

My Dear Fellow Citizens,

Sikkim is blessed land with white waters, sylvan surroundings and rejuvenating air. All these blessings have their source in the forests. But now the societal demands on forests are becoming more diversified and rising faster than the capacity of forests to supply them on a sustainable basis. As our developmental challenges evolve the centrality of environment in our development paradigm will gain more significance. In the pursuit of development I have not left everything to market forces which fail to factor in environment and biodiversity in its economic model. I do not want an economy which runs on an ecological credit card. Rather I have taken the beauty of forests as a strategic opportunity and focused on environmentally friendly enterprises like eco-tourism. Biodiversity of Sikkim has always provided the resilience in the ecosystem and nothing should be done which would jeopardize Sikkim's future insurance. My government has given recognition to forestry as a driver of poverty reduction and as a social and political tool rather than just a technical issue. I have always endeavored green governance by showcasing Sikkim as a unique example of harmony between people, profit and planet.

Reality of climate change is knocking at our door. The climate change will alter the species composition and structure and will have a tremendous effect on our biodiversity. Most endemic plant species of Sikkim may not be able to respond successfully as the rate of climate change increases and resultant invasions of weedy and exotic species from lower elevations bring accompanying problems. The Department is preparing Working plans which are having a strategic focus on Sustainable Forest Management and conservation of biodiversity. This will help in both mitigation and adaptation to climate change. I am aware of my responsibilities towards the people of Sikkim. My focus would be on building the capacity to adapt and strengthen the social-ecological systems.

I am committed to devolution of both financial and administrative powers to people through local forestry governance structures of Joint Forest Management Committees (JFMC) and Eco- Development Committees (EDC). I solicit your cooperation by involving yourself in greening the landscape of Sikkim by participating in Sikkim's flagship greening programmes like 'Smriti Van', 'State Green Mission' and 'Ten Minutes to Earth' which we have initiated as a first model of green development in the entire country.

Pawan Chamling

Chief Minister

INTRODUCTION

The State of Sikkim with only 0.22% of the geographical area of the country harbors around one third of the flowering plants of India. Sikkim is one of the hotspots of biodiversity. There are more than 4,500 flowering plants. Among these plants in particular, there are 550 species of orchids and 36 species of rhododendron. Available genetic material of Orchids in Sikkim has immense potential for commercial varieties. The biodiversity of Sikkim is very rich and also includes wild relatives of more than 400 species of medicinal plants in the State. The State support luxuriant tropical and alpine vegetation in its pristine virgin form. Its unique geographical position, varied topography, high annual precipitation, minimum demographic pressure makes the State one of the richest botanical treasure houses of the country. This green landscape is fortunate to be further supported by visionary leadership and green governance of Honorable Chief Minister, Shri Pawan Chamling. The forestry in Sikkim has been particularly blessed with the leadership of the greenest chief minister of India for the last one and a half decade. State under his leadership has set aside 34% of geographical area for the protected area network consisting of the National Park, Sanctuaries and Biosphere Reserve. It was under his leadership that State Policy of Environment, Forest and Land Use aiming at protection and preservation of the fragile ecology of the Himalayan State was evolved. Felling of trees in Reserve Forests was restricted and the export of timber outside the State was banned. He never shirked from taking risky and bold political steps for the cause of nature. Banning of grazing in the Reserved Forests is just a case in point. Grazing in reserved forest was banned in the year 1995. The forests which were degraded due to intensive grazing started rejuvenating. As a result hitherto unspotted animals started reappearing. In ex-situ conservation center wild animals are multiplying. The collaborative leadership of Shri Pawan Chamling was amply reflected when he conceptualized the idea of Smriti Van (Memorial Forests) to take the forestry programme to people's level. People from different states, individuals, institutions, clubs, societies and non-governmental organization participate by planting trees in memory of children, ancestors, marriage and death etc. at a common venue. They care, own and nurture trees to maturity in Smriti Van. The places that were once devoid of trees have a dense canopy of trees now due to this programme.

While giving priority to people's participation and empowerment he was instrumental in notification on Joint Forest Management (notification No.202/F dated 22/6/98).Nine Forest Development Agencies under Territorial and Wildlife Sectors with 158 Joint Forest management Committees covering 88518 ha. forest land and 49 Eco Development Committees have been constituted where the villagers themselves are actively protecting and conserving forest. Every year the Chief Minister is organizing Janta Mela and free distribution of LPG Cylinders to the families below poverty line is being done to reduce pressure on forests. Forest Department is giving up to 100 saplings to the people for planting in their private land each year who are desirous of same free of cost.

State Medicinal Plan Board (SMPB) set up in 2002 to concretize action plan on medicinal plants in the State. The process of identification of Heritage tree has been initiated.

