



ENVIS SIKKIM



On Status of Environment and Related Issues

Forests, Environment and Wildlife Management Department
Government of Sikkim

(Sponsored by the Ministry of Environment and Forests, Government of India)

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ENVIS NEWSLETTER

Vol I : Issue : 1

Quarterly

Dear Reader,

ENVIS Centre Sikkim is proud to issue its first Newsletter on status of Environment and its related issues in Sikkim. In today's world information is the key for any development activities. Publication of its ENVIS News Letter by our centre is yet another mile stone in our journey to provide ultimate environment related information centre in the state. This news letter from our centre will be published on a quarterly basis from now onwards. We take this opportunity to invite environment related articles from appropriate persons for the publication in the forth coming issues. In this edition we bring to you notes on various programmes and events related to environment carried out within the state such as State Green Mission, National Environment Awareness Campaign, Celebrations on Environment, Solid waste Management, Wetlands of Sikkim, Outcome of the United Nations Climate Change Conference at Nairobi, etc., We hope that you find our New Letter useful and enjoy reading it. I look forward to hear for your suggestions in improving the quality of the content. It is your valuable contribution which gets us going and through which we can know our shortcomings. And this alone will make the Centre serve the citizens better.



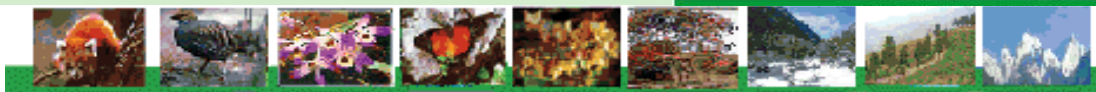
Dr. P. Senthil Kumar, IFS
Programme Coordinator, ENVIS Sikkim

Longitude 88°00'55" to 88°55'25" E
Latitude 27°04' to 28°07'48" N
Area 7,096 sq km
Population 5,40,493 as per 2001 census

ENVIS QUARTERLY NEWSLETTER...

Inside it ...

- State Green Mission
- Celebration of World Environment Day
- Eco Clubs in Schools of Sikkim
- NEAC on Solid Waste Management
- National Green Crops Programme
- Wetlands of Sikkim
- Outcome of Nairobi UN Climate Change Conference



ENVIS Centre, Forests, Environment & Wildlife Management Department, Govt. of Sikkim
Forest Secretariat Annex III Building, Deorali, Gangtok 727102, East Sikkim
Tel : 03592-280381 Fax : 03592-280381 Email : mail2envis@yahoo.co.in
Official Website

www.sikenvis.nic.in

SNAPSHOTS



State Green Mission: *Plantation by Hon'ble Chief Minister Dr. Pawan Kr. Chamling*



State Green Mission: *Plantation by Hon'ble Minister (Forests) Mr. S.B. Subedi*



World Environment Day 2006: *Hon'ble CM releasing books on Ecological Studies*



World Environment Day 2006: *Hon'ble Minister (Forests) leading the street rally at Namchi, South Sikkim*



DFO (EPC) *delivering the needs of Solid Waste Management*



State Green Mission : *Students and Volunteers in action*



STATE GREEN MISSION

A Unique Innovative Environment Programme Launched in Sikkim

The Government of Sikkim launched a unique and innovative programme called "State Green Mission" with the view to raise avenue plantation along the roads and beautification of all vacant and waste lands to further reinforce wide

spread recognition of Sikkim being a Green State. The Hon'ble Chief Minister Mr. Pawan Kr. Chamling formally launched this Mission on 27th February 2006 in the presence of all Ministers, officers and the public of Sikkim.



Launching of Sikkim Green Mission on 27th February 2006

Aims and Objectives

The major objectives of the programme are to create green belt and avenues for meeting aesthetic recreational needs of the people and beautify the areas for tourist attraction. This programme is expected to provide fringe benefits like reduction in the surface run-off discharge and checking erosion in the downhill side and will also create a store house of genetic diversity by planting all the indigenous trees, shrubs, herbs, climbers, creepers, conifers and green foliage including fruits and medicinal plants.

The greenery generated out of this programme will also reduce noise pollution to the neighboring household population; attract the avifauna, butterflies, squirrels etc and their shelter. Sikkim becoming a Garden State, the mission will also work with objective to promote tourism as a sustainable and eco friendly activity in the state of Sikkim. The programme is also expected to generate awareness on environment & forests and bringing in sense of participation and ownership among people in the whole process.

Implementing Mechanism

A State level committee under the chairmanship of Hon'ble Chief Minister is formed to oversee and to provide policy and administrative support to this mission. The Forest, Environment and Wildlife Management Department is the Nodal Department. At constituency level, there is Green Task force headed by the Area MLA to implement the programme in the Field. One District level officer

is appointed as Nodal officer for each constituency. The Forest Department will provide all technical guidance, saplings and manure for the programme. All the Government departments will provide managerial and labour force from the existing establishment. At ward level, one village protection committee is constituted headed by the concerned ward Panchayat member.

Some Technical Aspects

Planting pattern

The pits are normally to be dug at 6-7 feet away from the edge of the road. If Space available, two rows plantation on either side of the road. Spacing at six meter interval for tree species and 2 meter for ornamental bushes may be given. Maintain 3meter distance in between two rows. Pit digging will be in staggered manner (Center between the two pits of the other row). If the space is less, single row plantation to be taken on either side at the spacing of 3 meter for tree species and 1 meter for ornamental Bushes. Bulbous and Herbaceous plants to be planted only on up hill side ordinarily. If there are visible clear continuous patch available on the down hill side, bulbous and herbaceous plants can be planted.

