Hi-Tech Green House Rose cultivators within the State and there is good potential for expansion.

In Nagaland, floriculture is now one of the most flourishing industries of the State bringing a revenue of about Rs. 1.50 to Rs. 2.00 crores annually and offering employment opportunities to thousands of youth and Self Help Groups. Zantedeschia is one of the important crops grown under Hi-Tech Greenhouses. About 42 ha of area has been developed both under hi-tech and low cost greenhouses. In addition, about 450 ha are being cultivated under open field conditions for heliconia, bird of paradise and dry flowers. It is estimated that about 70,000 stems of cut flowers are being produced in a week in the State.

The traditional strengths of Sikkim is the cultivation of orchids and anthurium. However, several other flowers like rose, alstroemeria, zantedeschia, carnations, gerbera, Heliconia, spray chrysanthemums have also been introduced in the State. Sikkim has successfully established a number of Rose Villages, a concept which is unique to this region. Cymbidium is another important flower of the State. The average income per unit area perhaps is the highest in floriculture, ranging from Rs. 100 to Rs. 200 per square metre. In Tripura, about 108 ha area has been brought under floriculture. Many exotic flowers like anthurium, orchids (dendrobium), gerbera and lilium have been introduced in the State. Commercial cultivation of other open field flowers like, tuberoze, gladiolus and marigold have also got a special fillip. Thus, the region can develop as a major hub for the production of different ornamental crops if package and practices for the production are developed and more incentives are provided for other infrastructure facilities.

**Fruit Processing**

The food processing sector is the fifth largest industry in India and contributes around 13 per cent of the country’s exports. The region has potential for processing of horticultural crops such as Orange, Citrus, Banana, Passion Fruits, Kiwi and pineapple. There are about 7,500 industries in the region under food processing sector. Food processing is employment intensive and creates 1800 jobs directly and 6400 indirectly across the supply chain for every Rs. 100 crores invested in this sector. Efforts have been made by APEDA to build external market linkage for food processing units in Northeastern region with major players in food sectors like Hindustan liver, Dabur, ITC and other companies, APEDA is also setting up model organic farms for Joha rice and sugarcane in Assam, passion fruit in Manipur and pineapple in Tripura. Ministry of Food Processing of Government of India is also providing financial assistance is in form of grant-in-aid of 75 per cent of the total cost of plant and machinery and technical civil works.

Himachal Pradesh should be the role model for the North-Eastern region where the horticulture economy has transformed the economic status of the people. The NE Region states can learn a lot from the technology and planting material generated in the State. Himachal is already providing planting material of horticultural crops to the states of north-east, imparting education to the students from these States and also training their officers. Horticulture is the backbone of economy in Himachal Pradesh which accounts for 18 per cent of the Gross State Domestic Product in the state and earns more than 3000 crore annually. Cultivation of fruits, vegetables, ornamental, medicinal and aromatic crops has enhanced the farm income of the farmers in the state and raised the socio-economic status of the people in the state. Horticulture occupation generates 90 million days of employment for the people every year. Fruit production contributes substantially in the income of the people and as a whole per capita per year income from the fruits is around Rs. 4500 during 2010-11. Progress of horticulture can be a fortune turner for the people of the North-east.

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India comprises 665 million people who defecate openly in fields, grounds and other areas. Nearly 88 percent of people suffering from diarrhoea die due to poor hygiene, lack of proper sanitation and drinking water. While there is a certain truth in the fact that the twenty-first century has seen the Government allocate more funds to sanitation, the growing demand for a cleaner India has unveiled a need for a substantial amount more for all the sanitation goals to be achieved.

**Hygiene and Health** Lack of adequate sanitation is a pressing challenge in both rural and urban India. Sanitation-related diseases take a heavy toll of lives, especially children’s lives, loss of productivity and income. Inadequate sanitation leads to indignity of open defecation especially for women and young girls. Despite the fact that India has impressive development indicators like growth of over 8 percent, a dynamic industry and a vibrant democratic governance system, one third of its population has to still bear the shame of defecating in the open. The challenge that India, with its large population, size & different hydro-geological regions faces in the area of sanitation is unique and unparalleled in the world. The Department of Drinking Water and Sanitation, Ministry of Rural Development, Government of India has taken on this enormous challenge by pledging to provide sanitation facilities in all rural areas through its flagship programme “Total Sanitation Campaign” (TSC). TSC has been successful in changing the rural sanitation coverage from a mere 21 per cent as per 2001 Census to 67 per cent of households in the current year with over 22,618 PRIs becoming open defecation free “Nirmal Grams”.

**Total Sanitation Campaign** The Total Sanitation Campaign (TSC) launched in 2003-04 has been
one of the flagship programs of the Government. The annual budgetary support has been gradually increased from Rs.202 crore in 2003-04 to Rs.1500 crore in 2011-12. The approved central outlay for the TSC in the Eleventh plan (2007-12) was of Rs.7816 crore. As of 28 December 2011, TSC projects approved with a total outlay of Rs.22, 022 crore (with a 65.5 per cent Central Government share of Rs.14, 425 crore) are being implemented in 607 rural districts. The TSC is implemented as a community led and people-centric approach to generate effective demand for sanitation facilities by creating awareness among village communities, educating them and providing all required information that can help them avail Government’s subsidy and technical services under the TSC program. From June 1, 2011, to motivate the community towards creating sustainable sanitation facilities and their continued usage, the financial incentive in the form of subsidy for individual household latrines for BPL families has been raised from Rs.2200 to Rs.3200 and for hilly and difficult areas from Rs.2700 to Rs.3700. TSC is an inclusive program and seeks active participation of all sections of society including women, SCs and STs. TSC has special components to encourage women and adolescent girls to actively participate in the sanitation program. The Nirmal Gram Puraskar incentive scheme has been launched to encourage Panchayati Raj Institutions to attain a 100% open defecation-free environment. Under the scheme a total of 25,145 Gram Panchayats, 166 intermediate Panchayats and 10 district Panchayats have received the award in the last six years. Sikkim has become the first State to receive the award. Within a decade all 2.5 lakh Gram Panchayats are proposed to be converted into Nirmal Gram Panchayats. The thrust is not just to construct toilets, but to ensure their continued use keeping clean and maintaining properly which, of course, calls for behavioral change. TSC has resulted in the construction of 7.07 Crore Individual Household Latrines (IHHL), 10.33 lakh school toilets, 3,47,077 Anganwadi Toilets, 19,509 community sanitary complexes with a total project outlay of Rs. 17,885 Crore. The Department has set the target to provide universal toilet coverage in rural areas by 2015.

Nirmal Bharat Abhiyan (NBA) Nirmal Bharat Abhiyan (NBA) is a comprehensive programme to ensure sanitation facilities in rural areas with broader goal to eradicate the practice of open defecation. NBA as a part of reform principles was initiated in 1999 when Central Rural Sanitation Programme was restructured making it demand driven and people centered. It follows a principle of “low to no subsidy” where a nominal subsidy in the form of incentive is given to rural poor households for construction of toilets. NBA gives strong emphasis on Information, Education and Communication (IEC), Capacity Building and Hygiene Education for effective behaviour change with involvement of PRIs, CBOs, and NGOs etc. The key intervention areas are Individual household latrines (IHHL), School Sanitation and Hygiene Education (SSHE), Community Sanitary Complex, Anganwadi toilets supported by Rural Sanitary Marts (RSMs) and Production Centers (PCs). The main goal of the GOI is to eradicate the practice of open defecation by 2017. To give fillip to this endeavor, GOI has launched Nirmal Gram Puraskar to recognize the efforts in terms of cash awards for fully covered PRIs and those individuals and institutions who have contributed significantly in ensuring full sanitation coverage in their area of operation. The project is being implemented in rural areas taking district as a unit of implementation.

Total Sanitation Campaign in NER Region There is wide variation in the pace of implementation of the programme in different states. State like West Bengal, Andhra Pradesh, Tamilnadu, UP, Tripura etc have gone ahead with the implementation but many states are still lagging behind.

Recognizing the enormous economic, health and social benefits that sustainable sanitation brings to the rural communities, TSC is being implemented in all the eight North Eastern Indian states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. While overall the North Eastern region scores fairly well on the rural sanitation map as compared to other states there are wide variations in the sanitation coverage. Sikkim has made the commendable achievement of becoming the first “Open Defecation Free” Nirmal State of India.

The secret of the phenomenal success in Sikkim has been the top priority given by the political and administrative leadership of the state and decentralized mechanism of implementation by active involvement of local governance systems, local communities, Women’s Self Help Groups and Youth Groups. Having obtained the “Nirmal State” status Sikkim is now planning to take up next generation sanitation activities like Menstrual Hygiene and Solid & Liquid Waste Management (SLWM). The Government of Sikkim is collaborating with Indian Green Services, an NGO to take up a pilot project on Solid and Liquid Waste Management...
Tripura is another state which has made commendable achievement in achieving over 90 per cent sanitation coverage. TSC is implemented as a comprehensive concept, which includes waste disposal, food hygiene, personal, domestic as well as environmental hygiene.

In Manipur, while coverage of school sanitation is good, progress in IHHL coverage has been rather slow. The major concern in the state is that owing to the hilly terrain the leach pit toilets are difficult to construct and Ecosanitation is proposed to be promoted in the state under Mahatma Gandhi National Rural Employment Guarantee Scheme.

In Meghalaya there has been intensive campaigning on access and usage of toilets under TSC in all the 7 Districts. TSC is implemented through the District Water and Sanitation Mission and Village Water and Sanitation Committee. The state has been able to upscale the TSC by building effective partnerships with Water and Sanitation Programme in South Asia. The state has made the recommendation that to scale up TSC, population figures from 2011 census and revised BPL figures need to be considered for assessing progress on TSC, integration of sanitation with other development programmes through convergence with other departments like Education and Health.

In Mizoram, TSC was initiated in 2002 and is being implemented in all the districts. Efforts are being made to convert the dry pit latrines to pour flush latrines. While sanitation coverage received attention in the state, a hygiene behavior such as hand washing was not focused upon. The unique feature of the state is that TSC is implemented with support from local NGO’s particularly for drainage cleaning and maintenance.

Nagaland has initiated TSC only in 2005 and currently the Campaign is being implemented in 9 out of 11 districts in the State. IEC activities in the state have been intensified to accelerate sanitation coverage. The State suggested nurturing strong social capital, increase the involvement of women for behavior change and IEC and initiating Campaigns on sanitation with the involvement of local leaders and MLAs and making a clear time-frame for achieving TSC goals.

The overall progress in TSC in Arunachal Pradesh has been slow. Major challenges in the state are remoteness of habitations, difficult mountain terrain beyond the reach of road connectivity and low income of people. Moreover, transition from wiping with straws and cloth to use of safe sanitation and washing with water requires time. So far, 16 Gram Panchayats (GPs) in the state have won the Nirmal Gram Panchayat award and continue to maintain the NGP status without any slippages. The state has proposed introduction of special package to popularize Ecosanitation models in selected districts, State, and incentive for APL families also, as the gap between Above Poverty Line (APL) and Below Poverty Line (BPL) families in Arunachal Pradesh are marginal. In Assam “Kaccha toilets” are a major challenge. Efforts are underway to convert “Kaccha toilets” into safe ones. Provision of sanitation facilities for Anganwadis is also problematic due to space constraints and their location in private buildings. In four districts of Assam there are Village Council Development Committee (VCDC) instead of the PRI and in two hilly Districts there is a Member of Autonomous Council making it difficult to implement TSC.

Studies of Sanitation for All in NER Case studies [1] Rights come with responsibilities. BAC Sikkim launched the concept of Bal Panchayat in the month of February 2010 in 12 Schools. Setting an example before the adult members of the Gram Panchayat (village council), children of schools under BAC Sikkim are running a parallel self-government body, asserting their right to education, health, entertainment and leisure. The village children have constituted the Bal Panchayat through a general election under the supervision of school authorities. Besides the President, the Bal Panchayat has ‘ministers’ for education, health, environment, cultural affairs, sports, etc. These ministers are charged with the responsibilities of ensuring the well being of the children by bringing to the notice of the elders and authorities concerned the specific problems and needs of the children. A Self Help Drive was organised by the Block Administrative Centre for moving towards better toilets and better hygiene at Sanganath Secondary School, one of the remotest Gram Panchayat Unit. In the construction drive of the toilets, material component was used from the fund provided by the Government and the labour component was covered totally through participatory mode by school students, teachers, community, Panchayat and Block Officials. This ultimately built a sense of ownership of the asset created in their area which was missing earlier.

