



PANDA

A BI-ANNUAL ENVIS NEWSLETTER ON FORESTS, ENVIRONMENT & WILDLIFE

Not for sale



Unity in Diversity

First ever
National Green
Corps meet at
Hyderabad



Three Sikkim Government
Schools bag
National Awards

Celebrating



International Year of Biodiversity

Sikkim hosts International
Rhododendron Festival



Forests, Environment & Wildlife Management Department
Government of Sikkim



CM's Unique &
Innovative initiative
Ten Minutes to
Earth

News & Events Special

Sikkim
stands high
on ESI

Look in for more



PANDA

Newsletter

Volume III Issue No. 1 [2010-11]
Registration No. 61685/93

PANDA is a bi-annual newsletter published by ENVIS Centre, Forests, Environment & Wildlife Management Department, Government of Sikkim. This newsletter is aimed at disseminating environment, forest and wildlife information among the public at large and is also envisaged to serve as a medium to communication among foresters and others engaged in nature conservation in the State. Free and voluntary contributions for publication in the newsletter may be sent to ENVIS Centre.

Co-ordinator
ENVIS CENTRE SIKKIM
On Status of Environment & its Related Issues
Forest Secretariat Annex II,
Room No 1101, Ground Floor
Forest, Environment & Wildlife
Management Department,
Government of Sikkim,
Deorali -737102, Gangtok

Email us at: sik@envis.nic.in
Visit us at : www.sikenvvis.nic.in
Tel (O) : 03592-280381
Fax: 03592-281778

ENVIS TEAM

Coordinator
Mr. C. Lachungpa, IFS
CCF-cum-Nodal Officer (LU&E/ FCA)

Sr. Programme Officer
Mr. Rajen Pradhan

Programme Officer
Ms. Sandhya Pradhan

Programme Assistant
Mr. Laxuman Darnal



ENVIS PUBLICATION 2010-11

© 2010-11 ENVIS CENTRE SIKKIM
Forest, Environment & Wildlife Management
Department, Government of Sikkim

Any part of the publication may be reproduced,
stored in a retrieval system or transmitted in any
form or by any means, electronic, mechanical or
otherwise, provided that the same is duly cited.

All efforts have been made to make the information
shown as accurate as possible.

Editorial Board

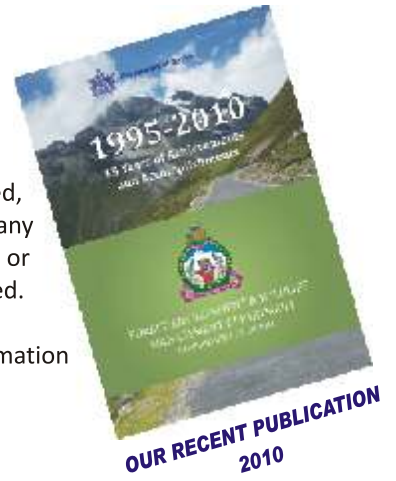
Chairman: Mr. S. T. Lachungpa, IFS, PCCF-cum-Secretary

Coordinator: Mr. C. Lachungpa, IFS, CCF-cum-Nodal Officer
(LU&E/ FCA)

Co-Editors: Mrs. U. Lachungpa, Sr. Research Officer (W/L)
Mr. Rajen Pradhan, Sr. Programme Officer (ENVIS)

Compilation & Design: Mr. Rajen Pradhan

ENVIS team also thanks all the resource person for their
contribution in this issue.



OUR RECENT PUBLICATION
2010

"1995-2010
15 Years of
Achievements and
Accomplishments"

Electronic version
available. Check our
website sikenvvis.nic.in



Sponsored by



Govt. of Sikkim



जहाँ है हरियाली ।
वहाँ है खुशहाली ॥

MoEF, GoI

COVER PAGE



10 Minutes to Earth
CM's unique and innovative initiative dedicated to mass plantation with focus on public participation as an annual ritual | June 25, 2010



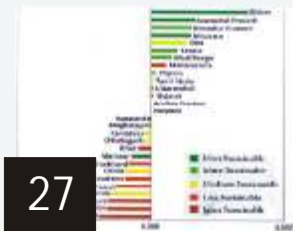
Gobar Times Green School Awards 2009
Three Sikkim Government Schools conferred with National Awards by CSE, New Delhi | Feb 20, 2010



Unity in Diversity
Sikkim students shine at the first ever National Green Corps meet at Hyderabad | Aug 25-30, 2010



International Rhododendron Festival 2010
Sikkim hosts live Rhododendron show, nature camps, bird watching, mountain biking, trekking, angling, food festival, exhibitions, and international conference | April 25 May 15, 2010



Environmental Sustainability Index 2009
Sikkim stands high on top in reducing pressure on environment and in state's response to maintain their environment



International Year of Forests 2011: United Nations has declared 2011 as the International Year of Forests to raise awareness and strengthen the sustainable forest management. See Environment Calendar | pg 33

Visit our Website for the electronic [PDF] copy:
www.sikennis.nic.in/Newsletter.htm

WHAT'S MORE

Foreword & Editorial	2
Sikkim Forest Statistics	4
Environment Education Programmes	
Green School Programme Sikkim	6
National Conference of Children and Youth: Unity in Diversity	8
International Charter of Responsibilities	9
National Environment Awareness Campaign 2010	10
Events & Celebrations	
World Environment Day June 5	11
Sikkim State Green Mission Phase V	11
International Year of Biodiversity 2010	12
Wildlife Week Oct 1-7	14
Conservation Day Nov 25	14
Captive Breeding of Red Panda in Himalayan Zoological Park, Bulbuley, Gangtok-Sikkim	15
Workshop on Institutionalization of Criteria & Indicators Framework for Sustainable Management of Natural Forests in India	16
WP- Vegetation Carbon pool assessment Project	17
An Effort Towards Zero Waste Trail (Yuksam Dzongri)	18
<i>Alarm Call:</i> Flashflood in Taktsom Chu Watershed	20
JICA assisted Sikkim Biodiversity Conservation and Forest Management (SBFP) Project	23
Eco-Destinations: Tour to Gurudongmar & Tso Lhamu Lake	24
Khecheopalri Lake <i>Conservation Fee</i>	26
<i>Scientific paper:</i> A New Methodology for the quantitative estimation of Rutin	28
An Overview of the Ecological and Socio-Economic Assessment of the Grazing Ban in Sikkim	30



FOREWORD

Forest Department after completing its centenary last year, a milestone in itself is set to begin yet another journey to accomplish its unfulfilled dreams in years to come

The year 2010, also known as an International Year of Biodiversity was an eventful journey where Sikkim hosted the International Rhododendron Festival preceding the International Flower show in 2008. Such festival is indeed an honor for the state and the people alike.

This International Year for Biodiversity with the theme "Biodiversity is life, biodiversity is our life" itself states that our life on earth is highly interdependent with other living species no matter how insignificant they may look. Likewise Sikkim being one of the biodiversity hot spot in this country gives us, the foresters' immense pleasure as well as deep sense of responsibility towards conserving the varied biodiversity in the state. Hence, various conservation activities have been highlighted in this issue.

In this era of Global Climate Change, we are all looking forward to find innovative ways to reduce the detrimental effects on the environment and seek measure to strike a balance with nature in restoring our depleting natural resources. Our state has come up with innovative approaches like State Green Mission, Ten Minutes to Greenery whereby mass plantation activities is carried out by the people in the state. By doing so, Sikkim has set an example to other states and opened up avenues for replicability in other states as well.

Since information dissemination is important in this communication age, Panda a biannual Newsletter is one window to share the activities and works of the department and thus prove informative to those engaged in environment conservation.

- S. T. Lachungpa, IFS

1994-2010

Sikkim is FIRST State in India for:

1. Increase of forest cover by 2% (recorded by Forest Survey of India; 37% in 1975 - 47.59% in 2007)
2. Highest Wildlife Protected Area coverage in the country (34%)
3. Ban on cattle grazing in Reserve Forests; Effectiveness studies underway
4. Launching State Green Mission, an annual ritual on 15 June with focus on mass participation of general public and government
5. Launching "Ten Minutes to Earth", an annual ritual on 25 June dedicated to mass plantation by all dedicated public of Sikkim in 10 designated minutes
6. Environmental Cess compulsory levy for developmental projects through Sikkim Ecology Fund and Environment Cess Act, 2005
7. Ban on non-biodegradable plastic carry-bags through government notification
8. Ban on Vulture killer NSAID (Non-Steroidal Anti Inflammatory Drug) Diclofenac through government notification
9. Recognizing 11 Important Bird Areas (IBAs) throughout state
10. Declaring *Rhododendron arboreum* Town at Rabong Bazar, South Sikkim
11. Launching of environment friendly Eco-Highways, Green Roads
12. Celebrating International Rhododendron Festival 2010
13. Establishing State Biodiversity Park at Damthang, South Sikkim
14. Establishing *Smriti Vans* (Memorial Forests) in all Panchayat wards and districts
15. Constituting "*Himal Rakshak*" (Mountain Guardian) and "*Pokhari Rakshak Sanrakshan Samiti*" (Lake Guardian Conservation Committee)
16. Constitution of State award "*Rajya Van Evam Paryavaran Samrakshan Puraskar*" (State Forest & Environment Conservation Award)
17. Democratic and Scientific Forest Working Plans and Wildlife Management Plans
18. Compulsory Environment Education for all schools, colleges of Sikkim with vision of 100% Environment Conscious Citizens; NGC, NEAC, GSP programmes through ENVIS Cell (www.sikennis.nic.in)
19. Notifying Sacred Peaks, Caves, Rocks, Lakes, '*Chortens*' and Hot Springs and banning scaling of important peaks including Mount Khangchendzonga, Regulation of Trekking Rules, 2006 notified.
20. Wetland Conservation Programme formulated and six wetland complexes included in National Wetland Conservation Programme; State Glacial Commission formulated; Potential RAMSAR SITES identified

21. First/BEST in Natural Resource Management by Centre for Development Finance (CDF)
22. First/BEST in Reducing Pressure on Environment and State's Responses to maintain environment on ESI ranking in 2009
23. Going Organic through ban on chemical fertilizers, pesticides and encouraging eco-friendly alternatives
24. Green performance by providing environmental services; by Planning Commission for receiving GREEN BONUS
25. Recruitment of 150 Forests Guards of which 35% are women

VISION IN FORESTRY & BIODIVERSITY

- a. JICA assisted Sikkim Biodiversity Conservation and Forest Management Project with outlay of Rs. 330.57 Crores
- b. GTZ support for Climate study and Hi-Tech Nurseries for Oaks and R&E species including Wild Edible Fruits, Medicinal Plants
- c. Sustainable Forest management through Remote Sensing and GIS through Working Plan Circle
- d. Environment & Pollution Control Board (SMPB) strengthening with construction of *Parivesh Bhavan*
- e. Biodiversity & Silviculture Research through Peoples' Participation, collaborative projects with research organizations; State Biodiversity Strategy and Action Plan (SBSAP) documented; Sikkim State Biodiversity Board (SSBB) constituted
- f. State Medicinal Plant Board (SMPB) strengthening to concretize action plan in State with Hon. Chief Minister as Chairman
- g. Wildlife Sector Strengthening *in-situ* & *ex-situ* to conserve globally threatened species (Snow Leopard, Tibetan Argali, Black-necked Crane) and Rare & Endangered species including Medicinal, Aromatic & Dye-yielding Plants
- h. Walk-In Aviary in Sidkeong Tulku Bird Park, Rabdentse, West Sikkim; Rangrang Butterfly Park, North Sikkim; Himalayan Zoological Park with Conservation Breeding Programmes for Red Panda, Snow Leopard, Pheasants including Red Junglefowl
- i. Promotion of Ecotourism Activities; Ecotourism Policy
- j. Upcoming National Museum of Natural History at Marchak; Biodiversity Centre at Pangthang; State Forest Museum



Chief Conservator of Forest
(Land Use & Environment)
Programme Coordinator (ENVIS)
Forest, Environment & Wildlife Management Department
Government of Sikkim
Deorali, 737102, Gangtok
Tele/Fax(O): 03592- 281145
Email: c_lachungpa123@hotmail.com

EDITORIAL

From Coordinator's desk

The year 2010 has been a very promising year for the department. The year demarcated as the 'International Year of Biodiversity' and Sikkim being identified as the biodiversity hot spot has thrown light to the varied biodiversity in the state. In light of the state's rich biodiversity, we constantly need to make an effort to preserve the local biodiversity so as to contend growing threats of global climate change.

