Scientific Capacity Building for Climate Impact and Vulnerability Assessments (SCBCIA)

FINAL REPORT

"Climate Change in Eastern Himalayas: Advancing Community-Based Scientific Capacity to Support Climate Change Adaptation"

(CIA2009-03-Lun)



APN

Asia-Pacific Network for Global Change Research

CAPaBLE

PROJECT TEAM LOGOS HERE….

Making a Difference

Scientific Capacity Building & Enhancement for Sustainable Development in Developing Countries

Project Reference Number: CIA2009-03-Yun
Final Report submitted to APN

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OVERVIEW OF PROJECT WORK AND OUTCOMES

Minimum 2pages (maximum 4 pages)

Non-technical summary

The project aims to develop the Scientific Capacity of Local Government, Scientists, and Indigenous People in the Eastern Tibetan Himalayas of North-West Yunnan Province, China, to assist in effectively and sustainably responding to the impacts of Climate Change through the participatory, community-based development of a Climate Change Vulnerability and Impact Assessment. This project aims to use the best of 'top-down' scientific, policy relevant approaches with 'bottom-up' Indigenous Knowledge research to achieve its objectives - seeking to reconcile indigenous knowledge with mainstream science. The project have sustainable outcomes through the ongoing training and capacity building of project collaborators; the establishment of an international Scientific Advisory Group to guide the project, and a conference and publications at the end of the project to share information and experiences about the successful collaboration of indigenous knowledge with mainstream science. Additionally, the project supports ongoing scientific capacity building in Climate Impact & Vulnerability Assessments through the collaborative development of training manuals and programmes to be produced by all participating NGO's and local government departments, to ongoingly use in their own institutions. Not only will this project build the capacity of local scientists and local government to conduct climate impact and vulnerability assessments, but additionally, the data collected during this project will help fill an important 'white spot' of data on the Eastern Himalayan region in IPCC and other international climate assessments. With the support of international networks, the information collected during this project will help to improve science-policy links, and improve methodologies for the inclusion of indigenous knowledge in climate change policy and international assessments. The project will use a multi-disciplinary team of researchers including climate change specialists, ethno-botanists, anthropologists, government representatives, meteorologists, and scientists skilled in indigenous knowledge field work.

Objectives

The main objectives of the project were:

1. Increase the capacity of climate scientists, local government workers, and multidisciplinary NGO workers to contribute to the extension, application and diffusion of knowledge related to Scientific Climate Change Impact Vulnerability Assessments. Enable all project participants to make informed decisions on practical measures to respond to climate change on a sound scientific, technical and socio-economic basis, taking into account current and future climate change and variability.
2. Climate Scientists, Local Government Workers and NGO workers to develop their own localised, specific tailored training programmes about Climate Change Impact and Vulnerability Assessments to deliver to their own institutions, therefore contributing to sustained capacity building beyond the life of the project.
3. Organise a conference at the end of the project to share information, knowledge and experiences about (a) The successful collaboration of Indigenous Knowledge with Mainstream Science; (b) Scientific capacity building in Climate Vulnerability and Impact Assessments in a China context, and (c) Best Practice in Interfacing Indigenous Knowledge with International Global Change Policy.
4. Improved information and advice to relevant international assessments and conventions on Climate Change on the scientific and socio-economic aspects of impacts and vulnerability to climate change in the Eastern-Tibetan Himalayan region of North-West Yunnan Province, China.
5. Enhanced cooperation and communication between project team, NGO's, government bodies, and international environmental change organisations, and greater general climate change awareness amongst these groups and civil society.

Amount received and number years supported

The Grant awarded to this project was:
US$ 22,800 for 1 Year 2009/2010:

Activity undertaken

1. The project director Yin Lun has attended a training course in India entitled, "International Workshop on Land Management in Marginal Mountain Areas: Vulnerability and Adaptation to Global Changes". The project leader Yin Lun has attended one-week UNESCO training on "Vulnerability Assessment of Disasters and Climate Change in World Heritage Properties" in Beijing.
2. CTRSD has held a workshop to review and refine project methodology, budget, time frames, responsibilities, capacity building activities. In this workshop, CTRSD has also developed a Project and Communications Plan. CTRSD has conducted policy analysis to assist in establishing a framework for the project.
3. In collaboration with international and regional partners, the project has created an International Scientific Advisory Group. The project methodology, proposed scientific capacity building activities and policy analysis have circulated to the ISAG for their feedback and input.
4. CTRSD has done a call-out to students of University to participate in the project, scientific data collection, policy analysis, field work, or communications/dissemination approaches.
5. The project leader has conduct initial project meeting in the field sites.
6. CTRSD has cooperated with UNU China Ecological and Cultural Research Network to establish the syllabus for the first round of Scientific Capacity Building workshops in the field.
7. Project Staff Scientific Training 1.
8. Fieldwork Stream 1A (Quantitative) and Fieldwork Stream1 B (Qualitative).
9. Project Staff Scientific Training 2.
10. Fieldwork Stream 2A (Quantitative) and Fieldwork Stream2 B (Qualitative).
11. Analyse both qualitative and quantitative data.
12. Background Document Review on Organisational Training Modules on SCBCIA.
13. Assist local government, NGO and Scientists with funding sources for implementation of programs.
14. Indigenous Knowledge, Climate Change Science + Policy Conference.
15. Conference Field Trip to Project Sites.
16. Draft Project Reports.

Results

1. Bridge built between scientists, Indigenous People and Government officials
2. Scientific Capacity built in Climate Change Impact and Vulnerability Assessment in three villages
3. Effective combination of scientific methods and indigenous knowledge used
4. Information about project published and disseminated throughout national and international community.
5. Climate Change Impact and Vulnerability Assessment produced
6. Reports and peer-reviewed articles
7. Communication and education plan to share information with other villages

Relevance to APN's Science and Policy Agenda

The Eastern Himalayas in north-western Yunnan are hotspots for biodiversity and cultural diversity. In recent years, the effects of climate change including natural disasters have increasingly threatened traditional society, agro-pastoral livelihoods, water, and the biodiversity resources people depend on, such as mountain pastures, valley and forest. Because of the fragility of the natural environment and the livelihood's deep dependence on these resources, these challenges have seriously threatened their sustainable development and livelihoods. Many NGOs have carried

out various climate change “adaptation” projects but these have been fashioned in a very ad-hoc manner. Yet because of the vulnerability of the ecological environment, and the local people’s reliance on Indigenous science methods that are failing to predict the unpredictable weather, climate risks will seriously impact these communities. To complement the work already being carried out by the Centre for Tibetan Regional Sustainable Development in the area of traditional Indigenous Knowledge responses to climate change, a highly strategic and scientific approach to climate change vulnerability assessment is required. Furthermore, considering the ecological significance of this region and the vulnerability already experienced by local communities, it is alarming to note that there is a lack of good data and climate information about this region. In the IPCC AR4 report, the region does not show up on the global scale due to lack of data and is seen as a ‘white spot’. International climate change assessments describe high-altitude regions such as the Himalayas as particularly vulnerable environments, yet there currently exists a lack of human resources in this area to conduct crucial Climate Impact & Vulnerability Assessments. In addition to increasing the amount of data from this region provided to international assessments, our project goals also include increasing the amount of climate change data collected by Tibetan Indigenous peoples to contribute to global climate change assessments, and through policy interfacing, thereby setting a benchmark for inclusion of indigenous knowledge in contributions made by China to international assessments. We believe that including indigenous people in climate change and policy processes is vital.