Pit size	2'x2'x2' = for up to 2.5' height saplings; 3'x3'x3' for plants with 3' and other tall plants; 1'x1'x1' for ornamental bushes/shrubs; total soil working for bulbous plants. Place the dug out soil on the uphill side.
Plantation	Cuttings like Erythrina, Populous, Gurgis and Weeping Willow are to be planted between January and first week of April. Cuttings are other species to be planted after June. All the saplings are planted generally from May to June/July depending on showers. Conifers, Rhododendron may be planted between 2 nd wk of March to May and Cherry (paiyu) to be planted between First week of March to 3 rd Week October. Where as Cherry (Geyzing Type) may be planted during December – March. Walnut bareroot has to be planted between December and March. The Ornamental bushes and bulbous plants are to be planted before May.

SPECIES RECOMMENDED FOR STATE GREEN MISSION

Altitude : 2000' – 5500'

Trees: *Aesculus indica* (Horse Chestnut), *Cassia fistula* (Amaltas), *Cassia nudosa*, *Erythrina soberrosa* (phaledo), *Lagerstromia flosreginae* (Jarul), *Embllica officinalis* (Amala), *Bauhinia sp.* (Tanki), *Alstonia scholaris* (Chatiwan), *Paulonia fortunii* (Chinese teak), *Paulonia elongate* (Chinese teak), *Paulonia fortunii* (Chinese teak), *Tamarix indica* (imli, thithri), *Tree ferns (Cycus)*, *Callistemon* (Bottle Brush), *Jaccaranda mimosifolia* (Jaccaranda), *Syzygiom cuminii* (Jamun).

Shrubs: *Magnolia lilliflora* (Magnolia), *Cycos*, *Gaikhuray Fern*, *Datura sp.*, *Tecoma stans*, *Hydrangea*, *Hibiscus (china rose)*, *Euphorbia pulcherrima*, *Bougainvillea*, *Allemanda*, *Cestrum*, *Ixora stricta*, *Plumeria* (Temple tree), *Yesterday, today & tomorrow*, *Saraca indica* (Ashoka).

Bulbous & herbal plants: *Eucharis* (Pyaji Phool), *Nerium*, *Zephranthus robusta*, *Costus specioosus*, *Hemerocalis*, *Ophiopogon*.

Orchids: *Dendrobium sp.* (Auley sunakhari), *Cymbidium longifolium* (Lekh sunakhari).

Altitude : 5500' – 7000'

Trees: *Prunus cerasodes* (Paiyu) October flowering, *Prunus Gayzing Type* March flowering, *Cedrella toona* (tooni), *Michelia excelsa* (rani champ), *Rhododendro arboretum* (lali guras), *Symingtonia populnea* (Pipli), *Aesculus indica*, *Paulonia fortunii* (Chinese teak), *Salix babylonica* (weeping willow, bayas), *Tree ferns*.

Shrubs: *Mahonia napaulensis* (chutro), *Hypericum sp.*, *Hydrangia*, *Magnolia grandiflora* (Gogey champ), *Laculia gratissima*, *Viburnum sp.* (Asarey), *Tibouchiana*, *Spiraea*, *Ardisia*, *Euphorbia pulcherrima* (lallu pathi), *Jasminum* (jasmine).

Bulbs & herbal plants: *Agapanthus*, *Bergenia sp.* for walls, *Zephranthus robusta*, *Hedychium species*.

Orchids: *Coelogyne cristata*, *Cuelogyne nitida*, *Coelogyne ochracea* for walls and rocky area.

Altitude : 7000' - 10,000'

Trees: *Magnolia cambelli* (Gghey champ), *Acer species* (kapasi), *Juniperous recurva* (Juniper), *Juniperous Pseudosabina* (Juniper), *Larix griffithii* (larch Gobrey), *Tsuga brunoniana* (salla), *Populus ciliate* (poplar), *Salix babylonica* (Bayas), *Prunus sp.*

Shrubs: *Hypericum sp.*, *Rhododendron sp.* (gurans), *Luculia gratissimum*, *Viburnum sp.* (asarey), *Enkianthus campanulata*, *Rosa candita*, *Hydrangia*, *Magnolia lilliflora*, *Pieris spp.*, *Spiraea* (April fool).

Bulbous & herbal plants: *Lupins*, *Bergena*, *Arisaema sp.*, *Hemerocalis*, *Cardiocrinum giganteum*

Appeal for People's Participation for State Green Mission

We have launched a unique and innovative programme called "State Green Mission" with the view to raise avenue plantation and beautify of all vacant and waste lands to further reinforce wide spread recognition of Sikkim being a Green State.

Situated beside the mighty snow-capped mountain Khangchendzonga amidst enchanting valleys and rivulets, Sikkim is an extremely beautiful state. It abounds in natural resources with pollution-free air and healthy climate. We want to keep this distinct identity of Sikkim as a Green, Clean and Garden State and intent to make the Green Mission a people's movement. I appeal to Panchayat members and common people to plant trees. They can grow fruit-bearing and flowering plants wherever suitable. Sikkim is called the *Indrakil – Garden of Lord Indra*. Let us preserve our greenery and bequeath to our children a state full of greenery, beauty, resources and overall contentment. Let no land remain barren. At every village and at every Panchayat ward the protection committee should be organized.

We appeal to all to ensure greenery drive along the periphery of National and State highways and other district roads in each constituency. We should take up landscaping and avenue plantations with flowering and fruiting trees, beautiful shrubs and bushes all along various road networks with proper design in a systematic, time bound and phased manner by maintaining high quality standards. Every road of Sikkim should be tree lined in the next three years.

We request all Government agencies, Public Sector Undertakings, Institutes, NGOs, Academic Institutions and Private Sector to plant beautiful trees to make their campus clean, green and beautiful.

All vacant institutional lands should also be planted up and beautified in phased manner. We should all involve ourselves with full dedication and missionary zeal not only for plantation but also for its protection.

We appeal to all individuals living in towns and cities to decorate their houses and balconies with beautiful flower pots. Each house in our state should have sufficient ornamental plants with small gardens so as to act as a model house for promotion of village tourism. Beautification works should also be taken up in each of our bazaar areas. Every shop owner should play a proactive role in beautifying his premises.

