



**SMALLHOLDER INNOVATION FOR RESILIENCE (SIFOR): STRENGTHENING BIOCULTURAL INNOVATION SYSTEMS FOR FOOD SECURITY IN THE FACE OF CLIMATE CHANGE**

**Methodology Coordination Workshop, Cusco Peru**

**Asociación ANDES (Peru) and IIED**

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**WORKSHOP REPORT**



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This five day workshop brought together the SIFOR research teams from India, Kenya, China and Peru, the Potato Park communities (Peru) and IIED to develop a common methodology for the SIFOR baseline study and action-research on biocultural innovation. The emerging findings of the qualitative baseline study on Technological, Market and Institutional Innovation in each country were presented; and key indicators for the quantitative survey were identified. ANDES presented its conceptual framework for action-research in the Potato Park, and a field visit to the Park enabled partners to learn about its diverse biocultural innovations and collective governance. A working definition of Biocultural Heritage Innovations was developed; and the potential of different policy tools and frameworks to protect them was explored.

### **Introducing the SIFOR project - Krystyna Swiderska (IIED)**

Climate change is affecting smallholder farmers in particular, and while their innovation and TK systems sustain important agrobiodiversity and adaptation processes for food security, these are being weakened due to unsupportive policies, institutions and markets. SIFOR is a 5-year EC funded project which aims to generate thriving smallholder innovation based on traditional knowledge and biocultural heritage (BCH). It aims to strengthen understanding, practical approaches and enabling policy for resilient smallholder innovation systems in China, India, Kenya and Peru. Through participatory action-research it will: identify biocultural innovations that enhance productivity and conditions for resilient innovation systems; develop tools that strengthen innovation systems, including Participatory Plant Breeding; strengthen the innovation capacity of farmers, particularly indigenous people and women; and inform policy makers and scientists from local to global levels. The project working with communities impacted by climate change but rich in biocultural heritage in Southwest China, Indian Himalayas, coast Kenya and the Andean Potato Park, Peru.

As agreed at the inception workshop in China (October 2012), the project will focus on 'biocultural' innovations rather than 'TK-based' innovations, since innovations arise from the interaction of all elements of biocultural heritage – knowledge, biodiversity, landscapes, cultural and spiritual values

and customary laws. Although innovations are “new ways of doing things”, they build on traditional practices and are cumulative, so the earlier part of the innovation process should also be recognised.

The project will focus on food security not just in terms of producing more food, but also in terms of sustainability and strengthening access and control over food systems, i.e. food sovereignty. Resilience is the capacity of a system to absorb a disturbance and recover its structure and function; and innovation as an attribute of resilience means “placing emphasis on learning, experimentation, locally developed rules and embracing change” (Salt, A Resilience Primer, 2009).

For M & E, the project will focus on two key indicators in the EC Logical Framework:

- “*Knowledge, capacity & preparedness of farmers, including womens’ groups and indigenous peoples’ groups, to sustain resilient innovation systems strengthened*” (Result 3); and
- “*Understanding & commitment of scientists, opinion formers and policy makers to changes in policy enhanced, and significant changes instituted*” (Result 4).

To measure the ‘expected impacts’ identified in the EC proposal, we will use 3 key indicators: Agrobiodiversity, Livelihoods and Social Capital.

#### **Discussion:**

There is a need to also include *language* in the concept of BCH since it is part of culture. When language or expressions are lost, practices and cultural values are also lost; and when materials (eg. genetic resources) are lost, language is also lost.

#### **The Potato Park: Addressing climate change through biocultural innovation**

##### **Alejandro Argumedo (ANDES)**

The Potato Park is an Association of 5 Quechua communities which have shared their land of 9,600 hectares, spanning 3500 to 5100 metres above sea level. It is managed under a governance model that is based on customary laws. The Park uses an old Inca conceptual diagram depicting the Andean world and its interlinked elements as its conceptual framework. This framework represents the concept of ‘Ayllu’, a concept of an earthy community comprised by 3 interlinked and interdependent realms that are organized in domesticated, wild and spiritual sub-communities. Knowledge flows between the elements of these sub-communities leads to innovation. The Potato Park has developed a number of biocultural innovations, which have strengthened biodiversity conservation and livelihoods – in 2000 it had some 623 native potato cultivars, now the Park’s potato collection totals 1460 cultivars.

How is the Park responding to new challenges such as climate change? Through innovation related to TK-based technologies, markets, local institutions and policy. For example, the Inca “Quipu” system, which uses knots on string to store information, is now being used to plot the chromosomes of potatoes. In this way traditional information management systems are being used to model modern molecular information; and as a result, complex scientific information is now accessible to community members in a culturally appropriate format, and modern systems of information dissemination such as the Internet and Web technologies are being used for sustaining TK. The linkages and interaction between in situ and ex-situ seed systems also leads to innovation. For example, the repatriation of old varieties of potatoes from the International Potato Centre gene bank through a unique legal agreement has helped the Park to increment the number of varieties in the last 10 years by 234%. This increase has turned the Potato into an innovative Community-managed Gene Reserve, and a unique model of in-situ conservation in the world.

Increased temperatures in recent years have had a range of negative effects on native potatoes: tuber growth and yield have been severely reduced by greater temperature fluctuations; water availability has decreased; and potato pests and diseases have increased. As a result, farmers have shifted potato production areas to higher elevations in which potato can be viably produced. However, native potato cultivars have now reached the upper limit of cultivatable land at the top of the mountain. This is also creating competition for land between potato crops and other crops and other land uses. Therefore, farmers are experimenting with bringing potatoes down by testing them in different ecological niches and elevations of the Park, working with scientists from the International Potato Centre and the University of Wisconsin. Other areas of experimentation are improving water capture, use of irrigation, and creating new potato cultivars through PPB. The Park also has a number of market innovations – eg. the use of informal Collective Trademarks as signifiers of the unique landscape and cultural characteristics associated to their products. Also, a customary law-based policy innovation in the form of an inter-community agreement for equitable sharing of benefits derived from the market returns. In sum, there are two types of innovation – some are more externally driven and some are more TK-based, depending on where the idea comes from.

**Discussion:**

- ‘Benefit-sharing’ language (eg. of the CBD) should shift to ‘benefit-capture’ so that communities can generate the benefits themselves, rather than just receiving a share.
- In the Central Himalayas (India), communities are also making changes due to climate change – e.g. using higher altitude varieties and adjusting the time of planting.

**Qualitative Baseline Study on Innovation - Methodology**

To provide baseline data for M&E, a comprehensive baseline study is being conducted. The baseline study has two stages:

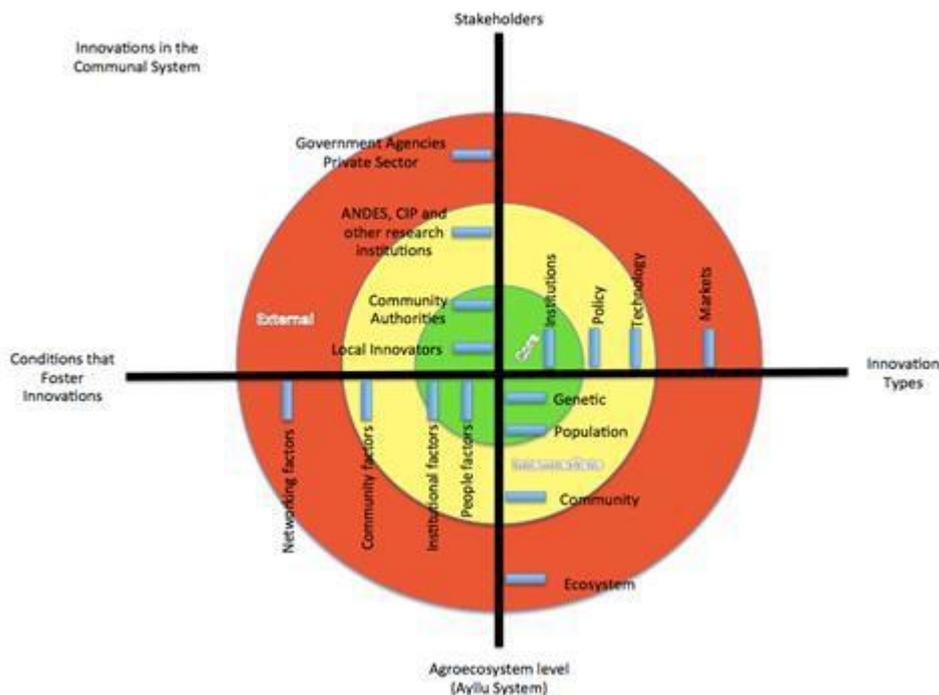
- i) A *qualitative study* on innovation, agrobiodiversity and ecosystems, livelihoods and social capital and related trends involving semi-structured interviews and focus groups (Jan-June 2013); and
- ii) A *quantitative study* on innovation, livelihoods, food security, crop diversity, social capital, climate change and gender, involving random household surveys of minimum 15% sample size of each village (July-Sept 2013).

