

## CHAPTER – I

### AGRICULTURE & ALLIED SERVICES

#### 1.1 CROP HUSBANDRY

##### 1.1.1 BACKGROUND

Agriculture continues to be the dominant sector of Meghalaya economy where 70% of the total population depends on it directly or indirectly. The contribution of this sector to the state's economy is around 22% of GSDP. During the 11<sup>th</sup> five year plan period, this sector grew by an estimated 3.09% and the projected growth rate during twelfth five year plan is pegged at 4.7%.

The total cropped area in Meghalaya is 2,65,874 Hectares which is 11.85% of the total geographical area (22.42 lakhs Ha); while the net cropped area is 2,19,224 Hectares, which is 10% of the geographical area. The area under agriculture crops is 1,54,523 hectares and 86,889 hectares are under horticulture crops. The cropping intensity stands at 121%.

Foodgrains constitute the principal food item and Rice is the most dominant crop occupying almost 60% of the State's cultivated area, followed by maize. The area under foodgrains has increased by 18% since 1970-71 and production by nearly 96%. However, the State is still deficit in foodgrain production.

Although 50% of the areas under paddy in the state now grow High Yielding Varieties (HYV), yet there is shortage of HYV Paddy Varieties for mid altitude regions as well as limitation of promising HYV varieties for the upland (High altitude) regions. The production of foodgrains during the year 2006-07 was 269.93 thousand tonnes. By the end of the 11<sup>th</sup> plan period, the production is expected to touch 319 thousand tonnes.

Enhancement of food grain production in the hill State of Meghalaya is constrained by the topography where only about 12 percent of its geographical area suitable for cultivation of crops for food grain production. However, improvement of production to the extent possible by way of more coverage and improvement of irrigation facilities, use of HYV seeds, application of fertilizers and pest control are being taken up.

**1.1.2 The 11<sup>th</sup> Plan Projected Outlay under Crop Husbandry including SF/MF is Rs. 10000.00 lakh. The actual expenditure during the first four years of the 11<sup>th</sup> Plan (2007-2008 – 2010-2011) was Rs. 9431.66 lakh. The approved Outlay for the year 2011-12 is Rs. 2600.00 lakh, which is expected to be fully utilized thus bringing the total anticipated expenditure during the 11<sup>th</sup> Plan to Rs 12031.66 lakh.**

##### 1.1.3 ACHIEVEMENT DURING THE ELEVENTH PLAN

The progress in the agricultural sector during the 11<sup>th</sup> \plan period has substantially improved with gradual changes from the conventional method of cultivation towards improved and settled cultivation. During 2011-12, the targeted production of foodgrains is pegged at 3.79 lakh metric tonnes and the likely achievement is 3.19 lakh metric tonnes. Increased coverage of areas under Boro paddy including extending coverage of High Yielding Varieties (HYV) in areas with assured irrigation including water harvesting intervention measures like mini check dams, surface water pumping, diesel pumpsets etc., have improved production of winter rice specially in plain belts of Garo Hills and rice

growing areas of Khasi and Jaintia hills and Ri-Bhoi districts. This achievement is attributed to the improved methods of cultivation such as SRI (System of Rice Cultivation), increase in acreage of Boro paddy, water management, land use, mechanization, and better package of practices where the average productivity has increased from 4 MT per hectare to 6 MT per hectare. Capacity building of officers and enriching farmer's knowledge base through Farmers' Training Institutes, Farmers' Field Schools, Krishi Vigyan Kendras, ATMA (Agriculture Technology Management Agency) established during the Plan period has also immensely contributed towards this goal.

The department distributed 900+ power tillers through RKVY schemes and 65 power tillers through State Plan scheme during this period. Other implements like Paddy Reapers, Storage bins, power pumpsets were distributed to beneficiaries. 2 (two) mobile soil-testing vans have been procured and operationalised in East Khasi Hills and West Garo Hills district for rapid soil testing of soil samples at farmer's field.

There has also been a tremendous increase in the total cropped area coverage during the 11<sup>th</sup> Plan period amounting to approx 49789 hectares which has resulted in the major increase on agricultural crops production.

The other schemes like maize development through cluster approach has achieved some measure of success with linkages provided with the feed mills. HYV and Hybrid maize were distributed to farmers for raising their farm income while at the same time, catering to the growing animal feed market in the State.

Over 200 Acres of land has been acquired at Kyrdemkulai in Ri-Bhoi district for setting up of the College of Agriculture under the Central Agricultural University, Imphal. The land is being handed over to Department of Research and Education (DARE), Government of India and the contour survey work is also likely to be completed soon besides setting up of a Modern Integrated Training Complex at Upper Shillong at the cost of R.5 crores. A new Bio-Control laboratory has also been set up at Tura and to produce bio agents like *trichogramma spp.* for eco friendly control of pest and diseases of crops as also State Pesticide Testing Laboratory in Upper Shillong, in East Khasi Hills district. The Laboratory building has been completed at a cost of Rs. 40 lakhs. The work of procurement of advanced machinery and lab equipments is being supervised by NIPHM, Hyderabad at a cost of Rs. 68 lakh.

The department has successfully introduced a scheme viz. Training of Rural Educated Youth for Self Employment through Farm-based Activities (TREYSEFA) which imparts 5 months training to rural educated unemployed youths in farm based activities so that these rural youths may be gainfully self employed through agricultural and farm based activities like crop husbandry, animal husbandry, dairy, farm mechanisation services, fishery ponds etc. altogether about 500 rural educated youths has been trained with 25% of them running their own rural enterprises.

Seed testing services are carried out only in the Seed Testing Laboratory located at Shillong where about 2000 seed samples have been tested per year. During the 11<sup>th</sup> plan, approximately 10,000 seed samples of different crops have been tested. The existing Training and Visit (T&V) system of agriculture extension is being reformed through introduction of Agriculture Technology Management Agency (ATMA) and Krishi Vigyan Kendras (KVK's) which aims at strengthening transfer of agricultural technologies to farmers field in a more efficient and effective manner. The department is strengthening each district ATMA's with specialised manpower including the existing KVK's. Further, new

KVK's will also be set up in East Garo Hills and South Garo Hills during the 12<sup>th</sup> Plan, which will be under the control and management of the State Government.

Second phase of AGRISNET, a Ministry of Agriculture's e-governance initiative using Information Communication Technology (ICT) for providing improved services to the farming community has been implemented. An online Soil Health Card, which is a G2C service has been developed and hosted at the State Data Centre. An Agriculture Portal has also been developed by NIC and the same will be launched very shortly. A video documentary in Khasi on "Soil Testing – its importance and method" was completed and is being screened in Door Darshan Kisan Channel as well.

During the period, crop competitions were organized throughout the State and prizes have been distributed to best watersheds, best performing crops. Farmers groups have also been sent to exposure trips/farmer's study tour outside the State. Maize mela, a first of its kind show was organized in Jaintia Hills during the year. Second phase of AGRISNET, a Ministry of Agriculture's e-governance

**1.1.4 The projected outlay for the 12<sup>th</sup> Plan 2012-2017 is Rs 32950.00 lakh. The proposed outlay of Rs.2990.00 lakh for 2012-13 include i) Rs.210.00 lakh for SF/MF ii) Rs.56.00 lakh for World Indigenous Terra Madre Conference.**

#### **1.1.5 TWELFTH PLAN APPROACH AND PRIORITIES**

##### **(a) Rice Development**

The general approach for the 12<sup>th</sup> Five Year Plan 2012-2017 would be to enhance rice production. The endeavour to narrow, if not bridge, the gap between demand and supply of rice- the State staple diet- will be done through implementation of the State Rice Mission with technical assistance of scientists and rice experts of the International Rice Research Institute (IRRI), Los Banos, Manila. IRRI's assistance will especially focus on gathering baseline information, including current challenges and potential for rice in the State. A focus on production of organic rice for niche consumers in both domestic and global markets is another aspect in this venture. Farmers will need to be motivated and provided with incentives to attract them towards achieving the objectives of the Mission through their active participation.

An important component of the Mission would be capacity building of the departmental officers on germ-plasm development, crop breeding, water management and post-harvest technology through short-term courses, hands-on internship in specific disciplines and in-country training with scientists from IRRI as instructors. This will help in renovating and upgrading existing laboratories and infrastructure for research.

##### **(b) Maize-Soyabean intercropping**

The Department has continued to popularize Maize cultivation in the State through introduction of high yielding varieties and hybrids. The practice of intercropping of Maize with soyabean has been implemented in farmers' fields with good results, especially in Khasi Hills, Jaintia Hills and Ri-Bhoi districts. This practice has aided in better utilization

of land, improved soil structure development and higher crop productivity. This intercropping technique will be expanded to other districts during the 12<sup>th</sup> Plan period.

**(c) Winter cultivation**

Presently, most, if not all rice farmers, cultivate the ‘Sali’ paddy during the ‘kharif’ season. After harvest, most of the rice fields are left fallow till the next ‘kharif’ season. The under-utilisation of land during the winter season has resulted in shortage of rice for the ever-increasing population. The Government has been promoting winter planting of rice, in the plains bordering Bangladesh, through assured irrigation in the form of small water harvesting structures, shallow tube wells and surface water pumping systems. Winter rice (‘Boro’ paddy) gives an average yield of 4 MT per hectare compared to the average yield of 2 MT per hectare of ‘Sali’ paddy. Further, winter planting is free from flash floods and well-suited for SRI (System of Rice Intensification) technique with yields of 6-7 MT/ha. During the 12<sup>th</sup> Plan, expansion of ‘Boro’ paddy cultivation will be made in areas suitable for this variety, but where, hitherto, this practice was not in vogue.

Since most farmers are still not acquainted with winter planting, these interventions will be done through demonstration by the Departmental officers in the farmers’ fields, on a hands-on mode, to motivate them to take up these profitable venture.

**(d) Integrated farming in micro watersheds**

The National Watershed Development Programme in Rainfed Areas(NWDPA), a Centrally Sponsored Scheme, which seeks to promote holistic, sustainable and participatory agriculture in hilly areas. Has been fairly successful in natural resource management and conservation of bio-diversity. These micro watersheds have laid the basic foundation for sustainable agriculture development and need to be further strengthened, especially as all these micro watersheds have Watershed Committees, as duly registered societies.

The Watershed Committee will be given adequate professional and technical guidance by experts drawn from different sectors. The development plans for the integrated farming would emanate from the actual needs of these Committees and based on ground realities. The plans would, therefore, be demand-driven and wholly owned by the farmers.

**(e) Research**

The Department’s Research wing is presently engaged in adaptive trials of crop varieties and not adequately equipped for crop research and development activities. Since research goes hand in hand with developmental planning, it is imperative to upgrade and modernize the research wing to enhance capacity for undertaking research in varietal selection, lines selection, etc.

Emphasis will be given to other potential crops, particularly Jute. Revival of jute cultivation will be done by accessing assistance under the Jute Technology Mission of the Govt. of India and investment from the State Plan in processing for high end jute products like fabrics and gifts items.