We should maintain absolute cleanliness in the State by proper solid waste management. We should not pollute our rivers streams and *jhoras*. We should ban writing on trees, dumping of waste on *jhoras* and throwing construction waste and mud along the roads and rivers. We solicit the cooperation of all private and public sector organization, NGOs and self help groups in Sikkim for their full and active participation for making State Green Mission a great success.

The Press, TV channels, and All India Radio should also help us in the generation of awareness for making Sikkim Clean, Green and Garden State through Green Mission. Adequate number of signages, banners, festoons should also be put up all along various road networks for generation of awareness about the State Green Mission.

We have a dream to make Sikkim a 'heaven on earth' and an ultimate ecotourism destination !

Let us all join Hands !

(Pawan Kr. Chamling)
Chief Minister of Sikkim.

WORLD ENVIRONMENT DAY CELEBRATIONS 2006

Theme
“DO NOT DESERT DRY LANDS”

The theme of this year's observance of World Environment Day, **“Do Not Desert Dry Lands !”**, reminds us all, of the importance of water and the value of our forests which are the water reservoirs of the state.

As usual this year also World Environment Day was celebrated on 5th June with great pomp and zeal in different parts of Sikkim. A grand, state level programme was organized at Namchi by the Forest, Environment and Wildlife Management Department. Hon'ble Chief Minister Shri. Pawan Kr. Chamling graced the occasion and inaugurated tree plantation, distributed grants to Schools for setting up of eco clubs in the state under National Green Corps, awarded ID cards to Himal Rakshaks, felicitated environment heros and motivated people to conserve environment. On the sidelines, an exhibition on environment was organized. School children, Legislators, people's representatives, officials, NGOs, general public were actively participated in the occasion. The day was also celebrated through out the state with planting of saplings of different species of trees, shrubs and ornamental bushes in various educational institutions, Government office premises, other public lands, Smritivan, etc. by panchayats, JFMCs, EDCs, officials, etc., Seedlings/saplings were provided by the Department of Forests, Environment and Wildlife Management.

Message of HCM

In Sikkim we are lucky to be endowed with bountiful natural resources with abundant rainfall and clean drinking water. Let all Government agencies, institutes, NGOs, schools and colleges, Panchayats and private sector celebrate World Environment Day on 5th June every year by planting beautiful trees to make their campus clean, green and beautiful.

Let us preserve our greenery and bequeath to our children a state full of greenery, beauty, resources and overall contentment. On occasion of the World Environment Day, let us all take up the environmental challenge, the challenge of green mission. And let us create “Green Houses”, “Green Schools”, “Green Villages”, “Green Cities”, “Green Taxis”, “Green Roads”, – a “Green Sikkim”.

ACTIVITY HIGHLIGHTS

Release of books on Ecological Studies by Hon'ble Chief Minister Dr. Pawan Kr. Chamling



Ceremonial Plantation of Seedlings by the Hon'ble Chief Minister



Ceremonial Plantation of Seedlings by the Hon'ble Minister of Forest, Env & Wildlife Management Dept



Exhibition on Forest and Environmental Resource



Release of cheque for Eco- Clubs and Felicitation to Shri S. M. Rai, Retired D.F.O



Prize distribution to students



One act Play by Indrakhil Munch, Namchi



NATIONAL ENVIRONMENT AWARENESS CAMPAIGN

on

SOLID WASTE MANAGEMENT IN SIKKIM

The following organizations participated in the NEAC 2005-06 programme. The Forest, Environment and Wildlife Management Department is the Regional Resource Agency for implementation of NEAC programme sponsored by the Ministry of Environment and Forests, Government of India. The State Environment Agency is coordinating the programme at state level under the chairmanship of PCCF-cum-Secretary and DFO (EPC) as the State Nodal Officer. The District Environment Committees are

Implementing and monitoring the programme in the concerned districts. All the Participating schools received a sum of Rs. 10, 800/ with the provision of Rs. 4800/= for awareness and training on Solid Waste Management and Composting and Rs. 6000/= for creation of compost pits, Dust bins, cleaning operation and maintenance in the schools. The NGOs received funds according to their proposals. The proposal for NEAC 2006-07 programme is under consideration of the Government of India.

EAST SIKKIM

1. Assam Lingzey Sr.Sec.School
2. Central Pandam Sr.Sec.School
3. Chujachen Sr.Sec.School
4. Deorali Girls Sr.Sec.School
5. Enchay Sr.Sec.School
6. Holy Cross Sr.Sec.School
7. Khamdong Sr.Sec.School
8. Mamring Sr.Sec.School
9. PNGSS School
10. Ranipool Sr.Sec.School
11. Ranka Sr.Sec.School
12. Rhenok Sr.Sec.School
13. Rumtek Sr.Sec.School
14. Samdong Sr.Sec.School
15. Sang Sr.Sec.School
16. Singtam Sr.Sec.School
17. Tadong Sr.Sec.School
18. Tashi Namgyal Academy
19. TNSS School
20. West Point Sr.Sec.School
21. Bering Paribartan Sangh (NGO)
22. Ecotourism & Conservation Society of Sikkim (NGO)
23. The Green Point (NGO)
24. DFO (EPC)

NORTH SIKKIM

1. Mangan Sr.Sec.School
2. Phodong Sr.Sec.School
3. MutanChi Lom Aal Shezun (NGO)

SOUTH SIKKIM

1. Bermiok Sr.Sec.School
2. Jorethang Sr.Sec.School
3. Namchi Girls Sr.Sec.School
4. Namchi Public School
5. Namchi Sr.Sec.School
6. Namthang Sr.Sec.School
7. Ravangla Sr.Sec.School
8. Sadam Sr.Sec.School
9. Temi Sr.Sec.School
10. Yangang Sr.Sec.School
11. Himalayan Educational Society, Temi, SouthSikkim (NGO)
12. Indreni Pariwar Sumbuk South Sikkim (NGO)
13. Nava Prabhat Club (NGO)
14. Sikkim Paryavaran Samrakshan Sangh (NGO)
15. Munal Club (NGO)
16. SYNUSIA (NGO)

