

Climate Adaptation & Disaster Management Workshop

May 3 - 5, 2012

Rumtek Monastery



WWF



འགྲུབ་ཁྲིམས་ལྷན་ཁག་

CEE

Centre for Environment Education





Introduction

The Indian state of Sikkim was hit by an earthquake of 6.9 magnitude on September 18, 2011. This was the most intense tremor ever felt in the state in recent years and it caused extensive damage to private as well as government infrastructure. A total of 68 people lost their lives to the earthquake. Hundreds of landslides and boulder falls that continued for some days, triggered by the quake led to even more damages of properties. Severe damage to homes, livestock sheds, agricultural land, infrastructure like roads, schools, water supplies, electricity were reported.

One of the sectors that were severely affected was the monasteries of the state of Sikkim. Stone masonry work was reportedly the most vulnerable to tremors and almost all monasteries being built with this type of architecture led to a mass damage in infrastructure.

Reports from all the four districts of Sikkim indicated minor to major damages to the monastery infrastructure.

Under the circumstance it is therefore critical to understand the preparedness level of the monasteries to cope with such natural disasters, and to address the gaps that exist. A workshop bringing together the monasteries and other local stakeholders is envisaged which will serve to be a training on disaster preparedness, as well as planning for the future.





:: Day 1
May 3, 2012





Introduction of participants

In this ice breaking exercise, participants were paired with a partner, and asked to get to know each other. Every participant would then have to introduce his /her partner to the whole group, mainly the name and the monastery he/she represented and their expectations from the workshop. They were also asked to a picture of their partner, which would then be presented to him /her as a takeaway.

This quick exercise was useful for the participants to get to know each other and for the organisers, it helped understand the level of the participants. From the exercise it emerged that the main expectations expressed were -

- ☐ Learn more regarding the safety measures during earthquakes
- ☐ Know more regarding Climate Change and Global warming
- ☐ Understand more about the Khoryug initiative
- ☐ Understand more on strengthening monastery architecture





Programme overview

Ms. Priyadarshinee Shrestha gave a brief overview of the programme for the next two days, and clarified that the expectations of the participants would be addressed by the workshop. Summarizing the objective of organizing the workshop for monasteries, she mentioned that one of the sectors that were gravely affected by the September 18 disaster was monasteries. Monasteries were an organized sector at the community level with many monks living under their care, and the villagers around them also seeing them as safe havens. Preparedness of monasteries therefore became a crucial issue that would mean not only safety for the monks residing in them, but act also as disaster management institute for the village in times of need.

Sharing of Rumtek Monastery activities

A general overview of the environmental activities carried out by the Rumtek Monastery under the Khoryug initiative was given by Mr. Moktan, from the Rumtek monastery. He mentioned that the Rumtek Monastery had initiated an Environmental Cell that was responsible for carrying out activities for awareness and education. The presentation highlighted the plantation activities, cleanliness campaigns, energy conservation, waste segregation, promotion of solar energy, etc. by the Rumtek Monastery. All these activities were conducted under the guidance of His Holiness the 17th Karmapa, who expressed great concern for the environment and conservation issues.