On environmental front he set up an Environment Commission in 2005. Plastic carry bags were banned in Sikkim through legislation. Wetland Conservation Programme was formulated and six wetland complexes were included in national conservation programme. Apart from conferring of greenest chief minister of India to Shri Pawan Chamling , the green governance of Sikkim was further acknowledged when Centre for Development Finance (CDF) at the Institute for Financial Management and Research (IFMR) ranked Sikkim 1st among the Indian States in Conservation of Natural Resources and Performance in Land Use for the year 2008. Sikkim was adjudged high at 2nd rank in the overall Environmental Sustainability Index (ESI) ranking. In spite of sustained demand of forest land for non-forestry purposes the forest cover showed a rising trend due to green policies of the government, as is evident from the following table.

Year	Recorded Forest Area (Sq.Km)	% of Total geographical Area
1995	3127	44.06
2009	3377	47.59

The thrust of forestry in days to come would be conservation rather than production of timber. Forestry would be epicenter of income generation activities for Sikkimese people through its non consumptive use.

THE VISION FOR THE FUTURE:

With the above background the sectoral vision in the forestry and environment sector till 2015 has been framed. The underlying theme of forestry would be the scientific management of forests for biodiversity conservation and for the benefit of Sikkimese people. The sectoral visions for different sectors are as follows.

1. FLAGSHIP PARTICIPATORY GREENING PROGRAMMES OF SIKKIM:

1.1 STATE GREEN MISSION

Green governance has always been at the forefront of agenda in Sikkim. The Chief Minister of Sikkim, Shri Pawan Chamling was awarded the Greenest Chief Minister of India by Centre for Science and Environment, New Delhi in 1999. Sikkim was adjudged as the best performing State in India in conservation of natural resources by Centre for Development Finance, Chennai. This needs a special appreciation because Sikkim has all the temptations of squandering its natural resources as it tries to improve the living standards of Sikkimese people. Greening or green governance is not new to Sikkim but the concepts of greening are always new and innovative here. Chief Minister of Sikkim, Shri Pawan Chamling has been known both nationally and internationally for his green governance and out of box thinking in developing new and unique people oriented green initiatives. Widely acclaimed and highly successful programme of State Green Mission is just one among them. The flagship 'State Green Mission' program is one of its kinds in India and there are no parallels to it. The State Green Mission aims to inculcate green consciousness in every citizen of Sikkim. Every vacant patch of land in Sikkim is being planted with flowering and fruiting trees with the people's participation. The conservation paradigm of the Chief Minister of Sikkim is always very imaginative. It is not based on growth versus green but growth with green. This unique innovative programme was conceived by Shri Pawan Chamling himself and formally launched by him on 27/2/06. The programme started with avenue plantation for beautification and gradually went on to become mass movement. Now all vacant lands, ranging those from monastery lands to community lands in village are being covered under the programme and all walks of life ranging from government officers, to public to housewives to army enthusiastically participate every year in the programme voluntarily. This has given boost to eco-tourism in addition to increasing green cover. The special feature of this programme has been the greening at no cost. It was just the motivation by the Hon'ble Chief Minister which manifested itself in participatory greening. District wise achievements under the State Green Mission during phase V (year 2010-11) are as follows.

Division	East	West	North	South
No. of Seedling	197824	153787	79176	53190
Total				483977

This flagship greening programme of Sikkim would be made further more participatory in the coming years. More and more areas would be taken up for plantation in blank areas

along with enhanced care of plantations done earlier. More emphasis would be given to flowering and wild fruit varieties. State Green Mission would be made the annual ritual and would be celebrated every year on 15th June. All the town and cities would be beautified with flowering and ornamental plants according to zonation. Eco-friendly programmes like Lali Gurans road in South Sikkim, Rabongla –Namchi eco-highway and declaration of Rabongla as Rhododendron city would be launched. Latest hybrid plants of Japanese cherry, dog woods, malus species, magnolia hybrids for temperate zone and palms, cycas hybrid, cassia species, bahunia species etc. for tropical towns and cities would be introduced. The trees, specially of uttis, posing danger in towns will be gradually replaced with these varieties. Another 2500000 seedlings would be planted by 2015 under State Green Mission.

