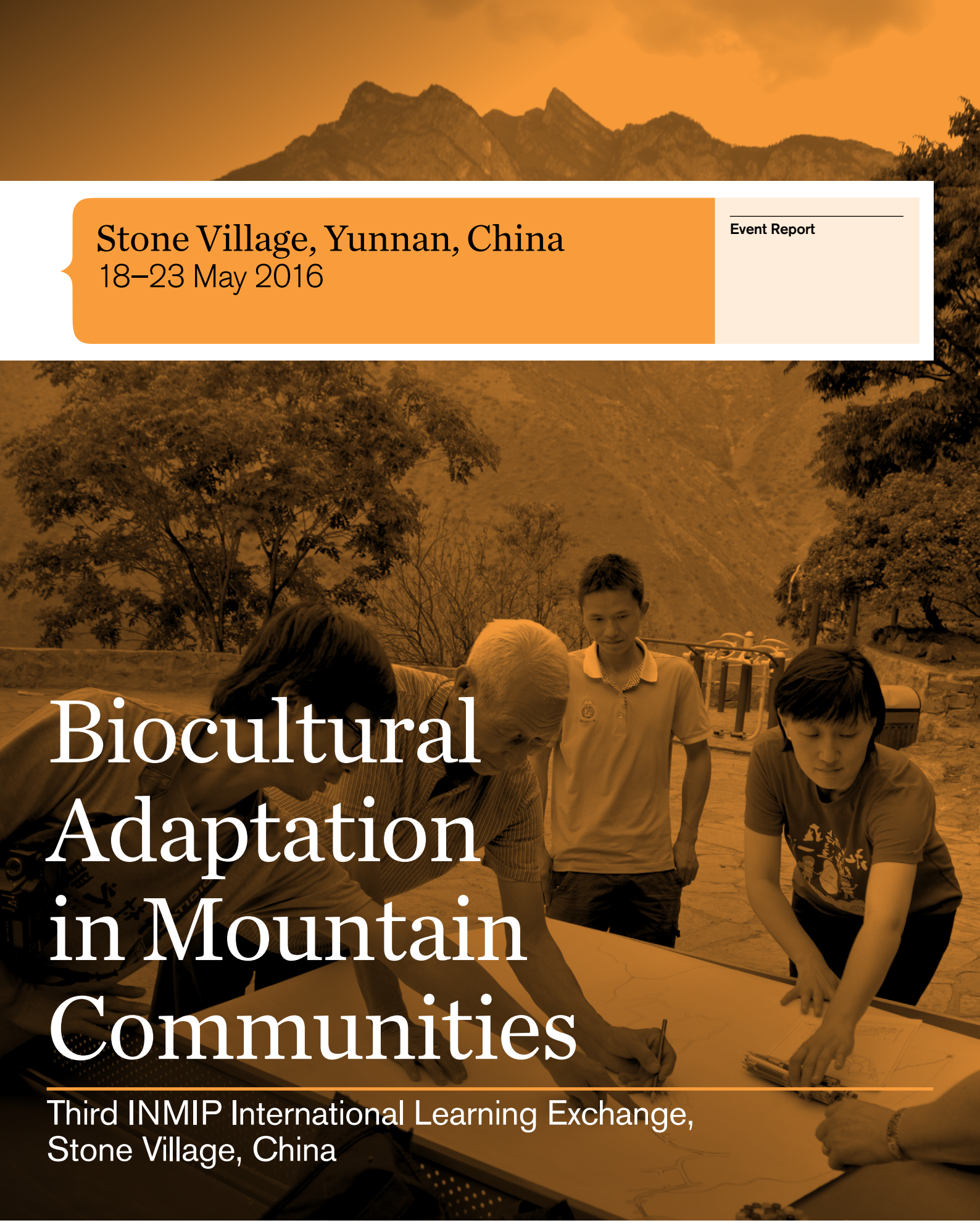
Stone Village, Yunnan, China
18–23 May 2016

Event Report



Biocultural Adaptation in Mountain Communities

Third INMIP International Learning Exchange, Stone Village, China

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Author information

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About the event

Third International Learning Exchange of the International Network of Mountain Indigenous Peoples (INMIP), Stone Village, China, 18–23 May 2016

Organised by Asociación ANDES (Peru), Center for Chinese Agricultural Policy (CCAP), IIED and UNDP-GEF Small Grants Programme

The Center for Chinese Agricultural Policy (CCAP) is a leading policy research and advocacy centre in China. Our goal is to analyse policies related to agricultural research and development, natural resource and environmental issues and integrated rural-urban development, as well as policy decision support systems in China, and to help formulate practical and feasible policies for sustainable development in rural China.

Asociación ANDES is a small international indigenous-led organisation that works to support indigenous peoples' struggles for biocultural rights and self-determination, land rights and territorial development, and community-controlled and biodiversity-based food systems. ANDES' support takes the form of independent research and analysis; engendering collective action; networking at local, regional and international levels; and fostering new forms of knowledge creation, partnerships and alliance-building.

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Acronyms

BCHT	Biocultural Heritage Territory
CCAP	Center for Chinese Agricultural Policy
CSB	Community Seed Bank
EbA	Ecosystem Based Adaptation
INMIP	International Network of Mountain Indigenous Peoples
IPCC	Intergovernmental Panel on Climate Change
PPB	Participatory Plant Breeding
NR	Natural Resources
RRA	Rapid Rural Appraisal
TK	Traditional Knowledge
UN	United Nations

Executive Summary

Mountain communities are amongst the poorest and most vulnerable to climate change. The IPCC predicts that climate change will affect mountain water storage and delivery infrastructure around the world, with highly significant consequences for downstream economies. Many mountain communities are already suffering from heightened physical instability caused by melting glaciers, water shortages, rising temperatures and increased pests and diseases, which could further enhance already high levels of food insecurity in mountain areas. At the same time, mountains are home to a huge diversity of food crops which are still evolving and co-evolving under traditional farming systems, which provide options for climate adaptation locally and more widely.

The Paris agreement acknowledges that adaptation action should follow “a participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems, and should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems" (article 7).

In May 2016, more than 50 indigenous peoples and traditional farmers representing 18 mountain communities from China, Nepal, Kyrgyz Republic, Tajikistan and Peru gathered in the Stone Village mountain valley in Yunnan province, southwest China. The Third International Learning Exchange of the International Network Mountain Indigenous Peoples (INMIP) was held from May 18 to May 23, 2016. The aim of the workshop was to assess the effectiveness of biocultural heritage-based approaches for climate adaptation, share experiences, key methods and tools for adaptation, and strengthen the adaptive capacity of indigenous mountain communities.

The Stone Village is the ancient Naxi capital and a centre of crop diversity. The exchange involved 3 events:

1) A bilateral walking workshop involving the Potato Park (Peru) and Stone Village communities to conduct a Biocultural Heritage Landscape Appraisal as the basis for establishing a Biocultural Heritage Territory like the Potato Park in the Stone Village.
2) A wider walking workshop involving all 18 communities from 5 countries, focusing on traditional water management systems, participatory plant breeding (PPB), out-migration and biocultural products/services.
3) A ‘policy dialogue’ with participants from the workshop on ‘Landscape Approaches for Community Sustainable Development in a time of Climate Change’, where the communities shared five Key Messages (Annex 1).

Many of the communities reported water shortages and shrinking glaciers in recent years. The Stone Village ancient water management system provides water for drinking, irrigation and fire control to 14 villages in the watershed. Customary laws ensure fair water allocation to all households, by day or night, depending on their location in the valley. This system has prevented water scarcity and conflict despite recurring drought in Yunnan for 9 years out of the last 10, whereas neighbouring villages without such a system have been more affected by drought. The system is overseen by a water management committee and integrates related rituals. The other mountain communities presented similar traditional water management systems, providing further evidence of their importance for coping with water shortages and preventing conflicts.