Case Study [2] Rural Sanitary Marts have been set up and managed by women SHGs in all the 11 blocks of the district for production of
sanitary materials like squatting plates, mosaic pan/siphon etc. A number of smaller production units/manufacturing centers at Gram Panchayat level and ward/para level have been set up for ensuring 100 percent achievement in time. Rajibnagar and Ratanmanri, two Gram Panchayats of Satchand Block and West Jalefa and Bankul Mahamani GPs jointly under Satcand and Rupaicharri block achieved full coverage of sanitation. The 1st three GPs in the District making 100 per cent coverage of targeted families were also awarded by the Chief Minister. Awards consisted of additional allocation of development fund to the block as well as to the Gram Panchayats. This really acted on the morale and boosted the enthusiasm of the implementing agencies of RD programmes in the District.

**Policy Initiatives:** Recognizing that the North East States, particularly the poor performing ones have specific issues that need special attention to upscale TSC, the Government of India has taken several initiatives. Some of the policy initiatives and the issues of concern for sanitation promotion in North Eastern region are: [1] As per policy of Govt. of India, 10 per cent funds are allocated for North Eastern States. In the current financial year, TSC allocation is Rs. 1580 cr. of which Rs. 158 Crore is reserved for NE states. [2] An additional incentive of Rs 2000 is given by Central Government to BPL for IHHL in the North East and Hilly states (as against Rs. 1500 in other cases) while the state and beneficiary contributions remain the same i.e. Rs. 700/- and Rs. 300/- respectively. [3] Additional incentive is given by Central Government for construction of school toilets (38,500/-for Hilly and Difficult Areas as against Rs. 35,000/- in other cases) and for construction of Anganwadi toilets (Rs. 10,000/-for Hilly and Difficult Areas as against Rs. 8,000/- in other cases). [4] Sustainable technology options in sanitation keeping in view the special geo-physical feature of the North East region need to be considered while implementing sanitation projects in these states. Many of the states have suggested initiating pilot projects of technologies like Ecosanitation particularly in those hilly areas where leach pit toilets are difficult to construct. [5] The G.O.I. has set up several institutions like WSSO, Block Resource Centres (BRC), State Water and Sanitation Mission (SWSM), District Water Sanitation, Health Committees (DWHSC) and increased the number of Key Resource Centre (KRC) which would be providing support to states to undertake capacity building and IEC activities to accelerate sanitation promotion and address the challenges being faced in sanitation promotion. [6] Many states are also prone to disasters, particularly floods in Assam which impact the sanitation facilities in these areas. Technologies and response mechanism to address these needs to be focused upon. [7] For those North Eastern states where toilet coverage has almost reached a peak, viz. Sikkim, Tripura there is a need for developing a post “Nirmal State policy” which should include capacity building on next generation sanitation activities like Solid and Liquid Waste Management, Ecosanitation, Menstrual Hygiene Management etc.

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Being a signatory to the historic declaration of Education for All [EFA] in both Jomtien [1990] and Dakar [2000], India is committed to achieving “total education” across the country. In order to meet these goals, India has initiated the Sarva Shiksha Abhiyaan in the year 2000-2001.

Simultaneously, the Government in accordance with its constitutional mandate, taken several initiatives in the form of enabling policies, legislations and interventions to spread literacy, promote educational development and bridge gender disparities. In order to achieve this goal,
apart from commitment given to the National Policies for Education [NPE], several projects and programmes have been launched in the country during the 1980s and 1990s-namely Andhra Pradesh Primary Education Project [APPEP], Bihar Education Project [BEP], Lok Jumbish, Shiksha Karmi Projects, District Primary Education Programme [DPEP].

One significant feature of these projects was they never completely covered all the states, infact the DPEP completely left out all the North Eastern Projects except 9 districts of Assam. Therefore till 2000-01 no efforts have been made in the form of projects and programmes were made to achieve Universal Education in North-Eastern States. It may be noted that due to its distance and also difficult terrains, total coverage for education was never provided until the launching of Sarva Shiksha Abhiyaan [SSA] in 2002-03. SSA for the first time made a serious attempt to universalize free and compulsory education across the country specially the North Eastern States.

Education

The 15th official census in India was calculated in the year 2011. In a country like India, literacy is the main foundation for social and economic growth. When the British rule ended in India in the year 1947 the literacy rate was just 12%. Over the years, India has changed socially, economically, and globally. After the 2011 census, literacy rate India 2011 was recorded to be 74.04%. Compared to the adult literacy rate here the youth literacy rate is about 9% higher. Though this seems like a very great accomplishment, it is still a matter of concern that still so many people in India cannot even read and write. The number of children who do not get education especially in the rural areas are still high. Though the government has made a law that every child under the age of 14 should get free education, the problem of illiteracy is still at large.

Now, if we consider female literacy rate in India, then it is lower than the male literacy rate as many parents do not allow their female children to go to schools. They get married off at a young age instead. Though child marriage has been lowered to very low levels, it still happens. Many families, especially in rural areas believe that having a male child is better than having a baby girl. So the male child gets all the benefits. Today, the female literacy levels according to the Literacy Rate 2011 census are 65.46% where the male literacy rate is over 80%. The literacy rate in India has always been a matter of concern but many NGO initiatives and government ads, campaigns and programs are being held to spread awareness amongst people about the importance of literacy. Also the government has made strict rules for female equality rights. India literacy rate has shown significant rise in the past 10 years [Census, 2011]

Similarly if we look at the North Eastern States, there have been disparities in attainment of education across different states.

Literacy Ratio

The following table represents the literacy status of the seven states as well as India in total, male and female ratio as per the 2011 census.

<table>
<thead>
<tr>
<th>Issues/States</th>
<th>Assam</th>
<th>Meghalaya</th>
<th>Mizoram</th>
<th>Nagaland</th>
<th>Manipur</th>
<th>Tripura</th>
<th>Arunachal Pradesh</th>
<th>Sikkim</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Literacy</td>
<td>73.18</td>
<td>75.48</td>
<td>91.58</td>
<td>80.11</td>
<td>79.85</td>
<td>87.75</td>
<td>66.95</td>
<td>82.20</td>
<td>74.04</td>
</tr>
<tr>
<td>Male Literacy</td>
<td>78.17</td>
<td>82.40</td>
<td>93.72</td>
<td>83.29</td>
<td>86.49</td>
<td>92.18</td>
<td>73.69</td>
<td>87.29</td>
<td>82.14</td>
</tr>
<tr>
<td>Female Literacy</td>
<td>67.27</td>
<td>64.36</td>
<td>89.40</td>
<td>76.69</td>
<td>73.17</td>
<td>83.15</td>
<td>59.57</td>
<td>76.43</td>
<td>65.46</td>
</tr>
</tbody>
</table>

Source: Authors adoption from Census 2011
Factors affecting the growth of Education

Currently a plethora of educational initiatives may be underway in rural India to ensure the access to primary education for every child, but issues of equity and quality still remain the areas of concern.

Education quality provided by rural primary schools – The schools in rural areas of North Eastern India suffer from infrastructure and human resource deficiencies. Often the topography of rural areas becomes a major deterrent factor and accounts for low attendance of teachers. This discourages parents to send their children specially girls to school. Further lack of teachers and teacher absenteeism create excess burden on the existing few leading to poor quality of service delivery in rural areas. There is prevalence of several single teacher schools which results in excess burden. Generally teachers refuse to teach in rural areas and those that do are usually under-qualified therefore impacting the teaching quality.

High drop-out rates especially among girls - Despite the serious efforts by Government, Civil Societies to integrate the entire population into the Indian education system, large numbers of boys and girls are still without schooling. Frequent absenteeism and irregularity of school teachers since several of them do not stay in the same village as the school Parents’ apathy and indifference towards education do not provide enough motivation for their children to attend school. Taboo about girl child education still exists specially in non-tribal states like Tripura and Assam thereby leading to huge dropout rate among girls. Lack of proper sanitation facilities in schools is another reason discouraging especially adolescent girls from attending schools.

Inadequate school infrastructure - Basic infrastructural components like school building and child friendly classroom, blackboard, teaching learning materials, toilet especially for girls and water facilities etc. are not available Insufficient and inadequate number of classrooms per school to accommodate all the standards in different rooms and hence system of having multiple standards in the same room at the same time. This hampers the quality teaching and essential learning and reduces the retention of students in school.

One of the reasons behind the failure to achieve the goal of universalisation of Elementary Education is that the plans which are formulated at higher levels i.e. national or state levels were quite indifferent about the grassroots dynamics and realities of rural education. On the other hand, cross-country evidences indicate that the formulation of educational policy has not been done properly due to lack of democratic values and influence of powerful elites in administration and very often the policy-implementation process suffers from inefficient policy-administration, corruption, lack of political will and commitment. The rigid ideas of bureaucracy sometimes also hampers in policy implementation process. In States like Assam and Tripura there is high dropout rate, essential steps are needed towards this direction.

Way Forward

- Since independence, the Government has taken active initiative in promoting decentralised planning but it seems to be inadequate in the sphere rural education. In most of the states this idea has not penetrated fully at the grassroots level.
- The policy makers should recognize the vicious cycle of illiteracy and inadequacy of education with poverty, one reinforcing the other, both as causes and effects. Therefore addressing the basic social barriers would help increasing enrolment and retention in schools.
- The role of civil society is essential for community participation; so their involvement should be sought for promoting awareness amongst parents of dropout children especially in rural areas of North East India.
- Regularizing and monitoring of teachers attendance is a must requirement along with incentives like quality mid-day meals for ensuring students regular attendance to school.
- Infrastructure—mainly road and transport facilities are major barriers in this part of the country, the state governments along with the Centre should take essential steps towards development of proper roads in rural and urban areas.

- In order to ensure quality education, steps should be taken towards regular recruitments for filling up vacancies.

- Developing a “student friendly curriculum” and emphasis on writing skills rather than on rote learning.

- To offer an appropriate learning environment, suitable arrangements for separate toilet facilities for girls, availability of drinking water, electricity-facilities etc are needed within the school.

- Drinking water is a major problem in North East India; therefore steps can be taken towards ensuring the same to encourage more and more admission in schools.

- Effective appraisal is mandatory for every scheme implemented towards ensuring Universal Education, hence appropriate measures should be taken regarding creating a monitoring web - where monitoring ranges from teachers performance, utility of funds, transparency and many other important aspects.

Though the state of education in North East India has significantly improved but the situation needs improvement especially in the Non-Tribal dominated regions. Steps should be taken towards changing the mindset of people through active community awareness and participation. This will encourage the community to come forward and develop more ownership and acceptance for the programme. Last but not the least, steps can be taken to de-centralize the different functioning and monitoring agencies so that more and more participatory democracy and political will can be attained and goal of “Education for All” can be reached and the indicators of Human Development are achieved in their true ethos.

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In order to improve the existing system and to harvest newer opportunity in the hill agricultural system, a proper understanding of the composition of agri-horti-silvi-pastoral farming system and livestock based farming system is necessary. The NE region has got tremendous scope for development of agro-ecological zone specific farming and production system and horticultural interventions.

The North-East is endowed with diverse agro-climatic conditions, rich genetic diversity and vast natural resources that offer a great scope to develop agro-ecosystem specific technological interventions for diversification of hill agriculture and allied activities. Our NEH region display a distinct ethnic, socio-cultural and economic features, geographical identity with climatic variability separate from the rest.

About 80 per cent of the people depend directly or indirectly on agriculture for their livelihood. The North East Region (NER) covers an area of 2,62,180 km geographical area. The net sown area and gross cropped area of this region is 38.39 lakh ha. and 53.49 lakh ha. respectively. Due to diverse regional typologies, difficult terrain, marginality, fragility, extreme vulnerability to natural events, poor infrastructures, distinctive gender dimensions, only 2.21 per cent of total geographical area in Arunachal Pradesh, 5.17 per cent in Mizoram is under cultivation while in Manipur, Meghalaya, Nagaland it is 6.26, 9.18 and 12.72 per cent respectively. However, in Assam it is 35.07 per cent. The NER has been divided into six agro-climatic zones: (1) Alpine Zone (2) Temperate and sub-alpine zone (3) Sub-tropical hill zone (4) Sub-tropical plain zone (5) Mild-tropical hill zone (6) Mild tropical plain zone.

