



TOWARDS GREENER SIKKIM

1994-2006

*A Compendium of Achievements
and Accomplishments*



**Forest, Environment & Wildlife Management Department
Government of Sikkim
Deorali- Gangtok**

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1. Introduction

*The recognition of Shri Pawan Chamling, the Chief Minister of Sikkim as the **'greenest'** Chief Minister in the country in the year 1999 epitomizes the policy, administrative, and legal initiatives and efforts articulated by this Government over the years in the field of environment and sustainable development. Over the years, he has spearheaded a relentless movement towards inculcating a better environmental ethics in the people, benchmarked development to ensure ecological security, forbade projects and programmes contrary to sustainable development, legislated stringent measures for better conservation and protection of the flora and fauna of this beautiful State. The formulation of State Forest, Land Use and Environment Policy (which no other State of India has so far prepared), the declaration of 'Harit Kranti' decade in 1995 for a more green Sikkim, pioneering the concept and creation of Smriti Vans throughout the State, laying distinct policy outlines for protection and propagation of medicinal plant wealth of Sikkim by declaring a ban on wild collection for ten years, enabling creation of the State Medicinal Plant Board (SMPB) and a network of herbal gardens in each Panchayat Unit, ban on the use of plastic in the State and recently the launching of the much acclaimed State wide **STATE GREEN MISSION** are measures and steps which can be termed as not only at once innovative and unrivalled but revolutionary and result-oriented.*

2. Territorial Sector

2.1 Grazing

*History is proof to the rampant **traditional grazing practice** and the consequential deterioration to the endemic eco-system in Sikkim. This age old system was thrown over board by the first Cabinet proposal in 1995 that set the tone for umpteen numbers of follow-up policy and legal inroads that led to the forest floor becoming clear of this nuisance and menace. The results are visible everywhere. Forests have begun their natural succession, water-regime in the catchments has improved, sick and dying lakes are brimming with water, more water is flowing down the streams and streamlets than ever before. Wildlife, avian-fauna and wilderness areas have suddenly better adapted leading to increase in population on account of creation of ideal habitats for their living, breeding and propagating. All of these project a positive natural scenario that speaks of sustainability and viability of life support systems in the hills and valleys of Sikkim.*

2.2 Forest cover increase

Due to strong conservation oriented policies and programmes, forest cover in Sikkim have registered a substantial increase from less than 44% to over 46% for the decade between 1994 and 2003. These are no mean achievements considering the fact that forest resources in many States of India and even the world are registering a serious decline.

2.3 Forest Protection

An independent survey conducted by a Noida based non-governmental organization 'INSCRIPTION' whose report has been published in Down-to-Earth magazine has found Sikkim to rate the highest in Forest Protection Index among all States of India (.9)

2. 4 Ban on green fellings

*The **total ban on green fellings** for commercial purposes and the defence of this philosophy for over a decade have made our forests in terms of character and composition an envy of our neighbors. Needless, therefore, to mention that planners, scientists and advisors are increasingly of the view that Sikkim is eligible to claim carbon sequestration cost for amelioration of regional climatic conditions by retaining and regenerating forest cover.*

2.5 Forest protection, wildlife conservation and maintenance of environmental fabric in the hills of Sikkim have attracted the prime focus of the Government over the last several years. Legislations, rules, guidelines have either been put in place or revised and amended to make them more stringent.

The following rules /notifications deserve special mention:

1. Amendment of Sikkim Forests, Water Courses and Road Reserves (Preservation and Protection) Act, 1988
2. The Sikkim Forests (Compounding of Offences) Rules, 1998
3. The Sikkim Transit of Timber and other Forest Produce Rules, 1999.
4. The Sikkim Forest (Detection, Enquiry and Disposal of Forest Offences) Rules, 2002
5. The Sikkim Forest Department Reward Rules, 1998
6. The Sikkim Forests Cattle Tress Pass Rules, 2000

7. The Sikkim Private and Other Non-Forest Lands .Tree Felling Rules, 2006
8. The Sikkim Forest (Allotment of Areas for Quarrying of Sand and Stone) Rules, 2006.

9. *Ban on Grazing*
10. *Ban on collection of medicinal plants*
11. *Ban on logging operations*
12. *State Policy of Environment Forests and Land Use*
13. *The Sikkim State Sub-ordinate Forest Service (Discipline and Appeal) Rules, 2006*
14. *The Sikkim Wildlife Specified Plan (Licensing and Transportation) Rules, 2004*
15. *Notification of Joint Forest Management Committees and Forest Development Agencies.*

2.6 Power Decentralization – both administrative and financial has become the corner stone of Government policy to make the administration more responsive and responsible. Towards this direction, Joint Forest Management Committees (JFMCs) have been constituted for non-notified areas whereas in the protected areas Eco-Development Committees (EDCs) have been constituted under the umbrella of Forest Development Agency (FDA). Both financial and planning aspects for forestry works are generated and implemented at the grass root level. In total 155 Joint Forest Management Committees and 49 Eco-Development Committees and 8 Forest Development Agencies all over the State are functioning to manage, protect and regenerate forests.

Forest Divisions have been empowered to clear bills and payments towards small works and wages for nursery works, maintenance and repairs, fuel expenditures, office expenses. Micro-planning, under the Forest Development Agency is done with the members of the Panchayat and that of the Joint Forest Management Committees at the rural level, in coordination with them, to be implemented by themselves. A grass root level democratic functioning is set in place and institutionalized. Peoples' participation, co-operation and their involvement has been the base and basis for natural resource management.