The qualitative study will provide an understanding of the different types of innovation in the communities, so that this range can be captured in the design of the quantitative survey (closed questions). The qualitative survey is focusing on Technological, Market and Institutional Innovation, and for each innovation, 4 innovation factors or conditions are being explored: People factors, institutional factors, networking and community level factors. The study was guided a questionnaire on the 4 factors developed by ANDES; and a checklist to identify trends and responses relating to livelihoods, agrobiodiversity and social capital developed by CCAP.

## ANDES methodology for the qualitative baseline study in the Potato Park, Peru

### Overview- Vanessa Ramos (ANDES)

The baseline study is focusing on four types of innovation: Institutions, Policy, Technology and Market Innovations. These are either based entirely on TK and BCH (core area, diagram below), draw on both internal and external knowledge (intermediate/yellow area), or are largely external (red). See diagram below on Innovations in the Communal System (the Potato Park).



The study is targeting actors at three levels: experts/innovators (individual), community (organisational), and municipal, regional and national authorities (institutional). ANDES is working with the technicians from the Potato Park to conduct the study. They first organised workshops to define, together with the local technicians from each community, the concept of “biocultural innovation”. They then met with the technicians to define the methodology for the field research, including the research themes and key questions. They built the capacity of technicians to facilitate the focus groups and conduct the interviews themselves. The focus group objectives were to discuss the 4 factors which promote innovation - people, institutions, networking and community level factors - and identify key innovators for the 3 main types of innovation- Market, Technological and Institutional. Once the innovators had been identified, in-depth interviews were conducted with each one. Four communities were involved in the baseline study and from each, a minimum of 10% of the legally registered community members (‘empadronados’) participated, including women, randomly selected.

The focus group meetings were held in the evenings when people usually meet. They first got Prior Informed Consent by explaining the objectives of the study and the use of information. They cooked very traditional food to focus the discussion on traditional knowledge and new knowledge (innovations). They introduced the project and the concept of innovation and gathered perspectives on the concept. The facilitators (community technicians) documented the discussion in audio and

video recordings and written summaries. All the audio records are in Quechua.

### **Focus Groups - Ricardo, Potato Park Community Technician**

The focus group approach was as follows:

- First ANDES held a training workshop to define the approach with the technicians. We started by discussing what we mean by innovations and what type of innovation we would like to see in our communities. The technicians of the Potato Park advised ANDES on how to conduct the study because they know how the communities work.
- Then two local technicians from each community met with the community to plan the approach. We are the ones who decided to do the work in the evening as we are busy during the day.
- Even though we are members of the community, we have to start with PIC (this was part of the protocol for the focus group discussions), so we went to the head of the village to get consent, and in consultation with them we looked at the list of possible participants – including elders, youth and women. We also had to get PIC of participants because we used audio and video recordings so they needed to know how the recordings were going to be stored and used.
- Communities have experts in different issues – water, animal husbandry etc. and they found the questions proposed were too abstract, so we first spoke about the traditional knowledge and ‘old’ innovations that people have, and about ‘new’ innovations. So we established a list of the main innovators and innovations.
- The focus groups had equal participation from each community (10%) – 5-6 people, half men and women, about 15 people in total (in 3 groups).
- We learnt that we can’t do this focus group work in large groups as they are hard to manage – in smaller groups everyone participates and the information that comes out is manageable.
- Although we were doing a baseline study on our own innovations, we also discussed what external innovations we want so that we can put a proposal to the local government, and this created excitement in the community as it is directly linked to our crops, food and animals. We propose to establish a platform for innovation with local and national authorities so we can discuss the innovations we need to adapt to climate change.
- Another lesson we learnt is that many of our concepts are Quechua concepts and are difficult to translate to Spanish – ANDES helped us to translate them.
- At the end we conducted an internal evaluation in the community so we can improve our approach.

### **In-depth interviews - Lino, Potato Park Community Technician**

- The interviews were digitally recorded and were also done in the evening.
- They first went to the heads of each specialist group (eg. on nutrition, irrigation, pasture) and each community authority to get information on who they consider to be innovators, and had a workshop with the specialist groups and authorities to explain what kind of innovations we are looking for.
- Once we identified the innovators we went to their house and asked for PIC, and then visited them another time to do the in-depth interview.
- Because we gathered the information in Quechua we had to work with ANDES to interpret the meaning for translation into Spanish.
- ANDES was not involved in the community level research – except as an observer.

### **Discussion:**

- How did you manage to discuss ‘innovations’ directly in focus groups in the Potato Park? In China we had to discuss trends in Agrobiodiversity, Livelihoods and Social capital and analyse the responses to these to identify innovations, as people don’t know what ‘innovation’ means.

- In the Potato Park, we've been working on 'innovations' with the communities for some time. Also, we explored equivalent terms in Quechua language to use in the research, and how the innovation factors operate locally and how people refer to them. The concept of innovation amongst communities is about new ways of doing things, new practices. The key elements of innovation identified are: knowledge, practices and cumulative processes of developing new ways to respond to challenges; and the land (ie. Pacha Mama and Quechua worldview) plays a role in this cumulative process.

### **SW China mountains, Yiching Song (CCAP)**

We have completed the qualitative survey on livelihoods and innovation in 2 provinces – 8 villages in Guangxi and 3 in Yunnan. We selected the households based on different livelihood types found – in previous studies we found that smallholder farming is in transition. Some households are husband and wife, but many are women only or old people (as the men have migrated for work). We used two checklists – 1 for community level focus group discussions and 1 for household level semi-structured interviews. For the focus group discussions, we first explored livelihoods, agrobiodiversity and social capital and identified innovations in the last 30 years, and then asked the innovation questions – who developed them, how etc. We put the results in a table format and analysed them, and then went back to some villages to further explore the questions on the 4 innovation factors. Focus group participants were selected based on age, gender, ethnic groups and economic status of households – we found that 8-10 people was too big, so had about 6 people in each group, and 1-2 groups per village. We also held 'interest group' discussions with participants with shared interests.

### **Kenya, coastal forest, Chemuku Wekesa (KEFRI)**

The study involves 4 Mijikenda sub-tribes or 'communities' on the Kenya coast (each community comprises a number of villages). They are linked by a kaya forest culture, and all practice fishing to some extent. The Giriama are historically livestock keepers and the most traditional. The kaya elders guide the management of natural resources. We selected 27 villages which are the smallest administrative unit, focusing on 'old' villages which have the richest TK. We conducted a village survey before starting the baseline survey – we selected about 5 people per village including the village elder, chief, an old man, old woman and a young person. The aim was to get some key data, e.g. on socio-economic status, access to markets, health. It was done by field coordinators from the communities. Triangulation of qualitative information is important to confirm the validity of the findings.

For the baseline study, we have interviewed 5 people per village using an open ended questionnaire. We will then hold focus group discussions in each village – including the 5 people interviewed and experts in different areas. Then we will do the key informant interviews. We 1<sup>st</sup> trained the field coordinators to administer the questionnaires, and did a pre-test to get feedback from the coordinators to improve the questionnaire so it is better understood by respondents. Questions were included to bring out innovations in the 3 key aspects (Agrobiodiversity, Livelihoods and Social Capital) – e.g. on pests and diseases, we asked which ones are prevalent, which crops they attack, and how do you respond to that problem? We followed a similar checklist to China. We used snowball sampling, where 1 respondent gives you the lead to the next.

### **Discussion:**

- Fishing groups in coastal Kenya used to be informally led by elders, but now the government

wants these groups to be registered and the leaders to be educated, so the elders can't lead the groups anymore using TK and cosmological signs to predict climatic events.

- How are women involved? Some women are involved as field coordinators (since a third of all staff employed have to be women, as government policy); and the action-research will have to benefit at least 30% women.
- Women are generally the main players when we talk about farming and crop varieties and collecting firewood from forests. Traditional healers include a good number of women, who process their medicines and look for markets. But traditionally the voice women is not so strong so the project needs to ensure that their voice is heard.

### **India, Central & Eastern Himalayas, Reetu Sogani (LCM)**

The study focused on 5 villages in the central Himalayas, and 5 in the eastern Himalayas. We first did a preliminary survey using transect walks and discussions, to understand the situation, farming and TK, as we did not know the communities very well. The group discussions also aimed to get Prior Informed Consent of the villagers for conducting the study. We used community researchers and did capacity building, including explanation of what innovation is.