Present Agricultural Scenario

- Cropping Pattern: In NE India about 80 per cent of the cultivated area is utilized for crop production of food grains. Rice is occupying 64.17 per cent of gross cropped area covering
34.32 lakh ha. Wheat is grown mainly in Assam covering an area of 0.70 lakh ha. but wheat cropped area is declining due to lack of irrigation, lack of processing, pre-harvest sprouting in pre-monsoon shows and low yield (10q/ha.).

- Wheat growing areas in Arunachal Pradesh and Tripura is 0.03 lakh ha. and 0.02 lakh ha. respectively. The NER produces about 5.80 million tonnes of food grains as against requirements of about 7.50 million tonnes. Oilseeds crops covering 6-8 per cent of gross cropped area in NE. During the 1970’s, Rapeseed and mustard were the only oilseed crops but after 1980’s, the cropping pattern include new oilseed crops like sunflower, groundnut, castor, linseed. Total pulse area is 1.63 lakh ha. The pulse production is almost stagnant due to lack of proper crop management, soil moisture stress during sowing season, problems of disease and pest and lower productivity. Sugarcane and jute are the two important cash crops in NER. Jute area is declining in NER because of the problem of retting, processing and proper marketing.

- Horticulture: The NER has immense scope for horticultural development. Horticulture is the main economic activity in NE region. During 2001-02, Govt. of India launched the centrally sponsored scheme on Technology Mission for integrated development of horticultural sector, which focused in area coverage, quality production and creation of post harvest facilities in NER. Meghalaya has occupied maximum area in pineapple (9.5 thousand ha.) followed by citrus (8.2 thousand ha.) and banana (6.2 thousand ha.). It is one of the leading state of producing quality turmeric, ginger, cashew nut and strawberry as well as commercial floriculture (rose, lilium, anthurium, carnations, birds of paradise etc.). Assam state has maximum area under vegetable and fruit cultivation of 331.4 thousand ha. and 118.5 thousand ha. respectively, where as Mizoram has lowest area of vegetable cultivation of 1.7 thousand ha. and Sikkim has occupied lowest area of 9.0 thousand ha. in fruit cultivation.

- Livestock: The overall growth of livestock population and production of milk, egg and meat is positive in NE region. According to 2002 census, the total livestock population in NE states is 194.92 lakh, out of which cattle population is 113.43 lakhs, buffalo 9.11 lakhs, goat 39.89 lakh and pig 30.67 lakh. The total poultry population is 320.30 lakh. The total production of milk, egg and meat are 1075 thousand tonnes, 8948 lakh numbers and 112.25 thousand tons respectively.

- Shifting cultivation: Jhum cultivation or shifting cultivation or slash and burn agriculture is the main source of livelihood for the people of NE India. About 70 per cent of total geographical area of NER is covered by jhum cultivation, which is the primitive and common practice of agricultural production. On an average, 3869 km2 of area is shifting jhum cultivation every year and an estimated 4,43,336 jhumia households earn their livelihood from this cultivation.

Opportunities and strategies

In order to improve the existing system and to harvest newer opportunity in the hill agricultural system, a proper understanding of the composition of agri-horti-silvi-pastoral farming system and livestock based farming system is necessary. The NE region has got tremendous scope for development of agro-ecological zone specific farming and production system and horticultural interventions. The state of Meghalaya has the speciality of ginger and turmeric, fruits and variety of vegetables (pineapple, squash, kidney beans), Medicinal and aromatic plants (MAP), high value crops (passion fruits, citronella, lemongrass and pachuli etc) are some of the niche commodity having ample scope to reap the uncommon opportunity. The innovative and holistic approach to development is needed for local ecologies, institutions, people and resources in NER. In The great concerns are the efficiency, growth, equity and sustainability in agriculture in this region.

For enhancing efficiency of agriculture in NER, there is need of improved and innovative technology to raise production and productivity. There is necessity of developing linkages between the farmers and market for achieving better remunerative prices. Farming system is necessary to achieve higher social benefits and better livelihood of farming community in the NE region. Land use pattern, soil water conservation and environment sustainability might be given top priority in this region. There is the scope for private public partnership in improving growth and development of agricultural economy. Agro-tourism, organic branded products and effective supply chain management create greater impact on NE agriculture. The choice of appropriate technologies, refinement, its impact and constraints to adoption are given priority for research and development system in NE region. Crop diversification, emerging markets, risk management and agricultural investment are needed in NE agriculture for accelerating economic growth in this region.

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HARNESSING AGRICULTURAL POTENTIAL IN NORTH EASTERN REGION

Amrit Patel

Need For Strategic Planning and Implementation

NER produces only 1.5% of country’s food grain production. Against this background this paper reviews in brief the current scenario of agriculture, horticulture, irrigation, institutional infrastructure and suggests strategic action plan to accelerate the process of agricultural development during Twelfth Plan [2012-17].

North East Region (NER) is richly endowed with natural resources, viz. Agro-forestry accounts for 26% of the forest cover of India, largest producer of bamboo, world’s single largest tea growing region (16% share), largest producer (55% share) and exporter of tea in India, producer of premium quality Jute and silk, horticulture and herbal resources.

It is rich in flora and fauna and is one of the most bio-diverse regions in the world. The torrential Brahmaputra deposits its rich alluvial silt along the banks of the plains of Assam. Despite abundant natural resources and better education levels NER is one of the least developed–economically and industrially – regions in India. Per capita income in NER as a whole is amongst the least in the country.

Agriculture: Agricultural land including fallow is 22.20% [varying between 37.43% in Assam and 4.40% in Arunachal] as against 54.47% in India. Cultivators [41.61%] and agricultural laborers [13.07%] together constitute the majority of the workforce as against 31.65% and 26.55% respectively in India. Land is held almost by all. Share of marginal and small farmers is 78.92%. Land distribution is mostly egalitarian rooted in the principle of community way of living and sharing. The productivity of land as compared to its potential is low since NER, according to the latest available statistics, has only 29 soil testing laboratories, NPK consumption is low viz. NPK per hectare is 130.5 [Manipur], 46.6 [Assam], 29.4 [Tripura], 17 [Meghalaya] and very low in other states, indigenous plough is the main farm implement (95.66%), irrigation covers only 11% of net sown area, area under HYV paddy is 9.50 lakh ha (35%), HYV seed replacement rate is extremely low and 4.31 lakh farmers possess Kisan Credit Cards. Nearly 5 lakh families practice shifting cultivation [jhuming] covering about 2.2 million hectares of which 17% is jhumed at any point of time.
Land tenure system: NER manifests two types of land tenure systems viz. (i) Government administered revenue system operates in the plains and valleys of Assam, Tripura, Manipur and in the hilly state of Sikkim (ii) Village level customary land tenure system operates in the hilly states of Arunachal Pradesh, Meghalaya, Mizoram and Nagaland and in the hilly parts of Assam, Manipur and Tripura. The land records system is outdated and farmers’ access to it is time-consuming and expensive. Only in Assam land records system is being computerized.

Horticulture: Diverse agro-climatic conditions, varied soil types and abundant rainfall have endowed NER with promising horticulture and value added products that can be marketed within the country and abroad.

Irrigation: NER is endowed with 33% of country’s water resources. It receives annual rainfall ranging from 2,480 mm to 6,350 mm. The annual water availability of 16,500 cum per capita and 44,180 cum per hectare is the highest in the country. Due to high rainfall NER has inherent advantage in rain-water harvesting. However, the rate of harnessing and utilizing irrigation potential has been low since only 11% of net cultivable land is irrigated. Accelerated Irrigation Benefit Programemphasizes exploiting surface irrigation through Minor Irrigation [MI] schemes in NER. Under MI schemes irrigation potential of 46,500 hectares has been created of which 34,300 hectares [73.76%] are being utilized. Besides, irrigation potential of 2, 93,110 hectares under Bharat Nirmanis targeted comprising 1,09,140 hectares under major and medium irrigation and 1,83,970 hectares under minor irrigation. NEC cautions against intensive exploitation of underground water as hazardous elements have been found at several locations.

Institutional infrastructure

ICAR: The ICAR Research Center for NEH Region at Umiam was established in 1975 with six regional centers to improve and develop sustainable farming systems for different agro-climatic and socio-economic conditions of the region. It has undertaken significant researches which have yet to create impact on improving productivity, production and profitability of agriculture.

Local Bodies: NER has 7564 local bodies comprising 5106 gram Sabhas, 2023 village panchayats, 376 Block Councils, 47 Zilla Parishads, nine Autonomous District Councils [ADCs] and three Hill ADCs. While ADCs strive for preservation of tribal identity and heritage Village Councils act as administrator, justice provider and custodian of land and other resources. The Village Councils function in Nagaland, Mizoram and Tripura. Nagaland and Tripura have utilized the importance of these institutions to large extent. The PRIs functioning in Arunachal Pradesh, Sikkim, major parts of Assam and plain areas of Tripura act as development agent.

NERAMAC: North Eastern Regional Agricultural Marketing Corporation Ltd is engaged in capacity building of producers as sellers and markets farm products adding value to products. It assists to source, procure, and market cash crops and fruits from farmers of NER. It supports farmers in production and post-harvest technology to arrest decline in the prices arising out of larger output. It procures processed products from registered units in NER and supplies through its own outlets and other buyers to end-users. Its thrust area is to procure a variety of products from NER and market them inside and outside NER. Also, it markets seeds, planting materials and fertilizers. It has tie-up arrangement with National Horticultural Mission and National Food Security Mission for procurement and supply. In collaboration with Ministry of Food Processing Industries, Ministry of Development of NER, NEC American Soybean Association, Indian Institute of Packaging, etc. it has been conducting a number of programs, seminars, workshops, training on agricultural marketing, creating awareness, capacity building, investors’ meets etc. Under PPP mode it has set up vermin compost plant utilizing Agro-horticultural waste in Guwahati.

Processing Units: NER has Fruit Juice Concentration Plant at Nalikata; the Cashew Processing Unit at Agartala and Ginger Processing Plant at Byrnihat

Credit agencies: As on March 2011, Commercial Banks in NER had 1,255 branches. Their performance has been progressively improving in respect of mobilization of savings, deployment of agricultural credit, disbursement of micro-credit under NABARD’s SHG-Bank Linkage Program, supporting Government programs etc. As on March 2009 Commercial Banks’ outstanding credit to agriculture amounted to Rs.2731 crore covering 3,80,613 borrowers and on March 2011, under micro finance program banks disbursed Rs.95.45 crore to 422 NGOs and MFIs for on-lending to 1,59,983 beneficiaries in NER. The factors responsible for low performance as compared to targeted include, inter alia, difficult topography, sparse population settlements, inadequate infrastructure, discouraging land tenure system, lack of agricultural entrepreneurship, massive amount of grants and subsidies under Government programs, and law and order conditions in some parts.
Vision 2020: To accelerate agricultural growth NER has put in place Vision: 2020 that, *inter alia*, emphasizes achieving targets, viz. [i] Increasing present cultivated area from 17.78 lakh hectares to about 25 lakh hectares and bringing under cultivation about 7.5 lakh hectares of cultivable waste and an additional area of about 2 lakh hectares as culturable command area that is being developed under eight Command Area Development projects [ii] Bringing 25% of valley land area (1.5 million hectares) under double cropping by 2015 and raise food production by one million ton [iii] Reducing 3.0 to 3.5 lakh hectares under jhuming by 2020 [iv]

[v] Improving productivity of fruits [11 tons/ha] and vegetables [15 tons/ha] by 2015 and annual production to 55 lakh tones for fruits and vegetables each. [vi] Bringing 7.5 lakh hectares cultivable wasteland under fruits depending on its suitability of which 50% to be brought under fruits by 2015 [vii] Establishing five nurseries each in Arunachal Pradesh, Meghalaya, Mizoram and Nagaland and two each in Manipur and Sikkim for state specific fruits by 2015 [viii] Integrating National Program for Organic Production with cold storage network in selected cluster of villages and in public-private-partnership mode establishing 25 to 30 medium size processing units to export products by 2020 [ix] Exploitation of Irrigation envisioned is 44% and 80% with cumulative potential 23.60 lakh hectares and 42 lakh hectares by 2015 and 2020 respectively [x] Development of ground water in NER is in the nascent stage focusing concerted efforts to plan, implement, review and monitor the schemes to tape the irrigation potential by 2020.

