

5. ANIMAL HUSBANDRY, FISHERIES AND FOREST

The Allied Activities had occupied a pivotal role in the production prospects of livestock and poultry, fish and fish products and forestry produce. The three sub-sectors viz: Animal Husbandry, Fisheries and Forestry are providing subsidiary occupation and income to the rural masses besides contributing income to the State and National economy. The gross value of output of livestock in the State stood at Rs.9,654.33 crore during 2008-09. The contribution of livestock sector to the Gross Domestic Product accounted for 2.88 percent and that to the agriculture and allied activities was 25.70 percent. The State occupies the ninth position in milk production and the second place in egg production at the National level. India ranks first in the World milk production. For the livestock sector, the Eleventh Five Year Plan envisages an overall growth of 6-7 percent per annum. Turning to the fisheries sector, Tamil Nadu is blessed with 1076 Kms of coastline supplemented by 41,412 sq. kms. of continental shelf. Of the total marine population of 8.38 lakhs, 2.81 lakhs are actively engaged in marine fishing operation. The Inland fisheries population accounts for 2.16 lakhs in the State. Tamil Nadu occupies sixth rank in fish production in the country. Forestry plays an important role in preserving the flora and fauna with bio-diversity. Thus, the allied sectors assure food security besides generating income and employment to the State and Indian economy.

Animal Husbandry:

The total livestock population in 2004 Census was 249.42 lakhs with a marginal decline of 3.84 percent over that of 1997 Census. The bovine (cattle and buffalo) population in the State had witnessed a steady decline from 1982 Census to 2004 Census. However, the goat population in the State had steadily increased during the aforesaid periods. The poultry population was at 865.91 lakhs in 2004 Census which had recorded an increase of 137.16 percent over that of the previous Census (365.11 lakhs 1997 Census). The State was ranked second in poultry population and egg production in the country. The poultry population accounts for 17.7 percent of the total poultry population in India. The livestock details of the State are given below.

Table-1: Livestock Population: Tamil Nadu (Censuswise)

(No. in Lakhs)

| Year | Cattle | Buffaloe | Sheep | Goats | Others | Total | Poultry |
|------|-------------------|-------------------|------------------|------------------|-------------------|-------------------|--------------------|
| 1982 | 103.66 (-4.03) | 32.12 (4.35) | 55.37 (4.69) | 52.46 (24.85) | 18.26 (135.31) | 261.87 (8.45) | 182.84 (27.44) |
| 1989 | 93.53 (-9.77) | 31.28 (-2.62) | 58.81 (6.21) | 59.20 (12.85) | 20.85 (14.18) | 263.66 (0.68) | 215.70 (17.97) |
| 1994 | 90.96 (-2.75) | 29.31 (6.30) | 56.12 (-4.57) | 58.65 (-0.93) | 21.75 (4.32) | 256.79 (-2.61) | 238.54 (10.59) |
| 1997 | 90.47 (-0.54) | 27.41 (-6.48) | 52.59 (-6.29) | 64.16 (9.39) | 24.76 (13.84) | 259.39 (1.01) | 365.11 (53.06) |
| 2004 | 91.41 (1.03) | 16.58 (-39.51) | 55.93 (6.35) | 81.77 (27.45) | 3.73 -- | 249.42 (-3.85) | 865.91 (137.16) |

(Figures in brackets indicate percentage change over the previous Census)

Source: Commissioner and Director of Animal Husbandry and Veterinary Services, Chennai-6.

Tamil Nadu Livestock Agency had brought all breeding activities under a single umbrella and artificial insemination programme was carried out effectively. The cattle population in the State had increased from 90.47 lakhs (1997 Census) to 91.41 lakhs

(2004 Census). Of the total cattle population, the share of exotic and crossbred animals accounted for 56.2 percent. However, thanks to the State breeding policy, the exotic and crossbred population had increased by 135 percent between the two periods. On the other hand, the number of indigenous and native pure cattle population had witnessed a decline from 68.68 lakhs in 1997 Census to 40.01 in 2004 by 41.7 percent.

Of the total buffalo population, the share of indigenous buffalo varieties declined from 78 per cent in 1997 Census to 67.5 per cent in 2004 Census. Owing to this decline, the overall bovine buffalo population had witnessed a deceleration from 27.41 lakhs to 16.50 lakhs.

Table-2: Breedable age Female Bovine Population

(No. in Lakhs)

| Category | 1994 | 1997 | 2004 |
|------------------------------|--------------|--------------|--------------|
| Cattle | | | |
| - Exotic and Cross | 18.76 | 21.79 | 51.40 |
| - Indigenous and native pure | 72.20 | 68.68 | 40.01 |
| Total | 90.96 | 90.47 | 91.41 |
| Buffaloe | | | |
| - Murrah & Graded | 5.02 | 6.04 | 5.37 |
| - Indigenous | 24.29 | 21.37 | 11.13 |
| Total | 29.31 | 27.41 | 16.50 |

* - Bovine Population trend 1989 to 2004 given as against Breedable Population.

Source: Commissioner and Director of Animal Husbandry and Veterinary Services, Chennai-6.

Milk Production and Per Capita Availability:

For the growing population and urbanization, increasing per capita income and changing consumption pattern, the need of the hour is to improve milk production and per capita availability of milk in the State. The annual average increase in milk production in the State was 2.44 percent which was lower than that at the All India level (3.46%). The estimated milk production had witnessed a marginal improvement from 55.86 lakh tonnes in 2007-08 to 56.74 lakh tonnes in 2008-09. Tamil Nadu was ranked ninth in milk production in the Country. The State's per capita availability of milk per day had improved marginally from 233 grams in 2007-08 to 235 grams in 2008-09.