Self evaluation

1. Successes

A. Traditional Women Association and Climate Change Training and Investigation. In Hongpo Village there has one Tibetan women organization named “Sisters Association”. Main work of Sisters Association is about organizing female villagers to participate in activities during holidays, and raising money for collective activities such as going to temple and praying to Buddha. All women from Hongpo Village are members of the association. Usually women with age between 12 and 65 can parcipate in activities. Sisters Association has its regulations. The association administrators will be selected by villagers themselves and take responsibility in turn. Every year 6 women will be selected as administrators.Based on Sisters Association, our project carried out trainings to local women on climate change, natural disasters and traditional subsistence. It organized 15 local women to carry out investigation on traditional subsistence of half agriculture and half herding, NTFPs, herbs and gynecopathy in the context of climate change. 15 local women carried out investigation on traditional subsistence of half agriculture and half herding, NTFPs, herbs, and gynecopathy.

B. Establishment of Climate Field School based on Deqin Tibetan Medical Association, Training and Investigation. Deqin Tibetan Medical Association is organized by local experts who have indigenous knowledge of herbs and Tibetan medical knowledge. These experts devote themselves to traditional herb protection and plantation, carry out research on traditional medical treatment, herb making and its usage, and deliver the knowledge to other villagers. Currently the association has 56 local experts. Based on Deqin Tibetan Medical Association and participated by Hongpo Women Association, our project established Climate Field School. And then it carried out trainings on climate change, natural resources, and data collection comprising scientific capacity building. It had also carried out investigation on plants. According to high (above 3500 meters), middle (2500—3500meters) and low (below 2500meters) altitude, 20 local experts had carried out investigation on plants for two months, and collected 120 plant samples.

C. Indigenous Knowledge, Climate Change Science and Policy Conference. The conference has been successful implemented in Yunnan Universuty, the researchers, indigenous experts, governments officers and NGOs have participated the conference. In the conference, the project team has present research results from the project, and the different stakeholders has shared the ideas, input and new methodology about Indigenous Knowledge and Mainstream Science working hand-in-hand in climate change processes.

D. Climate Field School has continued the training and investigation. Climate Field School. Has carried out trainings on climate change, natural resources, and data collection comprising scientific capacity building. It had also carried out investigation on plants. According to high (above 3500 meters), middle (2500—3500meters) and low (below 2500meters) altitude, 20 local experts had carried out investigation on plants for three months, and collected 137 plant samples.

2. Challenges

A. New policy issued by local government. Because of the new policy, project field training and investigation had been postponed. One formal letter had been submitted to report this situation. Because of the new policy, we can't hold the international conference and must cooperate with Yunnan University to get the permission of organizing the conference.

B. Indigenous Knowledge on Climate Change and Local Recognition. The project has already collected indigenous knowledge on climate change, but still faces challenges such as how to carry out research and arrangement on these knowledge, how to have indigenous knowledge recognized by local government and relevant research institute, and how to let them influence policy making.

3. Impact

The project has already finished its activities on the first phase. It has four main impacts as following:

- Local recognition of climate change and indigenous knowledge on it. Based on investigation carried out by women and local experts, the project has collected and arranged local knowledge and recognition on climate change, which will be a good base for project activities at next phase.
- Strengthened recognition on relationship between climate change and natural resources. Based on field training and investigation, local experts and villagers have direct recognition on climate change. Through investigation on plant resources at different altitude, they see connection between climate change and natural resources.
- Strengthened recognition on relationship between climate change and traditional subsistence. Because traditional subsistence has close relations to climate change, every climate change will affect local subsistence and villagers' production and life. Accordingly villagers' strengthened recognition on relationship between climate change and traditional subsistence can help them adapt to climate change.
- Strengthened recognition on climate change and natural disasters. Climate change causes many natural disasters. Villagers' strengthened recognition on natural disasters can help them to establish management regulations to prevent natural disasters.

Potential for further work

The project team will continue focus on the influence of climate change to the indigenous peoples in the marginal area like eastern Himalaya and upper Mekong area, we will continue set up the research and action research programmes to help the indigenous people face the challenge of climate change, and encourage the collaboration of Indigenous Knowledge with Mainstream Science. Based on this project, in this year, The Nature Conservancy and Minzu University of China will support to project team to set up the "climate change and indigenous knowledge" programme, this programme will cover Tibet, Yunnan and Inter-Mongolia of China, which will beginning at Sept. 2011, the duration is 2 years.

Publications (please write the complete citation)

Articals: 1. Local Knowledge on Climate Change——a case study of a Tibetan village in North West of Yunnan, China. 2. Changing of agro-pastoralist livelihood in NW Yunnan, China: Impact of and Response to the Climate Change. 3. Gender Mainstream and Climate Change: —— a case study of Eastern Himalaya, SW Yunnan, China. Books: 1. China Culture and Environment (In Chinese), Yunnan Publishing House, 2010. 2. Climate Change and Indigenous Knowledge, Yunnan Technology Publishing House (still in the process of publishing).

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TECHNICAL REPORT

Minimum 15-20 pages (excluding appendix)

Preface

Limit to 100 words

Like many other ethnic people living in mountainous region of the Eastern Himalayas, agro-pastoralist is also important to Tibetan people living in North-West Yunnan Province. It is not only a kind of livelihood, but also a culture to local people. In recent years, the impact of climate change becomes more and more obvious. It threats local livelihood and sustainable development of local community. Considering importance of agro-pastoralist to local people and rich biodiversity of local resources, Center for Tibetan Region Sustainable Development (CTRSD) of Yunnan Academy of Social Sciences (YASS) has carried out research on practice and activities of climate change in Hongpo Watershed of Deqin County of Diqing Prefecture since 2007. Through literature review and statistics from local government and based on field investigation carried out in 2005, this paper discusses the impact of climate change on local traditional livelihood. According to investigation, the climate change not only changes biodiversity of local resources and livelihood environment of local people, but also affects local knowledge and traditions of livelihood. At the same time, the paper also analyzes local practice and adaption to climate change based on indigenous knowledge, in terms of how to alleviate degree of local climate change and how local people adjust livelihood traditions to adapt to the climate change. Local practice can not only reflect value of local knowledge to adapt to the climate change, but also provide importance information for local government to make policies on climate change in the future.

Table of Contents

1.0 Introduction

The northwest of Yunnan province is the hot spot of biological and cultural diversity. The life of the local ethic minorities is closely related with the natural environment and the traditional lifestyle depends on natural resources while the ecological system is extremely fragile and the influence by climate change is especially obvious. So the impact of climate change on life and production is the most direct and sensitive and local awareness on climate change is also more diverse. It is obvious how climate change will impact on agriculture, water resources and ecological environment (John 2003), and the indigenous peoples or ethic minorities in polar, mountains, desert, tropical forests, islands, temperate observe, understand and adapt climate change is explained respectively and the reference value and influence of indigenous peoples' traditional knowledge on government climate policy-making (Anja, Jan 2007). The climate change also influenced the health, the heritance education of community traditional knowledge and lifestyle. And how the government, the indigenous communities, the inter-disciplinary research institute and non-government organizations co-operation are put forward to help the indigenous make the strategies to adapt climate change (Donna, Sue 2009). The climate change has influenced the local Tibetans' life and production, the Tibetans has a local perspective, observe and respond to this global phenomenon (Anja, Jan 2009). The local cognition to climate change is helpful for the record and protection of related traditional knowledge and lays the foundations for the response to climate change and prevention of climate disasters. Following this idea, the author analyzes the climate change according to the survey and research sin the year of 2007, taking Hongpo watershed, Deqin County, Diqing Tibetan Autonomous Prefecture, Yunnan Province in China as an example.