2.7 Partnership Initiatives

The Government and the Department have recognized and realized that resource management and protection is a joint responsibility which can only be achieved through partnership efforts and initiatives,. Working of the Department is, therefore, being increasingly inclined towards making it more people friendly and NGO friendly.

The Department has opened up to seek a hand of friendship and co-operation from all like-minded organizations and institutes. Whether it is the scientific institute like GB Institute of Himalayan Environment and Development (GBPHIED) and Botanical Survey of India (BSI) or non-governmental organizations (NGOs) like the World Wildlife Fund for Nature (WWF), it is engaged in garnering greater scientific inputs and technical ingredients into the working of this one of the oldest organizations of the State Government. On 3rd of August, 2006 such a meeting was convened at the GBPHIED Institute at Pangthang in which scientists, ecologists, agricultural technocrats, non-governmental organizations took a solemn understanding to co-ordinate efforts and initiatives for the conservation and protection of our common heritage.

As a matter of fact many of our policy guidelines like in the Ministry of Environment & Forests, Government of India are being drafted involving these NGOs. The Department has recently produced a document on protection and management of our lakes under the Himal Rakshak Committee.

2.8 Infrastructure Development

Infrastructure development by way of creation of a chain of check-posts, watch-towers, Forest Guard, Block Officer and Range Officer quarters and also quarters at the officer's level including a Transit hostel at Gangtok, communication networks by wireless at all important Ranges, Blocks are some of the highlights in improving the facilities for the working of this Government.

3. Environmental Conservation

3.1 Environmental Education

The State introduced the study of environmental education in the schools of Sikkim beginning nursery class to 8th standard since the year 2002. This is a landmark policy thrust in the educational front. The aim is to not only acquaint our children with the dynamics of environmental concerns but also to prepare them for shouldering the responsibility of safeguarding our environmental heritage. This assumes more true today than yesterday in view of growing deterioration of environmental mosaic owing to urbanization, industrialization and unabated consumerist ethos of natural resources all over the world.

3.2 Environmental Task Force

*To oversee and set the guidelines for ensuring environmental safeguards in the State, the Government have recently announced the constitution of **Environmental Task Force** to be chaired by renowned environmental scientist Dr. Sunita Narain of Centre for Science and Environment (CSE) New Delhi along with Professor Mahendra Lama and a host of other renowned scientists, technocrats and environmentalists. To strike a balance between development and environmental protection at a time when development in all its totality is to be accelerated, such a high level scientific body will stipulate the goal of harmonizing*

the incompatibility between development and environment and ensure what we call sustainable development.

3.3 National Green Corps (NGC)

Apart from successfully introducing environmental education into the schools as a regular curriculum, the Department have singled out schools to be the principal nucleus for disseminating the ethnics of environment to the society by constituting eco clubs, nature clubs etc. and have started providing financial assistance for every school club at the rate of Rs. 2500/- in Sikkim under all schools above Junior High School under National Green Corps (NGC) and Rs. 10,800/- for all Sr. Secondary School Clubs. Such outlays have been distributed to the schools through the respective District Committees.

3.4 Lake Conservation

Lakes in high altitudes which are under stress due to the combination of factors ranging from increased tourist inflow to grazing and human activities are now under planned management. A 5 crore project is submitted to Government of India recently and will become implementive from the year 2006-2007 in terms of treatment by way of desilting, withdrawing of damaging factors etc. Pokhari Sangrakshak Samitees have been constituted to take care by local people for their management and protection. The local bodies are being entrusted the responsibility of collection of local cess which will be deposited into both Government revenue as well as in the Committees accounts.

4. Biodiversity Conservation

4.1 Biodiversity Act:

Enacted by the Union Parliament in February 2002, this Act has been enforced in the State. State Biodiversity Board has been constituted and notified, of which the Hon'ble Chief Minister is the Chairman with eminent members drawn from different disciplines and fields. Rules under the Act have also been notified on approval from the National Biodiversity Board, Chennai. The process of constituting local level Biodiversity Committees is in progress.

4.2 Biodiversity Park

State Biodiversity Park existing at a sprawling area at Damthang with the advantage and proximity of easy access is a timely step to safeguard our genetic materials both in-situ and ex-situ. It is a wonderful garden coming up which will house rare and threatened endemic flora, will be a mosaic of species and varieties. The infrastructure are already put in place – the interpretation centre, the nurseries, the compartmentalization of different species, the serpentine footpaths, facilitating access and supervision, a small office-cum-library are all complete.

4.3 Biodiversity Registers

The process and programme of cataloguing traditional knowledge existing within the realm of the local folk healers, Vaidyas, hakims, village elders, mukhias, etc. have been initiated in right earnest. Biodiversity registers are prepared and distributed in each Panchayat for recording such a knowledge on medicinal herbs being used by local people since time immemorial in terms of their utility, methodologies, their way of protecting this unique and primitive knowledge against piracy etc. Such a step is not only timely but will save our custodians of knowledge against piracy and the people against being defaulted on payments which might accrue by way of provisions under the Intellectual Property Right (IPR).

