

Report of the IPBES-JBF Sub-regional Dialogue Workshop

on Indigenous and Local Knowledge (ILK)
for South-East and North-East Asia Sub-region
(14-17 Oct. 2016 in Chiang Mai)



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1. Introduction

1.1 Background

The IPBES Sub-Regional Dialogue Workshop on Indigenous and Local Knowledge (ILK) for the South-East and North-East Asia region that was organised by the Institute for Global Environmental Strategies (IGES) was held in Chiang Mai, Thailand on 14-18 October 2016. This sub regional workshop was conducted to follow up on the outcomes of the Regional Dialogue Workshop on ILK for the Asia Pacific Region that was held in June 2016, also in Chiang Mai, and organised by the IPBES Task Force on ILK (TF ILK).

Prior to the sub-regional workshop, IGES made an open call for submission of case studies on ILK, biodiversity and ecosystem services from the South-East and North-East sub-regions of Asia through the IGES website. All submissions were carefully reviewed by a workshop organisation committee¹, and applicants were selected based on the quality of their submissions and relevance to IPBES assessments.

The sub-regional workshop was successfully completed as described in this report. It featured a dialogue with ILK holders from northern Thailand on 14 October, case study presentations and chapter writing sessions during the main workshop on 15 and 16 October, and a visit to a Karen people's village on 17 October.

The workshop was made possible through the assistance of the Indigenous Peoples' Foundation for Education and Environment (IPF) which made logistical arrangements and provided substantive input during the workshop; the IPBES Task Force on ILK which provided technical support, and the Japan Biodiversity Fund which gave financial support through the Secretariat for the Convention on Biological Diversity. We also acknowledge the contributions of the participants during the discussions and in enriching the workshop outputs.

1.2 Objectives

The objectives of the sub-regional workshop were to:

- Further consolidate the outcome of the Regional ILK Dialogue Workshop for the deliverables to the IPBES Regional Assessment for Asia and the Pacific;
- Identify additional cases to fill knowledge/information gaps in terms of regional and thematic balance, as well as to further populate key points shared at the regional dialogue workshop with more concrete case studies;
- Build relationships, respect, mutual understanding and trust between and among ILK holders, ILK experts, assessment authors, and Task Force members;
- Enhance capacity and empowerment of ILK holders, ILK experts and assessment authors to co-produce inputs to the IPBES Regional Assessment for Asia and the Pacific; and
- Facilitate the processes of identifying sub-regional hubs, nodes and focal points for ILK.

1 Described in detail in section 1.4

1.3 Expected outputs

With the above objectives, the sub-regional workshop aimed to produce the following outputs:

- Recommendations on how to reflect ILK into the Asia-Pacific Regional Assessment (APRA) and suggested text to be added to the assessment report;
- Identification of further ILK holders and development of a list of ILK holders in each sub-region, and a list of priority ILK literature, as necessary;
- Additional proceedings, discussion summary and meeting report to be used as reference materials by authors for APRA; and
- Initial list of ILK resources, ILK holders, and hubs, nodes and focal points in the sub-regions, as appropriate.



Group photo in the wrap-up session



Group photo in the opening session



Dialogue session with ILK holders



Participatory wrap-up session facilitated by Prof. Wilfredo V. Alangui

1.4 Organisational structure and key partners:

An “Organisation Committee for the Sub-regional Dialogue Workshop on ILK for the South-East and North-East Asia” was formed to prepare, plan, and implement the sub-regional workshop. The members of the Organisation Committee are listed in the table below.

Organisation Committee for the Sub-regional Dialogue Workshop on ILK for the South-East and North-East Asia

Name	Affiliation	Role
Wilfredo V. Alanguí	TF member, University of the Philippines Baguio	Facilitator
Dayuan Xue	TF member, School of Life and Environmental Science, Minzu University of China	Facilitator
Kaoru Ichikawa	TF member, UNU-IAS	Facilitator
Kittisak Rattanakrajangsri	Indigenous Peoples’ Foundation for Education and Environment (IPF)	Host
Gam Shimray	IPF	Host
Yoichi Sakurai	IGES JBF Project team	Organiser
Wataru Suzuki	IPBES-TSU-AP	Support

An Advisory Committee was also formed to plan and coordinate the implementation of all the three Sub-regional Dialogue Workshops in the Asia-Pacific region, including this South-East and North-East Asia Sub-regional Workshop. The members of the Advisory Committee are listed below.

Advisory Committee for the Sub-regional workshops in Asia-Pacific

Name	Affiliation	Role	Remarks
Madhav Karkim	Co-chair and TF member	Facilitator	S & W Asia
Rosemary Hill	TF Member	Facilitator	Pacific
Douglas Nakashima	IPBES-TSU-ILK	Advisor	
Joji Carino	Resource person	Advisor	
Thomas Koetz	Resource person	Advisor	IPBES Secretariat
Simone Schiele	Resource person	Advisor	IPBES Secretariat
Wilfredo V. Alanguí	TF Member	Facilitator	SE & NE Asia
Dayuan Xue	TF member	Facilitator	SE & NE Asia
Kaoru Ichikawa	TF member	Facilitator	SE & NE Asia

1.5 Workshop Programme:

14 October 2016, Friday

10:00	Preparatory meeting of organisers and facilitators
12:00	Lunch
12:30	Registration and coffee
13:00	Introductory session
	Opening remarks (Kittisak Rattanakrajangsri, IPF)
	Introduction and remarks from facilitators

	Round table introduction (Chaired by Wilfredo V. Alangui)
13:40	Introductory presentations
	The objectives of the dialogue workshops and today's session. (Yoichi Sakurai, JBF Team, IGES, Japan)
	The outcome of the IPBES ILK Regional Dialogue workshop in Chiang Mai (Kaoru Ichikawa, TF member)
14:20	Dialogue with local ILK host organisations including their network partners (Chaired by Wilfredo V. Alangui and Kittisak Rattanakrajangsri)
15:20	Wrap-up
16:00	Close

15 October 2016, Saturday

8:30	Registration and coffee
	Opening
9:00	Welcome Remarks (Kittisak Rattanakrajangsri, IPF)
9:10	Introduction of the objective and programme of the workshop (Yoichi Sakurai, JBF Team, IGES, Japan)
9:20	IPBES Asia-Pacific Regional Assessment (Wataru Suzuki, IPBES-TSU-AP)
9:30	Self-introduction of participants
9:50	The summary of the outcome of the IPBES ILK Regional Dialogue workshop in Chiang Mai (Kaoru Ichikawa, TF member)
10:10	Q&A
10:30-11:00	Coffee break
	Presentations by participants
11:00	Presentation-1 (Kittisak Rattanakrajangsri / Gam Shimray)
11:20	Q&A
11:30	Presentation-2 (Jintana Kawasaki)
11:50	Q&A
12:00	Lunch
13:00	Presentation-3 (To Kien Dang)
13:20	Q&A
13:30	Presentation-4 (Milanie June Cadalig Batang-ay)
13:50	Q&A
14:00	Presentation-5 (Danesto Bacdayan Anacio)
14:20	Q&A
14:30	Presentation-6 (Maria Elena Rafanan Regpala)
14:50	Q&A
15:00-15:30	Coffee break
15:30	Presentation-7 (Lun Yin)
15:50	Q&A
16:00	Presentation-8 (Kanlaya Chularattakorn)
16:20	Q&A
16:30	Wrap-up discussion
17:30	Close
	(Meeting of facilitators, authors and organisation committee)
18:30	Reception

16 October 2016, Sunday

8:00	Registration and coffee
8:30	Introduction to the writing sessions
9:00	Presentation-9 (Jarunee Pilumwong)
9:20	Q&A

9:30	Writing session-1: Brief introduction of Chapter 1 and Chapter 2 by the authors and discussion and on how ILK and related cases can be included in the assessment report.
10:30-11:00	Coffee break
11:00	Writing session-2: Brief introduction of Chapter 3 and Chapter 4 by the authors and discussion and on how ILK and related cases can be included in the assessment report.
12:00	Discussion
12:30-13:30	Lunch
13:30	Writing session-3: Brief introduction of Chapter 5 and Chapter 6 by the authors and discussion and on how ILK and related cases can be included in the assessment report.
14:30	Wrap-up for the writing session
15:00-15:30	Coffee break
15:30	Ways and means of facilitating ILK in the sub-region and developing enable environment – Introduction of the summary of the questionnaire and discussion on possible structures to identify ILK holders and information relevant to IPBES process
17:30	Wrap-up
18:00	Closing

17 October 2016, Monday: Excursion

7:30-19:00	Site visit: To expose participants to forest and water management practices of indigenous and local communities and to have interactions with the village people.
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2. Summaries and key points of presented cases

This chapter presents the case studies submitted by the selected ILK holders and experts from the South-East and North-East Asian countries, which were revised where necessary reflecting the comments raised during the dialogue session. In addition, the participants provided key messages from their respective case studies that they think are important for the IPBES Regional Assessment under sub-section c).

2.1 Forest, Communities and Ecosystems: The case of Huay Hin Lad Nai community

a) Author(s), affiliation and contact

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b) Summary

The Huay Hin Lad Nai community: The community in Huay Hin Lad Nai belongs to the Pgakenyaw tribe of the Karen group. The village is in a hilly area from where more than 14 small streams originate and flow into the Huay Hin Lad Nai stream, which in turn flows into the Mae Chang Kao River (a branch of the Lao river). The Mae Chang Kao watershed area is known to be the ancestral land of the Pgakenyaw.² The Huay Hin Lad Nai's village territory measures 10,279.75 rai (16.45 km²) consisting of mostly mountainous lands. The community consists of 5 clans and 20 households with 35 families, making a total population of 107.

The village Headman and the Assistant Headman are appointed by the government, including a Village Committee of 15 members, which include both women (2) and youth (6) representatives. However, they also have their traditional leader referred to as *Zee Khou*, who is considered the spiritual protector of the community. All representatives of the village are democratically chosen by consensus. The villagers abide by government rules for formal and official transactions, but follow their customs and customary laws in their daily life.

The elders in the village work closely with the youth and they have a very strong sense of responsibility for preserving their beliefs and traditions into the future. Further, exchange of labour among the community is considered to be very important in the continuity of their community life.

History of Huay Hin Lad Nai: In 1966, after decades of searching for a suitable settling place, they finally decided to settle down in the present area. The area had plentiful food, wildlife and other resources, but in 1986, the Thai government granted concession to the Chiang Rai Tha Mai logging company. When the logging company finally left the village forests, only about 10% of the big trees were left in their forests. Sacred forests were destroyed, water springs dried up, and streams became heavily polluted; and many birds and animals also disappeared. Unfortunately, the government blamed the villagers for the destruction of the forests, citing shifting cultivation as the reason, eventually banning the practice.

²Huay Hin Lad Nai, NDF, AIPP and IWGIA (ed.), 2010, Climate Change, Trees and Livelihood: A case study on the carbon footprint of a Karen community in Northern Thailand; AIPP, IWGIA and NDF.

The government branded the communities as ‘destroyers of the forests’ and as ‘illegal occupants.’ Deeply hurt by how the government regarded them, the Huay Hin Lad Nai community resolved to stay in the area and to prove to the government, and the world, that humans and nature can co-exist based on their indigenous worldview.

The affected communities formed the Northern Farmers’ Network (NFN) and took up joint actions with other organisations in order to stand up for their rights. In 1999, the village was honoured for its work on environmental restoration and sustainable management of the forest; and was also recognised as a model for ‘sustainable village’ by the government of Thailand.

Ecosystem functions and the people’s worldview: In the worldview of the community, everything starts from the forest and ends with the forest. In their words they say “No forest, no life.” By this, the community is referring to the dependence of life on different kinds of ecosystem functions and services of the forests. For example, the community members say, “we seek permission from the forest for using the water from the stream or river and we thank the forest for the same” and “we take care of whatever we eat or use.” The community views the forest as critical to soil conservation, and instrumental in maintaining a healthy climate in the area. Most importantly, the forest is the dwelling place for different types of spirits, including their own spirits and those of their ancestors. It is for this reason that a new-born child’s umbilical cord is ‘tied’ to a tree (the cord is placed in a bamboo container) to symbolically express that the spirit of the new-born lives in that tree and that she/he will rest in peace in the forest when she/he grows old and dies.

Therefore, if all the forest is destroyed, not only will resources disappear, but all the spirits will also be gone; and this will mark the end of all life. Their beliefs and worldview are associated with the forest, as described above. The core values and principles that guide their social institutions, customary rules and practices, and land use and resource management are grounded on these beliefs and worldview.

Holistic land use and livelihood system of the community: The community’s land use practices and livelihood system strongly support one another and are, therefore, interlinked and inseparable.

The Huay Hin Lad Nai community practices both self-sufficient farming and commercial farming, which are the main sources of subsistence and cash income for the people. The community is also engaged in gathering forest products, production of handicrafts and utensils from bamboo, furniture making, blacksmithing, natural dyeing and weaving, etc. The villagers raise domestic animals such as chickens, pigs, cattle, buffalo, dogs and cats for food (in the case of the first four animals, and which are mainly for local consumption) and for other purposes.

The village is able to have an annual surplus of income over expenditure; and the villagers’ consumption pattern also shows that more than 92% of the food comes from household production and natural resources. This claim is substantiated by a study conducted in 2008³, which shows that annual savings per head in the community is THB 1,986 (put here equivalent in US dollars); and only 8% of the food comes from markets outside the community.

Rice cultivation: The cultivation of rice is the most important livelihood activity of the Huay Hin Lad Nai community and it determines the life and work of the people throughout the year. The community in general decides on how much each household and families should farm so that they have enough rice to eat throughout the year. Rice is grown in both shifting cultivation and wet-paddy fields.

³Huay Hin Lad Nai, NDF, AIPP and IWGIA (ed.), 2010, Climate Change, Trees and Livelihood: A case study on the carbon footprint of a Karen community in Northern Thailand; AIPP, IWGIA and NDF.

Shifting cultivation is more reliable under unpredictable climatic conditions and is valued more by the community because it is a greater source of a variety of food. However, the yield in the wet-paddy field is higher so it is a major contributor to food security, which in turn helps control expansion to agricultural land. Therefore, they feel that it is crucial to maintain both systems of farming because they are sustainable strategies that ensure food security.

Mix farmland: The concept of what the community calls ‘*ta su chi chu*’ in their local language is translated as ‘mix farm’ in English. Mix farm is an interesting innovation and it is a concept of natural farming where farming mimics nature. Mix farming helps them address three crucial issues and concerns:

- Enable farming without clearing up new forest areas, allowing them to have enough cash income for their basic needs like education, health care, etc.
- Control the clearing of new forest areas for commercial farming and resolve the problem of labour shortage in the villages
- Enhance resiliency, livelihood diversification, and food security of the community

Land types: Huay Hin Lad Nai community has a complex system of land-use. Each type of land is utilised in different ways and is a source of different types of food and other important resources. The way they use resources reflects their intricate knowledge of the different ecosystems within the village territory. And the way they lessen land pressure and avoid degradation demonstrates their holistic approach to land-use management.