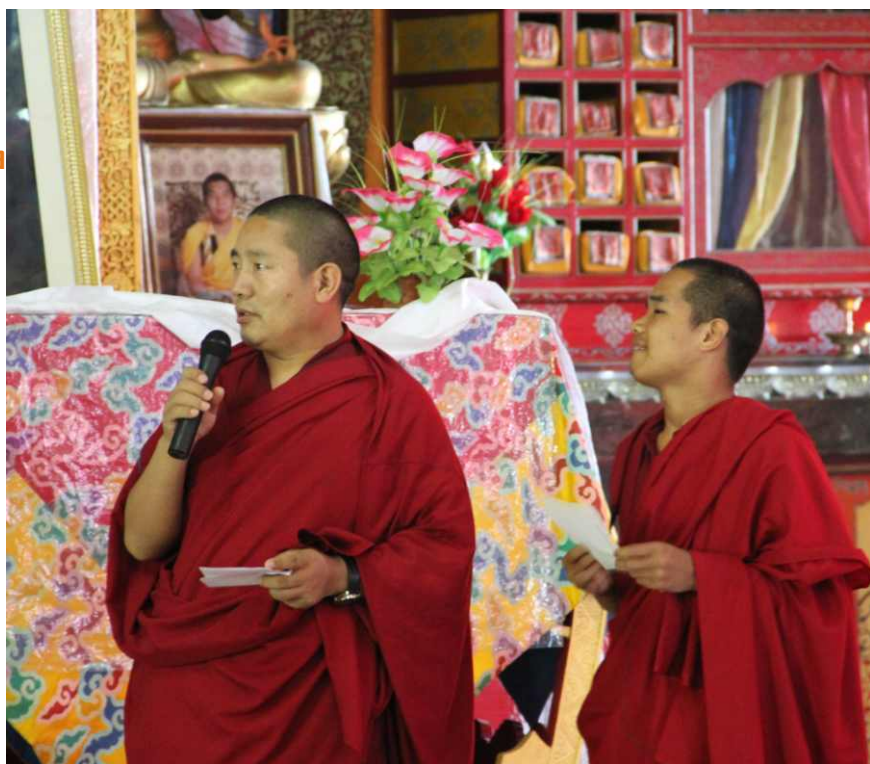
:: Day 2
May 4, 2012



:: Inaugural Session

Welcome and introduction - Khenpo Kalsang Nyima

In his welcome address, Khenpo Kalsang Nyima of the Karma Shri Nalanda Institute expressed his gratitude to WWF and CEE for organizing the workshop on Climate Adaptation and Disaster Management. He also thanked the guests for the Ecclesiastical and Land Revenue and Disaster Management Department for sparing their time to participate in the workshop. Speaking about the workshop, he mentioned it was very timely and one that was of great need for the monasteries. He hoped that the workshop would be useful for all the monasteries and that they would be able to put their learning into action once they returned back to their respective places.



Address by Shri Sonam Bhutia, Joint Director, Ecclesiastical Department

In his address, the Joint Director mentioned that Ecclesiastical Department had a long standing relationship with WWF India, when some work on sacred groves had been undertaken in the past. He expressed the department's willingness to take the relationship forward in a positive direction and that the department would cooperate in every way.

Address and presentation by Shri G.C.Khanal: Joint Director, Land Revenue and Disaster Management Dept.

Mr GC Khanal began his presentation by showing footages of the September 18 disaster that had been captured by various CC cams in the state, which gave participants chance to reflect back on the night of the earthquake. Mr. Khanal gave an overview of the earthquake, why it occurred and the damages that had happened in its wake. He highlighted that the first action however was taken by the communities themselves, making training and capacity building of the local community members very pertinent. The participants were also briefed on the measures that were taken by the Government following the earthquake. These were- immediate setting up of State EOC at Police HQ, emergency meetings at all level, amendment of building byelaws, hazard risk vulnerability assessment study, mass sensitization, school safety programme, emergency and first aid training.

Mr. Khanal also highlighted the other common hazards that Sikkim was prone too, which were - landslide, earthquake, fire, droughts, flash flood, cloud burst, snow and avalanches. He mentioned that a natural disaster like earthquake could not be prevented nor predicted, and the solution was only in being prepared.



Session 1: "Understanding Climate Change"



The first session aimed at educating the participants on issues related to climate change and its impacts. The session was started with screening of the translated version of the documentary film "An Inconvenient Truth". This was followed by an interaction session with the participants on the film and the issue of climate change facilitated by Dr. Gangwar from CEE.

Referring to the Living Planet report of WWF, Dr. Gangwar informed the participants that the index reflected the health of the planet's ecosystems, state of the natural world (Planet Earth) and the impact of human activity upon it, and the pressure on the biosphere arising from human consumption of natural resources. The global trend suggests that we are degrading natural ecosystems at a rate unprecedented in human history. The concept of ecological footprints, was explained to the participants and that it showed the extent of human demand on ecosystems, and was constantly growing over the years. He explained that the natural resources of earth was depleting at a much faster rate than they could be renewed, and that we were consuming what rightfully belonged to our children's generation.

Post lunch session began with the game of Chinese Whisper for all the participants as an energizer. All the participants enjoyed the game and learnt the importance of imparting correct messages, especially during times of disasters. The game also taught that rumors spread through false messages being passed out, which would lead to panic among the people.