This issue of Panda newsletter is a collage of events and activities observed by the department during 2010. This issue highlights the initiatives taken by the department towards environment education and conservation like the National Green Corps, Green School Programme where schools in Sikkim got recognition at a national level. In this era of spreading awareness about the environment, ENVIS centre has taken up initiatives to reach out to wider level to raise the awareness and sensitize about the fragile Himalayan environment.

The department had also come up with a report highlighting the departmental achievements in the last 15 years and a brief of this report has been summarized in this issue.

This newsletter tries to justify the purpose it serves in reaching out to the people at large. The team of ENVIS Centre has been working very efficiently to out reach the mandate of environmental concerns. I congratulate the team for their consistence efforts.

Panda, a biannual newsletter is a medium of communication by the Forest department to the people at large. It is hoped that the contents in this newsletter will prove useful to the readers and help us to serve you better.

Wish you all a very Happy & Prosperous New Year 2011.

- C. Lachungpa, IFS

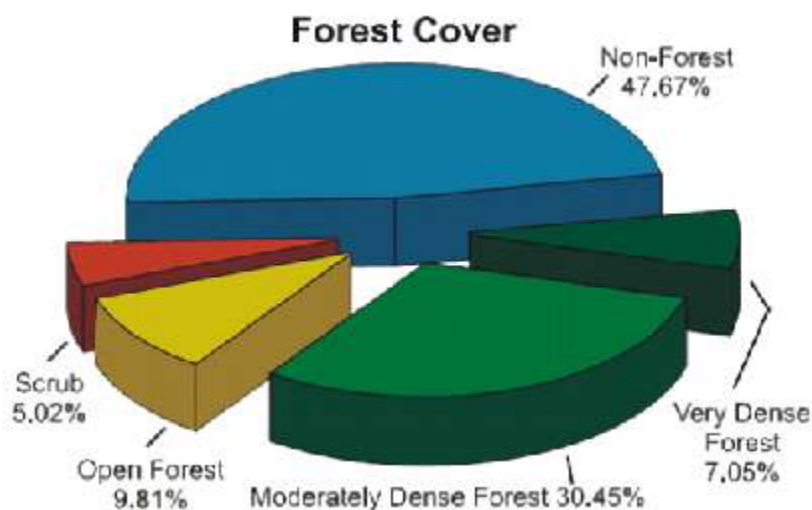
SIKKIM FOREST STATISTICS 2009

Sikkim State marks increase in Forest Cover by 2% from 2005 to 2007 forest cover assessment by Forest Survey of India

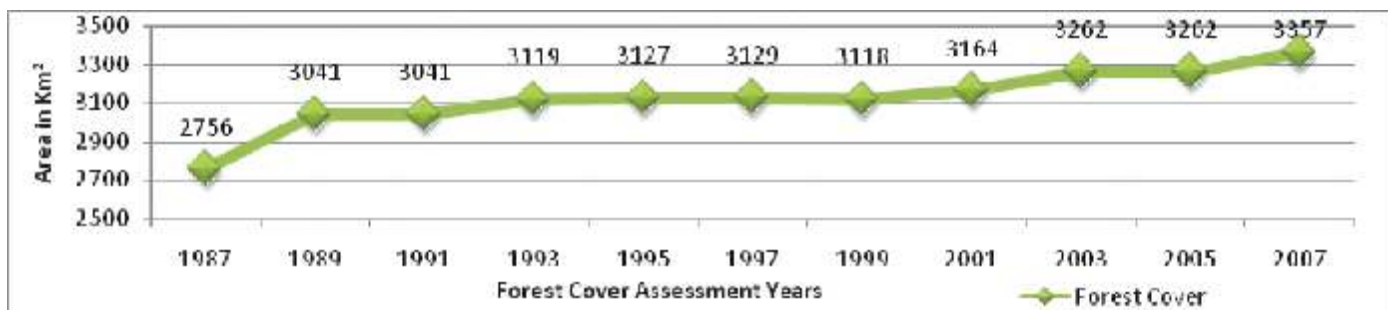
State's Geographical Area: 7,096 Km²
Recorded Forest Area: 5,841 Km² (82.31% of State's Geographical Area)
- Reserved Forests 93.34% | - Protected Forests 6.66%

Source: India State of Forest Report 2009

Forest Cover (Area in Km ²)		
	2005 Assessment	2007 Assessment
Very Dense Forest	498	500
Moderately Dense Forest	1,912	2,161
Open Forest	852	696
Total	3,262	3,357
Of State's Geographic area	45.97 %	47.31 %
Forest & Tree Cover		
Category	Area (in Km ²)	% of Geographical Area
Tree Cover	20	0.28
Forest Cover	3,357	47.31
Forest & Tree Cover	3,377	47.59



As per the State of Forest Report of the Forest Survey of India, Ministry of Environment & Forest, Government of India, the Forest Cover assessment status in different reported year is as under:



Note: In the State of Sikkim about 44 % of total geographical area is under Alpine pasture & scrub and under perpetual snow cover. Hence, in these areas, it would not be possible to bring the tree cover. The area considered for the tree cover may therefore be excluding these areas.



An annual ritual on 25th day of June dedicated to mass plantation by all dedicated public of Sikkim in 10 designated minutes



10 Minutes To earth

Sikkim's Earth Hour planting for the planet through “10 Minutes to Earth” supporting the United Nations Environment Programme (UNEP) worldwide tree planting campaign “Plant for Planet: Billion Tree Campaign”, Sikkim Government under the direction of Hon'ble Chief Minister Shri Pawan Chamling initiated the 10 Minutes to Earth Programme.

Much observed as an annual ritual on the 25th day of June, this programme is dedicated to mass plantation by the public of the state. Conceptualized with a strong political will by the nation's greenest chief minister, Shri Pawan Chamling, the programme actually kick started in 2009 with the theme 'Ten Minutes to Greenery'. A total of 610694 (six lakhs ten thousand six hundred and ninety four) saplings in the stipulated 10 minutes time (10.30 am to 10.40 am) were planted. People from all the nooks of Sikkim participated in the historic moment of planting saplings more than the population of State. The seedlings were distributed by the Forest Department free of cost in large scale. The programme

was unprecedented and one of its kind.

On June 25, 2010, as the campaign stepped into its second year, the day was much celebrated as an annual festival in the state. The plantation drive was observed from 9.15am to 9.25am all over the state with great enthusiasm and about 6 lakhs sapling of various kinds were planted.

The Governor, Shri. B. P. Singh, Chief Minister Shri. Pawan Chamling and Smt. Tika Maya Chamling planted the saplings of rhododendron tree in the premises of Ganesh Tok temple here in the capital.

'Ten Minutes to Earth' is in the highest traditions of the Indian civilization values. Through this programme, Sikkim is lighting a lamp for restoration of ecology and may this lamp guide other States of India and world.

Shri B.P.Singh, Governor, Sikkim.

This ten minutes activity would also help in sequestration of 1400 tons of CO₂ annually. So Sikkim has shown its unique way of Climate Change mitigation technique which contributes annually and would do forever during life of the planted trees.



ENVIRONMENT EDUCATION PROGRAMME

GreenSchools Programme



Picture: Eco-Club, Govt. Secondary School, Reshi, West Sikkim

Green School Programme is an environmental education programme and award scheme that promotes and acknowledges school's action for the environment.

Sikkim is the first state in the country to launch the Green School Programme at the state-level in 2009. Coordinated at the national level by CSE (Centre for Science and Environment) New Delhi and at the state-level by ENVIS Center, department of Forest, Environment & Wildlife Management, GSP is a self-assessment programme in which teachers and students perform rigorous environment audits of water, air, land, energy and waste within their school premise following a set of guidelines outlined in a manual published by CSE, titled '**How Green is my School? A do-it-yourself manual**'.

GSP is now being implemented by 139 schools (government and private) at secondary and senior secondary level in Sikkim.

Unlike a once-off project, GSP is a long-term programme that introduces participants (students, teachers, parents and the wider community) to the concept of an environmental management system.

However, GSP is far more than just an environmental management system. It fosters a strong sense of citizenship and leadership among participants that spreads far outside the school into the wider community. It also promotes a strong sense of teamwork. It flattens and democratizes school management structures. It brings children into the decision-making process and makes them responsible for their decision and actions.

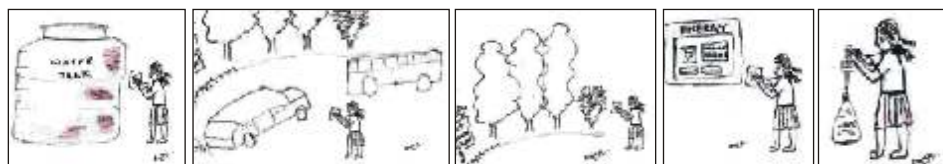
GSP is an effective tool to increase students' and participant awareness of environmental issues through classroom studies and to transfer this knowledge into positive environmental action in the school and also in the wider community.

Teacher's Training



Green School Programme 2010-11 session was launched with a two days teacher's training on the 27th -28th of July 2010 at Sikkim Science centre, Marchak, East Sikkim.

This training programme was inaugurated by Shri. Bhim Prasad Dhungel, Hon'ble Forest Minister. About 80 teachers from all the districts participated in the training programme. Mr. Ashish Shah and Ms. Ajanta from Centre for Science & Environment (CSE) New Delhi were invited as resource persons for providing hands on training on the Green School Manual. The training was done mainly to help the teachers understand the manual better and conduct the programme accordingly in Schools.