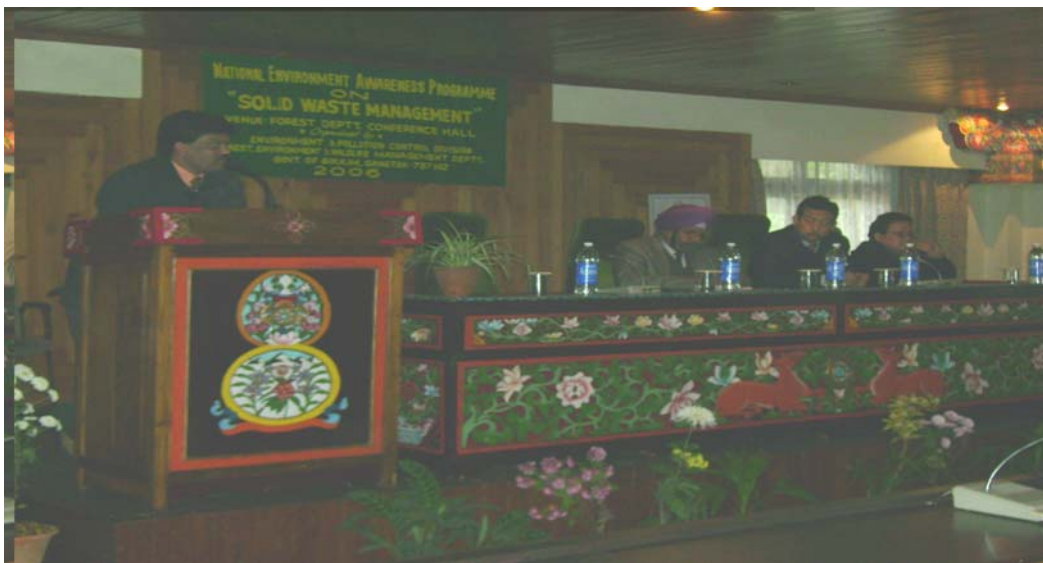
WEST SIKKIM

1. Burikhop Sr.Sec.School
2. Chakung Sr.Sec.School
3. Dentam Sr.Sec.School
4. Gyalshing Girls Sr.Sec.School
5. Hee Yangthang Sr.Sec.School
6. Mangalbaria Sr.Sec.School
7. Pelling Sr.Sec.School
8. Sombaria Sr.Sec.School
9. Soreng Sr.Sec.School
10. Tashiding Sr.Sec.School
11. Muna Committee (NGO)

One day Awareness on Solid Waste Management for the Shop Keepers and Hoteliers organized

Environment Awareness under National Environment Awareness Campaign on Solid Waste Management for the Shop keepers, Hotel Owners, etc., was organized by the Environment and Pollution Control Division of the Forest Environment and Wildlife Management Department on 29th November 2006 at Forest Department Conference Hall. The Shop Keepers and Hotel Owners of the Deorali Bazaar attended the programme. The Addl. PCCF (PIng. & Adm.)

Mr. Manjit Singh chaired the programme. The Member Secretary, Pollution Control Board delivered an address on the role of SPCB on Solid Waste Management, the Addl. CE, UDHD delivered speech on the role of UDHD in Solid waste management in urban areas and the need for peoples cooperation in managing solid waste in Gangtok. The DFO (EPC) spoke on the need for segregation of the solid waste at Source and management of house hold waste.



Snapshot : Dr. P. Senthil Kumar, DFO (EPC) delivering the needs of Solid Waste Management



Snapshot : Attendance of Shopkeepers and Hotel owners of Deorali on the programme

NATIONAL GREEN CORPS PROGRAMME IN SIKKIM

ECO-CLUBS HAVE BEEN ESTABLISHED IN THE SCHOOLS OF SIKKIM UNDER NATIONAL GREEN CORPS PROGRAMME.

The following schools were released with annual grant of Rs. 2500/= each for the year 2005-06 for functioning of eco-clubs in the school.

SENIOR SECONDARY SCHOOLS

NORTH SIKKIM (30)	SOUTH SIKKIM (97)	EAST SIKKIM (84)	WEST SIKKIM (69)
1. Hee-Gyathang 2. Mangan 3. Phodong	1. Bermiok Tokal 2. Jorethang 3. Namchi 4. Namchi Girls 5. Namthang 6. Ravongla 7. Sadam 8. Temi 9. Yangang	1. Assam Lingzey 2. Central Pendam 3. Chujachen 4. Deorali 5. Dikling 6. Enchey 7. Khamdong 8. Lingdok 9. Mamring 10. Ranipool 11. Ranka 12. Rhenock 13. Rumtek 14. Samdong 15. Singtam 16. Song 17. Tadong 18. Tashi Namgyal 19. West Point 20. Holly Cross	1. Buriakphop 2. Chakung 3. Dentam 4. Gyalshing Girls 5. Hee-Yangthang 6. Mangalbaria 7. Pelling 8. Sombaria 9. Soreng 10. Tashiding

SECONDARY SCHOOLS

NORTH SIKKIM	SOUTH SIKKIM	EAST SIKKIM	WEST SIKKIM
1. Chungthang 2. Gor 3. Kabi (Kalzang Gyatso) 4. Lachen 5. Lachung 6. Lingdong 7. Mangshila 8. Passingdong 9. Phensong 10. Singhik 11. Tingvong	1. Ben 2. Bikmat 3. Borrong 4. Damthang 5. Jarrong 6. Kewzing 7. Kitam 8. Lingee 9. Lingmoo 10. Maniram 11. Melli Bazar 12. Melli Gumpa 13. N.T.L Vok 14. Namchi New 15. Namphok 16. Nandugaon 17. Neh- Broom 18. Pabong 19. Perbing 20. Ralong 21. Rateypani 22. Rong 23. Sumbuk 24. Sangnath	1. Aho Shanti 2. Aritar 3. Dikchu 4. Duga 5. Lingtam 6. Linkey 7. Lower Samdong 8. Lower Sumin 9. Lower Syari 10. Luing 11. Machong 12. Makha 13. Martam 14. Middle Camp 15. Modern 16. Namcheybong 17. Nandok 18. Pabyuick 19. Pacheykhani 20. Padamchey 21. Penlong 22. Phadamchey 23. Rangpo 24. Sapley Sardarey	1. Bermiok Martam 2. Chumbong 3. Daramdin 4. Darap 5. Dodak 6. Gelling 7. Gerethang 8. Kaluk 9. Kamling 10. Kechupheri 11. Khandu 12. Khaniserbong 13. Lingchom 14. Okhrey 15. Ribdi 16. Sakyong 17. Sribadam 18. Tharpu 19. Timberbong 20. Uttarey 21. Yangsum 22. Yoksam 23. Zoom