"Hand Print- Action towards sustainability"

Hand print was an idea developed by CEE to counter the impacts of ecological footprints. Handprint talked about the actions that one could take at an individual level to decrease the pressure on resources, and bringing environmental harmony. The presentation gave an idea about the overall population of the countries and the foot prints generated by each country. North America showed the highest foot print per capita followed by Western America, Central & Eastern Europe, Latin America & Caribbean, Middle East & Central Asia, Asia Pacific and Africa, but looking at the population status Asian countries also had high ecological. He also talked about the drivers of change to lessen the foot prints where ESD was one of the important ones.

It was also mentioned that hand print is a measure of our ESD action. ESD speaks of actions like formal education, capacity building, creating awareness, participation, critical thinking, values, experiential and training. Hand print was launched as a tool to indicate to ourselves the values of ESD and analyses positive impact on the three aspects of sustainability environment, economy and society.

More information on this could be found at <http://www.handsforchange.org>



Session 2: "Sharing experiences of September 18" - Group activity-

The main objective of this session was to understand and share experiences and lessons learnt from the participants regarding the earthquake of September 18. The participants were divided into 6 groups and were asked to discuss among themselves regarding the recent earthquake that hit Sikkim last year. The discussions were mainly directed around three major questions - Extent of damage, what has happened afterwards and the main lessons learnt. The different monasteries shared their experiences within the group after which they made delivered presentations in the plenary.



Presentation by groups

Damages /Impacts

- Most of the monasteries had damages ranging from minor to major. Maneyas suffered heavy damages, and heavy cracks appeared on the walls and floors. Class rooms, hostels, kitchens, toilets were badly damaged.
- Huge damages occurred in Palchen Choling monastery in South Sikkim, Hee gyathang monastery in North, Tumin and Rumtek Monastery in East and Pema Yangtse in West Sikkim.
- Monks had vacated the hostel premises and were staying outside of the monasteries.
- Minor injuries also took place caused by panic and running during the event.
- Post earthquake health problems also arose in some cases.



Steps taken

- ⇒ Most of the monasteries had undertaken repair work after the earthquake.
- ⇒ Presence of strong monastery committees in many cases ensured quick action
- ⇒ Construction for new accommodation in Rumtek; repair works ongoing. Palchen Choling Monastery is being repaired; however major works are yet to happen.
- ⇒ State Government had organized survey of monasteries to gauge the extent of damages and many architects and engineers had visited the monasteries. Ecclesiastical Department had also lent support wherever possible.
- ⇒ Government aid had been received by some of the important monasteries, while for a few civil societies had also come forward to help in rebuilding.
- ⇒ Hee Gyathang monastery committee had taken an important step of rebuilding the existing monastery, rather than constructing a new one in its place.



Lessons Learnt

- Dos and donts should be known regarding earthquake
- Be prepared with candles, flashlights & first aid box
- Make the doors and windows larger than the regular ones
- Take care of the holy places and give full responsibility to good organization or Government for rebuilding the damages
- Better and safer monasteries and houses to be built in future
- Since the buildings of modern architect were more damaged, old architect technologies proved better
- Traditional way of constructing the monastery was found to be more safer
- Need more case studies before construction of any monasteries
- Should rethink on Hydel Power Projects in Sikkim.
- Not to make any building more than two storey
- Not to panic and be in a safer place
- Roof water harvesting technologies to be implemented
- Be more prepared and help yourself rather than waiting for a outside help
- Community Disaster Response force needs to be developed, people should help each other.
- Remember God always, not just when there is a natural calamity happening



Session 3: “Disaster Management and risk reduction”

Inputs on disaster management was given by Dr. Gangwar in this session with the objective of informing the participants on disasters, the different kinds of disasters and how to reduce their impacts. The main lesson from his inputs to the participants was that natural disasters like earthquakes are predestined and very little can be done to prevent or mitigate it, however preparing in a better manner for reducing the risk from such disasters should be taken as a priority. Disaster was explained as a sum total of risks, hazards and vulnerabilities that could be lessened by the capacities that existed at the field level to address and tackle such events.

Till recently India did not have a policy on disaster management and the Government intervention was limited to providing post disaster relief and rehabilitation assistance. Even then, civil response system depended heavily on armed and other paramilitary forces. An approach to be better prepared for disasters was only just emerging within the country with National Disaster Response Fund for meeting any threatening disaster situation or disaster and the National Disaster Mitigation Fund for projects exclusively for the purpose of mitigation of disasters, being set up. Apart from these, a number of initiatives had also been launched such as Community Based Disaster Risk Management, Disaster management in school education, Disaster management in engineering & architecture, Earthquake Risk Mitigation, etc.