2.0 Methodology

Explain how you carried out the project, which should follow logically from the aims. Depending on the kind of data, this section may contain subsections on experimental details, materials used, data

collection/sources, analytical or statistical techniques employed, study field areas, etc. Provide sufficient detail for a technical/scientific audience to appreciate what you did. Include flowcharts, maps or tables if they aid clarity or brevity.

In order to help Tibetan people adapt to climate change based on indigenous knowledge and protect natural resources and biodiversity well, Center for Tibetan Regional Sustainable Development of Yunnan Academy of Social Sciences cooperated with villagers, local government and other stakeholders to establish community organization, organize trainings and carry out community-based investigation, in order to promote local people's recognition on climate change and strengthen their capacity to adapt to climate change and biodiversity conservation. One of above activities was to establish Climate Field School (CFS), which was formed by local experts and normal villagers with indigenous knowledge. Started from 2009, main work of Climate Field School is to find out indigenous knowledge related to climate change, and collect traditional crop seeds and seeds of Tibetan medical herbs. Through field work done by villagers themselves, CFS disseminates above indigenous knowledge and seeds among villagers. At the same time, CFS also organized climate change training workshop participated by villagers, local government officials, Living Buddha, lama, and other stakeholders. Through the training workshop local government officials understand treats and challenges brought by climate change on local traditional livelihood, and Living Buddha and lama understand relationship between climate change and local traditions and culture. Through statistics, there already has 199 villagers (including 71 female ones) from 7 villages in Hongpo Watershed participated in field work and the training workshop. After finishing above investigation and training, local government agreed that they would allow Climate Field School (CFS) to have use-right on 20 mu mountain land as experiment base for traditional livelihood innovation. At the same time, local temple also allowed CFS to carry out protective plantation on one God Mountain. Center for Tibetan Regional Sustainable Development (CTRSD) also provided greenhouse shed to 26 Tibetan households for livelihood innovation. Based on stakeholders' support, CFS carried out practice of adaptation to climate change in Hongpo Watershed by local people, which has two aims as follows. The first aim is to alleviate degree of climate change and its damage degree on Hongpo Watershed. The main strategy is to safeguard local climate based on indigenous knowledge and prevention from natural disasters caused by climate change. Safeguarding local climate in Hongpo Watershed should focus on recovery of local vegetation. In history, mountains in Hongpo Watershed were heavily covered by plants. However, from 1970s to 1990s as main industry for local economic development, timber industry dramatically damaged large area of plants. Lots of trees were cut down, and green mountains became barren. Fortunately, because local people have the tradition to protect God Mountain well, those God Mountains nearby temples have been protected well today. In order to recovery local vegetation, on the one hand, Climate Field School (CFS) interviewed many elder villagers and local experts to collect and breed traditional saplings; on the other hand, it carried out investigation on God Mountains nearby temples, and collected tree species and saplings from different altitude and slope. Based on above two activities, CFS chose 22 saplings as targets for protective recovery. In order to protect these saplings, CFS also invited Living Buddha to carry out ceremony of "sealing a mountain" and built white pagoda. According to local tradition, after sealing the mountain will be treated as God Mountain, and activities such as collection, cutting trees and hunting are forbidden. Villagers also have the tradition to plant walnut trees nearby the village. In order to protect some old walnut trees with over hundred years well, CFS also promoted villagers to plant walnut trees around their farmland. At the same time, CFS helped villagers to make local regulations to manage the trees and prevent them from eaten by domestic animals. Prevention

from disasters caused by climate change in Hongpo Watershed should focus on mud-rock flow, flooding and drought. In recent years, global warming causes more natural disasters happened during raining season every year in Hongpo Watershed. Recovery of vegetation is very important measure to prevent the disasters. Additionally, Climate Field School (CFS) investigated Hongpo River carefully and confirmed that several parts of the river embankment would have hidden danger of burst. Then it helped villagers strengthen these parts by using huge stones and cements, which effectively prevented villagers' farmland from flooding. During the drought season, CFS helped villagers build water tanks and water channel for irrigation, based on local regulations on water use and management. Because traditional water channel was built above the earth that easily caused burst, CFS helped villagers bury pipes underground to draw water with good achievements. The second aim is to adjust traditional livelihood suitablely to adapt to climate change. The main strategy is to change and innovate of indigenous knowledge. Besides of making some changes on agricultural and herding calendars (lunar calendars) and choosing species of crops and livestock, Climate Field School (CFS) also helped villagers carry out innovative practice on indigenous knowledge. Local experts from CFS collected Tibetan medical herbs and did research on them, according to different season, altitude, and ying or yang slope of mountains. They collected Tibetan medical herbs during spring, summer, autumn and winter seasons respectively. During spring season local experts carried out research and collection in river valley area with altitude under 2500 meters. During summer season they focused on forest area with altitude between 2500 meters and 3500 meters. During autumn season they moved to area of alpine meadow with altitude from 3500 meters to 4500 meters. Through one year investigation, local experts totally collected 146 Tibetan medical herbs, among which 48 herbs were from low altitude area, 57 from middle altitude area and 41 from high altitude area (picture 2). At the same time, they tried to plant 23 Tibetan medial herbs on the 20 mu mountain approved by local government and achieved well (picture 3). Additionally, Climate Field School (CFS) supported local experts to establish veterinarian clinic, and invited professional veterinarians to give trainings to local experts on how to treat and heal new kind of livestock diseases, and planting herbs for veterinarian. At the same time, CFS supported female villagers to plant some fruits, vegetables, melons and hot pepper in greenhouse shed to develop garden economy. These fruits and vegetables are originally fit for low altitude and warm climate, but through greenhouse shed they can be planted at high altitude. In history, grape could only be planted at low altitude of Hongpo Watershed. From 2003 on, some villages locating at middle and high altitude also tried to plant grapes. Till today area of grape planted by every household in these villages is about 2 mu (local unit). CFS provided relevant trainings on grape plantation to villagers. Finally, in some villages which become warmer in winter season because of global warming, villagers want to develop tourism for livelihood. CFS also provided trainings on eco-tourism and tourist guider. Above activities well diversify local livelihood contents and develop more space for traditional livelihood innovation.

3.0 Results & Discussion

Explain your actual findings, including figures, illustrations and tables. Make comments on the results as they are presented, but save broader generalizations and conclusions for later. Discuss the importance of your findings, in light of the overall study aims. Synthesize what has (and has not) been learned about the problem and identify existing gaps. Recommend areas for further work.

Based on two villages' investigation, we see that the impact of climate change on local people's traditional livelihood is very obvious. The impact can be analyzed from positive and negative aspects.