**(f) Seed sector**



1	Direction and Admn	750.00	566.88	170.00	170.00	2500.00	300.00
2	Seeds	2000.00	293.65	82.00	82.00	1000.00	190.00
3	Manure & Fertilizers	1500.00	186.43	47.00	47.00	570.00	100.00
4	Plant Protection	400.00	107.20	20.00	20.00	300.00	60.00
5	Commercial Crops	1000.00	3076.52	1300.00	1300.00	18120.00	1100.00
6	Extension And Training	1000.00	459.77	156.00	156.00	1500.00	175.00
7	Agril Eco &Stats	75.00	120.30	31.00	31.00	250.00	40.00
8	Corpus fund on crop insurance (RKVY)			0	0	750.00	0
9	Agril Engineering(Mech)	1200.00	646.53	199.00	199.00	2510.00	225.00
10	Assistance to farming Cooperatives	100.00	79.00	35.00	35.00	0.00	100.00
11	Assistance to SF & MF	560.00	771.40	210.00	210.00	0.00	0.00
12	800-Other Expenditure including dev for Border Areas	600.00	1430.88	185.00	185.00	2500.00	225.00
13	2216-Housing Resi Bldg	300.00	165.95	53.00	53.00	750.00	80.00
14	4216- Capital Outlay	400.00	200.21	40.00	40.00	1100.00	195.00
15	4401- CO on Crop Husbandry-Admn. bldg	115.00	326.94	72.00	72.00	1100.00	200.00
16	One Time Assistance under ACA/SPA for integrated Infrastructure for Agriculture & Allied Sectors		1000.00	0	0		
	<b>TOTAL</b>	<b>10000.00</b>	<b>9431.66</b>	<b>2600.00</b>	<b>2600.00</b>	<b>32950.00</b>	<b>2990.00</b>

### 1.1.7 AGRICULTURAL RESEARCH AND EDUCATION

The 11<sup>th</sup> Plan projected Outlay is **Rs.500.00 lakh**. The actual expenditure during 2007-2008 – 2010-2011 was Rs 250.04 lakh. The approved Outlay for 2011-12 is Rs. 100.00 lakhs, which is expected to be fully utilized. **The proposed outlay for this scheme during the 12<sup>th</sup> Plan 2012 – 2017 is Rs 1500.00 lakh. The tentative budget provision for the Annual Plan 2012-2013 is Rs.115.00 lakh.**

The Department's Research Wing is engaged in adaptive trials of crop varieties and is not equipped for crop research and development (R&D) activities. Since research goes hand in hand with developmental planning, it is imperative to upgrade and modernize the research wing of the department to equip it with capacity for undertaking research in varietal selection etc. It is also proposed to set up crop specific research station in each district in order to strengthen the existing crop research system and creating expertise and knowledge base at specific agro-ecological zones.

### 1.1.8 AGRICULTURAL FINANCIAL INSTITUTIONS

Agricultural Financial Institution of the Department is to relook for the benefits of farmers to make easy accessible for the farmers to avail agricultural loan.

The 11<sup>th</sup> Plan projected Outlay is **Rs.100.00**. The actual expenditure during 2007-2008 – 2010-2011 was Rs.48.00 lakh. The approved Outlay for 2011-12 is **Rs. 25.00 lakhs**, which is expected to be fully utilized. **The Proposed outlay for the Twelfth Plan**

period is Rs 200.00 lakh. The tentative budget allocation for the Annual Plan 2012-13 is Rs. 30.00 lakhs.

### **1.1.9 RASHTRIYA KRISHI VIKAS YOJANA (RKVY) :**

The National Development Council resolved to introduce an additional central assistance scheme called RKVY that incentivizes States to increase public investment in agricultural and allied sectors. The key end goal is to achieve at least 4.1 percent growth in Agriculture by the end of the 11<sup>th</sup> Five Year Plan. The Meghalaya Small Farmers Agri Business Consortium (MgSFAC) has been notified as the nodal agency for RKVY funds.

The actual expenditure during 2007-2008–2010-2011 was Rs.7757.00 lakh. During 2011-12, an amount of Rs.1348.00 lakh has been provided for RKVY, which was later revised by the Govt. of India to **Rs.1466.00 lakh**. The amount will be utilised in full.

**1.1.10 The amount proposed for the 12<sup>th</sup> Plan period (2012 – 2017) is Rs 30000.00 lakh. An amount of Rs. 4500.00 lakh has been provided in the budget for 2012-13.**

**1.1.11 A brief note on the major achievements of Agriculture and Allied Services during the 11<sup>th</sup> Plan is highlighted below:-**

- Cropping intensity increased to 120% against 118% during 2007-08.
- Total foodgrains production during the year 2011 is 2.37 lakh metric tonnes, which consist of rice 2.07 lakh metric tonnes, 0.30 lakh metric tones of maize and 0.033 lakh metric tonnes of pulses respectively.
- Total cropped area is approximately 49789 hectares.
- This is attributed to the improved methods of cultivation such as System of Rice Cultivation (SRI), increase in acreage of Boro paddy, water management, land use, mechanization and better package practice.
- Capacity building programmes for officers and farmer through Farmers' Training Institutes, Farmers Field Schools, Krishi Vigyan Kendras, Agriculture Technology Management Agency.

## **1.2 HORTICULTURE**

### **1.2.1 BACKGROUND**

In view of its topography, only about 12% of the geographical area of Meghalaya is suitable for the purpose of food grain production. As such, Meghalaya will not be in a position to achieve self sufficiency in food grain production. However, the climatic conditions of the State are suitable for the development of different varieties of horticulture crops. Since time immemorial, horticulture has been known in the hills of Meghalaya as an important source of supplementary income and employment to the rural people.

**1.2.2** The Eleventh Plan Projected Outlay for Horticulture Development during the 11<sup>th</sup> Plan period is **Rs 20,000.00 lakh**. The actual expenditure during the 1<sup>st</sup> four years (2007-2008 – 2010-2011) was Rs. **11396.70 lakh**. The approved outlay for the year 2011-12 is Rs 3500.00 lakh, which includes i) Rs.950.00 lakh of TFC Award for infrastructure in horticulture and ii) Rs 500.00 lakh for modernization of market complexes under SCA, which is expected to be utilized in full.

In view of its topography, only about 12 % of the geographical area of Meghalaya is suitable for cultivation for the purpose of food grain production. However, the climatic condition of the State is suitable for the development of different varieties of horticultural crops. Since time immemorial, horticulture has been known in the hills of Meghalaya as an important source of supplementary income and employment to the rural people. Having realized this potential, the State Government assigned priority to horticulture during the Eleventh Plan with a view to generating income and employment, removing poverty and thereby improving the economy and well being of the people of the State. During the 11<sup>th</sup> Plan (2002 – 2007), the State Govt. laid much emphasis on post harvest management including processing and marketing of horticultural produce.

The State's latest foray into high value low volume crops namely, Strawberry and commercial floriculture like Rose, Lilium, Anthurium, Carnation, Bird of paradise is very promising. High value vegetables like Broccoli and Capsicum are also being expanded through the Technology Mission Scheme.

### **1.2.3 ACHIEVEMENT DURING THE ELEVENTH PLAN**

#### **A. Horti Hubs**

Meghalaya has had a good degree of success with the concept and implementation of "Horti-Hubs". These have been created by pooling resources from several areas. The hubs function as demonstration centres, in particular for new crops, technologies and processes. There is, in each hub a production base of horticultural and floricultural crops. This necessarily means that each hub chooses one or two crops, from amongst the following (indicative) list - rose, strawberry, coloured capsicum, gerbera, carnation, BOP, lileum, orchids, high end vegetables. Although traditional training and extension activities should be taken up, the Horti-Hubs provide training and exposure to areas of commercialisation and management. The hubs provide support for collection, aggregation, grading, packaging & marketing.

There are now 11 such hubs in the State with at least one in each district. In addition to showcasing the potential and activities (which are important functions), they serve as beacons for the farmers, and provide a range of services. With their establishment, the fact of clustering has been reinforced - this not only provides for ease of aggregation, provision of technical and other inputs, but improves monitoring. The hubs have been assigned area expansion activities, which for ease of extension, supervision, collection and marketing are carried out in a clustered manner within easy reach of the hub. The concept of horti-hub, based also on the principle of concentration of effort and resources, is being expanded, with spokes (cultivation clusters) being developed around each hub. Over a period of time, it is proposed to provide functional and administrative autonomy, and to develop them as localised centres of excellence.



The following are the Horti Hubs of the State:

1. East Khasi Hills – Upper Shillong
2. Jaintia Hills – Thadlaskein, Mynkre
3. Ri Bhoi – Dewlieh
4. West Khasi Hills – Nongstoin, Mairang
5. East Garo Hills – Samgong, Sarengma
6. West Garo Hills – Rongram, Zigzak
7. South Garo Hills – Minneng

**B. Rashtriya Krishi Vikas Yojana (RKVY)**

- I. This is a key initiative, not only for horticulture, but for most of the agriculture and allied sectors.
- II. The RKVY has brought in a participative and transparent process, and after the initial procedural problems, has become a valuable, transparent and effective set of projectized interventions and is one of the most suitable schemes for the State.
- III. Under the scheme, a program of organic certification of vegetables, turmeric, cashew and tea has been taken up.
- IV. This year tea produced from the village of Mawlyngot has been awarded the coveted Organic Certification label. The certification process is continuing for the other crops.
- V. A turmeric processing factory is being set up in Thadlaskein hub of Jaintia Hills.
- VI. Up gradation of infrastructure and strengthening of five Horti Hubs is being taken up under this program.
- VII. Deserving SHGs are being strengthened with assistance for post harvest management under this scheme.
- VIII. Development of the cultivation clusters spokes under various hubs has been taken up by the RKVY.
- IX. Strengthening of farmer markets is also happening under this scheme.
- X. The Department is taking up the National Vegetable Initiative for Peri Urban clusters, a sub scheme of the RKVY, which aims at improving the nutritional security of the urban populace.

**C. THIRTEENTH FINANCE COMMISSION**

- I. The success of horticulture in the state has driven the demand for planting material by farmers through the roof and the State is hard pressed to meet these demands.
- II. Under the 13<sup>th</sup> Finance Commission Grants, the Deptt. has gone in for the development and creation of 26 Planting Material Hubs throughout the State, ten farmers markets, two training centers, strengthening of regulated markets and expansion of area under organic tea.
- III. The Planting Material Hubs will build up the strengths of the State in the production of quality planting material of various crops through a process of specialization and stringent quality control.

**D. Ampati Integrated Market Complex:**

- I. Under the SPA a modern Integrated Market Complex is being set up in Ampati, West Garo Hills, to cater to the forward linkage needs of the farmers of the District.
- II. The establishment of the market along with a grading and packing center would create employment opportunities for the people of the area as well as facilitate the trade of agricultural and allied goods thereby garnering a better price for the producers.

#### **E. Horticulture Infrastructure Development :**

Under the Special Plan Assistance (SPA), two new hubs in Dawaggre, East Garo Hills and Sangsanggre, West Garo Hills, are being set up while the horticulture infrastructure of the existing Dewlieh Hub is being upgraded and strengthened to cater to the changing demands of the market and farmers' needs.

#### **F. Transfer of Technology:**

Furthermore as a consequence of the recent visit of an Israeli fact finding team to the State, initiatives are underway to establish technical and marketing linkages with Israeli scientific and commercial institutions for the advancement of horticulture especially with regards to high density low volume high value horticulture geared towards the export market. Negotiations are also underway to establish a Practical Innovation Training Center (PITC) in collaboration with the world famous PTC+ Netherlands.

#### **G. Up gradation of Fruit Processing Centers**

In order to cater to the processing needs of the State the Fruit Processing Centers of the Deptt. at Shillong and Dainadubi are being up-graded under the ACA with modern machinery and technologies in order and to meet the changed demands of consumers and the market.

#### **H. Farmers Markets:**

Farmers' markets have been set up under the ACA at various locations of the State to bring the market and buyers closer to the producing centers thereby facilitating better price realization for farmers of these areas.

#### **I. Mushroom Unit, Tura:**

A new Mushroom unit has been established in the District and Local Research Station, Tura, to cater to the local demand of the Garo Hills for quality spawn. The unit is expected to go online in about two months time.

#### **J. North Eastern Council:**

- a) The North Eastern Council has sanctioned a Regional Training Center (RTC) in Ri Bhoi District to cater to the needs of the North Eastern region for specialized trainings in the concepts and principles of commercial horticulture. The RTC is proposed to be run on PPP lines with major participation by the private sector in the transfer of technology and in terms of resource personnel.
- b) The North Eastern Council has also sanctioned a project on the development of Horticulture in villages in and around the Nokrek range with the objective of improving the livelihood prospects of the people of the area.