ENVIRONMENT EDUCATION PROGRAMME

Sikkim conducts the first State-level Green School Programme in the country and three government schools bag national awards

Picture (left) : Ms. Sandhya Pradhan, Programme Officer (ENVIS) and Mr. M.R.Rai, DFO from Forest Environment & Wildlife Management Department, Sikkim receiving certificate awarded by Centre for Science & Environment (CSE), New Delhi from Mrs. Sharmila Tagore, the Chief Guest on the occasion.

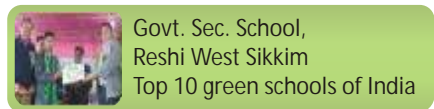


Gobar Times Green School Awards 2009 to Sikkim State

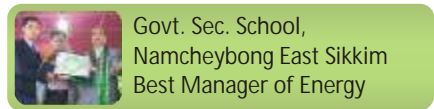
The Gobar Times Green Schools Award is a platform to acknowledge and reward schools which have adopted the most innovative and effective practices to manage natural resources within their own premises.

In a glittering and high profile award ceremony on Feb 20, 2010 at New Delhi,

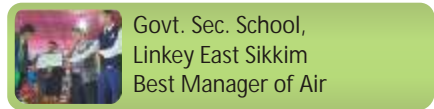
three government schools of Sikkim were conferred National Awards for GSP 2009 based on the all India green school ratings, namely;



Govt. Sec. School, Reshi West Sikkim
Top 10 green schools of India



Govt. Sec. School, Namcheybong East Sikkim
Best Manager of Energy



Govt. Sec. School, Linkey East Sikkim
Best Manager of Air

These awards were received by the implementing agency on behalf and later awarded to the schools during the World Environment day 5 June 2010 with cash prizes of Rs. 5000/- each.

How did Sikkim Schools make into the National Green School Awards?

At the national level, two schools of the state have already made into the CSE's GREEN SCHOOLS AWARD LIST in the overall category.

- Daramdin Sec School, West Sikkim in 2007 (2nd Best School in India)
- Reshi Sec School, West Sikkim in 2009 (Top 10 Schools in India)

Government Secondary School, Reshi West Sikkim: (Top 10 Schools in 2009)

A first timer with great enthusiasm, team work and dedication by both students and teachers has made a place for itself at the top 10 list. The school's eco-club conducted a precise and extremely well tabulated audit of all the five parameters i.e. water, air, land, energy and waste, scoring 72.5% in the overall assessment. School has a water harvesting structure; recycles waste paper, reuses water and plastics; segregates waste at the source and has compost pit. A visit to this school will reveal many other small but inspiring initiatives. Don't be surprised if you are greeted with a small toy made of recycled waste!



Government Senior Secondary School, Daramdin West Sikkim: (2nd in 2007)



This rural government school strictly abides the environment management system as outlined in the green school manual.



The school has two drinking water taps. To measure per capita consumption of water, the audit team put two 250 ml tumblers near the taps, and made each student count the number of times they drank water from these glasses.

Probably the only government school in the country to appear in the top 20 'Change-makers' list amongst 15,000 greens schools across the country since 2007.

State-level Ranking of Schools in GSP 2009

1	Reshi Govt. Sec. School	West
2	Deorali Govt. Sr. Sec. School	East
3	Phodong Govt. Sr. Sec. School	North
4	Bermiok Tokal Govt. Sec. School	South
5	Dentam Sr. Govt. Sec. School	West
6	Namcheybong Govt. Sec. School	East
7	Namphok Govt. Sec. School	South
8	Rhenock Govt. Sr. Sec. School	East
9	Linkey Govt. Sec. School	East
10	Palzor Namgyal Girls Sr. Sec. School	East



ENVIRONMENT EDUCATION PROGRAMME



Unity in Diversity

Sikkim State National Green Corps (NGC) at the First-ever National Conference of Children and Youth

Hyderabad | August 25-30, 2010

Students from all corners of the nation in their traditional apparel with Dr. K. Rosaiah Garu, Chief Minister of Andhra Pradesh at the inaugural session

Students are the agents of change and main conduits for spreading environmental awareness. In a rare and unique opportunity to foster the need of the hour, the ministry of the environment and forests organized the first-ever national conference for children and youth in collaboration with NGC Andhra Pradesh. The event was the follow-up of the International Conference held at Brazil on June 5-10, 2010 where Indian delegation of NGC Children selected by NCERT from Chattisgarh, Chandigarh, Assam, Haryana, Lakshwadeep, Kerala, Andhra Pradesh and Maharashtra had attended along with children from 53 nations.

A week-long event featured eco-exhibition, eco-project works, eco-painting, eco-drama, eco-puppetry, eco-filming, mock eco-parliament, nature trail, cultural and literary presentation on special state relevant environmental features. The participating eco-club students from Sikkim state presented their environmental endeavor and their initiatives in the Green School activities. The initiatives of the state government towards environment protection and conservation were also highlighted during the event. Sikkim state was much appreciated for its environment endeavor and its sustainable development.

The activities of National Green Corps (NGC) Sikkim being implemented by school eco-clubs and coordinated by the ENVIS Centre under Forest, Environment & Wildlife Management Department for stimulation of environment awareness has been appreciated as the Greenest of Greens in the first ever National Conference of Children and Youth held at Hyderabad, Andhra Pradesh from Aug 25-30, 2010 where 21 States participated.

The event was an excellent platform to interact, share and visualize the role of school children as agents of change and for dissemination of environmental information among the public at large. The national meet provided an image of unity in diversity where students, teachers and officers from various states, MoEF, NCERT were brought under one roof to rejuvenate and inculcate the global vision to protect the only mother earth.

NGC Sikkim represented the event with a team of 8 members; (5 students, 2 teachers and 1 officer from ENVIS)



NGC Sikkim delegation in traditional attire during the inaugural session

The participants from Sikkim:

East: Deorali Girls Sr. Sec. School
- Miss Yangchen Bhutia (CI X)
- Miss Chetna Chettri (CI X) and
- Ms. Purnima Sharma (Teacher)

North: Mangan Sr. Sec. School
- Master Norbu Lepcha (CI VII)

West: Reshi Govt. Sec. School
- Master Rajendra Pradhan (CI IX)
- Miss Kazal Bhagat (CI IX) and
- Mr. Ghanashyam Pradhan (Teacher)

ENVIS Official from the department:
- Mr. Rajen Pradhan, Sr. Programme Officer.



We are the Solution



Hand print Eco-banner



Mock Eco-Parliament



Charter of Responsibilities

Let's Take Care of the Planet

“If we want to get protected from environmental changes, we need to take these actions and responsibilities to ourselves. If it's not now, then when? If it's not us, then who?”

- Students' delegate at the International Conference, Brazil 2010

Responsibilities and Actions

1. Raise awareness and inform people about the efficient and responsible use of water, energy, and biological and mineral resources, improving our own consumption habits as well as everyone else's.
2. Reduce, in order to stop, the pollution of water with the support and action from governments, companies, farmers and others.
3. Inform and encourage people to reduce greenhouse gas emissions, through the use of all renewable resources accessible and available, counting upon the support from the government, when possible, in taking actions that we can all put into practice
4. Stimulate a sustainable, conscious, socially and environmentally less impacting agriculture, without pesticides and transgenic, promoting rural education in order to put into practice new and more efficient ways of using resources, assuring food security, and, in some countries, avoiding forest fires during the preparation of the fields.
5. Care for the environment, strengthening and deepening educational projects, investing in youth participation and their decision-making abilities, informing them on environmental education, demanding that it is respected, in order to transform communities and schools into learning communities.
6. Create ecological groups, in schools and communities that protect, preserve and value biodiversity, caring for ecosystems so as to contribute to the sustainability of biosphere, reducing waste and using natural resources in a rational manner.

7. Foster proper consumption and the 5Rs policy (reflect, refuse, reduce, reuse and recycle) through informative advertising, adopting it to everyday life and thus constituting sustainable societies and lifestyles.
8. Reduce the use of impacting energies, becoming aware and mobilizing society regarding the use of ecological means of transportation, respecting the changes.
9. Implement environmental perspectives and values, improving the people's point of view in order to encourage an active citizenship.



Gearing up for the environmental stride



Souvenir of Sikkim to Andhra Pradesh



Nodal officers and teachers' interaction



Sign the Charter at
<http://www.letstakecareoftheplanet.net>



Spreading message to people



With the members of IYCN (Indian Youth Climate Network)



National Environment Awareness Campaign 2010



List of Participating Organizations and Amount Sanctioned (in rupees) for NEAC 2009-10



There are so many organizations in the world fighting for a better cause, spreading the message of environmental wellness to let our futures live and have all those vested rights like those of our forefathers. Though today's climate is one of increased environmental awareness, the average person may still be unconcerned or simply uninformed about what he or she can do to help the environment.

To assist such organizations, the Ministry of Environment & Forests, Govt. of India ever since 1986-87 has been providing financial grant-in-aid through this National Environment Awareness Campaign (NEAC). The theme for NEAC 2009-10 was "Climate Change". About 39 organizations of the state actively participated with the vision to enhance awareness; to invoke their voluntary participation in the efforts for protection of environment and conservation of natural resources. These bodies singularly or in partnership with other organizations have undertaken various awareness programmes accompanied by field action at the local level.

Appointed as the Regional Resource Agency (RRA), Forests, Environment & Wildlife Management Department, Government of Sikkim has successfully implemented the campaign for 2010.

The campaign was launched with the sensitization workshop held at forest conference hall on 21st May 2010. Participated by several senior officers of the department and NGOs, the workshop focused on the issues of enhancing community participation for climate change mitigation.