Resource management approach and strategy: The people’s beliefs and worldview support living in harmony, and having respect for and reciprocity, with the forest. They have developed a way of life and a knowledge system that is intimately guided by the objective of maintaining ecological balance and moderation in the community. Their worldview and ecological awareness inform them of their land-use practices, allowing them to effectively utilise the different land-use types. Most importantly, the community asserts that the community forest, which accounts for 84% of their total land area, is the main regulator of ecosystem functions and services. Therefore, their sustainable land and resource use system and practices depend on it.

c) Key points/messages of the case relevant to IPBES

- Their beliefs and worldview are associated with the forest, as described above. The core values and principles that guide their social institutions, customary rules and practices, and land use and resource management are grounded on these beliefs and worldview. Therefore, if all the forest is destroyed, not only will the resources disappear, but all the spirits will also be gone; and this will mark the end of all life.
- Community forest is well conserved because it is the main regulator of ecosystem functions and services, and is crucial to the people’s sustainable land tenure and livelihood systems.
- Their holistic land use and livelihood practices form part of their traditional knowledge that reflects the community’s deep ecological knowledge. And spiritual consciousness is regarded as the highest form of awareness within the community. Therefore, everything about their knowledge starts from spiritual awareness.
- Awareness and efforts to prevent land pressure and degradation are built into the land tenure system and livelihood practices of the community.

Cultural revival can help restore traditional knowledge and the environment.

d) Website or other sources of information:

N/A

e) Additional Authors and Key Contributors

Chaiprasert Phoka, Nevet Siri, Pichet Sinhearndoi, Suthiphon Phaiwangul, Wallapha Chapoh, Chalearmphon Wetchakit and Precha Siri (community research team members)

f) Literature cited in the text, relevant documents, videos or other recorded sources of information

Huay Hin Lad Nai, NDF, AIPP and IWGIA (ed.), 2010, Climate Change, Trees and Livelihood: A case study on the carbon footprint of a Karen community in Northern Thailand; AIPP, IWGIA and NDF.

g) About the ILK described in your recommended references:

N/A

2.2 Assessment of the role of Karen's ecological knowledge to sustain biodiversity, ecosystems and ecosystem services in northern Thailand

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b) Summary

The Karen indigenous people have lived on a mixed agroecosystem centred on traditional rotational farming (RF) for over 300 years in mountainous northern Thailand. Over generations they have accumulated local knowledge on species and ecosystems that has enabled them to provide for their livelihood needs while managing the land and natural resources sustainably. However, the government blames their traditional agroecosystems for extensive forest loss and has introduced forest protection policies to minimise forest use as well as national agricultural targets that encourage the conversion of land under RF to intensive monocrop agriculture.

The Institute for Global Environmental Strategies (IGES), Japan (Dr. Jintana Kawasaki and co-researchers), in partnership with the Indigenous Knowledge and Peoples Foundation (IKAP), Thailand (Dr. Prasert Trakansuphakon) jointly conducted a study in 2015 to document the role of Karen's indigenous and local knowledge (ILK) in their management of the land and natural resources, with a view to enhance the policy recognition of the importance of Karen's ILK for the sustainability of biodiversity, ecosystems and cultural heritage of the Karen people. Data were collected from a field survey and interviews of 55 villagers in three Karen communities, conducted from 11-21 December 2015. The surveyed villages were Hin Lad Nai Village, Chiang Rai Province; Mae Yod Village, Chiang Mai Province; and Mae Um Pai Tai Village, Mae Hong Son Province. The three villages share similar geographic and climatic conditions, and while their patterns of land use are different, in all villages, RF is the dominant land use.

Previous studies of Karen traditional land use management in northern Thailand found rich biodiversity and the maintenance of ecosystem services on Karen land. For example, more than 90 types of food plants were found in Hin Lad Nai community [1, 1 in the section g)], while 17 rice varieties (five glutinous and 12 non-glutinous) were found in Tee Cha community [4]. Moreover, the long fallow periods of the Karen's RF system were found not only to contribute to high levels of biodiversity and food for the subsistence of the communities, but also resulted in relatively high per hectare carbon stocks. The above-ground carbon stock on land under RF was estimated at 152 ton/ha in the Hin Lad Nai community, which employs a 10-year rotational cycle [1,7], 46 ton/ha for the 8-year cycle in Mae Lan Kham community [5], and 97 ton/ha for the 6-year cycle in Tee Cha community. This compares with a carbon stock of 62 ton/ha for permanent fields in the Tee Cha community.

The information gathered from the IGES/IKAP survey on Karen's ILK, RF practices and their implications for biodiversity and ecosystem services are organised below:

(1) Agrobiodiversity – conservation of local varieties and wildlife relatives of valuable crop species: The study observed that RF continues to be practiced for subsistence food and cash crop production using domesticated and native plant species. The survey confirmed earlier observations of high plant

species diversity in these systems. More than 60 types of native plants were found in the RF systems, including 15 types of native rice (three glutinous and 12 non-glutinous), 15 varieties of beans, and more than 40 species/varieties of vegetables and herbs. Some of the native rice varieties are now difficult to find in the lowland. Recognizing the high diversity of native rice varieties cultivated by the Karen communities, scientists at Chiang Mai University [4, 4 in the section g]) concluded that land under traditional Karen management could be viewed as one of Thailand's indigenous rice genetic centres. RF provides not only food, but also fuel wood and herbal medicines, such as *Chor Tum Mae* (local name), which is used to treat wounds, and *Top KadWa* (local name) for treatment of snake bites.

(2) *Forest conservation and high carbon stock:* The Karen methods of RF minimise damage to the forest stands surrounding cropping areas and promote natural forest regeneration during fallow periods. In preparation for opening-up fallow forests for seed sowing, trees and bamboos are cut at certain heights to allow stumps to sprout and quickly regenerate. Before burning, firebreaks are created around the fallow area to stop the fires spreading. With these, and as noted in earlier studies, the carbon stock of Karen RF systems is high. We used average above-ground carbon stocks (ton/ha) of RF from previous studies [1,6,7] and a set of land-use map data for 2015 from the Karen Network for Culture and Environment, Chiang Mai Province to estimate total carbon stocks of the land under various fallow cycles. We found that with the rotational farming system, total above-ground carbon stock was 96 ton/ha for the 1-year cycle, 121 ton/ha for the 8-year cycle, and 152 ton/ha for year 10-12 year cycle. Total carbon stocks of rotational farming land were about 220, 090 tons.

(3) *Limited negative impacts on biodiversity and ecosystem services – no synthetic chemical inputs:* Small tree branches and leaves are scattered over the ground to encourage burning and to produce a higher amount of charcoal and ash, which enhance soil nutrients. The survey found that the RF maintains high land productivity because yields of upland rice in the RF (3.66 ton/ha) were higher than yields of paddy rice (1.85 ton/ha). In addition to that, the Karen communities continue to apply organic pest control methods, using homemade bio-pesticides, which are generally made from insect pests collected from fields, such as grasshoppers and ants. Physical weeding methods such as gently piercing the soil surface not only avoid the use of herbicides but also maintain rainfall permeability into soils and thus mitigate soil erosion. These traditional practices enable high crop productivity without the use of synthetic chemicals such as pesticides, herbicides and synthetic fertilisers that damage biodiversity and deteriorate ecosystem functions such as clean water supply.

(4) *Sustainable land and resource management, and biocultural diversity:* The study found that traditional RF practices contribute to strong social cohesion among the community members through frequent exchanges of food and other products, and labour sharing between the households. Their sharing of the knowledge they accumulate on farming constitutes an important part of Karen social life. Their songs and folktales are mediums for passing on knowledge from old to young on how the land and natural resources should be managed. Many of their songs with folktale lyrics include norms relating to natural resource use. The *Kauz Klaif* song, for example, warns that severe consequences may arise from breaking the taboos and norms relating to RF practices. When working outside on their RF, the Karen communities often sing this type of song and senior villagers pass on folklore about conserving nature to youngsters. One folklore often told when vegetation is being cleared for rice planting in areas under RF is “Do not prune all the branches, leave some for the fire birds to perch on.”

(5) *Ecosystem services trade-offs – traditional rotational farming vs. competing land use for intensified monocrop agriculture:* Despite the importance of Karen's traditional RF system and associated ILK for biodiversity and ecosystem services in the studied areas, traditional RF systems are increasingly threatened by conversion to commercial crop production, particularly in Mae Yod Village. Employing trade-off analysis of land use change with a 20-year timeframe, the study found that Azuki

bean production provides relatively highest short-term cash gain of 1,601 USD/ha/year, followed by maize production (491 USD/ha). It explains why conversion is taking place, but at the price of biodiversity loss and the degradation of ecosystem services. The net present value (NPV) of Azuki bean, maize and paddy rice were estimated from annual harvest, the NPV of RF from non-market values of upland rice, and the NPV of forest land from values of non-timber forest products. Using the results we estimated that conversion of an RF area into a maize field in Mae Yod Village will gain in the net present value of yearly income per ha of USD 306/year, but average carbon stocks of maize (65 ton/ha) is lower than that of RF (106 ton/ha).

c) Key points/messages of the case relevant to IPBES

The case study carries rich implications that can be referred to in different chapters of the IPBES regional assessment for Asia and the Pacific.

Agrobiodiversity associated with rotational farming demonstrates how Karen people benefit from managing a wide variety of traditional crops (related to Ch2 of the regional assessment), and how their ILK is associated with the richness of cultivated plant varieties (Ch3).

Forest conservation and limited biodiversity impacts of traditional rotational farming practices can be referred to in Ch4 on drivers, where agriculture is widely discussed as one of the major negative drivers.

An analysis on *ecosystem services trade-offs* contrasts ILK-based traditional agriculture with modern monocrop agriculture. While rotational farming interrupts natural ecosystem to a certain extent, it enables Karen people benefitting from various ecosystem goods and services, and contributes to enhancing ecosystem heterogeneity as well. Modern monocrop agriculture focuses on production for the highest possible income while eliminating biodiversity in cropping areas and sacrificing other ecosystem services. Ch5 on scenarios and modelling would be recommended to look into different trajectories of agricultural development, taking into account the importance of traditional and ILK-based agriculture for BES sustainability.

ILK is embedded in *land and resource management system, traditional institutions and the worldview* in Karen communities. The section demonstrates the importance of relational value of BES for Karen communities (Ch2). It also underscores the importance of ILK for sustainable land and resource management, which would be better recognised under formal governance system and statutory laws (Ch6).

d) Website or other sources of information.

- 1) Video of Karen traditional rotational farming systems in northern Thailand can be viewed at https://youtu.be/DjY6BOE4_WI (published on 2 September 2016)
- 2) Conference paper on “Opportunity cost analysis of land use changes in Karen indigenous community in Thailand”, presented at the 26th Annual Meeting of the Japan Society Tropical Ecology, 18 June 2016, Tsukuba University, Japan. Available at <http://pub.iges.or.jp/modules/envirolib/view.php?docid=6665>

e) Additional Authors and Key Contributors.

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f) Literature cited in the text, relevant documents, videos or other recorded sources of information.

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g) About the ILK described in your recommended references

- 7) Trakansuphakon P. 2015. Changing strategies of shifting cultivators to match a changing climate. In M. F. Cairns (ed.) *Shifting cultivation and environmental change: Indigenous people, agriculture and forest conservation*. Routledge, New York, USA, pp 335-356.
- 8) Trakansuphakon P. 2014. Rotation farming, biodiversity, food sovereignty and climate change of Karen (PgazK'Nyau) community in Northern Thailand. in J. Nauber and A. Palusch, Indigenous valuation of biodiversity and ecosystem services compared to other ways of valuation in the context of IPBES, Bonn: Bundesamt fur Naturschutz: 28-30.
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self-determined development, Baguio, Philippines: 249-329.

- 10) Rerkasem B. and Rerksasem K. 2002. Agrodiversity for *in situ* conservation of Thailand's native rice germplasm. Chiang Mai University Journal of Natural Science. Vol 1(2): 129-148.

2.3 Status and changes of local rice varieties: a case study from four villages in Po E commune, Kon Plong district, Kon Tum province, Central Highlands of Vietnam

a) Author(s), affiliation and contact

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b) Summary

The case study examines status and changes of local rice varieties from four villages in Po E commune, Kon Plong district, and Kon Tum province, Central Highlands of Vietnam. The four villages are Vi O Lak, Vi K Oa, Vi Klang 2, and Vi Po E 2. These are the villages of the H're indigenous ethnic minority community of Vietnam.

A total of 23 species of local traditional rice varieties were documented, with Vi Po E 2 village having the most varieties, and Vi O Lak village having the fewest.

8 species of new rice varieties were documented. All families in the Vi O Lak village plant most of these new rice varieties, while the villages of Vi Po E 2, Vi Po E 1, Vi Klang 2, and Vi Klang are only planting 2 species for now (many villagers are still testing the varieties in their rice fields).

Families who plant the new rice varieties have already been using chemical fertilisers since 2010, like families in Vi O Lak (since 2013) and about 2/3 of families in Vi K Oa. Very few households in Vi Klang 2 and Vi Po E 2 villages have started using the new rice varieties during the period 2015-2016, but those who did have used some chemical fertilisers (depending on the availability of money to buy fertilisers).

Since 2010, the landscapes have been changing. Over time, observations on the landscapes and ecosystem practices from the villages have found the following changes:

- Rapid transition from forestland to cassava plantations, combined with widespread use of herbicides, has occurred.
- The shift towards cassava plantations and more use of herbicides may negatively impact local native species, the quality of the rice paddies, soil, and water sources; it may also cause negative health impacts to the community.

Available land is not going to increase - highlighting the need for sustainable practices and management of the entire land resources of the commune, to avoid negative consequences to both food production and biodiversity.

c) Key points/messages of the case relevant to IPBES

Maintaining the cultivation of local traditional rice varieties is very important to the H're indigenous ethnic minority community, particularly in this part of Vietnam. Traditional rice varieties have a significant and interactive relationship with the associated forests and land, water source, and ecosystem on which delicious and good quality traditional rice are produced. The use of local

traditional rice varieties is also culturally significant because it is linked to various ritual ceremonies of the H're indigenous community throughout the year, like the making of special cakes, local wines, and other related specialties. The use and storage of these traditional rice varieties is linked directly to female indigenous knowledge holders – they have the knowledge and wisdom starting from keeping and storing the rice varieties to selecting good seeds, and other relevant local practices.

However, these traditional rice varieties are at risk, given recent changes over the entire landscape. Forests in the upper zones are being cleared to make way for cassava plantations resulting to the promotion of use of herbicides, and this have affected the quality of rice crops in the lower fields. Moreover, a rapid expansion of areas for cassava has resulted to smaller areas for rice crops and this has also affected areas meant for local rice varieties.

It is crucial maintain the cultivation of local traditional rice varieties for reasons such as culture, wisdom, and knowledge. In addition, indigenous knowledge on traditional rice farming are a part of the heritage and cultural lifestyle for many upland indigenous ethnic minority communities that should not be taken over by modern demands such as expansion of commercial plantations and promotion of the use of chemical herbicides, fertilisers, and pesticides.

d) Website or other sources of information

The case study provides primary information directly learned and obtained from local indigenous villagers from H're community at the four villages of Po E commune.

e) Additional Authors and Key Contributors

In order to make this case study possible, the entire SPERI team would like to acknowledge the support of many people. First and foremost, at the village and community level, we would like to thank the entire Po E communal authorities (Mr. A Chon, Mr. Tho, Mr. A Sap, Mr. A Bui, Mr. Dinh Thai, Ms. Y Nga, Ms. Y Nam and Ms. Y Pha) for their wonderful institutional support. At each village we visited, we wanted to thank the people, elders and key persons, women and youth. The people of Violak village especially Mr. A Pan, Mr. A Diem, Mr. Dinh Cong Muoi, Mr. Dinh Chat, Mrs. Y Biet, Mrs. Y Lieu, Mrs. Y Than, Ms. Y Nga, and Ms. Y Gieng; the people of Vi K Oa, especially Mr. A Doi, Mr. Dinh Thai, Mr. Dinh Theo, Mrs. Y Trang, Ms. Y Nga, Ms. Y Huyen, and Ms. Y Gieng; the people of Vi Po E 2 especially Mr. A Thap, Mrs. Y Bom, Mrs. Y Plen, Mr. A Phong and the many youths who engaged with us; and the people of Vi Klang 2, especially Mr. A Chon, Ms. Y Que, Mrs. Y Voa and all the elders and young people there.