In the first phase we used the ANDES questionnaire with the 4 innovation factors (People, Institutions, Networking and Community level) and tried it for about a month, but we couldn't really use it because it was too abstract, however it allowed us to identify innovators. In the 2<sup>nd</sup> phase, we examined the situation now and 20-30 years ago (depending on the age of the respondent), and identified responses to these changes.

In the central Himalayas, group discussions were held with women and men separately because otherwise the women get dominated and don't share. Women are not used to speaking in front of men but they are the holders of traditional knowledge. But in the Eastern Himalayas, women are happy to speak up, there is not much difference between men and women. Once we have had discussions with women alone, they become more confident and active in mixed groups. The groups consist of 8-10 people representing different castes and ages. Interviews were also held with people with specialised knowledge, eg. on farming, forests, animal husbandry, and this enabled more innovators to be identified, and the changes and coping strategies to be discussed.

Semi-structured interviews and in-depth interviews were also done to explore the 4 innovation factors. The communities themselves identified innovators – i.e. farmers who are trying to do things differently. The innovators explained the process of innovation.

In the central Himalayas, livelihoods are largely agriculture based and there is a huge dependence of forestry, water and livestock to support agriculture based innovations. Water scarcity (through climate change) has led to forest scarcity and some innovations identified relate to how to save crops from damage by wild animals.

## Qualitative Survey on Innovation – Findings from each country

### **China – basic baseline study & innovation study findings, Yiching Song (CCAP)**

In SW China, changes in livelihood strategy and patterns have increased since 2008. Only 15% of households are still traditional with men and women farmers; 70% are women only HH with men migrating or in non-farming activities. Farming is really done by women and the elderly, and TK is being lost. Climate change is affecting all the communities, especially drought, extreme weather and pests. However, farmers’ interest in collective economic and culture activities is increasing.

The basic types of innovation found are: internally and externally initiated; Technological, Market and Institutional; individual and collective. Participatory Plant Breeding (PPB) and Community Support Agriculture (CSA) are joint innovations which start with Technical and Market innovations and then become Institutional innovations. All farmers consider these as innovations – they’ve had big impacts in increasing the number of crop varieties in these villages.

Traditional basic values and beliefs are at the core of the continuity of the *local* innovation and adaptation system. These values are also very crucial for the continuity of *joint* innovations – on both sides (ie. community and external actors). For internal innovation, more support is needed for institutional and market innovation, otherwise innovations stop at the technical innovation. Traditional varieties are not innovations, only improved traditional varieties are innovations. Continuing to use traditional varieties is adaptation not innovation.

### **Qualitative survey on innovation - Summary of findings from all countries**

Each country identified a number of innovations relating to Agrobiodiversity and Ecosystems, Livelihoods, and Social Capital (eg. ANDES identified 17 Biocultural Innovations, of which a number were agrobiodiversity related – ie. Technological). The table below provides a summary of the findings, highlighting the different types of innovation identified in each case. Those in red are considered to be ‘biocultural innovations’ because they are:

- 1) ‘new’ or reintroduced, rather than being a continued traditional practice or an adaptation; and
- 2) based wholly or partly on biocultural heritage, rather than being developed externally (although some people felt that locally adopted external innovations could also be considered biocultural, see discussion below the table).

	<b>Innovation Type</b>	<b>Examples</b>
<b>PERU</b> <b>Technological Innovation</b>	Traditional practice improved with scientists (CIP)	Using calcium carbonate for frost resistance. Planting 3 seeds to identify strongest – practice which reduces labour
	TK used in a new way	Use of descriptors based on TK to identify blight & hail resistant potato cultivars
	Traditional tool significantly improved	Tool to break ground improved to reduce labour from 3 to 2
	Re-introduction of traditional varieties previously grown in the area (external agreement; combining TK & science)	Agreement with CIP – 1 <sup>st</sup> ever repatriation agreement brought 400 varieties that had been lost
<b>Market Innovation</b>	New products based on BCH developed for income	New foods, colours in textiles, tourism ventures, shampoos etc
	Revival of traditional markets	Found space for barter in cash market
<b>Institutional Innovation</b>	Use of customary laws in new ways	Use of CLs (that are oral) to implement international agreements

	New Inter-Community institutions that strengthen collective management of BCH	Association of Potato Park communities; Inter-Community Agreement for benefit-sharing
	Novel Policy/legal proposals based on BCH or customary laws (implemented by others)	Regional ordinances to ban GMOs & biopirary. National Day of Potato.
<b>CHINA</b>		
<b>Technological Innovation</b>	Variety improvement; new Inter-cropping practices	
	Combining TK and science to develop new maize and rice varieties (Joint innovation)	Participatory Plant Breeding (PPB) and participatory seed selection for landrace conservation, improvement and breeding
	Re-introduction of traditional varieties previously grown in the area (external agreement; combining TK and science)	Initial agreements with the Guangxi Maize Research Institute and Guangxi Rice Research Institute in 2011, and their follow up in the coming years.
	Combine TK and scientific organic technology in circular farming i.e. biogas-vegetable-pig-maize (Joint innovation)	Community Support organic Agriculture (CSA) model introduced for various crops in different communities
	Using traditional methods to improve varieties (internal but linked to PPB)	Mixing seeds for planting; & improving drought resistance of landraces of maize and rice
	Changing farming practices for adaptation to climate change and to socio-economic changes	Give up rice/wheat and plant corn for drought resistance and labour shortage
	Reintroduce traditional varieties	Give up hybrids and turn to drought and pest resistant traditional varieties.
<b>Market Innovation</b>	Some informal market innovation (Joint)	Marketing through CSA model by women's groups to city consumer groups
	New markets through common trust and oral agreement	Supplying organic landrace restaurant (externally brokered)
	Novel mechanisms for benefit-sharing to generate income based on BCH (external agreements)	ABS agreements between plant breeders & communities
<b>Institutional</b>	Informal institutions (internal)	
	New annual activity (externally initiated) but continued by communities on their own	Farmer seed and biodiversity fairs (also Market)
<b>C.HIMALAYAS</b>		
<b>Technological</b>	Changes in farming & cropping practices – internal.	<ul style="list-style-type: none"> <li>- Plant more fodder on farm based on TK/ BCH</li> <li>- Forced to use land closer to house</li> <li>- Garlic planted as border crop (not central crop) for optimal utilisation of moisture</li> <li>- Replaced some crops with turmeric (less vulnerable to attack by wildlife)</li> <li>- Changes in plant to plant &amp; row to row distance (from what is recommended)</li> </ul>
	Reintroduction of traditional crop	Flex seed which is more nutritious and helps as a border crop
<b>Institutional</b>	New village level organisation for collective management	Village crop protection committee (to protect crops from wildlife and stray cattle damage – 76 HH pay a monthly fee)
<b>E.HIMALAYAS</b>		
<b>Technological</b>	Continuing to grow traditional varieties – mostly these are declining but some farmers are still maintaining them. Growing many different crops is important for resilience.	Some people still growing traditional wheat
	New/adapted cultivation practices	Cardamon grown on farm rather than in forest (better irrigation & manure) Maize uprooted earlier to make use of land for rice planting in case of rain. Maize yield maintained.
	Crop rotation using different varieties of a crop	Changes in varieties of rice cultivated due to yield decline after 1-2 years