From positive aspect, to some extent the climate change----global warming changes local tradition to plant some cash crops on cold area. For instance, according to tradition villagers could not plant those cash crops that adapt to warm circumstance on their farmland, such as grape, apple, hot pepper and so on. Affected by global warming, however, now they can plant these cash crops to increase their income. Global warming can shorten production period of cash trees and save time for villagers to watch them. In these two villages, some cash trees' germination and ripe period have been shortened for 15 days comparing to twenty years' situation. At the same time, because of global warming, it alleviates negative effect from cold weather. Villagers can also develop eco-tourism to increase their income. Comparing positive impact with negative impact caused by climate change, however, to local people negative impact on their traditional agro-pastoralist is much larger and more complicated than the positive one.

1. Species Change

Yunnan Province is rich of natural resources in animals and plants. Northwest of Yunnan Province has many species of animals and plants. Its altitude gap is very huge. There are many rivers cross mountains. Vertical gap of climate change is obvious. Currently this area is the most protected well zone of biodiversity at the same latitude in the world. It is named as "natural gene pool". Hongpo Watershed is also rich of species of agricultural crops and domestic animals.

According to investigation, there are 10 main species of crops, among which subspecies of highland barley are relatively rich. The highland barley is cold-resistant. Five subspecies of highland barley are found in Hongpo Watershed. In the two villages, through investigation we find that species of some crops are being affected and changed by global warming. Although we do not have data before 2005, by comparing data of 2005 with data of 2010 we still can see change of numbers of farmers who planted different crops in these two years. Firstly, according to time comparison we see that numbers of farmers who planted cold-resistant highland barley in 2010 were much less than those numbers of farmers in 2005. At the same time, however, numbers of farmers who planted other crops that are not cold-resistant in 2010 were increased instead. Secondly, according to altitude comparison we see that numbers of farmers who planted cold-resistant highland barley in Nongpo Village locating at low altitude were much less than numbers of farmers from Nongding Village locating at high altitude. In Nongpo Village, some villagers already stopped planting some subspecies of highland barley. However, numbers of farmers who planted other crops that are not cold-resistant in Nongpo Village were more than numbers of farmers from Nongding Village.

Table 1 Numbers Comparison of Crops Plantation

Crop Species	Numbers of farmers from Nongding village (n=25households)		Numbers of farmers from Nongpo Village (n=25 households)	
	2005	2010	2005	2010
black highland barley	22	17	17	13
green highland barley	23	18	14	7

red highland barley	22	15	17	11
white highland barley	18	16	8	0
yellow highland barley	15	11	6	0
Wheat	25	25	25	25
Corn	25	25	25	25
Potato	14	19	12	18
Buchwheat	13	9	8	2
Creeping wood	17	13	12	6
vegetable	5	18	10	25

(data is from investigation in 2005 and 2010)

In animal husbandry, there are 5 main species of livestock raised by local people, among which yak and cattle yak are cold-resistant. Through investigation in the two villages, we see that affected by global warming livestock species are also changing. By comparing data in 2005 with data in 2010 about numbers of livestock raised by every household it shows us change tendency of species. Firstly, through time comparison we see that numbers of yak and cattle yak raised by every household in 2010 were decreased comparing to numbers in 2005, but numbers of yellow cattle were increased instead. At the same time, numbers of pigs and chicken were not changed. Secondly, through altitude comparison we see that numbers of yak and cattle yak raised by every household from Nongpo Village locating at low altitude were decreased comparing to numbers from Nongding Village locating at high altitude, but numbers of yellow cattle, pigs and chicken were increased instead. Some villagers from Nongpo Village already stopped raising yak anymore.

Table 2 numbers comparison of livestock raised by every household

Livestock Species	Numbers of livestock raised by every household from Nongding Village		Numbers of livestock raised by every household from Nongpo Village	
	2005	2010	2005	2010
Yak	6.7	2.3	5.9	2.1
Cattle Yak	7.8	3.6	6.4	3.1
Yellow Cattle	2.7	4.3	3.1	5.7
Pig	8.9	8.5	10.2	11.5
Chicken	13.4	14.6	15.5	15.6

(data is from investigation in 2005 and 2010)

2. Environment Change

There are four findings reflecting the impact of climate change on agriculture and local people's livelihood environment. Firstly, because of climate change and global warming, it changes crops' growing period. At the same time, because there has less raining or even no raining during raining season, it also negatively affects crops growing. In Hongpo Watershed, because of global warming, villagers have to sow seeds in advance. Since crops' growing period is shortened and growing speed is accelerated, villagers could not follow their tradition to plant and harvest crops like before. According to update 10 years' statistics, we find that time for villagers to sow seeds and harvest has been obviously advanced. For instance, time to sow seeds and harvest corn and wheat has already been advanced for twenty days. Secondly, climate change brings damages on villagers' farmland infrastructure. Caused by climate change natural disasters frequently happen in the two villages. Flooding, drought, snow disaster and mud-rock flowing always damage villagers' farmland and their irrigation installation. Thirdly, climate change causes crop diseases. There are two crop diseases happening frequently in Hongpo Watershed, which are wheat rust (Tibetan language "*Sa Ni*") and awnless wheat disease (Tibetan language "*Ge Na*"). Because of global warming, the two crop diseases happen more and more frequently, its damage degree becomes more and more serious. Large area of farmland has been affected by these diseases. From 2008 to 2010, 7 villages of Hongpo Watershed had been totally affected by the two crop diseases, and villagers harvested nothing from their farmland. Fourthly, climate change also causes plant diseases and insect pests. Global warming creates suitable condition for insect pests. Since there has less raining and snow than before, it prevents some insect pests from dying in winter season. In recent years, there has one new pest affecting villagers' farmland seriously. Villagers call it as "*Si Me*". Comparing with traditional pest, "*Si Me*" damages crops, especially wheat much more serious than other pests. This pest hides underground until December (lunar calendar November), then it will eat wheat root that directly causes death of the wheat.

There are three findings reflecting the impact of climate change on animal husbandry and local people's livelihood environment. Firstly, villagers' herding period has been shortened. Migrating period of herding from spring-autumn interim grazing land to summer grazing land has been shortened for 10 days than before, in terms of advancing from the end of March to the middle of March. At the same time, migrating period from summer grazing land to winter grazing land has also been shortened, in terms of advancing from beginning of September to the latter of September. Secondly, growing period of forage grass has also been shortened, because of global warming. Villagers from the two village find that forage grass becomes much easier than 10 years' ago to wither in advance, and its productivity is much less than before. This situation is more seriously happened in winter grazing land. Less forage grass in turn affects animal husbandry. The livestock could not grow as fat as before, accordingly their figures become smaller. Milk products have also been decreased. Thirdly, livestock diseases frequently happen. Because of global warming, livestock diseases caused by parasite and schistosomiasis more popularly happen in recent years. Usually these two diseases happen in summer season, but now it can happens in winter season. Relating to a new kind of disease----foot and mouth disease (aphtae epizooticae), in history it was difficult for this disease to be spread among livestock. Considering global warming, however, it frequently happens in the two villages in recent years.

3. Impact on Indigenous Knowledge of agro-pastoralist

As their traditional livelihood, local people accumulate rich indigenous knowledge of agro-pastoralist. It reflects their recognition on natural environment and utilization of natural resources. Along with climate change, however, their knowledge is facing challenges and change.