Secondly, we would especially like to thank Dr. Douglas Nakashima from UNESCO and the entire Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Indigenous Local Knowledge (ILK) technical support unit (TSU) for the financial grant and other professional advice that helped us facilitate this case study. We also thank Dr. Ro Hill from CSIRO Australia for her comments, for editing the draft case study report and for continuing support by providing inputs and comments in order to improve the case study.

Finally, we would also like to thank Mr. Dam Trong Tuan (SPERI Director and his team) for also providing the time and institutional and administrative support to make this case study in the field possible. We thank Mr. Tran Ngoc Thanh for all the photos and video documentation and Mr. Hoang Van Duoc (SPERI's indigenous Tay ethnic young farmer) who took part during the field work.

f) Literature cited in the text, relevant documents, videos or other recorded sources of information

Link to video <http://speri.org/video.html>

g) About the ILK described in your recommended references:

N/A

2.4 Sustaining indigenous forest management system: the case of *saguday* in Sagada, Philippines

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b) Summary

Most of the indigenous communities in the Philippines have evolved their own age-old traditions to sustainably use and conserve biodiversity and ecosystem services that are now widely recognised as crucial to the quality of life of indigenous peoples. One of these is the *saguday* system of forest management that has been used by the *Kankanaey* tribe in Sagada, Mountain Province, Philippines.

Saguday refers to the indigenous system of forest management that has been developed over a long period of time. It covers a piece of forest established at an unproductive crop land, grazing or bare areas of the mountains as indigenous peoples' response to the need for timber and firewood for the present and future generations. It was established as the de facto representation of a common property of descent groups, family or clan (*sinpangapo saguday*) or members of the ward (*dap-ay saguday*). The pine forest ecosystem that is covered in the *saguday* serves as a source of goods and services that fulfill the daily household needs, habitat for wildlife, and sacred sites for some cultural and religious practices in the *ili*⁴. This system of forest management has persisted up to the present generation through the indigenous institutional arrangements, socio-political systems, and property regimes. It has been responsible for the maintenance of the forest within the tribes' territory through the observance of traditional practices and customs, and collective management. This forest management practice also demonstrates the culture-based system of collective responsibility in the protection and conservation of forest (for example, over-harvesting is not allowed), sustainable use of and equal distribution of benefits derived from forest resources.

The *saguday* is governed by a council of elders who serve as carriers of traditional knowledge. These elders have earned their status through the recognition of the *umili*⁵ by virtue of their knowledge, wisdom, articulateness, sense of fairness, wealth of experience, and good judgment. In forest management, they play a role in raising the awareness of the younger generation and in ensuring the implementation of customary laws governing the continued protection and utilization of the resources found within the forest. These laws include membership rules, resource access and allocation, protection, harvesting, decision-making, administration of justice, system of conflict resolution and other dos and dont's.

⁴*ili* is an autonomous socio-political unit which controls and manages the resources in its surrounding geographical area and is the local concept of territoriality composed of families and clans who are interrelated and has their own cultural tradition in the management of their resources (NCIP, 2004). Today, *ili* is used with the same meaning with the 'barangay', but seen from the perspective of religion and ritual practices (Goda, 2011).

⁵Members of the community

However, these long-standing traditions in forest management that were proven to be sustainable are being threatened by the changes in their belief system due to the imposition of state policies over traditional practices, introduction of foreign influences, access to education, industrialization, changes in local governance, and weakening of traditional *saguday* management rules and practices. Furthermore, the authority of the council of elders has declined due to the growing leadership influence of elected government officials.

As traditions confront modernization, the study developed a better understanding of the human-environment relationship. The *saguday* system served as an effective management tool for the preservation and conservation of the forest through sustainable use by the *ili*. It further contributes to the preservation and promotion of traditional knowledge in forest management as had been traditionally practiced. The *saguday* system of forest management has been recognised as an effective practice of forest protection and conservation and was incorporated in the Ancestral Domain Sustainable Development Protection Plan (ADSDPP) and the Comprehensive Land Use Plan (CLUP) of the municipality.

Some government policies are now recognising the role of indigenous communities in forest protection and management, such as the Joint DENR-NCIP DAO No. 2008-01, but this would not guarantee the solution to the problem of forest degradation. To pursue sustainable development, there is a perceived need to strengthen and revive age-old practices that are slowly diminishing. This can be done by facilitating youth participation and engagement in ecosystem and biodiversity conservation activities, and by encouraging various policymakers to draw up possible innovative up-scaling strategies in other provinces and in the region to revitalise sustainable forest management traditions and practices.

c) Key points/messages of the case relevant to IPBES:

Indigenous peoples are able to sustainably conserve forest ecosystems through the implementation of their traditional forest management practices, sustained by institutional arrangements and property regimes and deeply rooted in age-old community traditions. These, however, need to be strengthened and transmitted to the younger generation to ensure sustainability.

d) Literature cited in the text, relevant documents, videos or other recorded sources of information.

National Commission on Indigenous Peoples (NCIP). 2004. Sagada Ancestral Domain Sustainable Development Protection Plan.

Goda. T. 2011. Social Anthropology of hill people in Northern Luzon, Philippines. New Day Publisher. Quezon City, Philippines.

2.5 Biodiversity Requirements of the *Begnas* Ritual System in Sagada, Northern Philippines

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b) Summary

One of the municipalities of the Cordillera Administrative Region (CAR) in the northern Philippines, is Sagada, Mt. Province, which is inhabited by the northern Kankana-ey, an indigenous ethno-linguistic group occupying a great portion of Mt. Province. It is a fifth class municipality, having an average annual income of at least PHP 15 million and not more than PHP 25 million. The Department of Environment and Natural Resources (DENR) awarded Sagada a Certificate of Ancestral Domain Claim (CADC), totalling 8,698 hectares (87.25%) of the total municipal land area in March 1996. Sagada is situated in a Type 1 climate of the four climate types in the country, having two pronounced seasons: dry season occurs from November to April and the wet season from May to October.

Sagada's rich tradition, culture and social arrangements have allowed harmonious interaction with the landscapes, including various uses of inherent ecosystem services provided by the mountainous terrain and forests dominated by pine (*Pinus kesiya* Royle ex Gordon). In further appreciating the role of the natural environment to the lives of the Sagada people, an analysis of the *begnas* (bəgnas) ritual system reveals that various biodiversity are needed. The *begnas* aims to synchronise planting and harvesting activities through a system of rituals that require the participation and cooperation of community members. Invocations in the various rituals seek blessings from indigenous deities, mainly *Kabunian*, and the spirits of ancestors.

Through combining indigenous and disciplinary perspectives regarding biodiversity, a number of biodiversity requirements are identified as crucial for the continued practice of the *begnas* ritual system. First is the variety of ecosystems used during the *begnas*. Throughout the phases of the *begnas*, various landscapes are required. In the initial phase, sacred sites are visited for observing various omens. These include certain grasslands, paddy fields and nearby environs, hills and mountain sides, and almost all mountain peaks. These are considered sacred landscapes and during the *begnas*, access to these sites should be secured, and any human intrusions or man-made disturbances should be avoided. In some *begnas* practicing villages, river ecosystems and mountain edges or cliffs are required to wash away bad omens, or allow the cleansing of one's self after the performance of a *begnas* ritual.

Second is the diversity of species required for the *begnas*. During the initial phase, various birds, reptiles, rodents, fowls and other fauna in general, are carefully noted and observed. Decisions are made by elders and knowledge holders about the local term for these species, as well as the variety of behaviours exhibited by these species to indicate a good or bad *begnas*. In the final phase of some *begnas* celebrations, various crabs, eels, and fish are collected in water bodies for communal feasts and ceremonial purposes. Unfortunately, due to the various fauna required for *begnas* celebration, the

local participants and elders who attended the meeting-workshop in Sagada in early October 2016 were not able to identify the scientific names (genus and species) of such species.

Finally, it is important to point out that the various traditional rice varieties in Sagada serve as the main rationale for the *begnas*. Rice agriculture is the basis of the *begnas*, as annual *begnas* celebrations revolve around pre-post planting and pre-post harvesting of rice. In Sagada, varieties of rice (*Oryza sativa* subsp. *japonica* or subsp. *tropical japonica*) have been planted probably as early as the 17th century¹.

Biodiversity also plays an indirect role in the celebration of the *begnas*. Dried vegetation and fallen/cut tree branches serve as fuel for cooking ritual foods. During the initial phase, poles of *Phragmites vulgaris* (Lam.) Crép. are used for impaling and roasting etag (ətag) or salted pork meat. Parts or the entirety of musical instruments, ceremonial shields, spears and other tools used during certain *begnas* celebrations are made of *Pinus kesiya* wood, as well as the wood of other trees naturally growing in Sagada. Ritual containers and baskets are made from the stems or fibre of natively growing plants. In general, various plants are needed as base materials for different implements required for a *begnas* celebration.

Ongoing population growth and development in various barangays as a result of tourism and economic growth in Sagada have direct and indirect impacts to the practice of the *begnas*. With growing population trends (0.43 annual growth rate as of 2010), various sacred landscapes are facing threats from housing and other related infrastructures, as well as increased human activities. Infrastructure is getting built near sacred landscapes, locally termed as *babawiyán/ kakayewan, totolingan, wawalitan,* and *papakde-an/ papadkelan* depending on the terminologies of each *begnas* practicing village. A number of *dap-ay*, which refers to the men's common house with a stone paving and shed, central to various cultural rituals and social arrangements, and located within villages, are increasingly becoming disregarded or underutilised.

Mt. Kiltapan, for example, is being capitalised upon by Sagada residents to establish their business infrastructures due to scenic views, and its popularity among tourists. A particular area in Kiltapan is required for *wawalitan begnas* performers from Tetep-an Sur and Norte.. The pathway to and peak of the mountain is currently blocked and occupied by human activities and infrastructure development in the area, and *begnas* performers are facing inconveniences during omen-seeking trips. The sacredness of natural-settings required for *begnas* rituals is deteriorating due to the presence of nearby houses and other infrastructure, decreasing the meaning, authenticity, and quality of the *begnas*. The preservation of these landscapes for *begnas* is critical.

The relevance and importance of various landscapes for the continuity of the *begnas* is manifested in various ways. One is the manifestation of omens, such as particular bird songs and behaviour, which when heard or seen signal a good or bad *begnas*. While an empirical evidence of changing landscapes and its impact on faunal behaviour was not possible in this study, it is generally understood that undisturbed natural landscapes and human-inhabited areas have diverse impacts onto the presence, behaviour, and interactions of different flora and fauna. Sound ecosystems are also needed in social arrangements for the conversion of natural capital to other resources required for a *begnas*.

As a way of summary, the *begnas* is an agricultural and communal ritual system requiring cultural and natural resource elements. As revealed in this paper, changes in the form and function of landscapes have subsequent implications to the *begnas*. In the manifestation of omens for example, the presence of bird songs and particular faunal behaviours have varying meanings. These biodiversity components occur in sound ecological conditions, and human-disturbed sites may eventually lose the manifestation of omens, both good and bad. Without the presence of environment-embedded omens, the meaning and complexity of the *begnas* is greatly reduced. Good omens are preferred, on the one hand, while

bad omens require the knowledge of identifying consequences. In the case of a bad omen, natural sound landscapes are required for performing rituals or observing a counter omen for neutralising or circumnavigating its perceived disastrous or ill impacts. Thus, the preservation and conservation of these related landscapes are important. When the required landscapes for celebrating a *begnas* are lost, appreciation and need for the *begnas* are lost as well. Additionally, various sacred sites, which are scattered and located all over Sagada's landscapes, are needed for the performance of various *begnas* rituals. The diversity and integrity of landscapes are essential for the continued celebration of the *begnas* in Sagada.

The presence of cropping systems, mainly rice, is required to guide the schedules of the *begnas* throughout the year. The diversity and continued cropping of traditional rice varieties enhance the relevance and meaning of the *begnas*. Additionally, ecosystem services, mainly water cycling systems, soil-cycling systems, and of course, cultural-related services to support and sustain rice agriculture, are all very important and linked with the *begnas* ritual system.

Note:

¹William Henry Scott's (1974) interpretations of Spanish records mention the existence of Sagada villages during the 17th century.

Scott W. H. 1974. *Discovery of the Igorots* (revised edition). New Day Publishers. Quezon City. ISBN 971-10-0087-3.

2.6 Learning Indigenous Earth Wisdom from the Ibaloy People's *baeng* home gardens, Cordillera, Philippines.

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b) Summary

The earth wisdom of the Ibaloy people, one of the Cordillera indigenous peoples in northern Philippines is a product of thousands of years of collective innovation. It is adapted to the local environment, and has been passed on orally from generation to generation. It is collectively owned, and is a gift from past generations and the birth right of future generations. This worldview persists since time immemorial to the present day. It has survived in spite of colonisation, and it continues to be practiced by the indigenous people as a form of assertion of their right to self-determination.

However, there are external and internal threats to this earth wisdom, which contribute to its erosion. Indigenous lands and territories are lost in the expansion of business interests in the Cordillera. Many indigenous communities are threatened with the construction of large mines, dams, and logging operations. Moreover, the indigenous worldview is discriminated against and is seen as an inferior or subordinate set of knowledge to western-based knowledge. Because of this, values are changing within indigenous communities, and many youths are not interested in learning from their elders. Migration and urbanisation also play a role in the continued marginalisation of the indigenous cosmology.

On the other hand, the present crisis and uncertainty in the future of the planet is proving to be a push factor in the renewed interest and appreciation of indigenous cosmologies around the world, including that of the Cordillera peoples. Thus, new initiatives are being pursued to revitalise and revive the old practices, knowledge, and life ways, which un-earth the wisdom that could otherwise be lost.

This project – “Learning Indigenous Earth Wisdom From the Ibaloy *Baeng* Home Garden” – is one such initiative. The *baeng* is a yard garden; and a plot of ground in or near a residential area that is planted with bananas, coffee, papaya, camote and other non-staple crops such as medicinal plants. It is also a small orchard. Among the Ibaloy people, it is one of the three basic categories of agricultural land, along with *payew* (rice field) and *oma* (swidden farm). It is a storehouse of biodiversity.

The project is a documentation of the different *baeng* home gardens in Baguio City, Benguet, Cordillera. The significance of the *baeng* is that it is guided by indigenous earth wisdom. This wisdom teaches us to live simply in harmony with the world. Their worldview is holistic, which seeks unity and peaceful coexistence with the world they live in. An important lesson to learn from them is on building deep connections – with the divine presence or “unseen”; with the earth and nature; and with fellow humans.

The Ibaloy pay their respects to the unseen beings. Therefore, before the land preparation, and harvest of produce from the *baeng*, ritual prayers are said and a pig is offered to the unseen spirits to ask permission for the use of the land and blessings for a bountiful harvest and to express their gratitude. The wet and dry seasons, the position of the sun in the sky and the phases of the moon guide the land preparation, planting, harvesting and over-all management of the *baeng*.

Increasingly, the crops planted in the *baeng* home garden are not only for subsistence, but are sold in the market for cash. These cash crops include lemon, calamansi, and sweet potato; temperate vegetables such as cucumber, carrots and lettuce; and flowers such as anthurium.