	<b>Crop domestication</b>	Domestication of broomstick grass, <i>tupista nutanse</i>
<b>Market</b>	Adopted new varieties for commercial production to increase food and income	When yield of main cash crops like ginger and cardamom decreased, probably due to climate change, a farmer adopted a new variety of squash which gives higher yield and so can be produced commercially, and it has spread to other farmers in the area. This may be a local squash variety. - Potato cultivation on a larger scale to make up for paddy and water loss due to landslide, and adoption of new varieties. - Replacing potatoes with mustard (traditional variety)
<b>Institutional</b>	<b>Village level cooperation</b> to access markets	Pooling produce to reduce costs of transport to market (transporting small quantities is not economically feasible)
	<b>Adaptation of traditional practice</b> of 'perma' (La-boo) (collective farming) for paddy	Perma (La-boo) is one platform where people come together for collective & coordinated paddy growing
	Continuing ancient practices to cope with new challenges	Exchanging labour for other goods or services due to growing scarcity of farming labour
	Seed exchange based on mutual trust	Exchange of poor varieties for good varieties, reciprocated in future Exchange across altitudes to access new knowledge and varieties needed and support maintenance of diversity
	Rituals relating to farming	Ceremonies before sowing, planting and harvest of key crops, specially traditional ones
	Close relationship with forest	Lepchas have very close relationship with nature, so they can survive from it
<b>KENYA</b>		
<b>Technological</b>	<b>Planting/mixing many traditional varieties of the same crop on farm to reduce risk/loss</b> (this is a new practice which has been introduced). This cushions farmers against uncertainties in weather and pests.	Two or three varieties of maize with different adaptability features are planted in the same piece of land in portions. If weather conditions are not favourable to one variety, the other(s) are able to survive and produce.
	Introduction of modern hybrids by government and business due to decreasing yields, which allow farmers to multiply the seeds from their harvest and to potentially breed further varieties.	Nerica rice (dryland variety) developed by crossing upland rice from Africa and lowland rice from Asia. The multiplication of seeds and the potential to breed further varieties from Nerica presents an opportunity for joint innovations with research organizations.
	<b>Slight changes in ancient farming practices</b> to enhance soil fertility and pest and disease control. This is a biocultural innovation because ancient practices are being modified using indigenous knowledge	<ul style="list-style-type: none"> <li>- Traditional planting methods like broadcasting are being replaced by line planting for crops like cowpeas to enhance productivity.</li> <li>- Early weeding (immediately after germination) to reduce incidence of pests</li> <li>- Planting of nitrogen fixing trees with food crops (agroforestry) to improve soil fertility.</li> <li>- Use of animal manure instead of slash and burn</li> </ul>
	<b>Domestication of wild food and medicinal plants</b> through ex situ conservation	Farmers are now growing these plants on farms for continuous sustainable supply of products
	<b>New combinations of local plants/TK for pest control</b>	Traditional methods (which are cheaper) are being adapted by farmers due to increased pests for maize and cowpeas
<b>Institutional</b>	Village & community meetings (where knowledge and ideas are spread)	
	Intercommunity social networks which can support	APHIA II PLUS with KEFRI, KARI, and Ministry of

	innovation (organised by external project)	Agriculture – farmers display products
<b>Market</b>	Perennials have become major income source over annuals/bi-annuals	Perennial crops such as coconut trees and mango trees
	<b>Communities have established specialized markets</b> where they trade in traditional products which are not found in other general markets.	Specialised markets created for livestock and seeds

### Discussion

- Traditional authorities and festivals/cultural practices are being lost in the Kenya communities. Kaya elders and spiritual leaders are disappearing at an alarming rate perhaps due to the appointment of younger leaders (by the government)
- Can adoption of modern hybrids be considered a ‘biocultural’ innovation? Adoption of modern/hybrid rice in Kenya is in line with local culture because local people already grow rice. People will only adopt something if it has cultural relevance and will always adapt external resources. However, adoption of modern varieties could adversely affect biocultural heritage and resilience by replacing local varieties and reducing self-reliance.
- Ideally a biocultural innovation should be based on at least 50% internal and external knowledge inputs. It should also be ‘non-obvious’.
- The emerging findings show that farmers in Kenya and India have adopted modern varieties, but not in Peru and China, where projects to support BCH have been in place for some time.
- It is good to include adoption of externally developed innovations the baseline survey – so we can show change at the end of the project towards more local and joint innovation.

### Qualitative Baseline study – gaps to fill

In the case of ANDES, they have focused directly on innovations, but have not done qualitative studies on other key indicators such as agrobiodiversity, livelihoods and social aspects. Other countries have not done a qualitative study focusing specifically on innovation, to get local perceptions of what ‘innovation’ is. This is the key concept for the project, so it is important to get the views of communities. ANDES have developed a methodology paper for the qualitative baseline study which has been translated to English. We also need to conduct a qualitative study on climate change to gather farmer perceptions which cannot be fully captured through quantitative data.

### **ANDES Conceptual Framework and Understanding of Biocultural Innovation (Alejandro Argumedo)**

ANDES uses the Inca graphic as its conceptual framework because it still represents the paradigm that communities use to define their future. Values and beliefs are the underlying foundation for adherence to the paradigm, which understands the world and its different elements as a complex system – this worldview is the source of solutions (innovations) to problems affecting us. Three communities make up the Ayllu – the sacred (values and principles); wild biodiversity; and humans and domesticated species. Reciprocity is the unit of exchange between the 3 communities, and this leads to Sumaq Kausay (or achieving balance amongst the three communities). This is our biocultural system.

Biocultural Heritage Innovation (BCHI) comes from traditional knowledge, Pachamama knowledge (e.g. the knowledge that the land provides in terms of agroecosystems & indicators of climate



## **“Bio-Cultural Heritage Innovations” or BCHIs – A working definition**

The following working definition was developed to ensure a common understanding:

BCHIs are new knowledge, resources, skills and practices, or new combinations of these, which serve to: (a) strengthen and sustain the agro-biodiversity<sup>1</sup>, particularly local seed systems, livelihoods and material and spiritual well-being of communities; (b) adapt to and mitigate risks due to global impacts, especially those of climate change. They are practical, sustainable, and are locally and globally relevant.

BCHIs have their basis in a people’s or community’s BCH but may incorporate external elements. They integrate daily practices with traditional knowledge, spiritual values and customary norms. As such, they are dynamic, continuous, open, adaptive, and gender-sensitive, integrating the creativity of people and nature.

Commonly, Biocultural Heritage Innovations are:

- developed using a larger proportion of traditional knowledge than external knowledge;
- holistic – ie. provide multiple benefits for people and biocultural systems;
- policy relevant – provide new policy models based on customary laws and BCH; and strengthen the rights and governance of indigenous people over BCH;
- significant - make a significant difference to livelihoods and BCH;
- new to the local area, but not necessarily globally unique;
- make people feel proud of their BCH;
- respond to the impacts of climate change but also address other socio-economic needs; and
- benefit a number of people / are scalable.

## **Quantitative Baseline Study – Identifying Common Indicators**

### **Agricultural biodiversity:**

Linda Collette, Secretary, FAO Commission on GRFA, explained that the Commission has adopted around 60 indicators of plant genetic diversity to measure 18 priority areas of the *Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture*. The indicators include: number of farming communities involved in on-farm management of PGRFA and improvement activities; percentage of cultivated land under farmers’ varieties/landraces in areas of high diversity and/or at risks; and number of farmers’ varieties/landraces delivered from national or local gene banks to farmers (either directly or through intermediaries)<sup>2</sup>. This project should try to use some of these indicators and relate to the national monitoring systems. It could focus on the number of farmers’ landraces delivered from gene banks to farmers.

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<sup>1</sup> The FAO defines Agrobiodiversity as: “The variety and variability of animals, plants and micro-organisms that are used directly or indirectly for food and agriculture, including crops, livestock, forestry and fisheries. It comprises the diversity of genetic resources (varieties, breeds) and species used for food, fodder, fibre, fuel and pharmaceuticals. It also includes the diversity of non-harvested species that support production (soil micro-organisms, predators, pollinators), and those in the wider environment that support agro-ecosystems (agricultural, pastoral, forest and aquatic) as well as the diversity of the agro-ecosystems” (FAO 1999). See FAO Fact Sheet, 2004: <ftp://ftp.fao.org/docrep/fao/007/y5609e/y5609e00.pdf>

<sup>2</sup> CGRFA-14/13/Report at <http://www.fao.org/docrep/meeting/028/mg538e.pdf>

In order to be scientifically credible, we should focus on at least 2 key indicators:

- 1) the *number* of species/varieties (i.e. diversity), and
- 2) the *area covered* by each variety or crop at household and community level (or 'abundance').

Although the number of varieties may be large, for some varieties only a small area may be planted, so measuring the *area covered* by each variety is important. This needs to be added to the quantitative survey questionnaire developed by ANDES (Section H on Agrobiodiversity). Farmers can give a rough estimate of the area covered by each variety, e.g. are they planting half their farmland with it? What percentage of their land are they planting with each variety? Or the area of farmland could be measured using GPS, or obtained from national surveys. How can we measure the area covered by each variety in mixed cropping systems (e.g. in India)?

Another smaller questionnaire is needed at community level, to ask community authorities about the overall community level situation and trend, including total number of different varieties and crops, how many households are planting the different varieties, and average income. PRA is a good way to do a community level survey. Participants should be selected at random, but in Kenya they will select 15% of each social class (identified through wealth ranking).