1.2 TEN MIUNTES TO EARTH:

It is a very unique programme conceived by Chief Minister of Sikkim, Shri Pawan Chamling where everybody commits him/herself to earth for ten minutes by planting a sapling. It was launched on 15th July 2009 at 1030 am when the thousands of hands in Sikkim lovingly lifted the seedlings for plantation on mother earth. This initiative also supported The United Nations Environment Program (UNEP) worldwide tree planting campaign. *Plant for the Planet: Billion Tree Campaign*. About 610000 seedlings were planted throughout the Sikkim. The idea was to plant trees equivalent to the population of Sikkim in ten minutes; one tree for one person. This was also a record that within ten minutes the plants numbering population of the State were planted anywhere. This ten minutes activity would be able to sequester about 1400 tons of carbon di-oxide annually. This is the Sikkim’s own unique way of contributing to climate change mitigation. Honorable Chief Minister has further given emphasis on important native species like quercus (oak), rhododendron, magnolia and native wild fruits to have a well balanced forest ecosystem and preserve local biodiversity. The people of Sikkim, communities, industries, government officials, civil society organizations and religious institutions participated on a massive scale. It was the people’s program conceived and initiated by Shri Pawan Chamling, the Forest Department acted as just a facilitator. The event was unprecedented and one of its own kind. The objective was not only to make tree planting as a Sikkimese way of life but also to send the message to the world community at large that ‘we care for nature’. The year 2010 was equally illustrious. Cumulative seedlings planted under the programme have gone up to 924600. This unique programme will continue with innovative themes for coming years. The Department will continue to provide free saplings for plantations to the public and institutions. In the coming years too the idea ‘Each one plant one’ would remain and the saplings equal to the population of Sikkim would be planted. Ten Minutes to Earth too would be made the annual ritual and would be celebrated every year on 25th June. The following table shows the district wise figure of seedlings planted on occasion of second phase of ‘Ten Minutes to Earth’.

Division	East	West	North	South
No. of Seedling	12900	131596	54105	116000
Total				314601

In addition to other activities over 1500000 seedlings would be planted by 2015 under the programme Ten Minutes to Earth.

1.3 CREATION AND MANAGEMENT OF PROPAGATION NURSERY

The seedlings in the nurseries of the Forest Department have been the backbone of state governments greening programmes. Most of the seedlings are provided to the public and the institutions free of cost. In addition to the existing nurseries new propagation nurseries will be created in lowland and highland areas, for the purpose of ex-situ conservation and dissemination of important indigenous plant species for cultivation, multiplication, and trading. The nurseries will be used to propagate rare and endangered plant species, difficult-to-propagate species and species with high medicinal and economic values. Chief Minister has already directed production of 10 million plants of indigenous varieties. This would be accomplished by intensifying the management in existing nurseries and creating new nurseries. For indigenous plants with high ornamental values such as wild orchid, primulas, rhododendrons, and other wild flower species, 1 number of floricultural propagation nursery will be created in Gangtok. Hi tech nurseries would be established which would focus on regeneration of oaks and other threatened species. 5 number of propagation nurseries are planned to be created.

2. WILDLIFE MANAGEMENT :

State Board for wildlife under the chairmanship of Hon'ble Chief Minister has achieved several milestones. Sikkim State has progressed a great deal with the establishment of one huge National Park i.e. Khangchendzonga National Park, one Biosphere Reserve known as Khangchendzonga Biosphere Reserve and eight Wildlife Sanctuaries including one Faieanum Orchid Conservation Reserve, all occupying as much as 42.54% of State's total geographical area under the wildlife protected area network including Biosphere Reserve. It is one of the highest coverage when compared with other States in the country. The State has been able to set aside 51.68 % of the State's forest land area under the wildlife protected area network including Biosphere Reserve for the protection and conservation of State's rich wildlife and biodiversity resources. Barsey Rhododendron Sanctuary, West Sikkim covering an area of 104 Sq.kms was commissioned and declared for the purpose of protection of flora & fauna especially the flora (Rhododendron species) and other bio-diversity resources of the area during the year 1996 vide Notification No. 50/WL/F/95/269 dated 08-07-1996. Himalayan Zoological Park, Bulbulay established in an area of 230 Ha was formally opened to the tourists during May, 1997 vide Notification no. 51/WL/Forest dated 28-05-1997. Bringing of wilderness areas under the fold of protected area has continued since then. Several new sanctuaries like Fambang Lho and Kitam Bird sanctuaries took birth during these years. Protection, preservation and conservation is achieved through the people's participation represented by Eco-development Committees (EDCs) formed around the protected areas. There are altogether 57 EDCs already formed around the protected areas who are implementing Wildlife Forest Development Agency schemes since the year 2004. There is a ban on killing of wild animals.

The future vision envisages that research studies would be conducted on rare and threatened species of flora and fauna to generate better understanding of their population, habitat requirements and threats. Large undisturbed habitats would be protected from further fragmentation by confining tourism activities only in areas that are already well designated. Joint anti-poaching operations would be conducted and joint patrols of forest staff and local community organizations including EDCs, Himal Rakshak and NGOs would be done. Following strengthening activities are envisioned.