It was followed by a brief presentation on the safety tips with simple illustrations on dos and don'ts during common disasters - fire, earthquake, landslides, and flash floods. He also mentioned that it is always important that a person should never panic during emergencies.





:: Day 3 May 5, 2012



The programme started at 9.30 with a recap of the previous day by Ms. Priya Shrestha. Participants were quickly taken through the proceedings of day 1 and asked to share their learning from the same. All participants gave positive feedback on the first day's programme, and participants also reflected that many of the issues related to conservation could be found embedded within the Buddhist scriptures, and one only needed to bring them into practice.

To give an idea about the significance of the Himalayan region, Dr Gangwar presented a brochure/handbook on the "Himalayan Safari" which had information of various biodiversity and cultural values of the Himalayan states. It highlighted the wildlife of the region, the high altitude wetlands, the mountains that were the source of water for populations downstream and the indigenous communities that inhabited these areas.

Session 4: "Monastery architecture Strengths and weaknesses"

This session was facilitated by architects from Sanctum Architecture. After the earthquake, survey of monasteries had been carried out by them to understand the damage situation and to analyse the reasons thereof.

Mr Chetan Shrestha started by making photo presentation on the various monasteries that had been damaged all over the state. While some damages occurred owing to the location of the monasteries, many damages also took place due to faulty construction and poor workmanship. Mud plaster on stone walls was pointed out as the main reason for the damage of stone walls. Through the photo presentation, the architects also pointed out the important aspects that were to be followed during construction, like putting through- stones in stone walls, tie beams at the roof level, adequate columns, etc. The damages during earthquake were also due to the land (soil type). Some monasteries had firm wall and post, but the plastering was not good and strong, hence causing the damages. He said that in a RCC building both the rod and cements should hold one another and the rods needs to be placed in proper measurements. He suggested that if the monasteries are made of stones, it is advisable not to plaster the stones, since the cracks in stones are huge and will result in larger cracks on the walls. It is always good to use the lime to paint the stone walls rather than plastering the stone walls.

He also showed pictures of most of the Chortens that was hugely damaged. He suggested that the Chortens had a very different shape and hence would be prone to damage during earthquakes, so it was always wise to use rods in between while constructing Chortens in future.

He gave tips on pasting paper across cracks on the walls of the monastery which would help tell if the crack was widening, and whether the building needed to be dismantled.

During the discussions, participants asked about the options of retrofitting using carbon jacketing, and the architects responded that carbon jacketing is always good, since it's a very high tensile material and prevents the wall from tearing. They also asked about the importance of having tie beams, to which the response given was that tie beams helped keep columns together and created a box like structure which proves safer during earthquakes.



Hee Gyathang Monastery A case study

A brief case study on restoration of Hee Gyathang monastery in Dzongu, North Sikkim was presented to the participants to begin the post lunch session by members of Hee Gyathang monastery. Construction of the monastery had begun in the year 1931, under the leadership of “Tungyok”, who had twelve mandals (village chiefs) under him, and was completed in 1938. Prior to the September 18 earthquake, some retrofitting work of tying the monastery walls with iron frame had been undertaken at Hee Gyathang. This saved the 71 year old monastery from total collapse during the earthquake. While many of the walls collapsed, the main columns of the monastery remained intact.

Post earthquake, the Government took a decision to dismantle some damaged monasteries to make way for new ones, and the same was decided for Hee Gyathang monastery. However the Hee Gyathang community chose to preserve and maintain the old monastery instead of having it dismantled and requested the State Government to build the new one at a different location. Since then, the community has taken support from various organizations like Sanctum Architecture and Echostream to retrofit and maintain the existing old monastery. A plan has been put in place to restore to the monastery to its original glory, however due to limited funding, the retrofitting is being undertaken in portions. The restoration of the monastery is still going on.

The architects then gave inputs on the reason behind Hee Gyathang monastery being able to withstand the quake inspite of being an old structure. They mentioned that the steel frame around the monastery walls had served efficiently to protect the monastery. The wooden beams on the roof that were not nailed to each other, but put together in a loosely bound fashion also helped in keeping the wooden framework together.