### **The ANDES quantitative survey questionnaire**

We need to agree on the key common indicators to use for each impact area (eg. agrobiodiversity, livelihoods, social capital etc). The ANDES questionnaire goes beyond the baseline required for this project. The Kenya team will not be able to apply such a large questionnaire if they are doing a random survey as some people will not be interested in giving the time. Indicators on innovation, social capital, gender and climate change need to be added to the questionnaire. ANDES will give out written cards to conduct the survey but will also use i-phones and video recordings so that the Potato Park technicians who are illiterate can also conduct the survey.

We will revise the ANDES questionnaire based on comments made by each team (see Annex II), and drawing on the China checklist for the Qualitative baseline study, and will integrate a gender component (see Next Steps, Annex I). The India team would like to add a forest section. And Kenya team propose that wild crop relatives be included; this could be included in the community level questionnaire. Medicinal plants and other wild plants grown in home gardens or on farm (ie. semi-domesticated) should be included in the agrobiodiversity section. We should include yield/unit area to provide evidence of the yields of traditional varieties; and record traditional varieties with resilience or tolerance properties.

### **Quantitative Indicators on Innovation:**

We should focus on the 3 key types of innovation identified – Technological, Market and Institutional Innovation. In Peru, they will also include a 4<sup>th</sup> type: Policy Innovation – ie. policy related innovations or new policies and institutions developed jointly with external actors (eg. through the Innovation Platform). Policy Innovations could also be a sub-set of Institutional Innovation. The table below identifies some proposed common indicators on Innovation.

Broad Category / Goal	Innovation Elements (process)	Results (products & processes)	Quantitative Indicator	Sub-Indicators
Community Endogenous Development priorities	<b>Technology</b> including new varieties or breeds, soil or water management practices, ways of using TK, products Etc.	<b>Technological Innovations</b>	<ul style="list-style-type: none"> <li>• Number of innovations/new technologies developed/applied</li> <li>• Number of globally significant crop species protected by the innovation (or project)</li> </ul>	<ul style="list-style-type: none"> <li>• Number that are Internal</li> <li>• No. that are Jointly developed. What is the contribution of TK? Range from 1 to 10? Who initiated them (internal/external)?</li> <li>• No. that are Externally developed</li> <li>• No. of internal/ joint innovations adopted externally</li> <li>• No. of people or villages that have adopted each innovation</li> </ul>
Agro-biodiversity	<b>Organizational</b> in terms of organizing and delivering products in new ways Etc.	<b>Market Innovations</b>	<ul style="list-style-type: none"> <li>• Number of innovations/new ways of delivering products and processes developed/ applied</li> </ul>	As above
Climate Change Adaptation	<b>Institutional</b> in terms of rules, cultures, values, norms, behaviour, organisations, agreements, policies and laws Etc.	<b>Institutional Innovations</b>	<ul style="list-style-type: none"> <li>• Number of innovations/new ways of organizing rules, cultures, values, norms, behaviour</li> <li>• Number of new or revived rituals/festivals associated to crops varieties &amp; agricultural management practices</li> </ul>	As Above
		<b>Policy Innovations</b>	<ul style="list-style-type: none"> <li>• Number of local policies informed in climate change, biodiversity and agriculture</li> <li>• Number of national policies informed in climate change, biodiversity &amp; agriculture</li> <li>• Number of scientific organisations informed</li> </ul>	
	<b>Innovation Conditions (capacity)</b>			
		<b>Organisations</b> (eg. women's groups, farming groups, specialist groups)	<ul style="list-style-type: none"> <li>▪ Number of village and inter-community groups that support innovation or learning.</li> <li>▪ Number of members of each group</li> <li>▪ Number of times they meet and activities they undertake (how active)</li> </ul>	

	<b>Networks</b> or contacts (village, inter-community, external)	<ul style="list-style-type: none"> <li>▪ Number of networks of each type</li> <li>▪ Number of members of each network</li> <li>▪ Number of meetings or activities undertaken by each network</li> </ul>	
	<b>People</b> factors	<ul style="list-style-type: none"> <li>▪ Number of people who have developed Innovations – men and women.</li> <li>▪ Number of people who experiment / try new ways of doing things (men and women)</li> <li>▪ Number of collective activities (social cohesion)</li> </ul>	
	<b>Institutions</b> & BCH	<ul style="list-style-type: none"> <li>▪ Number of traditional authorities or elders still active/respected</li> <li>▪ What aspects do they decide on (list options)</li> <li>▪ Number of rituals/festivals still practiced</li> <li>▪ Extent to which customary laws and beliefs are still observed (eg. reciprocity, sharing, spirituality)</li> <li>▪ Number of traditional varieties with resilience/tolerance properties</li> </ul>	

### Analysis of Quantitative Survey Data

There are two possible ways to analyse the data from the quantitative baseline study:

1. Comparative analysis to understand trends, compare the situation now, 10 years ago and 30 years ago; and the differences between different households, communities and countries.
2. Regression analysis to understand the relevance of different aspects and key factors. This requires a large random sample – we are only focusing on a few villages per province or area, so the sample size is too small, and it is not fully random.

For comparative analysis, we need to use the same questions so that we can compare the findings; and the units/measures may need to be converted to standardise them. We also need a common table related to the main indicators. We need to identify the required baseline data that we want to present and compare, e.g. for households, so that we can see the difference between countries in terms of demographical information, biophysical information, and climate phenomena in different locations.

We need a common table for reporting on each key milestone/indicator (not raw data), including on: the farming system and agrobiodiversity; economic/livelihoods information; institutions and organisations that are important for innovation; gender; climate change etc. For climate change and agrobiodiversity, the tables can also provide some adaptation strategies that are at the hotbed of

innovation. Climate change trends and extreme weather events are very important to capture; and changes in cropping patterns associated to weather and climate events. Data on trends is important.

We should use secondary sources to get climate trends for the last 60-80 years for our focal regions, and compare the climatic changes forecasted by scientific models with actual changes observed at local level. Such forecast information is available in National Adaptation Plans of Action (or national assessment reports to the 5<sup>th</sup> IPCC), and we can contribute valuable locally specific information which serves to validate the model-based regional data that policy makers have (which is not always accurate). This will enable us to engage with policy makers. We can also contact national offices for the UNFCCC for this information. It may be difficult to get specific quantitative data from farmers especially going back 30 years; farmers can provide trends but not exact figures.

### **Creating a Policy and Institutional Baseline and Engaging Policy Makers**

We also need to establish a 'policy baseline' in year 1 for M & E against the Indicator in the logical framework for Result 4: *"Understanding & commitment of scientists, opinion formers and policy makers to changes in policy enhanced, and significant changes instituted"*. This will be done by:

- recording the views of key officials/departments and scientific organisations, through meetings or interviews, and going back to the same people or departments at the end of the project;
- reviewing 2-3 key government policies in each country in year 1 (eg. on seeds, agricultural innovation, climate change),
- reviewing key international policies in year 1 (IIED will lead on this).

Each country should try to actively engage policy makers in the project from year 1 (as stated in the EC proposal), to build a receptive audience for our findings, eg. through a project steering committee. In the previous project in Kenya, a national policy committee on TK was asked to act as the project steering committee, and this generated ownership and allowed the findings to be presented to policy makers at key stages. We should also explore the institutions (interests and powers vested in the status quo) that block the spread of proven innovations beyond 'niches', as suggested by the Project Advisory Committee.

### **Establishing an Innovation Platform in Peru**

ANDES and the Potato Park are planning to establish an Innovation Platform to engage local and national policy makers and scientific organisations, drawing on a number of examples in West Africa. For ANDES, this is the best way to get the national government involved in the project. The platform will be facilitated and led by ANDES and the PP, in collaboration with the International Potato Centre (CIP). It will involve local farmers from other communities in the Cusco region, local and national government (eg. the national institute for agricultural innovation, INIA) and universities in Cusco. The aim is to also involve the private sector, provided they are willing to support the needs of communities. Peruvian representatives of the FAO Treaty and IFAD will also be invited to participate. There is strong interest from national and international institutions in establishing such as platform as a means to scale up the Potato Park as an innovation.

The platform will discuss the findings of the research in the Potato Park and will help to identify the kind of innovations the community should focus on in terms of new products and process and to establish partnerships to support innovation. It could also be an effective tool for policy

development. The Platform will develop an agenda and decide how often to hold meetings (eg. 2 or 3 times a year). A global network of Innovation Platforms could eventually be established.

The CORAF (West and Central African Council for Agricultural Research and Development) conceptual framework for establishing an Innovation Platform for agriculture value chains identifies 3 phases (see CORAF/WECARD 2012 “Integrated Agricultural Research for Development (IAR4D) – Innovation Systems: Innovation Platforms (IP) of Agriculture Value Chains”):

- Phase 1: Identifying stakeholders and building partnerships; understanding problems from systems analysis and market approaches. Opportunities, linkages, interest and ideas
- Phase 2: Systems improvements, value addition and market opportunities. Improving productivity and creating value.
- Phase 3: Setting in place innovations: new products, new technologies, new institutions, new marketing outlets, new policies.