2.1 Strengthening of In-Situ Conservation Areas:

- State is rich in Butterflies with about 627 species of interest and rarity. Declaration of Butterfly Sanctuaries at Legship, West Sikkim, Sankalang in North Sikkim and Middle Camp in East Sikkim is proposed.
- State has a great and numerical abundance of bird lives of highest interest, beauty and rarity. In order to protect, preserve and propagate bird lives of the state, bird live rich areas such as Rabdentse in West Sikkim, and Goru Zurey in East Sikkim will be proposed for declaration of Bird Sanctuaries/Parks.
- The Tibetan Plateau in North Sikkim abounds in endangered wildlife species such as Tibetan Wild Ass, Great Tibetan Sheep, Tibetan Wolf, Blue Sheep, Snow Leopard, Himalayan Marmot, Snow Cocks and migratory aquatic birds. It is a trans-Himalaya zone and will be proposed for State's Cold Desert Sanctuary.
- Snow Leopard and Red Panda (State Animal) found in the Sikkim Himalayas are among the globally threatened animal species given highest protection under the wildlife laws. In order to initiate long term in-situ protection and conservation of these rare and endangered species, Project Snow Leopard and Project Red Panda will be proposed for launching.
- Zonation of the National Park and Wildlife Sanctuaries will be carried out in order to identify the Critical Wildlife Habitat Areas and to keep these inviolate and the rest for zonation into Buffer and Tourism Zones for manipulation of wildlife and tourism related developmental works for sustenance of these wildlife protected areas.
- The Wildlife Sector has embarked upon for the inclusion of the Khangchendzonga Biosphere Reserve (KBR), Sikkim in the world network of UNESCO's MAN AND BIOSPHERE (MAB) program and for the inclusion of the Khangchendzonga National Park, Sikkim in the list of World Heritage Site.

2.2 Strengthening of EX-Situ Conservation Areas:

- The existing Himalayan Zoological Park, Bulbulay will be developed into a **Modern Zoo** with the new concept of **Immersion Exhibits** of the Sikkim Himalayan animal species. In addition to this, Project Himalayan Tahr Safari Park in an area of 24 Ha. and Project Bird Safari Park (Walk-through Aviary) in an area of 4.45 Ha. will also be developed within the Zoological Park campus. The Zoological Park will also be proposed for re-naming as Sikkim Himalayan Zoological Park with an autonomous status under the Society.
- The Himalayan Zoological Park, Bulbulay will also propose to initiate endangered species conservation breeding projects of target animal species such as Red Panda (State Animal), Blood Pheasant (State Bird), Himalayan Tahr, Blue Sheep and Snow Leopard. In-situ conservation breeding for research and education would be done and the surplus species will be released in their natural habitats to replenish the depleting wild stocks and some will be exchanged with other zoos for conservation breeding programs.
- Sikkim's Red Jungle Fowl, locally known as LUINCHEY found in the lower forests belts are presumed to be pure wild fowls separated from hybrid individuals. Pure Red Jungle Fowl has become increasingly rare both in captivity and in the wild. In order to protect, preserve and

propagate these rare species, Project Red Jungle Fowl for captive conservation program will be proposed for launching at Manpur forest, South Sikkim.

- Establishment of Animal Rescue Centre and Quarantine House for captive animals' health care and hygiene, the Post- mortem House, Incinerator House for strengthening of the veterinary wing of the zoo and the developments of animals' enclosures and zoo infrastructure including a Wildlife Interpretation Centre.
- The Wildlife Sector is already going ahead for establishment of iconic projects such as Sidkyong Tulku Bird Park at Rabdentse, West Sikkim and Butterfly Park at Rang Rang, North Sikkim. The projects are mainly aimed at ex-situ conservation of birds and butterflies of interest and boosting of tourism in the State for its sustenance.

3. FOREST MANGEMENT AND BIODIVERSITY CONSERVATION:

Government of Japan through Japan International Cooperation Agency (JICA) is providing financial assistance for Sikkim Biodiversity Conservation and Forest Management Project (SBFP) that is being implemented from year 2010-11. The project aims to strengthen biodiversity conservation activities and forest management capacity and simultaneously improve livelihood of the local people who are dependent on forests and are living in forest fringe areas. Project objectives are to be achieved by promoting sustainable biodiversity conservation, afforestation and income generation activities including eco-tourism for the community development. The project activities will be contributing to environment conservation and harmonized socio-economic development of the state in multifarious ways in the next decade. The project has a financial outlay of Rs 330.57 Crores and is of 10 years duration. The main components of the project are indicated below:

3.1.1 FOREST AND BIODIVERSITY CONSERVATION:

Its aim is to enhance the global, social, and economic value of biodiversity and improve livelihoods in and around protected areas (PAs), buffer zones, and reserve forests. The Department would seek to achieve this objective through the establishment and implementation of sound management plans and the dissemination of biodiversity information for promoting public awareness on the significance of biodiversity. Development and implementation of the management plans for the Khangchendzonga Biosphere Reserve and the seven wildlife sanctuaries will be strengthened. For effective implementation of the plans the focus would be on:

- the enhancement of the spatial and resource information base for planning, implementation, and monitoring of forest and biodiversity management;
- the establishment and improvement of zoning and of plans for the management of reserve forests and protected areas;
- the promotion of public support for biodiversity conservation through research, ex-situ conservation, and extension; and
- the capacity development of the Forestry Department.

For ex-situ conservation and promotion of biodiversity conservation the main activities would include :

- a) Establishment of a Butterfly Park in North Sikkim to ensure environmental and ecological conservation, ecological research, education and awareness, tourism and recreation, and enrich aesthetic experience.
- b) Construction of Main Office Building of Himalayan Zoological Park and Veterinary Care Facility
- c) For the protection of the wild animals, a rescue center and some other equipments will be also established at this zoological park in accordance with the master plan of the zoological park.