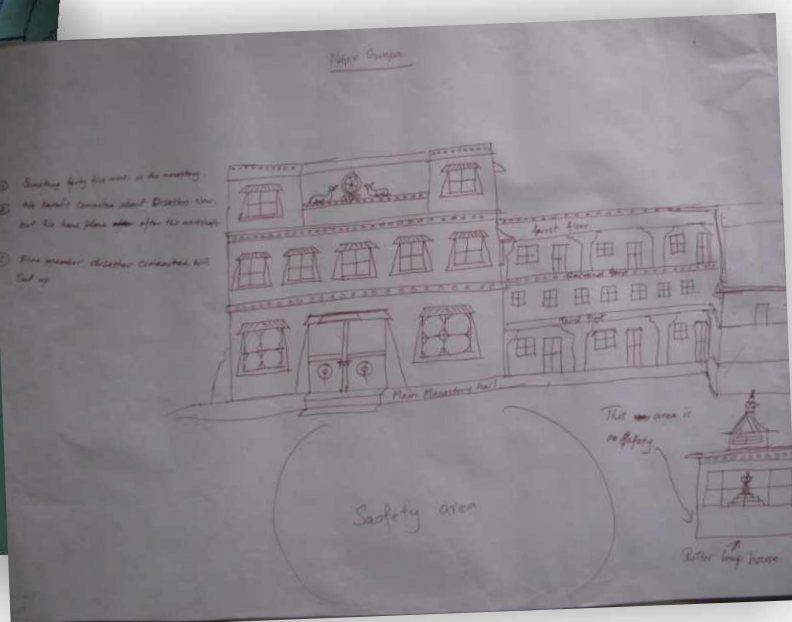
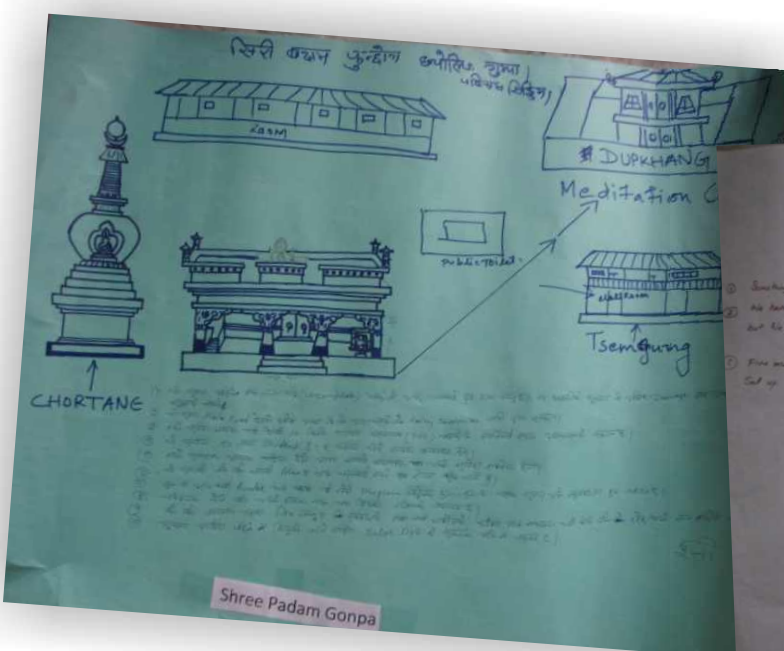
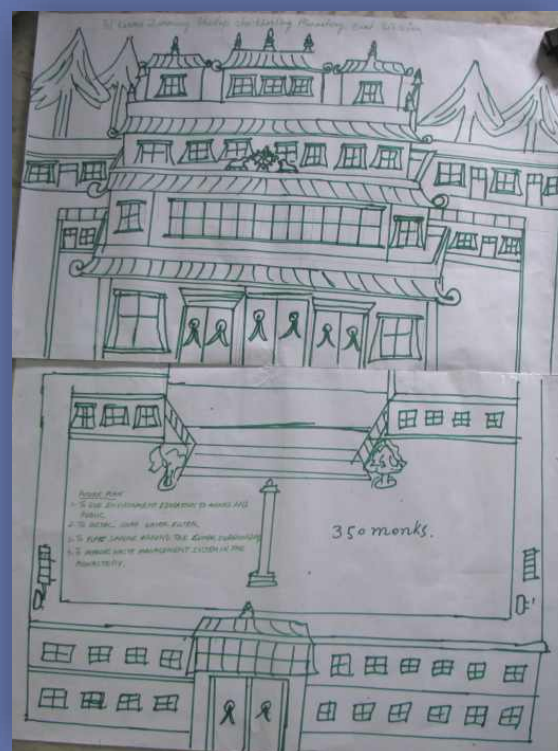