The communities stressed the importance of crop diversity to maximise productivity in heterogeneous mountain environments and reduce the risk of crop failure in the face of climate change. They visited the Stone Village Community Seed Bank which has 108 varieties in total – community seed banks provide options for adaptation and enable recovery from extreme events. They learnt about Participatory Plant Breeding as a tool for climate adaptation by mountain communities – farmers and scientists work together to develop more resilient and productive varieties tailored to local conditions. The communities involved in PPB (in China and Peru) reported that PPB varieties perform much better

in mountain environments than uniform hybrid seeds. PPB also conserves resilient landraces for adaptation. In Guangxi, soy landraces are being quickly replaced by hybrid maize – there needs to be more recognition of the ecological and social value of crops, rather than just considering the economic value.

The communities also discussed shared problems of youth out-migration to urban areas preventing inter-generational transmission of TK, and the need to enhance TK-based economic opportunities in rural communities to reverse this trend, e.g. through biocultural products and services. Other strategies include engaging youth in festivals and natural resource management projects that raise awareness about the value of traditional knowledge, strengthening community networks and integrating local knowledge in formal education systems. Women play an important role in TK transmission and are traditionally the seed guardians (e.g. in China and Peru).

The workshop culminated in the Stone Village Declaration, developed on the basis of the 5 key messages (Annex 2). The Declaration calls on governments, researchers and the international community to recognise the value of traditional knowledge and biocultural heritage, provide support for strengthening traditional resource management systems, especially water, and recognise gender differentiated roles and climate change impacts. It calls for support for preventing the rapid loss of traditional knowledge and enhancing inter-generational transmission; and for recognition of the role of traditional knowledge in providing low-cost, low-carbon alternatives to energy-intensive modern technologies. Finally, it calls on governments and the international community to recognise the International Network of Mountain Indigenous Peoples at the global level as an important mechanism for knowledge exchange and innovation for enhancing biocultural heritage and the adaptive capacity of mountain indigenous peoples.

INMIP participants, Stone Village, Yunnan. Qing Yang

Introduction

Impacts of climate change on mountain communities

Mountain communities are amongst the most vulnerable to the impacts of climate change. Many mountain communities are already experiencing adverse impacts including physical instability caused by melting glaciers (e.g. landslides, mudflows), increased temperatures, more intense pests and diseases, and reduced rainfall and water levels.[1] This is affecting food security in mountain areas in developing countries, where 1 in 3 people are still facing hunger and malnutrition.[2]

Climate change is further exacerbating other challenges facing indigenous mountain peoples, such as insecure and changing land ownership, environmental degradation, out-migration, extractive industries, genetic erosion and inappropriate market and policy regimes that fail to recognise the vital importance of biodiversity, traditional knowledge and natural resource conservation for resilient livelihoods in mountain regions. Mountain regions sometimes attract major economic investment, such as tourism, hydropower and road infrastructure, but such development is often poorly planned, degrading fragile mountain environments and increasing vulnerability to climate change, without benefiting local livelihoods.[3]

There is evidence that vulnerability to climate change impacts increases with altitude and that temperatures are increasing more rapidly at higher altitudes.[4] It is likely that climate change will reduce the length of time that snow packs remain, altering the amount of runoff from snow, and increasing evaporation. These changes would affect water storage and delivery infrastructure around the world. Changes in extreme events (floods and droughts) could affect the frequency of natural hazards such as avalanches and mudslides. Downstream consequences of altered mountain hydrology are likely to be highly significant to economies dependent on this water. Climate change scenarios for mountain ecological systems have also forecasted a reduction in species of flora and fauna.[2]

Mountain regions are home to some of the world's poorest people. The IPCC's Fifth Assessment Report states that 'even modest changes in climate can push transient poor and marginalised people into chronic poverty – such shifts have already been observed among climate-sensitive livelihoods in high mountain environments.[5] Changes in climate can also exacerbate the potential for resource conflict. The disruption of mountain resources, water scarcity and general resource depletion has been linked to civil disturbances and increased migration in resource-dependent regions.[2]

The role of traditional knowledge and biocultural heritage in adaptation

Mountain communities sustain traditional knowledge systems, genetic diversity and ecosystem services that are important for adaptation. The IPCC's 5th report recognises that "indigenous, local and traditional knowledge systems and practices, including indigenous peoples' cosmology, are a key resource for effective adaptation". The UNFCCC COP21 Paris Agreement recognises the role of traditional knowledge in developing effective adaptation responses: 'Parties acknowledge that adaptation action should follow a country-driven, gender-responsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems, and should be based on and

1 IPCC (2014) Climate Change 2014. Synthesis Report. Summary for Decision Makers. https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf
2 Romeo, R., Vita, A., Testolin, R. & Hofer, T.(2015). Mapping the vulnerability of mountain peoples to food insecurity. FAO. http://www.fao.org/3/a-i5175e.pdf
3 Swiderska, K. and Argumedo, A. (2014). Mountain communities workshop on climate change and biocultural heritage. An international exchange on indigenous knowledge, values and strategies for adaptation. http://pubs.iied.org/pdfs/14635IIED.pdf
4 Raymond, S. *et al*. (2006). Threats to water supplies in the tropical Andes. Science 312(5781):1755–1756.
5 IPCC (2014) Fifth Assessment Report, Working Group II "Impacts, Adaptation and Vulnerability: Part A Global and Sectoral Aspects", Intergovernmental Panel on Climate Change. http://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-PartA_FINAL.pdf

guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems' (article 7).[6]

Indigenous livelihood strategies are place-based systems that seek to minimise or spread risk. They are guided by a holistic worldview that seeks to maintain balance between human livelihoods and their ecological surroundings. Genetic diversity is important for food security and adaptation in heterogeneous mountain environments, and provides future options for adaptation. Mountain communities sustain processes of evolution and co-evolution for a diversity of crops, providing a source of resilient crops for adaptation locally and more widely.

Despite the resilience demonstrated by traditional resource management systems, indigenous peoples tend to be removed from research, policymaking and planning processes for climate change adaptation. The absence of local participation and bottom-up planning processes presents the risk that climate change adaptation policies will be misaligned with local needs, environments and micro-politics and result in inappropriate decision-making and 'mal-adaptation'.

The characteristics of mountain agro-ecosystems require place-based adaptation approaches that integrate mountain-specific strategies, research and knowledge, use participatory techniques and link traditional knowledge and science. INMIP seeks to address these challenges through knowledge exchange and walking workshops that provide place-based evidence to inform decision making, while strengthening the adaptive capacity of mountain communities and spreading effective tools. International network building is an important tool to enable mountain communities to sustain traditional knowledge systems that support genetic diversity and ecological resilience.