4.4 NBSAP and Sikkim SBSAP (Book)

The National Biodiversity Strategy and Action Plan (NBSAP) was a project of the Ministry of Environment & Forests, Government of India. The state government of Sikkim approved this project in September 2000 after which the Department of Forest, Environment and Wildlife Management (FEWMD) reached out to all sections of people across the length and breadth of the State in a massive effort to formulate the Sikkim State Biodiversity Strategy and Action Plan (SBSAP) in a participatory manner involving all stake holders. A massive publicity blitzkrieg was followed by intensive public hearings or Community SAPs (CSAPs) in 40 villages, two biodiversity festivals at Yuksam and Tsunghthang, followed by two State Level Steering Committee Meetings or Government SAP (GSAPs) at Gangtok. The CSAP and GSAP were synergized into one holistic SAP or SBSAP which is a public document incorporating the views of people of Sikkim regarding the conservation of their biodiversity.

Dr. Pawan Chamling, Chief Minister of Sikkim released the Executive Summary (translated into Nepali, Limboo, Bhutia and Lepcha) during the inauguration of Damthang State Biodiversity Park by on 29th April 2003 and the SBSAP book on World Environment Day 5th June 2005.

4.5 Important Bird Areas (IBAs) of Sikkim (Book)

Dr. Salim Ali wrote ‘The Birds of Sikkim’ for the Government of Sikkim almost four decades ago. His organization the Bombay Natural History Society (BNHS) has been coordinating a country-wide study to identify IBAs in India. The Forest, Env. & WL Management Department, Government of Sikkim carried out the Sikkim study. The information compiled on the 11 IBAs of Sikkim has been published by the BNHS as part of a voluminous national publication titled ‘Important Bird Areas in India – Priority Sites for Conservation’. In November 2003 the Government of Sikkim recognized 11 (eleven) IBAs covering all the important sites across the state. Now a separate state book for Sikkim is under publication.

5. Innovative measures

5.1 Himal Rakshas

To protect our high altitude fragile eco-system we have recently announced the formation of Himal Rakshaks, Committees. They are conglomerate of ex-herders, local activists and NGOs who wish to volunteer to protect our resources. We have designated them as bare foot ecologists against depredation by graziers, medicinal plant collectors, hunters and poachers. These grass-root level functionaries will guide, supervise and regulate the tourists, trekkers, mountaineers and adventurers in terms of sensitizing them against overuse, abuse or misuse of resources like fuelwood, medicinal herbs, the wild denizens – their mating, movement or migration, breeding and socializing patterns within the habitat. These functionaries have been identified, catalogued and identity cards issued as a mark of Government recognition during World Environment Day, 2006 at Namchi.

5.2 Smriti Vans

The year 1999 saw the birth and germination of this noble concept again from the Hon'ble Chief Minister's vision. Bulbuley near the Himalayan Zoological Park complex was chosen to be the site for initiating this programme. Hundreds of committees, clubs, societies, self-help groups, schools, institutes, departments, community based organizations, associations, individuals, agencies and parties have identified with this unique and innovative planting exercise and grabbed individual areas to plant their dear and beautiful trees in the name of their children, on their birth, birthdays, in memory of their departed souls, in celebration of their marriage, all in all in memory (Smriti). Planting is a pious activity. A tree is a symbol of friendship, of love and of bondage between the two.

The whole barren, rocky landscape of Bulbuley and surrounding areas is now verdant and sylvan with the young tree crop that is acting as a fast covering raiment. Gangtokians in large numbers have found this an ideal place for putting a symbol of their contribution to mother earth, a sapling which is truthfully the symbol of nature for human sustenance.

Results:

- *Hydrological functions of slope have increased manifold leading to enhanced water regime in the streams, nallahs and jhoras.*
- *More birds, reptiles, micro organisms and small denizens of the wild are returning to the area.*
- *Moving boulders and eroding soils have stabilized.*
- *The aesthetic, recreational and biodiversity values have suddenly appealed to the Gangtokians to enable to soothe their agitating nerves.*
- *Gangtok has a green garden on its head*

More than 1000 hectares of land has been reclaimed, regenerated and replenished without any substantial investment. Sheer collective inputs, sense of ownership of tree-crops, the emotional and psychological bonds attached with tree culture and

ideas greater than what we achieve by way of physical targets have gone into the making of Smriti Vans.

More than one lakh seedlings have so far been planted in Smriti vans spread all over the State. About 50 'Smriti Vans' have come into being thus far the important ones being at Bulbuley, Rnchenpong, Sakyong, Samduptse, Yumthang and Dethang.

5.3 The State Green Mission

Of all the forestry sector programmes, the State Green Mission launched on 27th February 2006 by the Hon'ble Chief Minister unquestionably occupies a flagship position in as much as its outreach, content and substance of objective is concerned. The brainchild of the Hon'ble Chief Minister's pragmatic policy – it aims at shifting the theatre of forestry activity from the Government and departmental level to that in the peoples arena. The participation by bureaucrats, peoples' representative, the Panchayats, the students and the teaching community all in all is the hallmark of this Mission. Whereas at the State level, the Hon'ble Chief Minister himself heads as Chairman at the Constituency level it is headed by Hon'ble MLAs as the Chairmen of the Green Task Force, an implementation body of the State Green Mission at the District/Constituency level.

The concerned District Collector is the Member Secretary of all the constituencies within his District. Similarly in the field level officials and members drawn from different Departments and society within the Constituencies have been constituted to be called as Sub Committees. This is headed by one Nodal Officer. It is such a comprehensive manpower manipulation that no member of the civil society not even the Non Government Organizations, Self Help Groups, Community Based Organizations, Eco-clubs, local Societies are excluded from the purview of its scope and zenith.

The articulation, formulation and preparation of such a broad based manpower tool with all Government Departments also as implementers of this mission is an act of profoundest maturity and far-sightedness. It brings under its fold all that can be comprehended by way of manpower input into the working, improving and strengthening the system of delivery in the forestry sector.