The second component of the project is the establishment of an enhanced *baeng* at the Maryknoll Ecological Sanctuary in Baguio City. The enhanced *baeng* is a learning garden for the Sunbeams early earth education for pre-school children and is open to the public. The workshop topics being discussed in the learning garden includes seed selection, saving and sharing, caring for the water and soil, and pest and animal management, ayyew- Kankana-ey people's notion of avoiding wastefulness of resources; frugality (or zero waste) management, and traditional foods, nutrition and wellness. *Baeng* workshops are conducted upon request by interested organisations, groups and communities.

Information on the ILK researcher:

Maria Elena Rafanan Regpala is a researcher-writer of the Indigenous Earth Wisdom Group based in Baguio City, Benguet, and Cordillera, Philippines. The group is composed of ILK holders and ILK researchers knowledgeable about indigenous and local communities in the Philippines. She is one of the authors of the book *Indigenous Earth Wisdom: A Documentation of the Cosmologies of the Indigenous Peoples of the Cordillera* (2015) Baguio City: Maryknoll Ecological Sanctuary. She has also done research on Philippine Indigenous Peoples' Sacred Sites. She has more than thirty years of experience in doing development work in partnership with Philippine indigenous peoples. Aside from having a social science educational background, Ms. Regpala is a pranic (energy) healer and trainer.

Date when the project took place and project impact:

The project started in 2016.

c) Literature cited in the text, relevant documents, videos or other recorded sources of information

Judy Carino-Fangloy, Merci Dulawan, Vicky Makay, Maria Elena Regpala, Lucia Ruiz. 2015 *Indigenous Earth Wisdom: A Documentation of the Cosmologies of the Indigenous Peoples of the Cordillera*, Baguio City: Maryknoll Ecological Sanctuary.

Regpala, Maria Elena. *Respecting Philippine Indigenous Peoples Knowledge on Sacred Sites*. 2014. Baguio City: Unpublished research paper for Tebtebba Foundation.

d) About the ILK described in your recommended references

The ILK in the literature cited is on Indigenous earth wisdom. It is relevant for the assessment of status and trends in biodiversity and ecosystems services, land degradation and restoration, sustainable use and conservation, or/and invasive alien species and their control because it describes the holistic cosmologies of the Indigenous Peoples of the Cordillera that explains their sustainable use and conservation practices. It also describes the drivers/causes and trends of biodiversity loss in indigenous people's lands and territories.

Research findings on sacred sites demonstrate that biodiversity levels are often much higher in sacred sites than in areas around them where habitats have been significantly modified by various types of land use. And it is recognised that this fact is not accidental but is due to the practices of the custodian communities to protect their sacred sites.

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

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b) Summary

The project has implemented several biodiversity conservation activities which for building synergies between traditional and scientific knowledge. The project also work to promote local and regional inter-sectorial and intercultural dialogue and communication among rural communities, NGOs, academia and governmental agencies. For this purpose, it conducts interdisciplinary research, facilitation for participatory development, consultation for cultural identity, networking for information sharing, and capacity building for biodiversity conservation, traditional knowledge and livelihood development. The project enable local Tibetan villagers and experts to strengthen their evolving cultural traditions and generate innovative ways to improve their livelihoods and enhance biodiversity through interdisciplinary research, capacity building, and participatory approaches for nurturing intercultural dialogue among people of varying traditional and scientific knowledge. The project has sustainable outcomes through the ongoing training and capacity building of project collaborators; the establishment of an international Scientific Advisory Group to guide the project, and a conference and publications at the end of the project to share information and experiences about the successful collaboration of indigenous knowledge with mainstream science. Additionally, the project supports ongoing scientific capacity building in Climate Impact & Vulnerability Assessments through the collaborative development of training manuals and programmes to be produced by all participating NGOs and local government departments, for continuing use in their own institutions. Not only will this project build the capacity of local scientists and local government to conduct climate impact and vulnerability assessments, but additionally, the data collected during this project will help fill an important ‘white spot’ of data on the Eastern Himalayan region in IPCC and other international climate assessments. With the support of international networks, the information collected during this project will help to improve science-policy links, and improve methodologies for the inclusion of indigenous knowledge in climate change policy and international assessments. The project will use a multi-disciplinary team of researchers including climate change specialists, ethno-botanists, anthropologists, government representatives, meteorologists, and scientists skilled in indigenous knowledge fieldwork.

c) Key points/messages of the case relevant to IPBES:

N/A

d) Website or other sources of information.

<http://www.apn-gcr.org/resources/items/show/1700>

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- 5) LurongZhuoma, College of Life and Environmental Science, Minzu University of China, China, zhuoma@163.com

2.8 Indigenous peoples' knowledge on edible and medicinal plants: a new trend of indigenous peoples' diets: a case study of a Karen indigenous community in northern Thailand

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b) Summary

This study took place in Ban Huay E-khang, a Karen indigenous village located in Maewang district of Chiang Mai province, Thailand.

The aim of this study is to have an understanding of indigenous knowledge on edible and medicinal plants especially on the kind of crops that are being grown and/or eaten by indigenous people both as food and medicine.

The study found that in the past, the Karen indigenous people have knowledge of more than 265 kinds of edible and medicinal plants in their home gardens, hill farms, paddy fields, and forests. However, this study found that today there are only 86 different kinds of edible and medicinal plants existing in the studied village. In addition, the number of experts on edible and medicinal plants has also decreased dramatically. Previously, almost all Karen people have knowledge of more than 80 edible plants and 30 medicinal plants; however, today, only those aged over 35 years old still have some knowledge on edible and medicinal plants in which the average number of plants is between 20-45 kinds. As for the younger generation, their level of knowledge on edible and medicinal plants is only between 10-25 kinds.

The study also found that the decrease in experts on edible and medicinal plants is due to the change of cultivation systems, from rotational farming to cash crops cultivation, which is promoted by the government to replace the traditional one. Rotational farming is viewed negatively by the government as a bad cultivation system causing the loss of the country's natural forest. With the cash crop system, however, farmers can only grow crops to exchange for cash. Without rice and other food crops that are needed for their nutrition, the indigenous farmers had turned themselves from self-sufficient farmers into cash crop dependent farmers. This had gradually caused the loss of variety of native/indigenous crops. This is because native/indigenous crops are viewed as non-productive crops and thus are not valued much compared to the new imported crops introduced by the government. At present, although, the villagers in Ban Huay E-khang can identify at least 80 edible and medicinal plants, in their daily meal, they only eat around 5-15 kinds of crops depending on the season.

c) Key points/messages of the case relevant to IPBES

- There is a need to seriously and systematically study the benefits of indigenous people's traditional way of cultivation, the rotational farming, to really understand how it benefits biodiversity, and then give recommendations to the government on this. Only when indigenous people's way of life is thoroughly studied and preserved, will the world's biodiversity remain.

- There is a need to set up a system/project to document indigenous knowledge on food plants/crops as well as medicinal plants, and then transmit this knowledge to the younger generation to ensure that this knowledge is preserved for a long time.

d) Website or other sources of information

More information about this project and IWNT can be found at: <http://iwnt.webs.com/> and <https://www.facebook.com/IWNT-645115118853168/>

e) Additional Authors and Key Contributors

Mrs. Noraeri Thungmueangthong, Karen indigenous woman leader who is also a knowledge holder on food and medicinal plants

f) Literature cited in the text, relevant documents, videos or other recorded sources of information

Yos Santasombat (2003) “Biodiversity, Local Knowledge and Sustainable Development”, Regional Center for Social Science and Sustainable Development, Faculty of Social Sciences, Chiang Mai University

g) About the ILK described in your recommended references

The indigenous knowledge described in this article is on indigenous knowledge on food and herbal/medicinal plants.

2.9 Local Biodiversity Restoration for Food Banks in the Highland Community of Thailand

a) Author(s), affiliation and contact

Jarunee Pilumwong
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b) Summary

The research emphasises local community participation, in which local people will know the status of plants and forest trees in their communities and can manage these resources with the assistance of experts to conserve and utilise biodiversity more efficiently and sustainably. This study focused on conservation and restoration of indigenous plants as a source of food or food bank and medicine for local people in highland communities. The process consisted of: (i) studying and gathering ethnobotanical knowledge of plants used by local people; (ii) plant propagation and cultivation study of rare plant species and potential plants; (iii) building network and transferring knowledge of conservation and restoration of biodiversity between communities; and (iv) developing a database on the conservation and restoration for highland biodiversity.

The results showed a total of 1,262 plant species were used by 60 local communities in eight provinces, including one ethnic group. These species were divided into three categories (some species overlapped among these categories): 680 edibles, 669 medicinal, and 482 for other purposes. Thirty-eight species were considered to be rare plants. The propagation and cultivation practices were studied in three rare species (*Paris polyphylla* Sm., *Thunbergia coccinea* Wall. ex D. Don., *Mahoniasiamensis* Takeda) and two potential species (*Aspidistra* sp., *Melienthasuavis* Pierre). A total of 840 species were propagated whereas 420 of those species were restored for creating forest fertility and household consumption. Knowledge transfer and networking had been done through local course study in 11 schools as learning centres. A database was also developed for managing data of highland plant biodiversity and all related data.

c) Key points/messages of the case relevant to IPBES

- A total of 1,262 indigenous plant species from the forests were identified in 60 communities of 10 ethnic groups. These species were divided into three categories (some species overlapped among these categories): 680 edibles, 669 medicinal, and 482 for other purposes. Thirty-eight species were considered to be rare plants. Thus, plants used by each community represented a wide range of genera and families, and most were used for household consumption (Material benefits (provisioning services) in Ch 2).
- A total of 41 local communities get benefit from local biodiversity restoration in community forest and home garden (Food security in Ch 2).
- Local biodiversity can be used to provide benefits to the local people, however proper management should be carried out to improve benefit-sharing and distribution of opportunities to earn new income.

- The conservation and restoration of local biodiversity should be managed properly and efficiently so that forest resources can be maintained and used in a sustainable way.

d) Website or other sources of information:

N/A

e) Additional Authors and Key Contributors

Ms. Pantip Nonsee (Researcher). Highland Research and Development Institute (Public organisation)

Ms. Kamontip Raorat (Researcher). Highland Research and Development Institute (Public organisation)

Mr. Apichart Songsangchan (Researcher). Highland Research and Development Institute (Public organisation)

f) Literature cited in the text, relevant documents, videos or other recorded sources of information

<http://hkm.hrdi.or.th/media/detail/160/1>

<http://hkm.hrdi.or.th/media/detail/89/2>

g) About the ILK described in your recommended references

Jarunee Pilumwong, Kamontip Raorat, Pantip Nosee. 2015. Research and Development on Local Biodiversity Restoration for Food Bank of Highland Community. In Summary of Royal Project and Highland Research and Development Institute Annual Meeting, 3 September 2015, Royal Park Rajapruek, Chiang Mai, Thailand.

Jarunee Pilumwong, Kamontip Raorat, Pantip Nosee. 2014. Local Biodiversity Restoration for Food Bank in the Highland Community. In proceeding of 1st International Conference on Asian Highland Natural Resources Management (Asia HiLand), 7-9 January 2015, The Empress Hotel, Chiang Mai, Thailand.

3. Summary of discussion

This chapter summarises discussions during the dialogue workshop under four sections: (1) dialogue with local participants from northern Thailand including ILK holders and experts; (2) dialogue with selected ILK holders and experts from SE and NE Asia Region; (3) writing session per chapter, and (4) the discussions on the preliminary proposal from IGES for sub-regional ILK networking for IPBES. The discussion on the second section (ILK case studies) was informed by the case studies submitted by the selected ILK holders and experts as presented in Chapter 2. The discussion under the fourth section referred to the note from IGES presented in Chapter 4.

3.1 Dialogue with Local Participants

3.1.1 Introduction

Prof. Wilfredo V. Alangui and Mr. Kittisak Rattanakrajangsri were assigned as co-facilitators for the dialogue with local participants. The dialogue started with a brief introduction to the IPBES-JBF Capacity Building Project by Mr. Sakurai, the IPBES-JBF Project leader, followed by an explanation on the basics of IPBES and its regional assessment for Asia and the Pacific (APRA) by Mr. Wataru Suzuki, the head of the Technical Support Unit for the IPBES Regional Assessment for Asia and the Pacific.

Dr. Kaoru Ichikawa, IPBES TF-ILK member and a Lead Author (LA) for Chapter 2 of the Regional Assessment, gave a briefing on the IPBES's process to integrate ILK into scientific assessment. She also presented the outputs from the Regional ILK Dialogue Workshop held in June 2016 in Chiang Mai. Responding to her presentation, participants expressed their expectation to make concrete progress during this sub-regional workshop based on what was discussed in the June regional workshop, and to have a clear picture on how ILK-related information will be incorporated in the APRA. Local participants welcomed this opportunity where they can share their knowledge and concerns that could be relevant to the IPBES assessments.

3.1.2 Dialogue session

Mr. Kittisak Rattanakrajangsri opened the ILK dialogue session with the local participants by requesting them to explain the cases where ILK is important for BES management.

< Three cases from Karen and Hmong peoples >

Mr. Gam Shimray presented the first case, explaining that while people from different areas in the mountainous northern Thai provinces have different knowledge systems, their traditional knowledge commonly includes that relating to rituals and beliefs, forest and natural resource management, as well as crop cultivation. Ceremonies are practiced in many occasions, including when trees are cut, and to pray for spirits to protect forests from fire. Forests where ceremonies are practiced are protected under community norms. While the government blames the Karen people for causing forest fires, in reality they protect forests. Mr. Rattanakrajangsri pointed out that indigenous peoples' practices to protect forests are not well understood by people from outside, including government officials, and stressed the need for better understanding of this reality by wider audiences.

One of the ILK holders expressed that knowledge of indigenous peoples about natural environment is indispensable for their survival. Customary rules associated with such knowledge are also important, but currently not recognised in statutory laws. The statutory law determines that the land where indigenous peoples live is located in state-protected areas. Customary rules are adjusted to fit to the needs of local people living their everyday life, which should be well-connected to the rules created and enforced by the government. Solutions can be identified if a space is created for dialogue between local people and the government authorities. Indigenous peoples have knowledge, practices and livelihoods to live their lives, including those centred on rotational farming. However, these have been declining over generations as younger generations increasingly participate in formal education at government schools. They no longer continue traditional rotational farming, but increasingly cultivate cash crops such as tea and coffee. Mr. Rattanakrajangsri summarised his concerns into two key points: consistency and synergies between customary rules and statutory laws are critical, and to achieve this, there should be increased opportunities for dialogue and more case studies. He then expressed his expectations of the role of IPBES to integrate ILK into scientific assessment, and to deliver messages to policymakers backed by science and ILK.

One of the local participants (a Mon group representative) mentioned that 13 groups of indigenous peoples in Thailand face problems of non-recognition in state policies of the importance of ILK in health and natural resource management. To tackle this, the groups organised activities with other groups to discuss ILK with village youths including girls. Young people should be more aware of the importance of ILK. They are sent to the schools in cities where they learn new knowledge from outside but do not learn traditional knowledge. This makes it difficult for them to survive once they come back to the village after completing school. ILK should be better recognised in formal education, for example by covering ILK in school curriculum.

<Reflections>

Prof. Alanguí identified two highlights in the statements by the three local participants. First is the richness of culture and rituals, and the wealth of knowledge on natural resource management like traditional fire control practice, arguing for the need to use both traditional knowledge and scientific knowledge to better inform policies, but to achieve this, policy should properly recognise ILK; and secondly, the transmission of ILK to younger generations, especially those pertaining to the use and management of their lands and resources, is another challenge, and this is highly related to challenge of providing culturally relevant education to indigenous youth. He then asked the floor on how we can respond to these points in the context of the IPBES Assessments.