	25. Tarku 26. Turuk 27. Tingmoo 28. Turung	25. Sichey 26. Sirwani 27. Sudunglakha 28. Tarpin 29. Tumin 30. Upper Dalapchen	
JUNIOR HIGH SCHOOLS			
NORTH SIKKIM	SOUTH SIKKIM	EAST SIKKIM	WEST SIKKIM
1. Gnon Sangdong 2. Lingthem 3. Lingzya 4. Manul 5. Namok 6. Namphrick 7. Pakshek 8. Phamtam 9. Rang Rang 10. Ringhem 11. Salimpakyal 12. Sarchuk 13. Swayam 14. Thebuk 15. Tingchim 16. Tumlong	1. Alleydara 2. Assangthang 3. Chalamthang 4. Chemchey 5. Chuba 6. Chunlok 7. Dalep Kewzing 8. Denchung 9. Deythang 10. Goam 11. Kabrey 12. Kamrang 13. Karjee 14. Kartikay 15. Karungthang 16. Kateng 17. Legship Hingdam 18. Lingee Paiyong 19. Lungchok 20. Mamlay 21. Mangley Sinchuthang 22. Manzing 23. Melli Paiyong 24. Mickhola 25. Namlung 26. Namphing 27. Omchu 28. Pabong Daring 29. Pahlidara 30. Paksom 31. Passi 32. Pathing 33. Phamtam 34. Phong 35. Raiyong 36. Salghari 37. Salleybong 38. Sangmoo 39. Sokpay 40. Sripatam 41. Suntaley 42. Thangsing 43. Temi Tea Garden 44. Tingley 45. Tingrithang 46. Tinzir 47. Upper Jaubari	1. Adampool 2. Ahopul Kisan 3. Arithang 4. Amba 5. Barapathing 6. Bering 7. Bhasmey 8. Bhusuk 9. Bojoghari 10. Bordang 11. Burtuk 12. Chewribotey 13. Dugalakha 14. Ganchung 15. Gaucharan 16. Majitar 17. Martam Yangtang 18. Mulukey 19. North Regu 20. Pachak 21. Pachey 22. Pakyong 23. Pangthang 24. Parakha 25. Patuk Chandey 26. Phalichadara 27. Raktong Tintek 28. Ralap 29. Raley Khese 30. Rangpo Bazar 31. Rhenock Bazar 32. Rhenock Khamdong 33. Rey Mindu 34. Rolep 35. Rongli 36. Rongneck 37. Rorathang 38. Sama Lingdum 39. Samlick Marchak 40. Sang Challamthang 41. Simick Lingzey 42. South Regu 43. Sumin Lingchey 44. Tareythang 45. Taza 46. Tumlabong 47. Upper Syar	1. Begha 2. Bongten 3. Budang 4. Central Martam 5. Chota Samdong 6. Deythang 7. Gangyap 8. Hathidunga 9. Hee - Patel 10. Karjee 11. Labdang 12. Langang 13. Legship 14. Lower Bermiok 15. Lungchok 16. Mabong 17. Malbasey 18. Malbasey Budang 19. Mangsari 20. Melli 21. Mukrung 22. Naya Bazar 23. Nazar Barfok 24. Pakkigaon 25. Pelling Chumpong 26. Piplay 27. Reshi 28. Rimbik 29. Rinchenpong 30. Rumbuk 31. Samdong 32. Sardong 33. Singling 34. Sopakha 35. Tikpur 36. Zeel

General Guidelines for NGC programme in Sikkim

- The National Green Corps Programme is sponsored by the **Ministry of Environment and Forests, Government of India**. Under the programme, the selected schools will constitute an Eco-Club to take up environment related activities.
- In Sikkim, at state level this programme is being coordinated by the **State Environment Agency** constituted by the Forest, Environment and Wildlife Management Department, Government of India.
- The State Environment Agency will transfer the funds to the District Environment Committee. The **District Environment Committee** will coordinate and implement the programme in the concerned District including transfer funds to the Schools selected for the programme and obtain the Utilization Report, etc.,. **The DFO (Land Use and Environment)** of the concerned district is the member secretary to the District Committee.
- One Teacher in the School has to be identified as Teacher-in-charge for the National Green Corps Programme and He/She may be designated as **Green Teacher**. The **Headmaster/Principal** of the school will appoint him as Green Teacher through an office order. He shall be responsible for execution of this programme in the school, maintain accounts and submit utilization reports to the concerned district officials.
- Each Eco-club shall consist of **30 members**. These members are selected **among the students of the concerned school** jointly by the Green Teacher and the Headmaster/Principal.
- One of the Eco-club members is to be designated as **Eco-Club Leader** and he/she will act according to the directions of the Green Teacher and coordinate the activities with the members.
- Each School selected for National Green Corps Programme should open a **bank account** in any bank near to their school or use the existing bank account of the school operated by the Head of the school.
- Each Eco-Club may under take any **activity related to improvement of the environment** through plantations, cleaning of the premises, collection and disposal of solid wastes, conducting environment related awareness campaign, competitions on essay, paintings, etc., on any International and National days of Environment Importance or any other important occasions.
- The Green Teacher may send all the communications on the eco-clubs to the concerned **Joint Director (HRDD)**, who is also the District Eco-club coordinator. The Joint Director shall forward the reports and status to the District committee. The member secretary of the District Committee (DFO- LU&E) shall act on behalf of the committee for successful implementation of the programme.
- The Green Teacher shall submit report on the activities conducted by the eco-clubs along with the photographs and Utilization Report **before the end of November every year** and seek grants for the next year through the District Committee.