Unless the peoples' component of participation is infused in the developmental process it can safely be termed as half-successful as we all have been experiencing at one time or other. It is an act that reminds the people that resource belongs to them, they are the custodians and managers, they are the consumers and protectors as well.

The planting, protecting and propagating responsibilities throughout the State is now vested in the people, in the entire Government machinery, the Forest Department not being a lone manager as was the tradition and practice. This is a paradigm shift in policy, approach and execution.

And the response is not only overwhelming but spontaneous and warm. It is no surprise therefore that this year, 2006, people throughout the State took religiously to planting saplings in every vacant land, road side and in their back yard. It was a green revolution, a people's movement in greening the Sikkim hills.

As far as the State green Mission (SHG) is concerned, it is both a question of what is being achieved and how it is being achieved. In forestry works which are spread over all nooks and corners of the State, the maintenance and upkeep are, as important as planting and watering. It is ONLY through the public participation that the sustenance of our forest wealth can be ensured. Towards this goal, the State Green Mission stands tall and towering.

The speed, style and manner by which targets are proposed to be achieved, opening up of the forestry sector management to public participation, the owning of responsibility of maintenance, protection and sustenance of the forest resource at the general and grassroot level as opposed to bureaucratic confines are some of the distinct signages and mile posts of the State Green Mission, that makes it singularly unique, innovative and down to earth programme. It has all the subtle elements of a pragmatic and prudent policy parameters that aims at distinguishing Sikkim as having its own niche and nomenclature in the annals of management history of forests and environment.

What is Green Mission can be short listed as follows:

- *is yet another product of Hon'ble Chief Minister's green policy imagination, a new concept, an idea, a dream and a vision thereof.*
- *Is a new direction and dimension in the State's efforts and endeavor to sustain, maintain and enrich Sikkim's environment and ecology.*
- *Is a programme to give to people the mandate to own, regenerate and protect their resources by themselves.*
- *Is about synergizing development and environmental protection.*
- *Is broadbasing greening activities through people's participation support and guidance.*
- *Is converting Sikkim into a green paradise, a garden State and a tourist's ultimate dream and destination.*
- *Is making Sikkim more beautiful, more green and more natural by integrating ecology with economy for bequeathing it to the posterity.*
- *Is spearheading people's movement towards achieving healthier and pollution free environs around their surrounds.*
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What you can do –

- *Help and support the movement*
- *Ensure your active participation*
- *Plant a seedling and a flower this monsoon*
- *Protect, care and nurture plants*
- *Keep your compound clean, green and beautiful.*

The year (2006) saw the planting of about 2 lakh tree and 1 lakh flowering species throughout the road sides, vacant Government lands, school compounds, in military cantonments, industrial areas, bazaars and towns.

6. Wildlife Conservation

Wildlife conservation has become an agenda of world-wide significance now-a days . In the field of wildlife conservation, Sikkim has progressed a great deal in the strengthening and development of wildlife protected area network . The Khangchendzonga National Park has been extended and expanded from 850 sq.kms to 1784 sq.kms during the year 1997. The Khangchendzonga Biosphere Reserve which is the twelfth Biosphere Reserve in the country declared during the year 2000 is a major diversity protected area of 2620 sq.kms. Combining the Khangchendzonga National Park as the Core Zone and its fringe forest areas as the Buffer Zones for scientific management with the participation of the local people under the MAN AND BIOSPHERE concept , this major bio-diversity protected area which an achievement itself has been already proposed for recognition and inclusion in the list of UNECSO's World heritage Site during the year 2005.

The Khangchedzonga National Park has been further zoned early this year according to wildlife values in smaller pockets for intensive management scientifically. The zonations are Yongzokdrak Blue Sheep Conservation Zone, 56 sq.kms (3.14% of the total area of KNP) for the conservation of the flagship species, the Blue Sheep and its habitat in the West Sikkim; Arreylunchok Musk Deer Conservation Zone, 27 sq.kms. (1.51% of the total area of KNP) for the conservation of the flagship species, the Musk Deer and its habitat in West Sikkim ; Lampokhari Medicinal Plants Conservation Zone, 15 sq.kms (0.84% of the total area of KNP) for the protection and conservation of the wild germplasm and the habitat of valuable and endangered medicinal plants along with other high altitude flora, fauna and wetlands at Lampokhari also in West Sikkim. Considering the need for identification of trekking routes and designation of camping sites for the promotion of ecotourism in West Sikkim, the Singalila Ecotourism Promotion Zone has also been created with an objectives to promote sustainable community based ecotourism with minimum negative impacts and provide incentives to the local community from conservation. The Singalila Ecotourism Promotion Zone has four approved treks namely a) Khangchendzonga Base Camp Trek, b) Yasmbong-Singalila Trek, c) Everest Singalila Trek and d) Arreylunchok-Dzongri Trek and 27 designated camping sites along the trails. The

Sikkim Wildlife (Regulation of Trekking) Rules, 2005 has also been made and brought into force to regulate trekking in the identified and designated trails in the State. Another heartening achievement in the recent past is the appointments of a dozen of Himal Rakshaks comprising of mainly local village persons who have genuine concern for wildlife conservation. The duties and responsibilities of Himal Rakshaks are to assist whole heartedly in wildlife conservation in the sub-alpine and alpine landscape of the Sikkim Himalayas locally referred to as Himal which has unique ecosystem and cultural and wildlife values.