INMIP workshop, Stone Village. Qing Yang

6 UNFCCC (2015). Adoption of the Paris Agreement. Conference of the Parties, Twenty-first session, Paris, 30 November to 11 December 2015. https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf

INMIP Horizontal Learning Exchanges: From Bhutan to Tajikistan to China

INMIP Learning Exchanges began in May 2014 in Bhutan where representatives from 25 indigenous mountain communities from 10 countries met to discuss the impacts of climate change and to exchange knowledge for adaptation.[7] The Bhutan workshop gathered more than 70 farmers who established the International Network of Mountain Indigenous Peoples. With dedication to protecting biocultural heritage for climate resilience, participating farmers developed the Bhutan Declaration on Climate Change and Mountain Indigenous Peoples, a document that provides the vision for the network.[8]

The second farmer-to-farmer learning exchange was held the following year in September 2015 in Tajikistan, a highly mountainous country and centre of origin and diversity of several food crops. It brought together over 50 participants, representing 21 mountain communities from the 10 countries. Participants of the seven-day workshop documented climate change impacts since the Bhutan workshop, using the same assessment framework, exchanged techniques and tools for enhancing resilience, and agreed to establish international networks of Biocultural Heritage Territories and Community Seed Banks as collective responses for adaptation.[7] The Tajikistan exchange consolidated INMIP as an institution for climate change innovation adaptation.

Stone Village. Yang Qing

The third INMIP Learning Exchange took place in the Stone Village, Yunnan, China. China is a center of origin for Japanese millet, rice, buckwheat and soybean. The Stone Village is rich in crop diversity, including maize, buckwheat, soybean and wild relatives, and the ancient capital of the Naxi people. Settled in the Jinsha River Valley, 126 km northwest of Lijiang City at an altitude of 1720 meters, the Stone Village has over 1300 years of ancestral mountain farming history. It was originally built during the Mid-Tang dynasty on a giant mushroom-shaped stone, where three sides of the giant stone are cliffs. The remaining side faces the Jinsha River, the Chinese name for the upper stretches of the Yangtze River. The minority Naxi people manage the landscape using traditional systems of crop diversification and indigenous water management that are adapted to their environmental conditions. The community has expanded in population and now incorporates higher-altitude terrains to satisfy the growing demographic. Today, upwards of 220 Naxi families live in Stone Village.[9]

7 IIED (2015). Climate Change and Biocultural Adaptation in Mountain Communities: Second International Learning Exchange of INMIP. Tajikistan, 11-18 September 2015. http://pubs.iied.org/pdfs/14657IIED.pdf
8 IIED (2014). Mountain Communities Workshop on Climate Change and Biocultural Heritage. An international exchange on indigenous knowledge, values and strategies for adaptation, Bhutan, 26 May– June 2014. http://pubs.iied.org/pdfs/14635IIED.pdf
9 Qing, Yang. “Splendid History of Baoshan Stone Village.” Farmers Seed Network.

Methodology for the *Walking Workshop* in Stone Village

The Third International Learning Exchange used a methodology of participatory, experiential knowledge sharing through two *Walking Workshop*s and related discussion sessions in order to assess and strengthen biocultural heritage-based responses for climate adaptation. The workshops were organised to collect spatial information on geographic and land use features, vegetation strips, and social and cultural aspects. Two consecutive *Walking Workshops* were held in the Stone Village as methodological tools to analyse land use patterns and to map out biocultural heritage in the landscape. Through the *Walking Workshop* methodology, farmers discussed critical tools for adaptation including community landscape management, traditional knowledge and practices for water management, community seed banks, participatory plant breeding, and the development of biocultural products and services to stem out-migration.

The Walking Workshop Methodology

The 'Walking Workshop' is an indigenous methodology which enables community to community capacity building and learning from the landscape. The Potato Park Communities interpret the *Walking Workshop* through the Spanish-Quechua concept of *Taller Puriq.* For decades, Potato Park communities have practised *Taller Puriq* as a methodological tool of knowledge and learning exchange using the natural landscape as the primary means of knowledge transmission.

Walking Workshops are guided by at least one local expert who elects a strategic path to traverse noteworthy landscape features. Discussions typically take place around significant landmarks – fields, ceremonial sites, water sources – in contrast to formal workshop settings that are managed within an indoor, physically confined area and whose messages are conveyed through PowerPoint technologies. Throughout the workshop, participants actively observe, report and assess landscape features, which provides a spontaneous forum for sharing practical management and adaptation practices. Horizontal learning exchanges strengthen the capacity of local communities to experiment and innovate for adaptation.

Walking Workshop Discussion at water source, Stone Village. Yang Qing

The first *Walking Workshop* was a bilateral exchange between Stone Village elders and Potato Park technicians to help establish a Biocultural Heritage Territory like the Potato Park in the Stone Village, through biocultural landscape assessments and participatory mapping. The second *Walking Workshop* involved 18 communities in total, from Peru, China, Tajikistan, Kyrgyzstan and Nepal, including 10 from the Farmer Seed Network in China, and Equator Initiative prize-winners from China and Nepal. It brought together several Naxi communities – some from close to the Stone Village and others from more distant areas, including the Lijiang area. INMIP participants exchanged natural resource management practices especially relating to water, while en route to the Stone Village water source, and learnt about plant participatory breeding (PPB) and the community seed bank in the Stone Village. Discussions on climate change impacts and natural resource management enabled participants to draw parallels and to compare climate-related trends.

During the second walking workshop, a policy dialogue was held with national and international policy makers, scientists, donors and other participants who were attending a parallel workshop on 'Landscape approaches for community sustainable development in a time of climate change' (see Annex 5). This enabled the communities to share 5 key messages on the challenges they face and the kind of support needed (Annex 1), and the policy actors to learn about the importance of biocultural heritage first hand and witness the walking workshop methodology. A cultural celebration was held with all the participants in the evening, showcasing different Naxi dances, and traditional foods from the Stone Village and other communities.

Stone Village-Potato Park exchange to establish a Biocultural Heritage Territory

The first *Walking Workshop* used Transect Mapping and Rapid Rural Appraisal (see Box 1)**.** It was designed to identify trends in natural resource use and availability and as a pre-assessment for scaling-up the Potato Park community-managed landscape model in the Stone Village. The Potato Park team conducted a rapid Biocultural Heritage Appraisal of Biophysical, Cultural and Socio-economic factors. During both random and predetermined walks, participants discussed the development of market linkages for biocultural products and services, a Stone Village agro-tourism sustainability plan, appropriate technology design and the impact of technology changes on gender roles. The output document 'Biocultural Factors' identifies and assesses community-managed landscape elements observed during the field survey using the framework for the Andean Ayllu cosmology (Annex 3).

Developing the Stone Village community map. Jessica Reilly

Rapid Rural Appraisal is employed at the feasibility stage of project planning: "The technique essentially involves an informal, rapid, exploratory study of a specified geographical area designed to establish an 'understanding' of local agricultural conditions, problems and characteristics." [10] Teams should integrate both local and external participants who assume the role of field surveyors. Both techniques rely primarily on observation coupled with semi-structured interviewing of participants who are knowledgeable of the area. 'Insiders' provide a high-knowledge perspective to the issue. The outsiders' participation contributes in the identification of feasible alternatives and in noting constraints that might otherwise be overlooked. Outsiders can also gain insights and knowledge that can guide their own research activities.

The Rapid Biocultural Heritage Landscape Appraisal entailed the following steps: a desk review of existing data and preparation of a community base map; transect walks for the identification of existing and potential BCH-based practices; data compilation and analysis. The Potato Park team produced a Stone Village landscape map based on collected data; and took the map to the village West Gate with honey wine and Andean drums, inviting farmers and villagers returning home to draw their houses on the map and talk about their version of the Stone Village biocultural landscape (Annex 4).

INMIP Walking Workshop on Traditional Resource Management

The second *Walking Workshop* focused in particular on traditional water management systems. En route to the Stone Village's water source, local elders explained the customary water system, including irrigation practices, water allocation and infrastructure, water-related rituals, and community and gender roles in water practices. INMIP members participated in a 'roundtable' discussion once arriving at the water source, where they shared place-based resource management practices and traditional knowledge. They also visited the Stone Village community seed bank and discussed the importance of landraces and participatory plant breeding for enhancing resilience to climate change. The results of the discussions on these issues, out-migration and market linkages are presented below.