There are two aspects reflecting changes of livelihood knowledge in agriculture caused by climate change. Firstly, law of solar term has been disturbed by global warming. This in turn affects period of lunar calendar that is important local knowledge explored and accumulated by villagers based on their recognition on solar term. Accordingly crop production and harvest is decreased. One villager----*Nu Rongsi* told us an old saying, "the height of wheat in January is like the height of one chicken". In recent years, however, the height of wheat in January is much higher than before that it can cover two chicken's height. It reflects that growing period of wheat is changing. Additionally, villagers find that farmland attacked by pest easily is usually the land that does not follow lunar calendar to plant crop, but plant in advance. Secondly, since villagers can not practice local knowledge as usually, crop productivity and quality has been greatly decreased during the last ten years. For instance, today's wheat and corn are not nutritious as before. Villagers think that it is because of raining. Rainwater is very important for crop growing. Different season's raining has different effects on crops. According to local knowledge, rainwater in June has rich nutriment that can accelerate crop growing, while rainwater in August can promote crop mature. Villagers call the rainwater in August as "mature rainwater". Villagers believe that during these two periods (June and August) crops heavily depend on natural rainwater and irrigation water drawn from river can not replace natural raining. Rainwater and irrigation water from river have different effects on crops. In recent years, however, because rainwater becomes less and sometimes there does not have any raining, villagers have to draw water from river to replace rainwater, which directly decreases crop productivity and quality.

Change of livelihood knowledge in animal husbandry is well shown by the change of herding period. Today Villagers can not follow their tradition to herd livestock based on herding calendar. There are three reasons for this change. Firstly, because of global warming, it takes shorter time for forage grass to become mature and whither in advance. As a result, villagers have to herd livestock in advance, in terms of moving livestock up or down to the grazing land earlier. Secondly, because of global warming, temperature from winter grazing land is up in advance. Villagers have to herd yak and cattle yak that like cold weather from winter grazing land to summer grazing land, in order to avoid livestock diseases. Thirdly, because there has close relationship between agriculture and animal husbandry, change of agricultural calendar will affect the change of herding calendar. For instance, usually after finishing harvest of corn, the corn land is used as part of autumn and winter grazing land for villagers to herd livestock. But now harvest of corn is ahead of time, so villagers have to herd livestock to leave summer grazing land for autumn or winter grazing land.

4. Cultural Effect

To Tibetan people, agro-pastoralist is not only livelihood for living, but also part of their tradition and culture. Because of climate change, it causes changes on species, environment and indigenous knowledge. Accordingly, culture of agro-pastoralist is also affected and challenged by these changes.

Firstly, symbol of ethnical identity of Tibetan people is strongly challenged. In Tibetan culture, highland barley and yak are not only crop and livestock planted and raised by people, but also very strong ethnical symbol of Tibetan people. To some elder villagers, they always say, "there

will be no Tibetan people, if you do not plant highland barley and raise yak." Accordingly, decrease of planting highland barley and raising yak is challenging Tibetan people's identity nowadays.

Secondly, Tibetan people's customs and tradition are changing. In agriculture, change on wheat period will not only affect villagers' arrangement on agriculture, but also on their customs. For instance, during the past villagers would organize match of shooting arrows during spring festival on wheat farmland, when it was just the beginning period for wheat to germinate. This match activity has already been canceled, however, because wheat germination period is shortened. When villagers plan to organize the match on the wheat farmland today, wheat has already grown from the beginning period of germination to the third or forth period of germination. Villagers will damage wheat seedlings directly.

Thirdly, food and drink culture is changing. Accordingly to their tradition, villagers will use highland barley to make "Zanba" (a staple food of Tibetan people), and yak milk to make butter, because they believe these two foods can make people strong and good to their health. In recent years, however, wheat and rice are gradually replacing Zanba and yak butter as local people's main foods.

Fourthly, Tibetan people's belief and religion is also affected. In many religious festival and ceremonies of Tibetan Buddhism, villagers will throw highland barley and Zanba and pray for peace. It is really difficult for us to imagine that Tibetan people will use rice or wheat to replace highland barley and Zanba in their religious ceremony. Unfortunately this phenomenon has already happened in few households among small group of villagers.

5. Training and Conference

Report of Training I

Time: 20--23 July. 2010

Duration: 3 Days

Trainer: 4 persons

Trainer Lists:

Prof. Yin Shaoting (Director, UNU China Ecological and Cultural Research Network)

Wu Nier, (PhD. UNU China Ecological and Cultural Research Network)

Wu Zhengnan, (PhD. UNU China Ecological and Cultural Research Network)

Yang Wenhui, (PhD. Yunnan University)

Trainees: 11 persons

Trainees lists:

1. Yin Xiaoyi (Director, Yunnan Meteorological Bureau)

2. Cheng Shuhua (Director, Propaganda Department of Diqing Profecture)

3. Fang Youcang (Diqing Meteorological Bureau)

4. Long Xinhua (Director, Baima Snow Mountain National Reserve Bureau)

5. Yang Fang (Baima Snow Mountain National Reserve Bureau)

6. Ciren Sangzhu (Director, Deqin Tibetan Medical Association)

7. Cili zhaba (Deqin Tibetan Medical Association)

8. Danzhen Leci (Hongpo Tibetan Women Association)

9. Yin Lun (Director, CTRSD Yunnan Academy of Social Science)

10. Li Wenjuan (CTRSD Yunnan Academy of Social Science)

11. Wang Jing (CTRSD Yunnan Academy of Social Science)

Principle Training Content:

"Forest, Indigenous Knowledge, Ethnic Minorities Peoples and Climate Change"

Lecture Presentations:

1. "Introduction of China Biodiversity Conservation Strategy and Action Plan" (By Yin Shaoting)

Global warming and its negative impact is hot problem faced by human being. In recent 50 years, global warming dramatically affects global eco-system, which also brings impact on biodiversity. Since 2006, China Biodiversity Conservation Strategy and Action Plan confirms 32 biodiversity conservation zones. Protection of these zones is very important guarantee for sustainable development of China. Impacted by climate change, however, these zones are also affected by global warming. Accordingly it is very important to make action plan for these zones to adapt to climate change. Currently climate adaptation based on eco-system is a very effective method accepted and used by many stakeholders who have signed “United Nations Framework Convention on Climate Change”. At the same time, it is also recommended by “United Nations Biodiversity Conservation Convention”, governments and NGOs as first choice to adapt to climate change.

2. "Climate Change and Rubber Plantation of Dai Ethnic People in Xishuangbanna" (By Wu Zhengnan)

Content: When the quarrel in Copenhagen give this chaotic world one more rumble, the dilemma bout tropic forest back in our sight as one of the most significant thing we could not ignore. Xishuangbanna prospered by rubber tree planting, face climate change as other places in this planet. Take a look at the change of Dai people’s society we could not blame the affect of economy development on ecology but only the development give us the chance to protect other species. How could we build a new view between us and the Nature.

3. "Climate, Resources and Belief——Traditional Knowledge of the Bai Ethnic People in Relation to the Change of Climate" (By Yang Wenhui)

Content: Knowledge of climate and astronomical phenomena has been an integral part of man’s idea of nature.A review of the ethnic people’s idea of climate as a part of the local knowledge system,and

a summary of people's practices in life and productive activities under climatic changes are extremely important in the studies of ethnic cultures and will be of great referential value to the protection from natural disasters because of severe climatic changes.The Bai ethnic people have well integrated their knowledge of climate with their resources and belief,which is a good case in coping with the relationship between resource and environment,sharply different from the prevalent practices today.