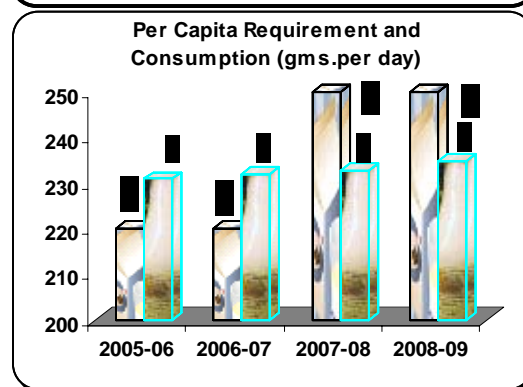
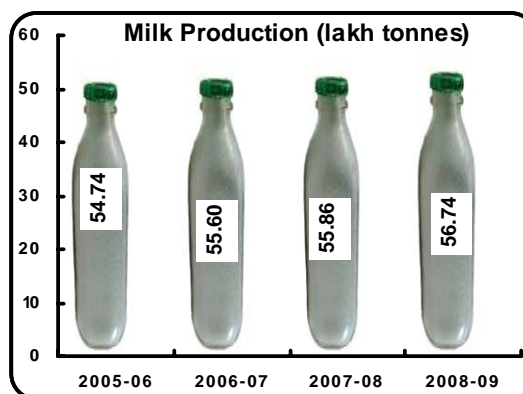


Table-3: Milk Production and Per Capita availability

| Year | Production (lakh tonnes) | | Percentage share of Tamil Nadu | Per capita availability (grams per day) | |
|---------|--------------------------|---------------|--------------------------------|---|--------------|
| | Tamil Nadu | All-India | | Tamil Nadu | All-India |
| 2003-04 | 47.53 (2.8) | 881 (2.2) | 5.4 | 209 (0.0) | 231 (0.4) |
| 2004-05 | 47.84 (0.7) | 925 (5.0) | 5.2 | 210 (3.0) | 233 (0.9) |
| 2005-06 | 54.74 (14.4) | 971 (5.0) | 5.6 | 231 (13.2) | 241 (3.4) |
| 2006-07 | 55.60 (1.6) | 1009 (3.9) | 5.5 | 232 (0.4) | 246 (2.1) |
| 2007-08 | 55.86 (0.5) | 1048 (3.9) | 5.3 | 233 (0.4) | 252 (2.4) |
| 2008-09 | 56.74 (1.6) | - | - | 235 | - |

Source: 1. Various issue of Statistical Hand Book of Economics and Statistics, Chennai-6.
2. Economic Survey, GOI 2008-09.

Milk Yield:

In order to improve milk yield, scientific breeding practices are being adopted in the State. This has brought out an increase in the number of crossbred breedable bovine population and resulted in improvement of milk production and yield rate in the State. The milk yield rate of exotic and crossbred cattle rose from 6.254 kgs/animal in 2007-08 to 6.329 kgs/animal in 2008-09. The milk yield rate of indigenous cows also improved from 2.757 kgs in 2007-08 to 2.774 kgs/animal in 2008-09. The average yield of milk per buffalo had gone up from 4.149 kgs to 4.218 kgs during the two review years during the XI Plan.

Dairy Development:

Dairying plays an important role in strengthening the State's rural economy. The small and marginal farmers constitute a majority of milk producers. The State with a well designed network on the basis of Anand Model of Gujarat, markets milk and milk products through Tamil Nadu Co-operative Milk Producers' Federation Limited with a brand name as 'Aavin'. Aavin is the Apex Body of the 17 District Co-operative Milk Producers' Unions, covering all the districts with an installed capacity of 17.42 lakh litres per day (llpd). The Federation procured milk through 7833 Primary Co-operative Societies in 2007-08 which had increased to 8012 in 2008-09. The milk production of the societies had witnessed a marginal improvement from 26.27 llpd in 2007-08 to 26.30 llpd in 2008-09. The milk procurement by these societies accounted for 46.0 percent of the total milk production in the State. The milk procurement price was enhanced from Rs.12.00/litre to Rs.16.16 for cow milk and from Rs.14.00/litre to Rs.23.00/litre for buffalo milk in 2008-09. Of the total milk production, the total quantity procured by the union had marginally come down from 21.64 llpd in 2007-08 to 22.00 llpd in 2008-09.

The Programmes like breeding of the milch animal to improve the quality of the stock, artificial insemination and veterinary care facilities were provided at the door steps of the milk producers in the State. The total number of Artificial Insemination had

increased from 13.70 lakhs in 2007-08 to 13.95 lakhs in 2008-09. The birth of cross bred calves had also improved from 4.66 to 4.82 lakhs and the calving rate increased from 34.0 to 34.5 per cent during the respective years. Thanks to the State's animal health care, the number of animals treated had increased from 5.80 lakhs in 2007-08 to 5.96 lakhs in 2008-09. The Federation had also taken up sale of milk and milk products throughout the State. The total value of milk and milk products sold by the Federation had fallen from Rs.41.67 crore in 2006-07 to Rs.40.72 crore in 2007-08, the dip was due to the decline in the sales of milk products.

Veterinary Care Infrastructure:

Healthcare infrastructure to animals is a vital phenomenon to promote scientific breeding activities and thereby to improve the livestock and milk production. For providing proper veterinary care year by year, new Veterinary Dispensaries are opened. To improve the health care, the number of Veterinary Dispensaries was increased from 1167 in 2006-07 to 1207 in 2008-09. Likewise, with a view to improve milk production, Artificial Insemination was carried on with AI grade ISO certified straws. For the improvement of AI, the State had procured 12.30 lakhs of certified high yielding Frozen Semen Straws through Livestock Development Agency. The established AI centres in the State rose from 3218 in 2006-07 to 3258 in 2008-09. The total number of Artificial Insemination done had improved from 34.79 lakhs in 2007-08 to 35.80 lakhs in 2008-09. In addition to this, AI was also carried out under 'Kalnadai Padukappu Thittam' in the State. In order to provide easy accessibility of veterinary services to the livestock rearers, at present, 55 Mobile Veterinary Units are functioning in the State.

Table-4 : Animal Care Institutions

| Item | (Nos) | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 |
| I. Veterinary Health Services | | | | | | |
| Polyclinics | 6 | 6 | 6 | 6 | 6 | 6 |
| Clinician Centres | 22 | 22 | 22 | 22 | 22 | 22 |
| Mobile Veterinary Units | 55 | 55 | 55 | 55 | 55 | 55 |
| Veterinary Hospitals | 139 | 139 | 139 | 139 | 139 | 139 |
| Veterinary Dispensaries | 922 | 1156 | 1156 | 1167 | 1207 | 1207 |
| Sub-Centres | 2032 | 1799 | 1799 | 1829 | 1829 | 1829 |
| II. Animal Disease Intelligence Units | 15 | 15 | 15 | 19 | 20 | 20 |
| III. Cattle Breeding & Fodder Development | 20 | 20 | 20 | 20 | 20 | 20 |
| IV. Veterinary Preventive Medicine | 1 | 1 | 1 | 1 | 1 | 1 |
| V. Poultry Disease Diagnostic Lab | 2 | 2 | 2 | 2 | 2 | 2 |
| VI. Artificial Insemination Centre | 3569 | 3177 | 3177 | 3218 | 3258 | 3258 |
| VII. Frozen Semen Production stations | 4 | 3 | 3 | 3 | 3 | 3 |
| VIII. Frozen Semen Banks | 12 | 12 | 12 | 12 | 12 | 12 |

Source: Directorate of Animal Husbandry and Veterinary Services, Chennai-6.