Walking Workshop on Traditional Water Management. Yang Qing

10 FAO. Chapter 8: Rapid Rural Appraisal. http://www.fao.org/docrep/W3241E/w3241e09.htm

Community Discussion Results

The communities discussed strategies for enhancing resilience to climatic changes, food sovereignty and livelihoods, including: collectively managed landscapes and traditional water systems; crop diversification, community seed banks and participatory plant breeding (PPB); and network building, and social and legal self-advocacy. The communities use mountain springs and traditional water management and irrigation systems, which are becoming increasingly important with climate change. The conservation of seed diversity and planting of diverse crops is an indigenous strategy that is essential to mitigate against the risk of crop failure. Participatory breeding efforts involve close farmer-researcher collaboration to expand crop diversity, productivity and resilience. According to participants, the mobilisation and linking of ancestral knowledge and modern innovations is important to enhance the resilience and productivity of agricultural production systems in the face of climate variability. The communities also discussed out-migration as a principal driver of traditional knowledge loss in mountain communities.

1. Out-migration, traditional knowledge and market-based responses

The frequency of youth out-migration and integration to urban centres has increased. The reduction in traditional farming livelihoods hampers inter-generational knowledge transmission and erodes ancestral knowledge systems. Engaging youth in activities within the communities is important to promote inter-generational transmission of TK. The diversification of local economic opportunities is also key for securing youth engagement. The development of market links within mountain regions can enhance TK-based income opportunities and capitalise on the sustainable transformation of natural resources to market-bound natural products.

Kyrgyzstan representatives. Jessica Reilly

Both the Stone Village and Potato Park community members are involved in the transformation of natural resources to finished natural products for market sale. In Lijiang, smallholder farmers produce geranium-based essential oils from locally grown geranium plots. The Stone Village community members are in the process of developing an agro-mountain tourist industry that highlights landscape features and the gastronomical tradition of pork and rice wine production. In the last few years, Stone Village youth that had migrated to Lijiang City were now returning to their hometown for the opportunity to invest in and to develop tourism infrastructure.

The Potato Park communities have established economic collectives that produce a range of local goods based on a community-led biocultural heritage approach. Their main objectives are to conserve biological resources and to develop a local economic base for income generating opportunities. The Potato Park has a processing centre for natural medicines and soaps, a network of local pharmacies and a video communications centre. Agro-ecotourism, including a traditional restaurant and artisanal craft centre, has also become an important source of income.

Kyrgyzstan farmers presented their efforts to sustain traditional knowledge among local youth. Representatives described their relationship to and experience with out-migration and a notable decline in population numbers as youth move to urban centres including in Russia. Community-led strategies include the reintegration of youth in local culture through youth engagement projects.

Festivals such as the 'Blooming Apricot Festival' are organised as a means to recover respect for natural resources. Public events, workshops and development projects for Ecosystem-based Adaptation (EbA) provide knowledge-sharing platforms that involve youth in the management of biocultural heritage landscapes and influence the attitudes of youth towards traditional practices. Community leaders also produce publications, brochures and videos that transmit and conserve traditional knowledge.

Additional strategies discussed during the INMIP workshop suggested the strengthening of community networks to build platforms for exchanging place-based TK and stimulating adaptation innovations. The integration of local knowledge into formal education systems was also recognised as an effective mechanism to protect community-managed landscapes.

2. Traditional water management systems

China – Naxi People, Stone Village, Yunnan

The traditional water management system has evolved over more than 1000 years of history and is as old as the village itself. Community members continue to plant based on the lunar calendar, maintaining ancestral practices and spiritual values. According to village leaders, the Stone Village was hit by drought nine years out of the last ten; however, the efficiency of the water management system – through terraces and irrigation – has prevented true water scarcity. Neighbouring villages without customary water management systems have been worse affected. The water management system provides water for drinking, irrigation and fire control. The system uses gravity to transport water and ancient water channels for irrigation, which were lined with cement in the 1990s to make the water travel faster from the water source in the mountain.

Stone Village irrigation system. Jessica Reilly

The Stone Village watershed encompasses 14 village groups. The upper zone contains eight village groups and a population of 1700; the lower zone contains six village groups and a population of 900. Water supply from the upper river is typically allotted for the upper eight villages. In the case of drought, the water supply from the upper river is directed for use by the upper communities. In the case of sufficient rainfall, a portion of the upper water source is made available for use to the lower Stone Village fields. Each village adult has use of enough water to irrigate a field of 1.5 mu, where 1 mu is equivalent to 1/15 of a hectare, or 616 square meters. There is a enough water for a total of 500 mu for five communities.

There was a forest fire in 2010 that lasted for 30 minutes and destroyed four homes. After this incident, the community developed a proposal for a fire control system, and enlisted the help of the government to finance it. Community members are currently assisting with the construction of the pipe-system under the direction of engineers and other experts. Fire control infrastructure will consist of two large reservoirs each of 250 cubic metres, as well as large pipes to channel the water flow. A third reservoir that holds 130 cubic metres will be filled once the first two are full. Water from this third reservoir will be distributed to villages via small pipes. The new piped-water system is hoped to alleviate pressures on the traditional system.

Water Management Structure: The Water Committee is responsible for water management and distribution. Water is distributed according to land size. The village administrative head, currently Mr. Mu, mediates conflict between and within communities in addition to a water authority who is selected to manage water allocation and to resolve resource disputes. The water authority is knowledgeable of local regulations and abides by the customary laws of the water system, also taking into account individual household needs on a case-by-case basis. The water authority works long hours for low compensation, receiving a fee of 4000 Yuan for their services (about 650 USD). They typically work out of community obligation, beginning their annual 40-day work period on May 20. Fees collected from water users are calculated per field depending on how close the field is to the water system.

Water Allocation: Water is generally allocated to the upper village areas during the day, and the lower areas, which are closer to the village, at night. This system helps with fire control, as water is accessible at night when community members are at home cooking. The upper valley zone generally uses less water for several reasons. First, potatoes tend to be cultivated in the upper zone, a crop that requires less water than other crops, such as corn. Second, the climate is cooler than the lower zone, so there is less evaporation. Third, corn varieties that are planted in the upper zone are mainly those varieties that consume less water; while those planted in the lower zone require more water.

Gender and Youth in Water Practices: Men tend to execute public management functions related to water. This includes performing water rituals and ceremonies. Women tend to interact with water more in the domestic, private setting, where they are responsible for household water conservation practices. Women do play a public role in water management, as they are also involved in the construction and maintenance of irrigation canals.

Traditional knowledge regarding ecological health is transmitted to youth through oral messages and informal community initiatives. There are contamination prevention campaigns and environmental consciousness-raising such as where to wash clothes to protect downstream water. Additionally, ancestral practices are passed on to the younger generations at the start of the agricultural season, when youth are witness to water rituals performed by elders.

Climate Change and Resource Scarcity: As drought is impacting areas in and around the Stone Village, new technologies are being implemented to assess water quality and measure availability. The results of these tests provide projections on future scenarios. They are also used to inform and influence household water use practices. For example, when the water supply is low, households commonly plant smaller areas of crops, typically vegetables, rather than planting corn which is water-intensive as it covers larger areas.