#### **K. State Horticulture Mission:**

In view of the advances being made in the horticulture sector, but which has brought to the fore the difficulties still plaguing the farming community, a need has been felt to initiate our own State Horticulture Mission to address these difficulties and carry forward the progress made over the last decade of development. The Mission will take up issues of forward linkages, R & D support, post harvest management, facilitation of processing, development of markets for the State and provide for a more focused and synergistic approach to the commercialization of horticulture while realizing the goal of making Meghalaya the “Fruit- n- Flower” State of the country.

**1.2.4 The proposed outlay for the 12<sup>th</sup> Plan period is Rs 28500.00 lakh.** Pending finalization of the **Annual Plan 2012-13, a tentative budget allocation of Rs 4660.00 lakh** has been provided which includes the following components:-

- i) Rs.950.00 lakh of TFC Award for infrastructure in horticulture
- ii) Rs.200.00 lakh for modernization of market complexes
- iii) Rs.1000.00 lakh for Horticulture Mission under IBDP
- iv) Rs.100.00 lakh for creation of Rural Market Hubs
- v) Rs.10.00 lakh for Vegetable Gardens

#### **1.2.5 TWELFTH PLAN APPROACH AND PRIORITIES**

##### **(a) Quality planting material:**

Good quality planting material is the backbone of any horticultural economy, this is one of the most important issues to be addressed, especially since there has been tremendous expansion of cultivation of horticultural crop. This has been necessitated since around 60% of planting material is presently imported into the State either from other States from the country or imported from other countries, resulting in huge expenses and increased production cost.

The production of quality planting material and associated technologies in countries like Israel, Netherlands and Spain is a highly profitable business. Hence, the State will seek the involvement of the Private sector through establishment of nurseries, which could be registered and affiliated with NHB and other recognized agencies, so that quality standards are adhered to and a system certification of the operating standards and planting materials are put in place. This will usher in income-earning opportunities for retired departmental officers and entrepreneurial avenues for fresh unemployed graduate.

The Planting Material Production Centres (PMPCs) will produce quality planting materials for new crops like strawberry, kiwi, raspberry and blackberry as well as for traditional crops like potato, coconut, cashew, citrus (orange and sweet oranges), pine apple, spices (turmeric, ginger, black pepper) and temperate fruits.

These PMPCs will be geared to cater not only to the planting material needs of their own clusters, but also to the needs of the other districts of the States as well as other North East States. In fact, due to its favourable climatic conditions and diverse agro-climatic zones, Meghalaya is already a destination for turmeric growers from Sikkim, areca nut growers from Assam and strawberry farmers from Nagaland and Arunachal Pradesh.

(b) **Horti-hubs:-**

Over and above, the Horti-hubs established during the 11<sup>th</sup> Plan period and keeping in view the immense success of the Hub and spoke concept it is proposed to set up more such Hubs in different parts of the State and to adequately maintain the existing ones such that they can continue to evolve as frontline centres of excellence fully equipped to cater to the growing needs of the sector.

These Hubs are also being proposed to be utilised as Horti tourism centres as well as opportunities for training unemployed youth as well as to serve as opportunities for “Nature Study” for school children.

(c) **Area expansion**

Expansion of cultivation of Horticultural crops are being envisaged to be implemented as follows:-

*Model Orchards:* There are a number of fruit crops which are indigenous to the State (like Prunes, Pears, Bananas, Flemingia etc) with tremendous commercial potential but have not been capitalized on in the past. Model Orchards will be established in such crops in order to motivate farmers to take up cultivation of these crops as “Community Farming” to ensure their continuity. These are proposed to be implemented in the Integrated Farming system under the Micro Watersheds established in the State.

*Theme village:* The remarkable success of the Strawberry Village of Sohliya in Re Bhoi has prompted the Govt. to take up this concept in different crops all over the State. At least 1000 farmers in each such area will be motivated to take up intensive cultivation of such selected crops e.g. Orchid valley in Zizag, Kiwi village in the uplands, Strawberry village in the other districts, Citrus Hills in the Nokrek Range, Pineapple Villages, etc.

Rejuvenation of Citrus & Cashew - The senile plantations of Citrus & Cashew will be brought under scientific and systematic rejuvenation to restore the profitability of these crops.

(d) **Post Harvest Management (PHM):**

Traditional crops like ginger, turmeric, pineapple, citrus, potato and vegetables are the mainstay of a majority of the farmer of the State. However, post harvest losses and inadequate value-addition have resulted in farmers not being able to realize the

full value of these crops and consequently suffering at the hands of unscrupulous market forces. The need for addressing the PHM, processing and packaging needs of these crops is a priority area with substantial investments proposed to be made during the 12<sup>th</sup> Plan.

Efforts will be made to attract private investment in the PHM sector by scaling up volume of produce, especially targeting niche markets outside country.

An important component of PHM that had been neglected so far is the evacuation of produce in the form of connectivity – ropeways in the steep slopes and agricultural roads in the producing areas. This sector would receive adequate attention and investment during the 12<sup>th</sup> Plan.

(e) **Marketing infrastructure**

Farmers markets, implemented during the 11<sup>th</sup> Plan, will be expanded to cover more areas within the State during the 12<sup>th</sup> Plan, where farmers market will be tried on the hub and spoke model – large central markets and satellite markets in their hinterland.

These farmers need to be well equipped to handle the changing needs of buyers and incoming products. In this regard, facilities like cold storages, go-downs, primary packaging equipment, farmers information centres, dormitories, lockers, banking facilities, support services, as well as civic and recreational amenities need to be available in every market. Around 15-20 crores would be necessary to invest in such modern farmers markets.

The effective functioning of farmers markets depends to a large extent on the flow and easy availability of market related information to enable farmers to take proper and profitable market decisions based on reliable real time data. Market information system is thus a crucial and urgent intervention that would be made during the 12<sup>th</sup> Plan in order to made Farmers Markets viable and vibrant entities leading to the evolution of a much more transparent marketing system.

(f) **Trial of new crops**

With the entry of retail chains in the country, and even into the north-east, new crops would be tried to cater to the demands of these fast food restaurants, departmental stores and supermarkets. The State, with its predominantly traditional organic cultivation and off-season advantage can reap good dividends for its farmers by targetting these niche markets. Some of such crops that would be experimented during the 12<sup>th</sup> Plan are Stevia, mushroom (in pine forests), black mushrooms, saffron (Spanish variety), asparagus, open floriculture (curcuma varieties as undergrowth in arecanut plantations) and the like.

## **1.2.6 COMMON ISSUES (AGRICULTURE AND HORTICULTURE)**

### **1. Capacity Building**

TREYSEFA - The Department has successfully introduced the TREYSEFA (Training of Rural Educated Youth for Self-Employment in Farm-based Activities) scheme during the 11<sup>th</sup> Plan for imparting a 5-month training of rural educated unemployed youths, so that they can be gainfully self employed in agricultural and farm based activities – crop husbandry, animal husbandry, dairy, farm mechanization and fisheries. The trainees are

provided handholding and technical assistance by a departmental official during their project training and the scheme facilitates linkages with banking institutions for sanctioning of soft loans to the trainees in any farm activity of their choice. More coverage of young potential entrepreneurs will be made during the 12<sup>th</sup> Plan.

Departmental personnel – The success of the Department is largely dependent on the technical knowledge and skills of its officers and their ability to pass these on to farmers, as well as to respond to their needs and problems. There is an urgent need, therefore, to set up facilities that will provide customized practical hands-on training programs, bridging the gap between theory and practice through innovative practical programmes.

Farmers training - Farmers training and capacity building component is proposed to be compulsorily embedded in every scheme in order to equip farmers with the necessary skills, motivational levels and expertise to successfully adopt new farming techniques and knowledge. The Horti-hubs, besides their function as beacons of development, are also ideal places for training cluster farmers and entrepreneurs on various aspects of plant propagation, nursery establishment, management, commercialization, quality control and marketing so that, in the long haul, these farmers could themselves take up the establishment and management of their own mini hubs. There is, therefore, need to build up the training facilities in the hubs like dormitories, training halls, training aids and to provide facilities for exposure trips of farmers.

## **2. Mechanisation**

During the 12<sup>th</sup> Plan, it is proposed to shift from a fixed amount to 75% subsidy for power tillers. This step is necessary to increase the existing farm power and to overcome the shortage of farm labour especially during critical phases of crop operations. Further, it is planned to phase out Departmental machineries and replace them with new ones to improve working efficiency and to reduce the operational and maintenance costs. Private players will also be motivated to set up manufacturing and assembling units of agricultural machineries within the State to ease the present difficulty of indenting machines from outside the State.

## **3. Extension**

The Department aims to strengthen existing KVKs and District ATMA's with specialized manpower. Further, new KVKs will be set up in East Garo Hills and South Garo Hills during the 12<sup>th</sup> Plan under the control of the State Government.

Agricultural information dissemination and management has become a key enabler for driving economic growth. The information deficit and gaps which still exist in the agriculture delivery system will be bridged by strengthening and revamping the Information Wing with better infrastructural facilities and ICT tools. There is also need for hiring of professional content writers, data digitization for publication information on the web, creation of e-learning portal for wider dissemination of knowledge and development of agricultural knowledge base.

Crop festivals are an important part of public relations, garnering much goodwill from the people. Such farmer-oriented events organized in the past have not only served as showcases of the State's achievements in these crops, but are important elements in the successful commercialization of these products. More importantly, such festivals infuse a

sense of pride and identity among the farmers, triggering higher levels of farmers' participation in the development process. More such festivals need to be encouraged and popularized during the 12<sup>th</sup> Plan.

Expos, fairs and exhibitions within and outside the State, and even outside the country, are beneficial in showcasing the State's strengths and, in return, afford opportunities for the State to gain access to new technologies, technological partners and markets.

#### **4. Plant Protection (IPM)**

Judicious use of plant protection chemicals and its ready availability is vital to minimize crop losses due to disease infestation and pest outbreak. Since the usage of plant protection chemicals is low in the State, it is recommended to lay more stress on Integrated Pest Management (IPM) techniques which aims at reduction of indiscriminate application of plant protection chemicals and promotion of eco-friendly bio-pesticides and organic applications. Use of bio-control agents, natural enemies and other biological control methods will be popularized to reduce adverse environmental impact and pesticide residual in crops.

#### **5. Integrated Nutrient Management**

There exist large variations of fertilizer consumption and fertilizer usage in the State leading to uneven and low crop productivity. The N:P:K consumption ratios are also skewed showing deviation from the balanced consumption ratio of 4:2:1. Balanced use of P:P:K fertilizers is necessary to ensure optimum utilizations by plants and thereby reducing wastage and loss due to leaching and volatilisation.

Integrated Nutrient Management (INM) which is a combined use of mineral fertilizers, organic manures and bio-fertilizers will be given more focus during the 12<sup>th</sup> Plan as the State is also gradually transitioning towards organic agriculture for specified crops and locations.

#### **6. Organic farming including certification**

Traditionally, cultivation in the State is organic, with very little utilisation of chemical fertilizers and pesticides. While this is used to be considered a disadvantage in terms of lower productivity, organic products are increasing in popularity among health-conscious consumers. The Department proposes to take advantage of this traditional system of organic farming by introducing organic certification for select crops. These crops will be suitably identified, area under each will be assessed and certification will be implemented.

**1.2.7** The broad break up of the proposed outlay for the 12<sup>th</sup> Plan and the tentative budget provision for 2012-13 is shown in the table below: -

Sl · No	Name of Schemes	Eleventh Plan 2007-12 Projected Outlay at 2006-07 prices	Actual Expendit ure during the 1 <sup>st</sup> 4 years of the 11 <sup>th</sup> Plan	(Rs. in lakhs)		12 <sup>th</sup> Plan (2012- 2017) Project ed outlay	Tentative Budget Provision 2012-13
				Annual Plan 2011-12			
				Agreed Outlay	Anti. Expdr.		