Animal Health Care:

Health care to livestock is a vital one and the State had taken up special initiatives in this regard. The animal health care activities like vaccination, deworming and artificial insemination were done. The total number of vaccination had improved from 496.39 lakhs in 2007-08 to 578.35 lakhs in 2008-09 (16.5%) and the number of deworming done had gone up from 220.04 to 231.0 lakhs (5.0%) during the aforesaid years. During 2008-09, a sum of Rs.40.00 lakhs had been sanctioned and utilized for undertaking deworming of sheep and goat. Artificial Insemination had gone up from 34.79 to 35.80 lakhs during the years (2.9%) and thereby the number of calves born had also witnessed an improvement from 12.01 to 13.45 lakhs (12.0%). The calving rate also had increased from 34.5 to 37.6 percent between the two years. Under the Intensive Health Care, during 2008-09, a sum of Rs.40.00 lakhs was sanctioned and utilized for deworming the sheep and goat. Under 'Special Ranikhet Vaccination Camps', a total number of 37.95 lakh poultry was vaccinated during 2008-09. The Nilgiris and Kanyakumari districts were provided deworming free of cost. Avian Influenza, a deadly disease which was caused by H5N1 virus had spread to 45 countries in Africa, Asia and Europe and killed more than 250 million birds in 14 countries since 2003. In India, the first two outbreaks were noticed in the States of Maharashtra, Gujarat and Madhya Pradesh in Feb-Apr 2006, the third outbreak in Manipur in July 2007, the fourth outbreak in West Bengal in Jan-Feb 2008 and fifth outbreak in Tripura. Thanks to the stringent measures and intensive surveillance taken by the state government in the poultry farms before and after the outbreak of the disease, the spread of the disease in the State had been prevented.

Table-5: Performance of Animal Care Activities

(Lakh numbers)

| Item | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 |
|---------------------|---------|---------|---------|---------|---------|---------|
| 1. Animals treated | 164.69 | 186.15 | 202.41 | 189.73 | 196.28 | 197.02 |
| 2. Vaccination done | 238.22 | 344.22 | 449.91 | 512.85 | 496.39 | 578.35 |
| 3. Deworming done | 168.64 | 82.38 | 186.01 | 203.37 | 220.04 | 231.00 |
| 4. Castration done | 5.88 | 6.58 | 6.44 | 6.72 | 6.62 | 6.57 |
| 5. A.I. performed | 31.02 | 29.23 | 32.87 | 33.59 | 34.79 | 35.80 |
| 6. Calves born | 11.57 | 11.09 | 11.40 | 13.04 | 12.01 | 13.45 |

Source: Directorate of Animal Husbandry and Veterinary Services, Chennai-6.

Meat Production:

To supply good quality and hygienic meat to consumers, registered slaughter houses were established in the State. The number of registered slaughter houses functioning in the State had slightly come down from 110 in 2007-08 to 107 in 2008-09. The estimated number of animals slaughtered in the State had improved from 31.40 lakhs in 2005-06 to 37.00 lakhs in 2008-09. However, when compared to that of the previous year (2007-08), the animals slaughtered had come down by 5.8 percent in 2008-09. The total quantity of meat production had declined from 638.23 lakh kgs in 2007-08 to 630.32 lakh kgs in 2008-09.

Table-6: Meat Production (lakh kgs)

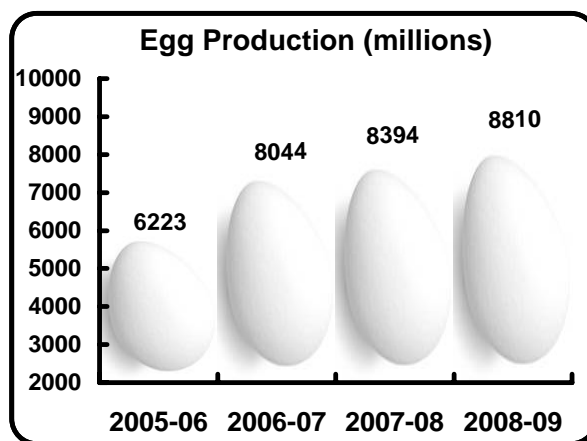
| Item | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 |
|---------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 1. Registered Slaughter Houses (Nos.) | 182 | 128 | 109 | 110 | 110 | 107 |
| 2. Animals Slaughtered (lakhs) | | | | | | |
| a. Sheep | 11.41 | 11.29 | 15.71 | 15.82 | 13.43 | 12.83 |
| b. Goat | 10.85 | 13.67 | 13.94 | 20.97 | 21.69 | 22.12 |
| c. Cattle | 0.95 | 0.71 | 1.03 | 1.08 | 1.14 | 1.18 |
| d. Buffaloes | 0.71 | 0.50 | 0.55 | 0.62 | 0.64 | 0.73 |
| e. Pig | 0.13 | 0.13 | 0.16 | 0.12 | 0.25 | 0.14 |
| Total | 24.05 | 26.30 | 31.40 | 38.61 | 37.15 | 37.00 |
| 3. Meat Production (lakh tonnes) | | | | | | |
| a. Mutton | 137.62 | 123.50 | 171.74 | 173.31 | 164.32 | 153.26 |
| b. Chevon | 127.71 | 166.34 | 171.80 | 231.04 | 262.06 | 264.95 |
| c. Beef | 104.69 | 72.14 | 86.09 | 107.36 | 135.50 | 133.83 |
| d. Cara Beef | 89.95 | 58.70 | 63.33 | 67.95 | 66.29 | 71.58 |
| e. Pork | 6.73 | 4.76 | 6.15 | 4.98 | 10.06 | 6.70 |
| Total | 466.70 | 425.45 | 499.11 | 584.64 | 638.23 | 630.32 |

Source: Directorate of Animal Husbandry and Veterinary Services, Chennai-6

Poultry Development and Egg Production:

Poultry had undergone a transformation from backyard unit to the present vibrant and dynamic enterprise. Poultry sector is providing employment and income to the rural folk in the State. Owing to the introduction of scientific techniques in this sector, new strains of poultry, California Cage System had revolutionized the industry. Apart from this, additional avocation like cattle and poultry rearing are being encouraged in the State. Moreover,

widespread immunization against Ranikhet disease and availability of quality feeds had contributed much to the development of poultry rearing as a big industry. Totally, 248.75 lakh birds (28.7% of the total poultry) in the State had been vaccinated against this disease. There are 23 Poultry Extension Centres functioning in the State and providing training to poultry rearers. There are 5123 Broiler Farms, 1148 Layer Farms and 41 Hatcheries functioning in the State.