Nepal – Parche, Khilang, and Sikles communities

The village development committee (VDC) of Parche, is located on the southern slope of Annapurna Himalayan ranges in north-central Nepal, at an altitude of up to 2713 metres. This VDC constitutes nine wards and there are three villages; i.e. Khilang (1-3 wards), Parche (4 wards) and Sikles (5-9 wards); of which Sikles is the largest one. Total agriculture area in the VDC is over 700 hectares but there is an increasing trend of out-migration in the villages thus leaving farmland to go fallow over the years. Each household owns land, and farmland varies family to family. Families cultivate paddy, millet and maize as main staple food crops along with potatoes and seasonal vegetables. Paddy cultivation is in the lowland areas below the villages, while millet, maize, buckwheat wheat are grown in and around the villages. Highland areas above the villages are covered by forest, rocks, and snow.

Water Storage and Rituals: The water system is managed for two purposes – human consumption and irrigation use. Irrigation for cropland depends on mountain water. The villages rely on eight reservoirs that hold over 20,000 litres each. These water storage units are located above the villages and are filled from a pipe that runs directly from the spring. The reservoir water is principally for human consumption. Water ceremonies are performed three times a year. The rituals are in recognition of the following: (1) Requesting the 'higher power' to provide water; (2) When crops are almost ready to harvest, members request the rain to stop; (3) During harvest time, members request that there are no insects or hailstorms that could damage crops.

Water Management Structure: The Conservation Area Management Committee is composed of different sub-committees. The water use committee is under the umbrella Conservation Committee. A water authority that is nominated manages the water committee. This person does not work full time, but they are fully responsible for managing water resources. The water management committee and authority abide by all traditional water management laws including water ceremonies. Each household is charged NRs. 20.00 per month by the water use committee.

Climate Change: There used to be spring water in the middle of the villages, but now with climate change, only one village still has year round spring water. The communities have been planting trees around water sources to protect them.

Kyrgyzstan – Naryn Province

Kyrgyzstan has extreme temperature changes during the year. Summers are hot and dry while winters are very cold.

Water Challenges and Climate Change: Villages are facing a severe water shortage. There is insufficient water for human consumption. Running water is limited to 2 to 3 hours per day. Since water is in short supply, people must wait between 30 to 40 days between irrigation periods. During conditions of extreme heat and drought, people often break these rules. It has been observed that climate change impacts are causing a rapid decrease in and the disappearance of glaciers. To address the shortage, some households are building wells that range in depth depending on the location. As these wells dry up, households must dig deeper and deeper.

Irrigation: Community-managed irrigation systems are important due to the arid climate of the region. Community members use irrigation channels for crops. Irrigation water is allocated by the water-authority, whereas drinking water originates from mountain springs and is transported through pipes. The government is promoting a drip-irrigation system as a means to conserve water use. A nursery of fruit trees and vegetables has recently been established that uses the drip system. Land is both privately and publicly owned in the area. The mixture of household and government land ownership creates a challenge for water management that requires more collaboration between households and government. Kyrgyzstan representatives feel that they can learn from the TK system of Stone Village in how socially and culturally appropriate systems based on customary laws can be an effective tool for natural resource management. They are committed to strengthening their own local systems for managing irrigated and non-irrigated lands and to continuing to perform rain ceremonies on non-irrigated lands.

Natural Resource Conflict: There is conflict over natural resource ownership and use within Kyrgyzstan as well as between Kyrgyzstan and Tajikistan. Under the Soviet system, this was not the case, as the two countries were just one country. Since the fall of the Soviet system, TK related to natural resource management has eroded, which has led to conflict over water and forest resources.

Tajikistan, Shugnan District, Badakhshan

Natural Resource Management and Revitalization of TK: Traditional practices in Tajikistan are similar to those in Kyrgyzstan, as both were members of the Soviet system. Since its collapse in 1991, there remain government-managed elements of natural resources in addition to traditional management practices. Irrigation practices mainly operate through an open system. Land is government owned, but community managed. New laws now permit community ownership of irrigation channels.

Tajikistan representatives. Jessica Reilly

The Aga Khan Foundation implements TK revitalization programmes. The Foundation has established new associations for water management and distribution that integrate various experiences, government regulations and traditional management practices. In 2009, a Water Users Committee was established in an area that previously had high levels of conflict over natural resource use. Traditional management and negotiation practices were used to resolve these issues. An example of maintaining a traditional practice is how communities use water from both a glacier-fed spring and a small river for irrigation. The Committee has had good results, and they won an Equator Prize for TK use and good water management practices.

Channels are for both irrigation and drinking water. Irrigation use is regulated to ensure that there is adequate water for human consumption. There are strict regulations for obtaining drinking water from the channel. The water authority manages the channel water when there is too little or too much. Local regulations impose the order for water allocation. Wheat, potatoes, and beans are irrigated, for which there is sufficient irrigation and very little conflict over water resources.

Peru – Quechua Communities, Parque de la Papa, Pisaq, Cusco

Water Allocation: Water has two destinations, for human consumption and irrigation purposes. First the lower areas are irrigated. Each community has one or two weeks of irrigation; the total period of irrigation lasts two months. The community water authority receives a small payment for the two months that they work. Families make annual payments. Some 5,600 families benefit from the water irrigation system. They also have a Potato Park water committee to manage water resources.

Peru representatives. Jessica Reilly

Climate Change and Ceremonies: Some 100 years ago there were many more glaciers and glacial lakes. Their numbers and size are decreasing due to climate change. Community members hold many ceremonies to the Pachamama, or Mother Earth.

China – Nonlv, Guangxi

Negotiating New Water Management Systems: The Guangxi Community is made up of 10 villages with 600 households. Water management practices are mainly used for irrigation. Conflict over water resources has reduced since the establishment of the Water Association system where one water representative is elected per village with the purpose of negotiating upstream and downstream water use. Before this representative system was in place, resource conflict had led to fighting and injuries.

The Water Association considers the varying needs of communities depending on their relative location to the water source. The head Water Association member was selected from a downstream community with the intention that this authority would be conscientious of power dynamics related to water use and ensure the availability of water downstream. Upstream and downstream villages have designated times of water use: upstream villages use water during the day and downstream villages receive water at night. This trade-off water management system obligates downstream village members to irrigate their fields at night – it is similar to that used by Stone Village. The newly organised Water Association integrates traditional practices and knowledge systems with scientific monitoring. The water trade-off system is an example of the maintenance of traditional practices.

Bridging TK and Modern Systems: The fall of the collective production system of the communist era has shifted economic production to depend on the individual household as the productive unit. This new system has produced conflict that even governments cannot manage. Since it is not possible to return to the old system, communities are now learning to negotiate, organise and work with households to manage water. This modification reflects the integration of TK and modern knowledge to resolve contemporary challenges.

China – Majiagou Village, Chatian Town, Hanzhong, Shaanxi

Water Resources: There is abundant water in the Sanji (Shaanxi) province, in North China (known as the 'panda land'). There are even summer floods. The irrigation system has developed over a period of 2000 years. The large rivers fill and flood villages along the river. The solution has been to build reservoirs for storage. Water levels are monitored by a hydro station, which warns of impending floods and also diverts water from the northern to southern cities that experience shortages.