Jhuming: Efforts need to address the social and human aspects of the problem of jhuming and offer alternatives acceptable to the farmers in consultation with the local farming communities. NERPED project raising cash crops and horticulture using forestas alternative to jhuming in Nagaland has proved to be a promising model demonstrating environmental soundness and profitability can be replicated in other jhuming areas. This alternative promotes success to minimize jhuming provided concerted efforts are made to involve farming communities and integrate with timely provision of quality planting material and production inputs, and efficient extension and marketing services. This would also need adequate financial resources to sustain field operations including maintenance for initial five years. Besides, tea, cardamom and rubber plantation can be tried successfully on a pilot basis.

Women Empowerment: The status of women in NER is relatively better than in many other States. Despite women actively participate in economic activities, particularly in the hill areas their participation in decision-making process is low. Even in many tribal societies social system and certain customary laws smack of gender discrimination. Focused attention should be paid to empower women through (i) Formation of SHGs (ii) Strengthening women NGO’s to make their voice heard (iii) Launching movement for woman literacy, training and motivation that helps capacity building (iv) SHGs as economic tool for women empowerment to improve their credit worthiness, apart from raising bargaining strength as a group. Provision of micro-credit would help SHGs develop micro-enterprises of women that would give even the poorer section among the meconomic strength.

NERAMAC: North Eastern Regional Agriculture Marketing Corporation needs to be strengthened financially, organizationally and professionally in consultation with the National Institute of Agricultural Marketing that can facilitate processing, marketing and establishing a network of common facility centers in each State.

Credit agencies: Since banks have a significant role as a catalyst to accelerate the process of agricultural development in NER they should be proactive and make financial services available to farmers by establishing branches at strategic locations as also through technology applications. In a time bound program they can provide Kisan Credit Cards to all farmers and where necessary link with insurance companies to facilitate farmers access insurance products. They can design simple borrower-friendly lending policy, procedure, documentation and customized and flexible financial products that match needs of farmers in NER rather than one-fits-all for the country as a whole. State Governments should create enabling environment that can improve credit absorption capacity of farmers and geographical areas, accelerate flow of credit and loan recovery simultaneously. Banks, Government and print/electronic media can launch massive campaign to create awareness among farmers to avail financial services.

Conclusion: Let Year 2012-13 be fully devoted to create awareness on farm technology that should motivate farmers to adopt technology and substantially raise farm productivity and out put during the Twelfth Plan. Farmer-SHG should become empowered group of farmers to exert pressure on elected representatives right from villages to parliament and Rajya Sabha for strategic planning and implementation of agricultural development projects to yield results envisioned in Vision 2020 during the Twelfth Plan.

[The author is Mumbai based writer on development issues]
Agriculture is the main economic activity in the region and despite major impact of green revolution in the irrigated areas of the country, modernisation of agriculture has escaped this region as evidenced by poor adoption of modern technologies, low consumption of fertilisers and other indicators of growth. About 10 percent of the country’s total potato area lies in this region. The area under potato as a percentage of the net-cropped area is about four times of the national level.

However per unit production of potato in all NE states except Tripura (18.53 t/ha) has been low (4-8 t/ha) as compared to national average yield of 19 t/ha. The reasons attributing to low potato yields inadequate availability of crop inputs like healthy seed vis-a-vis poor management practices followed by the potato growers and also prevalence of optimum climatic conditions season in the region favour perpetuation of serious diseases like late blight, brown rot/bacterial wilt, etc. Importantly, the production of breeder seed in this region is not possible owing to several biological and environmental factors like prevalence of virus vectors throughout the crop stages followed by late blight and bacterial wilt. Potato is mostly cultivated by planting tubers.

The breeder seed, therefore, is transported...
to NE states from other part of the country, which is often not available in the right physiologically specified stage. The available seed hence in the region is highly degenerated and is mainly responsible for low yield.

As potato is traditionally grown vegetatively through seed tubers, this result in continuous occupation and increase of various tuber borne diseases and consequent reduction in crop yield. Hence, to maintain high yield level, recommended potato varieties to time could be supplied through a well-developed disease free seed production programme. Under this situation, however, the amount of quality seed as well as the cost of seed tubers becomes the limiting factor. In order to surmount these problems, a new potato production technology making use of true potato seed (TPS) as planting material for raising crop has been developed. Only 100-150 g TPS costing Rs 3000/- is required for raising the crop in one hectare in comparison to 3-4 tonnes seed tubers costing about Rs. 25,000. In addition to low cost, TPS technology also reduces the problem of storage and transport.

Similarly, spread of seed tuber borne and soil borne disease from one place to another is reduced. Besides, good quality and less costly seed tuber could be produced in the area where rate of degeneration is high and which is away from main seed producing areas like NE region in the country. Though, this technology is labour intensive but requires less initial capital for raising potato crop. This is the most important combination for small and marginal farmers of this region who have plenty of family labours with less of capital. True Potato Seed (TPS), can be identified as the potential alternative intervention for this region. It is seen that about 122 thousand ha of area is under potato cultivation in NE region. Corresponding to such huge areas, average quantity of breeder seed required is about 0.50 thousand tonnes. Similarly the requirement of certified seed is to the tune of about 100 th. tones. Such a heavy requirement of quality seed in this region, therefore, gives enough reason for promotion of alternate technology of True Potato Seed (TPS). Moreover, the saved potato by this way would find their alternative use of either table or processing purpose. Secondly, even at the existing lower potato productivity level of each state, there would be reasonably high quantity (Approx. 10 th. ton) of seedling tubers/tuberlet production that could be utilized as the disease free quality planting material for potato crop for the subsequent 3-4 seasons/years in this region. Thirdly and most importantly, even by bringing as low as 1% of potato area under TPS, there would be corresponding saving of plant protection chemicals like Mencozeb, etc., to the extent of 60 t/annum across the entire NE states, giving thereby a sound environmental sustainability in this region.

**TPS Technology : A Boon for Potato Growers**

The TPS can be utilized in various ways. It could be used as an alternate seed source of potato. They are better than seed tubers (Table 1). TPS offers several advantages:

1. Unlike the seed tubers production which is confined to northern India only, the TPS can be produced in all potato growing region.
2. 100 grams of seed is sufficient to cover one hectare area instead of planting 2-2.5 tons of potato seed tuber.
3. It saves seed tubers for table purpose.
4. Cost of tubers used in conventional method of planting is very high whereas the production of tuberlets in nursery for planting in next year relatively very low.
5. Cost of production of potato using TPS is approximately 55 per cent less in comparison to cost of production of potato using seed tuber. At the same time production may be obtained up to the level of 35 MT per hectare.
6. Higher cost required for storage of huge bulk of conventionally used tubers is reduced as tuberlets (being very small in size) require very little space for storage.
7. TPS provide an opportunity to fit potato into different cropping systems as tuber seed of correct physiological age can not be available to farmer as and when required.
8. No cold storage facility is required for storing T.P.S.

9. Practically no cost is involved for transporting T.P.S. unlike seed tuber.

10. This also reduces cost in transplantation.

11. Being hybrid capable of giving more production.

12. Net profit is more as cost of cultivation is less and also as the per hectar production is more.

13. Comparatively more resistance to pests and diseases.

14. The cost of tuber treating chemicals is also reduced because of relatively lesser volume of tuberlets.

15. By this method, the disease free potato seed can be produced and prevention of diseases to new areas can be checked.

16. TPS with 3-5 % seed moisture can be stored for many years under ambient conditions in dark with practically no loss in germination at least up to 5 years which is expected to reduce cost on storage.

**Recent Initiatives by the State Government**

The implementation of Rashtriya Krishi Vikas Yojana (RKVY) has been started in the state at the end of 2007-08. Forty one projects under Stream-I of RKVY have been undertaken during the first three years across all segments of agriculture and allied sectors viz. Agriculture, Horticulture, Animal Resource Development, Fisheries, TTAADC and Tripura Co-operative Milk Producers’ Union Ltd.

- Production of Certified Vegetable Seeds,
- Promotion of TPS-tuberlet technology for production of Table Potato

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**Table 2: Year-wise distribution of hybrid TPS**

<table>
<thead>
<tr>
<th>Year</th>
<th>TPS Distribution (Kg.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tripura</td>
</tr>
<tr>
<td>1996-97</td>
<td>57.02</td>
</tr>
<tr>
<td>1997-98</td>
<td>304.78</td>
</tr>
<tr>
<td>1998-99</td>
<td>335.895</td>
</tr>
<tr>
<td>1999-00</td>
<td>152.655</td>
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<tr>
<td>2000-01</td>
<td>89.809</td>
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<tr>
<td>2001-02</td>
<td>78.685</td>
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<tr>
<td>2002-03</td>
<td>121.685</td>
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<td>2003-04</td>
<td>160.79</td>
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<tr>
<td>2004-05</td>
<td>158.019</td>
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<td>2005-06</td>
<td>206.621</td>
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<tr>
<td>2006-07</td>
<td>162.136</td>
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<tr>
<td>2007-08</td>
<td>159.95</td>
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<tr>
<td>2008-09</td>
<td>165.87</td>
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<tr>
<td>2009-10</td>
<td>164.61</td>
</tr>
<tr>
<td>2010-11</td>
<td>72.795</td>
</tr>
<tr>
<td>Total</td>
<td>2420.887</td>
</tr>
</tbody>
</table>

*Source: Department of Agriculture, Government of Tripura*
The eastern region of India is all set to increase its share in the country’s rice production. The initiatives taken by the Central and the State Governments of the region have already resulted in an impressive increase in production of food grains with the area now turning into a food surplus zone from a food deficit one.

In order to address the constraints limiting the productivity of rice-cropping systems in eastern India, the Government launched a programme ‘Bringing Green Revolution in Eastern India’ (BGREI) two years back. It operates in seven states viz. Assam, West Bengal, Odisha, Bihar, Jharkhand, Eastern Uttar Pradesh and Chhattisgarh.

This programme, since its launch in 2010-2011 as a Prime Minister’s initiative based on the Inter Ministerial Task Force, has yielded remarkable results in rice and wheat production in the region. Under this programme Bihar and Jharkhand have shown quantum jump in rice production. Stupendous efforts have been made by the State Governments in extending technologies and practices to the farmers of the region for record production of rice and wheat.

The eastern region was selected for the project essentially to harness the region’s abundant water resources, necessary to enhance the production of food grains. Water management is the main problem in eastern India, not water availability. The premise is that with abundant water, it would be made possible to increase crop productivity if better agronomic practices are adopted, high quality seed is used and other inputs like fertilizers and pesticides are applied judiciously. While Punjab, Haryana and western Uttar Pradesh ushered in Green Revolution in India in the sixties, over-exploitation left these three states virtually depleted in terms of water resources. This became a major concern of the country’s agriculture planners.

Clearly, India needs to boost its food production to feed its ever-increasing population. The only way to ensure food security, a concern of every Indian, is to grow enough food grains domestically. The eastern region has the potential of setting in a new Green Revolution. There is no reason why it cannot become the food bowl of the nation, given the high priority and focus that the central and the State Governments are giving to BGREI.

Therefore, a bouquet of activities have been taken up that include block demonstrations of rice and wheat technologies in cluster mode approach; promoting resource conservation technology (zero tillage under wheat); creation of asset building activities for water management (shallow tube wells/dug wells/bore wells, distribution of pump sets); promotion of farm implements and need based site specific activities etc.

Adoption of hybrid rice technologies, line transplantation, SRI, micro nutrients, drum seeders are some of the success stories that have emerged from the hard work put in by the State administrations in the region.

However, for the stability in production full potential of this enormously resource endowed region has to be realized. Promotion of production technologies would need to be backed by effective marketing arrangements, procurement operations, power irrigation, value chain and rural infrastructure, institutional development for credit supply and lastly innovative approaches in extension to be able to reach out to a very large number of small and marginal farmers. Moreover, the farmers should get the minimum support price for their produce and for that, the awareness about the grading standards should be extended to the farmers. A Committee of Chief Ministers of these States has been set up to oversee implementation of BGREI at top level and to ensure that the scheme continues to receive high priority.

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Assam, which is the largest state of the North-east India in terms of population and area, is famous for its rich tradition of indigenous culture and technology. Indigenous technology generally refers to those technologies which are employed by the native inhabitants of a country and which constitute an important part of its cultural heritage, and the industries based on indigenous knowledge and technologies are known as indigenous industries.