Name of the NGOs/ Govt Institution and Address Amount Sanctioned

EAST DISTRICT		
1	Lossing Nava Jyoti Yuva Sangathan, Lossing Machong,	10000
2	Matri Kalyan Samity, Rhenock,	10000
3	Social Welfare Youth Association, Tumin	11000
4	Friends Association, Gangtok,	10000
5	Shiva Gram Sewa Samiti, Gangtok	10000
6	Ishwarambha Samity Sangh, Ranipul	9000
7	Himali Sangh, Dalapchand	9000
8	Youth Development Society, Rongli	9000
9	Navajyoti Sangh Namrang, Tumin	10000
10	Lower Tadong Ekta Sangh, Gangtok	10000
11	Ram Gauri Sangrailaya Sangh, Rhenock	9000
12	The Green point, Lower Tumin	11000
13	Helping Hand Organization, Gangtok	9000
14	Sikkim Himalayan Green Group, Namcheybong	10000
15	Sikkim University, Tadong	10000
16	Jan Kalyan Nehru Yuva Samity, Phadamchen	9000
17	Ranka Progressive Society, Perbing	10000
18	Starlight Academy, Ranka	10000
19	Palzor Namgyal Girls Senior Secondary School, Gangtok	8000
20	Martam Secondary School, Martam	8000
21	Land Use & Environment Circle Govt. of Sikkim	40000
WEST DISTRICT		
22	Himali Vikash Sansthan, Middle Bermiok,	10000
23	Rosemary Club, Rinchenpong	8000
24	Sinadrabong Khanchendzonga Eco-Friendly Society, Nambu	11000
25	Vidya Bharati Moonew, Sombaria,	8000
26	Hamro Pariwar, Lungchok	9000
27	Health & Environment Conservation society, Berthang	9000
28	Govt. Secondary School, Reshi,	10000
29	Junior High school, Hingdam	8000
30	Government Secondary School, Pipalay	8000
SOUTH DISTRICT		
31	Kapinzal Club Polot, Paksam Polok,	9000
32	Pacific Club, Menglee,	9000
33	Basanta Pariwar, Sadam	9000
34	Drishti, Namchi	8000
35	Turuk Development Society, Turuk	10000
36	Upper Gaon Surya Jyoti Sangh, Sorak	9000
37	Munal Club, Kitam	9000
NORTH DISTRICT		
38	Endeavors Organization, Kabi	11000
39	Mutanchi Lom Aal Shezum, Dzongu	11000





Plantation drive



Release of Posters



Cultural Show



Awards and Felicitation Skit on environment

Forest officers take a stance



June 5, 2010: The world around us is in a constant state of flux and so is the environment. People, who are gravely concerned about environment degradation, are constantly looking for methods to alleviate the problem.

In order to reach out to the masses and spread awareness at local level, events like the World Environment Day, Earth Day help sensitize people at large. Likewise, World environment day is celebrated all over Sikkim, in almost all villages and schools; thus this event has become more likely a tradition in recent years.

This year World Environment day with the theme '*Biodiversity-Connecting with Nature*' was celebrated at the state level in Damthang Secondary School Complex; this programme was organized by the Forest Environment & Wildlife Management Department.

State Rural Development Minister Shri. C. B. Karki graced the occasion as the chief guest along with the State Forest Minister Shri Bhim Prasad Dhungel, MLAs, Zilla Adakshya and Forest officials.

The day was celebrated in high spirits where a huge plantation drive was carried out by the department officials, local people, school students, NGO, Self Help Groups to commemorate the world environment day.

STATE GREEN MISSION
Enters PHASE V



Conceived by the Chief Minister Shri Pawan Chamling himself, as a symbol of the government's resolve to convert Sikkim to a model "GREEN" State, the State Green Mission is now an annual ritual observed on the 15th day of June.

Much observed with an overwhelming emphasis on environment friendly development, this noble mission has extended the state's forest and tree cover to 47.59% with an increase of 2% from the 2005 assessment.

Launched in 2006-07, State Green Mission has now reached its fifth phase of implementation (2010-11) and more than 80% survival of plantation has been recorded as the main success indicator of the mission..

Total saplings (in lakhs) planted under State Green Mission

District	Phase-I 2006-2007	Phase-II 2007-2008	Phase-III 2008-2009	Phase-IV 2009-10	Total
East	2.66	2.74	1.55	1.53	8.48
South	1.19	2.15	0.82	0.23	4.39
West	1.58	3.43	1.78	1.12	7.91
North	0.33	3.46	2.47	0.75	7.01
	5.76	11.78	6.62	3.63	27.79

Figure Source Territorial Division, FEWMD





INTERNATIONAL YEAR OF BIODIVERSITY 2010



On June 6, 2010 at around 8:00 am the WWF-India team of Khangchendzonga Landscape Programme sighted and photographed a pair of globally threatened Black-necked Crane *Grus nigricollis* during their visit to Gurudongmar Lake (17200ft) in North Sikkim.

The camera used was Canon S3IS. This is possibly the first photographic record of the bird from North Sikkim.

Black-necked Crane *Grus nigricollis*

Photo by: WWF-India, Khangchedzonga Landscape Programme, Deorali, Gangtok-737102, Sikkim

The year 2010 has been observed as the **International Year of Biodiversity (IYB)** as declared by the 61st session of the United Nations General Assembly in 2006.

In a year-long celebration of biological diversity and its value for life on Earth, Sikkim State Biodiversity Board has taken up several initiatives to disseminate information, promote the protection of biodiversity and encourage organizations, institutions, companies and individuals to take direct action to reduce the constant loss of biological diversity worldwide.



The Biodiversity Cell of Research, Extension & Education Circle, FEWMD* has taken up unique initiative to publish **One-species-per-day** in local media, *probably the first initiative in the country for mass awareness and publicity.*

* Forest, Environment & Wildlife Management Department, Government of Sikkim

Sikkim Biodiversity at a Glance

India is recognized as one of the 12 mega diversity centers of the world. Out of the 18 Biodiversity hot-spots in the world, India owns 2, namely the Western Ghats and the Eastern Himalayas. Sikkim covering just 0.2 % of the geographical area of the country has tremendous biodiversity and has been identified as one of the HOT-SPOT in the Eastern Himalayas.

Flowering Plants	-	500
Rhododendron	-	36
Orchids	-	550
Conifers	-	16
Ferns & allies	-	362
Tree Ferns	-	9
Bamboos	-	28
Oaks	-	11
Medicinal Plants	-	424
Mammals	>	144
Birds	-	552
Reptiles	-	33
Amphibians	-	16
Fishes	-	48
Butterflies	-	650





International Rhododendron Festival 2010

April 25 May 15 2010 | Sikkim

2010 being demarcated as the International Year of Biodiversity and also the Year of Tourism, Government of Sikkim decided to organize among many other activities, the International Rhododendron Festival from April 25 up to May 15, 2010.

The three weeks long Rhododendron festival was held at Singba Rhododendron sanctuary in Yumthang valley in North Sikkim-spread over 43 sq. km. of rhododendron forests at its best. The rhododendron festival, first of its kind in the Indian Himalayas showcased the importance of this spectacular genus in the plant kingdom both from tourism and conservation standpoint. It provided unique opportunity to see the rhododendron at their best and mingle with the fun-loving people of Lachung and experience their way of life their music, songs & dance, cuisines in the accompaniment of rhododendrons all around.

The festival also featured various other events like Nature Camps; Bird watching; Wildlife watching; Mountain biking; Trekking; Angling; Food festival; Exhibition of local handicraft and culture shows.



As a part of this year's long celebration, an **International conference on "Rhododendrons: Conservation and Sustainable use"** was organized at Saramsa Garden, Gangtok, Sikkim on 29th April 2010, where over 130 forest managers, experts and scientists from Germany, Netherlands, Bhutan, Belgium and India shared a common platform to deliberate on strategies required for conservation and sustainable use of rhododendrons and prepared an action plan required in Indian scenario with emphasis on Sikkim rhododendrons.



The chief guest on the inaugural session Dr. Pawan Chamling, the hon'ble chief minister of Sikkim released two publications/ field guides:

- 'Mushrooms of Sikkim-1: Barsey Rhododendron Sanctuary' by Dr. Kanad Das
- 'Ferns and Fern-Allies of Sikkim' ISBN: (978-81-909680-1-0) by Dr. B. S. Kholia



Wildlife Week Celebration

Oct 1-7, 2010

Forest, Environment & Wildlife Management Department, Government of Sikkim in collaboration with WWF-Sikkim organized a week-long awareness-cum-training programme for students, local people, newly appointed forest guards and visiting range officers (trainees) from Tamil Nadu on the occasion of wildlife week.

Conservation Day

November 25, 2010



On 25th November 2010, the department of Forest, Environment & Wildlife Management organized a programme for celebrating Conservation Day with the theme “Needs for awareness for Conservation of Environment” at Lagyap Primary School compound under the chairmanship of Shri Padam Bahadur Manger, Retd. Ordinance employee.

Senior forest officials during the programme urged the people to help conserve forest, while hinting that the effects of global climate change is being felt in Sikkim since last 15 years as the level of snowfall has been receding drastically.

The programme intended to aware and encourage the local people and students on wildlife conservation, community participation, waste reduction, avoiding plastics, stopping illicit felling of tree and maintaining healthy environment all around.

The programme was attended by local people, students, members of Tsomgo Phokhari Sangraksan Samiti and officials from the department.



Awareness programme at the Himalayan Zoological Park (HZP), Gangtok



Addl. Dir (HZP) addressing the trainees (Range Officers) from Coimbatore, Tamil Nadu. (left) The trainees taking sight of animals in HZP



Quiz Competition



Painting Competition



Prize Distribution



Wildlife awareness and training to newly appointed Forest Guards trained at Golitar, Fambong-Lho wildlife sanctuary



Captive Breeding of

RED PANDA

Himalayan Zoological Park
Bulbuley, Gangtok

By



Gut Lepcha, IFS
Additional Director
Himalayan Zoological
Park, Bulbulay

**There was again
an outstanding
birth in 2010 of
3 cubs...**



Red Panda, *Ailurus fulgens fulgens* locally known as 'Sankam' in Lepcha, 'Okdonga' in Bhutia and 'Rato Habray' or 'Nigalya Ponya' in Nepali is the State Animal or the heraldic animal of the State. Species authority, Frederic Cuvier in his first description in 1825 gave the cute Red Panda its scientific name as *Ailurus fulgens*, meaning cat with glossy fur or shining cat. Genetic studies by scientists have revealed that the Red Panda is the only representative of the cat-bear family *Ailuridae* belonging to the super-family of Musteloidea. Pandas have been very popular exhibits in the high altitude Zoological Parks in the country and in foreign Zoos.

Captive breeding of Red Pandas have been successful in the Himalayan Zoological Park, Bulbulay despite the lack of proper facilities. The male JUGAL from Darjeeling Zoo and the female PREETY from Rotterdam Zoo, Holland were the first arrivals to the Zoological Park in the year 1997.

The pair was the founders which gave birth to two male cubs during the year 1999, again two male cubs in 2000, two female cubs in 2001 and again two male cubs in 2002. Some cubs died due to lack of nurture by parents while some grown-up escaped from enclosure. The Zoological Park suffered the loss of 8 year, 6 month and 27 days old female founder PREETY in March 2003. She died of short illness, the chain of breeding came to a halt since the year until a pair RAM and LUCKY was rescued from the wild in the year 2005. The pair was again taken as founders and paired with other breeding male and female. RAHUL and LUCKY gave birth to a female cub RIGSEL in 2007 and a male cub SIMON in 2008.



There was an outstanding birth of Panda cubs by two females in 2009. RAM and LUCKY, both wild gave birth to a female cub NIDHI and again RAM with captive bred female RIGSEL gave birth to a male cub SONAM. There was again an outstanding birth in 2010 of 3 cubs, female cub KARMA by parents RAM and LUCKY and male cubs SUSAN and SHEN SHEN by parents RAM and RIGSEL. More are expected in 2011. The present collections of Pandas are 11 (6:5) in the Zoological Park. Plan for planned coordinated conservation breeding program of Pandas is under way. The Himalayan Zoological Park is also the Coordinating Zoo for the planned coordinated conservation breeding programs for Himalayan Tahr, Blue Sheep or Bharal and Blood Pheasant (State Bird) for which suitable areas have been earmarked in the Zoological Park campus and preparations of detailed plans are under progress.