1	2	3	4	5	6		7
1	Direction and Admn	620.00	312.18	100.00	100.00	1250.00	200.00
2	Manure & Fertilizers	5951.00	123.04	28.95	28.95	750.00	150.00
3	Plant Protection	330.00	153.89	43.50	43.50	750.00	150.00
4	Commercial Crops	2210.00	1297.51	295.00	295.00	7000.00	890.00
5	Extension And Training	410.00	137.75	21.00	21.00	650.00	80.00
6	Agril Eco &Stats	0	4.23	8.00	8.00	300.00	40.00
7	Horti & Vegetable Crops	10479.00	3211.59	1476.40	1476.40	12000.00	2500.00
8	Other Expenditure	0	295.00	0.00	0.00	2800.00	275.00
9	C.O. on Crop Husbandry	0	52.51	77.15	77.15	3000.00	375.00
10	One Time Assistance under ACA/SPA for Integrated Infrastructure for Agriculture & Allied Sectors	0.00	5809.00	0	0	0	0
11	TFC Award for Infrastructure in horticulture		0	950.00	950.00	0	0
12	Modernisation of market complexes under SCA		0	500.00	500.00	0	0
	<b>Total Horticulture</b>	<b>20000.00</b>	<b>11396.70</b>	<b>3500.00</b>	<b>3500.00</b>	<b>28500.00</b>	<b>4660.00</b>

### 1.2.8 AGRICULTURAL MARKETING

Agriculture Marketing plays a vital role in the development of rural economy. A properly marketing ensures remunerative return to the farmers for their produce and in turn helps in augmentation of production. Meghalaya has immense scope for development of Horticulture through diversification and intensification of production plans.

**1.2.9** The proposed outlay for the **12<sup>th</sup> Plan (2012-2017)** is **Rs.6000.00 lakh**. An outlay of **Rs 800.00 lakh** has been proposed for the **Annual Plan 2012-2013** as per table below:-

Sl. No	Name of Schemes	Eleventh Plan 2007-12 Projected Outlay at 2006-07 prices	Actual Expenditure during the 1 <sup>st</sup> 4 years of the 11 <sup>th</sup> Plan	Annual Plan 2011-12		12 <sup>th</sup> 2012-2017 Plan Projected outlay	Tentative Budget Provision 2012-13
				Agreed Outlay	Anti. Expdr.		
1	2	3	4	5	6	7	8
1	Agriculture Marketing	1250.00	510.75	1250.00	1250.00	6000.00	800.00
	<b>Total</b>	<b>1250.00</b>	<b>510.75</b>	<b>1250.00</b>	<b>1250.00</b>	<b>6000.00</b>	<b>800.00</b>

### 1.3. SOIL AND WATER CONSERVATION

**1.3.1.** Meghalaya, a hilly state with its diverse agro-climatic ecological conditions characterized by high rainfall and endowed with potentially rich natural resources, is at present under intense pressure and threat due to the depletion of the three basic resources of life supporting system, that is, land, water and vegetation induced by natural and human and livestock, over exploitation of natural resources, ill/inadequate land management practices, etc., which are further exerting pressure on the natural environment. This has led to further



deterioration of the ecosystem leading to an increase in the incidence of flash floods, sedimentation of streambeds and water reservoirs, land degradation, emergence of wastelands and eventually the aggravation of poverty and socio-economic fragility. In view of emerging policies, there was a felt need to bring about convergence, networking and harmonization through the adoption of compatible soil and water conservation practices to improve the productivity of natural resources in a sustained manner.

Soil & Water Conservation Department is entrusted with the task of formulation and implementation of schemes/ projects not only to conserve soil, water and vegetation but also to promote environmental awareness so as to ensure sustainable development. The Department is Soil & Water Conservation schemes like terracing and reclamation. Erosion control , afforestation, cash and horticulture crops development as well as water harvesting works so as to reduce soil erosion hazards and land degradation etc.

**1.3.2 The Eleventh Plan Approved Outlay for Soil & Water Conservation sector is `18922.00 lakh. The actual expenditure incurred from 2007-08 to 2010-11 was `16535.72 lakh. During 2011-12, an amount of ` 11122.00 lakhs expected to be utilized against the approved outlay of `11100.00 lakh. The anticipated expenditure for the Eleventh plan comes to ` 27657.72 lakh.**

### **1.3.3 Achievement during the Eleventh Five Year Plan**

During the Eleventh Plan Period, under Soil & Water Conservation Schemes in General Areas, 1225 hectare of land was brought under Erosion Control Works with 663 nos. of structures being constructed; 423.22 hectare was covered under Afforestation; 1495 hectare was brought under Irrigation, 1799.96 hectare was brought under Cash Crop Plantations and 663 nos. of Water Harvesting Works was constructed and the expenditure incurred under this scheme is Rs.1366.81 lakhs. Under Jhum Control Scheme, 319.62 hectare was covered under Cash Crop Plantations and 23.89 hectare under Afforestation and the expenditure incurred under this scheme is `148.80 lakh. Also, under the Watershed Management Scheme, 120.05 hectare was covered under Afforestation and 297.69 hectare under Cash Crop Plantations and the expenditure incurred under this scheme is `103.96 lakh. The Department is also implementing Watershed Development Project in Shifting Cultivation Areas (WDPSCA) and the area covered during the 11<sup>th</sup> Plan is 24000 hectare and the expenditure incurred under this scheme is `3002.40 lakh. Under Soil and Water Conservation Scheme under NABARD Loan, 7 nos. Projects under RIDF-XIII, 10 nos. Project under RIDF-XIV and 9 nos. under RIDF-XV were implemented during the 11<sup>th</sup> Plan and the expenditure incurred under this scheme is `3201.42 lakh. 1606 hectare was covered under Improved Shifting Cultivation and the expenditure incurred under this scheme is `363.96 lakh. 20402 hectare was covered under Accelerated Irrigation Benefits Programme (AIBP) and the expenditure incurred under this scheme is `12693.30 lakh. 1685 hectare was covered under Integrated Watershed Management Programme (IWMP) and the expenditure incurred under this scheme is `279.75 lakh and 1823 hectare was benefitted under Cherrapunjee Ecological Project – Restoration of Degraded Land under Sohra Plateau and the expenditure incurred under this scheme is ` 3400.00 lakh.

**1.3.3 The proposed outlay for the 12<sup>th</sup> plan period (2012-2017) is ` 95500.00 lakh and the proposed outlay for 2012-13 is ` 11810.00 lakh.**

**1.3.4. Objectives of the 12<sup>th</sup> Plan:-**

- \* Enhancing and sustaining productivity of land available for primary production systems (crop cultivation, livestock raising and forest management).
- \* Maintaining beneficial relationship between land and water to reduce hazards of drought and flood.
- \* Generating additional employment opportunities and income for secured livelihood in rural areas.
- \* Supporting the community's demand for food, water and energy by improving the productivity of natural resources

**1.3.5. Schemes/Projects for the 12<sup>th</sup> Plan:-**

**i) Soil and Water Conservation in General areas:**

The activities taken up under this programme are those which are not identified within a major package programme or watershed management scheme. Such activities are taken up in an individual farmer's field or in community land based on the individual/community approach taking into consideration their felt need and are spread throughout the entire area of the State. 2311 farmers could avail the financial assistance from the Department for different construction works like dams, retaining walls, water harvesting structures, etc. and only ` 1368.28 lakh was incurred. Keeping in view the popularity of the programme, particularly for the small farmers of the State, this programme needs to be continued during the 12<sup>th</sup> Plan period.

**ii) Soil & Water Conservation Schemes under RIDF – NABARD Loan :** Schemes under Rural Infrastructural Development Fund NABARD Loan was started during the year 2000-2001 onwards. The basic objective of the scheme is to enhance the productivity and production of its agricultural crops in the small river valleys of the State thereby improving the socio-economic setup of the people in the rural areas. Besides these, the scheme also envisages to promote sustainable development through construction and management of soil and water. During the Twelfth Plan, some of the projects sanctioned during the Eleventh Plan will be implemented and more new projects will be formulated covering all the districts of the State.

**iii) Special Central Assistance on Watershed Development Project in Shifting Cultivation Areas (WDPSCA):**

The Department is also implementing the scheme on Water Development Project in Shifting Cultivation Areas through Special Central Assistance which is 100% central assistance. The scheme have been started with effect from 1995-1996 onward. During the Eleventh Plan, 63 nos. of watersheds were treated covering an area of 24185 hectare with the total project cost of ` 4304.00 lakh. It is expected that more watersheds will be sanctioned by the Government of India during the Twelfth Plan. The scheme is to protect hillslopes of jhum areas.

**iv) Cherrapunjee Ecological Project – Restoration of Degraded Land under Sohra Plateau :**

The Government of Meghalaya through the Department has initiated a programme known as Cherrapunjee Ecological Project – Restoration of Degraded Land under Sohra Plateau. This programme encompasses an area of about 11092 hectare covering a total of 45 villages.

This scheme aims at :-

- Ameliorate the ecology and environment of Sohra Plateau.
- Restore degraded lands.
- Strengthen village level institution on Natural Resource Management.
- Minimize human activities detrimental to the environment.
- Create avenues for sustainable livelihood.

During the Eleventh Plan, it is expected that `3400.00 lakh will be spent and the balance amount of `5317.00 lakh is proposed to be spent during the Twelfth Plan.

**v) Accelerated Irrigation Benefits Programme :**

This is a Central Assistance scheme sponsored by the Ministry of Water Resources, Government of India. The central share to state share ratio is 90% : 10%. The main thrust of the programme is to increase the area under irrigation thereby increasing the productivity and production of the cultivated area for improving the socio-economic condition of the farmers.

In the State of Meghalaya, Surface Minor Irrigation (MI) schemes are of both individual schemes benefiting irrigation potential of at least 20 hectares and group schemes benefiting a total ultimate irrigation of at least 50 hectares or more within a radius of 5 kilometers. The projects are earmarked to be completed within a time period of 2 (two) to 3 (three) years.

The Department has successfully implemented this scheme during the Eleventh Plan and more projects will be taken up during the Twelfth Plan.

**vi) Integrated Watershed Management Programme (IWMP) :** This is a Centrally Sponsored Scheme of the Government of India, Ministry of Rural Development, Department of Land Resources. The central share to state share ratio is 90% : 10%. During the Eleventh Plan, 61 nos. of projects were sanctioned and the total project cost is `17926.00 lakh. The total anticipated expenditure during the Eleventh Plan is `2654.50 lakh (both central share & state share). The balance amount is to be carried over to the Twelfth Plan. Moreover, more projects will be proposed during the Twelfth Plan, hence more areas will be covered under this scheme, thus `4000.00 lakh is proposed for the State Share during the Twelfth Plan and `300.00 lakh is proposed for the Annual Plan 2012-13.

**vii) Repair, Renovation & Restoration of Water Bodies :**

This is a Government of India scheme under the Ministry of Water Resources. The central share to state share ratio is 90% : 10%. During the Eleventh Plan, the Department has submitted 10 nos. of projects with the total Estimated Cost of `6500.727 lakh and it is expected that the Government of India will release the central share of this scheme during the year 2012-13. During the Twelfth Plan, the Department will formulate more projects under this scheme Repair, Renovation & Restoration of water Bodies.

**viii) Commercial Crop Development Board :**

An outlay of `500.00 Lakh and `35.00. Lakh respectively is earmarked during the 12<sup>th</sup> Plan and Annual Plan 2012-13 respectively as financial assistance (grant-in-aid) to the Meghalaya Commercial Crop Development Board (MCCDB) for running of the Board Office.

**ix) Construction & Maintenance of Departmental Non-Residential buildings**

The objective of the scheme is to provide the necessary infrastructure to the different establishment both at the directorate level and the district level. During the Eleventh Plan, there was very less fund allotment under this Head of Account. However, it may be mentioned that new Range Offices and Beat Offices were created during the Eleventh Plan and no proper infrastructure could be provided to these offices. Moreover, the Department is planning to have its own Directorate Office Building in which the proposal is already sent to the Government and it is expected that the fund for this will be released during the Twelfth Plan.