The traditional indigenous industries include handloom, handicrafts, bell metal, bamboo, traditional Jewelry, indigenous (Folk) medicines and other household industrial activities carried out in the rural parts of the state. Indigenous craft and industries are a distinctive and integral feature of the socio economic life of the people of Assam. These industries produce marketable products using locally available raw material, human skill and indigenous technology. Besides generating employment opportunities in rural areas, these industries make best possible use unutilized or underutilized local resources.

In this context, the prime objective of the study is to explore the traditional indigenous industries of Assam. Moreover attempt is also made to analyse its performance, problems as well as future prospects in the context of globalisation of the Indian Economy.

Handloom industries

Assamese women can weave dream on their looms-handloom weaving is basically a leisure time activity of the women folk of Assam. It is the oldest and widespread industry and has been a way of life in the State since time immemorial. It
is not confined to any particular group or region. However, it is the largest unorganised activity in the state next to agriculture. Though, it is conventionally practiced as past time activity, now it is full time job among among professionals like silk weavers of Sualkuchi. Apart from Sualkuchi, in most of the areas rural households as well as various ethno-cultural groups are producing silk and silk garments, cotton garments with unique embroidery designs and wonderful colour combinations.

Generally, homemade handloom textiles include mekhela sadar, gamosa, dhuti, endi, bedsheet etc. Besides cotton, weavers of Assam produced diverse variety of silk, namely Muga, Eri and Paat. Endi, produced from Eri Silk is popular among common people during winter. Some hill tribes, particularly jayantias, who use the textile for its warmth during the winter, gradually adopted the extensive endi culture of Assam.

Gamosa, produced by these industries, is an article of great significance for the people of Assam. Though it is used daily to wipe the body after a bath, the farmer uses it as a waistcloth (tongali) or a loincloth (suriya), a Bihu dancer wraps it around the head with a fluffy knot, elders are offered it as bihuwaan during Bihu and so on. In occasion guests are welcomed with the offering of a gamosa. No doubt Assam’s handloom industry has a definite place of pride in India as well as in the world.

Bell metal Industries

The bell metal industries are playing a vital role in producing bell metal objects and articles, which are used as symbol of Assamese culture. Hajo and Sarthebari are the most important centres of traditional bell metal and brass crafts. Sorai, Bota, Kahi and Ban Bati etc., which are important symbolic elements of Assamese culture, are the products of these industries.

Handicraft Industries

Handicraft products of Assam have a glorious past. Since time immemorial, rural Assamese society has been fascinated by handicrafts. Basically, handicap industry is a cottage or house hold industries of rural Assam.

Cane and bamboo craft, toy and mask making, pottery and terracotta work, woodcraft, musical instruments making, etc. are major traditional industries of Assam. Cane and bamboo craft provide the most commonly used utilities in daily life, ranging from household utilities, weaving accessories, fishing accessories, furniture, musical instruments to building construction materials. Saloni, Kula, Dala Kharahi, etc. are daily used traditional crafts of Assamese household. Jakoi, Khaioi, Sepa, Polo etc. are very common fishing accessories of handicrafts industries for anglers of Assam. Moreover, Dhol, Pepa, Gagana, Taka, Sutuli, Bahi etc., which are mostly used in Bihu festival of Assam, are the products of these craft industries.

Moreover, Assam possesses unique crafts of toy and mask making, mostly concentrated in the Vaishnav Monasteries. The masks used in Ankia Nat and Bhaona are produced by the traditional handicraft industries.

Japi is another important symbol of Assamese culture. There are two types of japi in general-Phulam japi and Halowa japi. Phulam japi besides a fashionable and decorative wall hanging is also used as a symbol of welcome and offering as gift to a person of honour during felicitations. Phulam japi is an indispensable part of Bihu dance. Where as Halowa japi is a traditional hat generally used by Assamese farmers during cultivation. Nalbari district is famous for these handicraft industries.

Dugdugi, Kerumoni, Thuriya, Gaam Kharu, Jonbiri, Dholbiri etc. are the traditional jewellery of Assam. These jewellery which are generally called Assamia Gahana, are made of gold and other metal by some artisans from Nagaon distriact.

Assamese women can weave dream on their looms-handloom weaving is basically a leisure time activity of the women folk of Assam. It is the oldest and widespread industry and has been a way of life in the State since time immemorial.
women wear these during Bihu and other religious festivals.

**Indigenous Medicinal Industries**

Indigenous medicinal treatment, their axioms and practice varied from region to region and culture to culture. In Assam indigenous system of health care refers to the long standing indigenous techniques of health care found particularly among the rural population. Generally, it has been practised by the non-institutional physicians, who are referred to as “Kaviraja” or ojha. They prepare medicines from locally available plants and herbs, different types of animal products like milk, bones, gallstones etc. Usually, these medicines are produced manually with the help of the trained members of the family. The methods of preparation of the medicines are taught and practised from generation to generation. In this way a number of indigenous medicinal farms grew up in Assam.

The production capacity and product variety varies from farm to farms. Some of them are specialised in producing medicines for obstetrics, heart diseases, respiratory diseases, abdomen related diseases like acidity, constipation, diarrhea and dysentery etc. Arjun Powder (for heart diseases), Triphala, Chyavanprash, Aswagandha Powder (for over all heath and vigor), Uccha Raktachapantak (for B.P Control), Dantamukta (for dental diseases) Prasutanashak Oil (for obstetrics), Ashokarista (for gynecological disease), Chandramrit Ras (for throat problems), Mahadrakhyarista (cough syrup), Nagarjuna (for liver diseases) and Bhudneshwar Bati (enzyme), Madhumehantak (for diabetics), Bamhi Tonic (memory tonic) etc. are the important and popular medicines produced by these farms. These medicines have been used by a number of people in Assam and even outside the state.

Before the development of modern medicines people of Assam had to depend only on these types of indigenous medicines to cure diseases and other health related problems. Even today, a big portion of marginalised people, who cannot afford or access formal health care systems, are dependent on these culturally familiar, technically simple, financially affordable and generally effective indigenous medicines.

**Problems Associated With the Indigenous Industries**

Though these indigenous industries are playing a pivotal role both from socio-economic as well as from cultural point of view, they are facing many problems in this globalised environment. The problems faced by these indigenous industries are manifolds. The magnitude and extent of these problems varies from industries to industries. Following are the common problems faced by these industries:

**Financial Problems**

Almost all the indigenous industries are facing the problem of timely finance mainly in the forms of working capital and non availability of loan and subsidies. The tedious and complicated process involved in getting a loan along with unnecessary harassment by bank officials gave up their hope getting bank finance. Again, they are unaware of the various credit facilities and promotional schemes offered by banks and other financial institutions. Given such situation, they are bound to rely on their own savings and loans from friends, relatives and local Sanchay where interest is much higher than Bank. They often have to wait till the complete sale of their products for finance. Therefore, finance is a major constraint in running the industries.

**Stiff Competition**

Again, competition is another problem faced by these farms. They are facing tough competition of mass produce goods from big companies. The bell metal industries are now facing a crisis due to the competition from cheaper alluminium and brasswares made in other parts of India. Moreover, the handloom industries of Sualkuchi, which are famous for muga and pat silk, are also facing competition from Banarashi Pat, Kanji pat etc. Similarly, the Gamosa are also now coming from Chennai. This is no doubt a very serious problems faced by these indigenous industries.

Again indigenous medicinal industries are facing tough competition from companies like Dabar, Baidyanath, Himalaya, Ayur, Patanjali, etc. The design and packaging of the products of indigenous farms are not attractive like the branded products. Thus, these products are
unable to withstand the stiff competition with the branded medicines / products. As buyers are quality conscious, they usually opt for branded medicines.

**Raw material and Market Problem**

Almost all the indigenous industries are facing acute problems related to raw materials. Some of the essential raw materials are not available in the market. Those raw materials, which are available, are costly or may not be available when the need is most. Since these farms purchase in small quantities they do not get price advantage also. When they purchase raw materials at higher price, they cannot sell the finished product at a competitive price.

Marketing is another problem for these farms. They sort out this problem by supplying their products regularly to the intermediary. These farms regularly supply their products to retailers of different parts of Assam and even outside Assam through intermediaries. The retailers and intermediaries get the profit and these small farms just get small amount from the intermediaries.

**Government Apathy**

The farms are of the opinion that no government assistance and excessive formalities in government departments is the major problem faced by them. Any kind of government support requires submission of plethora of documents, cumbersome and complicated procedure and undue delay. These indigenous farms often find it difficult to undergo such formalities. They also feel that the government officials do not take them seriously. Rather, sometimes become dominating and insulting to them. Again, due to high level corruption in the government departments, it is not easy to get financial help and subsidies without bribe. It is no doubt a serious problem not only to these indigenous industries but also to all of us.

**Almost all the indigenous industries are facing the problem of timely finance mainly in the forms of working capital and non availability of loan and subsidies. The tedious and complicated process involved in getting a loan along with unnecessary harassment by bank officials gave up their hope getting bank finance.**

**Lack of sufficient infrastructural facilities**

No sufficient infrastructure is another major problem faced by these indigenous industries. There are no separate rooms or houses to run their industries. Generally, household within their own residing houses runs most of the industries.

Moreover, the indigenous industries are suffering some other problems. These are discussed below.

The rural people in Assam lead to a protected life. They are less educated and economically not self-dependent. All these reduce their ability to bear risk involved in running an enterprise. Risk bearing is an essential requisite of a successful entrepreneur.

Indigenous industries faced the problem of skilled labour. They find recruitment of trained and skilled people itself a problem and even if they somehow get some personal with skill it is difficult to train them.

Knowledge of general management and transportation is a problem for them. Now a day’s transportation becomes too much expensive which raise the price of the product produced by them. As a result, demand for the products decrease in the market.

Project formation has been judged as the most important technical problem faced by them. This is because entrepreneurs find it very difficult to prepare a viable project report owing to lack of proper knowledge about the market. On the other hand, promotional organizations consider the project report as the most important in sanctioning loan and other facilities.

Moreover, there is no any agency to guide them in the business matter. Again “lack of management experience” is a major problem for them in running the business successfully.
Lack of proper organization among them is the most important problem. Majority of the entrepreneurs are neither members of such organization nor aware of such organization.

In addition to above, the common problems faced by traditional industrial units in Assam are as follows:

- Difficulties in preparing a viable project report.
- High cost of production.
- Inability to work at night
- Lack of awareness about various schemes.

Recommendations

For survival of the indigenous industries, the following recommendations can be put forward:

- In Assam, there are more than 1200 branches of different nationalised banks along with other financial institutions like Small Industries Development Bank of India (SIDBI), Industrial Financial Corporation of India (IFCI), North East Development and Finance Corporation (NEDFI) etc. These institutions should simplify and speed up the procedure of granting loans and financial assistance for promotion and survival of these indigenous farms. Moreover, the required documents should be minimised and all the procedure should be in local language.

- Marketing appears to be another problem faced by these industries. It is suggested that marketing support should be provided to these indigenous industries. Government can help in marketing their products through its outlets at various levels.

- The Government agencies should launch awareness / publicity campaigns about schemes available for indigenous industries. Attractive publicity material such as posters, charts can be designed in simple manner so that people will be able to understand it easily.

- Again, co – operatives amongst indigenous industries can also be formed with the help of NGO’s. The co – operatives can take care of skill training, technology up gradation, designing and new product development, packaging and marketing. The co – operative can provide marketing support through local fairs, exhibitions, design show, buyer seller meet and fairs in India and abroad.

- The small micro entrepreneurs should be provided opportunities to share their experiences with others and exchange views how the problem has been handled successfully. Networking of entrepreneurs can be another useful strategy, which is considered very important in this era of globalization. Confidence building exercises for enhancing their self-image would also facilitate in coping with their function more effectively.

[The author is assistant Professor, Dept. of Economics, Barbhag College (Gauhati University), Nalbari, Assam email: sushantakashyap@gmail.com]
“The shape of the world can be transformed if all live in a spirit of love and amity.”

2 October
International Day of Non-Violence
The world would indeed
be a better place, if all of us lived in a
world of peace and amity with one another.

\[\text{Mahatma Gandhi}\]

Ministry of Information & Broadcasting
Government of India
Agriculture is the backbone of Indian economy and food security is the major concern. India needs a second green revolution and it is possible only through the transfer of technologies from lab to land. Knowledge transfer to the agriculture sector with necessary inputs is most important. The country has a widespread telecom network which could be put to effective use for delivering knowledge and information to the farming community. The Indian agricultural extension system is the largest extension system in the world facing acute shortage of manpower and one extension worker is taking care of one thousand farmers which is impossible task to reach the each and every farmer. The Department of Agriculture and Cooperation (DAC) launched Kisan Call Centres as centrally sponsored scheme under the Union Ministry of Agriculture in January 21, 2004 across the country to deliver extension services to the farming community. The purpose of these call centers is to respond to issues raised by farmers instantly, in the local language. There are call centers for every state which are expected to handle the queries from any part of the country. Queries related to agriculture and allied sectors are being addressed through these call centers.