Institutionalization of Criteria & Indicators Framework for Sustainable Management of Natural Forests in India



[By Pradeep Kumar, IFS*]

A two days workshop on “Institutionalization of Criteria & Indicators Framework for Sustainable Management of Natural Forests in India” was jointly organized by Department of Forest, Environment & Wildlife Management, Government of Sikkim and Indian Institute of Forest Management (IIFM) Bhopal on 27-28 September 2010 at Forest Conference Hall, Gangtok.

In his inaugural address Dr R.C. Sharma, Ex- PCCF Chhattisgarh and National Forestry Expert gave insight into the evolution of Criteria and Indicators (C&I) popularly called Bhopal-India process. He further elaborated the importance and need of the C&I framework for sustainable management of forest resources. He

appreciated the efforts made by Sikkim Forest Department in implementation of C&I and also the establishment of first sustainable forest management (SFM) cell in India by Department of Forest, Environment and Wildlife Management, Sikkim.

Shri S.T. Lachungpa, PCCF cum Secretary, in his key note address gave the gist of different programmes being implemented by Department of Forest towards sustainable forest management. In the workshop, participants were sensitized on the national initiatives on sustainable forest management, C&I framework for managing natural forests, new system of forest resources forest accounting, data collection and assessing the sustainability index, Forest Management Control System (FORMACS) and institutionalizing C&I framework at Forest

Management Unit/Forest Division level. C&I framework for Sustainable Forest Management (SFM) has been developed by IIFM, Bhopal in collaboration with various State Forest Departments including Sikkim. C&I framework has been used to define the sustainability of forest resources, their utilization and development. When monitored the indicators, provide the direction of the progress (Trend) made by the sectors in achieving the SFM goal.

The workshop was coordinated by Shri Pradeep Kumar IFS, Conservator of Forest and Dr. Omprakash Madguni, Faculty from IIFM, Bhopal. The workshop was attended by Shri. Prashant Jadvav, IFS, faculty IIFM, Conservator of Forests, Divisional Forest Officers, Range Officers and Block Officers.

* Conservator of Forest (Working Plan)



Working Plan circle under the department of Forest, Environment & Wildlife Management, Government of Sikkim is engaged in the Vegetation Carbon Pool (VCP) Assessment as a Part of National Carbon Pool Assessment Project under the aegis of ISRO Geosphere Biosphere Program (IGBP).

Forest sequesters atmospheric carbon and to limited extent by agricultural biomass by means of fundamental process of photosynthesis. But increasing anthropogenic pressure on the forest in global scenario has resulted in clearing of forests and has led to decreased photosynthetic coverage.

Depending upon the use, the biosphere can act as sink or source of carbon. Whether India is a net sink or source of carbon is poorly understood. Systemic studies, therefore, are required to assess the pools and fluxes of carbon to arrive at the country level carbon budget. However, due to large spatial extent and human impact purely field based estimations are inadequate.

Remote Sensing (RS) with its capability to provide the repetitive coverage of large area facilitates in assessment of forest/vegetation cover type and density accurately.

The project on VCP assessment has been taken up to assess the above



Field Measurement

ground carbon in different vegetated ecosystems such as forests, agriculture, trees-outside-forest, etc. The project aims to develop RS-based methodology to assess national level carbon availability. The project is being implemented in a collaborative mode with participation of central and state government Depts. including various ISRO centers, state forest departments, universities, etc.

Methodology has been developed and the manpower in different regions of the country has been trained for data collection. Field data are being collected at about 2000 sites spread across the country. This project will also explore various RS-based upscaling techniques for converting point-based field biomass to spatial C maps.

Outputs/ Results of the Project will be useful inputs for Policy Decisions in view of Global Warming and Climate Change.

To assess the total amount of carbon in Sikkim Forests, sample plots have been laid in East, West and South Sikkim. The samples of trees, herbs and shrubs have been brought to laboratory for making dry weight assessment.

Source:

Working Plan Circle,
Forest, Environment & Wildlife
Management Department





In an effort TOWARD ZERO WASTE TRAIL

[Yuksam-Dzongri] West Sikkim



“
Today after almost one year of the ground work, it has been able to draw an attention of many visitors, some say job well done....
”

**Nima Tashi Bhutia, Kinzong Sherap Bhutia, KCC Yuksam
Urmila Subba, Block Officer, KNP Yuksam**

In an attempt to make Yuksam - Dzongri, the first zero waste trail in the State, Khangchendzonga Conservation Committee (KCC), The Mountain Institute - India and Khangchendzonga National Park Division of Forest, Environment and Wildlife Management Department came together with a mission in November 2009. The initiative began

with the first stakeholders meeting followed by the formal inaugural session of the program by Hon'ble Tourism and Forest Minister, Shri Bhim Dhungel along with Area MLA, Yuksam - Tashiding and Secretary, Department of Tourism in March 2010. Today after almost one year of the ground work, it has been able to draw an attention of many

visitors, some say job well done, some provide valuable inputs, while some says it's none of my business. Surprisingly, the most interesting has been the raise in the awareness level leading to slow and steady behavioral change. It of course makes people think a lot when they see us using 9 bins and further segregating in into more than 21 chambers.





Waste segregation bins installed at Yuksam

In the last two trekking seasons, two zero waste supervisors have put in their best efforts which is worth praising. Mr. Dal Bahadur Subba and Choden Lepcha who were appointed with a minimum salary by KCC and TMI-India managed the entire zero waste initiative. They have been regularly monitoring waste IN and OUT of the National Park along with KNP staff. The waste from the bins is timely collected, transferred to the resource recovery centre.

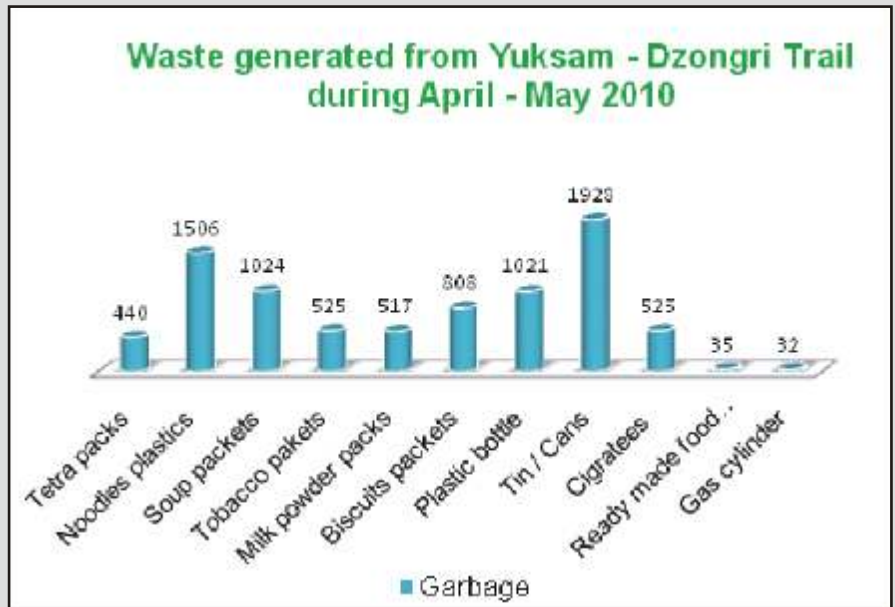
It is infect true "a waste is not a waste if put into a proper place". Most friends who visits us at our centre keep saying "you run a shopping complex, not a waste segregation centre", this initiative also has quite a lot of message to take back home. If a waste is not looked upon a waste but as resources, put into proper place not mixed into a single bin it can be manageable. Figures do speak a lot. Apart from monitoring, transferring, segregating and recycling, we have also been regularly maintaining a database on the type of waste being generated. It is quite interesting to see the figures. The chart below show the quantity of different waste generated during April - May 2010. The waste are safely stored for more

than 10 months until it becomes a truck load full to be transferred to a recycler. A deal has also been finalized with the state level rack picker dealer Mr. Alam who also runs a segregating cum waste processing centre at Marchak.

All who visited us at the zero waste centre have had a wonderful experience and expressed their support toward making Khangchendzonga National Park, a zero waste destination.

financial support, MacArthur Project of The Mountain Institute - India, Khangchendzonga National Park Division (FEWMD) and Department of Tourism for providing the two storey facilities for zero waste.

We look forward to more similar help and support from all stakeholders including the travel agents, trekking service providers of Yuksam. The Zero Waste Support Group (ZWSG) welcomes any kind of support and guidance.



We would like to express our sincere Thanks to the supporters like UNDP/ GEF / SGP and CEE for extending



Tourist at the Biodiversity check post

Please visit us at our Resource Recovery Centre!

LET OUR HIMALAYA CHANGE YOU, DON'T CHANGE THEM

Contact us at:

kcc_sikkim@hotmail.com

ntbhtia@gmail.com

+91-97331-58268

+91-97330-91853



FLASHFLOOD

--- Alarm Call



Taktom Chu Watershed East Sikkim



By Santosh Sharma &
Varun Joshi

The Indian Himalayan belt is prone to various types of natural disaster due to its inherent nature and climatic conditions. Almost in every monsoon period the water-induced disasters are common in the form of landslide/ cloudburst/ glacial lake outburst/ flashfloods in the Indian Himalayan Region (IHR). Among these, flashflood is quite common which lead to loss of human/animal lives, depletion of natural resources, triggering of landslides, disturbance in communication and damage to infrastructure. Violent rainfall, followed by flash floods is generally

reported in the monsoon period. Such events are related to extreme hydro meteorological conditions leading to debris flow, landslide and eventually the blockade of river channels, which consequently wreak havoc downstream. Such flooding has an immense impact on the economy of the region and the safety of the local population. This article reports on flashflood in Taktom Chu watershed on 4th August 2009.

Taktom Chu is swift flowing perennial rivulet of Assam Lingzey which descends to Ranipool, merges with the Ranikhola and flows down to plains after merging with river Tista at Singtam. The Taktom Chu watershed is situated at the south-eastern part of

the state in the East district, Sikkim. It extends from 27°15' to 27°20' N and 88°37'30" to 88°42'30" E, embracing an area of 35.42 sq. km which is about 0.49% of the total geographical area of Sikkim state. The watershed is covered by three revenue blocks i.e. Naitam, Assam and Lingzey blocks. The elevation of the watershed varies from 932m to 3172m. It is 27 kms from Gangtok, the capital city of Sikkim.

On the night of 4th August 2009, at 8.30 p.m. the adjoining areas along the Taktom Chu were hit by a devastating flashflood. The event created terror among the residents and caused havoc in the watershed. The damage caused by flashflood is shown in table.