**x) Construction & Maintenance of Government Residential Buildings :**

The scheme is meant for the purpose of providing accommodation facilities to the officers and staff of the Department in order to achieve effective services from them especially in the matter of execution of different types of works in the field. During the Eleventh Plan, new Range Offices and Beat Offices were created but no quarters were constructed in these new offices as there was very less fund allocation under this Head of Account. So, therefore, it is proposed that during the Twelfth Plan, residential quarters will be constructed in order that officers and staff of the Department will be provided with proper accommodation and thereby improving their effectiveness in executing various schemes and projects.

**1.3.6.** The broad break up of the expenditure during the 11<sup>th</sup> Five Year Plan and the proposed outlay for the 12<sup>th</sup> Plan period and the Annual Plan 2012-13 is as indicated in the table below :-

( ` Lakh)

Name of scheme	11 <sup>th</sup> Plan projected outlay (2007-12)	Cummulative actual Expd. 2007-08 to 2010-11	Approved outlay 2011-12	Anti. expd. 2011-12	Proposed Outlay for the 12 <sup>th</sup> Plan	Proposed outlay for Annual Plan 2012-13
Direction & Administration	1446.00	1585.82	471.80	471.80	350.00	104.00
Soil Survey & Testing	34.00	22.67	6.69	6.69	2.00	0.00
Soil Conservation Scheme	3209.35	1282.68	85.60	85.60	12300.00	338.03
Extention & Training	270.00	275.23	84.55	84.55	25.00	11.00
Other Expenditure	13802.65	13331.24	10449.16	10328.16	81802.00	11333.75
Agricultural Research & Education	10.00	8.61	2.20	2.20	21.00	2.22
Housing -01-Govt. Resi-Bldg	150.00	29.47	-	-	1000.00	21.00
<b>Total</b>	<b>18922.00</b>	<b>16535.72</b>	<b>11100.00</b>	<b>10979.00</b>	<b>95500.00</b>	<b>11810.00</b>

**1.4 ANIMAL HUSBANDRY**

**1.4.1.** Animal Husbandry & Veterinary sector plays an important role for increasing production of animal origin food like milk, meat and eggs. Every effort has been made to bring about an all round improvement of livestock and poultry farming, development of infrastructure and also to generate self employment to the people, increasing the production of meat, milk and eggs and other products and by-products, improving the marketable quality of the products including processing for long storage and better acceptability to the consumers and arrangement for an efficient marketing of the products. The target fixed for production of meat & egg during the Eleventh Plan Period is 42,000 tonnes and 110 million Nos and the proposed target to be achieved during 2011- 12 is fixed at 40,000 tonnes and 103 million Nos.

**1.4.2.** The approved outlay for the Eleventh Plan is `10500.00 lakh. The anticipated expenditure during the 11<sup>th</sup> Plan is `9928.47 lakh. The approved outlay for 2011-2012 is `3000.00 lakh which include `1200.00lakh as NABARD Loan and the anticipated expenditure is `3345.00 lakh.

**1.4.3.** **Achievement during the 11<sup>th</sup> Plan:** The key items for assessment of achievement under this sector during the 11<sup>th</sup> Plan are as indicated in the table below:-

Items	Units	11 <sup>th</sup> Plan Target	Actual Achievement 2007 -11	Anticipated Achievement 2011 -12	11 <sup>th</sup> Plan Anticipated Achievement
<b><u>A.H. Products</u></b>					
1. Meat	000' tonnes	42.00	38.00	40.00	40.00
2. Eggs	Million Nos	110.00	102.00	103.00	103.00
<b><u>A.H. Programmes</u></b>					
1.Artificial Insemination	000' Nos annually	136.5	107.78	28.48	136.26
2.Cattle & Buffalo Farm	Nos	5	5	5	5
3.Veterinary Hospital (Cummulative)	Nos	4	4	4	4
4.Veterinary Dispensary (Cummulative)	Nos	94	90	97	97
5.Veterinary Aid Centre (Reduced due to Upgradation)	Nos	52	47	47	47
6.Students trained under VFA Training Institute	Nos.	125	100	25	125
7.Students sponsored for B.V.Sc. and A.H. Degree Course	Nos.	50	44	8	52
8.Farmers trained under VTC	Nos.	5740	4981	930	5911

**1.4.4. Programmes for the Twelfth Plan (2012-17) & Annual Plan 2012-13.**

The Department is fully utilizing its services in the activities relating to development of cattle, buffaloes, pig, sheep, goats, rabbit, poultry, feed and fodder, treatment and prevention of animal diseases, livestock census and development of dairying in the State

keeping in view the socio-economic development in the State. Consequent upon the marked improvement in such services, the approach of the Department under long term perspective would be to match its services to the modern technologies and upgrade the existing status as early as possible in phase manner with the development that takes place elsewhere in the country as well as in advanced countries.

Due to its peculiar topography, climatic situation and socio-economic conditions the people of Meghalaya depends more on Animal Husbandry activities, Horticulture, etc as traditional agriculture in hilly areas occupies only about 10% of the land in the State. Heavy rainfall in sloppy hill not only causes soil erosion but also make it acidic by removing the soluble basic part of the soil by the solvent action of the run-off water and loss of productivity. Indiscriminate mining of stones, gravels, coal, etc diminishes the area under cultivation, forestland and grass cover. Under such situation, livestock farming is the only other avocation the villagers fall upon for a subsidiary living, tenacity for effecting quick improvement is needed by the State as a whole by adopting a Comprehensive Plan for livestock and poultry production, processing and marketing of livestock and livestock products through judicious application of modern technologies on breeding, feeding, management, processing, disease control and marketing.

Adoption of scientific fodder production and conservation by using local grasses, improved seeds and root slips supplied by reputed organizations would bring in better availability situation and optimum production of fodder for livestock.

Utilization of dung and urine of livestock and poultry for setting up of Bio-gas units would solve the fuel problem in the remote areas and further denudation of forest could be halted with consequence re-generation of forestry cover which will go a long way for eco-development in these areas.

**1.4.5.** Production of milk, meat and eggs have increased considerably as compared to the growth in human population even though the per capita availability of milk, meat and eggs as shown below indicates a dismal picture and thus it needs greater effort by the Animal Husbandry sector to make a holistic approach in the Twelfth Five Year Plan.

**PER CAPITA AVAILABILITY (2009-10)**

Sl.No	PRODUCT	PRODUCTION	HUMAN POPULATION	PER CAPITA AVAILABILITY
1	Milk (in '000' tonnes)	78.21	29.04 lakh	74 gm/day
2	Meat (in '000' tonnes)	37.33		35.22 gm/day
3	Eggs(in million Nos)	99.97		34 Nos/year

The picture depicted above indicates the need for taking up the activities with all sincerity and services in future plans. The action proposed to be taken for further development and the thrust areas for overall development of livestock resources is for :-

- a) Qualitative improvement of livestock and poultry to increase the productivity and thereby increase the per-capita availability of milk, meat and egg.
- b) Creation of adequate infrastructure for animal production, health coverage, input supplies, processing of animal products and organizing efficient marketing system to match the

production so envisaged. Establishment/strengthening of Poly-clinic/hospital in each district will be taken up, including establishment of new dispensaries in rural areas as per norms and up-gradation of existing Veterinary Aid Centres/Stockman Centres/Key Village Centres to full fledged Veterinary Dispensaries.

c) Production of fodder and balanced livestock feed will receive high priority in order to make animal production activities cost effective and remunerative to the farmers. Participation of farmers for livestock farming and for this purpose organization of farmer's co-operatives, involvement of N.G.Os in various activities will be encouraged. Breeding facilities like artificial insemination of cattle will be at farmers' door step besides imparting of training to local farmers and demonstration of latest system of farming.

d) Encourage establishment of commercially viable projects by private entrepreneurs, co-operative societies and big business houses of repute on equity participation basis, if required.

e) Additional employment opportunities for unemployed rural youths, commercial rearing of improved pigs, goats and poultry (both for eggs and meat) will be encouraged by giving assistance in the form of Grant-in-aid or subsidy, providing feed in the form of subsidy and other incentives. Rural Cluster Approach will be encouraged for poultry and piggery development.

f) Implementation of Livestock Insurance Scheme to compensate farmers in the event of loss of animals due to diseases and natural calamities.

g) Establishment of medium/small Slaughter Houses in each and every District/Sub-Division for clean and hygienic meat.

h) To sponsor suitable candidates to different institutes/universities in the country for undergoing study in degree courses on B.V.Sc & AH and B.Sc (Dairy Technology) wherever allotted seat(s) is available, which would match with the envisaged demand considering the present attrition rate of technical personnel. In-service technical officers will be deputed for post-graduate studies or specialization in different disciplines wherever required by the Department on regular basis.

i) Conducting training for production of skilled para-veterinarians who will assist the veterinarian in treatment, prevention of diseases as well as management, feeding, etc of farm animals. Workshop, Seminar and Training-cum-exposure trip will be organized on regular basis at State/District/Sub-Divisional/Block level for technical person and farmers. Training of entrepreneur for taking up livestock farming on commercial basis for which Entrepreneurship Development Programme (EDP) will be one of the prime thrust areas in the Twelfth Plan.

#### **1.4.6. Proposed Outlay for the 12<sup>th</sup> Plan (2012-17) and Annual Plan 2012-13**

**The proposed Outlay for the 12<sup>th</sup> Plan (2012-17) for this Sector is `28800.00 lakh and the proposed Outlay for the Annual Plan (2012-13) is `3920.00 lakh which include `1300.00 lakh of NABARD Loan and `520.00 lakh for Livestock Mission.**

**1. Direction & Administration** :-An amount of `.**146.13 lakh** is proposed for maintenance of Administrative offices at Directorate, District, Sub-Divisional, Engineering and other establishments, including rent-rates & taxes and State share to Centrally Sponsored Scheme, namely, State Veterinary Council.

**2. Veterinary Services & Animal Health** :-For maintaining and providing medicines, chemical, reagents, equipments and appliances to the existing hospitals, dispensaries, aid centres and Clinical laboratories located in different parts of the State including contribution to Centrally Sponsored Scheme, namely, Assistance to State for Control of Animal Diseases (ASCAD), an amount of `.**324.87 lakhs** is proposed during 2012-13. The Department has also earmarked State's Share under NABARD loan for establishment of new Veterinary Dispensaries in the State.

**3. Cattle Development** :- Forimprovement and strengthening of the existing Cattle farms and Buffalo farm, replacing the old and unproductive stock and purchase of feed, etc also for establishing New Cattle Farm in East Garo Hills District an amount of `.**135.95 lakhs** is proposed during 2012-13. State share has been earmarked for establishment of Slaughter houses under NABARD Loan. For implementation of Livestock Mission (Dairy farming) under Integrated Basin Development & Livelihood Programme, an amount of `.**130.00 lakhs** has been earmarked.

**4. Poultry Development** :- An amount of `.**222.97 lakhs** has been proposed for maintenance and strengthening of all poultry farms in the State, replacement of parent stock of breeding birds, increasing the capacity of birds in the farms in order to meet the requirement for supply of inputs to the farmers. The above amount includes assistance to farmers / Self Help Group / Co-operative Societies for poultry rearing in the form of Subsidy. An amount of `.**130.00 lakhs** has been earmarked for implementation of Livestock Mission (Poultry farming) under Integrated Basin Development & Livelihood Programme.

**5. Sheep, Goat and Rabbit Development** :- Under this scheme, an amount of `.**135.50 lakhs** has been proposed for implementation of subsidy scheme for goat rearing which include `.**130.00 lakhs** for Livestock Mission (Goat farming) under Integrated Basin Development & Livelihood Programme.