Session 5: "Planning for the future"

Looking at all the inputs received by the participants, the objective of this session was to facilitate a way forward for the monasteries by drawing up an action plan for each that consisted of things they could initiate as follow up to the workshop. Participants were asked to reflect back on the lessons learnt from the disaster of September 18 and to identify the gaps that existed which could be possibly addressed in the future. Examples of disaster management experiences from other parts of the country were shared with the participants from where they could take ideas and modify those to suit their context. Monastery wise groups were formed for working on the exercise. Participants visualized their monasteries and its surroundings, and made simple maps showing access, safe areas, areas to be avoided, etc.

After the group activity, each monastery was given an opportunity to present their plans for the future in the plenary session. Some of the important points flagged by the various groups were -

- Formation of disaster management team / committee for monasteries
- Identification of safe places in monastery premises
- Training and capacity building, Teach safety drills to monks
- Take advice of the experience architect and engineers before any constructions
- Proper construction and maintenance of monasteries
- Storing of rations
- Prepare for water security (provisions of alternate sources/ pipes)
- First aid kits to be ready with trained people
- Facilitate coordination with Government Departments
- Important documents and relic's text should be kept safe and backup copies also to be made ready to carry.
- Build bigger doors and windows
- Polythene sheets in place during emergencies.
- Fire fighting tools required
- Environmental classes for the monks
- Carry mobile and torches during earthquakes
- Use of solar devices
- Proper road facilities to reach the monasteries



Climate Adaptation & Disaster Management Workshop
Dated 3-5th May 2012

Sl.No	Name	Monastery	District	Contact
1	Lama Karma Tshering	Ben Gumpa	South	9434381691
2	T.Lama	Bermiok Gumpa	South	9434488206
3	Thinlay Namgyal	Sumang Gumpa	East	8436496003
4	Tsampo Kunga	Sherduptse Choling	South	9609833909
5	T.T.Bhutia	Labrang Gumpa	North	9434103209
6	Karzong Bhutia	Labrang Gumpa	North	9735919119
7	Kunzang Palzor	Phensang Gumpa	North	9647875830
8	Pema Gyatso	Phensang Gumpa	North	
9	Tencho	Palchen Choling Gumpa	South	9004884996
10	Tenzing Gyatso Lepcha	Heegyathang Gumpa	North	9679183063
11	Dawa Thendup	Heegyathang Gumpa	North	9679183063
12	Samten Lepcha	Serdup Choling Gumpa	South	
13	Karma Rinchen	Palchen Choling Gumpa	South	
14	Choeten	Palchen Choling Gumpa	South	
15	Yeshi Wangmo	Palchen Choling Gumpa	South	
16	Jampheh	Palchen Choling Gumpa	South	
17	Kunga Gyatso	Nor Gumpa	East	9733121164
18	Lama Jigme	Ben Gumpa	South	9647870085
19	Lama Rinchen	Old Rumtek	East	7407386763
20	Lama Tshering	Old Rumtek	East	
21	Sangay	Kagyu Gumpa	East	9434356634
22	Rapta Lama	Central Pandam	East	9474058392
23	Pintso Dorjee	Assam Linzay	East	9679187767
24	Dawa Tashi	Assam Linzay	East	
25	Karma T Uden	Teacher Rumtek	East	9434204024
26	Rinzing Lhamo	Teacher Rumtek	East	9002066880
27	Karma Michong	Nnagdok	East	
28	Nandok Lama Phuchung	Karma Mingur	East	8768927919
29	Yusal Bhutia	Phodong	North	9775884527
30	Tempa Gyatso	Pemayangtse	West	9733147446
31	Lakpa Thendup	Pemayangtse	West	9735950086
32	Yeshi Wangdi	Shreebadam	West	
33	Jamyang Dorjee	Shreebadam	West	9734924550
34	Karma Jigdak	Surmang Gumpa	East	9126348585
35	Lama Phuntsok	Dumen Gumpa	East	9002318351
36	Karma Ugyen	Bermiok Gumpa	South	9609856357
37	Lama Karma	Rumtek Gumpa	East	
38	Choekhor Rimpoche	Sera Monastery	East	7384733787
39	Tenzing Nyingma	Sera Monastery	East	7384369126
40	Khenpo Karten	Rumtek Gumpa	East	
41	Khenpo Gyaltsen	Rumtek Gumpa	East	
42	Zumden	Dhumin Gumpa	East	
43	T.Lama	Dhumin Gumpa	East	9735988056
44	Khenpo Kalsang Nima	Rumtek Gumpa	East	
45	Bhabita	Sikkim Express	East	7797948752
46	Karma wangchuk	Sumin Gumpa	East	97343338595
47	Karma Thinlay Lama	Sumin Gumpa	East	