4. Traditional Substitution and Regeneration——A Comparative Study on Herdsmen's Adapation to Climate Change Policy in Hulun Buir (by Wu Nier)

Content: The lecture conducts a comparative study on two Gachas in Hulun Buir that have the same ecological and cultural environment. On one hand,the author tries to point out the drawbacks of implementing the same land administration system in different areas that have largely different ecological environments. On the other hand, with the same policy environment, two Gachas that have taken different countermeasures produce totally different ecological and social effects. Therefore, any new policy of resource utilization should be based on local ecological and social reality. And the active adaptation with traditional knowledge within the policy space is an experience deserving in-depth study.

Report of Training II

Time: 12--16 Dec. 2010

Duration: 4 Days

Trainer: 4 persons

Trainer Lists:

Prof. Xue Dayuan (College of Life and Environmental Science in Minzu University of China)

Dai Rong, (Master Degree, College of Life and Environmental Science, Minzu University of China)

Sun Faming, (Master Degree, College of Life and Environmental Science, Minzu University of China)

Lurong Zhuoma, (Master Degree, College of Life and Environmental Science, Minzu University of China)

Trainees: 13 persons

Trainees lists:

1. Yin Xiaoyi (Director, Yunnan Meteorological Bureau)

2. Cheng Shuhua (Director, Propaganda Department of Diqing Profecture)

3. Fang Youcang (Diqing Meteorological Bureau)

4. Li Jiansheng (Diqing Meteorological Bureau)

5. Long Xinhua (Director, Baima Snow Mountain National Reserve Bureau)

6. Yang Fang (Baima Snow Mountain National Reserve Bureau)

7. Ciren Sangzhu (Director, Deqin Tibetan Medical Association)

8. Cili zhaba (Deqin Tibetan Medical Association)

9. Liqing Pingzhu (Deqin Tibetan Medical Association)

10. Danzhen Leci (Hongpo Tibetan Women Association)

11. Yin Lun (Director, CTRSD Yunnan Academy of Social Science)

12. Li Wenjuan (CTRSD Yunnan Academy of Social Science)

13. Wang Jing (CTRSD Yunnan Academy of Social Science)

Principle Training Content:

"Indigenous Knowledge, Convention on Biological Diversity (CBD), access and benefit-sharing (ABS) and Climate Change"

Lecture Presentations:

1. "On concepts and protection of traditional knowledge"

Training Content:

Recently, traditional knowledge (TK) has attracted increasing attention both domestically and internationally, especially the TK associated with conservation and sustainable use of biological resources; this topic has been included in the Convention on Biological Diversity and other international forums. However, no internationally-recognized definition of traditional knowledge exists. Based on analysis of TK concepts in relevant international conventions and instruments, combined with our current research in ethnic areas of China, we propose the following categories for TK associated with biological resources: (1) use of agricul-tural species and genetic resources; (2) use of medicinal species; (3) technical innovations for use of biologi-cal resources and traditional farming and lifestyle practices; (4) traditional cultures and customary laws re-lated to conservation and sustainable use of biological resources; and (5) traditional local marker products. We present suggestions for how to investigate and document TK in order to foster the transfer, development, protection, and popularization of TK. These suggestions will also help to fairly share the benefits produced from the use of TK with indigenous people and local communities.

2. "Analysis for the main elements and potential impacts of Nagoya Protocol"

Training Content:

The adoption of Nagoya Protocol (the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diver-sity) in the 10th Conference of Parties (COP10) (Nagoya, Japan, October 2010), is a key step to fully realize the three objectives of the Convention on Biological Diversity (CBD), especially the third objective of fair and equitable sharing of benefits arising from the utilization of genetic resources. To negotiate the interna-tional regime for access and benefit-sharing (ABS)of genetic resources and associated traditional knowledge (TK) is a main mandate of CBD in the past 10 years, and for implementation of the mandate, the Ad Hoc Open-ended Working Group on ABS was established in

2000. This working group convened altogether nine meetings during 2001 to 2010, of which the ninth meeting extended three resumed meetings till the COP10 because the negotiation is very difficult. The main elements of Nagoya Protocol are objective; scope; access to genetic resources and associated TK (subject to prior informed consent, PIC); fair and equitable sharing of benefits arising from the utilization of genetic resources and associated TK based on mutually agreed terms (MAT); measures to ensure compliance including disclosure of source and origin of genetic resources, certi-fication of genetic resources with compliance, and check points for monitoring utilization of genetic re-sources; capacity buildings; etc. The core issue during the negotiation is whether derivative can be included in definition of genetic resources and another is how to monitor utilization of genetic resources. Duo to the strong argument, in the Protocol, the requirement of disclosure was not adopted, the check points were also not strongly required for monitoring, and in addition, the version is not very clear for the benefit-sharing of the genetic resources collected in the western gene banks accessed in the past time. As China is one of the mega-biodiversity countries and an important provider of genetic resources in the world, the adoption and implementation of Nagoya Protocol will be significant for China to enhance biodiversity conservation and to promote benefit-sharing with users. In particular China need to enhance legislation on ABS in national level.

3. Introduce "The climate change to the China Biodiversity Conservation Strategy and adaption plan"

Training Content:

VISION: Through ecological methods, design and implement the most effective climate change mitigation and adaptation projects to promote the policy maker, thus to protect the diversity ecosystems and species the human being relies.
MISSION: Work with partners to reduce threats that Climate change posed to biodiversity and build resilience of human society and nature systems in China by engaging policy support and on the ground demonstration projects.

A. Climate change mitigation
Goal 1.Through different LULUCF activities to sequestrate the CO2 and reduce the CO2 concentration in the atmosphere. Using carbon finance to promote the ecological restoration, expand the Nature Reserve and create the sustainable development opportunities for local communities.
B. Climate change adpatation
Goal 2. Support Chinese Government to develop the National Biodiversity Climate change Adaptation Strategy and Action Plan in the Priority Conservation Areas and attract the international and domestic funds to implement the plan.
C. Climate change policy
Goal 3. Facilitate Chinese Government to develop the LULUCF based Carbon Accounting System Throught the demonstration on Forest Carbon Accounting system in Sichuan so to fulfill the commitment to UNFCCC by China.

Object 1.Through different LULUCF activities to sequestrate the CO2 and reduce the CO2 concentration in the atmosphere. Using carbon finance to promote the ecological restoration, expand the Nature Reserve and create the sustainable development opportunities for local communities.

Objective 2: Support Chinese Government to develop the National Biodiversity Climate change Adaptation Strategy and Action Plan in the Priority Conservation Areas and attract the international and domestic funds to implement the plan.