OBJECTIVES

- To make children understand environment and environmental problems.
- To utilize the unique position of school children as conduits for awareness of the society at large.
- To facilitate children's participation in decision making in areas related to environment & development.
- To involve children in action based programmes related to environment in their surroundings.

LIST OF SUGGESTED ACTIVITIES FOR ECO-CLUBS

- Organise seminars, debates, rallies, marches, human chains, street theater at public places, lectures and popular talks on environmental issues in the school.
- Field visits to environmentally important sites including polluted and degraded sites, wildlife parks etc.
- Action based activities like tree plantation, cleanliness drives both within and out side the school campus.
- Grow kitchen gardens, maintain vermi-composting pits, construct water-harvesting structures in school, practice paper re-cycling etc.
- Prepare inventories of polluting sources and forward it to enforcement agencies.
- Organise awareness programmes against defecation in public places, pasting posters in public places and to propagate personal hygiene habits like washing hands before meals etc.
- Maintenance of public places like parks, gardens both within and outside the school campus.
- Mobilise action against environmentally unsound practices like garbage disposal in unauthorized place etc.

SOLID WASTE MANAGEMENT AT SOURCE

P. Senthil Kumar, DFO (EPC)

Storage of waste at source is the first essential step of Solid Waste Management. Every household, shop and establishment generates solid waste on day to day basis. The waste should normally be stored at the source of waste generation till collected for its disposal. In India, such a habit has not been formed and in the absence of system of storage of waste at source, the waste is thrown on the streets, treating streets as receptacle of waste. If citizens show such apathy and keep on throwing waste on streets and expect that municipal sweepers should/would clean the city, the cities will never remain clean. Even if local bodies make arrangements to remove all the waste disposed of by the citizens on the street on day to day basis, the city will remain clean only for two to three hours and not beyond till the habit of throwing waste on the streets is not changed. There is, therefore, a need to educate the people to store waste at source, dispose of the waste as

per the directions of the local bodies and effectively participate in the activities of the local bodies to keep the cities clean. For keeping streets and public places clean through out the day, it is necessary that waste producers co-operate and effectively participate in the waste management efforts of local bodies. People, therefore, may form a habit of storing waste at source in their personal bin/bins and deposit such waste into the municipal system only, at Specified times. Urban local bodies must, therefore, take concerted measures to ensure that citizens do not throw any waste on the streets, footpaths, open spaces, drains or water bodies and instead store the waste at source of waste generation in two bins/bags, one for food waste/bio-degradable waste and another for recyclable waste such as papers, plastic, metal, glass, rags etc.(as under):-

Types of Wastes to be put in the Bin Meant for Bio-degradable Wastes

- ❖ Food wastes of all kinds, cooked and uncooked, including eggshells, bones
- ❖ Flower and fruit wastes including juice peels and house-plant wastes
- ❖ House sweepings (not garden sweepings or yard waste: dispose on-site)
- ❖ Household Inert (sweepings/ashes)

Types of Recyclable and Other Non-Bio-degradable Wastes

- ❖ Paper and plastic, all kinds
- ❖ Cardboard and cartons
- ❖ Containers of all kinds excluding those containing hazardous materials
- ❖ Packaging of all kinds
- ❖ Glass, all kinds
- ❖ Metals, all kinds
- ❖ Rags, rubber, wood
- ❖ Foils, wrappings, pouches, sachets and tetrapaks (rinsed)
- ❖ Cassettes, computer diskettes, printer cartridges and electronic parts
- ❖ Discarded clothing, furniture and equipment

Wastes such as used batteries, containers for chemicals and pesticides, discarded medicines and other toxic or hazardous household waste (as under), if and when produced, should be kept separately from the above two streams of waste.

List of Some Domestic Hazardous Wastes

- ❖ Aerosol cans
- ❖ Batteries from flashlights and button cells
- ❖ Bleaches and household kitchen and drain cleaning agents
- ❖ Car batteries, oil filters and car care products and consumables
- ❖ Chemicals and solvents and their empty containers
- ❖ Cosmetic items, chemical-based
- ❖ Insecticides and their empty containers
- ❖ Light bulbs, tube-lights and compact fluorescent lamps (CFL)
- ❖ Paints, oils, lubricants, glues, thinners, and their empty containers
- ❖ Pesticides and herbicides and their empty containers
- ❖ Photographic chemicals
- ❖ Styrofoam and soft foam packaging from new equipment
- ❖ Thermometers
- ❖ Mercury-containing products
- ❖ Injection needles and syringes after destroying them both
- ❖ Discarded Medicines
- ❖ Sanitary towels,
- ❖ Disposable diapers and
- ❖ Incontinence pads (duly packed in polythene bags before disposal)