Ms. Joji Carino reflected on the message from the IPBES Assessment on Pollinators, Pollination and Food Production completed in February 2016, which indicated that swidden agriculture supports habitats for pollinators, while the majority of forest scientists believe that swidden agriculture damages forests. To make progress based on what this assessment found, it is vital that there is mutual understanding between scientists, indigenous communities and governments on this issue. She also reflected on her experience in sharing this message with forest scientists when she had an opportunity to explain the impact of swidden agriculture on forests with them.

Two IPBES APRA authors were then invited to respond to Prof. Alanguí's question. Dr. Ichikawa, LA for Chapter 2, pointed that although the IPBES deliverables cannot directly solve local problems, they can influence national policies, and that it is vital to include as much ILK as possible into the assessment report. The points relating to those raised by the local participants already touched upon in the Chapter 2 of the assessment report, where the authors can incorporate ILK gathered from local participants into the assessment report draft. Dr. Ryo Kohsaka, Coordinating Lead Author (CLA) for Chapter 1, gave a general description on what is contained in Chapter 1, and highlighted a section on

knowledge interactions where the definition of ILK, as well as the way ILK is recognised in the assessment report, should be explained.

Ms. Carino welcomed the opportunity for specific ILK cases provided by the participants to be effectively delivered to the IPBES authors. Dr. Kawasaki mentioned that the case from Hin Lad Nai village is a good example where rotational farming supports biodiversity, and the villagers are trying to address the ILK transmission issue through youth education. To complement her earlier comment, Dr. Ichikawa pointed out that IPBES has several assessment deliverables not limited to APRA, including other regional assessments, global assessments and thematic assessments on pollination, land degradation and restoration, sustainable use of wild species as well as invasive alien species, which have a high need for ILK-related inputs.

<Additional cases from Karen people communities>

One local participant from a Karen community mentioned four research projects on rotational farming (RF) that identified issues of conflict between local community and outsiders, and demonstrated their need of the forest and their ability to live with the forest. The presentation of the research results to people from outside received positive response. With this experience, he emphasised the importance of studies on RF –including the linkage between RF and Climate Change, as well as RF and local livelihoods from forests, in order to further enhance the understanding of RF by outsiders. He also mentioned that the community is currently advocating for the formulation of a community forest law. While the proposal is yet to be accepted by the government, it received a positive response from the Ministry of the Forestry, which recently has strong interest to increase forest areas. He said this is an opportunity to count community forest areas as official forest areas. Challenges relating to community forestry law include the difficulties to create a common understanding of complex issues including communal land title and other sensitive issues.

A local participant from a Karen community questioned the intention of the government in its forest conservation efforts. Instead of enhancing forest biodiversity, the government promotes monoculture by planting only one tree species, which is not even useful to the local people. He stressed the importance for forest agencies to cooperate with local communities and to respond to local needs. This will ensure that activities initiated by the government will be supported by the local people.

A female participant from a Karen community explained that Karen communities recognise the landscape in the villages in four concentric circles: 1) the innermost circle is the residential area; 2) the next circle is designated as the communal forest area used for ceremonies and where people can harvest and hunt in a sustainable manner; 3) the third circle is the cultivation area; and 4) the outermost circle is the protected forest where cutting of large trees and fruit trees is prohibited. Cutting fruit trees is prohibited in the outer protected forests because community members believe that wild animals in the forest need fruits. Formal law does not recognise such practices. She then expressed her concern that young people will no longer be aware of such knowledge and will not follow traditional norms when they come back to the villages from schooling in the cities. Another local participant supported her statement by pointing to the failure of the national park law to manage large forest areas, which can be contrasted to successful forest protection by local communities, for example, the designation of sacred sites within the forest, even in the absence of written laws.

Mr. Tongbue, also from a Karen village, shared results of a case study on tourism promotion in his village that identified good practices in community-based BES conservation, even though it has faced difficulties in involving more community members. He said that many tourists lack awareness about the communities they visit. Referring to a comparative study between communities that have ILK and those without ILK, he said there are difficulties in enhancing awareness of those communities that do

not have ILK. He ended his sharing by reiterating the importance of traditional management system for forest conservation.

<Reflections>

Relating to the tourists' lack of awareness about the communities they visit, Mr. Danesto Anacio pointed that some researchers ask questions from and take photographs of indigenous peoples but do not give them any feedback on the results of the study. He expressed his expectation from IPBES to give them appropriate feedback if it involves indigenous peoples in its assessments.

Ms. Carino stated that the Regional Workshop in June identified how customary regulations, resource use systems and values work and can be linked to formal laws, and proposed to conduct national-level assessments on ILK to further strengthen influence on national policies. She also pointed out the information gap in IPBES relating to cultural ecosystem services, and expressed her expectation from IPBES to recognise the connection between indigenous peoples' well-being and their connection with nature.

Ms. Elena Rafanan Regpala stressed the importance for IPBES to recognise how local people perceive BES in their own contexts, including ancestral spirits in sacred forests. Such a notion is important not only for communities but also for biodiversity – people believe that homes of nature spirits and ancestors' spirits are also home for biodiversity – and thus should be understood by scientists and delivered to policymakers.

Mr. Gam Shimray stated that IPBES has initiated an excellent opportunity to connect the discussions on ILK and BES, where he believes that both of the two different expressions can be used, i.e. ecosystem functions and ecosystem services. Ecosystem services tend to be understood in monetary terms in which global community is interested, while ecosystem functioning is more appropriate to express spiritual dimensions/aspects that are indeed important for indigenous peoples, as clearly depicted in the case from Hin Lat Nai, where urban prejudice challenges the spiritual dimensions of ILK. He reiterated the importance to recognise spiritual aspects of BES in IPBES assessment reports.

Dr. Dayuan Xue extended the discussion on how to reflect ILK-related information in the assessment report by pointing to the need for the ILK holders and experts in the workshop to understand the outline of the draft APRA report. Dr. Kawasaki mentioned that her case study can be referred to across different chapters.

3.1.3 Wrap-up discussion

Prof. Alangui summarised the points raised during the discussion into three key issues: tension between communities; tension against government; and tension against outsiders. These issues cannot be addressed solely by IPBES and he called for follow-up activities. He then asked participants how IPBES can enhance participation of ILK holders and experts, which was indicated earlier as one of the major challenges in ILK-related works in IPBES.

A local participant from a Karen village expressed his expectation from the government to create a space for dialogues and to recognise customary uses under government law. He also pointed the need for other Karen communities to declare Special Cultural Zones, and to build readiness for the implementation of these.

Another female participant from a Karen village argued that the revival of Karen's traditional livelihood is critical, for which committees at the provincial level were formed to influence government policies. She suggested a number of possible actions towards influencing government

policies, including experiments in pilot areas, creating opportunities for communities to learn difference of practices in different communities, conducting research on indigenous livelihoods based on the findings by past studies, as well as enhancing local awareness on this issue. She particularly recommended the conduct of a comparative study on traditional livelihoods across the villages with a wide spectrum showing the extent to which traditional livelihoods are practiced, including the villages where traditional livelihoods are no longer practiced. She believes that such a study will draw the attention of wider audiences to the good practices in several indigenous communities, in addition to those found in Hin Lad Nai village, which is now widely recognised in Thailand as a model village. She also emphasised the possible coherence between the government's interest to increase forest areas and ongoing efforts in Karen communities such as fruit tree planting in communal forest areas, and called for better connection between these two in such a form as the recognition of Karen's communal forests as a part of state forest reserve system.

In closing the discussion, Prof. Alangui expressed his appreciation to the local ILK holders for their contributions to the dialogue. He said the issues raised will inform the discussions during the workshop where participants will extensively discuss how ILK will be incorporated into the IPBES assessments, and he expressed the hope of the IPBES-TF-ILK for indigenous peoples and local communities to continue to participate and influence the process.

3.2 Dialogue with Selected ILK Holders and Experts in South-East and North-East Asia

3.2.1 Opening and introductions

With Professor Wilfredo V. Alangui as the main facilitator, Mr. Kittisak Rattanakrajangri of the host organisation IPF, opened the two-day workshop by referring to a remark of a village chief in Chiang Mai Province. This was then followed by self-introductions by all the participants.

Mr. Yoichi Sakurai, the project leader for the IPBES-JBF Capacity Building Project, provided the background, objectives and outline of the entire project, as well as the programme for the Sub-Regional ILK Dialogue Workshop for South-East and North-East Asia. Following this, Mr. Wataru Suzuki, the head of the Technical Support Unit for the IPBES Asia Pacific Regional Assessment, gave some basic information about IPBES, and explained the process for the production of the IPBES Assessment Report, as well as the outline of the IPBES Regional Assessment for Asia and the Pacific.

Dr. Ichikawa, IPBES TF-ILK member and a lead author for Chapter 2 of the Regional Assessment, talked about the IPBES's process of how to integrate ILK into scientific assessment. She also briefly presented the outputs of the earlier Regional ILK Dialogue Workshop that was organised in June 2016 by the IPBES TF-ILK.

Dr. Amjad Virk, CLA for APRA Chapter 6, appreciated the earlier presentations, which provided context to the two-day sub-regional workshop. He expressed his concerns on the outputs from the previous June regional workshop in Chiang Mai, which are yet to be effectively incorporated into the APRA drafting process. Having said this, he committed to share the summary of the regional workshop outputs with the IPBES-APRA authors so that the workshop outcomes will be effectively reflected in the assessment drafting process.

In response, Mr. Suzuki pointed out that the current sub-regional workshop can meet such needs of the assessment authors by compiling and sharing the presentations of ILK holders and experts, as well as the summary of discussions, in a form of workshop proceedings, as Mr. Sakurai clarified earlier. Regarding the process to prepare the workshop proceedings, Mr. Suzuki asked the participants to review the draft proceedings to confirm the key messages and important findings from the workshop.

This will ensure that these key messages and findings can be effectively delivered to the IPBES assessment authors. Dr. Virk welcomed Mr. Suzuki's suggestion.

In addition to what was suggested by Mr. Suzuki, Dr. Xue expressed the need to follow-up on the results of the previous regional workshop, and to produce clear additional value from the current sub-regional workshop, so that ILK-related information gathered through the regional and sub-regional workshops can be effectively reflected into the assessment drafting process. He also expressed his support to the idea of establishing a regional ILK network, which will maintain momentum, hold activities, and accumulate relevant materials to ensure that ILK is included in the ongoing and upcoming IPBES assessments.

Ms. Carino pointed to the need for self-organised participatory mechanisms as a clear stakeholder engagement strategy, which ensures the involvement of existing ILK-related networks in the region. She also expressed concerns on the process for an open call for submissions for the regional and sub-regional ILK dialogue workshops, which were not really accessible to important ILK holders and experts. On this issue, she highlighted the advantage of engaging existing materials and networks in the process for the delivery of ILK to the assessment. Mr. Suzuki echoed Ms. Carino's suggestion and reiterated the plan of the IPBES-JBF Capacity Building Project to establish a regional ILK network building upon existing ones, which will enhance access for network members to IPBES-related opportunities including the call for ILK submissions. Prof. Alangui supported Mr. Suzuki's suggestion and underscored the importance of the complementary relationship between the existing and new networks. Dr. Virk also mentioned difficulties for existing ILK networks to access IPBES-related opportunities, and expressed the need for adjusting the current IPBES process and frameworks regarding ILK to the one more accessible for existing networks.

Mr. Shimray requested clarification on what Ms. Carino meant by the expressions "self-organised participatory mechanism" and "stakeholder engagement strategy." Ms. Carino explained how it is difficult for most of the self-organised networks to win observer status in the IPBES plenary meetings, and expressed the need to improve their access to IPBES-related processes. Prof. Alangui explained that the point raised by Mr. Carino is high on the agenda for TF-ILK, and TF-ILK has been exploring ways to improve the accessibility of ILK materials, including alternative forms of submissions of ILK-related information embedded in art drawings, films, indigenous tapestry, stories, and other art forms.

Before opening the dialogue session, Prof. Alangui requested all participants to write down on small pieces of paper what they think are the key messages from each presentation, and explained that these key messages will be used in the wrapping-up session to link key messages from each case to specific chapters of the APRA draft.

3.2.2 Dialogue part 1

Presentation 1: Forest Communities and Ecosystem: A case of Huay Hin Lad Nai Community

Presenter: Kittisak Rattanakrajangsri and Gam Shimray

Mr. Shimray started his presentation by saying that the case study has yet to be completed and will be subject to a validation process by the local communities over the next few weeks. He presented the socio-economic profile of Huay Hin Lad Nai, village governance, land and natural resource management, and the history of the village.

The first settlers arrived at the present site in 1966, after decades of migration across different areas in the mountainous northern Thai provinces. Through their customary laws and indigenous knowledge, they were able to conserve and sustainably use their land and resources. In 1986, forests in the area nearly disappeared when the government granted concession to the Chiang Rai Tha Mai logging company; when the company finally left the area, only 10 % of large trees remained and water sources either dried up or got polluted. This also led to the loss of mammal species such as tigers, pheasant, bears, chamois, deer and gibbon. Ironically, the government blamed the Karen communities for the forest loss. To prove the government wrong, the village took control of their territory and demonstrated their effective stewardship of their forests. Many years later, their efforts for the restoration of the forests through sustainable management practices became known nationally and internationally. Huay Hin Lad Nai is now recognised by Thai government as a model of sustainable village.

In their worldview, everything starts from the forest, as expressed in their saying “no forest, no life.” They know they depend on their forests for their own survival; they recognise the important role of forests in providing habitats for flora and fauna, and in maintaining soil, air, and climate. Such worldview and beliefs are demonstrated in their ceremonies, in particular in their ritual ‘*Ta lueko*.’ Led by their spiritual leader ‘*Zee Khou*’, they sacrifice and offer chickens to the guardian spirit for what the people have been receiving from the forest. Karen’s worldview provides the basis for customary rules and practices that govern their sustainable use of their lands and resources.

The village employs a holistic land use and livelihood system in which labour exchange is a critical part. This livelihood system has made the village self-sufficient: 92% of food comes from household production and the natural environment, while only 8% of food comes from outside market. In Huay Hin Lad Nai, community members have no debts and in fact enjoy surplus cash income.

In their holistic system, shifting cultivation, particularly of rice, determines the life and work of the people in community. The villagers assert that their practices promote sustainable living. (Refer to slides for more details)

Presentation 2: Assessment of the role of Karen’s ecological knowledge to sustain biodiversity, ecosystems and ecosystem services in northern Thailand

Presenter: Jintana Kawasaki

Dr. Kawasaki presented the results from her study in three Karen villages in northern Thailand, i.e. Hin Lad Nai village in Chiang Rai province; Mae Yod village in Chiang Mai province; and Mae Um Pai Tai village in Mae Hong Son province. The study aimed to deepen understanding of the linkage between landscape structure and ecosystem services in Karen villages, as well as to document Karen’s ILK and traditional practices associated with the ecosystem services important for local communities. The study had four major conclusions: First, the study confirmed that ecosystems in forest and agricultural lands in the studied villages provide different and various benefits to the communities in those villages. Second, land use categories that were found to be the most important to support the sustainability of Karen’s traditional life were, amongst others, conservation forests, headwaters, and rotational farming fields. Third, land use changes, in particular the conversion of forests to agriculture lands, have resulted in the extirpation of wildlife species. Fourth, the study found that rotational farming provides high biodiversity with high carbon stocks, and contributes to conservation of biodiversity and ecosystem services. (Refer to presentation slides for more details)

Discussions on presentations 1 and 2

Dr. Xue appreciated the quality of the two case studies, and requested the presenters to clearly define ILK and to identify the outcomes, or implications of the use of ILK, for BES conservation (e.g. increasing biodiversity). He also observed that the first presentation is mostly about customary rules but lacks clarity about what ILK is and what its role is in BES conservation. Regarding the second presentation, he suggested for the presenter to clearly determine and quantify ecosystem services from rotational farming including soil enrichment and carbon sequestration, and to package these for delivery to IPBES authors.