In addition, inter-sectoral linkages will be built among the Forestry Department, State Pollution Control Board, Sikkim University, Wildlife Institute of India, Indian Institute of Remote Sensing, Indian Council of Agricultural Research, and Eco Development Committees (EDCs) and other related institutions. Project would result in enhancement and management of forest and biodiversity information base to safeguard forest and biodiversity resources through scientific and systematic planning.

A modern laboratory for Geographical Information System (GIS) and Remote Sensing (RS) will be established under the project at the headquarters of the Department. It will create a huge digital database on various aspects of forestry using remote sensing and GIS aspects on day to day aspects basis. The objective is to develop land use topo maps which will assist planners and decision-makers, including government agencies, donors, and private entities, not only in land use and biodiversity conservation but also in development planning.

3.1.2 INVENTORY AND MONITORING OF BIODIVERSITY

Rapid biodiversity surveys, which would display the ecosystems throughout the state, will be conducted. The outputs will be 1) biodiversity information on four ecosystems to be used in the production of thematic maps for management so that key areas are protected and 2) data to be stored at the GIS/RS laboratory. Survey will be conducted at approximately **1,000 sample plots** throughout Sikkim for quantitative biodiversity study using the digital spatial information base. In addition, known hotspots in forest, alpine, freshwater, and agro- ecosystems will have approximately **300 more plots** to present more detailed information. In addition **60 preservation plots** survey would be done.

3.1.3 STUDY OF IMPACTS OF CLIMATE CHANGE AND GRAZING IN THE HIMALAYAN ECOSYSTEM

The objectives of these scientific studies are the followings:

1) to analyze and understand the trajectory of ecosystem dynamics influenced by global warming in alpine areas, This information will be used to recommend measures for climate change adaptation and methods for monitoring climate change impacts and

2) to analyze and understand human-nature interactions related to grazing in alpine, temperate, and subtropical areas for proposing a model for participatory management of grazing. Though grazing has been banned in the state, it has continued to a lesser extent in certain places such as the alpine areas in North Sikkim. The status of grazing in any given location affects its ecosystem and biodiversity and needs to be studied.

3.1.4 MANAGEMENT PLANS FOR PROTECTED AREAS (PAs) AND CONSERVATION OF FLAGSHIP SPECIES HABITATS:

Rationalization of Protected Area Boundaries and Improvement of the PA network will be carried out through survey, demarcation, and gazetting of rationalized PAs and reserved forests and establishment of protected area boundary pillars. **New Protected Area will be establishment of Nimphu Wildlife Sanctuary (approximately 200 km²) and Fairrieatum Conservation Reserve (orchid reserve, and approximately 0.6 km²).** To manage and conserve flagship species studies, especially focusing on Snow Leopard, Red Panda, Musk Deer, survey will be carried out to estimate their population density and ranges and to understand their migratory, feeding, and reproduction patterns, their interaction with humans, and their forestry and agriculture activities.

3.1.5 ENHANCEMENT OF WORKING PLANS AND ESTABLISHMENT OF FOREST MANAGEMENT ZONES:

It will be considered so that the underlying theme of working plans will remain scientific, modern and democratic management. Surveys will also be conducted to determine the management regime, including the silvicultural regime for each cluster. Public consultation will be conducted before finalising the zonation.

3.1.6 INSCRIPTION PROCESS OF KHANGCHENDZONGA BIOSPHERE RESERVE ON THE WORLD HERITAGE LIST:

The objective of the subcomponent is to assist the Department in enlisting Khangchendzonga and the Lepchas for its inscription on the World Heritage List through preparation of a detailed document on the outstanding universal values.

3.1.7 KNOWLEDGE GENERATION AND DISSEMINATION OF BIODIVERSITY AND BEST PRACTICE INFORMATION;

This will be done through

- a) Establishment of Sikkim Biodiversity Centre
- b) Production and dissemination of booklets of best practices

- c) Grant scheme for enhancement of biodiversity research and extension that will provide a window of opportunities not only for the Department but also for universities, schools, local governments, the private sector, NGOs, communities, and individuals to engage in the conservation and management of biodiversity and in raising awareness about sustainable resource use.

3.2 PROMOTION OF ECOTOURISM:

The ecotourism will be promoted with two principal objectives:

- i) providing income generation opportunities to local communities living in the forest fringe area , and
- ii) ensuring that the impacts of developing ecotourism do not damage the environment.

3.2.1 Activities:

The activities envisaged under this component are as follows:

(a) Ecotourism Policy Consultative Committee

For formulation of Ecotourism Policy a Committee has been constituted under the Forest Minister with expert members from Government and international NGO in field of ecotourism TIES (The International Ecotourism Society of USA), local NGOs, national level NGOs, members from Travel Agent Association of Sikkim (TAAS), Sikkim Association of Adventure Tour Operators (SAATO) etc. The Committee will formulate the Policy with the public consultations at each district level. The objective is to ensure that all the stakeholders in the state have a common understanding of the concept of ecotourism and that tourism infrastructure is constructed respecting acceptable environmental and cultural standards.