**6. Piggery Development** :- This programme includes maintenance and strengthening of existing pig breeding farms in the State and implementation of subsidy schemes for general farmers/Educated Un-employed Youth / SHGs /Co-operative Societies/. It is proposed to replace the old parent stock of pigs for breeding programme so as to improve and increase production of piglets in order to meet the requirement in the State. Also proposal for implementation of the Livestock Mission (Pig farming) under Integrated Basin Development & Livelihood Programme has been earmarked for `.**130.00 lakhs** Hence, a total amount of `.**394.90 lakhs** is proposed.

**7. Feed and Fodder Development** :- An amount of `.**32.16 lakhs** is proposed for maintenance of existing fodder farms and feed mills in the State.



**8. Administrative Investigation & Statistics**:- An amount of `34.80 lakhs is proposed as State share for implementation of Integrated Sample Survey for estimation of major livestock products in the State.

**9. Research & Education** :- This programme includes maintenance of existing clinical laboratories for analysis and testing of samples, purchase of vaccines, sponsoring candidates for undergoing degree course, specialization, conducting certificate course to VFA, vocational training to farmers, workshops, etc. Hence, an amount of `74.53 lakhs is proposed for the above expenditure.

**10. Infrastructure Development**:- An amount of `836.54 lakhs is proposed for construction of new pig sheds at Pig Farm, Baghmara, establishment of new cattle farm in East Garo Hills District, balance payment of construction of new establishments sanctioned during 2009-10 onwards.

**1.4.7. Schemes under NABARD Loan** : Under NABARD Loan , 2(two) Schemes viz, Setting up of Modern Abattoir at Mawiong, Shillong @ `2288.83 lakhs and Construction of 7(seven)Veterinary Dispensaries @ `408.91 lakhs have been taken up and the anticipated expenditure during 2011-12 is `1200.00 lakh.

**1.4.8. New Schemes** : An amount of `21.65 lakh is proposed during 2012-13 for the new Schemes viz; Establishment of District Veterinary Information Office in Khasi Jaintia and Garo Hills, Establishment of Cattle Breeding Farm in East Garo Hills and for construction of residential and non-residential buildings.

**1.4.9. Livestock Mission under Integrated Basin Development & Livelihood Programme** : Livestock Mission is one of the flagship programme of the Government of Meghalaya under the Integrated Basin and Livelihood Development Programme (IBLDP) with an aim to generate employment opportunity to the local population using the available technology and resources. The programme offer lots of scope to augment production of meat, egg and milk, thereby bridging the gap between demand and supply. The State as of now import more than 9 thousand tonne of meat & 33 millions eggs every year from outside the state besides large quantity of milk by products. With the increase of human population, it is expected that the demand for all the above protein requirement of animal origin will increase many folds. However, the State has a congenial climate and resources suitable for Livestock & Poultry farming. Hence, a committed programme like “**Livestock Mission**” is expected to bring lots of changes to enhance the economy of the State and provide employment opportunity to many. The goals of this Livestock Mission is designed to be implemented through the Group/Societies/Individual as given below and to cover all the 39 blocks of the State in 5(five) years. The financial support system will be shared between the Government, Bank and Beneficiaries in the ratio of 60:30:10 respectively.

**PROJECTED FINANCIAL IMPLICATION AND GOVERNMENT CONTRIBUTION**

Sl. No.	PROGRAMME	No.of SHG/ Group/	Estimated Expenditure	60% Government
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		<b>Society</b>	<b>(lakhs)</b>	<b>contribution</b>
1.	Dairy Development	82	1767.10	1060.26
2.	Pig Breeding	780	14352.00	8611.20
3.	Pig Fattening	1137	13644.00	8186.40
4.	Poultry Layer	176	6575.79	3945.47
5.	Kuroiler rearing	722	15104.68	9062.81
6.	Goatery Development	793	11228.88	6737.33
7.	Fodder development	-	10623.80	10623.80
8.	Marketing unit of Live animals	78	374.40	224.64
9.	Clean butcher shop	80	320.00	192.00
10.	Capacity building /Mass Media/Data collection/Emergency relief/ Administrative charges etc		5300.00	5300.00
	<b>Total</b>	<b>3848</b>	<b>79290.65</b>	<b>53943.91</b>

### Unit size of each programme

<b>Sl. No</b>	<b>Name of programme</b>	<b>Amount per unit</b>	<b>No.of animal/ birds per unit</b>	<b>Total Amount (in lakh)</b>
1.	Dairy Cattle	21,55,000.00	10 milch cows	1767.10
2.	Pig Breeding	18,40,000.00	12 piglets (2:10)	14352.00
3.	Pig Fattening	12,00,000.00	40 piglets	13644.00
4.	Poultry Layer	37,36,240.00	1000 birds	6575.79
5.	Low in-put Kuroiler	20,92,060.00	1000 birds	15104.68
6.	Goatery	14,16,000.00	42 goats(2:40)	11228.88
7.	(i)Strengthening of existing Govt.Fodder Farm	41,00,000.00	4 units	164.00
	(ii)Setting up Fodder Demonstration plot	12,70,000.00	74 units	939.80
	(iii)Fodder production unit	3,40,000.00	2800 units	9520.00
8.	Marketing unit of live animals	4,80,000.00	78 units	374.40
9.	Setting up of clean butcher shop	4,00,000.00	80 units	320.00
10.	Capacity building/Mass Media/Datacollection/Emergency relief/ Administrative charges etc	-	-	5300.00
	<b>Grand Total</b>	-	-	<b>79290.65</b>

(1) With the implementation of the above programmes, the State is expected to increase the production as follows:

<b>Sl.No.</b>	<b>I T E M S</b>	<b>Estimated production</b>
1.	Milk	25 lakhs litres per year
2.	Piglets	4,24,320 nos in 5 years
3.	Pork	8914.08 MT in 5 years
4.	Eggs	18 million per year
5.	Chicken	1900 MT per year
6.	Mutton	190 MT per year

(2) Under the Livestock Mission, about 3848 Group/Society will be covered in five years, thus giving direct and indirect employment to about 40 thousand people.

- (3) Livestock Mission encourages all stake holders to acquaint themselves with scientific knowledge & skill through proper guidance and training, thus ensuring sustainability of the programme.
- (4) The idea of involving SHG/Societies is to cover maximum number of participation, besides it will safeguard the viability of the programme.
- (5) The implementation will have a cluster approach to be able to take proper health care, supervision and marketing.

**Strategy:**The overall strategy is to augment production of meat, milk and eggs with due consideration to the marketing facilities. It also envisages transfer of technology on the concept of demand-driven.

**Mode of implementation:**All programme will be implemented through the State Implementing Agency to be headed by the Chief Executive Officer (CEO). At the District level, all District A.H & Vety. Officer will be the implementing officer and to be assisted by the Programme Manager at the Block level. At the village level, Livestock Development Committee will be constituted from amongst the member of SHG/Society, where A.H & Vety. Officer, C&RD Block will be the ex-officio member.

**Funding & Management of Fund:**The Implementing Agency will tie up with any Commercial Bank for back ended subsidy, and each Group or Society shall have to open their bank account accordingly. The consolidated fund will be created with the Financial Bank.

**Monitoring & Evaluation:**Separate committee will be constituted for this purpose for the successful implementation of all programmes under the Livestock Mission.

**1.4.10** An amount of `520.00 lakhs has been earmarked initially which includes Dairy, Poultry, Piggery and Goat development. The State has a congenial climate and resources suitable for Livestock & Poultry farming. Hence, a committed programme like “**Livestock Mission**” is expected to bring lots of changes to enhance the economy of the State and provide employment opportunity to many. Livestock Mission is designed to be implemented through the Group/Societies/Individual as given below and to cover all the 39 blocks of the State in 5(five) years. The financial support system will be shared between the Government, Bank and Beneficiaries in the ratio of 60:30:10 respectively

**1.4.11.** The broad break - up of the actual expenditure for the first four years of the 11<sup>th</sup> Plan, anticipated expenditure 2011-12 and the Projected Outlay for the 12<sup>th</sup> Plan and Annual Plan 2012- 13 in respect of Animal Husbandry and Veterinary Sector is indicated in the Table below:-

( . in lakh)

Sl. No.	Schemes	11 <sup>th</sup> Plan 2007-12 Projected Outlay	Actual Expenditure 2007-08 to 2010-11	Annual Plan 2011-12		12 <sup>th</sup> Plan 2012-17 Projected Outlay	Annual Plan 2012-13 Proposed Outlay
				Outlay	Anticipated Expenditure		
1.	Direction & Administration	520.00	568.84	184.56	184.56	1431.00	146.13
2.	Vety. Services & Animal Health	2135.00	1830.35	665.47	668.77	5199.00	324.87

3.	Cattle and Buffalo Development	940.00	335.21	263.30	263.30	1684.00	135.95
4.	Poultry Development	1160.00	507.50	174.23	194.23	2299.00	222.97
5.	Sheep & Goat Development	80.00	58.17	18.88	18.88	200.00	5.50
6.	Piggery Development	1100.00	537.09	195.50	195.50	2305.00	264.90
7.	Fodder & Feed Development	395.00	210.55	50.39	50.39	360.00	32.16
8.	Administrative Investigation and Statistics	150.00	45.34	24.91	24.91	236.00	34.80
9.	Research	80.00	51.91	16.10	16.10	125.00	16.23
10.	Education	309.00	232.66	81.35	81.35	660.00	58.30
11.	Infrastructure	3631.00	1205.85	125.31	447.01	3327.00	836.54
12.	New Schemes	-	-	-	-	974.00	21.65
	<b>TOTAL</b>	<b>10500.00</b>	<b>5583.47</b>	<b>1800.00</b>	<b>2145.00</b>	<b>18800.00</b>	<b>2100.00</b>
13.	NABARD Loan	-	-	1200.00	1200.00	10000.00	1300.00
14.	SPA	-	1000.00	-	-	-	-
15.	Livestock Mission	-	-	-	-	-	520.00
	<b>GRANDTOTAL</b>	<b>10500.00</b>	<b>6583.47</b>	<b>3000.00</b>	<b>3345.00</b>	<b>28800.00</b>	<b>3920.00</b>

#### **1.4.12. CENTRALLY SPONSORED AND CENTRAL SECTOR SCHEMES:**

The following are the Centrally Sponsored Scheme to be continued during 2012-13:-

1. Professional Efficiency Development- Establishment of State Veterinary Council.
2. Assistance to State for Control of Animal Disease (ASCAD).
3. National Project on Rinderpest Eradication (NPRE)
4. Sample Survey for estimation of Major Livestock Products.
5. Livestock Census.
6. National Project for Cattle & Buffalo Breeding.
7. Livestock Insurance Scheme.
8. National Project for control of Brucellosis (NPCB).
9. National Animal Disease Reporting System (NADRS).
10. Rural Backyard Poultry Development Component.
11. Assistance to Grassland Development including Grass Reserve.

### **1.5. DAIRY DEVELOPMENT**

**1.5.1.** The approved outlay for Dairy Development Sector for the 11<sup>th</sup> Plan is `2200.00 lakhs. The anticipated expenditure during the 11<sup>th</sup> Plan is `1705.59 lakh. The approved outlay for the Annual Plan, 2011 - 2012 is `750.00 lakh of which the anticipated expenditure is `405.00 lakh. The anticipated achievement during the 11<sup>th</sup> Plan in production of milk is 82.00 thousand litres and the proposed target to be achieved during the 12<sup>th</sup> Plan is fixed at 83.00 thousand litres.

In Dairy development, priority will be given for creating a ready market of milk in rural areas, processing and pasteurization of milk or milk products for sale in towns/cities of

Meghalaya and the adjoining States preferably through co-operative societies. Private entrepreneurs willing to establish milk plants will be encouraged.