**Operational Mechanism of Kisan Call Centres**

A Kisan Call Centre consists of a complex of telecommunication infrastructure, computer support and human resources organized to manage effectively and efficiently the queries raised by farmers instantly in the local language. Mainly, Subject Matter Specialists (SMSs) using telephone and computer, interact with farmers to understand the problem and answer the queries at a Call Centre.

This is a functional area within an organization like Research Stations, ATICs, KVKs, Agricultural Colleges or an out sourced, where separate facilities exist solely to answer inbound calls or make outbound telephone calls, to resolve the queries of pending calls. Usually it refers to a sophisticated voice operations center that provides a full range of inbound or outbound call handling services including customer support, direct assistance, multi-lingual customer support and other services.

This is a new dimension in Agriculture Extension Management, which takes account of, and makes full use of on-going information and communication revolution, by optimally utilizing the communication bandwidth to serve the farming community in remotest areas of the country by connecting them to best of the agricultural scientific community. This is an important value multiplier for the existing extension mechanisms, which find it otherwise difficult (in terms of infrastructure and finances) to reach their desired clientele. This will enable establishment of close linkages and seamless communication mechanism among the key stakeholders in the extension system namely– Agricultural Scientists, Extension Functionaries, Farmers and Marketing Agencies.
Monitoring and Review of Kisan Call Centres

For successful functioning of Kisan Call Centers, there is a need to monitor and review the various activities of the KCC by the Nodal Institution on regular basis. The Nodal Institution is responsible for documenting the daily activities of the Kisan Call Center at various levels on farmers’ queries and their resolution, availability of Subject Matter Specialists, call dropouts and their transfer to Level-III and response to the farmers within 72 hours. The Nodal Institution will also organize fortnightly meetings with the

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Address/Location of call center</th>
<th>Contact details</th>
<th>States covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kisan Call Centre (Ministry of Agriculture) IFFCO Kisan Sanchar Limited Mithapur Agriculture Farm Rasayan Bhavan, Mithapur, Patna</td>
<td>Mr. M. M. Tewari, State Manager, IKSL, 096316 80359 Mr. Ajit, Accounts Officer</td>
<td>Bihar, Jharkhand</td>
</tr>
<tr>
<td>2</td>
<td>Kisan Call Centre (Ministry of Agriculture) IFFCO State Office Nehru Sahkar Bhawan, 3rd Floor, Bhawani Singh Road, Jaipur - 302 001</td>
<td>Mr. H.R. Saharan, State Manager, IKSL: 9950302544</td>
<td>Delhi, Rajasthan</td>
</tr>
<tr>
<td>3</td>
<td>Kisan Call Centre (Ministry of Agriculture) IFFCO Zonal Office Plot No. 2 (B&amp;c), Sector 28-A, Madhya Marg Chandigarh - 160 002, Fax: 0172-2654838 Phone: 2652791, 2638925</td>
<td>Mrs. P. Korpal, State Manager, IKSL: 98764 52222</td>
<td>Haryana, Punjab, Chandigarh, Himachal Pradesh</td>
</tr>
<tr>
<td>4</td>
<td>Kisan Call Centre (Ministry of Agriculture) 50 D/C, Gandhi Nagar, Jammu - 180 004 Fax: 0191-2430695 Phone: 2430695, 2431715</td>
<td>Mr. Amrinder Singh Bhinder, State Manager: 9419114273 Mrs. P. Korpal, State Manager (at Chandigarh), IKSL: 98764 52222 Mr. Ramnath: 094191 39746</td>
<td>Jammu &amp; Kashmir</td>
</tr>
<tr>
<td></td>
<td>Kisan Call Centre (Ministry of Agriculture) IFFCO Kisan Sanchar Limited Area Office, IFFCO, 3A/101, Azad Nagar, Kanpur - 208002 (U.P.)</td>
<td>Fax: 0512-2560779 Phone: 0512-256779/2560362</td>
<td>Uttar Pradesh, Uttarakhand</td>
</tr>
<tr>
<td></td>
<td>Kisan Call Centre (Ministry of Agriculture) IFFCO Zonal Office 8, Acharya J C Bose Road, Circular Court, Kolkata - 700 017 Fax: 033-22400443 Phone: 22478025</td>
<td>Mr. A.K. Das, SM(Admin), IFFCO: 98314 13520 Mr. R.K. Mitra, State Manager, IKSL: 091633 23090</td>
<td>West Bengal, Orissa</td>
</tr>
</tbody>
</table>

Table 1. State-wise location of Kisan call centers and contact details of eastern states
Heads of Departments of Response Centers for first 6 months to ensure the proper identification and placement and changes if necessary of Level-II functionaries and resolution of the queries shared with Subject Matter Specialists and their documentation. Subsequently, these meetings will be held every month in Response Centers on rotation.

**Documentation and Reporting**

The Nodal Institution is responsible for documentation and reporting. All the proceedings of the Kisan Call Centre will be documented by each of the Nodal Institution and shared with other Kisan Call Centers for preparing a database on crop / enterprise-wise and also to prepare Frequently Asked Questions (FAQs).

[C.B. Meti is Associate Professor, University of Agricultural Sciences, Dharwad, Karnataka; B.S Sontakki is Professor, National Academy of Agricultural Research Management, Hyderabad (A.P), and L.M. Ahire is Technical Officer, National Academy of Agricultural Research Management, Hyderabad (A.P).]

### Table 2. Number of calls received during 2011-12 and 2012-13 in eastern States of India

<table>
<thead>
<tr>
<th>State</th>
<th>Calls received (Nos)</th>
<th>2012-13 (Up to August 2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011-12</td>
<td></td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>1790120</td>
<td>158560</td>
</tr>
<tr>
<td>West Bengal</td>
<td>517329</td>
<td>100843</td>
</tr>
<tr>
<td>Punjab</td>
<td>390393</td>
<td>108567</td>
</tr>
<tr>
<td>Uttaranchal</td>
<td>310563</td>
<td>18522</td>
</tr>
<tr>
<td>Haryana</td>
<td>245851</td>
<td>91138</td>
</tr>
<tr>
<td>Jammu &amp; Kashmir</td>
<td>176007</td>
<td>20226</td>
</tr>
<tr>
<td>Delhi</td>
<td>169156</td>
<td>13256</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>161337</td>
<td>22212</td>
</tr>
<tr>
<td>Orissa</td>
<td>134235</td>
<td>177910</td>
</tr>
<tr>
<td>Bihar</td>
<td>95836</td>
<td>41275</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>40374</td>
<td>1023</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4031201</strong></td>
<td><strong>753532</strong></td>
</tr>
<tr>
<td><strong>All India</strong></td>
<td><strong>7792640</strong></td>
<td><strong>1879842</strong></td>
</tr>
</tbody>
</table>
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first one to give value added response.

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(9718748042), Subhash for Hindi speaking (9899707583)
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The seven contiguous land-locked states of North-Eastern Region of India, commonly called “Seven Sisters” consisting Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura present a paradoxical picture of being ‘poor’ in the midst of ‘plenty’. This is one of the richest regions of India in terms of biodiversity and natural resources. The region has rich and diverse aquatic resources in different topographical and climatic conditions in the plains of the Brahmaputra and Barak valleys in Assam, plains of Tripura, upland plain lands of the Imphal valley in Manipur to the predominantly hilly regions of Meghalaya, Mizoram, Nagaland, and Arunachal Pradesh, with elevations ranging from 200 - 7089 m above mean sea level (MSL). The annual rainfall in the region exceeds 2,000 mm and more than 60% of the area is covered by forest. The soils are mostly acidic in nature, having pH in the range 4.5–5.0.

Fish have long been an important food item for the inhabitants of the region. Fish has been associated with the life of the people of northeast India from time immemorial. Not only it provides nutritious food, but also forms an unbreakable relationship with the culture, religion, and traditions of the region. With almost 100% of population being fish eaters, except in Assam (90%) and Tripura (95%), there is a huge gap between supply and demand.

A detail account of available fisheries and aquaculture resources and the fish production obtained in different states of the NE region, as in 2008-09, has been provided by Sinha (2010). According to that, the per capita availability of fish in the region was estimated to be around 6.75 kg, which was lower than the national availability of 9.00 kg. World Health Organisation pegged 11 kg fish per year as minimum nutritionally required fish protein for human being. None of these states were able to meet this requirement except Tripura (10.94 kg). To meet the demand of the people, the region is importing fish to the tune of 38,340 tons per annum in addition to some unaccounted import from the neighbouring countries of Bangladesh.
and Myanmar. Brahmaputra and Barak rivers along with their tributaries and basins form resources of unparalleled magnitude and account for over 50% of the potential water resources in the country. The region is enriched with many freshwater species of fish and is also considered to be one of the hot spots of freshwater fish biodiversity in the world. The data (Table 1 & 2.) depict availability of aquatic resources in the region and their potential to change the socio-economic scenario of North-Eastern states provided they are utilized efficiently and scientifically for fish production.

It can be concluded from the data given in above Table1 that the region is blessed with plenty of aquatic resources in a form of river, pond/ mini-barrage, reservoir, and wetlands. Resource under pond/ mini-barrage is also continuously on rise, especially since 2008-09, on account of implementation of MGNREGA (e.g. in Tripura this resource has increased to 24,094 ha by 2011-12). The total fish production in different states, during 2008-09 (Table 2), was much less (2.82 lakh ton) as compared to the production potential (4.88 lakh ton) of available resources (excluding rivers), even with modest targets of productivity. With expected increase in resource (pond/ mini-barrage) and average productivity in recent years (2009 – 2012), the fish production potential of the region can be expected to be even much higher. This indicates that the fisheries and aquaculture resources are underutilised and have potential to fulfil the nutritional requirement of fish eating populace of the region (4.78 lakh ton).

If one undertakes fish culture and allied activities in a form of enterprise, based on proven scientific knowledge, latest technology package, together with proper planning, then it can be the most profitable venture particularly in North-East Region where marketing of these produce is not a problem. Moreover, the much talked about economic development of NE region points to the need for fisheries & aquaculture development as an important constituent of economic activity. Industrial

Table 1 Fisheries and Aquaculture resources of the North-eastern States

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>States</th>
<th>River (km)</th>
<th>Pond/Mini-barrage (ha)</th>
<th>Floodplain wetland (ha)</th>
<th>Reservoir culture (ha)</th>
<th>Paddy-cum-Fish (ha)</th>
<th>Others (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Arunachal Pradesh</td>
<td>2,000</td>
<td>2,200</td>
<td>2,500</td>
<td>25,169</td>
<td>2,800</td>
<td>1,200</td>
</tr>
<tr>
<td>2.</td>
<td>Assam</td>
<td>4,820</td>
<td>38,800</td>
<td>100,000</td>
<td>1,700</td>
<td>-</td>
<td>44,000</td>
</tr>
<tr>
<td>3.</td>
<td>Manipur</td>
<td>3,360</td>
<td>9,939</td>
<td>14,036</td>
<td>500</td>
<td>4,000</td>
<td>14,096</td>
</tr>
<tr>
<td>4.</td>
<td>Meghalaya</td>
<td>3,329</td>
<td>2,500</td>
<td>399</td>
<td>8,489</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>5.</td>
<td>Mizoram</td>
<td>1,395</td>
<td>24,000</td>
<td>32</td>
<td>3,500</td>
<td>120</td>
<td>-</td>
</tr>
<tr>
<td>6.</td>
<td>Nagaland</td>
<td>1,600</td>
<td>30,000</td>
<td>1,500</td>
<td>2,268</td>
<td>75,000</td>
<td>-</td>
</tr>
<tr>
<td>7.</td>
<td>Tripura</td>
<td>1,200</td>
<td>19,258</td>
<td>100</td>
<td>3,050</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Sinha (2010).