(b) Establishment of an Ecotourism Marketing Cell

Ecotourism Marketing Cell (EMC) will be established under the Project in order to address the weak marketing of ecotourism in Sikkim. Tourism professionals, especially ecotourism specialists, will be recruited from the private sector to form the EMC established under the PMU. The cell will formulate a five-year Ecotourism Marketing Strategy and will be involved in implementing the same. The five-year ecotourism marketing strategy will include the following:

- 1) A promotion and branding strategy targeting selected markets in India and abroad that would be attracted to enjoy ecotourism in Sikkim
- 2) A PR strategy to build up relationships with the media and with suppliers
- 3) An ‘ecotourism events and festival’ strategy, which will support festivals annually.

For ecotourism marketing **5 Overseas PR Tours** with Private Operators and **10 National PR Tours** with Private Operator would be conducted.

3.2.2 DEVELOPMENT OF TREKKING ROUTES AND DEVELOPMENT OF WILDLIFE-WATCHING AREAS

Trekking opportunities in Sikkim are excellent traffic is mostly concentrated on one trek. It is proposed that **184 km of trails** with **16 campsites** will be developed or improved to create **4 international standard trek routes** to relieve the over-congested Dzungri trek. Other **routes with a total length of 76 km** will be considered for development. All wildlife areas would be developed as eco-tourism destination. **20 locations** would be developed as Wildlife-Watching Areas. **9 Forest Rest Houses** would be developed for promoting ecotourism.

3.2.3 CONSTRUCTION OF INTERPRETATION CENTERS:

9 Nature Interpretation Centers will be created at areas of tourism interest to provide visitors with information on biodiversity available near the site with a small museum and a small library to consult relevant documents. The centers will be built near ecological gardens to exhibit important flora and fauna associated with the locations. Training of local community members to manage and work in interpretation will be provided so that they can function as eco-guides.

3.2.4 SOLID WASTE MANAGEMENT:

Introduction of a solid waste management at tourist areas linked to the priority villages will be carried out to ensure cleanliness at tourist sites. A waste collection and disposal system will be introduced at and around the prioritized villages. This will improve the living conditions of the local community and may be replicated in other villages along the collection route.

3.3 COMMUNITY PARTICIPATION AND JOINT FOREST MANAGEMENT:

The devolution of power to grassroots level has always been the policy of the Government. In addition to existing Self Help Groups (SHGs) , Joint Forest Management Committees (JFMCs) and Eco-Development Committees (EDCs) new ones will be formed. It will also provide opportunities for these communities to enhance their livelihood through forestry, ecotourism, and other income generation activities. A total of **180 villages** will be selected for project intervention which includes **90 new intervention** villages where new JFMC/EDC will be established. New afforestation works **on 3600 ha** of forest blanks will be carried out with full participation of JFM Committees.

3.3.1 ENTRY POINT ACTIVITIES

The funds will be provided for target JFMCs, EDCs, and PSS's to carry out entry point activities (EPAs) at an early stage of project implementation. EPA refers to small-scale assistance for the creation of community assets and should address the common urgent needs of the entire community. EPAs will be selected in a participatory manner.

3.3.2 FOREST MANAGEMENT IN RELIGIOUS AREAS :

The sacred groves and forests bear not only religious and cultural values, but are also highly important in terms of biodiversity because they have long been protected. Conservation of such sacred groves and other religious areas will be done by providing technical services, and enhancing plantation and protection activities by religious institutions.

3.3.3 INCOME GENERATION ACTIVITIES THROUGH SELF HELP GROUPS

The aim is to diversify the sources of income and improving the micro enterprises of the target village residents. It will also encourage SHGs to carry out income generating activities. The Project will enable the Joint Forest Management Committees (JFMCs), Eco-Development Committees (EDCs), and Pokhari San rakshan Samiti (PSS) to provide microfinance loans to the SHGs through the provision of a block grant. A total of **540 SHGs** will be supported.

3.3.4 SKILL DEVELOPMENT AND EXPOSURE VISITS OF JFMCs, EDCs Members of JFMCs, EDCs, and PSS's who are responsible for administrative and financial management of their committee will be trained in basic management skills. Skills development of SHG members will be conducted to enhance the productivity, quality, and profitability of the SHGs' production activities or service provision. Selected members of SHGs JFMCs, EDCs will be taken on exposure visits to learn from the experiences of successful SHGs

3.4 ORGANIZATIONAL STRENGTHENING OF THE FOREST DEPARTMENT :

This will be done to enhance the capacity of the Forest Department to deliver forest management and biodiversity conservation services efficiently by

1. Training of the Forest Department Officers and Frontline Staff members on economic, ecological, technical and sociological issues.
2. New Establishment of Training Facility for capacity development in the field of forest management like Biodiversity Training Centre at Pangthang.
3. Renovation and Improvement of Headquarters with parking facility.
4. Securing productive working environment to increase productivity of officials.
5. Promoting improved decentralized implementation mechanism.
6. Strengthening the capacity of frontline staff members by improving working conditions.
7. Improving the mobility of frontline staff members.
8. Posting of check posts in strategic points throughout Sikkim.
9. Positioning of Forest Guards near reserved forests and protected areas.
10. Improving communication net work in the Department.
11. Construction of residence and related infrastructure for the Forest Department staff.