Objective3: Facilitate Chinese Government to develop the LULUCF based Carbon Accounting System Throught the demonstration on Forest Carbon Accounting system in Sichuan so to fulfill the commitment to UNFCCC by China

China Environment and Culture Coference

(26-30 Nov. 2010 Kunming, Yunnan)

1、Background

Southwest China – consisting of three provinces, Yunnan, Guizhou and Sichuan, and part of two autonomous regions, Guangxi and the South-eastern part of Tibet - is a mountainous region. Uplands cover most of its land area. It is one of the most diverse regions in China in terms of both biological and cultural diversity. Throughout Southwest China, a very rich diversity of eco-regions can be found, owing to the major watershed systems (Yangzi, Mekong, Salween, Red River, Pearl River) and mountain ranges (East Himalaya, Hengduan, Ailao). This complex biophysical environment in mountain watersheds is interlinked with a unique cultural diversity. Yunnan has 25 ethnic minorities, accounting for one third of the total population of 40 million people, and 50 different languages, in which indigenous knowledge is encoded. Fourteen ethnic groups with a combined population of eight million people live in Yunnan's upland areas. Three million ethnic minority people live in the border areas of Vietnam, Laos and Myanmar. In all of SW-China 37 million people belonging to more than 40 different ethnic minorities live in mostly rural areas of high biodiversity. The plant and animal kingdoms are well represented in this bio-cultural region. Yunnan has 14,000 flowering plant species - half of China's total - including 5000 species, half of the medicinal plants of the Chinese traditional pharmacy, 767 bird species (66% of China's total), and 248 mammal species (56% of China's total). Vegetation types range from tropical rainforest to broad-leaf forests, to alpine bushes and meadows. Frigid temperatures in the high mountains and tropical and subtropical weather systems in the basins and valleys result in a diversity of micro climates and varied ecological environments which are the cradles of the unique multi-ethnic cultural diversity and potential for diversity of livelihood options for those indigenous people in mountain watersheds.

2、Goal

Recently, because of the political, economical and climate changing, influence the livelihood, culture and health of local ethnic minorities people. The aim of this conference is to understand the interrelationship between human society and nature, also the changing process of this interrelationship, focus on the relationship between livelihood and technique, climate change and indigenous knowledge, health and environment, analyse the interaction among those factors, finally understand the dynamic relationship between human and nature in SW China.

The conference include four sections: Disaster and illness, livelihood and adaption, Climate Change and Indigenous Knowledge, Ecological in Mekong watershed.

3、Duration: 26-30 Nov. 2010

4、Place： Museum of Anthropology, Yunnan University

5、List of Participants：

Prof. Yin Shaoting (Director, UNU China Ecological and Cultural Research Network, Yunnan University)

Prof. Xue Dayuan (Chief Scientist for Minister of Environment Protection, College of Life and Environmental Science in Minzu University of China)

Mr. Yin Xiaoyi (Director, Yunnan Meteorological Bureau)

Mr. Yang Ye (Director, Yunnan Development Research Center of the Provincial Government)

Mr. Yang Jiannong (Vice Director, Yunnan Development Research Center of the Provincial Government)

Mr. Cheng Shuhua (Director, Propaganda Department of Diqing Profecture)

Mr. Ai Huaisheng (Director, Gaoligong Mountain National Reserve Bureau)

Mr. Long Xinhua (Director, Baima Snow Mountain National Reserve Bureau)

Prof. Wang Lihua (Institute of Ecological Environment, Nanjing University)

Prof. Cui Yanhu (Institute of Social Cultural Anthropology, Xinjiang University)

Prof. Alatan Baolige (Department of Anthropology, Inter-Mongol University)

Prof. Min Qingwen (Institute of Geology, China Academy of Science)

Prof. He Lu (Institute of Geology, China Academy of Science)

Prof. Yang Fuquan (Vice Director, Yunnan Academy of Social Science)

Prof. Bian Minshe (Vice Director, Yunnan Academy of Social Science)

Prof. Ma Jianhua (Institute of Art, Fujian University)

Prof. Wang Guoqiang (Yunnan Academy of Social Science)

Prof. Yang Tingshuo (Jishou University)

Mr. Zhu Yingzhan (Yunnan University)

M. Yang Fang (Baima Snow Mountain National Reserve Bureau)

Mr. Ciren Sangzhu (Director, Deqin Tibetan Medical Association)

Mr. Fang Youcang (Diqing Meteorological Bureau)

Mr. Li Jiansheng (Diqing Meteorological Bureau)

Dr. Yin Lun (Director, CTRSD Yunnan Academy of Social Science)

Dr. Li Wenjuan (CTRSD Yunnan Academy of Social Science)

Dr. Wang Jing (CTRSD Yunnan Academy of Social Science)

Dr. Wu Zhengnan, (UNU China Ecological and Cultural Research Network)

Dr. Yang Wenhui, (Yunnan University)

Dr. Wu Nier, (PhD. UNU China Ecological and Cultural Research Network)

M. Dai Rong, (College of Life and Environmental Science, Minzu University of China)

Mr. Sun Faming, (College of Life and Environmental Science, Minzu University of China)

M. Lurong Zhuoma, (College of Life and Environmental Science, Minzu University of China)

4.0 Conclusions

Restate the study aims or key questions and summarize your findings

To most of Tibetan people living in mountainous area of the Eastern-Tibetan Himalayas, agro-pastoralist is not only a simple way of livelihood, or a method to use natural resources, but also a comprehensive reflection of indigenous knowledge and culture. agro-pastoralist maintain local people's existence and biodiversity of crops and domestic animals for inheritance. The most important value of it is to disseminate Tibetan culture. Because of strengthened climate change, species, environment and indigenous knowledge of agro-pastoralist are affected and changing. Accordingly, how to alleviate and adapt to climate change becomes very important. Through the case of Hongpo Watershed, we have the following conclusion: firstly, although climate change is a global phenomenon, it still can be alleviated at local level such as watershed level through local people's efforts and adaptation based on their indigenous knowledge; secondly, innovation and change of some indigenous knowledge can help local people adapt to climate change to some extent. Supported by villagers, local experts, local government and living Buddha from local temple, Center for Tibetan Regional Sustainable Development (CTRSD) of Yunnan Academy of Social Sciences carried out research on Hongpo Watershed and found values of indigenous knowledge and culture of Tibetan people in adapting climate change. It also provides very important information for government to make policies for climate change in the future.

5.0 Future Directions

After completion of the project, we strongly believe that it is very necessary to carry out research and activity analysis on relationship between climate change and indigenous knowledge. It not only provides new space to understand impact from climate change on our society and natural environment, but also helps us analyze treats, challenges and chances caused by climate change on ethnic areas. It will help local ethnic people adapt to climate change. Accordingly, our project team will carry out relevant activities in the future based on "Convention on Biological Diversity"and "China Biodiversity Conservation Strategy and Action Plan", in order to strengthen people's understanding on the relationship between climate change and indigenous knowledge. Through these activities, we will explore theory, logical structure and methodology to adapt to climate change based on indigenous knowledge, improve stakeholders' understanding on indigenous knowledge, and find innovation and practice on adaptation to climate change. Based on above background, the project team will review and summarize current research and results on climate change and its relationship with indigenous knowledge. At the same time, we will choose three

project sites to carry out filed work. And they respectively locate at middle area of grassland in Inner Mongolia Autonomous Region, northwest area of Sichuan Province, and Honghe Ha Ni Autonomous Prefecture of Yunnan Province. At the same time, based on above three case studies, the project team will organize workshop for national and international academic scholars and other stakeholders to communicate and share opinions on climate change and indigenous knowledge. General goal of the project: based on "Convention on Biological Diversity"and "China Biodiversity Conservation Strategy and Action Plan", to understand relations among climate change, biodiversity and indigenous knowledge, carry out research on innovation and practice on adaption to climate change based on indigenous knowledge, and explore theory and methodology about adaptation to climate change based on indigenous knowledge.