Ms. Carino pointed out that the area used for rotational farming has been substantially reduced, but there seems to have been some innovations in the rotational farming technology that have enabled RF to produce more in much smaller area. The Hin Lad Nai Village Headman responded to this observation by saying that the RF area has not changed much; rather, they face difficulties in securing sufficient labour to continue RF. Mr. Shimray complemented his comment by providing information on how RF production has become intensified, which is associated with diminishing labour availability. He also highlighted the need for a holistic perspective to understand ILK. Dr. Kawasaki also mentioned the issue of reducing the fallow period of RF that reduces BES and productivity.

Dr. Xue suggested several points that could further improve the two case studies, including listing of the crop names, as well as describing why indigenous peoples use those specific crop varieties – probably related to their knowledge on soil fertility which is the reason why people saw that particular crop.

3.2.3. Dialogue part 2

Presentation 3: Promoting the Strategy towards Maintaining the Indigenous Local Knowledge of the Hre ethnic community in Po E commune - case study: status and trends of local rice varieties and new ones in four villages of Po E commune, Kon Plong district, Kon Tum province –

Presenter: To Kien Dang

Ms. Dang started her presentation by showing a video that describes ILK in H're ethnic community in Po E commune, which included local beliefs in spirits in hills, customary rules relating to the cropping of native rice varieties, high-yield rotational farming that do not require synthetic chemical inputs, etc. The H're community have a rich knowledge about local rice varieties where currently 23 different local rice varieties are recognised, including ones that have specific uses by the communities such as for special food for women after giving birth. The H're people relate spirits with local rice varieties, which embodies strong association between the communities and their beliefs and practices on the cultivation of local rice varieties. However, the traditional rice varieties have become gradually eroded due to the introduction of hybrid rice. Hybrid rice increases yield but has side effects, such as increasing the vulnerability of farmers. For example, the harvest season for hybrid rice is different from local varieties, which overlaps monsoon rain season when farmers are highly likely to lose yield due to floods. Conversion to hybrid rice also erodes traditional local knowledge, thus also eroding the cultural identity of the ethnic H're people, which is strongly associated with the cultivation of local rice varieties.

After a video presentation about the village, she gave a presentation on her project in the ethnic H're community, which was a follow-up to her case study from the June workshop. The new project aimed to describe the status and trends of local rice varieties, as well as ILK associated with them in four villages of Po E commune. The study documented eight new species, in addition to the 23 varieties, which have also been identified in the target communities. The study also clarified an emerging critical threat to indigenous rice varieties: that is the conversion of upper forest zones including certain areas of rice fields to cassava mono-crop agriculture, driven by the need for cash income for local communities, and also pushed by cassava production. Cassava mono-cropping usually extends to hilly catchment areas and requires herbicides. This causes chemical pollution of outflow from cassava fields, which affects rice cropping in downstream areas. Statistics indicate an alarming rate of the expansion of cassava fields in place of traditional rice paddies, which is highly likely to affect local food security. There is also a challenge in documenting a large number of local rice varieties. The study unveiled that increasing number of households have started using hybrid rice varieties, while some of them said that they are just testing the new varieties in comparison with the traditional ones. Without proper management for sustainability of both natural resources and ecosystem management at local communities, loss of native rice varieties would lead to the decline of ILK and many significant traditional rituals. A strategy towards Maintaining the Indigenous Local Knowledge of the H're ethnic community in Po E commune for local rice varieties, is urgently needed. (See presentation for more details)

Presentation 4: Biodiversity Requirements of the Begnas Ritual System in Sagada, Northern Philippines

Presenter: Danesto Bacdayan Anacio

Mr. Anacio presented a case study on the Begnas ritual system in Sagada municipality, which is strongly associated with traditional agricultural production, as well as other ecosystem services. Sagada landscape encompasses various forest and land use types under different protection or management regimes. Forests in hilltops are vital for NTFP harvest for household consumption, as well as for securing a water source for irrigation. Rituals for omens are practiced in huts in sacred sites, which are usually located in grasslands nearby forests or paddy fields. Mountain peaks are associated with ancestral spirits and thus protected from exploitation. Water bodies do not only provide fresh water and foods for daily life, but also serve as important venues for rituals, e.g. for cleansing ritual participants and washing away ill omens. Rituals are conducted in sacred forests or at the base of sacred trees, which are believed to host ancestral spirits and thus are protected from being cut down. Animals are also an important part of Begnas rituals, including the behaviour of specific bird species interpreted as omens, as well as freshwater species such as crabs and eels, which are served at the communal feast during rituals. The importance of traditional rice varieties for rituals was also emphasised by the study. With these facts, Mr. Anacio put forward a direct correlation between cultural richness and biodiversity in each community as the key finding of the project. While he welcomed the momentum to document ILK, which constitutes the basis for cultural identity, he expressed the difficulties in using such cultural elements as a tourism resource – this can possibly support the cultural identity of Sagada communities but can interrupt traditional ritual practices. (See the presentation slides for more details)

Discussion on Presentations 3 and 4

Dr. Xue noted that the linkage between local rice varieties and ILK is not clear and that it would be informative for the workshop if knowledge to protect local rice varieties, as well as the reasons why these varieties were kept for generations, are presented. These will reinforce the explanation on how cultural and biological diversity are interlinked. He also pointed out the need to describe ILK associated with the rituals.

Dr. Virk asked for clarification on the implications of the introduction of new rice varieties for BES, and farmers' perception on this – including whether farmers are aware of such implications. To respond to the question of Dr. Virk, Ms. Dang presented the fact that rural farmers are fully aware of the impacts of the introduction of hybrid rice varieties, indicating that the cropping season for hybrid rice varieties coincides with the flooding season in Viet Nam and thus the hybrids are more prone to flood-related crop loss than local varieties.

3.2.4 Dialogue part 3

Presentation 5: Sustaining indigenous forest management system: the case of *saguday* in Sagada, Philippines

Presenter: Milanie June Cadalig Batang-ay

Ms. Cadalig Batang-ay presented a case study on the *saguday* as an indigenous forest management system in Sagada, Philippines. *Saguday* is a type of secondary forest maintained through cultural practices and customary rules, which provides socio-economic and environmental benefits to traditional communities. *Saguday* forests are collectively managed under the indigenous governance system, which is centred on traditional institutions composed of “*dap-ay*”, elders, “*umili*,” and culture and traditions. Customary rules include membership rules, harvesting and allocation rules, grazing/cattle management rules, fire management rules and soft penalties for violators (e.g. obligation to bring food to elders). While *Saguday* forest management system have several features that support the sustainability of communal forests, it has become increasingly threatened from the pressures driven by government laws which are in many cases developed in municipal offices and do not recognise customary forest management system. Such policies and laws tend to increase direct pressures on forests such as unregulated land conversion, land privatisation, unregulated wood extraction, forest fires, claims over communal lands, introduction of market-oriented transactions, as well as weakening traditional forest management rules and practices.

Presentation 6: Learning Indigenous Earth Wisdom from the Ibaloy People's baeng home gardens, Cordillera, Philippines

Presenter: Maria Elena Rafanan Regpala

Ms. Regpala presented the results of a case study aiming to document the different *Ibaloy ba-eng* home gardens in Baguio City, Philippines, as well as to establish an enhanced *ba-eng* home garden at the Maryknoll Ecological Sanctuary as a learning site for children and the public. *Ba-eng* home garden is a yard garden near a residential area where the owner plants fruit trees, bananas, coffee, papaya, sweet

potatoes, as well as other non-staple crops and medicinal plants. A saying of *Ibaloy* people embodies their worldview relating to the home garden: “*If you do not have a home garden, you are not human*”. Indigenous knowledge associated with the preparation of home gardens include ‘*madmad*’ prayer and rituals for the permission from ancestral and natural spirits to use the land and for their help for bountiful harvest. They also have rich knowledge of crops, soils and the combinations between these elements. Threats to the traditional *ba-eng* home garden include the decline of prayer and rituals, change of crop varieties aiming for markets, introduction of chemical pesticides, decreasing number and size of home gardens. The project endeavoured to tackle these challenges by combining indigenous knowledge with other knowledge systems and by transmitting these to younger generations through teaching children and promoting public education programmes, focusing on the knowledge and use of vermiculture, plant pesticides, indigenous micro-organisms and appropriate tools. (See presentation slides for more details)

Discussion on Presentation 5 and 6:

Ms. Carino made the observation that the erosion of ILK seems a common issue across different cases and thus needs deeper analysis into its policy drivers. For example, two opposing drivers are observed in the cases from the Philippines where ILK has become increasingly recognised in policies whereas the incentives – including commercial ones – for ILK-based practices continue to decline. Relating to presentation 5, she stressed the need to investigate the impact of tourism development programmes on local culture and biodiversity.

Dr. Kawasaki asked how local communities perceive the implications to them of the decline of traditional rice cultivation. Referring to Presentation 5, she asked whether it is possible to investigate local knowledge on sustainable management of home gardens as response to climate change. Ms. Batang-ay responded by giving an example in which indigenous peoples restore forests using the seedlings supplied from nearby forests. Ms. Regpala said farmers have increasingly been using pesticides to respond to new pests that are emerging due to climate change.

Dr. Virk stressed the importance of the recognition of traditional/customary governance systems vis-à-vis formal governance systems. From her experiences in the *saguday* forest management system, Ms. Batang-ay stated that government policy needs to provide an enabling environment for the use of traditional governance system that is in support of BES sustainability. Ms. Regpala, drawing on the earlier two interventions, emphasised the need to replicate the use of ILK to maintain traditional home gardens, especially because people often lack knowledge about the plants that they are growing in modern home gardens. Mr. Shimray pointed out the need for an economic environment where ILK and related traditional practices are continued and promoted. He also emphasised the need for government policies or programmes to maintain and support the use of traditional knowledge, where legal pluralities should be taken into account to avoid the situation in which policies developed and implemented by the government contradict with traditional/customary rules and practices. Dr. Virk supported Mr. Shimray’s point, and reiterated the need for strong policy recommendations out of the IPBES assessments, which will be able to address policy contradictions such as those pointed out earlier.

3.2.5 Dialogue part 4

Presentation 7: Climate Change in the Eastern Himalayas: Advancing Community-Based Scientific Capacity to Support Climate Change Adaptation

Presenter: Lun Yin

Dr. Yin presented the results of a case study on community-based climate change adaptation building upon indigenous knowledge and scientific capacity building in Chinese eastern Himalayas. His presentation started with a description of the diversity of the area from multiple angles, e.g. a wide altitudinal range from 2000m to 4000m, rich biodiversity, diversity of ethnic groups, as well as various agro-pastoral systems. The key challenge in the area is the impact of climate change. To respond to this, the project aimed to enhance scientific knowledge and capacity of the ethnic groups building upon their ILK. The project endeavoured to strengthen the multi-stakeholder science policy interface in which ILK, including that from women, is documented and classified, and possible actions for climate change adaptation were appraised. One focus for ILK documentation was placed on medicinal plants. Based on the findings on these, the project convened a conference to mainstream ILK, as well as establishing a capacity building programme through “Climate Field Schools”. Climate Field Schools implemented joint research with communities on traditional knowledge relating to four priority areas: i) climate change and biodiversity; ii) watershed management; iii) agro-pastoralist; and iv) natural resource management. The project report will be soon published by ICIMOD. The project successfully built bridges between ILK holders and scientists, and strengthened the scientific capacity of community members. In conclusion, Dr. Yin emphasised that climate change impacts can be alleviated at local level through local people’s efforts and adaptation based on their indigenous knowledge, and reiterated the importance of the project results that demonstrated the values of ILK and the culture of Tibet which was associated with biological resources in adapting climate change. The results of the project can help the government make policies for alleviating climate change impacts in the future. In closing, Dr. Yin expressed his willingness to further contribute to IPBES assessments.

Discussion on presentation 7:

Ms. Dang asked how the project successfully engaged monasteries, and how the project established Climate Field Schools. To respond to the first question, Dr. Yin explained that the monasteries are central to the ILK on medicinal plants, and they also play a role in informing communities on how to respond to unexpected changes such as climate change. Regarding the second question, Dr. Yin explained that the learning opportunities such as the ones provided by the Climate Field Schools were urgently needed when communities faced increasing threats from the consequences of deforestation and changing climate patterns.

Mr. Anacio asked how the project integrated traditional and scientific knowledge. In response to this question, Dr. Yin explained their methodologies, which combined the quantification of plant species diversity by botanists and the documentation of traditional knowledge held by local medicine experts on the use of medicinal plants. The collaboration between botanists and local knowledge holders worked very well to assess the state and trend of important species, such as those declining or found in limited localities.

Ms. Carino proposed possible use of eco-calendars to capture ILK, which will deepen understanding of how and to what extent BES has been changing over time along with the changing climate. Dr. Virk asked about the possible implications of the integration of traditional and scientific knowledge to policy recommendations. Ms. Dang pointed out the need for a compulsory mechanism to integrate ILK into project development, particularly in countries like Viet Nam where engineers mostly dominate project appraisals. In line with this, Prof. Alangui asked Dr. Virk whether IPBES can suggest to governments to integrate ILK in policies. Dr. Virk replied that IPBES Assessment Reports can be

used by governments as a reference guide to formulate sound policies, and that scientists can be influenced if we deliver strong messages regarding the need for the integration of ILK into scientific studies. Prof. Alanguí echoed Dr. Virk's point, emphasising the need to highlight the value of ILK in the IPBES Assessment reports so that policy processes take ILK into account. Mr. Shimray supported Prof. Alanguí's suggestion and stressed that awareness and recognition of ILK should be enhanced through, for example, including ILK in the higher education curriculum, or an awareness programme against urban prejudice on ILK (like bias against rotational farming). Dr. Virk expressed the importance of influencing international policy processes such as CBD, through which states make commitments to strengthen the implementation of relevant policies.

3.2.6 Wrap-up of dialogue part 1-4

To wrap up the discussion of the first day of the sub-regional Workshop, Prof. Alanguí led the participants in classifying the key messages that they identified for each of the seven (7) presentations during the dialogue sessions according to the most relevant chapter of the IPBES-APRA draft:

- Chapter 1: Setting the scene for Asia Pacific biodiversity and ecosystem services;
- Chapter 2: Nature's benefits to people and quality of life;
- Chapter 3: Status, Trends and Future Dynamics of Biodiversity and Ecosystems Underpinning Nature's Benefits to People;
- Chapter 4: Direct and indirect drivers of change in the context of different perspectives on quality of life;
- Chapter 5: Integrated and cross-scale analysis of interactions of the natural world and human society; and
- Chapter 6: Options for Governance and Decision-Making across Scales and Sectors

(See Annex 3 for the results of this exercise)

Mr. Naoya Tsukamoto of UNU-IAS gave his reflection on the case studies that were presented at the workshop and said he identified two major types of ILK: the first type of ILK is critically important for local people to survive in the communities and areas where they live, and the second is the type of ILK that can be promoted into international context and can be used in other parts of the world. Regarding the question of how to integrate ILK in policy and project appraisals, he suggested to learn from the experience of the World Bank in implementing the free, prior informed consent (FPIC) policy in its project appraisals.

Ms. Carino expressed her expectation for IPBES to advocate the integration of ILK into policies, and called for the need to provide strong evidence of ILK relevance in the IPBES assessment reports to convince governments which in many cases are sceptical about ILK. She also stressed the importance of capacity building to be able to gather, document, and consolidate strong and convincing evidence for IPBES assessments.