Group Synthesis

INMIP participants highlighted the following points after dialogues on their local water management systems:

(1) Too little or too much water can be a problem

(2) Mountains are important as water towers

(3) Deforestation leads to loss of capacity for absorption

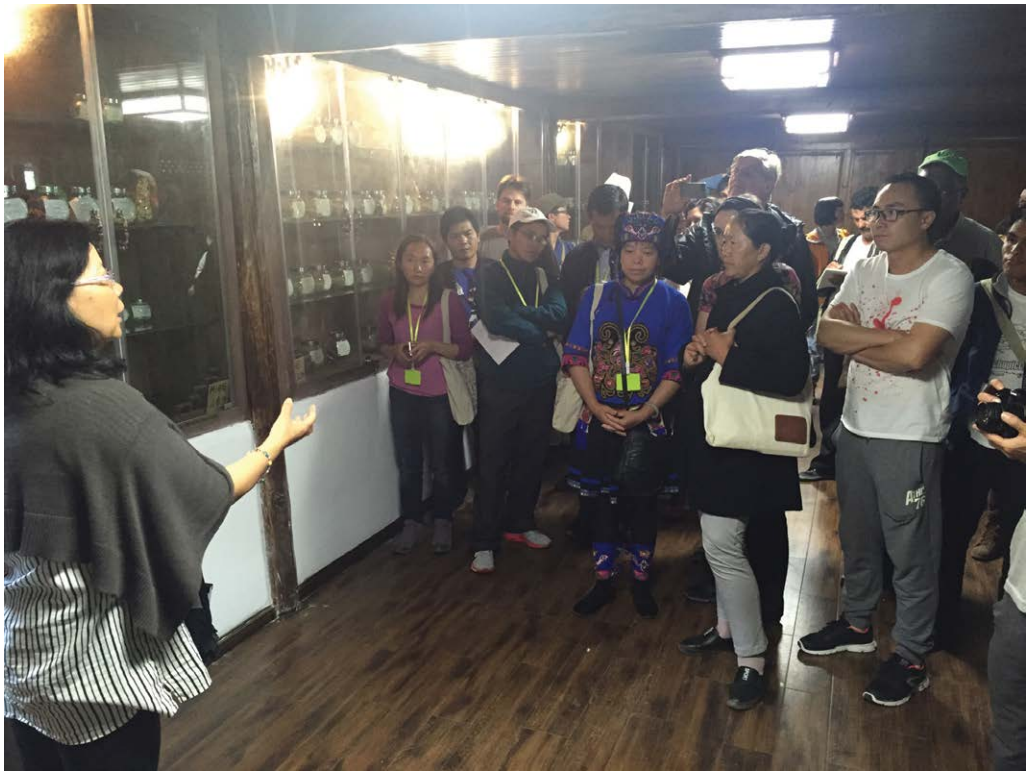
(4) Human made systems (e.g. irrigation) may also reduce water flow or lead to flooding

(5) Glacier disappearance due to climate change is reducing water availability

3. Participatory Plant Breeding and Community Seed Banks for climate adaptation

PPB was discussed as an important tool for strengthening food sovereignty and agrobiodiversity as well as for enhancing collaboration between scientists and farmers. It is a joint innovation process involving farmers and scientists to breed new varieties with improved taste, productivity, and resilience to local climatic conditions. Participants felt that PPB varieties have much more benefit than hybrid seeds, as hybrid seeds are uniform and are viable only on irrigated, flat land, not for the complexity of mountain ecosystems.

Community seed banks were also mentioned as important tools for ensuring access to a diversity of quality seeds. The conservation and multiplication of seed varieties is a tool for adaptation to climate change. Community seed registers were identified as important additions to community seed banks in that they can help prevent exploitation through intellectual property rights such as patents. Community seed banks are also important to provide access to seeds and recuperate seed diversity after natural and man-made disasters.



Community Seed Bank, Stone Village. Qinsheng Chen

Kyrgyzstan

We are a centre of origin of food crops that is supported by the Christensen Fund. We plant potatoes, carrots, onions, and peppers, among other things. Conserving traditional local crops and practices is difficult as many farmers are using hybrid seeds, which are good for bringing a good harvest, but are not good for sustainable development. We have developed a small project for recovering seeds of traditional crops and have begun to develop community seed banks.

Potato Park, Peru

Our farmers have been adapting to the changing climatic conditions using biocultural innovations. Lower altitudes no longer have good potato production. We breed local varieties of colored potatoes that are good for cancer prevention and that also are resistant to harsh climates. We chose to breed potato and maize due to their great diversity. In 2014, we began breeding with collections of local varieties from local families. Soon we will have results. We also have a community seed bank with 1430 types of potato.

Nepal

So far we have not begun PPB; however, we do have a seed bank in the village museum. About 100 years ago, maize and potatoes were introduced to our land. Due to out-migration, our lands are becoming barren.

China – Naxi Umo Village (Yunnan)

I am the village head of Umo village, in the same township as the Stone Village. In our village we maintain traditional, spiritual practices that include using the barter system and applying smoke to keep seeds pest-free. I have come to realise the importance of seed conservation to maintain good landraces. In order to avoid degeneration for maize, we have moved the crop to higher altitudes, whereas, we have moved pumpkin to a lower altitude. We would like to begin to market our products to the urban, city population.

China – Guangxi

Soy landraces are quickly being replaced by hybrid maize. There needs to be more recognition of the ecological and sociological value of traditional crops, not just consideration of economic values. We have been working with the NGO Farmers' Friend to develop market linkages with urban consumers and produce ecological products.

4. Gender as a cross-cutting issue

The reaffirmation of women's role in maintaining indigenous identity in mountain communities will strengthen the transmission of traditional knowledge and the resilience of local maize landraces in communities such as the Stone Village where women are traditionally caretakers and guardians of seeds. This gendered-approach will also enhance legal and social advocacy specific to women. Culturally appropriate, gender-specific tools should guide capacity building projects that integrate traditional knowledge and modern technology. Gender-inclusion is critical for the conservation of traditional knowledge systems, including local water management systems.

Five Key Messages and the Stone Village Declaration

Building on the above discussions, workshop participants developed Five Key Messages for policy makers, donors and scientists attending the 'policy dialogue':

1. Traditional knowledge-based management practices can be further strengthened with support from external agencies.
2. Strengthening biocultural systems and traditional natural resource management practices will enhance resilience to the impacts of climate change.
3. There is an urgent need for community-based investigations on climate change and future scenarios around water supply and use.
4. External agencies should support the preservation of local management systems in communities such as the Stone Village.
5. Research and reporting lack gender-inclusivity and need to consider the benefits and impacts of programmes and policies on both women and men.

The Five Key Messages served as the basis for preparing The Stone Village Declaration. The Declaration calls on governments, researchers and the international community to recognise the value of biocultural heritage and traditional knowledge, and of the spirituality that guides them, and to provide support to strengthen traditional water management systems. It calls for recognition of the different roles played by men and women in traditional resource management and of gender-differentiated impacts of climate change. It calls for support to stem the rapid loss of traditional knowledge and enhance inter-generational transmission; and for recognition of the role of traditional knowledge in providing low-cost low-carbon alternatives to energy-intensive modern technologies. The Declaration calls for support for marketing of biocultural products and services; and for landrace conservation and PPB. Finally, it calls on governments and the international community to recognise and strengthen the International Network of Mountain Indigenous Peoples at the global level as an important mechanism for knowledge exchange and innovation for enhancing biocultural heritage and the adaptive capacity of mountain indigenous peoples.

Conclusions and Next Steps

Work Planning and Coordination

- It was agreed to develop a proposal to enable participation in the Climate Change meeting in Morocco; and to explore possible locations in Morocco to hold an INMIP knowledge exchange prior to the Climate Change COP meeting. (Responsible: Krystyna, Alejandro)
- It was proposed that the next INMIP event should be a technical workshop to discuss and evaluate the methods and tools for establishing Biocultural Heritage Territories. This would include a discussion on how to move forward with the network and to share experiences in a systematic, holistic approach, with a particular focus on food security in the face of climate change, seeds, water and sustainable economies. A proposal will be developed for an event in Potato Park, as a hands-on, practical meeting. (Responsible: Alejandro, Krystyna)

Evaluation and Reflections

At the end of the workshop, a roundtable was held for the community participants to provide feedback and reflections on the exchange. Participants enjoyed exploring and exchanging knowledge with the local community members of the Stone Village and in particular with the Naxi leaders. The inter-community exchanges, where participating groups presented the biocultural innovations specific to their culture and region, were identified as particularly useful for identifying and evaluating adaptation strategies.