Future project aims are as follows:

1. through literature review and assessment, to understand current research situation by national and international scholars on climate change and indigenous knowledge;
2. to analyze impacts caused by climate change on biodiversity in ethnic areas, and how local people adapt to climate change based on indigenous knowledge;
3. through academic communication, to strengthen people's research and focus on climate change and indigenous knowledge.

References

Follow a standard format when citing your references

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Appendix

Conferences/Symposia/Workshops

Agenda/Programme (including title, date and venue)

Participants list (comprising contact details of each participant, including organisation, address, phone number, fax number, and email address)

1. International Workshop Land Management in Marginal Mountain Areas: Vulnerability and Adaptation to Global Changes, North-Eastern Hill University, Shillong, India, 9-11 November 2009. Krishna Gopal Saxena, Professor & Dean, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi 110067, Phone: +91-11- 26704305 (O), Fax: +91-11- 26172438, 26169962 (O), Email:kgsaxena@mail.jnu.ac.in; kgsaxena@gmail.com
2. Regional Capacity-Building Workshop on Assessment of Vulnerability of World Cultural and Natural Heritage Properties to Disasters and Climate Change, Beijing, China. December 6 – 12, 2009. The World Heritage Institute of Training and Research for the Asia and the Pacific Region (WHITRAP), Tel.: +86-10-6275 7947/9 Fax: +86-10-6275 7433 E-mail: zhanghuishu@pku.edu.cn Add.: 2nd Floor, Hengli Bld., Tan Siu Lin Centre for International Studies, Peking Univ., Haidian District, Beijing, P.R. China, 100871
3. Asia Pacific Regional Policy Dialogue on Indigenous Peoples' Rights and Development , Hotel Shangri La, Chiang Mai, Thailand, 14 - 18 September, 2010. United Nations Service Building, 3rd Floor, Rajdamnern Nok Avenue, Bangkok 10200 G.P.O. Box 618, Bangkok 10501 Thailand Tel: +66 (0) 2288 1234, (0) 2288 2129 Fax: +66 (0) 2288 3032 http://bangkokregionalcentre.undp.or.th
4. China Culture Enviroment Conference,Yunnan University, Kunming, China. 26-30 Nov. 2010. China Ecological and Cultural Research Network, Yunnan University, 2# North Cuihu Road, 650031, Kunming, China Tel: +86(0)8713646329 Fax: +86(0)8713646329 Email: yst126@hotmail.com

Funding sources outside the APN

A list of agencies, institutions, organisations (governmental, inter-governmental and/or non-governmental), that provided any in-kind support and co-funding for the project and the amount(s) awarded. If possible, please provide an estimate amount.

List of Young Scientists

Include brief detail (full name, involvement in the project activity) and contact detail (name of institution/country and email address) of your scientists involved in the project. Also include short message from the young scientists about his/her involvement in the project and how it helps develop/build his capacity and the knowledge he gained.

1. Wang Jing, Centre for Tibetan Regional Sustainable Development, Yunnan Academy of Social Science, China, wangjing1977@live.cn Assist the project leader to organize the training, coordinate the field work of local indigenous experts, assist the work of Tibetan women organization.
2. Li Wenjuan, Centre for Tibetan Regional Sustainable Development, Yunnan Academy of Social Science, China, lwj99@eyou.com Assist the project leader to organize the training, coordinate the field work of local indigenous experts, assist the work of Tibetan women organization.
3. Dai Rong, College of Life and Environmental Science, Minzu University of China, China, dai_rong2008@163.com data collection, assist the work of Tibetan women organization.
4. Sun Faming, College of Life and Environmental Science, Minzu University of China, China, famingsun@163.com data collection, coordinate the field work of local indigenous experts.

5. Lurong Zhuoma, College of Life and Environmental Science, Minzu University of China, China, zhuoma@sohu.com data collection, assist the work of Tibetan women organization.

1. The involvement of young scientists in the project.

Li Wenjuan and Wang Jing come from Yunnan Academy of Social Science, which background is social anthropology, so they have identified the indigenous experts and the leader of women in the village, and collaborate with them, investigate the indigenous knowledge of climate change. After that, they help the villagers to set up the climate field school and women group in Honpo watershed, and help them to organize the training and fieldwork.

Dai Rong and Sun Faming come from Minzu University of China, which background is ethno-botany, so they have done the fieldwork with the indigenous experts to identify the traditional Tibetan medicine herbs, and help the indigenous experts to document the knowledge.

Lurong Zhuoma come from Minzu University of China, which background is ethno-botany, at the same time, she is local Tibetan people, so her work is help the local Tibetan women to set up the women group and doing the field work with the indigenous experts.

2. The capacity and the knowledge which the young scientists gained.

Firstly, the young scientists have understood the value of indigenous knowledge for climate change, help the indigenous experts to set up the Climate Field School, and collaborate with the indigenous experts to do the fieldwork on the mountain.

Secondly, the young scientists have learn the indigenous knowledge, to compare and cooperate with the scientific knowledge which have learned from university, exchange the knowledge with the indigenous experts. It is a good method for their future research.

Thirdly, the young scientists have understood the relationship between gender mainstream and climate change, help the Tibetan women to set up the women group to document their knowledge and needs.

Forth, the young scientists have helped the Climate field school to organize the training, they have increased their ability and experience to work with the villagers on the field.

Glossary of Terms

Include list of acronyms and abbreviations

1. Agro-pastoralist;
2. Climate Change;
3. Tibetan;
4. Indigenous Knowledge;
5. Hongpo Watershed;
6. Yunnan
7. Centre for Tibetan Regional Sustainable Development (CTRSD)
8. Yunnan Academy of Social Science (YASS)
9. Minzu University of China (MUC)
10. Climate Field School (CFS)

In the Appendix section, the report may also include:

Actual data
Abstracts, Power Point Slides of conference/symposia/workshop presentations
Conference/symposium/workshop reports

The final project report must follow the template outlined in this document. Use Calibri font size 12 for all the headings and font size 11 for the text.

The report is to be submitted **one month before the date the APN Secretariat Director signed the Contract** in the following formats:

1. By airmail to the address below:
   a. **Soft Copy – 5 CD-ROMS**, appropriately labeled and covered using the design and information on the cover page of the Report Template
   b. **Hard Copy – 2 bound copies** appropriately labeled and covered using the design and information on the cover page of the Report Template

   Dr. Linda Stevenson
   APN Scientific Officer
   APN Secretariat
   Hitomiraikan, 4F
   1-5-2 Wakinohama Kaigan Dori
   Chuo-Ku, Kobe 651-0073 JAPAN

2. By e-mail and addressed to Dr. Stevenson (lastevenson@apn-gcr.org) and Kristine Garcia (kgarcia@apn-gcr.org).
   Kindly note that our server can also receive attachments of up to 8MB file size. In case that the final project report file size exceeds 8MB please try any of the following options:

   a. For a file size of more than 8MB but less than 10MB please send the report to our Gmail account at apngcr@gmail.com and notify us in our APN account so we could check for it immediately.
   b. For a larger file size please try the following:
      - Upload on your institution's ftp server and provide to us the download details (i.e. IP address, login details, etc)
      - Send through any of the free file hosting available in the internet. Please note that these free file hosting save your files for a limited number of days so it is very important to notify us immediately. Some of these are the following:
        - http://www.filefactory.com/
        - http://www.mediafire.com/
        - http://www.yousendit.com/

A separate CD containing other project outputs (i.e. publications, photos, etc)