HOUSE HOLD SOLID WASTE MANAGEMENT

- ❖ They shall not throw any solid waste in their neighborhood, on the street, open spaces, and vacant plots or into drains.
- ❖ They shall (a) keep the food waste / bio-degradable as and when generated, in any type of domestic waste container, preferably with a cover, and (b) keep dry/recyclables wastes preferably in bags or sacks.
- ❖ Use of a non-corrosive container with lid is advised for the storage of food/biodegradable/wet waste. A container of 15 litre (0.015 cu.mtr) capacity for a family of 5 members would ordinarily be adequate. However, a household may keep larger containers or more than one container to store the waste produced in 24 hours having a spare capacity of 100% to meet unforeseen delay in clearance or unforeseen extra loads. Wet wastes should preferably not be disposed of in plastic carry bags.
- ❖ Keep domestic hazardous waste listed above separately, for disposal at the place may be as arranged for by the UDHD.
- ❖ A private society, association of flats/multistoried buildings etc. shall provide a **community bin** i.e. a bin large enough to hold the waste generated by the members of their society/association for storage of wet domestic wastes and instruct all residents to deposit their domestic waste in this community bin to facilitate collection of such waste by the local body from the designated spot.
- ❖ In case of Multi Storied buildings where it may be difficult for the waste collector to collect recyclable waste from the doorstep, the association of such buildings may optionally keep one more community bin for storage of recyclable material.
- ❖ In slums, where because of lack of access or due to narrow lanes, it is not found convenient to introduce house-to-house collection system, community bins of suitable sizes ranging from 40 to 100 litre (0.04 to 0.1cu.mtr.) capacity may be placed at suitable locations by the local body to facilitate the storage of waste generated by them. They may be directed to put their waste into community bins before the hour of clearance each day.
- ❖ In a situation where local bodies find it difficult to place smaller community bins in slums on account of lack of awareness among slum dwellers, the local bodies may provide larger containers which may match with the local body's transportation system at locations which may be suitable to slum dwellers and convenient for local bodies to collect such waste. Slum dwellers may be directed to deposit their waste in such larger bins before the hour of clearance of waste each day.

WETLANDS OF SIKKIM

*Source : - Wetlands of India, Nation-wide Wetland Mapping Project, sponsored by MoEF
Space Application Centre (ISRO, Ahmedabad – June 1998*

The state of Sikkim is located in the northeastern part of the country and lies between 27°04' – 28°08' N latitudes and 88°00' – 88°54' E longitudes covering an area of 7096 sq. km. The state has international borders with China in the North, Nepal in the west and Bhutan in the East and to the south lies the state of West Bengal. For administrative convenience the state has been divided into four districts namely North, East, West and South districts.

Physiographically, two-third of the state consists of largely snow-covered high hills with deep ravines/gorges. About 30 percent of the state is forest covered. The state has cool humid temperatures ranging from 3 - 30° C. However, the mercury dips below freezing temperatures during the winter.

The average annual rainfall is 3000 mm mainly contributed by the southwest monsoon during June-October and intermittent rains during December-February months. Main rivers draining the state are the Teesta and the Rangit rivers. Other tributaries joining the Teesta river are the Yumthang Chhu, the Sebozung Chhu.

The Teesta and its tributaries are perennial in nature and are fed by both snow-melt water and rain water. Due to its high altitude, dense forest, extreme cold climate conditions and rugged topography, the area is not easily approachable and renders conventional surveys almost impossible. Thus the role of remote sensing technique for mapping becomes all the more essential for this area.

Distribution of Wetlands in Sikkim

Mapping for the state of Sikkim was done on 1:50 000 scale using IRS LISS II data of 1992/93. SOI maps on 1:50 000 scale were used for preparing base maps.

Sikkim has only natural inland wetlands belonging to the category lakes/ponds. In all 160 wetlands greater than the minimum mapping unit (2.25 ha) were delineated which occupy an area of

1985 ha. 69 wetlands got frozen during the winter as manifested on the pre-monsoon season imagery.

The water spread of the wetlands decreased from 1985 ha to 1749.50 ha during the pre-monsoon season. In addition, there are 67 wetlands smaller than the minimum mapping unit.

Wetland Category	Wetland Class	No. of Wetlands	Wetland Area (ha)	Water Spread (ha)	
				Post-M	Pre-M
Natural	Lake/Pond	160	1985.00	1985.00	1749.50
<2.25 ha	-	67	-	-	-
Total		227	1985.00	1985.00	1749.50
Note : Number of Wetlands frozen in Pre-monsoon 69 M = Monsoon					

Table : Distribution of Wetlands of Sikkim

District-wise Distribution of Wetlands

There are four districts in the state, viz, North, East, West and South districts. As mentioned earlier the state has only lakes/ponds type of wetlands. The detailed information about wetland distribution is given in the table below.

North Sikkim has the highest number of wetlands in the state (135 in number) occupying an area of 1807.50 ha. However, during pre-monsoon

season the area estimated is 1592.25 ha. the reduction is due to freezing of many of the lakes.

East and West districts have 14 and 11 wetlands respectively occupying an area of 120.75 ha and 56.25 ha. There is no reduction in the area during pre-monsoon seasons. In South district no wetlands could be delineated.

District	Wetland Class	No. of Wetlands	Wetland Area (ha)	Water Spread (ha)	
				Post-M	Pre-M
1. East Sikkim	Lakes/Ponds < 2.25 ha	14	120.75	120.75	100.75
		3	-	-	-
2. West Sikkim	Lakes/Ponds	11	56.50	56.50	56.50
3. North Sikkim	Lakes/Ponds < 2.25 ha	135	1807.75	807.75	1592.25
		64	-	-	-
4. South Sikkim	-	-	-	-	-
Total		227	1985.00	1985.00	1749.50

Table : District-wise status of Wetlands of Sikkim (**Note** : M = Monsoon)

Turbidity

Majority of the wetlands in Sikkim have low turbidity (107 in post-monsoon and 60 in pre-monsoon). This is primarily due to the fact that most of these wetlands (lakes) are located in the

high Himalayas and are of glaciatic origin. During the post-monsoon season 29 wetlands exhibited moderate and 24 high turbidity. (refer table below)

Wetland Class	Turbidity					
	Low		Moderate		High	
	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
Lakes/ponds	60	107	3	29	14	24

Table : Turbidity status in wetlands of Sikkim (**Note** : M = Monsoon)

CONCLUSIONS

- Sikkim has only natural inland wetlands belonging to the category lakes/ponds. In all 160 wetlands greater than the minimum mapping unit (2.25 ha) were delineated which occupy an area of 1985 ha.
- 69 wetlands got frozen during the pre-monsoon season as manifested on the imagery.
- The water spread of the wetlands decreased from 1985 ha to 1749.50 ha during the pre-monsoon season. In addition, there are wetlands smaller than the minimum mapping unit.
- Majority of the wetlands in Sikkim have low turbidity (107 in post-monsoon and 60 in pre-monsoon) due to the fact that most of these wetlands (lakes) are located in the high Himalayas and are of glaciatic origin. During the post-monsoon season 29 wetlands exhibited moderate and 24 high turbidity.
- North Sikkim has the highest no. of wetlands in the state(135). The area occupied is 1807.50 ha. However, during the pre-monsoon season the area estimated is 1590.25 ha. due to freezing of many lakes. East and West districts have 14 and 11 wetlands respt. occupying an area of 120.75 ha and 56.25 ha. There is no reduction in the area during pre-monsoon seasons. In South district no wetlands could be delineated.