**Discussion:**

- In India, central Himalayas, we don't have the luxury of surplus production, we need to address household food security, so setting up an innovation platform may be premature.
- Platforms don't have to focus only on market products - we also want to develop innovations for climate change adaptation in the Potato Park.
- In China, we are trying hard to move from Phase 2 to Phase 3. The research findings are presented to policy makers and scientists at workshops every year.
- In Kenya, the work to engage stakeholders is being led by the National Programme Coordinator, Paul Ongugo. He has contacted some of the key policy makers to inform them about the project.

**The Potato Park field visit – Discussion with Community Technicians and Collectives**

The population of the Park is about 6500. Until 12 years ago, we were separate and now we collaborate as one. The highest part is wild, with wild animals and medicinal plants; and the middle and upper parts is where there are potatoes and we conserve their diversity. One community alone would not be able to move potatoes around to test them in different areas - this is what enables us to sustain such a rich diversity and respond to climate change. The Association of the Potato Park is an autonomous organisation (registered in the Public Registry in Cusco since 2002), and it means that we keep any benefits generated in the Potato Park. It is an innovation because we work for each community and for the good of all communities.

Our communities joined together because we share the same history. Until the 1960s, this land was owned by big landowners, the system was semi-feudal. The communities obtained collective land title in the 1970s when the law changed. Together as an Association we can face external threats, particularly mining, as this is a mining area and the communities don't own the land 1 metre below the surface. Before there were conflicts between the communities, people were even killed. The administration of goods of the Potato Park is done under customary laws of the communities.

Each mountain is a god, and we elect one as the 'mayor' to govern us (currently we have a female mountain mayor). The wise people/elders relate with mountain gods and get teachings through dreams; we also communicate with the mountains for reciprocity, to thank them through rituals. We have an inter-community agreement for benefit-sharing, to share the income from donations, tourism etc fairly amongst the communities, at the end of each year. The agreement was developed through several focus group discussions involving elders and community members to agree common rules for benefit-sharing based on customary laws, and it also serves to govern us by customary laws.

The Director's Council of the Potato Park manages the sharing of benefits. The governance of the park also includes the community authorities, economic collectives and ANDES.

When the park was founded it had 778 potato varieties, and it got 410 more native varieties from the International Potato Centre (CIP). These were collected from the area around the 1960s but had been lost. These potatoes are planted in tunnels/greenhouses, for genetic enrichment and cleaning from viruses, as well as on farm and in different areas of the landscape. Potatoes have also been given to them by neighbouring communities for safekeeping. The Park has a cold storage room for seeds, which uses water and air flow for cooling (not electricity), integrating traditional and scientific designs. The park's potato diversity is managed by the Potato Collective. Other collectives focus on crafts/textiles, herbal teas and personal care, tourism and gastronomy (women only). Products are branded with the Potato Park Collective trademark, which means that 10% of the profits are paid into the Inter-community fund for sharing under the inter-community agreement.

### **Towards a common framework for Action-Research - Objectives and Activities**

**China/CCAP:** We will continue to focus on PPB and scale it up in more communities in Yunnan. This includes pre-breeding on station and in the communities, experiments in the lab, and follow up on access and benefit-sharing (ABS) issues. Our work focuses on:

- Conservation of agrobiodiversity, community seed banks/registers.
- Community based seed production.
- Following up on ABS agreements established 3 years ago between plant breeders and communities for benefit-sharing related to PPB.
- Community Support Agriculture: circular farming (duck-fish-rice), and market innovation the Indigenous Peoples' Climate Change Assessment and PPB in Yunnan, including CSA and seed exchange.
- Reconstruction of traditional values and culture to enhance collect spirit and capacity
- Policy influence on biodiversity management, agriculture Research and Extension, seed law, regulation, farmer organization, organic farming and marketing.

#### **Kenya/KEFRI:**

- At economic level, we will identify innovations and practices for livelihoods; and focus on value addition for both 'old'/traditional and new products.
- We will develop registers of TK-based/biocultural innovations. We will develop propagation protocols for wild plants, and plant wild plants important for food security on farm (ie. ex situ)
- At social level, we will strengthen customary laws, values and practices for collective NRM; we will empower farmers, and target marginalised groups such as kaya elders.

**India/LCM:** Our objectives are improving household nutrition and food security, livelihood options based on biocultural heritage, and climate change resilience. Key principles: strengthen BCH and customary laws; gender equity; sustainable, inclusive and integrated development. Action- Research components:

- Community registers of biodiversity and TK
- Strengthen traditional institutions – in the eastern Himalayas, we will form a committee on climate change to raise awareness amongst traditional institutions
- BCH products: developing a traditional recipe book and nutritional analysis of traditional crops in the lab, and identifying the nutrition gaps that can be filled by traditional foods.
- Traditional agriculture calendars have changed due to changes in climate. Should the dates of associated festivals also be changed?

- Participatory Technology Development: this may be PPB, but PTD includes activities that involve scientists and farmers other than plant breeding.
- Sensitising policy makers and scientists.

**Peru/ANDES:** Our main concern is how to strengthen community participation in BCH Innovation research? The ANDES framework involves training community researchers to plan and conduct the research, and combining traditional methodologies. We use locally defined indicators, support self-implemented research activities, and use indigenous methods to document BCH innovations. We work with the Potato Park communities as research partners, and plan to establish a community research centre so that the communities can engage directly in research projects as partners. Our project will develop a Life Plan for resilience to climate change; explore how to use customary laws to develop community biocultural protocols for access and benefit-sharing relating to the Park's potato collection and sacred sites; explore the development of novel biocultural products and their protection using 'soft IPRs' such as collective trademarks and copyrights; and develop climate-ready potatoes through PPB with the CIP.

I-phones and i-pads and special software will be used to enable community technicians who may be illiterate to play an active role in collecting data, using video, audio, graphics and traditional methods. There are a number of useful apps for this, including Fieldnotes system with video & audio, Ethnographic tools eg. TagPag, Ethnocorder, and mapping/diagramming. If all countries use these tools, we could set up an intranet for project partners on the BCH website and use cloud technologies, so that all countries can feed their data into a common database.

#### **Discussion:**

- All the studies are focusing on strengthening biocultural heritage, agrobiodiversity, cultural values and markets, for food security. A key difference may be in the extent to which community researchers are involved in directing the research. By engaging communities actively research planning, conceptual and methodology development, this project could build their capacity to address any challenges they may face, and have impacts beyond this project.
- In Kenya we also want to add a PPB component, but need additional funds for this.
- Other countries have not included a budget for i-phones and apps. We could develop this as an innovation from the project in the action-research part.
- How safe is traditional knowledge when these new modern systems are used?
- TK is visual and with these modern tools you can use video or audio to collect data, so people feel more comfortable.

#### **Geographical Indications and Collective Trademarks – Useful or Not? Graham Dutfield**

Trademarks must be distinctive. They are registered for specific types of goods. Unlike patents the rights are indefinite, subject to periodic renewal fee payments and – usually – continuous use. They communicate information about a product's origin and qualities. Collective marks are collectively owned by producers under agreed rules. If someone else uses the mark and this is likely to cause confusion, they can be sued for trademark infringement. If your mark is not registered officially you can still sue in Peru and other countries under unfair competition law.

Geographical Indications are defined in TRIPs. Production and processing takes place in the geographical region. They are likely to be harder to obtain than trademarks in that they require more government involvement and support. Trademarks are property rights but GIs are not owned by anyone. Producers may acquire rights to use them but they do not become their property. Both

require an organisation of producers, and can protect *group* interests, so they may be more culturally appropriate; but the group has to stay together as a group. A boundary around your product has to be set (geographical or social).

**Alejandro Argumedo:**

The Potato Park tried to register its collective trademark with INDECOPI (the national IPR office), but issues of bureaucracy made it impossible. The application must have the name of an individual representing the group or association making the application. Soon after the application was submitted, the representative of the Association of the Potato Park communities changed but the name could not be changed in the official register in the time allowed for applicants to submit the required information to INDECOPI (60 days).