Table: Damage caused by the Flashflood of 4th August 2009 in the Taktsom Chu watershed

1. Total Number of villages affected	10
2. Total Population	580
3. Number of families affected	116
4. Men (i) Fatalities (ii) Injured	00 00
5. Livestock (i) Fatalities (ii) Injured	6 pigsties, 3 cowsheds, 2 goatsheds 00
6. Houses (i) Substantial damage (ii) Partial damage	26 08
7. Foot Path	00
8. Total losses (i) Trees (ii) Cardamom(10 acres), Ginger(10 acres) , Orange orchards(10 acres) and Rice	Worth Rs. 5,70,000(approx.) Worth Rs. 3, 75,000(approx. for Cardamom and Ginger fields only) and Rice fields worth Rs. 40,000 (approx.)
9. Bridges (i) Reinforced Concrete Cement (ii) Suspension (iii) Log bridge	Damaged severely at the base 01 05
10. Total number of Landslides triggered.	09



[Left] Uprooting of *Alnus* sp.(Uttis) and *Macaranga* sp. (Malata) trees on the banks of the Taktsom Chu



[Right] Large Cardamom field destruction by flashflood at Kholagaon village

The vicious flashflood completely washed out the rack and intake point of Lagyap Hydel Power Project; triggered a total of nine landslides from the Gogonay Chisopani to Namlithang village (near Soureni) downstream disrupting communication between Gangtok-Pastanga village via both Bhusuk and Ranipool.

Pastanga village was the worst affected of all the villages, the metalled road of which was washed away and also developed several fissures. The flashflood also caused extensive uprooting of the *Alnus* sp.(Uttis) and *Macaranga* sp.(Malata) trees on both the flanks and removed heavy bounders because of the high velocity and

turbidity of the water; submerged cardamom, orange, ginger and paddy fields of different villages damaging standing crops from 14th Mile to Setipool; washed away suspension bridge connecting Namrung village (Assam block) to Palung village (Naitam block); different log bridges connecting Kholagaon to Palung, Dhargaon to Nimthang, Pastanga to Naitam, Namlithang to Nimthang and Nimthang to Naitam Palung besides annihilating of the different species of population. It also damaged the base of reinforced concrete cement (RCC) bridge at 14th mile.

Villagers of Khola Gaon, Kabrabotey, Gaucharan, Setipool and Pastanga were the worst victims of the slide as some of them lost cattle along with their sheds. Both the flanks of the Taktsom Chu had been eroded to a considerable extent (lateral erosion). The villagers are of the opinion that the landslides triggered by the flashflood will be active once again with the onset of the coming rainy season. This could be threat to the dwellers and damage to biodiversity and livestock in the region.

The fragile ecology and torrential rain plays a significant role in destabilizing the Himalayan terrain. The debris got spread over the agricultural fields damaging the standing crops and was able to uproot the trees on its way. The average annual rainfall in Sikkim ranges from 1250mm to 2500mm with certain areas and pockets receiving as high as 5000mm.



The flashflood was probably caused due to bursting of landslide dam in the upper stream side. A landslide dam is formed when a landslide blocks a stream, causing water to collect behind it and then breaking due to the inability of the dam to withstand the pressure of the water which builds up very rapidly after many hours of torrential rainfall and back water pressure at the dam site. A wall of water that is released due to bursting causes the water to race downstream with great ferocity and pace. An analysis of the past damage data of the flashflood reveals the fact that the flashflood as a natural disaster is very much the recurrent incident in the Taktsom Chu watershed owing to the presence of a number of streams like Bala khola, Tharo khola, Selele khola, Bothong khola, etc.

The extreme rainfall pattern could be considered as a consequence of global climate change which results in

flashfloods and landslides in the Indian Himalayan Region. This is a matter of serious consideration by the stakeholders.

The only way to be prepared for a flash flood is to be aware of the weather and pay attention when there is exceptionally heavy rainfall. The scientific studies carried out in IHR indicate that the incidents of extreme rainfall are increasing. The increment in such incident may lead to destruction of life and property in future. Therefore, in-depth study as well as mitigation measures for least loss is very much needed. It requires awareness generation to the locals as well as densification of meteorological stations in the potential areas of heavy rainfall, which could be analyzed in future and pre-warning of such event may be given to inhabitants to save their life and property.



Part of Taktsom Chu watershed, East Sikkim



Flashflood at Taktsom Chu, 4th Aug. 2009, East Sikkim



Massive landslide and washing away of road at the Pastanga village



Damage of under Construction bridge at 14th mile of the watershed



Destruction of Suspension bridge connecting Namrung village to Palung village

Santosh Sharma & Varun Joshi
Watershed Processes and Management
G.B. Pant Institute of Himalayan Environment & Development
Sikkim Unit 737 101

E: mail: santosh_gbpiped@rediffmail.com, varunj63@yahoo.com





Japan International Cooperation Agency

JICA ASSISTED SIKKIM BIODIVERSITY CONSERVATION AND FOREST MANAGEMENT PROJECT



Global biodiversity is in crisis but JICA is increasingly focusing its attention on links between the world's flora and fauna and its core mandate of helping some of the world's developing countries and poorest people to improve their lives.

Government of Japan through J a p a n International Cooperation Agency (JICA) is providing financial assistance for Sikkim Biodiversity Conservation and Forest Management Project (SBFP) that is being implemented by the Forest Environment and Wildlife Management Department, Government of Sikkim from the financial year 2010-11.

Background and Necessity

Sikkim is a natural hot spot of biodiversity and the number of species of flora per unit area in this region is extremely high. Despite the fact that this area constitutes only 0.2% of the entire geographic region of India, it is the habitat for nearly one-fourth of all plant species found in the country. Sikkim state lies at the foot of the eastern Himalayas and it is topographically isolated and land

locked. The environment is difficult for industries to develop and much of population in the rural region continues to live in poverty. As a result, focus has been placed on developing ecotourism that utilizes the state's abundant natural environment and unique culture for serving as a summer vacation destination to escape the heat of the plains. However, the rapid growth in tourists visiting the state in recent years has markedly brought the negative impact on the natural environment.

Thus, providing a means to improve the livelihoods of local residents that comprise the poverty group and to promote the development of a sustainable socio-economy, in harmony with the natural environment, have become urgent issues. By any measure the world's biodiversity is in crisis. It is a race against time to save the globe's fast disappearing flora and fauna.

Objective and Summary

The project aims to strengthen biodiversity conservation activities and forest management capacity and simultaneously improve livelihood of the local people who are dependent on forests and are living in forest fringe areas. Project objectives are to be achieved by promoting sustainable biodiversity conservation, afforestation and income generation activities including eco-tourism for the community development. The project activities will be contributing to environment conservation and harmonized socio-economic development of the state in multifarious ways in the next decade. In addition, it will assist in formulating the state's ecotourism policy in cooperation with external experts.

The project has a financial outlay of Rs 330.57 Crores and is of 10 years duration. |





Tour to Gurudongmar and Tso Lhamu Lake

by
Monalisha Das
DFO (Territorial)
North Division



Gurudongmar Lake, North Sikkim

Gurudongmar lake is situated near the Indo-China border at an attitude exceeding 17000 feet. The horse hoof-shaped lake nestles placidly between two hills at the tip of a narrow valley. The snow covered hill on the north is backed by more hills and still more hills, all snow covered, majestic which stretch into the Himalayas. A small stream issues from the hill and gathers at the base of a barren grey hill on the south to form the lake. The hill issues sheers from the edge of the water; it houses an Indian army outpost. Because of the high altitude, the atmosphere is rarefied. Chilly wind blows day & night, beginning from early afternoon till the next sunrise.

Visitors in the surprisingly large numbers flock to the lake in all seasons. One has to approach it from the south, from the base town of Lachen, negotiating the zigzag mountainous road with its innumerable hair-pin bends, watching the silver line of the river, streaking deep down below through coniferous forest.

You even are greeted with a rare sight of a rainbow arching from hill to hill over the spray of the fuming river. You move on. The river starts narrowing, mellowing and pleasantly gurgling constantly by your side, like an inseparable companion on journey. Then you come upon a valley of green and grey. The river now leaves you close proximity and hides in a small stream, but still visible at a distance a silver line in the carpet like vegetation and its multicolored patches of flowers.

Sikkim Trans-Himalayan plateau Zone, the gateway into Tibet to Lhasa via the famous pass Kongra La where Sino Sikkimese trade once flourished. It falls in the rain shadow of the mighty Himalayas, where the average vegetation cover is less than 25%. When you pass through this area which is unexplored and with uncompromising wilderness you will be moved by its natural beauty.

No trees are seen in this area as it lies above the tree line. This arid region largely lies above an altitude

of 16000 feet and with unique assemblages of flora and fauna.

Plants like some grasses, herbs and shrubs are only seen during summers whereas winter vegetation is dormant. The landscape is harsh and rugged. If you are lucky, may sight the wild animals with varied,



Photo by Monalisha

wonderful and with tremendous adaptation to survive in harsh climate and landscape. Grazing by domestic sheep and yak can be observed too in this locality.





Tso Lhamu Lake, North Sikkim

The inhabitants of this area are wild alpine flowers, wild animals- Tibetan Argali, Gazelle, Bluesheep, Southern Kiang etc, hardy herders rearing sheep and Yaks, brave soldiers guarding International borders. This area gives a heavenly look. But this place is difficult to live and work in. To sustain in such climate you need to have high energy food and more clothes.

Your vehicle sputters and stops and starts again and at last manages to climb the bank of the breathtaking lake, and the river has found its source.

On your right, the hills and more hills stretching unto the horizons dazzle in the sun. On the left a majestic hill rising steeply from the water's edge. The lake pure and serene holds your eyes. The clouds have wrought a magic on the lake. The lake is now several lakes, each a distinct color purple, blue, green, grey and brown. Reason enough why the locals hold the lake in such wonder and awe. They worship it and

use its holy water for purpose of purification.

On its bank you see a small temple and whole canopies of ribbons of all colors, strung overhead as you approach it, the thronging pilgrims jostling to get inside. You peep inside the sanctum sanctorum a wondrous assembly of gods and icons a meeting place of all religions Hindu, Buddhist, Sikhs and all the deities presiding joyfully on the jostling crowds of their devotees.

You come out and climb down to the edge of the icy water and watch the lake. It has parted into different color zones. Heart washed with joy and reverence you start believing what the locals have always known the magical power of the lake. |

Tso Lhamu (16500ft altitude)

Once you offer prayer to Gurudongmar lake move northward towards the international border to a hidden away in a remote corner of the

Kerang plateau, before approaching Donkya La, you will encounter a unique slender and long lake running parallel to the adjoining mountains on its right side i.e. in the east and west direction. It is the lake from which the mighty Lachen chu or the river Teesta originates. On your right, the hills and stretching unto the horizons dazzle in the sun. The lake pure and serene holds your eyes. The reflection of the blue sky, clouds make the lake more beautiful. The bluish green colour of the lake certainly will mesmerize you.