The State poultry industry produces poultry and eggs mainly in the production hub of Namakkal, Salem, Erode and Coimbatore districts. The backyard poultry contributes 5 percent of the total egg production. Under Part II scheme, to improve the backyard poultry, 29,700 units were provided to 198 Self Help Groups in the districts of Dindigul, Pudukottai, Ramanathapuram, Sivagangai and Thoothukudi. Further, two Poultry Disease Diagnostic Laboratories are functioning in the districts of Namakkal and Erode to render technical advice to farmers for prevention, diagnosis and control of various infectious and parasitic diseases. Turkey rearing was carried on at Kattupakkam poultry

farm and 217 turkeys were reared. Out of Rs.68.00 lakh sanctioned, Rs.34.00 lakh was released as first installment for maintaining the turkeys during 2008-09. The total poultry population in the State accounts for 865.9 lakhs (2004 Census) and the share being 18 percent at the National level. As the State had a good potential for export of animal protein, eggs and egg products and frozen chicken meat are being exported to the Gulf countries, Russia etc. The egg production in the State had improved from 8394 millions in 2007-08 to 8810 millions in 2008-09. The per capita availability of eggs rose from 128 in 2007-08 to 133 in 2008-09.

Table-7: Egg Production and Per Capita availability

| Year | Production (millions) | Per Capita Availability (Nos.) |
|---------|-----------------------|--------------------------------|
| 2003-04 | 3784 | 61 |
| 2004-05 | 6395 | 102 |
| 2005-06 | 6223 | 100 |
| 2006-07 | 8044 | 123 |
| 2007-08 | 8394 | 128 |
| 2008-09 | 8810 | 133 |

Source: 1. Various issues of Statistical Hand Book, Government of Tamil Nadu.
2. Directorate of Animal Husbandry and Veterinary Services, Chennai-6.

Feed and Fodder Development:

Feed and fodder are the major factors for enhancing farm animal milk production and yield rate. Dry fodder, green fodder and feed concentrates are the three kinds of feed item. Balanced feeding alone could bring about an increase of 30 percent in milk production. The economic viability of livestock farming depends upon the feed and fodder cost which accounts for more than 60 percent of the production cost. For producing cattle feed the Tamil Nadu Co-operative Milk Producers Federation (TCMPF) has set up three cattle feed centres – Madhavaram, Kappalur and Erode. The production of fodder seed, slips and tree seedlings was carried on in seven units viz., Padappai seed farm and District Livestock farms at Hosur, Chettinadu, Abishekapatti, Eachenkottai, Chinnasalem and Udthagamandalam.

In the production scenario, the total area cultivated under fodder had improved from 1004 acres in 2008-09 to 1795 acres in 2009-10 in the Departmental farms. Out of this, 156 lakh fodder slips were produced and distributed to farmers. Besides this, a total area of 1540 acres of farmer's owned lands have been brought under irrigated fodder cultivation under National Agriculture Development Project. 4745 acres under IAMWARM Project during 2008-09 and 6180 acres during 2009-10. The availability of dry fodder had been increased from 89.03 to 175.61 lakh tonnes in 2009-10 as against the total requirement of 166.80 lakh tonnes. However, the availability of green fodder at 3999.9 lakh tonnes was less than the actual demand and the shortfall stood at 20 percent. Thus, availability of green fodder was not adequate as compared to dry fodder in the State. The depletion in green fodder was mainly due to rapid urbanization and shrinkage in grazing lands. Further, with the increase in the pressure of land for growing food grains and oilseeds, the gap between the demand and supply of green fodder is widened. To promote fodder development, the Government has ordered not to transfer the grazing lands for other purposes unless alternate land of the same extent is developed for grazing

in the same district. The total production slips in the State had improved from 74.41 lakhs in 2007-08 to 141.07 lakhs in 2008-09. During 2008-09, 10,000 kharif and 7,855 Rabi minikits of fodder seeds of different crops totally 17855 (Nos) was distributed to the farmers. An outlay of Rs.10 crores is provided for fodder development during XI Plan in the State.

Table-8: Fodder Production

| Particulars | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 |
|--|---------|---------|---------|---------|---------|---------|
| I. Total area under Cultivation | 632 | 3450 | 1193 | 961 | 881 | 1004 |
| 2. Fodder Seed Production Units (Nos.) | 7 | 7 | 7 | 7 | 7 | 7 |
| 3. Production of | | | | | | |
| - Slips (lakhs) | 118.00 | 20.54 | 20.54 | 23.64 | 74.41 | 141.07 |
| - Seed (MTs) | 57.20 | 38.60 | 0.72 | 4.06 | 3.61 | 0.17 |
| - Seedlings (lakh) | 1.60 | 0.27 | - | 0.16 | 0.07 | 0.07 |
| 4. Minikit distributed (Nos.) | 10000 | 10900 | 6812 | 20015 | 19046 | 17855 |

Source: Directorate of Animal Husbandry and Veterinary Services, Chennai-6.

Kalnadai Pathukappu Thittam:

With the improvement in the quality of livestock through launching of extensive cross breeding programmes, the susceptibility of livestock to various diseases has increased. In order to reduce morbidity and mortality, efforts are being made to provide better health care.