The Wildlife Protected Area network has been further strengthened with the addition of three new Wildlife Sanctuaries in the recent past. The Barsey

Rhododendron Sanctuary covering an area of 104 sq.kms. in West Sikkim has been declared during 1996, the Pangolakhs Wildlife Sanctuary covering an area of 128 sq.kms. in East Sikkim has been declared during 2002 and the Kitan Bird Sanctuary covering an area of 6 sq.kms. in South Sikkim has also been declared during 2005, thus making the total Wildlife Sanctuaries in the State to seven (7) besides the Khangchendzonga National Park and the Biosphere Reserve. Now, the Wildlife Protected Area (WPA) network covers as much as 3019 sq.kms in total, that is, 42.54% as of now against the network of 14.24% a decade ago.

The Himalayan Zoological park at Bulbulay has been further developed with enclosures for different animals and strengthened with zoo exhibits such as Red Panda, and Tibetan Wolves from Darjeeling Zoo & Holland during 2000 and 2001. The Himalayan Zoological Park has also received visits of VVIPs that His Excellency the Vice President of India Late Shri Krishna Kant visited the Park during 2001 and released a pair of Pandas in the display enclosures. Similarly, the Hon'ble Union Minister Shri Shivraj Patel and the Hon'ble Minister of State Shri G.Manikrao visited the Zoological Park during 2005 and released the elusive Snow Leopards in the Zoo. This Himalayan predator was received from Darjeeling Zoo on exchange basis. The Zoological Park at Bulbulay is the second to Darjeeling Zoo in the country to have bred Red Pandas in captivity. Two cubs were born to them during 2002.

Bersay Rhododendron Sanctuary

Study on impact on withdrawal of grazing act.

The Trans Mountaineering Institute has conducted an extensive study on the impact on forest eco-system after total withdrawal of grazing of cattle at BRS. This study has come out with very interesting findings which are summed up as below:

Resource Management Zonations

The Khangchendzonga National Park Western area has been recently zonated after thorough survey with the aim of better focus and related inputs in terms of protection, regeneration and management Tourist traffic in these areas is on the increase. Attendant with this will be a host of contrary activities which need proper and particular attention to each individual eco-system. The conservation zonation will help us define means and methods to safeguard them.

7. Medicinal Plant Resource Management

1. STATUS REPORT OF STATE MEDICINAL PLANTS BOARD (SMPB), SIKKIM.

The State Medicinal Plants Board (SMPB) Sikkim a State Level Body has been set up by the Government vide Notification No. 100/FEWD dated 10-06-2002 under the guidance of National Medicinal Plants Board (NMPB) to look after policy formulation & coordination with departments/organization ensuring sustained availability of medicinal

plants and to coordinate all matters relating to their development and sustained use.

The National Medicinal Plants Board sanctioned 13 nos. of Herbal Garden Projects in the State. Up-to date progress report in respect of all the projects have been enumerated are as follows.

- *The National Medicinal Plants Board sanctioned 13 (thirteen) Herbal Garden Projects of 10 ha each in different locations in the State .The 13 (thirteen) Herbal Gardens have been created for ex-situ cultivation covering in an area of 130 Ha and in-situ conservation of medicinal and aromatic plants in different region depending upon the agro-climatic zones. Total in-situ conservation areas covered under the schemes are more than 2100 Ha in different locations covering all four districts for conservation of germ plasm, seed stands for quality planting materials. The Herbal Gardens also have been well protected and thrust have been given for maximum out turn for which maximum improved technologies have been adapted to achieve desired impacts.*
- *Created and established **1(one) Ha area of each modern nurseries** with poly and hothouse by providing maximum nursery inputs for production of quality planting materials. The total estimated planting materials produced in each nursery is **75000 to 2,50,000 seedlings depending upon the characteristic of species and agro-climatic zones** which have been widely utilized for ex-situ cultivation and in-situ conservation areas in herbal garden, and some seedling have been distributed to the farmers and self-help groups.*
- *The Action Plan of SMPB has been prepared with a view to have comprehensive study to asses the requirement for the development of the sector, commercial potential of various medicinal plants, to gather a reliable data on the existing demand & supply position and price mechanism duly involving existing growers, primary collectors, traders and user networks, thereby covering the entire conceivable value chain.*
- *The initial total outlay for the year 2002-03 to 2005-06 funded by NMPB under the scheme for creation and establishment of 13 (Thirteen) Herbal Garden and nurseries was Rs. 272.00 lakhs. The NMPB has recently provided fund for maintenance of herbal nurseries for 2006-07 to 2008-09 to the total outlay of Rs. 25.00 lakhs.*

2. **Herbal Gardens :** There are 13 (Thirteen) Herbal Garden located in the different district of Sikkim as follows:

a.

<i>Dombang</i>	<i>Bio-diversity Park</i>	<i>Guransey</i>	<i>Rateychu</i>
<i>Thangu</i>	<i>Samduptse</i>	<i>Yoksum</i>	<i>Tamze</i>
<i>Zema</i>	<i>Kitam</i>	<i>Barsey</i>	<i>Kyongnosla</i>
	<i>Maenam</i>		
North:3	South:4	West:3	East:3

2. b. **Panchayat Herbal Garden -** There are 166 nos. of Panchayat Herbal Garden in all the Panchayat Unit of Sikkim.

Objectives:

- a. To familiarize general public with herbal plants.
- b. To disseminate Medicinal plants cultivation technique.

Herbal Biodiversity Register: All the Panchayat Unit in Sikkim have been provided with the Herbal Garden Register.