People of Sikkim worship it and use its holy water for purpose of purification. Around this lake wild animals (Tibetan Argali, Tibetan Gazelle and Southern Kiang) are spotted very often. But amongst all wildlife, Tibetan Argali are the most prevalent ones. Amazingly, this small region supports sizable populations of Tibetan Argali and Tibetan gazelles. A kuchha road from Kerang plateau to Donkya Laa runs beside this lake. You can get down from the vehicle and walk a distance of 100 meters to touch the water and worship the lake.

At the edge of these lakes, you may silently express heartfelt wish and gaze until you remember it's time to leave before the chilly wind starts blowing, leaving the place alone for the gods of the snow to come down the hill for bath and sport in the lake. Divine Gurudongmar and Tso Lhamu. |





Conservation Fee to Care and Conserve **Khecheopalri Lake** West Sikkim w.e.f. 1st December , 2010

Khecheopalri Pokhari Sanrakshan Samiti formed under the West Territorial Division has finally established a mechanism to care and conserve the holy lake. The *samiti* has been formed and registered under the government notification and it is the second of its kind in the state after Tsomgo Pokhari Sanrakshan Samiti in East Sikkim.

The *samiti* with support from the District Collector, West Sikkim along with West Territorial Division has now decided to levy conservation fee from the visitors for maintenance and conservation of the holy lake.

The President of the *samiti* who is also the concerned Ward Panchayat said that the fund generated from the visitors as

conservation fee shall be utilized for activities like waste management, monitoring and regulating negative impacts to the natural environment.

The entry fee of Rs. 10/- per tourist and a parking fee of Rs.10/- is being collected by the *Samiti* from 1st of December 2010.

This fund shall be regularly deposited into the bank account of the *Samiti* and shall be utilized based on the approved annual lake conservation plan duly endorsed by the gram sabha and approved by the District Collector and the Territorial Division, West District.

The president of the *smiti* expressed his sincere thanks to the District Collector-West, DFO(T) and NGOs like Khangchendzonga Conservation Committee, The Mountain Institute India &



A tourist girl with her entry ticket

Photo: R. Pradhan

Sindrabong Khangchendzonga Eco-friendly Society who have been providing support since the inception.

We anticipate similar support and cooperation from all tourism stakeholders for the same cause.

December 04, 2010:

Courtesy:

Sonam Yongda Bhutia
President (KPSS)
Ward Panchayat
Tsho-dzo, Khecheopalri
+91-97330-98395



Sikkim Stands High on Top in Environmental Sustainability Index for Indian States -2009

Centre for Development Finance (CDF) at the Institute for Financial Management and Research (IFMR) ranks Sikkim 1st among the Indian States in *Reducing Pressure on Environment* and in *State's Responses to maintain their Environment* for the year 2009.

States on the right of y-axis are doing better than states on the left. For states on the right side, longer the bars, the less pressure is on its environment. For states on the left side, longer bars mean more pressure on environment. All values are in standardized scores.

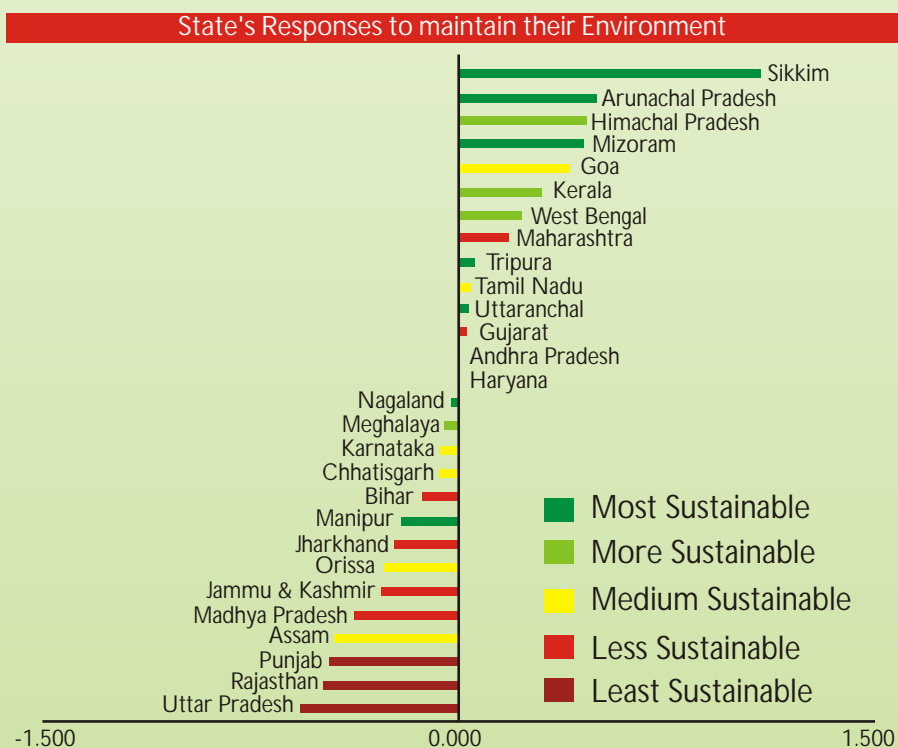
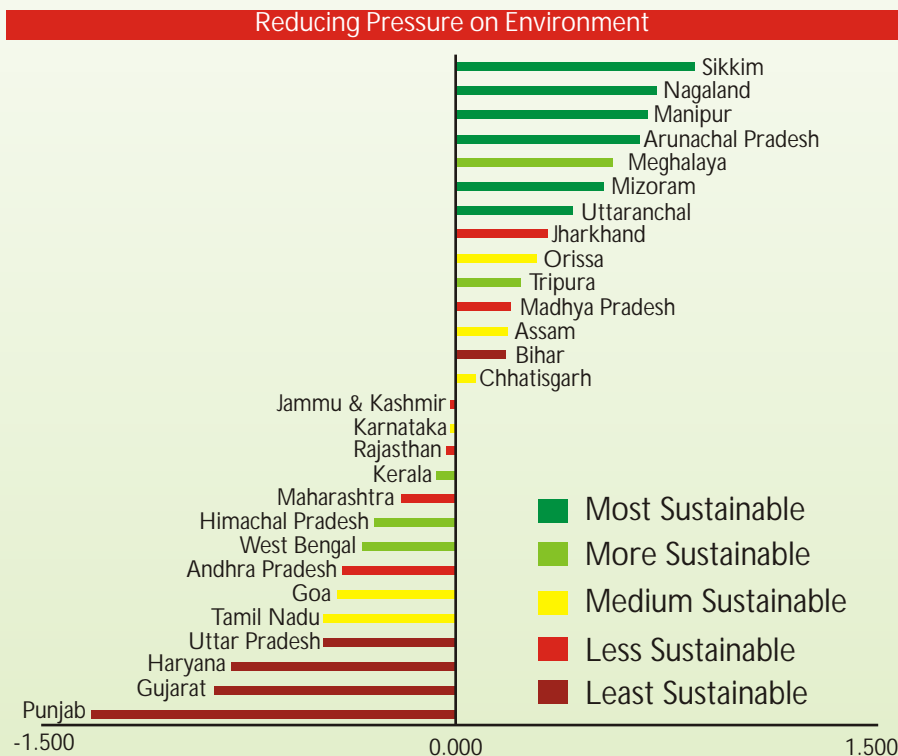
Likewise, in 2008 Sikkim was adjudged 1st among the Indian States in Conservation of Natural Resources and in Performance in Land Use.

Environmental Sustainability Index (ESI) is a comparative analysis of environmental achievements, challenges and priorities among the Indian State. It is designed to sensitize, inform and empower citizens and policy makers.

ESI tracks the environmental performance of 28 States of India and tries to capture the state of environment in multiple dimensions based on 44 variables aggregated into 15 indicators which in turn are aggregated as an index i.e. Environmental Sustainability Index (ESI)

More on ESI and how the states have fared in different aspects of sustainability can be accessed from the website.

www.greenindiastandards.com





A New Methodology for the Quantitative Estimation of Rutin

D. K. Pradhan*

ABSTRACT

The new calorimetric methodology of rutin estimation developed using 2% FeCl₃ at the wavelength of 575 nm. The solvents, butanol: acetic acid: water (4:1:5) and isopropanol : ammonia : water (10:1:1) were used for the isolation of rutin. The two dimensional paper chromatography spotted and noticed R_f 0.45 and R_f 0.22 in the butanol : acetic acid : water (4:1:5) and isopropanol : ammonia : water (10:1:1), respectively. The reaction mixture of rutin, methanol and 2% FeCl₃ developed a deep orange colour. The optical density of reaction mixture measured after 15 minutes at 575 nm for rutin estimation.

INTRODUCTION

The researches of plant extraction for the phytochemical evaluation require the methods of easy and quick analysis.

The taxonomically unsolved taxa can be classified using the qualitative and quantitative estimation of the different natural products. Many researches published for the estimation of rutin (Chu, 1998; Tsuchiyal, 1988; Brolis, 1998; Kurtic, 1998) but this attempt can make a quick and easy estimation of rutin.

The secondary metabolite, rutin, is the principle active constituents in some of the medicinal plants of Sikkim. In this context, the new approach of rutin estimation could be able to establish the economic value of medicinal plants at cultivation or field area.

MATERIALS AND METHODS

To standardize the methodology, the plant samples containing rutin as secondary metabolites were collected for the estimation of rutin. The standard curve developed using 1 mg authentic rutin, 1 ml methanol and 1 ml 2% FeCl₃. The reaction mixture kept to develop the deep orange coloration at the room temperature. The optical densities were measured after fifteen minutes at absorption maxima 575 nm in Spectrophotometer.

10 mg of the powdered leaves sample was refluxed with 50 cc of methanol for 30 minutes and filtered. The filtrate was concentrated under reduced pressure in the water bath. The purification of rutin performed by the paper chromatography in the solvents butanol: acetic acid: water(4:1:5) or isopropanol : ammonia : water (10:1:1). The two dimensional paper chromatography was also spotted with the pure rutin to locate the position on the Whatman paper (3mm). The strips containing the rutin at R_f0.45 in the butanol: acetic acid: water(4:1:5) or R_f 0.22 in the isopropanol: ammonia: water(10:1:1) were dissolved in the hot methanol to make 10 ml. Out of 10 ml, 1 ml of filtrate mixed with 1 ml 2% FeCl₃ to develop the deep orange colour.

After fifteen minutes, the optical density was measured at 575 nm to determine amount of rutin from the standard curve.



RESULTS AND DISCUSSION

A new methodology was developed for the quick and easy estimation of the rutin from the medicinal plants. The earlier methods performed by the number of workers were based on spectrophotometer, calorimeter and others. But with the help of this method, 10 mg of the dry sample found to be sufficient for the estimation of rutin. This method is found economical and less time consuming.