The scheme, 'Kalnadai Pathukappu Thittam' was inaugurated in Kancheepuram district in the State during the year 2000. Under the scheme, total health cover both preventive and curative was provided to livestock and poultry reared by farmers in remote villages. Special camps such as medical, surgical gynaecological and infertility treatments, artificial insemination, pregnancy verification, castration, deworming and preventive vaccination, etc. were conducted at the rate of one camp per month in all the 385 Panchayat Unions at a cost of Rs.5000/ per camp. During 2008-09, 5500 camps were conducted and 64.03 lakh livestock and poultry were covered with veterinary health services and 6.38 lakh farmers were benefited. During 2008-09, 5500 camps were conducted at a cost of Rs.4200/ per camp. The scheme provides health care facilities at the doorstep of the livestock and poultry rearers at free of cost. In addition to these activities, AI was also carried under the scheme. During the Eleventh Plan period from 2007-2012, it is proposed to conduct 27500 special camps @ Rs.5500 per year at a total cost of Rs.11.55 crore.

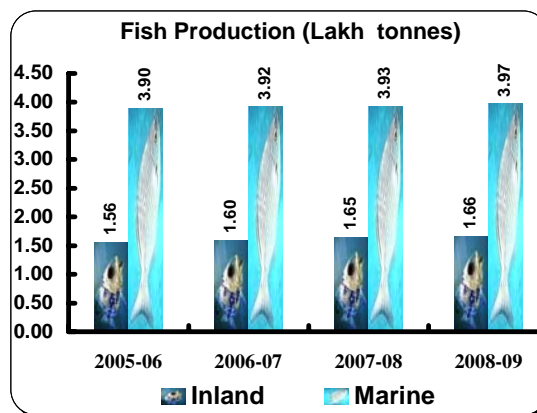
Livestock Insurance:

The Centrally sponsored Livestock Insurance Scheme is being implemented in the State by the Tamil Nadu Livestock Development Agency. This scheme is focused on protecting the farmers against any eventual losses of their animals. Under the scheme, 50 percent subsidy on premium was provided to the Insurance Firm by the Government of India and 50 percent to be borne by the farmers. In 2007-08, a total number of 119032 animals had been insured. Under third phase, insurance of milch cattle and buffaloes has been taken up in five districts viz., Dharmapuri, Trichy, Thirunelveli, Thiruvannamalai

and Villupuram during 2008-09. During 2008-09, 1.56 lakh high yielding milch cattle and buffaloes were insured under scheme. There is a provision of Rs. 153.43 Crore in the Eleventh Plan for the scheme.

Fisheries:

Tamil Nadu is one among the coastal States in India in the east coast having a coastal line of 1076 kms. The State has 13 coastal districts with 591 fishing villages consisting of 8.38 lakh fishery population, of which 2.81 lakh fishermen are actively engaged in fishing activity. Marine fishery resources comprise of 0.19 million sq.kms of Exclusive Economic Zone (EEZ) and a Continental Shelf of 41,412 sq.kms. The State shares 9.4 per cent of EEZ in the Country. The annual marine fish catch is estimated at 3.93 lakh tonnes and the State became the major exporter of marine products. Turning to Inland fishery, the fishery population was estimated at 2.61 lakh.



Under Fish Farmers' Development Agency Programme, about 5000 hectares are being utilized for water aquaculture. For the development of Inland fisheries, there are 8 Fish Seed Production Centres functioning in the State. Presently, the total brackish water area spread over 56000 hectares is used for aquaculture production and beyond this, shrimp culture is being undertaken in 6066 hectares in the State. The State ranks eighth in fish production in the Country. The fisheries sector of the State provides employment opportunities and generates income and stimulates growth of subsidiary industries besides assuring nutritive food security.

Fish Production:

Fish production is comprised of marine and inland fish and fishery products. The marine fish production accounts for more than 70 per cent of the total fish production in the State. The rest accounts for inland fish production.

The fish production in the State had marginally improved from 5.58 lakh tonnes in 2007-08 to 5.63 lakh tonnes in 2008-09. The total consumption of fish had been increased due to the rise of population, rapid urbanization and change in the consumption pattern. In order to meet out the increasing demand for fish, the State had set up 'Fisheries Development Mission' and Tamil Nadu Fisheries Development Corporation (TNFDC) and enhanced the fish production and thereby to generate employment and income and sustain livelihood.

The Fisheries Development Mission was implemented in selected pockets of five coastal districts viz. Ramanathapuram, Nagapattinam, Thanjavur, Pudukottai and Thoothukudi during 2008-09. The scheme was being implemented at an estimated cost of Rs.20.00 lakhs in the State. Further, in order to conserve the fishery resources, the State had imposed a fishing ban during the breeding season for a period of 45 days from April

15 to May 29 in the East Coast region and June 15 to July 29 in the West Coast. The Government had provided Rs.200/- per family during fishing ban period. During 2008-09, a sum of Rs.719.97 lakhs was being disbursed to 143994 fishermen families.

Table-9: Fish Production

(Lakh tonnes)

| Year | Inland | % change | Marine | % change | Total | % change |
|---------|--------|----------|--------|----------|-------|----------|
| 2006-07 | 1.60 | 2.56 | 3.92 | 0.51 | 5.52 | 1.10 |
| 2007-08 | 1.65 | 3.12 | 3.93 | 0.25 | 5.58 | 1.09 |
| 2008-09 | 1.66 | 0.61 | 3.97 | 1.02 | 5.63 | 0.90 |

Source: Commissioner of Fisheries, Chennai – 6.

Tamil Nadu has become one of the leading producers of marine fish and the annual marine fish production in the State is 3.93 lakh tonnes. The actual fish production had witnessed a marginal improvement from 3.93 lakh tonnes in 2007-08 to 3.97 lakh tonnes in 2008-09. Of the major marine fish producing districts in the State, Ramanathapuram district tops the list with 81569.65 tonnes, followed by Nagapattinam, Thiruvarur and Thanjavur (78881.50 tonnes), Tuticorin (48510.27 tonnes), Kanniyakumari (39627.60 tonnes) and Chennai (with 32086.60 tonnes) put together accounted for more than 60 per cent of marine fish production in the State. Of the total marine fish production (3.97 lakh tonnes) the share of demersal variety was at 2.26 lakh tonnes and pelagic variety accounts for 1.71 lakh tonnes.

Marine Fish Production – By Boats:

The marine fish production and fish catch is being done through mechanized and non-mechanized boats in the State. The total number of boats engaged in fishing operation had improved from 33066 in 2007-08 to 35838 in 2008-09. The total fish production of the State through these boats remained more or less the same at 3.12 lakh tonnes in 2007-08 and 2008-09.