Objectives: To record indigenous herbal practices and resources.

2 c. **Total Project Sanctioned - 32 (Thirty two) Nos.**

	2 (two) Commercial Project Proposal sanctioned for the financial year 2003-04	8th Standing financial Committee approved 12 Contractual Farming Project on 6th August 2004.	10th SFC approved 2 Contractual Farming Projects for the financial year 2004-05.	11th SFC approved 5 Contractual Farming Projects for the financial year 2004-05.	13th SFC approved 4 Contractual Farming Projects for the financial year 2005-06.	15th Standing Committee approved 7 Contractual Farming Project for the financial year 2005-06.	District wise sanctioned Projects
East	-	02	-	-	-	01	03
West	-	04	-	04	-	04	12

North	-	03	-	01	01	00	05
South	02	03	02	-	03	02	12
Total	02	12	02	05	04	07	32

Total evaluated scheme of 32 Projects – 260.80 lacs.
Total subsidy sanctioned – 79.51 lacs.
Subsidy released in 1st Installment –40.11 lacs

1. **PRESENT STATE OF THEIR COLLECTION AND UTILIZATION: -**

Prior to establishment of State Medicinal Plants Board, (SMPB) collection and transit of medicinal and aromatic plants from the state was regulated by Forest Department. The forest department used to issue collection permit on payment of royalty to the government from areas reach in medicinal and aromatic plants. Two years before establishment of SMPB in the year 2002, the Government has banned the collection of medicinal and aromatic plants from the forest to rejuvenate the areas. After establishment of SMPB the main emphasis of the SMPB is to encourage progressive farmers to under take cultivation of medicinal plants such as *Aconitum heterophyllum*, *Aconitum ferox*, *Picrorhiza kurooa*, *Nardostachys jatamansi*, *Swertia Chirayita*, *Glorisa superba*, *Asparagus racemosus*, *Ocimum sanctum* etc. After establishment of SMPB considerable quantity of Chirayita has been in the process of marketing by the SMPB collected from the Herbal Gardens and farmers engaged in cultivation of medicinal plants during the year 2004-05 & 2005-2006. It is expected that more and more farmers will start cultivation of medicinal plants and SMPB is expecting considerable volume of herbal products of **Chirayita, Atees, Vatsnabh, Kutki, Jatamansi, Kalihari, Shatavari etc.**

The medicinal plants products is expected to be marketed by the farmers. The Transit permit is issued by the Territorial Division to export the product outside the state. Besides there is utilization of different herbs and shrubs by the local health practitioners. The quantity is being ascertained.

STATUS OF THEIR CULTIVATION

The SMPB has registered Farmer 463 (**four hundred sixty three**) **Collectors 186(one hundred eighty six)** and **Traders 221 (two hundred twenty one).**

4. **AVAILABILITY OF AGRO-TECHNOLOGY**

The NTFP division of forest department were maintaining nurseries of important medicinal plants to undertake extensive plantation of medicinal and aromatic plants since last 10 years. The agro technology for multiplication of important medicinal plants and aromatic plants is available with the department. After establishment of SMPB the board is also maintaining 10 hectare of nurseries of medicinal plants attached to the herbal garden at different location. The SMPB is

continuously experimenting to improve the agro technology through extension of technology in their nurseries and herbal gardens. **The agro techniques of a few species like Chirayita, Atees, Kalihari, Shatavari, Kutki, Jatamansi etc. have been transferred to the farmers.**

5. TRADE STATUS

Prior to year 2000 the collectors from the state used to sale their herbal products collected from the wild to the traders located at Gangtok, Kalimpong, Siliguri and Kolkota. Since the Government has banned the collection of Medicinal plants products from the wild and encouraged cultivation of medicinal plants, the traders from different parts of the country have approached the SMPB for supply of raw drugs products namely Aconitum heterophyllum, Picrorhiza kurooa, Swertia Chirayita, Nardostachys jatamansi, Acorus calamus.

6. EXTENSION ACTIVITIES:

The development of medicinal plants sector with a view to utilize it on commercial lines on sustainable basis in a State like Sikkim is neither feasible nor viable without massive public involvement and willing support. This process also ensures protection of natural habitat by local communities and its accelerated coverage on their lands as alternative cash crops. In order to ensure this aspect including successful domestication and farming of medicinal plants on private land areas as alternative cash crops as a movement the SMPB has organized and conducted extension and awareness Programme at Gangtok, Kyongnosla, Zema, Thangu, Damthang, Karfactor, Bagwa, Barsey, Khechhiphery, Mainam, Guransay, etc. for the benefit of various individuals/ agencies villagers/ farmers of neighboring areas/ Panchayats. Following inputs were the central theme of this Programme:

- To convince them on good financial returns on medicinal plants cultivation on their private lands and to adopt this practice as alternate cash crop cultivation.**
- To encourage them to establish herbal farms for commercial cultivation of indigenous species of medicinal plants in their private lands duly utilizing the expertise and guidance of the SMPB.**
- To motivate them for providing reliable and accurate information for incorporation in the “Base Line Data Register” and “Panchayats Bio-diversity Register” available with the Panchayats/ Field Officials. Panchayat Bio-diversity Register had been distributed to all the Panchayat and the feedback is being collected.**
- To utilize better agro techniques in consultation with the SMPB with a view to obtain optimum output.**
- To intimate SMPB on out break of plant pests and other diseases, if any.**

- **To freely consult the SMPB for any technical input required for production of quality planting material, cultivation techniques its maintenance.**

7.8 DATA BASE, INVENTORY & DOCUMENTATION:

For the effective and directed management & development of medicinal plants sector, reliable database of these natural and manmade resources is must. Hence all steps are being taken up & to be taken up to inventories and document all the medicinal plants, herbs & Non- Timber Forest produce found in the State. For this the Botanical Survey of India, Ayurvedic Research Institute and other relevant agencies have been approached. Action on preparation of checklist and survey of medicinal plants currently being collected from forest has been initiated. In addition, it is proposed to have a full-fledged trained and capable wing under the SMPB to do all these activities including the development of GIS database for medicinal plants and their monitoring on regular basis. Eco-distribution maps for medicinal plants species of high conservation concerned would be prepared.