**1.5.2.** The Projected Outlay for the 12<sup>th</sup> Plan (2012-17) is Rs.4850.00 lakh and the proposed Outlay for the Annual Plan (2012-13) is `650.00 lakh. The programmes under Dairy Sector proposed to be taken up during 2012-2012 are summarized below:

**1.Direction and Administration:** Scheme under Direction and Administration at State and District level will continue during 2012-13 which includes maintenance, strengthening and improvement of the administrative set up both at the State and District level. An amount of `34.57 lakh is proposed during 2011-12.

**2.Cattle-cum-Dairy Development:** An amount of `443.64 lakh is proposed for maintenance of Dairy Plants, Chilling Plants and up-gradation of existing Chilling Plants to Dairy Plant in East Garo Hills District. Policy in respect of procurement & marketing of milk is now being handled by the Registered District Societies in Shillong, Tura and Jowai. In order to encourage & involve people for increasing milk production, the Subsidy Scheme for rearing of dairy cows and distribution of feed subsidy to educated unemployed youth & general farmers will continue during 2012-2013.

**3.Education:** An amount of `4.27 lakhs is proposed for payment of scholarship/stipend to the sponsored student undergoing studies in Dairy Technology outside the State. The above amount includes other expenditure like advertisement, publicity and other charges.

**4.Infrastructure** – An amount of `167.52 lakhs is proposed for construction works and upgradation of existing Chilling Plant to Dairy Plant of 2000 litres per day capacity, improvement of water supply, fencing, extension and improvement of conference room, etc under Dairy sector.

**1.5.3.** The broad break - up of the actual expenditure for the first four years of the 11<sup>th</sup> Plan, anticipated expenditure 2011-12 and the Projected Outlay for the 12<sup>th</sup> Plan and the proposed outlay for the Annual Plan 2012- 13 in respect of Dairy Sector is indicated in the Table below:-

(Lakhs)

Sl. No.	Schemes	11 <sup>th</sup> Plan 2007-12 Projected Outlay	Actual Expdr. 2007-08 to 2010-11	Annual Plan 2011-12		12 <sup>th</sup> Plan 2012-17 Projected Outlay	Annual Plan 2012-13 Proposed Outlay
				Outlay	Anticipated Expenditure		
1.	Direction and Administration	30.00	90.71	37.97	57.53	297.00	34.57
2.	Employment Generation	200.00	270.55	79.20	79.20	484.00	79.20
3.	Cattle-cum Dairy Development	1270.00	525.92	573.49	230.93	2194.00	364.44
4.	Agricultural Research & Education	-	0.00	3.00	1.00	25.00	4.27
5.	Construction & improvement of Residential and Non-	700.00	413.41	56.34	36.34	350.00	117.52

	Residential Buildings, etc.						
6.	Upgradation of the existing Chilling Plant, Gangdubi	-	-	-	-	1500.00	50.00
	<b>Total</b>	<b>2200.00</b>	<b>1300.59</b>	<b>750.00</b>	<b>405.00</b>	<b>4850.00</b>	<b>650.00</b>

## 1.6 FISHERIES

**1.6.1.** Meghalaya is endowed with immense natural water resources which have great potential for fishery development as fish culture has become popular and is increasingly being taken up by the fish farmers as their means of livelihood. Fisheries Department launched the “Aquaculture Development for 1000 Ponds scheme in 2005-06 to create additional water area for fish culture in the private sector. About 500 Hectares of water area was created and 2400 individuals became fish farmers due to this scheme. The State Government has decided to accord high priority to fisheries sector during the 12<sup>th</sup> Plan and prepared the Meghalaya State Aquaculture Mission to be implemented co-terminus with the Twelfth Five Year Plan period (2012-13 to 2016-17).

**1.6.2.** The Eleventh Plan (2007-12) outlay for Fisheries sector was ` 4500.00 lakh. The actual expenditure incurred for the last four years i.e., 2007-08 to 2010-11 was 2281.75 lakh. The approved outlay during the Annual Plan 2011-12 is 800.00 lakh 300.00 lakh is expected to be utilised. The anticipated expenditure for the entire 11<sup>th</sup> Plan period comes to 2581.75 lakh.. **The proposed outlay for the Twelfth Plan (2012-13 to 2016-17) is ` 52900.00 lakh and the proposed outlay for the Annual Plan 2012-13 is 1275.00 lakh.**

### **1.6.3. Achievements during the 11<sup>th</sup> Plan period :**

- a) During the 11<sup>th</sup> Plan Period (2007-08 to 2011-12) an additional water area of:
- (i) 495.55 Ha. with 2336 nos. of fish farmers have been covered under the scheme “Aquaculture Development for 1000 Ponds” scheme.
  - (ii) 181.00 Ha with 826 nos of fish farmers have been covered under the scheme “RKVY – Area Expansion” scheme. Further, under RKVY, 4 nos. of Departmental farms have been upgraded alongwith construction of hatcheries in 2 farms, to meet the demand of fish seeds.
  - (iii) Under Special Plan Assistance (SPA) another 678 Ha. of water area will be brought under fish culture covering 6780 fish farmers, by the end of 2012. Work is going on at a rapid pace.

The actual achievement of fish production during the 11<sup>th</sup> Plan period was 21,413 Metric tonnes and the number of fish seeds produced was 9.46 million. There is a huge demand-supply gap in the production of fish and the State has to adopt a mission mode approach to bridge the gap as soon as possible.

- (iv) During the 11<sup>th</sup> Plan period, 1385 nos. of fish farmers have been imparted technical training by the Department and 354 nos. have been sent for Training at the National Institute of Rural Development (NIRD), Guwahati.

- (v) Further, 85 nos. of Field Officers have been sent for short term training to the Central Institute of Fresh water Aquaculture (CIFA) at Bhubaneswar and 119 nos. of fish farmers have gone for exposure visit to CIFA, Bhubaneswar.

#### **1.6.4. Approach, Strategies of the 12<sup>th</sup> Plan**

The immediate task before the State is to increase the area under fisheries and create sufficient infrastructure to generate sufficient fish seed and feed as well as to provide for disease management. The approach adopted is a mission mode approach to bridge the gap between demand and supply.

#### **1.6.5. Twelfth Plan Priorities are as follows:**

- (i) Bridging the critical infrastructure gaps with respect to hatcheries, feedmills and disease management.
- (ii) Create additional water areas to increase production;
- (iii) Establishing sanctuaries for conserving indigenous and endemic species;
- (iv) Capacity Building and Human Resource Development;
- (v) Bring in private participation in the development of fisheries sector.

#### **1.6.6. Programmes for the Twelfth Plan (2012-17) and Annual Plan 2012-13:**

The schemes/ programmes proposed to be taken up during the Twelfth Plan (2012-17) and Annual Plan 2012-13 mainly comprise some of the continuing schemes taken up during the 11<sup>th</sup> Plan period and implementation of new scheme such as state Aquaculture Mission which was launched on 05.03.2012. Schemes are as below:-

#### **A. Direction & Administration**

This is a continuing scheme which is meant for strengthening and streamlining the activities by providing guidance / instructions to the Districts and sub-divisional levels for effective implementation of the scheme. An outlay of ` 985.00 lakh is proposed during the 12<sup>th</sup> Plan period and ` 7.00 lakhs for the Annual Plan 2012-13.

#### **B. Inland Fisheries**

##### **1. Fishseed Production and Demonstration Centre**

This is a continuing scheme which envisages fishseed production for distribution to the private fish farmers for stocking in ponds and tanks. An outlay of ` 165.00 lakh is proposed during the 12<sup>th</sup> Plan period and ` 56.00 lakh for the Annual plan 2012-13.

##### **2. Development of Reservoirs & Lakes**

This is a continuing scheme which aims at developing and replenishing the fish stock with fast growing varieties in impounded water/ reservoirs to boost up fish production. During the 12<sup>th</sup> Plan period, it is proposed to develop some selected lakes/ bheels which have the potential for fish culture in addition to Nongmahir and Kyrdemkulai. An outlay of ` 250.00 lakh is proposed during the 12<sup>th</sup> Plan period and ` 2.00 lakh for the Annual plan 2012-13.

##### **2. State Aquaculture Mission-**

The state of Meghalaya is predominantly a fish consuming State, the supply of fish is inadequate to meet its growing demand, making the State import fish from Andhra

Pradesh. The Government of Meghalaya has identified fisheries as a key sector and has decided to launch the Meghalaya State Aquaculture Mission (MSAM) co-terminus with the Twelfth Five Year Plan period (2012-13 to 2016-17). The MSAM has the following major objectives:

- a) Development of existing water bodies and creation of additional water area for large scale fish production, including reclamation/rehabilitation of marshy and swampy lands,
- b) Conservation of native, endangered and traditional species of Meghalaya and developing breeding farms of commercially potential species on a large scale,
- c) Creation of mass awareness, capacity building, exposure training and skill development of all the stakeholders and technical support for long term sustainability of fishery sector,
- d) Capturing emerging opportunities in the fisheries sector.

Given the wide canvas, the Aquaculture Mission is divided into six Mini Missions for better focus and ease of implementation. Mini Mission I is related to “Area and Productivity Expansion”, which will be achieved through four sub components, viz., individual pond construction, community pond construction, development of marshy and swampy areas and bheels and reservoir fishery development. Mini Mission II is for “Critical infrastructure development”, which has five components: fish seed production, fish feed production, fish disease management, pre and post harvesting infrastructure and creation and strengthening of fishery and multi-purpose co-operatives. Fish seed production will be achieved through Government and private hatcheries and utilizing FRP technology as also inducting Israeli technology.

Establishing sanctuaries for conserving indigenous and endemic species of fish is the focus of Mini Mission III. Surveys for identifying the endangered species, orientation workshops and media campaigns will be organised under the Mission. The Mission will collaborate with the Department of Tourism for boosting the objectives and targets of the Mission related to Mahaseer and other native species conservation. Mini Mission IV is for “CapacityBuilding” of farmers as well as officials, programme managers, multi-service providers, co-operators, etc. Mass mobilization campaigns and skill trainings for unemployed youth will be organised under this mini mission. Mini Mission V is titled “Mass media campaigns, documentation and outreach”, which will take care of two important activities, viz., awareness building about the Mission and publicity among the public and process documentation of the implementation and preparation of success stories.

Mini Mission VI deals with “Emerging opportunities in the fisheries sector”, which is an exclusive visionary component envisaged for tapping the emerging opportunities and addressing them with scientific backstopping. Ornamental fisheries, trout farming, introduction of freshwater prawn culture and new table species of fish and aqua tourism/ aqua parks/ sport fisheries will be the components under this mini mission.

The Aquaculture Mission will have functional convergence with programmes like MGNREGS, RKVY, NRLM, etc and thematic convergence with line departments like Water Resources, Soil and water conservation, Tourism, etc. The Mission proposes to develop a Management Information System vested with the responsibility to collect, store and retrieve relevant and timely information for planning, executing, monitoring and evaluating the Mission. Monitoring and evaluation will be an integral part of the project design, as they provide an opportunity for intervention during implementation and mid-course corrections. The approach of the Mission to engage civil society players can help serve the interests of the people of the state.



The scheme aims to create an additional water area of 10,000 hectares of individual ponds during the 12<sup>th</sup> Plan period to increase fish production in the State with the intention to reduce the gap of demand and supply. **An outlay of ` 50000.00 Crore is proposed during the 12<sup>th</sup> Plan period and the proposed outlay for the Annual Plan 2012-13 is ` 10.00 crore. The scheme consists of the various components which are mentioned below :**

**i) Area Expansion**

- a) Area expansion through individual ponds.
- b) Area expansion through community water bodies.
- c) Productivity enhancement through reclamation of marshy, swampy areas and bheels/ reservoirs fisheries/ stocking of fingerlings in lakes and other smaller water bodies.

**ii) Critical Infrastructure Development**

- a) Fish seed production through Government Hatcheries/ Private Hatcheries/ FRP Hatcheries
- b) Fish seed production through Israeli Technology.
- c) Fish feed production through Government Hatcheries.
- d) Fish disease Management –establishing laboratories.
- e) Pre & Post harvesting Infrastructure
- f) Social Infrastructure- creation & strengthening of Fishery cooperatives and farmers collectives.
- g) Strengthening of FFDA as implementing agency for Aquaculture Mission.