Table-10 : Marine Fish Catch through Boats

| Year | Boats in operation (No.) | | | Fish catches through (Tonnes) | | |
|---------|--------------------------|----------------|-------|-------------------------------|----------------|--------|
| | Mechanised | Non-mechanised | Total | Mechanised | Non-mechanised | Total |
| 2006-07 | 9990 | 59741 | 69731 | 238423 | 71874 | 310297 |
| 2007-08 | 5596 | 27470 | 33066 | 240473 | 71843 | 312316 |
| 2008-09 | 6200 | 29638 | 35838 | 247400 | 64740 | 312140 |

Source: Commissioner of Fisheries, Chennai – 6.

Inland Fish Production:

The inland fisheries spread over about 3.71 lakh hectares comprised of reservoirs, major irrigation and long seasonal tanks, short seasonal tanks and ponds, estuaries, backwaters which are amenable for both capture and culture fisheries in the State. The population involved in inland fishing is estimated at 2.16 lakhs. The inland fish production had marginally improved from 1.65 lakh tonnes in 2007-08 to 1.66 lakh tonnes in 2008-09.

Table-11 : Inland Fish Production – By Sources (in tonnes)

| Sl. No. | Source | 2006-07 | 2007-08 | 2008-09 |
|---------|--|---------------|---------------|---------------|
| 1. | Major Reservoirs | 1676 | 1740 | 1449 |
| 2. | Major irrigation tanks (both perennial and long seasonal) | 63197 | 64437 | 63676 |
| 3. | Seasonal tank | 76600 | 78102 | 79604 |
| 4. | Estuaries & backwaters | 8718 | 8889 | 9060 |
| 5. | Fish Farmers' Development Agencies (Tanks) | 557 | 595 | 606 |
| 6. | Intensive Inland Fish Culture and Marketing | | 2317 | 3476 |
| 7. | Derelict water | | 1494 | 1522 |
| 8. | Aqua Culture farms | | 6930 | 7063 |
| | Total | 160171 | 165404 | 166456 |

Source: Commissioner of Fisheries, Chennai – 6.

Fisherfolk Welfare Schemes:

With a view to improve the economic conditions of the fisherfolk, the State implements many Welfare Schemes to the members who have enrolled in the Co-operative Societies. In order to alleviate the sufferings and also to uplift them, there are 1366 Co-operative Societies inclusive of marine fishermen (550 Nos.), Marine Fisherwomen (384 nos.), Inland Fishermen (315 Nos), Inland Fisherwomen (84 Nos.), other types (21 Nos.), District Fishermen Federation (11 Nos.) and Tamil Nadu Fisheries Federation (one number) functioning in the State. In these Societies 5.62 lakh of fishing population were enrolled as members in the State. In addition to this, the following other schemes are also implemented in the State.

Table-12: Welfare Measures

| Category | Total (Nos.) | Total Members Lakhs) |
|--|--------------|----------------------|
| Marine Fishermen Cooperative Societies | 550 | 3.21 |
| Marine Fisherwomen Cooperative Societies | 384 | 1.43 |
| Inland Fishermen Cooperative Societies | 315 | 0.77 |
| Inland Fisherwomen Cooperative Societies | 84 | 0.13 |
| Other types of Societies | 21 | 0.07 |
| District Fishermen Cooperative Federation | 11 | 0.01 |
| Tamil Nadu State Apex Fisheries Cooperative Federation | 1 | 0.01 |
| Total | 1366 | 5.62 |

Source: Policy Note on Fisheries, 2009-10, GoTN.

National Savings-cum-Relief Scheme for Fishermen:

Under the scheme, a sum of Rs.1200/- including the fishermen contribution was distributed to the beneficiaries during the four lean months. During 2008-09, the State had sanctioned a sum of Rs.2089 lakh as relief amount and 1.74 lakh were benefited in 13 coastal districts in the State.

Savings-cum-Relief Scheme for Marine Fisherwomen:

Under Savings-cum-Relief Scheme for the welfare of fisherwomen, a sum of Rs.75/- per month was contributed by the fisherwomen for 8 months for which Rs.600/- was provided by the State. Thus, a total sum of Rs.1200/- was being distributed to the

beneficiaries during the four lean months. The State had sanctioned a total sum of Rs.1260 lakh in 2007-08 which had improved to Rs.1432 lakh during 2008-09. In 13 coastal districts, the beneficiaries had increased from 1.05 lakh to 1.19 lakh during the reference period.

Grant of Relief Assistance to Marine Fishermen Families:

During the fishing ban period of 45 days (June 15 to July 29) in East Coast and (April 15 to May 29) in East Coast region, the State had provided Rs.500 per family as relief assistance. During 2008-09, a sum of Rs.719.97 lakh was disbursed to 1.44 lakh fishermen families.

Fishermen Free Housing Scheme:

Under the scheme, the State Government accords sanction for the construction of 2000 houses every year for both Marine and Inland Sector fishermen those who are living below poverty line and also to the members of the Society. The scheme is shared between the Centre and State on 50:50 basis.

Group Accident Insurance Scheme:

The State and Central Government pay Rs.7/- each as premium for the welfare of fisherfolk. In case of death or permanent disablement, the fishermen are given Rs.50000/- and Rs.25000/- is paid for partial disablement. During 2008-09, a sum of Rs.38.79 lakh was paid to FISHCOFED, New Delhi as the share of the State Government towards insurance coverage for 5.54 lakh active marine and inland fishermen and fisherwomen for the period from 10.12.2008 to 9.12.2009.

Further, under the Motorisation of traditional crafts the Government had provided Rs.20000/- as subsidy towards the purchase of outboard motors and about 18470 outboard motors (OBM) / Inboard Engines (IBM) were provided to the fishermen. The scheme is shared equally on 50:50 basis by both Central and State Government.

Fishermen Relief Scheme:

The State provides support for the family of genuine fishermen apprehended in other countries. The State pays daily relief amount of Rs.50/- to the families up to arrival of the fishermen from the sea. Further, for the welfare of fishermen, the Government had sanctioned a sum of Rs.5/- lakh each to the District Collectors of eight districts viz. Nagapattinam, Thanjavur, Tiruvarur, Pudukkottai, Ramanathapuram, Thoothukudi, Tirunelveli and Kanniyakumari in the State. Likewise, for missing fishermen, the State pays Rs.50/- per day or Rs.1500/- per month as relief assistance to the missing fishermen families. The Government had sanctioned Rs.12 lakh and distributed to the District Collectors of the coastal districts. Of the sanctioned amount, Rs.0.22 lakh was disbursed by Thanjavur and Rs.1.50 lakh by Kanniyakumari District Collectors.