Community participants highlighted the importance of experimentation with new cultivation techniques such as PPB and developing and maintaining sustainable water management techniques, especially using the Stone Village local irrigation system as a model for best practices. They also recognised the Seed Exchange as a practical means to obtain new seed varieties and to conserve seed diversity across varying geographies.

Participants appreciated the workshop for providing a space for honest sharing among a diverse group of farmers and many opportunities to exchange and reaffirm cultural identities and adaptation techniques to climate change. Many participants mentioned the excellent hospitality as well as the opportunity to interact with policy makers and researchers, who gave good, clear advice. Thanks were extended to the hosts, managers and coordinators of the conference.

Annex 1. Five Key Messages

1. Traditional knowledge management practices around the world are strong, but could be strengthened with support from external agencies, both governmental and non-governmental.
    - Strengthening traditional knowledge practices and in particular that of water management systems, has local and global benefits.
    - The context of pressures such as out-migration and climate variability make it especially important that there be external support for TK and related practices for water management.
    - Need to emphasise the importance of cultivating a holistic approach to management by highlighting the importance of spirituality in indigenous water management practices.
    - Building on the reputation of indigenous knowledge as a useful marketing tool for building local economic development and recognition for local systems.
2. Due to the pressure of climate change, there needs to be a strengthening of biocultural systems surrounding traditional natural resource management practices. Need to prepare for the impacts of climate change using a local-global, holistic approach.
    - Emphasise the importance of biocultural eco-system based adaptation and integrated biocultural management for livelihood sustainability in the local water production systems of indigenous mountain communities.
    - Highlight how the use of both modern and traditional practices can strengthen local communities.
    - Some specific threats that are impacting communities are the development of extractive industry that lead to a decrease in quality and quantity of water as well as exacerbate climate change impacts. For instance, mining activities weaken the ability of mountain communities to respond to climate variability such as increases in the frequency of flooding and drought.
    - Examples: Highlight that the Network can be strengthened through recognition at the international level. Building up the Network can strengthen biocultural management systems and create stronger platforms for influencing policy.
3. Highlight the need for more research, especially community-based investigations on climate change and future scenarios around water supply and use.
    - There needs to be research and development of biocultural products and services and the development of market links. (Example of bottling water from the Stone Village water source.)
    - An example is how branding can use the indigenous reputation for conserving diversity and traditional water management systems, both taking advantage of and building up recognition of indigenous ecology and the close-relationship with the earth.
    - Here, local economy is used as an approach to natural resource sustainability and community development.
    - In preparation for the Climate Change conference in Morocco in November, the Network can research and develop case studies for the conference as well as prepare messages for policy makers.
4. External agencies (public, private) should support the preservation of local management systems in communities such as the Stone Village.
    - Agencies are accustomed to supporting projects of modernity, but these have high costs and are energy-intensive. Whereas, traditional knowledge is well-suited because it has a low cost, is culturally appropriate, and is more likely to be accepted by local communities.
    - Receiving external support is a good way to address the bias against traditional knowledge, especially in the lack of funding. There needs to be more support for local capacity building and for the strengthening of institutions and traditional water management systems.

5. Gender
    - Role of men and women in local water management systems
    - The impact on women when there is climate change
    - The importance that research be gender-inclusive
    - The importance of considering the benefits and impacts of programmes and policies on both women and men

Annex 2. Stone Village Declaration

International Network of Mountain Indigenous Peoples, 23 May 2016

We, over 50 indigenous peoples and traditional farmers, representing 18 mountain communities from China, Nepal, Kyrgyz Republic, Tajikistan and Peru, together with civil society and research organizations, gathered in the Stone Village, Yunnan, China, from 20 to 23 May 2016, to assess the effectiveness of biocultural heritage-based approaches for climate change adaptation and share experiences and key methods and tools for adaptation, including: community-led landscape management, traditional water management systems, community seed banks, participatory plant breeding, and landscape-based biocultural products and services.

Our mountain homelands are hotspots of biological and cultural diversity that play a critical role as water towers, centers of origin of important food crops, repositories of evolving crop diversity, and places of high spiritual value. Our rich biocultural heritage is rooted in our distinct cultural identities and includes centuries of accumulated knowledge of mountain environments. This provides the appropriate framework for innovation to meet contemporary needs, promote sustainable development and develop ecosystem-based solutions to global challenges.

Climate change is further increasing the vulnerability of indigenous mountain peoples, who are already facing problems of insecure and changing land ownership, environmental degradation, out-migration, extractive industries, market failures and market globalization, and inappropriate policy regimes.

We met in the Stone Village community in the upper-reaches of the Yangzi River. The 220 Naxi families who live in this beautiful mountain valley shared their rich biocultural heritage and ancient traditional water management system, which is the result of 1300 years of creativity. This village, built on a giant mushroom-shaped stone, is the site of a Naxi Biocultural Heritage Landscape.

We used a walking workshop approach that promotes cooperative learning and a plurality of knowledge systems, values and visions. The Stone Village Biocultural Heritage Landscape was used as a living laboratory for exchanging knowledge and experiences. Participants analyzed how biocultural heritage-based approaches are helping to protect and revitalize traditional food, agriculture and water systems including biodiversity, traditional knowledge, and cultural concepts and values.

Policy makers from national governments and international organizations were invited to learn about South-South exchanges as a tool for sustainable agriculture, poverty alleviation, and biocultural landscape management. They engaged in a policy dialogue where indigenous mountain community representatives shared key messages related to the challenges they face and the urgent need for support for their traditional resource management systems.

The International Network of Mountain Indigenous Peoples, concerned for the future of mountain eco-systems and the livelihoods of our communities in the face of climate change, calls upon governments, research organizations, civil society organizations and the international community to:

1. Recognise the value of biocultural heritage and traditional knowledge, and the spirituality that guides them, and provide support for strengthening traditional natural resource management systems, especially water management.
2. Recognise the different roles played by men and women in traditional resource management and the distinct impacts that climate change is having on their respective livelihoods.
3. Provide support for strengthening traditional natural resource management institutions, local capacity building and preventing the rapid loss of traditional knowledge, including support for inter-generational knowledge transmission.
4. Recognise that traditional knowledge, or the use of both traditional and modern practices, can provide effective solutions for climate change adaptation and mitigation, through low-cost and culturally appropriate alternatives to often energy-intensive modern technologies.

5. Provide support for research and development of biocultural products and services and the development of market linkages and branding for indigenous products, to strengthen the conservation of biological and cultural diversity.
6. Recognise the need for more research, especially community-led investigations, on climate change and future scenarios around water supply and use, and support community-led landscape management approaches for adaptation.
7. Recognise the critical role of diverse local landraces in agricultural production, food security and resilience and adaptation in mountains, and provide support for landrace conservation and improvement and participatory plant breeding.
8. Recognise and strengthen the International Network of Mountain Indigenous Peoples at the international level as an important mechanism for knowledge exchange and innovation for enhancing the biocultural heritage and adaptive capacity of mountain indigenous peoples.

We call on indigenous peoples and traditional farmers to work for the preservation of their biocultural heritage landscapes and traditional resource management systems; and we call upon national governments to implement policies that support local knowledge systems.

Finally, we want to reaffirm our commitment to working together and in our own communities towards our goals of fostering biodiversity-rich agricultural systems and the protection of our Biocultural Heritage.