The Potato Park has been using its collective trademark informally since 2005 and a survey in 2010 showed that this has brought higher prices and increased sales, and has enhanced social cohesion in the park. The communities developed their own rules relating to the rights conferred to users of the mark, guided by customary laws. However, the study also found that the integrity of biocultural heritage cannot be captured by collective trademarks (<http://pubs.iied.org/pdfs/16528IIED.pdf>). An alternative type of indication is needed – a Biocultural Heritage Indication – to address these issues, which could combine useful elements from different ‘soft’ IPR tools (eg. GIs, trademarks, designs).

**Discussion:**

- In order to take this idea forward, we could develop a model “Biocultural Heritage Indication” for our products, which would recognise collective rights, link to a geographical area, and protect biocultural heritage. We could design a specific sign for biocultural heritage. We could use our definition of a Biocultural Heritage Innovation as the basic criteria for registration.
- But the BCHI would have to be registered in each country as a collective trademark, which could be a lengthy process. So IIED could register the BCH mark in each country and transfer the rights to each partner. IIED would have to be trusted to act in the best interest of each partner. The BCH mark could be used alongside other local marks. The BCHI could set common minimum standards which can be made more specific at regional level.
- A Biocultural Heritage Institute could be set up to take forward the BCH Indication and other practical policy proposals on BCH, give advice on BCH to policy makers, undertake studies etc. Krystyna could be its Director. Or this could be a centre or unit within IIED.
- The Potato Park communities strongly support the BCH Indication idea. We would also like to ask the communities that you work with to participate in a video conference so we can discuss the challenges and innovations of mountain communities facing climate change.

**The FAO Commission on Genetic Resources for Food and Agriculture (Linda Collette, FAO)**

One of three Global Goals of FAO’s Members is the “sustainable management and utilization of natural resources, including land, water, air, climate and genetic resources for the benefit of present and future generations”; and biodiversity is addressed in the Reviewed Strategic Framework (in strategic objective 2)<sup>3</sup>.

The Commission, established in 1983, is an FAO statutory body, which addresses all aspects of biodiversity for food and agriculture since 1995<sup>4</sup>. As of April 2013, 177 countries and the European Union are members of the Commission. The Commission has adopted a strategic plan with priority

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<sup>3</sup> Strategic Objective 2: Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner.

<sup>4</sup> <http://www.fao.org/nr/cgrfa/cgrfa-home/en/>

issues as well as a Multi-Year Programme of Work (MYPOW) that addresses cross cutting issues such as ABS and climate change. The Commission provides an intergovernmental forum to reach global consensus on policies relevant to biodiversity for food and agriculture. The Commission is also informed by the work of its Inter-governmental Technical Working Groups (WG)<sup>5</sup> which advises and makes recommendations to the Commission. The Commission may also establish such other subsidiary bodies as it may deem necessary for the effective discharge of its functions.

The Commission oversees global assessments of the state of the world's plant, animal and forest genetic resources for food and agriculture, and has negotiated major international instruments, including the International Treaty on Plant Genetic Resources for Food and Agriculture. As part of the process, the State of the World is followed by a negotiated Global Plan of Action adopted by the Conference of FAO. For example, the Second Report on the State of the World's on Plant Genetic Resources for Food and Agriculture published in 2010 was followed by the Second Global Plan of Action for plant genetic resources for food and agriculture. The Commission then monitors its implementation. The State of the world reports are based on national reports and often complemented by thematic studies prepared by technical experts. The Commission has also agreed to produce a first report on the State of the World Report on Biodiversity for FA focusing on all aspects and components of biodiversity for food and agriculture by 2017.

The FAO Treaty on Plant Genetic Resources for Food and Agriculture recognises the enormous contribution of farmers to PGRFA, including indigenous and local communities, who are at the basis of all plant GRs that we now have for food and agriculture. The crops in the Treaty Annex 1 are part of the Multilateral System where access is facilitated based on standard material transfer agreements.

The CBD addresses all biodiversity, including agricultural biodiversity, and emphasises national sovereignty over natural resources; while the Treaty is designed to facilitate access to GRs for food security, recognising the inter-dependence of all countries. The Nagoya Protocol contains provisions for special consideration of the importance of genetic resources for food and agriculture in its preamble and article 8 (c)). This which gives room for sectors to come up with their own ABS instruments, provided that they are supportive of and do not run counter to the objectives of the Convention and the Protocol. The Joint work plan of the Secretariats of the CBD and of FAO and its Commission makes reference to this possibility. The Commission has agreed to carry out work on ABS that includes compiling information on ABS regimes for food and agriculture, and the participation of ABS experts in the Technical Working Group (regions will appoint 2 experts)<sup>6</sup>.

This project could inform the work of the Commission through:

- A side event at its next meeting in Rome in January 2015, to share local experiences.
- Submitting information on voluntary codes of conduct, guidelines and best practices related to ABS.

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<sup>5</sup> So far the Commission has established 3 WGs constituted of 27 Member Countries representing 7 regions. The WGs address plant genetic resources, animal genetic resources and forest genetic resources.

<sup>6</sup> The entire work of the Commission on ABS agreed at the meeting in April 2013 is mentioned in the CGRFA-14/13/Report available at <http://www.fao.org/nr/cgrfa/cgrfa-meetings/cgrfa-comm/fourteenth-reg/en/#c160710>

- Contributing to the State of the World on Biodiversity report which will be discussed at the 16<sup>th</sup> regular session of the Commission (in 2016-17) and will address ecosystem services and sustainable approaches. We could provide evidence of sustainable approaches, through case studies. Should there be a thematic study on innovations this would represent an opportunity for contributions.
- Engaging with the national delegates to the Commission. For the State of the World report, a national focal point will be appointed (may be the same person as for the Treaty).
- This project needs to find a champion in government to get some leverage and we should also provide information on the project to the in-country offices of the FAO.

**GIAHS** – Globally Important Agricultural Heritage Systems have some similarities with our project. GIAHS started as a GEF funded project, see [www.giahs.org](http://www.giahs.org). Its mission is to identify, support and safeguard GIAHS. GIAHS need to be locally and nationally recognised. GIAHS is interested in collaboration with others like this project – and this could bring greater recognition to the local biocultural systems and initiatives involved in the project.

**Discussion:** The project could also inform the Commission’s work on the role of genetic resources in food security in the face of climate change, as a contribution to the implementation of its programme of work on climate change (POW on CC), particularly by contributing to an electronic survey of practices relating to this issue (which should be followed by an expert meeting). The objective of the POW on CC is to raise awareness of the role of GR to cope with CC.

On the establishment of networks for in situ and on farm conservation, the recent Commission meeting asked for a concept note detailing the governance, structure, functions and financial implications of the establishment of either a global network for in situ conservation and on-farm management, or the two networks separately - this issue is not yet decided, so we can contribute perspectives, a paper is being developed.

Linda is also the chair of the FAO Inter-Departmental Working Group on Biodiversity for Food and Agriculture (IDWG). Its membership comes from many FAO departments. The IDWG serves as a forum for developing corporate inputs/documents/response related to biodiversity. For instance, several members were instrumental in the production of the document “Save and Grow” that promotes inter alia the management of biological processes for sustainable crop production intensification. It might be worthwhile to consider how the findings of the project can provide evidence that diverse systems are more resilient and sustainable. To that effect a meeting can be organised with the IDWG.

### **WIPO, WTO and UPOV – Current state of play on Traditional Knowledge and PGRFA, Graham Dutfield**

WIPO is a UN agency and its mandate is to promote Intellectual Property around the world – but it is also subject to the terms of the UN Charter and relevant UN treaties concerning, for example, sustainable development and human rights. In the late 90s, WIPO were seeking new IP beneficiaries, so they set up an Inter-Governmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore. Initially, work was targeted at seeing whether existing IP rights, including patents, can work for traditional knowledge (ie. defensive protection). However, the limitations of this approach are now well understood (given the fundamental differences between commercial inventions and traditional knowledge). Work has now shifted towards the possibility of

creating new rights. The Committee is currently considering 3 separate legal texts on TK, GRs and folklore, which could either be separate Conventions (i.e. legally binding treaties), or Declarations (ie. non-binding), or could be merged into one. Most of the texts are still in brackets. The WIPO General Assembly meeting in September 2013 will decide on the way forward, including whether to extend the mandate of the IGC for another two years.

WTO – Agreement on Trade Related aspects of Intellectual Property Rights (TRIPs) – article 27.3(b) requires patents for ‘inventions’ in biotechnology and plant and animal breeding, but allows plants and animals to be covered by an alternative sui generis system. UPOV position themselves as the most suitable alternative. In 2006, Brazil, India, Pakistan and Peru submitted a proposal on Disclosure of Origin, which would require patent applicants to disclose the origin of genetic resources and traditional knowledge and provide a certificate of origin (this is also mentioned in the Nagoya Protocol). The EU has indicated a willingness to accept this requirement in EU patent law, provided their demands regarding GIs for protecting wines and spirits are accepted.