Table 2. Status of Fish production in NE States during 2008-09 and expected production potential

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>States</th>
<th>Total Production (tons)</th>
<th>Per ha productivity of culture ponds (kg)</th>
<th>Per capita Availability (kg)</th>
<th>Expected production potential (excl. rivers) (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Arunachal Pradesh</td>
<td>2,850</td>
<td>1125</td>
<td>2.13</td>
<td>11457</td>
</tr>
<tr>
<td>2.</td>
<td>Assam</td>
<td>2,09,000</td>
<td>1820</td>
<td>7.70</td>
<td>260740</td>
</tr>
<tr>
<td>3.</td>
<td>Manipur</td>
<td>18,800</td>
<td>1200</td>
<td>7.60</td>
<td>59249</td>
</tr>
<tr>
<td>4.</td>
<td>Meghalaya</td>
<td>5,000</td>
<td>800</td>
<td>1.73</td>
<td>6928</td>
</tr>
<tr>
<td>5.</td>
<td>Mizoram</td>
<td>3,750</td>
<td>944</td>
<td>3.43</td>
<td>48752</td>
</tr>
<tr>
<td>6.</td>
<td>Nagaland</td>
<td>6,175</td>
<td>1800</td>
<td>2.02</td>
<td>42454</td>
</tr>
<tr>
<td>7.</td>
<td>Tripura</td>
<td>36,991</td>
<td>2074</td>
<td>10.94</td>
<td>58789</td>
</tr>
</tbody>
</table>

TOTAL 2,82,566 4,88,369

Source: Sinha (2010)
development has its own limitations in all the states of the region, except Assam, due to inherent communication problems. Thus, development of agriculture and allied is the sole option in this region for its much required economic development as well as for fulfilling the local need. Agriculture alone cannot bear the burden of providing food for all and gainful employment to the rural population. It is estimated that 40 – 60% of the work force in agriculture are not profitably employed and above 70% of the population in this region is below 34 years of age. If suitable employment opportunities are not provided to this predominantly rural population, it is bound to result in urban migration with problematic consequences.

The present man – land ratio (cultivable area) in this region is less than 1:0.1 ha which is bound to deteriorate further with increase in population and very little scope for increase in the cultivable area for agriculture. Any significant increase in the cultivable area cannot be expected as it would mean reduction in forest coverage which is already alarmingly low than desirable (<47% presently against >60% required environmentally). Thus, scope for horizontal expansion in agriculture is very limited. Vertical expansion has also its own limitations due to soil type and climatic conditions of the region. As such, diversification of efforts, by tapping other available resources of the region, is a must. With high rate of precipitation and valley gradient of 15 – 20 cm per km, extensive floodplains and water logged areas are available, forming a very good fishery & aquaculture resource. Fisheries & aquaculture has also got an edge over other allied agricultural activities in terms of economic returns and nutritional value. Development of fisheries sector can also go a long way in solving the problem of gainful additional employment opportunities to region’s rural populace. Thus, the situation in the region explicitly points out to the need for this sector’s development, both for dietary need and economic development.

The available statistics of trained manpower in fisheries sector, during post-independent era, suggests that the North Eastern states have received proportionately better representation in various fishery related centrally sponsored training programmes, compared to other states of the country. Presently the region has two Fishery Colleges (Assam & Tripura) with majority of their seats for the states of the region, producing good number of B.F. Sc. & M.F.Sc. on a regular basis, in addition to those from other Fishery College of the country and Central Institute of Fisheries Education, Mumbai. Evidently, therefore, there is no dearth of trained manpower in the states of the region.

The required approach to realise the available potential and bring in the possible “BLUE REVOLUTION” in this region would require an authentic data-base, comprehensive planning, policy and technological support, proper implementation (with due importance to the sector and allocation of adequate financial resources) and strict monitoring. Tripura is a good example where such efforts, made in the recent, have yielded desired results. This state is now surplus in fish seed production and has attained nutritional self-sufficiency in fish production (15 kg per capita availability of fish from local production during 2011-12).

To be precise the approach for much needed development of fishery sector in NE region should be to give due importance to the sector and efficient effective management of the available resources (physical & human). The main problem of present under potential performance of this sector in this region appears to be more a management crisis than resource crisis of any form. Potential does exist to bring in the much needed “BLUE REVOLUTION”, not only to increase the fish availability but also to accelerate the pace of economic growth of the region. This only requires a planned concerted effort of all concerned.
Ecotourism is entirely a new approach in tourism sector. Several terms relating to ecotourism, such as, sustainable tourism, green tourism, rural tourism, community-based tourism, have been emerged over the last 20 years or so.

By eco tourism we mean preserving travel to natural areas to appreciate the cultural and natural history of the environment, taking care, not to disturb the integrity of the ecosystem, while creating economic opportunities that make conservation and protection of natural resources advantageous to the local people. In simple, ecotourism can be categorised as tourism programme that is - “Nature based, ecologically sustainable, where education and interpretation is a major constituent and where local people are benefited.” All this together can be called ecotourism. If a travel does not satisfy any one of these constituents, then it is not called a real ecotourism venture.

The potential of ecotourism as a strategy for sustainable development was recognized during the Earth Summit in 1992, when sustainable tourism was considered as an environment-friendly economic activity. The fundamental function of the ecotourism is the protection of the natural and cultural resources as well as income generation, education, local participation and the capacity building. As per the fundamental principles, the ecotourism should be: (i) nature-friendly, (ii) ecologically sustainable, (iii) environmentally educative and (iv) economically beneficial to the local community. It should also offer satisfaction to the tourists.
Eco Tourism in Sikkim

Sikkim, “The land of orchids”, “The land of tranquility”, these are the few ways in which the state has been described. In fact in all its manifestations Sikkim has been projected as a naturalist’s paradise. It is located in such an area of the Mega-Biodiversity hotspot of Eastern Himalayan Region where more than 4,500 species of flowering plants, more than 50 species of fishes, 690 species of butterflies, 16 species of amphibians, 78 species of reptiles, 550 species of birds, and 154 species of mammals uphold its existence. The State is also unique as a destination on the tourism canvas of the world. A tourist visiting Sikkim is all praises for the richness in nature which no doubt has been the basic ingredient of tourism in Sikkim. Nature is bountiful in gifting Sikkim with great landscapes, forests, streams, rivers, glaciers, lakes, snow capped mountains and cold deserts. The Mighty Khanchendzonga, the third highest mountain in the world offer brilliant mountain scenery, healthier and invigorating climate. Blessed with snow capped mountains, lakes, rivers and varieties of flora and fauna, congenial climatic conditions, Buddhist monasteries, religious artefacts, cultural festivals of Lepcha, Bhutia and Nepali, Nye-mae-el (Sikkim) is in par with other ecological hotspots of the world. Eco-tourism is the buzzword and the Government, NGO’S and individuals have all geared up for contributing to it.

Sikkim is a place where fusion of culture is distinctly visible. It has great beauty ranging from the mountains and multitude of rivers and lakes, which are considered as the sine-qua-non of Ecotourism. Sandwiched in the hills and mountain, Sikkim has now started gaining importance as a major ecotourism destination in India. It has everything which a tourist can dream of as a land of fairs and festivals, snow-clad mountains, holy lakes and peaks, religious centers, hot springs, trekking, water-rafting, pleasant valleys flora and fauna and so on.

As Sikkim experiences moderate temperature in summer and has exceptionally rich biodiversity and unique culture, there has been remarkable increase

### Key Principles of Ecotourism in Sikkim:

The following are the key principles for the development, planning, management, and promotion of Ecotourism in the state:

- conserve nature, including biodiversity and ecosystems as well as the culture and traditions of Sikkim;
- respect local communities’ culture, tradition and customs;
- adhere to international ecotourism principles, guidelines and standards for the development of ecotourism in the state of Sikkim;
- generate income sources to local communities, preferably to economically disadvantaged, through ecotourism activities;
- promote sustainable use of natural, cultural and local resources to develop and promote ecotourism in the state with the emphasis on the use of renewable energy;
- facilitate partnership for planning, implementation, coordination and monitoring ecotourism activities with key stakeholders such as local communities, NGOs, government organizations, tour agents and tour operators;
- enhance cooperation between local entrepreneurs, such as home stay operators, tour operators and tour agents, and government organizations and other key players in the development of ecotourism infrastructures and promotion of ecotourism products;
- Encourage visitors to learn about biodiversity and ecosystems as well as local people’s cultural and traditional values.
in the number of tourists for the recent years. On
the other hand, there is a growing concern on the
adverse impacts on the rich biodiversity and its
ecosystem caused by the rapid increase of tourists.
The balance between the development and nature
conservation is an urgent issue to be addressed.

Indigenous Ecotourism

Indigenous ecotourism is defined as nature-
based attractions or tours owned by tribal groups,
which feature Indigenous cultural knowledge and
practices linked to the land. Tourist interest in visiting
Indigenous peoples and their tribal lands around the
world is growing. In Sikkim there are mainly three
ethnic communities- Bhutia, Lepcha and Nepali.
Other classes of people of Indian origin and Tibetan
refugees have settled mainly in the urban areas of
Sikkim blending their cultures with those of these
ethnic communities of Sikkim. Lepchas have lately
been given the status of primitive tribes. All the
three communities share close cultural ties yet have
distinct and rich cultures.

The Key factors driving Indigenous involvement
in ecotourism include gaining legal rights to land,
preventing other extractive land uses and cultural
revival. Indigenous ecotourism will sustain and
conserve natural areas, maintain Indigenous lifestyles
and provide benefits for Indigenous communities.
The fact that tribal population in Sikkim has an
appreciable ownership of landed property in the
state facilitates their easy participation. In Sikkim
tribal and indigenous ecotourism targets are yet to
be reached. Cultural tourism has been initiated in the
state but have yet to reach its full potential. At some
remote places this can be found in the form of home
stays. However adequate infrastructure, trainings and
know how are to be given to the people for reaping
full benefits. The tribal and indigenous people in
Sikkim can play a pivotal role in boosting ecotourism
and thus in generation of economy. It has the
potential of ensuring their exposure and economic
stability. The concept like indigenous ecotourism will
ensure an equitable share to the tribal people in this
region in the economic growth. Endeavour should
be to connect them to ecotourism and prepare
them to play key role in it. Indigenous ecotourism
operates within a broader framework of economic,
political, cultural and environmental factors. Support
from conservation NGOs, government agencies
and Indigenous organisations are all crucial for
developing Indigenous ecotourism ventures in tribal
territories. Hence, Indigenous cultural perspectives
and approaches to ecotourism, conservation and
resource use need to be considered.

In Sikkim, people engaged in the tourism
industry appear to recognize, either implicitly or
explicitly, that aboriginal people are very important, if
not the most important partners in the industry. The
future of tourism in Sikkim requires the aboriginal
people to act on their long time resentment of
having their culture appropriated by outsiders and
increasingly assume control over tourism ventures.
Some indigenous people are exploring innovative
ways to harness tourism to support the traditional
elements of their property-based economy, rather
than being consumed by the industry. However the
cultural consequences of tourism development to
the resident communities are unpredictable and will
take some time to perceive.

Strategies for Benefiting the Poor

Can ecotourism help poor people escape from
poverty? Undoubtedly yes! Ecotourism projects
edify communities that they can generate revenue
by protecting biodiversity, but also that they should
never hope to achieve much beyond this role. This
ties the development prospects of rural communities
to local, natural limits in a way that is completely
alien to economic development in richer societies.

There is no intrinsic value in harmony between
local communities and local environments, yet
advocating this harmony is the defining feature
of many aid-funded ecotourism projects. Local
communities need a more realistic, pro-development
approach to ecotourism:

The important strategies of Eco-Tourism for
benefiting the poor are:

- Facilitate self employment opportunities for
  the poor in ecotourism enterprises;
- Encourage supply of goods and services to
  tourism enterprises by the poor;
- Facilitate direct sales of goods and services to
  visitors by the poor (informal economy);
- Encourage establishment and running
  of tourism enterprises by the poor - e.g.
  micro, small and medium sized enterprises,
or community based enterprises (formal economy);

- Set up systems of voluntary support by tourism enterprises and tourists to the poor.

Apart from above, Eco-Tourism can change poor people's access to assets and to related livelihood options. On the positive side, it can generate funds for investment in health, education and other assets, provide infrastructure, stimulate development of social capital, strengthen sustainable management of natural resources, and create a demand for improved assets (especially education). On the negative side, it can reduce local access to natural resources, create dependency on a volatile industry among workers, breed local inflation, disempowering residents from decision-making, exacerbating spread of disease and disrupt social networks.