INTERNATIONAL ENVIRONMENT NEWS

“Spirit of Nairobi” prevails as United Nations Climate Change Conference successfully concludes with decisions to support developing countries

(Nairobi, 17 November 2006) – The United Nations Climate Change Conference concluded this evening with the adoption of a wide range of decisions designed to mitigate climate change and help countries adapt to the effects of global warming.

The conference was attended by around six thousand participants, among them more than 100 ministers, the Secretary-General of the United Nations and two heads of state.

“The conference has delivered on its promise to support the needs of developing countries,” said Conference President, Kenyan Minister for Natural Resources and the Environment Kivutha Kibwana. “The positive spirit of the conference has prevailed.”

At the meeting, activities for the next few years under the “Nairobi Work programme on Impacts, Vulnerability and Adaptation” were agreed. These activities will help enhance decision-making on adaptation action and improved assessment of vulnerability and adaptation to climate change.

Another important outcome is the agreement on the management of the Adaptation Fund under the Kyoto Protocol. The Adaptation Fund draws on proceeds generated by the clean development mechanism (CDM) and is designed to support concrete adaptation activities in developing countries.

The CDM permits industrialized countries, which have emission targets under the Kyoto Protocol, to invest in sustainable development projects in developing countries that reduce greenhouse gas emission, and thereby generate tradable emission credits.

The Conference recognized the barriers that stand in the way of increased penetration of CDM projects in many countries, in particular in Africa.

Parties welcomed the “Nairobi Framework” announced by the United Nations Secretary-General Kofi Annan, which will provide additional support to developing countries to successfully develop projects for the CDM.

Rules were finalized for the Special Climate Change Fund. The fund is designed to finance projects in developing countries relating to adaptation, technology transfer, climate change mitigation and economic diversification for countries highly dependent on income from fossil fuels.

At Nairobi, Parties also adopted rules of procedure for the Kyoto Protocol’s Compliance Committee, making it fully operational.

The Compliance Committee, with its enforcement and facilitative branches, ensures that the Parties to the Protocol have a clear accountability regime in meeting their emission reductions targets.

Talks on commitments of industrialized countries for post-2012 under the Kyoto Protocol advanced well, with Parties reaching agreement on a detailed work plan spelling out the steps needed to reach agreement on a set of new commitments.

“The 166 Parties to the Kyoto Protocol heard in Nairobi that global emissions of greenhouse gases have to be reduced to very low levels, well below half of levels in 2000, in order to avoid dangerous climate change,” said Yvo de Boer, Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC).

“The fact that Parties now have a concrete workplan means that they can move ahead with addressing issues fundamental for agreement on future commitments, such as the level of emission reductions that is required and the ways in which they can be achieved,” he added

Parties also held a second round of the Dialogue on long-term cooperative action to enhance implementation of the Convention, open to all 189 Parties to the UNFCCC. Landmark presentations on the latest findings on economic challenges posed by global warming were made, along with economic solutions.

“We are seeing a revolutionary shift in the debate on climate change, from looking at climate change policies as a cost factor for development, countries are starting to see them as opportunities to enhance economic growth in a sustainable way,” said Yvo de Boer.

“The further development of carbon markets can help mobilize the necessary financial resources needed for a global response to climate change and give us a future agreement that is focused on incentives to act,” he added.

Brazil put forward a concrete proposal for an arrangement to provide positive incentives to reduce deforestation emissions in developing countries. This proposal will be discussed at a meeting in March next year.

“The spirit of Nairobi has been truly remarkable,” Conference President Kibwana said. “Let us now use the momentum of this conference to carry this spirit forward and jointly undertake the kind of concerted action we need for humankind to have a future on this planet.”

The next round of negotiations under the Kyoto Protocol and talks under the United Nations Climate Change Convention will be held in Bonn, Germany in May 2007.

Source: Press Release by **FRAMEWORK CONVENTION ON CLIMATE CHANGE - Secretariat**



ENVIS Centre SIKKIM

(On Status of Environment & its Related Issues)

Sponsored by

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Environmental Awareness: Students of Tumlong Jr. High School in action





ENVIS CENTRE SIKKIM

ENVIRONMENTAL INFORMATION SYSTEM
On Status of Environment & Related Issues of Sikkim

This Centre is functioning under the over all administration of the PCCF-cum-Secretary, Forest, Environment & Wildlife Management Department with the supervision and guidance of Additional PCCF, CCF and Conservator of Forests of Environment sector. The day to day affairs of the ENVIS centre are being managed by the Divisional Forest Officer, Environment and Pollution Control Division, who is also the Programme Coordinator for ENVIS Centre Sikkim. The centre also has one Programme Officer, one IT Assistant and one Technical Project Associate to look after the needs of collection, compilation, database development, updating of information on the database and websites, publication of news letter, etc.,

The Centre has been established at the ground floor of the annex-III, Forest Secretariat, Deorali, Gangtok 737102.



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ENVIS TEAM

Dr. P. Senthil Kumar	<i>Programme Coordinator</i>
Mr. Rajen Pradhan	<i>Programme Officer</i>
Mr. Laxuman Darnal	<i>IT Assistant</i>
Mr. Garap Dorjee Bhutia	<i>Technical Project Associate</i>

ENVIS Website : www.sikenvis.nic.in

Email : mail2envis@yahoo.co.in

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