As a relief to the families of deceased fishermen during the attack by Srilankan Navy while crossing the International Maritime Boundary Line (IMBL), the State has enhanced the ex-gratia payment from Rs.1.00 lakh to Rs.3.00 lakh. The ex-gratia payment is enhanced from Rs.1.00 to Rs.5.00 lakh when the deceased fisherman was found to be the breadwinner of the family.

Further, for the Tsunami rehabilitation and reconstruction programme, the Government had extended relief assistance to the tune of Rs.15216 lakh for carrying out repairs or replacement of damaged fishing implements. As an additional relief assistance, the Government had sanctioned Rs.11036 lakh under Rajiv Gandhi Rehabilitation Package for the distribution of heavy duty bi-cycles, Life jackets, Re-chargeable lanterns, fishing nets and insulated ice boxes to 42000 tsunami affected fishermen in the State.

Fish Export:

The State dominates high potential for fish culture and it is one of the leading exporters of fish in the country. The processed fish is being exported through Chennai and Thoothukudi ports. The State Fish Export had plummeted from 72644 MT in 2007-08 to 68364 MT in 2008-09. The total value of export of fish had also witnessed a fall from Rs.1813 crores to Rs.1768 crores during the respective years. The State shared 13.41 per cent of quantity exported and 23.79 per cent of the value of fish exported in the country during 2007-08. Among the two ports, the Chennai Port occupies 4th rank in the quantity of exports and 2nd rank in the value of fish exports whereas Thoothukudi port ranks 6th position both in the quantity of export and value of fish exports.

Forestry:

Forests are the earth's largest and most productive eco-system, and constitute the second largest land –use in India next to agriculture. Forests have become great collectors and storehouses of water, and they are earth's purifiers, and emit oxygen to the globe. Forests provide habitats to diverse animal species and form the source of livelihood for millions of people. Forests are vital to maintain global food production and contribute significantly to World trade and economic growth. It plays a key role in promoting the global environment and in contributing to rural development and upliftment of the families below the poverty line.

The State has 22,877 sq. kms. of forest land which accounts for 17.59 per cent of the State's geographical area as against 33.33 per cent required under the National Forest Policy, 1988. Nearly half of the forest area is subject to heavy degradation on account of biotic pressure. However, various schemes and programmes of the State aim at restoring the degraded forest and expanding forests outside the Reserve Forest area. Thus, the State forestry became the most natural and sustainable one for ecological and food security besides generating employment and income to the rural and tribal folk and to State by way of sale of forest produce like honey, herbs, fruits, medicinal plants, cashew, bamboo and softwood, sandalwood, timber, and supply of raw materials to industries, farm forestry plantations etc. The richness of both flora and fauna is essential and protection of this nature is conducive for the development and conservation of biodiversity as against the present climatic change and global warming.

Forest Area:

As per the State Forest Report, 2003, the forest area comprised of Reserved forests (RF) (19363.67sq. kms), Reserved lands (RL) (2350.97sq. kms) put together accounts for 21714.64 sq. km. The forest area as a percentage to the total geographical area worked out to 16.61 percent. Of the forest area, the RF accounts for 14.81 percent and this proportion was higher in the districts of Erode, Coimbatore, Thiruvannamalai,

Dharmapuri, Vellore, Krishnagiri, The Nilgiris, Dindigul and Salem, which accounted for more than 70 per cent of the Reserved Forests in the State. Likewise, the RL accounts for 1.80 percent of the total Geographical area and the districts namely Theni, Villupuram, Tirunelveli, Dindigul, Salem and Madurai shared 74.90 percent of the Reserved Lands. The green cover in the State was strengthened in the last three years and the tree cover increase was at 54,560 acres following the implementation of the programme viz: Tree Cultivation in Private Lands (TCPL), in an area coverage of 28,760 acres in 2007-08 incurred at a cost of Rs.9.47 crores and 25,800 acres at a cost of Rs.9.43 crores in 2008-09. Totally, 15,000 farmers in 2007-08 and 25,914 farmers in 2008-09 were benefited under this programme implemented in the State. The area coverage during 2007-08 and 2008-09 under Integrated Watershed Development Programme included an extent of 28,500 hectares under the lower zone and 19,000 hectares under the upper zone. Under Teakwood Planting in Padugai lands, an area of 6187 hectares was covered with an expenditure of Rs.6.06 crores during 2008-09.

Under the Tamil Nadu Afforestation (TAP-II) Project, an area of 51500 hectares was restored and development activities were carried out in 230 forest villages including 40 tribal villages at a cost of Rs. 113.00 crores during 2008-09. Further, a sum of Rs.25.81 crores was sanctioned by GOI during the first two years of the XI Five Year Plan (2007-08&2008-09). Of this, a sum of Rs.18.31 crores was released and Rs.12.33 crores was spent up to 31-3-09 and covered 411 villages and afforestation works carried out in an extent of 6160 hectares under the National Afforestation Programme in the State.

Forest Revenue:

The revenue from the forest is attained by way of sale of timber, sandal wood, supply of raw-materials to industries, farm forestry plantation excluding refund, bamboo, cashew, softwood plantation, other minor forest produce and other receipts. The total revenue from these items had improved from Rs.5846.93 lakhs in 2007-08 to Rs. 6248.30 lakhs in 2008-09 (RE). There was an increase in revenue during 2008-09 from sandal wood (35.7%), supply of raw-materials (85.9%), other minor forest produce (3.7%), bamboo, cashew, softwood, plantation (38.4%), and other receipts (7.0%).

Table –13: Revenue from Forestry

| Sl. No. | Item | 2007-08 (Accounts) | 2008-09 (RE) |
|----------------|---|-------------------------------|-------------------------|
| 1. | Sandalwood | 805.44 | 1093.44 |
| 2. | Timber | 1237.15 | 1154.64 |
| 3. | Supply of raw materials to industries | 448.97 | 834.59 |
| 4. | Other Minor Forest Produce | 9.93 | 10.30 |
| 5. | Farm Forestry plantation excluding refund | 962.03 | 600.55 |
| 6. | Sale of Bamboo, Cashew, Softwood plantation, etc. | 10.02 | 13.87 |
| 7. | Other Receipts | 2373.39 | 2540.91 |
| | Total | 5846.93 | 6248.30 |

Source : Office of the Principal Chief Conservator of forest, Chennai –15.