7.9. TRAINING OF STAKE HOLDERS:

The success of development of medicinal plants mission primarily depends on the effective & vibrant involvement and initiative of stakeholders. Duly realizing this, the SMPB has organized several training Programme and workshops to promote technology and knowledge to the stakeholders like field functionaries of the state forest department, training of community based para-taxonomists, tribal and other forests dwellers. These Programme were primarily focused on:

- **Identification, selection and availability of prioritized medicinal plants of their areas.**
- **Cultivation techniques of high and low altitude medicinal plants including creation of nursery by adopting improved technologies for production of quality planting materials, techniques for raising medicinal plants in different agro-climatic zones. Developed printed reading materials in local language.**
- **Training for maintenance, harvesting, post-harvesting and storage of medicinal plants.**
- **Motivating them for their willing cooperation and active involvement in creation of Home Herbal Gardens in every Panchayats unit.**
- **Explaining the need, importance and requirement of proper preparation and periodic updating of Bio-diversity Register and Base Line data Register.**

9. JARIBUTI CHETNA KENDRA

Created and established Medicinal Plants Awareness Center (Jari Buti Chetna Kendra) in Kyongnosla East, Sikkim for raising awareness among the stakeholders. Establishment of Jari Buti Chetna Kendra at State Bio-diversity Park, Damthang, South Sikkim and Bagwa in South Sikkim are completed.

10. HERBORIUM AND RAW DRUG MUSEUM:

Established and created Herbarium and Raw Drug Museum for indigenous medicinal and aromatic plants of the state in Forest Annexed Building Complex and collection and display of live herbarium, live specimen, agro-techniques and its uses in Indian system of Medicine and Local Health Tradition Practices are under progress. Mist Chambers for propagation of indigenous medicinal and aromatic plants is also under construction in the same complex.

Jari Buti Khosh (Herbal Medicinal Plants)

Jari Buti Khosh (Herbal Medicinal Plants) is being created under State Medicinal plants Board(SMPB). The Operational Guidelines for implementation of Jari Buti Khosh is prepared to ensure smooth technical administrative and financial management. The Total budget for Rs. 50.00 lakhs has been sanctioned by the State Government for the different development of works under this scheme.

11. STATUS OF STATE DRUG TESTING LABORATORY:

In the 2nd annual meeting of the Governing Body of the SMPB, it was agreed that a state-of-the-art Drug Testing Laboratory should be established under the State Health Department. This was subsequently approved by the Government and work on the construction of its building has already begun from State resources. However, its final commissioning is expected to take a few years. In view of this crucial time gap, it is opined that for the intervening period the SMPB should identify a suitable existing Drug Testing Facility in any other sector for its usage after strengthening and due adaptation for our level of job for their current Programme. In this context, utilization of the existing small level Drug Testing Facility of the Manipal Institute of Technology, Majitar, East Sikkim has been under consideration. However, to make this facility tuned to the requirements of SMPB, the same would need further strengthening duly recognizing it to be a center of excellence.

12. Nucleus Centre (SMPB):

- Office has been established with necessary facilities like computer system, library. Meetings/ Small Group discussions were organized for collection of Based Line Data from the Panchayat, Local Health Practitioner, Amchis, Ayurvedic and Homeopathy centres. Action Plan is prepared. Junior Research***

Fellow, Computer operation, Field Attendant have been engaged for collection of Base Line Datas live Herbarium collection demand and supply situation, marketing etc. Also assist the farmers for bridging between the Buyers and Seller for assured buy back arrangement and pricing.

- *Wide publicity through various media like Local Newspapers, Cable T.V., Panchayat, JFM/EDC/WDC, District Administration & Field Staff, for Issue of Registration Certificate and for Contractual farming Project to attract the enthusiastic farmers of the State for taking schemes for cultivation of medicinal plants in their farmland with selected marketable species have been actively taken up. Reading materials like Operational Guidelines, Agro-techniques have been printed in local languages and distributed to different agencies during Janta Mela and to the farmers.*
- *SMPB have participated in National and State Level Exhibition and display of exhibits posters, live specimens, herbal product specimens to bring awareness amongst different agencies working in medicinal plants sector in order to develop marketing network between Buyers and Sellers.*
- *Jari Buti Khosh (Herbal Medicinal Plants) is being created under State Medicinal Plants Board (SMPB). The Operational Guidelines for implementation of Jari Buti Khosh is also being prepared to ensure smooth technical administrative and financial management.*

13. Awareness Camp to the Farmers/Collector/Traders have been conducted in all the four district of Sikkim during 2005-2006 to promote the production of Quality Planting Material and marketing product thereof.