48 Sherab Tenzing	K.S.N.I	East
49 Nima Dhondup	K.S.N.I	East
50 Karma Buching	K.S.N.I	East
51 Nyima Tamang	K.S.N.I	East
52 Chonying Lhendup	K.S.N.I	East
53 Karma Sonam	K.S.N.I	East
54 Samten Tamang	K.S.N.I	East
55 Orgyen Palzor	K.S.N.I	East
56 Pema Tsultrim	K.S.N.I	East
57 Tshering Sherpa	K.S.N.I	East
58 Secretary Tashi D Lharingpa	K.S.N.I	East
59 Karma Tsundu	K.S.N.I	East
60 SamtenRabgey	K.S.N.I	East
61 Karma Gyatso	K.S.N.I	East
62 Lhendup Dorji	K.S.N.I	East
63 Phuchung Bhutia	K.S.N.I	East
64 Passang Sherpa	K.S.N.I	East
65 Nawang Dawa	K.S.N.I	East
66 Nima Whoser	K.S.N.I	East
67 Tshering Phunstok	K.S.N.I	East
68 Sangay Wangdi	K.S.N.I	East
69 Pema Woser	K.S.N.I	East
70 ThinlayDorji	K.S.N.I	East
71 Lhakpa	K.S.N.I	East
72 Sonam Tenzing	K.S.N.I	East
73 Urgyen	K.S.N.I	East
74 Karma Tenzing	K.S.N.I	East
75 Kunga Namgyal	Rumtek Gumpa	East
76 Karma	Rumtek Gumpa	East
77 Norbu Dhondup	Rumtek Gumpa	East
78 Passang Gyambo	Rumtek Gumpa	East
79 Lhodo Sherab	Rumtek Gumpa	East
80 Karma Tshering	Rumtek Gumpa	East
81 Singhi Palden	Rumtek Gumpa	East
82 Karma Cheezen	Rumtek Gumpa	East
83 Shiva Karma Thapa	Rumtek Gumpa	East
84 Tshering Wangchuk	Rumtek Gumpa	East
85 Thupten	Rumtek Gumpa	East
86 Jigmey	Rumtek Gumpa	East
87 Karma Tshering	Rumtek Gumpa	East
88 Pempa	Rumtek Gumpa	East
89 Jamyang Palden	Rumtek Gumpa	East
90 Nawang Wangchuk	Rumtek Gumpa	East
91 Kalsang Tashi	Rumtek Gumpa	East
92 Sonam Topgay	Rumtek Gumpa	East
93 Urgen Jigme	Rumtek Gumpa	East
94 Jampal Gyaltsa	Rumtek Gumpa	East
95 Tshering	Rumtek Gumpa	East
96 Sangay Thinley	Rumtek Gumpa	East
97 Wangchuk	Rumtek Gumpa	East
98 Karma Wangden	Rumtek Gumpa	East
99 Phurba Dorji	Rumtek Gumpa	East
100 Norbu	Rumtek Gumpa	East
101 Jigmey Wangchuk	Rumtek Gumpa	East
102 Phurba Dorji	Rumtek Gumpa	East
103 Norbay Dawa	Rumtek Gumpa	East
104 Karma Tshering	Rumtek Gumpa	East
105 Sherab Dorji	Rumtek Gumpa	East
106 Karma Tsultrim	Rumtek Gumpa	East
107 Karma Samdup	Rumtek Gumpa	East
108 Dr.A.K.Dwivedi	Rumtek Gumpa	East
109 Sherab Dorji	Rumtek Gumpa	East
110 Gompa Tshering	Rumtek Gumpa	East
111 Pema Thinley	Rumtek Gumpa	East



WWF - India
Khangchendzonga Landscape Programme
Gangtok, Sikkim