Expenditure on Forestry:

The expenditure on forestry had shown a steady increase in all the Five Year Plan periods in the State. The plan expenditure had improved from Rs.30.43 lakhs in 1950-51 to Rs.70597.44 lakhs 2002-07. The increase over the previous (IX) plan expenditure accounted for 17.0 percent. The expenditure during the first two years (2007-08 & 2008-09) during Eleventh plan was Rs. 17337.97 lakhs and Rs.21755.98 lakhs respectively. The area covered was higher during the IX plan and stood at 4.15 lakhs hectares when compared to all the other plan. The increase over the VIII plan worked out to 50 percent and over X plan it was 83 percent. The area covered had improved from 0.15 lakh hectares in the First Plan to 2.27 lakh hectares up to Tenth Plan. The area coverage during the first two years of Eleventh Five Year Plan (2007-08 & 2008-09) was 0.56 lakh hectares and 0.59 (RE) lakhs hectares respectively.

Table – 14: Physical and Financial Performance during the Five Year Plans

| Plan Period | Year | Plan Expenditure (Rs. in lakhs) | Area Covered (Lakh ha.) |
|-------------------|-----------|------------------------------------|----------------------------|
| I Plan | 1951-56 | 30.43 | 0.15 |
| II Plan | 1956-61 | 147.00 | 0.78 |
| III Plan | 1964-66 | 372.14 | 0.76 |
| Post III Plan | 1966-69 | 279.99 | 0.39 |
| IV Plan | 1969-74 | 574.71 | 0.68 |
| V Plan | 1974-78 | 1198.33 | 1.09 |
| Post V Plan | 1978-80 | 516.13 | 0.41 |
| VI Plan | 1980-85 | 5700.00 | 2.13 |
| VII Plan | 1985-90 | 11189.00 | 1.80 |
| Post VII Plan | 1990-92 | 8504.00 | 0.85 |
| VIII Plan | 1992-97 | 28364.00 | 2.77 |
| IX Plan | 1997-2002 | 60312.00 | 4.15 |
| X Plan | 2002-07 | 70597.44 | 2.27 |
| XI Plan (I year) | 2007-08 | 17337.97 | 0.56 |
| XI Plan (II year) | 2008-09 | 21755.98* | 0.59 |

*- Revised

Source : Office of the Principal Chief Conservator of forest, Chennai –15.

The various activities taken up in the forestry sector comprised of public works, welfare of ST and other BCs, social security and welfare, soil and water conservation, forestry and wildlife, plantations, agricultural research and education, special programme for rural development, hill areas and roads and bridges. Of the expenditure, the expenditure incurred on forestry and wildlife was the highest at (Rs.16713.93 lakhs) followed by soil and water conservation (Rs.1097.53 lakhs) which had accounted for 91.6 percent during 2008-09 (BE).

Table -15 : Expenditure on Forestry – By Activity (Rs. in Lakhs)

| Sl. No. | Activity | 2007-08 (Accounts) | 2008-09 (BE) |
|---------|---|--------------------|-----------------|
| 1. | Public Works | 1.56 | 50.30 |
| 2. | Welfare of ST and other BCs | 151.82 | 336.38 |
| 3. | Social Security and Welfare | 2.51 | 2.75 |
| 4. | Soil and Water Conservation | 1269.71 | 1097.53 |
| 5. | Forestry and Wildlife | 13048.45 | 16713.93 |
| 6. | Plantations | 1.72 | 2.17 |
| 7. | Agricultural Research and Education | 55.55 | 101.40 |
| 8. | Special Programme for Rural Development | 597.22 | 750.96 |
| 9. | Hill Areas | 69.15 | 98.02 |
| 10 | Roads and Bridges | - | 300.00 |
| | Total | 15197.69 | 19453.44 |

Source : Office of the Principal Chief Conservator of forest, Chennai –15.

The protection of vegetation and mangrove forest is very essential for the State and to safeguard coastal men and materials and also to arrest the sea erosion and intrusion. Under the World Bank assisted Emergency Tsunami Reconstruction Project (ETRP), the vegetation protection structures in coastal areas were carried out to an extent of 4778 hectares of shelterbelt and 2162 hectares of mangrove plantations had been raised in the coastal districts of the State with an expenditure of Rs.21.83 crores. During 2008-09, maintenance work was carried on to the tune of Rs.1.20 crores and shelterbelt plantations had been raised in private lands in an area of 900 hectares and incurred Rs.2.52 crores.

Under WGDP, for watershed development, Rs.3.86 crores and under HADP in the Nilgiris district, Rs.2.63 crores were incurred during 2008-09. Further, for Biodiversity conservation, during 2008-09, a sum of Rs.0.28 crores was sanctioned for the implementation of the nature conservation programme. There were 94 wetlands identified in India. Of these, 4 wetlands viz: Calimere, Kazhuveli, Pallikarani and Muthupettai are located in the State and for the Eco development, Bio-up gradation, Rs. 1.12 crores was spent in 2008-09. To protect the forest resources from forest fires and for the improvement of roads etc. an amount of Rs. 3.31 crores was utilized in 2008-09. Under HADP programme, apart from afforestation, soil and moisture conservation works, fencing around shoal forests and wild life babiats were carried out to reduce the pressure on eco-system and for improving the degraded shola and forest cover in Nilgiris. During 2008-09, a financial assistance of Rs.2.63 crores was sanctioned towards the scheme implementation.

Further, the State had identified the role of rural women for the 'Joint Forest Management', restoration of forest and resource sharing. So far, 2167 Village Forest Councils (VFCs) were established with 6,61,609 members including 3,31,974 women and 121 VFCs were headed by women in the State. Further, as a part of empowerment of women from 1997-98 to 2008-09 about 6810 women Self Help Groups had been formed and 1,00,600 women were enrolled as members. Thus, the forest protection and creation of forest would enhance bio diversity and environmental stability and prevent soil erosion and land slide and serve as a foster mother to agriculture and as in the State, these are essential and afforestation programmes in the degraded forests is the cause for concern and the need of the hour for the mitigation of climatic change effects due to Global Warming.