3.2.7 Dialogue part 5

Day 2 of the sub-regional workshop started with presentation of the last case study from Thailand.

Presentation 8: Local Biodiversity Restoration for Food Bank in the Highland Community of Thailand

Presenter: Jarunee Pilumwong

Ms. Pilumwong presented the findings from a research project that looked at the results of the Royal Projects and HRDI Biodiversity Conservation Projects across the mountainous highland areas in northern Thailand, focusing on knowledge generation and the restoration of food banks in highland communities. A community food bank is an initiative aimed to enhance food security in highland rural communities through the restoration, conservation and sustainable harvest of locally rare plant species in community forests. It also aimed to promote community learning through continuous and participatory processes. The research project developed a database on 1,262 plant species and local knowledge on their uses, including the use of plant ingredients for food, medicine and other purposes. Collected from 60 communities, the database includes 38 rare plant species and 35 plants, which have potential use for income generation activities. ILK related to these species were collected from 145 farmers. Publications from the research project were distributed to the people in target villages, and are also available on the HRDI website. Ms. Pilumwong identified four key points from the study. First, plants used by each community represented a wide range of genera and families, and are mostly used for household consumption. Second, local biodiversity can be used to provide benefits to the local people, while proper management should be carried out to improve benefit sharing and to distribute opportunities to earn new income. Third, the conservation and restoration of local biodiversity should be managed properly and efficiently so that forest resources can be maintained and used in a sustainable way. Fourth, the participatory process takes time, but leads to more effective and sustainable results.

Discussion on presentation 8:

Dr. Virk appreciated the last presented case study, saying it is a good practice in establishing a workable network at the local level. He asked who provided what kind of institutional support to the network. Ms. Pilumwong answered that the government provided necessary funds during the project period, and local governments came in to support the initiative once the project was completed. This was made possible because the project implementors have been consulting with local governments right from the start. Dr. Virk shared the idea of establishing local foundations where a certain proportion from income generating activities is pooled and used for management purposes.

Ms. Dang expressed her interest in the community food bank and requested further information on how it works. Ms. Pilumwong explained that the community food banks are usually set up in community forests, where community members can ‘borrow’ food or medicinal plants as needed, and then are required to pay back ‘returns’ by enriching plants – sometimes using the species gathered from outside – just as people do for loans and savings with banks.

Dr. Xue asked clarifications on what is the knowledge associated with the food bank system. Ms. Pilumwong explained a case in which community members learnt how to propagate *P. polyphylla* through the project activities, which was not known to them before the project came. Prof. Alangui complemented her response by stating the importance of ILK in identifying locally valuable species and the propagation of these.

Dr. Virk appreciated the food bank concept, which allows community members benefitting from resources from the bank, but to do so requires them to pay back returns to the bank. Ms. Dang pointed out that Ms. Pilumwong's presentation was not clear about the process to pay back returns into the food banks.

To end the session, Prof. Alangui again requested the participants to write down what they found to be the key messages from last presentation which will be included in the output of the previous day's wrap up activity (see Annex 3).

3.3 Writing Session

The Writing Session was broken down into short sessions for each of six APRA chapters, which started from presentations by a chapter author, or the one on behalf of the chapter authors, on the key messages and outline of the current version of the chapter manuscripts, followed by an open discussion with the workshop participants about how the ILK case studies presented to the workshop can contribute to each chapter.

Chapter 1: Setting the scene for Asia Pacific biodiversity and ecosystem services

Presentation:

Dr. Kohsaka, Ch1 CLA, presented draft key messages and the outline of Chapter 1, in which he highlighted the characteristics of AP region in terms of demographic changes, as well as the proposed added value for the IPBES assessment in synergising information from various sources and packaging them to make real policy impacts. He then moved into the explanation of the IPBES assessment report drafting process in which the authors are required to fill information gaps in response to the comments from reviewers. For example, the external review on the Ch1 First Order Draft recommended to include a specific sub-section on the current status and use of ILK in Asia and the Pacific and how it can contribute to enriching academic knowledge base. To respond to this comment, Ch1 critically needs literature produced by ILK holders and experts, including ILK on NTFPs and the interactions between different knowledge systems.

Discussion

Dr. Xue asked which sections of Ch1 require ILK-related inputs, and also proposed to highlight ILK-related messages in the section that describes socio-economic characteristics of AP region. Dr. Kohsaka indicated that ILK-related descriptions will be embedded across different sections of Ch1, rather than in one specific section dedicated to ILK, and expressed reluctance to add a new section on ILK as Ch1 authors were requested from reviewers to reduce the volume of the text by 20 pages.

Mr. Shimray proposed to include the definition on ILK in Ch1. Dr. Kohsaka expressed his personal interest to present the definition of ILK in the methodology section in Ch1, but took the suggestions from the workshop – including the ones to mention ILK in the methodology section, as well as to create a new section on ILK – for consideration with other Ch1 authors.

In response to Dr. Kohsaka's request for the information on general status and trends of ILK in AP region, Prof. Alangui mentioned a general trend in AP region that ILK has been gradually lost mainly due to the difficulties in handing ILK down to younger generations, while the current workshop

identified a number of good practices in which ILK is effectively used for the conservation and sustainable use of BES, and successfully transmitted across generations and scales. In addition, he referred to a past study that identified the co-occurrence of biodiversity hotspots with the areas inhabited by indigenous peoples. Prof. Alangui also proposed alternative methodologies to enhance integration of ILK into IPBES assessment, such as the use of audio, video or other forms that effectively embody ILK. Dr. Ichikawa echoed Prof. Alangui's ideas and suggested that methodologies for integrating ILK into assessments should be clearly elaborated in the IPBES authors' guidelines so that the same methodologies are consistently used across all IPBES deliverables.

Mr. Shimray pointed out that the case studies presented to the workshop make cases for ILK but do not suggest general definition or trends that can be applicable across different parts of the world. With this and his past experiences with CBD, he suggested to Dr. Kohsaka to look at related materials produced by CBD in the past.

Chapter 2: Nature's benefits to people and quality of life

Presentation

Dr. Ichikawa, Ch2 LA, presented excerpts of draft key messages relating to ILK, as well as the chapter outline for Ch2. She then presented relevant points taken from the cases presented to the workshop that correspond to Ch2 sections. She requested workshop participants to review these and make necessary revisions.

Discussion

Dr. Xue appreciated Dr. Ichikawa's intensive work to summarise the points from the cases presented at the workshop and to place them under relevant sections under Ch2. He then suggested to consider the better geographic balance of ILK cases in Ch2 in line with what she prepared. He went further to mention the need to categorise ILK under priority issues such as health, and to generate quantitative information relating to ILK and its benefits to communities. Quantitative study on the value of ILK can be found in literature, e.g. the one on the value of mixed rice variety in Yung Nan Province. Dr. Xue expressed his willingness to share relevant articles with the workshop participants. Dr. Ichikawa said she would share the outputs and relevant literature with other LAs in Ch2.

In response to Dr. Ichikawa's call for additional inputs, Ms. Dang suggested that she can provide a case study on relational value, particularly on animism which is quite common in SE Asia where people believe in spirits associated with natural elements. She also said that while rituals tend to be categorised under cultural services, the cultural services concept cannot fully capture the importance of rituals for indigenous peoples. Prof. Alangui supported the suggestion of Ms. Dang and proposed to describe rituals in a paragraph under section 2.4.4 on "spiritual and cultural identity". He also suggested to Dr. Ichikawa to create a matrix that specifies the section in which each ILK case study is to be presented, and requested the workshop participants to fill in the matrix based on their respective case studies. Dr. Ichikawa accepted the suggestion of Prof. Alangui to prepare and share the matrix with the participants.

Mr. Shimray followed with three additional points. First he expressed concerns about how and where in Ch2 the key messages from the ILK case studies will be presented. Second, relating to section 2.1.3 on ecosystem services value and knowledge systems, he pointed out that the term "ecosystem functions" can be used in parallel with "ecosystem services", as the concept "ecosystem functions"

better captures spiritual dimensions of the value of nature which is particularly vital to indigenous peoples. Third, he reflected on the results of the IPBES assessment on pollinators, pollination and food production regarding the importance of multiple land use systems practiced by indigenous peoples – particularly the patchwork of fields under different fallow stages in shifting cultivation landscape – for the diversity of pollinator insects, and requested Dr. Ichikawa to take this into account in the drafting of Ch2. Dr. Ichikawa responded to the second inquiry by saying that the concept of ecosystem services in IPBES does not only capture monetary value but includes qualitative aspects and spiritual values. While Mr. Shimray accepted what Dr. Ichikawa said, he insisted on the use of the term “ecosystem functions” because IPBES’s conceptualisation of ecosystem services is still not strong enough to capture spiritual aspects of the value of nature for indigenous peoples. Dr. Virk supported the suggestion from Mr. Shimray to use “ecosystem functions”, as it does not harm, but rather benefits the assessment to reinforce the recognition of ILK.

Chapter 3: Status, Trends and Future Dynamics of Biodiversity and Ecosystems

Underpinning Nature’s Benefits to People

Presentation

Dr. Kosaka, on behalf of Ms. Rong Dai, Ch3 LA, who planned but was not able to participate in the workshop, gave a presentation using the slides prepared by Ms. Dai. He firstly presented draft key messages from Ch3, highlighting the 6th key message on bio-cultural diversity as the one most relevant to ILK amongst others. He followed this with the explanation on the organisation and outline for Ch3 – where sections 3.2.4 and 3.3.5 are most relevant to ILK. He then revisited the outputs from the last regional ILK dialogue workshop and put forward the homework from the workshop. He said Ch3 authors are requesting the sub-regional workshop participants to develop a table that elaborates the linkage between indigenous rituals, practices, and the kind of biodiversity used for these practices, and to identify enabling policies and practices which encourage conservation of biocultural diversity that can be replicated in the APR.

Discussion

Dr. Xue emphasised the need to elaborate the presentation of ILK case studies in Ch3, while expressed concerns on the lack of clarity about the linkage between biodiversity and linguistic diversity, as well as the concept of biocultural diversity. He also pointed out that it is important to look at genetic diversity of crops and livestock animals, which is being lost over several decades in China. At the species level, people in such countries as India and China have rich knowledge on medicinal use of biodiversity, which is also subject to rapid loss. Loss of eco-farming from the region can also be a pressing issue.

Ms. Dang supported the use of linguistic diversity as one of the indicators for bio-cultural diversity, as different indigenous peoples have different names for species, which may constitute an important part of bio-cultural diversity. She also mentioned that the introduction of genetically modified organisms (GMOs) has become a serious threat to natural genetic diversity in Myanmar and Thailand, which she hopes to be presented in the chapter that deals with trends. Prof. Alangui echoed Ms. Dang and suggested mentioning the implications from the introduction of GMOs to natural genetic diversity in Ch5 on scenarios and modelling.

Dr. Yin suggested including the text on livelihood diversity in Ch3, including those of agro-pastoralists and nomadic people, which he believes to have strong linkage with biodiversity. Challenges to their livelihood include policy changes and climate change. Mr. Shimray questioned how threatened communities can be mentioned. Dr. Kohsaka responded to these inquiries saying that these elements were already covered in the draft text in the chapter. Relating to what Mr. Shimray said, Ms. Rafanan Regpala highlighted the importance of mentioning status and trends of traditional occupation and livelihoods. Dr. Virk argued that the issue on GMO can be covered in Ch4 on drivers and thus should be forwarded to Ch4 authors. Dr. Xue suggested identifying case studies that demonstrate the use of the three indicators, i.e. linguistic diversity, traditional occupations and indigenous land tenure.

Prof. Alangui referred to one of the slides prepared by Ms. Rong Dai on what Ch3 authors expect this workshop to clarify, and requested participants to respond to these inquiries. Mr. Shimray, responding to the fifth inquiry in the slide, proposed to provide a case study on enabling policies and practices to encourage the conservation of biocultural diversity that can be replicated in the AP region. Dr. Kosaka said that the same question can be answered by existing literature and case studies. Then Prof. Alangui and Dr. Kohsaka requested the WS secretariat to elaborate relevant evidences in the proceedings that can respond to these inquiries.

Mr. Anacio pointed out the difficulties in addressing the inquiry from the previous workshop for the clarification of the linkages between rituals and biodiversity, as most of the species names linked to rituals are recognised in their own languages and cannot be easily translated into English or given a scientific name. Mr. Shimray suggested that he can provide case studies showing the linkages between rituals and BES with the use of tables.

Prof. Alangui wrapped up the morning session by reiterating what needs to be done after the workshop: i) a matrix identifying the case studies to be presented or listed under the relevant sections of Ch2 (developed and facilitated by Dr. Ichikawa); ii) a table on rituals and relevant BES elements, and iii) cases of enabling policies. Mr. Anacio volunteered to facilitate the development of the table on the linkage between rituals and BES. Mr. Suzuki requested the participants to deliver additional materials within a week.

Chapter 4: Direct and indirect drivers of change in the context of different perspectives on quality of life

Presentation

Mr. Suzuki started his presentation by explaining the entire structure of APRA and the general procedures for the production of IPBES Assessment reports, including the role of the authors to draft assessment reports based on knowledge from various sources, and to respond to comments from reviewers and get the support of governments party to the IPBES. Ms. Suzuki hoped that participants of the workshop will have a better understanding of the IPBES Assessment drafting process after his presentation.

On behalf of Dr. Priyanka Kohli, Ch4 LA, who planned but was not able to participate in this workshop, Mr. Suzuki explained the slides prepared by Dr. Kohli. The presentation included the chapter outline, and sections on type of direct and indirect drivers; interactions among direct and indirect drivers; and different types of ecosystems targeted in the assessment; another section will present land cover change in eastern Asia, scientific evidence of grassland degradation in Mongolia, and drivers affecting biodiversity in terrestrial water bodies.

Discussion

Dr. Virk reflected on the topic raised in the morning session about declining cultural diversity and requested to clarify the major drivers of the loss of cultural diversity, including the possible implications of the spread of GMO crop farms. He proposed that, if this point can be clarified in Ch4, Ch6 can make policy recommendation to address the drivers of the loss of cultural diversity. To respond to Dr. Virk's inquiry, Mr. Shimray mentioned the expansion of biofuel farms, cash crop farms and extractive industries as the major drivers. He also said that the conflict between traditional institutions and formal governance systems is an important issue but not sufficiently addressed in Ch2, and that Ch6, which is mandated to deal with the governance aspect, should cover this issue instead.

Dr. Xue pointed that changes in local communities, such as rural population decline, can also be an important driver of the loss of cultural diversity. Mr. Shimray stated that the difficulty to hand down ILK to younger generations can be another driver, which is always related to the educational system, and suggested that the complexity of the issue including this and what Dr. Xue pointed out earlier should be well captured in the assessment report.

Mr. Suzuki expressed concerns on how to deliver the request from participants to the Ch4 authors, and requested participants to summarise their suggestions and concerns in the key messages, which are to be presented in the workshop proceedings. Such an arrangement will help authors become aware of the recommendations from this workshop.

Chapter 5: Integrated and cross-scale analysis of interactions of the natural world and human society

Presentation

Mr. Suzuki, on behalf of Ch5 authors, explained the proposed key messages from Ch5.