The numbers of the works have been reported in connection with the estimation of rutin. Bakh(1954) used direct absorptiometry of paper chromatograms for quantitative estimation of flavonoids. The absorptiometric method was used by Troyer (1956) to estimate rutin and four other flavonoids. Rutin and quercetin were also estimated by Skamoto and Takamura (1978) by using $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$. The quantitative determination by chromatospetrophotometric method was also developed by Balandria(1980). To determine the quantitative measure of the medicinal plants, this method shall be easy, economical and technically fit. Other calorimetric method for quantitative estimation of rutin was based on reaction with diazotized sulfanilic acid (Brejcha, 1958).

Rutin estimation with the reaction mixture containing 0.1 M aluminium chloride, 1M potassium acetate and 1 N HCl had also been used (Sethi, 1997). Some of the recent advances in other plants for the quantitative estimations of polyhydroxyflavones by high performance liquid chromatographic method was performed by Tsuchiya (1998); Chu, (1998).

The flavonoids such as rutin, hypericin, quercetin were separated by an aqueous phosphoric acid, acetonitrile menthol gradient within 50 min (Brolis, 1998) and the spectrophotometric determination of rutin was investigated by Kurtic et al. (1998).

However, this newly developed methodology is more effective and economically viable compared to other earlier reports.

ACKNOWLEDGEMENTS

Thanks are due to the Department of Forests, Environment and Wildlife Management, Government of Sikkim for providing the working facilities and financial assistance. Sincere thanks to Executive Councils of High Altitude Research Centre for providing moral and logistic supports.

REFERENCES

- Bakh, A.N (1954). *Doklady Akad Nauk SSSR* 98: 1011-1012.
- Balandria, I.A. Grinkevich, N.I and Krivut, B.A (1980). *Khim Farm Zn* 14(10): 60-2
- Brejcha, V; Horak, P (1958). *Nature* 181:505-6.
- Brolis, M. Gabetta, B. Fuzzati, N. Pace, R. Panzeri, F and Peterlongo, F(1998). *Journal of Chromatography* 825(1): 9-16.
- Chu, K. Tin, KC (1998). *Analytical Letters* 31: 15.
- Kuntic, VS. Malesev, DL. Radovic, ZV. Kosanic, MM. Mioc, UB and Vukojevic, VB(1998). *Journal of Agricultural and Food Chemistry* 46(12): 5139-5142.
- Sakamoto, M. Takamura, K (1978). *Microchem J* 23 : 374-383.
- Sethi, PD (1997). In *Quantitative analysis of Drugs Pharmaceutical formulations*, CBS Publication, New Delhi, p 604.
- Troyer, JR (1956). *Plant Physiol* 31: 71-4
- Tsuchiya, H(1998). *Journal of Chromatography B* 720 (1-2):225-230.

Principal Scientist, High Altitude Research Centre for natural products
Department of Forests, Environment and Wildlife Management
Deorali, Gangtok, Sikkim 737102

***Corresponding author**





An Overview of the Ecological and Socio-Economic Assessment of the Grazing Ban in Sikkim

By Shweta Bhagwat & Vivek Venkataramani

Centre for Development Finance (CDF) Chennai, in collaboration with the Forest Environment and Wildlife Management Department, Sikkim is conducting a study to examine the effects of the ban laid on grazing in forest areas in Sikkim. The study is being carried out in Barsey Rhododendron Sanctuary (BRS) and the neighbouring areas of Khangchendzonga Biosphere Reserve (KBR) in West district. Sikkim government had implemented a ban on open grazing in reserved forest areas, plantations and near water sources in 1998. The ban was implemented phase-wise and now covers all the protected forest areas in the state. The study is a review of the implications of the grazing ban on vegetation and soil of the region and on livelihood aspects of the local stakeholders.

For local communities (such as *Gurungs*, *Bhutias*, *Chettris*, and *Sherpas* etc.) livestock rearing is a traditional practice and forms a part of livelihood strategy. Prior to ban, *pattas* were given to herders for grazing their livestock in forest areas. As part of the livestock management system a *goth* (cattle-shed) would be build in the forest area where the herder would reside sometimes accompanied by family. Average herd size in the region was 20-25 cattle.

Vegetation in and around the cattle-shed would be cleared to create *kharka* (open space for grazing). Also in adjacent areas of the cattle-shed trees would be heavily lopped off for fodder and cut for firewood & timber. Gradually with increasing anthropogenic pressure, rapid degradation set in the forest areas. Consequently a ban was implemented in order to stop the degradation further.

After almost 6 years of the ban being enforced, it is interesting to investigate the effect of the total grazing ban on the health of the forest ecosystems where the ban was implemented. The various elements in an ecosystem are inter-linked with each other. A change in status of one is bound to cause an alteration in some of the other elements. Accordingly, successful implementation of ban is supposed to improve the condition of the degraded forest landscape, but it is important to fully understand what aspects of the forest it helps more than others as well as where its impact could be strengthened. Evaluations can also help understand other, potentially confounding, influences on forest health. Such environmental evaluations have to take into account the complex inter-relationships of various components in an ecosystem.

Measuring direct impact can be difficult, given that changes are often the result of complex systemic interactions and can take a long time to evolve. Therefore, purpose of the present study is to develop a feasible analytical framework for a pilot area that can be scaled up for a larger study to measure the impacts of the grazing ban in the State of Sikkim.



Soil sampling at Barsey Rhododendron Sanctuary



The study adopts a holistic approach and is divided into three main components: vegetation, physical and social. The vegetation and physical components constitute the ecological analysis wherein the vegetation and soil of the affected area would be analyzed. The social component includes the study of perspectives of the local community on the grazing ban and to study the change in livelihood strategies adopted by them.



Quadrant sampling at KBR

The team from CDF⁺ comprises of Shweta Bhagwat (Principal Investigator), Manasi Pathak (Researcher) and Vivek Venkataramani (Researcher). In a 45 day field work the study for vegetation and soil components was completed in both the study areas (BRS and KBR) in December 2010. Plots were laid in field following FSI standards to capture disturbance parameters (like lopping and cutting pressure) and species based regeneration. Soil samples were also collected which have been sent for analysis to Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Nagpur.

The socio-economic aspect is expected to be covered through surveys in the villages in March-April 2011. The study would be completed by June 2011 and the findings from the study are expected to serve as a baseline for forthcoming studies related to ban on grazing in the State.

Photo credits: Phuphu Tshcering Bhutia, Shweta Bhagwat, Sreyamsa Bairiganjan, Lako Tshcering Bhutia



Field Measurement

⁺ The Centre for Development Finance (CDF) is one of the seven development oriented organizations housed with the Institute for Financial Management and Research (IFMR) business school in Chennai. It is a non-profit action research think tank and advisory firm focused on improving government systems' and markets' capacity to channel finance into sustainable, holistic development. Environmentally Sustainable Finance is a group within CDF dedicated to research and action to inform environmental policymaking and implementation, integrate environmental sustainability into development initiatives, and support scalable commercial and non-profit interventions to make India's economy more environmentally sustainable from the bottom up.





ENVIRONMENTAL INFORMATION SYSTEM (ENVIS)

STATE GOVERNMENT CENTRE
SIKKIM

ENVIS Centre Sikkim
On Status of Environment & its Related Issues
Forests, Environment & Wildlife
Management Department
Government of Sikkim

Email us at: sik@envis.nic.in
Call us at: 03592-280381
Fax: 03592-281778

Please feel free to send in your queries or valuable suggestions, comments and views.

VISIT OUR WEBSITE TO KNOW MORE

www.sikenvis.nic.in

Forestry and Environment Mission Sikkim-2015

The Vision for the Future

- Flagship Participatory Greening Programmes of Sikkim
- Wildlife Management
- Forest Management and Biodiversity conservation
- Forest Management Plans
- Silviculture
- Sericulture
- Utilization
- Development of Wetlands
- Environment and Pollution Control
- Environmental Information System (ENVIS)
- Knowledge Generation and Environmental Education



Available in Website | Log in to www.sikenvis.nic.in/mision2015.htm



Office of the ENVIS Centre Sikkim



ENVIS Library



Environment Calendar

February 2



World Wetland Day - On this day, in 1971, the Ramsar Convention on Wetlands of International Importance was signed. Wetlands are a very important part of our biodiversity and it is essential to see that they are well protected.

February 28



National Science Day - It is necessary to highlight the role of science in the protection of the environment. This day should be taken as a platform to put forward the message.

March 21



World Forestry Day - Activities such as the planting of trees and highlighting the urgency to increase the green cover.

March 22



World Water Day - The decision to celebrate this day has been taken recently as drinking water sources are fast depleting. The world must wake up to the problem and begin conserving it.

March 23



World Meteorological Day - Everyone has to be reminded that weather is an integral part of the environment.

April 7



World Health Day - The World Health Organization (WHO) was constituted on this day in 1948. In the changing environment around us, health is becoming an important issue.

April 18



World Heritage Day - Environment includes not just the natural surroundings but also the manmade ones.

April 22



Earth Day - In 1970 a group of people in the United States of America got together to draw the attention of the world to the problems being caused to the earth due to modernisation. Since then this day has been celebrated all over the world as Earth Day.

May 22



International Biodiversity Day - Biodiversity provides the ecological goods and services that sustain all life. Of the million of species of animals, plants and micro-organisms on earth, some 18000 are becoming extinct annually owing to mindless environmental interference by humans.

May 31



Anti Tobacco Day - The world is now aware of the problems faced by not only the smokers but also the people who inhale the smoke. You can take up an anti smoking campaign in your family or the neighbourhood.

June 5



World Environment Day - On this day, in 1972, the Stockholm Conference on Human Environment was held in Sweden. There was a large gathering from all over the world and people expressed their concerns for the increasing environmental problems.

June 25



10 Minutes to Earth Day in Sikkim This day is observed as an annual ritual by the people of Sikkim by dedicating their ten minutes of life to the mother earth by mass plantation drives.

July 11



World Population Day- Population has to be given special attention, as it is an ever-increasing problem especially in India.

September 16



World Ozone Day- The United Nations declared this day as the International Day for the Preservation of the Ozone Layer. It is the day the Montreal Protocol was signed.

September 28



Green Consumer Day- The problems of consumerism and its impact on the environment is an area of major concern in today's world. Awareness building on the importance of recycling-reusing-reducing should be taken up seriously.

October 3



World Habitat Day- The earth is the habitat of not only human beings but also all living creatures. Increasing human activities is threatening the habitat of other living things.

October 1-7



World Wildlife Week - Celebrate this week by building awareness on the importance of preservation of our wildlife.

October 4



World Animal Welfare Day - The welfare of animals has to be looked into and given due importance.

October 13



International Day for Natural Disaster Reduction - Due to a change in the environment there has been an increase in the number of natural disasters. Efforts have to be taken to reduce these disasters.

November 14



Children's Day in India - Children can work together for a better tomorrow by improving the environment around them.

December 2



Bhopal Tragedy Day - Mark this occasion by taking a pledge to put in your best efforts to prevent such a tragedy from occurring again.

Lets make an effort to rededicate ourselves on these days with meaningful commitments