14. BOTTLENECK

The cultivation of medicinal plants is a new field for the farmers and cultivators of the state. It is not easy to convince them because they have been traditionally engaged in food production for their local use. Besides this due to lack of knowledge of trades in medicinal plants products it will take some time to make them aware of the potential available in the state on account of suitability of climatic condition for production high value herbal products.

15. PRIORITIES

SMPB has set out the following priorities for increasing the cultivation and marketing of herbal products and medicinal plants in the state:

- Development and improvement of agro techniques of high value medicinal plants.*
- Creating awareness among the cultivators about the benefits of undertaking cultivation of medicinal plants to improve their economy.*

- iii) *Transfer of agro technology of cultivation of medicinal plants by providing them technical assistance.*
- iv) *Supply of roots stock of important and valuable medicinal plants suitable for production in different climatic zones.*
- v) *Providing assistance in marketing of produce of local cultivators.*
- vi) *Value addition by extension of post harvest technology for semi processing their produce.*
- vii) *Drug Testing of different medicinal and aromatic plants for determination of active principle.*

ACHEIVEMENTS OF THE GOVERNMENT IN THE SERICULTURE SECTOR

Sericulture was started in 1977-78 in Sikkim and remained for a long period under hibernation nearly for 21 years. Ever since it was given new thrust by creating a new Directorate within the parent department of Forest and Environment in the Cabinet Meeting held on 25th June 1998. In the same meeting of the Hon'ble Members have also given approval and sanction of Rs. 500.00 lakhs for Extension and Development of Sericulture launching with the Catalytic Development Scheme of Central Silk Board, Government of India. Since then, dramatic changes have been made in Extension and Development of Sericulture in the State which are summarized below:

Augmentation of manpower

i. New appointments:

- | | |
|--|-----------------|
| 1. Appointment of new Sericulture Block Officers | 02 Nos. in 1999 |
| 2. Appointment of new Sericulture Block Officer | 01 Nos. in 1994 |

ii. Training and Capacity Building

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|--|------------------|
| 1. Training of Sericulture B.O. | 02 Nos. as above |
| 2. Short training of Sericulture technical staffs. | 07 Nos. |

Augmentation of Infrastructures

- | | |
|--|-------------------------|
| 1. Construction of Sericulture B.O. quarters | 02 Nos. in 2002-03 |
| 2. Construction of Sericulture F.G. quarter | 02 Nos. (2001 and 2003) |
| 3. Construction of Model Silkworm Rearing house. | 02 Nos. (2001-2002) |
| 4. Construction of store house | 02 Nos. (2001-02) |
| 5. Creation of new Sericulture Centre | 1998 and closed |

<i>Ringyang and Daramding</i>	<i>in July 2004.</i>
6. <i>Creation of new Sericulture Centre at Nagdhara Peepalay</i>	<i>November 2004-05</i>
7. <i>Detail survey of Government Sericulture farms and boundary pillars erection</i>	<i>02 Nos. in 2002-03</i>
8. <i>Construction of Muga Grainage building in Govt. Sericulture farm Rorathang</i>	<i>01 No. in 2005-06</i>
9. <i>Construction of Eri Grainage building in building in Govt. Sericulture centre in Nahgdhara Peepalay, West Sikkim.</i>	<i>01 No. in 2005-06</i>
10. <i>Water supply connection to Govt. Sericulture farm Mamring.</i>	<i>1998-99</i>
11. <i>Installation of water pump set in Govt. Sericulture Farm Rorathang</i>	<i>1998-99</i>
12. <i>Purchase of cocoon dryer and required minor tools</i>	<i>1996-97</i>

Augmentation of Transport and communication

1. <i>Purchase of soft top gypsy</i>	<i>01 No. in 2000-01</i>
2. <i>Purchase of Mahindra Marshal</i>	<i>01 No. in 2001-02</i>
3. <i>Purchase of Utility (Pick up)</i>	<i>01 in 2002-03</i>
4. <i>Purchase of Motor cycle (Bajaj Pulsar)</i>	<i>01 in 2003004</i>

Extensioin of Development in villages.

1. *Mulberry plantation by Sericulture farmers in three districts in one acre land - 407 families*
2. *Total number of district villages covered 18 villages in East, 12 villages in West and 17 villages in South District.*
3. *Total Sericulture farmers trained in mulberry 0 292 Nos. in Muga – 27 Nos. in Eri= 84 Nos.*

Grand total = 403 persons

4. *Silkworm rearing house constructed by the sericulture farmers.*

- i. *Mulberry silkworm rearing house – 62 Nos. @ 50,000/- each during 10th Plan period.*
- ii. *Mulberry silkworm rearing house – 119 Nos. @ Rs. 5000/- each during 9th Plan.*

iii. *Eri silkworm rearing house – 50 Nos. in 2005 – 06 only.*

Resolutions in the State Assembly on Forest, Environment and Wildlife

The Government focus on forestry sector can be termed as not only a high priority one but comprehensive and time bound. A resolution seeking to make Sikkim as an eco-friendly and green State was introduced in the Assembly which identifies and recognizes the following sectors as the core areas:

*Environment and Ecology
Lakes and Wetlands
Peoples' participation, afforestation and its protection
Smriti Van programmes
Medicinal Plant and herbal gardens
Natural Resource Protection
Soil and Moisture Conservation
Role of Panchayats
Alternative of firewood
Green Roads
No land should be left barren
Planting 100 trees in the name of sons and daughters
Special eco-task Forest Guards and
Survey Investigation studies and related projects on natural resources.*

These are sweeping, elaborate and exhaustive focus areas which have been highlighted through the ambit of legislative wing in the past several years by this Government.