4. FOREST MANAGEMENT PLANS:

Chief Minister has always laid emphasis on scientific management of forests to meet the people's need. In accordance with this philosophy modern, scientific and democratic working plan for all the districts would be prepared. The Forest Department has already procured two automatic weather stations for weather monitoring. Special emphasis would be given for controlling forest fires in areas prone to forest fires.

4.1 SUSTAINABLE FOREST MANAGEMENT :

As per the Gazette notification from Home Department a ‘Sustainable Forest Management Cell’ has been established in Working Plan Circle with a detailed mandate. It would aim to institutionalise the criteria and indicator (C&I) framework for sustainable management of forests.

4.2 REMOTE SENSING AND GIS :

Remote Sensing and GIS cell has been doing outstanding work. It has created a huge digital database on various aspects of forestry. The Department intends to use remote sensing and GIS aspects on day to day aspects basis. The Department plans to have a satellite based forest fire monitoring system. All the activities of the Forest Department would be recorded in GPS (Geographical Positioning System) and the shapefiles would be stored in central database. All the division offices would be equipped with necessary software and hardware for creating Remote Sensing and GIS sub-units in all the Forest Division offices. Applications of more information technology tools like development of various forestry services softwares like the ones related with marking orders, transit permit and quarries etc for efficient delivery to public would be adopted. All the check posts and offices will be connected through network and web based monitoring and evaluation.

4.3 SURVEY AND DEMARCATION OF FOREST AREAS:

With a view to protect the forest resources from encroachment all the reserve forests would be surveyed and demarcated with angle iron concrete boundary pillars. About 3000 more boundary pillars are proposed to be erected till 2015.

4.4 STUDY OF IMPACTS OF CLIMATE CHANGE ON THE HIMALAYAN ECOSYSTEM AND USING OPPORTUNITIES OF CARBON FINANCE:

The Department of forests has already opened a climate change cell for coordinating all the climate change related activities. It is already in process of preparing a remote sensing based baseline for vegetation carbon pool. The Department intends to use the emerging carbon finance opportunities. In addition it is proposed that a high resolution climate data set would be prepared for the Sikkim. This former information will be used to recommend measures for climate change adaptation and methods for monitoring climate change impacts.

5. SILVICULTURE, SERICULTURE AND UTILIZATION:

5.1 SILVICULTURE:

In collaboration with institutes of national and international repute following activities will be taken up in silviculture sector

- Identification, demarcation and management of seed stands/seed production areas of multipurpose economically important trees for improved seed.
- Protection and management of important and difficult Species like Quercus, Castanopsis, Conifer, Maple, Rhododendron, Champ Sal Chirpine etc. of low, middle and upper hill forests.
- Identification and Management of important fodder species of Sikkim.
- Supplementary regeneration trial of indigenous broad leaved tree species in gaps existing in the monoculture Dhuppi Plantation.

- Survey and ecological studies of impact of exotic species and preparation of status report on these species introduced in Sikkim.
- Development of techniques for seed harvesting collection, storages, treatment and testing for variability and germination
- Identification of existing and potential weeds like Mikenia, Eupatorium, Lantana etc. and devising effective control at various stages of growth.
- Studies on development of afforestation techniques of cold desert/high altitude regions
- Studies on seed biology and phenology of rare, endangered and threatened species in selected regions.
- Entomological studies on the forest insect-pest of seeds in nurseries, plantation and natural forests and their control.
- Pathological studies on important tree species in natural forests, nurseries, man-made forests and their identification and control.
- Growth and yield research on sample plot in natural forest and man-made forest.
- Studies on fibre yielding plants growing in the forest areas.

5.2 UTILIZATION :

- Establishment of Forest Development Corporation which will function as a commercial unit under Government of Sikkim.
- Establishment of one more Saw Mill, so that each one will cater to the need for two districts, one for North & East district and another for South / West District.
- Modernization of Saw Mills by installing timber treatment plant, timber drying chamber, etc.
- Establishment of **one wood based industry** to add value to the harvesting timber and other forest produce in the form of veneer, plywood, plastic board, handicrafts etc. The handicraft unit will generate employment for local craftsmen and also help in better usages of smaller timber and off cuts.
- Marketing of value added product in collaboration with other Government Department and other marketing agencies.