UPOV – the International Union for the Protection of New Varieties of Plants, has 71 member states including Kenya, China and Peru. The UPOV Convention protects Plant Variety Rights (or Plant Breeders’ Rights), providing the European alternative to US patents on plants. PBRs require that plants protected are genetically uniform so they can be distinguished and genetically stable. UPOV is based on a German rules to regulate the seed market. The latest version, UPOV ‘91 allows member states to ban farmers from saving seed of the protected variety. In the US, farmers can save protected seed without paying anything, but in Europe, farmers have to pay something, except small farmers. UPOV has a lot of power – it reviews national laws and if they are not compatible with UPOV, it requires countries to redraft their laws as a condition of joining. UPOV has until recently been closed to civil society, but two NGOs have gained observer status. Staff in the Geneva office tend to believe that “old” varieties need to be replaced with new ones (see Dutfield, 2011). Mandatory disclosure requirements are not allowed for members of UPOV. The Netherlands is the country with the highest number of PVP rights outside its own country – 1618.

## Discussion

- Can the impact of UPOV on crop diversity be measured? You can’t separate out UPOV from the commercialisation of agriculture – but it creates incentives to innovate in a certain way, for commercial objectives.
- In India, the Plant Variety Protection and Farmers’ Rights law uses the same criteria as UPOV for registration of farmers’ rights – DUS – Distinctiveness, Uniformity and Stability, which means it is not easy for farmers to register traditional varieties, and farmers don’t particularly want those rights. These criteria are not in line with the objectives of the FAO Treaty of conservation and sustainable use of genetic resources as they promote genetic uniformity.

Advice from Graham (member of the Project Advisory Committee):

- This project could re-evaluate the concept of “innovation” in relation to indigenous cosmovision (ie. worldview). It could rethink the concept through non-western views of the interaction with the spiritual world and values.
- This project is very relevant for WIPO and UPOV, but not for the WTO which is not really progressing. The only way to influence the WTO is through national governments.
- The idea of Biocultural Innovations could be presented at a WIPO meeting. WIPO is at a critical stage, we should engage as soon as possible.
- For UPOV, we should not engage directly but through NGOs which are observers such as the APREBES (includes the Berne Declaration) and Via Campesina.
- The UNESCO Convention for Safeguarding Intangible Cultural Expressions is also very relevant.

## **NEXT STEPS and ACTION POINTS**

### **Baseline Study:**

Data collection should be completed **by the end of September**, for both the qualitative and quantitative studies, even if translation, compilation etc, takes longer. This means that the qualitative baseline studies will need to be finished by May/June.

#### **1. Finalising the Qualitative study (May-June)**

- All teams will finalise the qualitative studies that are underway.
- ANDES will conduct qualitative studies on key indicators such as agrobiodiversity, livelihoods and social capital
- The other teams will conduct qualitative studies on innovation to get local perspectives on what this concept means
- All countries will conduct qualitative studies on climate change to get farmer perceptions – ideally in year 1, but if not in year 2 (eg. in India)

#### **2. Quantitative Study – Identifying common indicators (June – September)**

The following steps were agreed to develop a common questionnaire, by end of June:

- Tammy will revise the ANDES questionnaire to address the comments made by each team and send it to Yiching.
- Krystyna will write up the discussion on indicators of innovation and send to Yiching.
- Yiching will revise the questionnaire to include sections on innovation (including social networks) and climate change.
- Yiching will develop two questionnaires: Household and community level.
- Reetu will review the whole questionnaires to mainstream gender.
- All teams will comment on the draft questionnaires to make adjustments and identify the key indicators for all countries.

We will develop common tables for reporting the findings on key indicators by end of September.

#### **3. Policy baseline study - by end of September (or October).**

Each country team will:

- Gather and record the views of key policy makers (agriculture, biodiversity, climate change) and scientists on smallholder/biocultural innovation, through meetings or interviews, along with their names and departments.
- Review 2-3 key national policies that the project seeks to inform and influence, eg. on agricultural innovation, seeds, climate change, to establish a policy baseline in year 1.

IIED will review international policies to create a baseline and inform our engagement with these.

### **International policy meetings:**

The EC proposal requires IIED and 1-2 partners to participate in 2-3 key international policy meetings each year. Two key meetings are coming up in 2013 where we can promote BCH Innovations and the baseline study findings:

- the FAO Treaty on PGRFA, 24-28 September in Oman, which will cover farmers' rights; and
- the CBD Working Group on Article 8(j), 7-11 October Montreal, on knowledge, innovations and practices.

- We may need to select one of these, in which case the 8(j) meeting should be prioritised. We should also organise side events/sessions to present our findings at:
- the next WIPO IGC meeting, likely to be on April 22-26 2014 (assuming the mandate is extended);
- the ISE Congress in Bhutan in early June 2014, focusing on biocultural heritage in mountain contexts;
- the FAO Commission on GRFA in January 2015.

### **Communications:**

IIED has proposed that we re-design the **BCH website** to be 'tablet friendly' to increase hits – currently it gets c. 9000 hits a year. The new format would profile publications and blogs, and SIFOR country pages will be added. IIED will start building a draft of the new site for comment (based on the urban density website model). Partners need to include information on SIFOR on their websites for EC visibility and we need to create reciprocal links with the BCH site to raise our profile on google. IIED will also set up an e-list for the project.

For **file sharing** and storage, dropbox is not always accessible from China, so the China team could create a cloud system and pass it to IIED to update.

- All to upload presentations and photos from the Cusco workshop onto dropbox
- Yiching to confirm whether or not dropbox is OK and, if not, to set up a cloud
- Krystyna to upload key references onto dropbox and provide access to references on resilience
- Krystyna to enquire about possibility of an intranet on the BCH site

### **Fundraising:**

IIED will continue to look for co-funds for PPB. Kenya will explore potential collaboration with CIMMYT in ICRAF, as well as KARI. We will also try and raise additional funds for the international policy dialogue in India in late 2014 for participation by national and international policy makers and scientists. Additional funds will be needed for M&E in 2017. We could also try and raise extra funds for i-phones and apps for data collection.

### **Project Advisory Committee:**

- Linda Collette will provide a list of FAO Commission focal points in Peru, Kenya, India and China
- Graham Dutfield will provide a list of 'mainstream' references on innovation
- All will read/address the comments provided by Ronnie Vernooy and Janice Jiggins on the baseline study and policy engagement.

### **Next project workshop:**

This will be held in India in November 2014, in the central Himalayas study area, just before our first 'International Policy Dialogue' in Delhi.

### **Video Conference Call amongst communities:**

In response to the request by the Potato Park, we will explore the organisation of a community dialogue with other mountain communities in the project to discuss climate change challenges they face and responses needed.

## **Annex I - Comments on ANDES questionnaire – Quantitative survey on Agrobiodiversity**

Comments on the ANDES questionnaire (section H):

- The focus should be broadened to 1-5 major crops and number of varieties of each (not just potato varieties) (H3 and H4). Or it could cover major crop types, e.g. cereals, spices, fruits, pulses and vegetables (India). In Kenya, the main crops are maize and cassava, but perennials are also relied on a lot more with climate change, and cash crops are important to cover the gap when crops fail. The responses to H3 and H4 should be a single exact figure, not multiple choice.
- The questions on fertilisers (H5 & H6) should be moved to the section on farming practices.
- H7 should relate to seed diversity (rather than crop diversity) and the role of “keepers of seed” should be split into 2 questions – who does selection of seed, and who decides what to plant (as women may be the selectors and keepers, and men may decide what to plant)
- H8 – H11: may need separate tables for crops and varieties.

## **Annex II – Workshop Participants List**

<b>Name</b>	<b>Job Title</b>	<b>Email</b>	<b>Institution</b>
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Brisayda Siccus Palomino	Member of Gastronomy Collective of the Potato Park.	-	Potato Park

## Summary

This five day workshop brought together the SIFOR research teams from India, Kenya, China and Peru, the Potato Park communities (Peru) and IIED to develop a common methodology for the SIFOR baseline study and action-research on biocultural innovation. The emerging findings of the qualitative baseline study on Technological, Market and Institutional Innovation in each country were presented; and key indicators for the quantitative survey were identified. ANDES presented its conceptual framework for action-research in the Potato Park, and a field visit to the Park enabled partners to learn about its diverse biocultural innovations and collective governance. A working definition of Biocultural Heritage Innovations was developed; and the potential of different policy tools and frameworks to protect them was explored.



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