In Eco-Tourism a number of factors influence economic participation by the poor. Benefits to the poor depend on whether and how they can participate economically in the industry. A wide range of factors ranging from the local (assets, gender, livelihood strategies) to the policy environment (tenure, regulations) and commercial context (market segments) influence their participation. Pro-poor interventions can and should be taken at three different levels:

- Destination level – this is where pro-active practical partnerships can be developed between operators, residents, NGOs, and local authorities, to maximise benefits.
- National policy level – policy reform may be needed on a range of tourism issues (planning, licensing, training) and non-tourism issues (land tenure, business incentives, infrastructure, land-use planning).
- International level – to encourage responsible consumer and business behaviour, and to enhance commercial codes of conduct.

Pros and Cons

Sikkim is the hilly state where agricultural land is only 15.36 per cent of the total geographical area. The rugged mountainous terrain, fragmentation of land erosion of the hilly tracts, geographical seclusion of Sikkim from mainland India, bottlenecks transportation, dependence on traditional methods of cultivation, etc, have contributed to the low productivity of agriculture crops and difficulties in undertaking large scale farming. In this connection Eco-Tourism is the one possible solution to make main livelihood of the People of Sikkim.

Ecotourism in Himalayas has its advantages as well as disadvantages. If done rightly eco tourism has several advantages. It can provide vitally needed income to poor communities, giving them an economic stake in protecting the environment. It can also raise global awareness of the value of protecting nature. Eco Tourism may foster Cultural exchanges between people- leading to greater understanding. It leads to economic growth of that area, which is manifested in terms of increase in income and employment opportunities, infrastructural growth, improvement in the standard of living, etc. Tourism income may help to conserve natural landscapes, wildlife and cultural heritage.

On the other hand, if ecotourism is not properly monitored it can be as damaging as the mass tourism with a host of negative impacts on ecology, environment, and social and economic life of the host communities. The studies on tourism reveal its negative impacts in terms of loss of biodiversity, deforestation, congested settlements, landscape alterations, slums, pollution of air, water and soil, siltation of water bodies, loss of wetlands, loss of land titles, social alienation, change in lifestyle and traditions, etc. The much talked about economic gains are captured by a handful of people, while the social costs are borne by the entire host community. Leakages further reduce the economic gains for the host community. Also, the growth of tourism beyond a stage often sparks conflicts between the hosts and the tourists. Increase in tourist influx and subsequent development of tourist-related infrastructure also put pressure on the carrying capacity of the destination areas. As a result, the tourist interest in the area start waning, ultimately leading to a change in tourist quality, and decreasing number of tourists to the area, which gradually loses its appeal and tourism.

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A large number of lesser known and underexploited vegetables with considerable nutritional value were cultivated in the homesteads of Kerala in early days. The rural people used to depend on these indigenous crops as source of food and to some extent, as a source of income. But presently, may be due to the changed food habits or attitudes, they are largely neglected and unutilized. This may threaten their existence and genetic diversity. Moreover, in a world experiencing severe food insecurity, crops with greater yield potential deserve supreme consideration for preservation and possible exploitation as a source of human nutrition. Hence, it is most urgent to gather information on them so as to incorporate them into farming practices.

Sword bean (Canavalia gladiata (Jacq.) D.C.) and Jack bean (Canavalia ensiformis (L) DC) are two underutilized food plants belonging to the family Fabaceae. Often the term sword bean is used as a general name to describe the members of the genus Canavalia, owing to the characteristic sword-shape of the fruits. They have traditionally been eaten by the tribals and hence, often called tribal pulses. The plant is less popular among the public and is not in large-scale commercial cultivation in Kerala. They are often grown in home gardens primarily as a source of fruits and seeds that can be used as vegetables.

There is much resemblance between the two species C. gladiata and C. ensiformis. They are fast-growing, shrubby, twining annuals, growing up to 1 m and producing profuse runners which often extend up to 10 m. They are deep rooted and drought resistant. Both are heavy yielders with no incidence of pests or diseases. Both have trifoliate leaves with ovate leaflets. Flowers occur in 10-12 flowered, curved, axillary racemes 10-20 cm long. Pods are flat, 15-30 cm long and 2-4 cm broad, shaped like a sword which invited the name sword bean. These are edible in the young, tender, immature stage. Each fruit contains 6-10, large, elliptical seeds, 2-3 cm long and almost half of it broad.

The two species differ primarily in the habit, colour of flowers and seeds, length of seed scar etc. Though there are varietal and environmental variations in the growth habit of the plants, jack bean is usually bushy in comparison to the profusely vining nature of sword bean. Flowers of jack bean are typically pink. C. gladiata occur in two varieties namely variety ‘gladiata’ with pinkish flowers and variety ‘alba’ with white flowers. Jack beans have white seeds while the sword beans have larger red seeds. The hilum (seed scar) is black with a brownish
area around. The seed scar of *C. gladiata* is longer, more than one-half the length of the seed, whereas that of *C. ensiformis* is only about one-third as long as the seed.

**Common names**

The plants are known by various local names viz., Horse bean, pig bean, wonder bean, giant stock bean, Chickasaw lima bean, Brazilian broad bean, coffee bean, ensiform bean, mole bean, overlook bean, Pearson bean (Eng.); Bara sem, Makham sem (Hin.); Kattu-t-tampattan, Thambattai, Valavarai (Tam.); Kaadu avarle balli, tamate balli (Kan.); Abai (Marathi); Karu tamma, putta tamba, tsamma kaya, tumbettan-kaya (Tel.); Valari, Kattuvalari, Valamara (Mal.).

**Chemical composition**

Sword bean and Jack bean are good sources of proteins (23-34%), carbohydrates (33-55%), fat (2.8-3.1%) and dietary fibre (17.5-23.6%). Seed proteins contain almost all essential amino acids except the sulphur containing amino acids methionine and cystine. The seed lipids contain unsaturated fatty acids (71-78%) with oleic acid as the major one (38.6-47.4%). Elemental analysis indicates presence of plenty of potassium, calcium, zinc, phosphorus, magnesium, copper and nickel but low levels of sodium in the seeds. *Canavalia* seeds appear to be a good source of potassium, phosphorus and calcium. Among the two species, *C. ensiformis* contains more crude proteins, crude lipids and minerals than does *C. gladiata*. It also shows higher percentage of digestible starch and level of in vitro protein digestibility.

**Antinutritional and toxic factors**

The seeds are known to contain several toxic substances that restrict their wide utilization as food for humans and animals. Antinutritional and toxic factors like free phenols, tannins, lectins, trypsin inhibitors, haemagglutinins, saponins, cyanogen glucosides, oligosaccharides etc. have been reported in the fruits and seeds. Uncooked or partially cooked beans may cause vomiting, diarrhea and serious damage to the intestinal mucosa in humans. So, the sliced beans should be boiled well and the boiling water should be drained off to remove the toxic principles coming from the beans. If it is fed in amounts in excess of 4% of the animal’s body weight, animals develop signs of toxicity like diarrhea, stiffness and inability to eat or drink.

The Jack bean is identified as a good source of the enzyme urease and the lectin Concanavalin A. The insect- pest resistance of the plant is assumed to be due to the presence of toxic materials like trypsin inhibitors, canatoxin, canavalin, canavanine etc.

**Cultivation**

Plants are raised from seeds. Seeds can be sown one per pit at a spacing of 4x3m (*C. gladiata*) or at 60x60cm (*C. ensiformis*). Though the plant can be grown at any time of the year, May-June and September-October are considered more suitable. Farmyard manure can be applied at the rate of 5 t/ha during planting. The N:P:K recommendation is 7:10:5 applicable as basal dose. Average yield is 10-15kg/plant.

**Uses**

- Immature and tender pods and seeds are useful as vegetables. Pods may be sliced, boiled in excess water, drained and used to prepare dishes similar to that with other legumes. Because seeds contain much protein, beans are useful as a meat substitute and as a good supplement to cereal-based diets. However, since they are mildly toxic, copious consumption should be avoided.
- The whole plant is useful as a fodder. The forage is palatable only when dried. Due to toxicity, caution is required in feeding. It should not be used in fodder mixtures containing urea, since the enzyme urease present in it liberates harmful ammonia from urea.
- It is a good green manure.
- It can be grown as a cover crop.
- In Japan, the young pod is processed into several kinds of pickles.
- Studies indicate the possibility of preparation of industrial products like protein concentrates and isolates, starch, flakes, grits and flours from the bean.

The sword bean/Jack beans have agronomic features suitable for cultivation in the tropics and they can provide a high average yield comparable to that of other legumes with minimum input. But, still it is neglected and underexploited. The potentials of these crops warrant their conservation, commercialization and utilization as a source of potential proteins for humans and/ or livestock.

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The Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) aims at correcting the imbalances in the availability of affordable healthcare facilities in the different parts of the country in general, and augmenting facilities for quality medical education in the under-served States in particular. The scheme was approved in March 2006.

The first phase in the PMSSY has two components - setting up of six institutions in the line of AIIMS; and upgradation of 13 existing Government medical college institutions.

It has been decided to set up 6 AIIMS-like institutions, one each in the States of Bihar (Patna), Chattisgarh (Raipur), Madhya Pradesh (Bhopal), Orissa (Bhubaneswar), Rajasthan (Jaipur) and Uttar Pradesh. Each new institute will have a 960 bedded hospital (500 beds for the medical college hospital; 300 beds for Speciality/Super Specialty; 100 beds for ICU/Accident trauma; 30 beds for Physical Medicine & Rehabilitation and 30 beds for Ayush) intended to provide healthcare facilities in 42 Speciality/Super Specialty disciplines. Medical college will have 100 UG intake besides facilities for imparting PG/doctoral courses in various disciplines, largely based on Medical Council of India (MCI) norms and also nursing college conforming to Nursing Council norms.

In addition to this, 13 existing medical institutions spread over 10 States will also be upgraded, with an outlay of Rs. 120 crores (Rs. 100 crores from Central Government and Rs. 20 crores from State Government) for each institution. These institutions are Government Medical College, Jammu; Jammu & Kashmir, Lucknow; Chattisgarh Medical College, Raipur; Government Medical College, Ranchi; Andhra Pradesh Medical College, Visakhapatnam; Government Medical College, Amritsar; Punjab; Government Medical College, Tanda; Himachal Pradesh; Government Medical College, Madurai, Tamil Nadu; Government Medical College, Nagpur, Maharashtra; Jawaharlal Nehru Medical College, Aligarh; Government Medical College, Bhopal; Government Medical College, Hyderabad; Sri Venkateshwara Institute of Medical Sciences, Tirupati, Andhra Pradesh; Government Medical College, Salem, Tamil Nadu, B.J. Medical College, Ahmedabad, Gujarat; Bangalore Medical College and Research Institute, Bangalore; Tamil Nadu Medical College, Madras; Rajendra Institute of Medical Sciences, Rohtak; Government Medical College of Aligarh Muslim University, Aligarh and Pt. B.D. Sharma Postgraduate Institute of Medical Sciences, Lucknow.

In the second phase of PMSSY, the Government has approved the setting up of two more AIIMS-like institutions, one each in the States of West Bengal and Uttar Pradesh and upgradation of six medical college institutions namely Government Medical College, Amritsar, Punjab; Government Medical College, Tanda, Himachal Pradesh; Government Medical College, Madurai, Tamil Nadu; Government Medical College, Nagpur, Maharashtra; Jawaharlal Nehru Medical College of Aligarh Muslim University, Aligarh and Pt. B.D. Sharma Postgraduate Institute of Medical Sciences, Rohtak. The estimated cost for each AIIMS-like institution is Rs. 823 crore. For upgradation of medical college institutions, Central Government will contribute Rs. 125 crore each.

In the third phase of PMSSY, it is proposed to upgrade the following existing medical college institutions namely Government Medical College, Amritsar, Punjab; Government Medical College, Tanda, Himachal Pradesh; Government Medical College, Madurai, Tamil Nadu; Government Medical College, Nagpur, Maharashtra; Jawaharlal Nehru Medical College of Aligarh Muslim University, Aligarh and Pt. B.D. Sharma Postgraduate Institute of Medical Sciences, Rohtak. The project cost for upgrading each medical college institution has been estimated at Rs. 150 crores per institution, out of which Central Government will contribute Rs. 125 crores and the remaining Rs. 25 crore will be borne by the respective State Governments.

It is hoped that consequent to the successful implementation of PMSSY, better and affordable healthcare facilities will be easily accessible to one and all in the country.

(PIB Features)