Annex 3. Biocultural Factors Assessment for establishing a Biocultural Heritage Territory in the Stone Village

	Runa	Opportunities	Challenges
1	Grandmother´s House	Similar to a museum; it could be converted into a hostel, especially as there are 2 or 3 other Grandmother houses in the community	Needs some maintenance and better lighting; it could be very hot in the house; need to maintain respect for the traditional culture
2	Agriculture and Livestock System	Maintain local crop varieties despite climate variability; possibility for agro-ecotourism that could highlight the terraces; plowing with a horse; increasing and improving diversity; seed exchange with other communities	Transgenic seeds and chemicals; dependence on buying seeds and the cost of buying seeds; impacts on health and the environment
3	Gastronomy	Diversity; Known for their pork and wine; they can learn to prepare new dishes that are pork-based; they could form a gastronomy cooperative based on local crop varieties; make infused wine	Availability or quantity of local crops or of wild plants
4	Pathways/Trails	The landscape is attractive for the tourist as well as the scientist in terms of forest and mountain diversity; potential for an educational program; trekking and hiking to the river	Foreign tourism; seems that there is more national tourism than foreign tourism
5	Plant Participatory Breeding	Implementing diversity; Changing mentalities and ideologies about agriculture (no need to reject local cultivars, importance of nutrition and health); Maintain diversity for the future	Due to dependence on transgenics, very few seeds are saved; idea of ´modernity´
6	Students		
7	Shops/Stores	Good opportunity to make shops destined for the sale of handicrafts; income generation; local people also benefit from buying local products; they could sell the local rice wine and begin to use attractive bags	Few stores/shops; shops need better presentation and organization.

	Runa	Opportunities	Challenges
8	Hostels	Good for accommodating tourists; houses are renovated	Potential conflict between hostels for clients; limited space for constructing more hostels; potential for traditional architecture to be lost; little privacy for families; unequal gender-based distribution of workload
9	View Point	Several; the new look-out point over the river has a roof for protection from inclement weather	
10	Terraces	Well maintained; unique to the landscape; attracts visitors with an interest in history; allows for investigative opportunity	They could be abandoned due to migration along with loss of traditional knowledge related to agricultural systems
11	Production of Essential Oil	Grown in the lower regions: offers economic sovereignty; income generation; strengthens the production of natural products; develop a collective trademark; certified products offer guarantee	Patents; products are sold through an intermediary; limited by the ecological levels
12	Boat	Panoramic, bring in boats powered by feet pedals; need to develop dock infrastructure	Too many boats would create noise and ecological contamination
13	Water Mill	As a point of historical interest	No longer exists
14	Clinic	Offers first aid	Within the family infrastructure; no privacy for the family or the patient

	Auki	Opportunities	Challenges
1	Resting Place for the Deceased	Culture truly exists	The plaque needs to be cleaned; need maintenance and to be made more attractive; needs a sign with an explanation of the sacred site
2	Water Ceremony Site	Culture truly exists	The water spring could dry up from climate change impacts; it is risky to bring lots of people because the area might get contaminated; the spring needs to be cared for; difficult to improve
3	Altar	Culture truly exists	Needs maintenance
4	Lunar/Agricultural Calendar	Culture truly exists	This custom could get lost over a long period

	Sallka	Opportunities	Challenges
1	Forests	Attracts birds and other animals; provides shade; wild fruits and nuts; medicinal plants; construction material	Need to maintain forest and provide protection from cutting or burning them down; helicopters scare birds and animals
2	Native Plants	Provide medicinal plants and under-utilized species	There seems to be little interest, but this could be because we spoke with few people
3	River	Swimming; small pedal boats made from local materials (of leather or wood); skin of inflated sheep possibly; seen as an integral part of the landscape; fisheries; good management of water prevents drought	Contamination; dam; disappearance of fish and wild animals
4	Streams	Water for irrigation and drinking; seen as an integrated component of the landscape	Contamination; little water in some seasons
5	Water Spring	Irrigated and potable water; clean, sacred site of ritual; provides water independence to the community members above and below the source	They could dry up in a bad drought; potential to contaminate the water source; difficult to improve the water source
6	Landscape	Biodiversity, very panoramic; productive crops; animal husbandry; 2 growing seasons; good management of organic waste	Contamination (trash and chemical fertilizer); very steep landscape
7	Climate	Temperate climate is attractive; climate good for agricultural production.	Very hot to climb the mountain; slippery and muddy in the rainy season

Annex 4. Design Steps for a Rapid Biocultural Heritage Landscape Appraisal for Model-Sharing

Steps		Definitions	Strategies	Methodology/ Tools
1. Desk Review of Existing Data		Farmers and technical teams review and adjust materials.	• Cooperative discovery methodology. • Based on compiled data, assess what is still needed to be developed.	Conceptual graphic Various Toolkits
2. Cooperative Discovery: Rapid BCH Landscape Appraisal	2a. Material Development	Develop supporting materials for Appraisal.	• Develop conceptual maps of Biocultural landscape components. • Integrate existing data with newly developed supporting materials.	Conceptual graphic Toolkits
	2b. Transect Walk	• Rapid Biocultural Heritage Appraisal with preference ranking. • Identity existing and potential BCH practices and assess effectiveness.	Accompanied and facilitated by local experts.	Transect walk with local experts
	2c. Data Analysis	Data compilation and review to draw conclusions, findings, etc.	• Collect, verify baseline data, cross-analyze data. • Compile and analyze using local conceptual framework and data collected on transect walk tools to draw results/ conclusions.	Conceptual graphic TCF Biocultural Landscape toolkit UNDP ICCA toolkit
	2d. Diversity Map	Map production	Design and produce maps based on compiled information.	

Steps	Definitions	Strategies	Methodology/ Tools
3. Cooperative Learning: BCHT materials creation	Guidelines for implementing best methods BCHT Model.	• Identifying content and design for production of material. • Produce video of the best innovations.	Baseline report
4. Cooperative Innovations: IEC materials testing	Do simulation to share the BCHT model. Receive feedback on effectiveness.	• Share BCHT materials with a small group of community members. • Record their feedback and refine materials accordingly	Farmers
5. Data sharing/Feedback	Share conclusions with local leaders, farmers, and authorities.	• Plan data sharing event and inform leaders and farmers. • Explain the objectives, share the results, and compile feedback from the event to the farmers.	Participation Community Leaders
6. Exchange: Presentation of Results	Poster-Share of exchange results.	• Present results of exchange. • Include presentation/ report to share key results.	Community Leaders

Annex 5. Participant List

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18	Wenchao Teng	Kunlin Village in Guangxi	China	
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27	Zhashi Yang	Youmi Village in Lijiang	China	
28	Wenchuan Mu	Stone Village in Lijiang	China	
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30	Zhihao He	Wu Mu Village, Lijiang	China	
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The International Network of Mountain Indigenous Peoples (INMIP) aims to support capacity development for climate change adaptation through community-to-community exchange of knowledge and innovations. It currently includes communities from 10 countries in Asia and Latin America. It is coordinated by ANDES (Peru), with support from IIED (through the SIFOR project – Smallholder Innovation for Resilience).

ANDES (Peru), the Center for Chinese Agricultural Policy (China), IIED and UNDP-GEF Small Grants Programme, worked together to organise the 3rd INMIP Learning Exchange in the Stone Village, China, on 18-23 May 2016. This report presents the results.

Event Materials

Food and Agriculture

Keywords:
Smallholder Innovation for Resilience (SIFOR), traditional knowledge, biocultural heritage, climate change adaptation

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