5.3 SERICULTURE :

In the next ten years, number of sericulture stakeholders in the state shall increase in manifolds. Art of Mulberry, Eri and Mugaculture as such, or in the form of new technology would be expanded and popularized in every corner of the state. This would increase the demand of diversification in its practices. State would go for adopting new means of providing appropriate technological support in forward and backward linkages like the establishment of rational cocoon marketing centre, organizing more seed centre called grainages, maintenance of germplasm banks in both mulberry and silkworms, establishment of Silk reeling and spinning centre and finally the silk weaving and designing centre in the state.

6. DEVELOPMENT OF WETLANDS:

The most of the wetlands of Sikkim have religious importance. They serve as source of water in many cases. A comprehensive plan for their development would be made. The lakes would be developed as eco-tourism destinations. The restoration measures like desilting, providing silt detention structures, weed control, abatement of pollution, awareness etc. are being adopted now. Khecheopalri (West Sikkim), Tsomgo (East Sikkim) and Gurudongmar (North Sikkim) wetland complexes would be attempted to be included in Ramsar Site. A State level River Conservation Authority is proposed to be set up for the State of Sikkim with the objective to keep the rivers of Sikkim pollution free and to maintain healthy aquatic ecosystem. The concept of Eco-protection of river/rivulets and the mechanism for 'Pay when you litter' against any dumping garbage and waste material will be developed. All the villages/ residential areas adjacent to main streams and rivers will be actively involved in the management and conservation of river by formation of River Conservation Protection Force. Base line data for water quality of all water bodies, bio-indicators and human habitation effect will be collected and GIS mapping will be done for all water bodies in Sikkim.

7. ENVIRONMENT AND POLLUTION CONTROL AND ENVIRONMENTAL INFORMATION SYSTEM (ENVIS):

7.1 State Pollution Control Board envisages the :

- Construction of Parivesh Bhawan to house the administrative and laboratory blocks of the State Pollution Control Board-Sikkim.
- Regular monitoring of water quality of state under National Water Monitoring Programme.
- Research and development in the field of prevention, control and abatement of pollution in the State and dissemination of information.
- Single window clearance for green industries.
- Establishment of automatic air pollution monitoring station in all major towns of the State.

7.2 Till 2015 the ENVIS envisages

- To build up a repository and dissemination centre in Environmental Science and Engineering to support e-governance
- To gear up modern technologies of information acquisition, processing, storage, retrieval and dissemination of environmental nature.
- To support and promote research, development and innovation in environmental information technology. To extend research activities in environment related issues, on the local effects of global climate change.
- .To provide national environmental information service relevant to present needs and capable of development to meet the future needs of the users originators processors and disseminators of information.
- To build up storage, retrieval and dissemination capabilities with the ultimate objective of disseminating information speedily to the users, policy makers, decision makers, research scholars, etc.

- To promote national and international cooperation and liaison for exchange of environment related information.
- To extend and strengthen the status of Indian State-level Basic Environment Information Database (ISBEID).
- To promote, support and assist environment education and personnel training programmes designed to enhance environmental information processing and utilizing capabilities. To reach out to every rural areas in Sikkim via Non-Governmental Organizations (NGOs) in the field of environment and raise the awareness level of the people through National Environment Awareness Campaign.
- To strengthen the network of Eco-clubs in all the schools in Sikkim; to enable wider participation of schools for the Green School Programme.
- To welcome new fields of activities/campaign in the of environment related issues.
- To promote and exchange of information amongst developing countries.
- To bring out an annual bi-lingual publication ‘State of Environment Report’; bi-annual newsletters; prepare pamphlets for the environment activities of the department.
- To bring out state’s compendium on environment statistics on annual basis.

8. KNOWLEDGE GENERATION AND ENVIRONMENTAL EDUCATION:

The Department of Forests is running number of programmes for environmental amelioration. The students will be targeted in a big way for raising environmental awareness. Environmental education shall be taken to all the schools and colleges. National Green Corps (NGC) will be formed in all the Secondary and Senior Secondary level Schools (both Government and Public) for environmental education and creating awareness with the financial support from Sikkim Ecology Fund on regular basis. Several environmental activities will be designated under this programme and implemented in co-ordination with the Human Resource Development Department with the vision to create 100% “environmentally conscious citizens” for the State of Sikkim within 10 years i.e. 2010 – 2020.

Similarly dissemination of biodiversity and best practices information would be done by

- Development of Jawaharlal Nehru Botanical Garden, Rumtek in to the Centre of Excellence for tree identification of North East India. Special section for Mass, Ferns and pre-historic plants will be made to bring a special kind of attraction and one of kind in India. The Pentium Nursery (0.5 ha) will be developed into pre- historic Garden with special emphases on Gymnosperms.
- Establishment of Natural History Museum at Marchak;
- Development of State Forest Museum in East Sikkim and
- Establishment of Sikkim Biodiversity Centre and production and Dissemination of booklets of best practices

Thank you