**iii) Establishing sanctuaries for conserving indigenous and endemic species**

- a) Survey for identifying the endangered species.
- b) Media campaigns specific to conservation.
- c) Orientation workshops for the villages with potential.
- d) Development of sanctuaries.

**iv) Capacity Building & Human Resources Development**

- a) Training & Exposure trips of officials and fish farmers.
- b) Orientation workshops for the short listed individuals
- c) Training & Exposure visits of multiple service providers.
- d) Upgradation the capacities of Fish cooperators.
- e) Skill training programmes for self- employment, aquarium fabrication centres & ornamental fisheries.
- f) Award to fish farmers and incentives to officers.

**v) Mass media campaign, documentation and outreach**

- a) Mass mobilization campaigns/ publicity/ documentation of success stories.
- b) Fish mela.

**vi) Emerging opportunities in the Fisheries sector**

- a) Ornamental /aquarium fisheries
- b) Trout farming, pearl culture
- c) Aqua parks, sport fisheries
- d) Introduction of fresh water prawn culture/ new table species.

**vii) MIS & Monitoring & Evaluation**

- a) MIS needs to be introduced in the Mission so that all relevant data are collected, stored & retrieved while planning, executing, monitoring and evaluating the Mission.
- b) Monitoring focus on routine collection of information while evaluation focus on critical analysis of the information.

**4 Capital outlay on Housing**

**Construction and Maintenance of Departmental Residential building**

This is a continuing scheme which aims at construction and maintenance of Departmental Residential buildings for officers and staff. An outlay of ` 100.00 lakh is proposed during the 12<sup>th</sup> Plan period and ` 10.00 lakh for the Annual Plan 2012-13.

**5. Capital Outlay on Fisheries**

**Construction & maintenance of Departmental Non- Residential Quarter.**

This is a continuing scheme which aims at construction of new office building of the Directorate including District office at Fish Dale, Shillong so as to provide better accommodation to officers and staff and buildings for officers and staff. An outlay of ` 1400.00 lakh is proposed during the 12<sup>th</sup> Plan period for renovation of existing Departmental Buildings at the districts and sub-divisional level and ` 200.00 lakh is proposed for the Annual Plan 2012-13.

**1.6.7.** The broad breakup of the proposed outlay for the 12<sup>th</sup> Plan period and the Annual Plan 2012-13 is as indicated in the table below :-

(` in lakhs)

Sl. N	Name of the Scheme	Projected 11 <sup>th</sup> Plan outlay 2007-2012	Cumulative actual Expd. During 2007-08 to 2010-11	Approved outlay 2011-12	Anti. expenditure 2011-12	Proposed outlay for the 12 <sup>th</sup> Plan	Proposed outlay 2012-13
1	2	3	4	5	6	7	8
1.	Direction & Administration	370.00	181.14	102.40	102.40	985.00	7.00
2.	Inland Fisheries :-						
	Fish seed production & Demonstration Centre	100.00	160.37	26.60	26.60	165.00	56.00
	Development of Reservoirs & Lakes	100.00	103.75	34.00	34.00	250.00	2.00
	Conservation & Legislation for protection of Fisheries	100.00	50.00	0.00	0.00	0.00	0.00
	Extension & Training	75.00	53.63	4.00	4.00	0.00	0.00
	Research & Education- Fishseed Production cum Research centre	25.00	13.49	-	-	-	-
	Fish Farmer Development Agency (State Share)	160.00	0.00	0.00	0.00	0.00	0.00
	Community Fishery Development Project	100.00	105.42	0.00	0.00	0.00	0.00
	Aquaculture Development for 1000 Ponds	2700.00	867.75	0.00	0.00	0.00	0.00
	Culture & Development of Mahaseer Fisheries	170.00	8.00	0.00	0.00	0.00	0.00
	Culture & Breeding of	200.00	36.25	0.00	0.00	0.00	0.00

Sl. N	Name of the Scheme	Projected 11 <sup>th</sup> Plan outlay 2007-2012	Cumulative actual Expd. During 2007-08 to 2010-11	Approved outlay 2011-12	Anti. expenditure 2011-12	Proposed outlay for the 12 <sup>th</sup> Plan	Proposed outlay 2012-13
	Ornamental fishes						
	Establishment of fish seed production centre for private pisciculturist.	-	12.00	0.00	0.00	0.00	0.00
	Development of Marshy/Swampy areas/Bheels	-	0.00	0.00	0.00	0.00	0.00
	Marketing & Transport of fish and fish seed	100.00	47.02	10.00	10.00	0.00	0.00
4.	Construction & Maintenance of Departmental Residential Building	50.00	19.12	0.00	0.00	100.00	10.00
	Construction & Maintenance of Departmental Non – Residential Building	50.00	18.92	121.00	121.00	1400.00	200.00
	Upgradation & modernization of Umsning & Gasuapara fishseed Farm(RKVY)	-	99.00	-	-	-	-
5.	<b>Special Plan Assistance</b>						
	Value Chain Management under Special Plan Assistance	-	500.00	-	-	-	-
6.	<b>State Aquaculture Mission</b>	-	0.00	500.00	0.00	50000.00	1000.00
	<b>TOTAL</b>	<b>4500.00</b>	<b>2281.75</b>	<b>800.00</b>	<b>300.00</b>	<b>52900.00</b>	<b>1275.00</b>

## 1.7. FOOD, STORAGE & WAREHOUSING

**1.7.1** The Eleventh Plan (2007-12) projected outlay for this sector is `450.00 lakh. The actual expenditure for the first four years (i.e. 2007-08 to 2010-11) was `70.00lakh. The approved outlay of `120.00 lakh during 2011-12 is expected to be fully utilized. The anticipated expenditure during the 11<sup>th</sup> plan period is `190.00 lakh. **The proposed outlay the 12<sup>th</sup> plan is `1200.00 lakh and the amount proposed for 2012-13 is `130.00 lakh.**

**1.7.2.** The Corporation has a total storage capacity of 13,800 M.T. During the Twelfth Plan period, an additional capacity of 9000 M.T. is projected to be created; and in the Annual Plan 2012-2013, 4000 M.T. of capacity is projected to be created. The achievement of the projected capacity creation is solely dependent on timely release of equity by the Central Warehousing Corporation and the State Government.

## 1.8. COOPERATION

**1.8.1.** The Cooperative Movement in Meghalaya has not been able to play an effective role in the promotion of equity, social justice and economic development. In order to make the Cooperative movement as a vital instrument for growth and development, Cooperation Department is trying to make all out efforts to turn Cooperatives into an effective instrument for serving equity, social justice and economic development. Effort is given on Cooperation

leadership development, motivation, training, encouraging the societies to mobilize own resources, improving the managerial skills, securing active participation and involvement of traditional village institutions in the Cooperatives.

**1.8.2.** The Eleventh Plan (2007-12) outlay for Cooperation sector is Rs. 5100.00 lakh. The actual expenditure incurred for the last four years i.e., 2007-08 to 2010-11 was Rs. 2482.19 lakh. During the Annual plan 2011-12, Rs.1640.00 lakh which includes Rs.50.00 lakh of TFC Award for construction of Warehouse at Tura & Baghmara, Rs.20.00 lakh for upgradation & modernization of fruit processing units, Rs. 20.00 lakh for promotion of fishery co-operatives and Rs.315.00 lakh for Meghalaya State Housing Financing Co-operative Society is anticipated to be utilized against the approved outlay of Rs.1250.00 lakh. The anticipated expenditure for the entire 11<sup>th</sup> Plan period comes to Rs.4122.19 lakh. **The proposed outlay for the Twelfth Plan period is Rs.8000.00 lakh and the proposed outlay for the Annual Plan 2012-13 is Rs.1125.00 lakh.**

### **1.8.3 Achievement during the 11<sup>th</sup> Five Year Plan:**

During the 11<sup>th</sup> Five year Plan, the deptt. has been able to market the agricultural produce at about ` 901.79 lakh during the 1<sup>st</sup> four years of the plan i.e. 2007-08 to 2010-11 and is expected to achieve during the 2011-12 at ` 275.00 lakh. The deptt is also doing well in achieving achievement in retail sale of consumer goods in both urban and rural areas, fertilizers etc, thus improving the livelihood of the people.

### **1.8.4 Approach & Strategies of the Twelfth Plan :**

The Cooperation Department has to adopt a more pro-active approach and develop new strategic initiatives, keeping in view the market competition in the liberalized economy. It is imperative that all Cooperative Societies be treated as ‘ **micro-business enterprises**’ and any assistance given to them would have to be item- based. This project based approach would ensure that only viable and feasible projects are taken up on a sustainable basis. The programmes for the Twelfth Plan and the Annual Plan 2012-13 are worked out keeping in view the need for balanced development of the Cooperative movement.

### **1.8.5. Twelfth Plan Priorities are as follows :**

- (i) Strengthening and revitalising of Cooperative Credit Structure, Consumer Cooperative structure;
- (ii) Development of Housing Cooperatives, Handloom Weavers Cooperative Structure, Women Cooperatives, Integrated Village Cooperatives;
- (iii) Development of Cooperatives based on agriculture- allied activities like fishery, Piggery, Dairy, Poultry, Bee keeping etc.,
- (iv) Proper spread of Cooperative Education, Cooperative consciousness particularly among rural and urban people;
- (v) Transport and Labour Contract Cooperative are to be developed for employment generation;
- (vi) Strengthening and restructuring of Meghalaya State Cooperative Marketing & Consumers’ Federation Ltd to serve as the Apex Marketing Agency for marketing of agriculture produce and supply of agricultural inputs & consumer articles for both Cooperative products and other products produced in the State.

### 1.8.6. Programmes for the Twelfth Plan (2012-17) and Annual Plan 2012-13

The programmes for the Twelfth Plan and the annual Plan 2012-13 are worked out keeping the need for balanced development of the Cooperative Movement in the State as a self reliant and vibrant instrument of socio-economic service.

The schemes proposed during the Twelfth Plan (2012-17) and Annual Plan 2012-13 are continuing schemes which are listed as follows :

1. Direction and Administration.
2. Training.
3. Research and Training.
4. Information & Publicity.
5. Assistance to Multi-purpose Rural Cooperatives.
6. Assistance to Credit Cooperatives.
7. Assistance to other Cooperatives
8. Agricultural Credit Stabilisation.
9. Education and Motivational Programmes

The detail scheme-wise break up of proposed outlay are indicated in the table below :

(` Lakh)

Name of scheme	11 <sup>th</sup> Plan projected outlay (2007-12)	Cumulative actual Expd. 2007-08 to 2010-11	Approved outlay 2011-12	Anti. expd. 2011-12	Proposed Outlay for the 12 <sup>th</sup> Plan	Proposed outlay for Annual Plan 2012-13
Direction & administration	565.00	742.53	307.90	382.90	1580.00	308.90
Training	70.00	18.69	5.00	5.00	125.00	5.00
Research & Evaluation	11.50	-	1.00	1.00	20.00	5.00
Information & Publicity	40.00	21.12	6.00	6.00	80.00	8.60
Assistance to Multipurpose Rural Cooperation	143.00	293.97	125.00	125.00	875.00	200.00
Assistance to Credit Cooperatives	2555.00	108.37	160.00	160.00	315.00	13.00
Assistance to Other Cooperatives	960.00	564.39	248.10	248.10	2150.00	218.50
Other Expenditure	505.00	630.00	342.00	657.00	2485.00	316.00
Agricultural Credit Stabilization Fund	20.50	-	-	0.00	25.00	-
Education	230.00	103.12	55.00	55.00	430.00	50.00
<b>Total</b>	<b>5100.00</b>	<b>2482.19</b>	<b>1250.00</b>	<b>1640.00</b>	<b>8085.00</b>	<b>1125.00</b>