Discussion

Prof. Alangui expressed concerns on how scenarios could capture ILK and its implications, for example, what is the impact of the loss of ILK years from now? Mr. Suzuki, in response to Prof. Alangui's question, clarified that IPBES regional assessments will not develop new scenarios but rather synthesise the findings by existing studies on scenarios and modelling, while new scenarios will be developed for the IPBES global assessment in which Dr. Xue takes part. Dr. Xue pointed out that scenarios and modelling are useful tools to predict the future. One possibility for the scenario and modelling exercise in the global assessment relating to ILK would be to analyse implications from the changes in typical ILK to the changes in biodiversity such as genetic variety of species found in indigenous communities. Ms. Dang suggested that it is vital to come up with messages that integrate the impacts of human society on BES and their implication to human well-being. Prof. Alangui, in line with what Mr. Suzuki suggestion, requested Dr. Xue, Ms. Dang and other participants to prepare key messages for Ch5 authors so that suggestions from this workshop can be effectively recognised by the chapter authors.

Mr. Shimray revisited his case study that was presented the previous day in which the issues of knowledge transmission were highlighted, and suggested several key points for looking into this issue

including interactions between stakeholders with different backgrounds, as well as between formal and informal structures in communities. He then pointed out the need to better understand formal and informal social interactions that enable effective knowledge transmission, and to identify the policies and institutional settings that encourage interactions beyond community boundaries or beyond formal institutions.

Mr. Suzuki stated, in response to the suggestion from Ms. Dang, that the issue of the impact of anthropogenic drivers to human well being and BES had already been discussed in the preceding regional workshop. He then mentioned that this workshop should produce concrete case studies to support future scenario development, and on that basis can suggest the need for scenario development that builds upon ILK case studies.

Chapter 6: Options for Governance and Decision-Making across Scales and Sectors

Presentation

Dr. Virk, Ch6 CLA, presented the outline of Ch6, key policy issues related to ILK, as well as three possible recommendations for the chapter based on the key messages from the case studies.

Regarding the chapter outline, he emphasised the relevance of ILK in the section on local level actions as well as in the section on knowledge and capacity gaps.

Next he presented the ILK-related issues in Ch6, identified during the June workshop and as listed in the slides, i.e. role of local governance in ILK context; how to make policy elements supportive of ILK; strengthening ILK governance in local, provincial and national decision-making; recognition of customary tenure systems and role of indigenous and local communities; defining jurisdiction of local and indigenous institutions; BES incentives to ILK holders; decline of ILK associated with economic changes; documentation and dissemination of ILK; integration of ILK with scientific knowledge; and ILK as a system of local governance. He highlighted the need to enhance policymakers' understanding of the importance and implications of ILK.

He then explained how he, and Mr. Takahashi, Ch6 fellow, have elaborated the key messages from the case studies presented to this workshop into three key messages as listed below:

- ILK & scientific knowledge are to be integrated to address challenges of climate change & ensure role of women for climate change adaptation;
- ILK, local institutions/management systems, and beliefs/norms are important for maintaining BES in APR. These require due consideration in provincial and local governance systems, including in BES conservation projects & programmes;
- Where possible policy support tools should be used to understand ILK and capacity building needs of local communities for BES and to address climate change impacts (e.g. eco-calendars and community field schools).

He then asked the participants for additional inputs to further refine the key messages in Ch6.

Discussion

Dr. Xue recommended to further elaborate on the structure of Ch6 in a more logical manner, and to create one section dedicated to ILK taking into account the importance of Ch6 for delivering a strong message from the assessment results to the policymakers. Dr. Virk responded that the chapter structure

was determined during the scoping exercise before the initiation of the regional assessment and the authors do not have authority to make major changes. He however pointed the possibility of changes if the co-chairs or reviewers request so, or if the changes are minor; he expressed his willingness to receive recommendations for further improvements.

Mr. Shimray requested a minor correction on one of the key messages. To Mr. Shimray and other participants, Prof. Alangui recommended going over the draft of key messages after the workshop and give feedback to Dr. Virk as necessary. Dr. Virk welcomed Prof. Alangui's suggestion and asked the participants to send him further comments on Ch6, especially on the key messages that were proposed in this workshop.

Ms. Dang supported the current Ch6 outline, and proposed to elaborate on a few additional elements in the key messages, such as the importance of public-private partnerships (PPPs), the migration crisis, as well as the critical importance of education for the continuation of ILK. Regarding the Ch6 section on incentives and disincentives, she suggested to mention the incentives that make ILK attractive.

Mr. Shimray stated, in line with what Ms. Dang mentioned about education, that a global framework on education could easily cover some elements of indigenous education, which mentions both formal and informal schools. He suggested that the Community Learning Centres presented in his case study could be a good example, if the Climate Field Schools are to be presented as a good practice in ILK education. The Community Learning Centres in Thailand are frequently visited by people from other provinces, by government authorities such as the forest agency, as well as by visitors from other countries. He further mentioned the lack of attention to ILK in the higher education system – for example, Thailand currently does not have academic faculties that deal with ILK.

Mr. Shimray raised another issue regarding the lack of legal jurisdiction that deals with indigenous territories. He expressed the critical need for the recognition of traditional institutions and customary laws under formal legal jurisdiction. He said this is in line with what the Convention on Biological Diversity (CBD) recommends under the *sui-generis* protection principle. He reiterated that legal pluralism is a sensitive but very important issue to be addressed in Ch6, and suggested to send his recent publication and relevant reference materials to Ch6. Dr. Virk welcomed Mr. Shimray's suggestion. Also he expressed his interest on the cases in the AP region where customary laws and statutory laws are complementing each other and are working well to manage BES.

Dr. Xue reiterated the importance of education for ILK, and proposed that this point be elaborated further in the context of policy options in Ch6.

Dr. Virk requested the participants to send recommendations regarding ILK in Ch6.

In summary, the workshop participants shared understanding on some general trends found in the region, including inter-generational knowledge transfer, overlap of territories of local and indigenous communities with biodiversity rich areas, and contribution of local and indigenous communities in maintaining the biodiversity, among others. Lessons were shared, and various means were explored as a way forward in overcoming the challenges relating to biodiversity and ecosystem services in the region.

Wrap-up of the writing session

To wrap up the session, Mr. Suzuki presented the revised outline for the proposed workshop proceedings, and gave guidance and a revised timeline for compiling this with the workshop participants. Requests to the workshop participants included the following:

ILK holders and experts to resubmit the text of their case studies to the IPBES-JBF Capacity Building team, with necessary revisions and additional key points/messages directed at specific chapters.

ILK holders and experts to send additional information for chapter authors:

- Chapter 1: Additional references and general trends, interlinkage/relevance of TK and ILK with the assessment.
- Chapter 2: Fill-in provided Excel spread sheet with relevant cases.
- Chapter 3: Additional information to the points listed in the slides (refer to slides No. 10-11. A Google table will be prepared and shared by Mr. Anacio)
- Chapter 6: Provide additional suggestions and recommendations based on the discussions.

For timely inputs from ILK holders and experts, Dr. Ichikawa proposed that she will share the Ch2 matrix format with the participants at the earliest possible time. Mr. Anacio mentioned that he already had the rituals table in Google Form and invited all participants to make inputs into it.

3.4 ILK Sub-regional Networking in South-East and North-East Asia

Mr. Sakurai presented a preliminary idea for the establishment of an ILK sub-regional network for IPBES in South-East and North-East Asia, with the aim to improve the access to ILK-related information for the IPBES assessment. He then presented the results of a questionnaire survey regarding the establishment of a sub-regional ILK network that was conducted prior to this workshop, and outlined possible steps toward the establishment of the network. He mentioned that the questionnaire survey identified nine organisations that expressed willingness to participate in the network.

Dr. Xue suggested taking into account the ILK database from 55 tribes in which he is currently engaged. Ms. Batang-ay expressed the willingness of her organisation to participate in the network.

Ms. Regpala said that her organisation participated in the IPBES Fourth Plenary meeting as a member of the self-organised group with an observer status, which is now recognised as the ILK centre of distinction, and asked for clarification on possible duplication between such an existing network and the one IPBES-JBF Capacity Building team is proposing. On the same note, Mr. Shimray informed that AIPP is also interested in becoming an ILK centre of distinction. Dr. Virk asked for clarification on the geographical scale of the newly proposed network. Upon Mr. Sakurai's clarification on the new network that will focus on the South-East and North-East Asia sub-region, Dr. Virk underscored the need to build complementary relationship with the existing ones. He also suggested to further identify all organisations engaged in ILK, including universities, in the sub-region and to develop an exhaustive list and a map of ILK organisations to which relevant open calls can be sent.

Mr. Suzuki welcomed the comments from the participants, thanking them for the opportunity to consult with the participants on the preliminary idea for ILK networking, and presented possible steps starting from preliminary networking among the participants and their organisations, followed by the formulation of TOR and other necessary procedures for the establishment of a formal network.

Ms. Dang made three suggestions. First, the linkage between ILK and biodiversity protection should be further elaborated in the assessment report in order to influence global frameworks and taking into account the influences from other groups on the IPBES assessment reports as well as on its policy uses. Second, comparative analysis of ILK across countries can be proposed as a task for the newly

proposed sub-regional network. Third, this comparative analysis can provide the basis for a strong joint statement from the different indigenous peoples' groups spread across countries in the sub-region.

Mr. Shimray pointed out that the network should help build bridges between ILK holders, scientists and policy makers. He also requested clarification on how such a network could work, and whether the network could include local communities or indigenous peoples' groups. Dr. Xue also proposed to include information exchange as one of the activities of the network.

Mr. Suzuki welcomed the comments from participants. He then proposed that IPBES-JBF Capacity Building team will further elaborate on the idea of the network taking into account the comments received during sub-regional ILK workshops, and after all three sub-regional workshops were completed. He also noted that IGES has limitations, particularly relating to the direct involvement of indigenous or local communities, due to language considerations (limited to English).

Dr. Virk suggested that the newly proposed network should set its own scope of work, such as the dissemination of ILK. He also expressed his expectation for the network members to develop and expand their own network, and reach out to national and regional structures such as the ASEAN. In the same note, Mr. Shimray recommended to identify and include more ILK holders and experts through the network. Prof. Alangui then explained the progress and challenges in the establishment of an ILK roster as part of the tasks of the IPBES-TF-ILK, and suggested that one of the roles of the proposed sub-regional network is to help build the IPBES-ILK roster of ILK experts and ILK holders in the sub-region.

Dr. Virk underscored the importance of identifying an organisation to volunteer to host the secretariat for the network, otherwise the network will find it difficult to continue and be functional. In response, Mr. Suzuki noted that the amount and the period of funding for the IPBES-JBF Capacity Building project is fairly limited, and that additional funding should be sought to realise all the proposed goals and functions of the network.

Ms. Dang emphasised the important function of the network to deliver the voice of indigenous peoples, so that their voluntary commitments can be expected with minimal additional burden on the stakeholders. She reiterated that the commitment and voluntary will of member organisations are key for networking on ILK.

Mr. Shimray asked for clarification on how the information gathered through the network will be used. Mr. Suzuki responded that the concerns on information management will be subject to discussion among the member organisations, as the idea for sub-regional networking was slightly changed from the initial idea to establish sub-regional 'ILK hubs'.

3.5 Closing

Mr. Sakurai gave the closing remarks on behalf of IGES, saying he appreciated the commitment of all participants for making the discussion lively and meaningful. He thanked the host organisation IPF and the facilitator Prof. Alangui.

Mr. Shimray thanked IGES for providing an opportunity to share experiences and to create the momentum needed to do further IPBES-related work. He also thanked the documenter for her thorough work, the facilitator for the lively and inspiring facilitation, and the IPC staff members for their logistical and technical support. Finally, and on behalf of the Task Force on ILK, Dr. Xue thanked the facilitators and the host organisations for making this workshop possible.

4. Proposal of a sub-regional ILK network for IPBES in South-East and North-East Asia

In this section, a proposal for establishing a sub-regional level ILK network for IPBES assessments is explained, including the background, preliminary proposal, outline and main results of a questionnaire, and a summary of the discussions at the sub-regional workshop.

4.1 Background

Since the IPBES regional assessments address not only biodiversity and ecosystems, but also ecosystem services and the relationship between nature and human societies, it is imperative to refer to relevant ILK in order to carry out a comprehensive assessment. The importance of incorporating ILK is stipulated as one of the key principles of IPBES: “Recognize and respect the contribution of indigenous and local knowledge to the conservation and sustainable use of biodiversity and ecosystems (UNEP/IPBES.MI/2/9 II2 (d)).

However, ILK related information is often not well documented and so it may not always be available. In order to effectively identify and bring available ILK into the APRA, the JBF project has recognised the importance of networks or regional hubs to facilitate and support bridging ILK holders/experts and IPBES authors in their project.

Therefore, the project has envisaged sub-regional level ILK networks, hubs or any form of frameworks to be established in order to facilitate identifying key ILK holders/experts, information and documentation on ILK, and communication between ILK communities and academia.

At the regional ILK Dialogue Workshop for Asia-Pacific, organised by UNESCO as ILK-TSU in June 2016 in Chiang Mai, Thailand, many ILK cases were presented and shared with some IPBES authors of the IPBES Asia-Pacific Regional Assessment. JBF Project team members also participated and had a consultation session with the participants about the idea of establishing sub-regional hubs or networks for ILK. Based on the fruitful discussion on this issue, the JBF project recognised a strong need for networking after receiving positive and encouraging comments and suggestions. However, there were also a lot of gaps identified. To fill such gaps, the project has decided to continue with the consultations during a series of sub-regional dialogue workshops as a follow-up to the regional workshop held in June 2016. A questionnaire survey was also conducted to collect necessary information to help identify further needs and gaps on this matter.

4.2 Preliminary proposal of IGES for the sub-regional networking and facilitation related to ILK

IGES sees the need to establish a sub-regional ILK Network, because it will greatly contribute to the assessment process by facilitating communication between ILK holders/experts with IPBES authors, thus ensuring better understanding of ILK and its meaningful recognition in the assessment reports in a continuous and sustainable manner. It also recognises the importance of networking ILK holders, networks and communities in properly identifying and facilitating knowledge in order to contribute to scientific assessment, especially to IPBES. Several networks have already been established for/by ILK stakeholders, but IGES recognised the need for networking especially focusing on ILK and its facilitation for policy-relevant scientific assessment. One of the objectives of the project is to explore the possibility of establishing hubs or networks to improve the capacity of stakeholders and experts in this region. The summary of preliminary proposal prepared by IGES is described in Annex 5-1 including draft criteria for those organisations participating in the network, examples of network activities, and the necessary steps to establish such networks.

4.3 Outline and major results of the questionnaire survey

The JBF project prepared a questionnaire for the participants of the sub-regional ILK Dialogue workshops to gather information on the needs, challenges, or gaps for effective and meaningful facilitation of ILK and communication among ILK holders, indigenous and local communities, ILK experts, and regional assessment authors. The results of the survey were compiled and shared with the sub-regional workshop participants. The results of the survey for the South-East and North-East Asia sub-region are described in the following sections.

4.3.1 Target countries, activities and issues, and major languages

The project received eleven (11) replies to the questionnaires and they agreed to participate in the network.

The target regions are Global (2 organisations), Asia-Pacific region (1), Asia (1), South Asia (1), South-East Asia (5), and East Asia (2). The target countries are Thailand (4), Myanmar (4), Viet Nam (3), China (3), Philippines (3), Lao PDR (2), Cambodia (1), Taipei (1) and Pakistan (1). Target communities are listed in Annex5-2, Table 5-2-1 such as Upland indigenous ethnic minority communities, indigenous minority youths, the local Tibetan people, indigenous peoples of the Cordillera, etc. The major languages of the organisations are English (10), Thai (3), Chinese (2), Lao

(2), Local Thai (Karen, Hmong, Akha, Lisu, Lahu, Miao, and Mien, Akha, etc) (2), Japanese (2), Filipino (2), Ilokano (2), Vietnamese (2), and others. (See Annex 5-2, Table 5-2-2.)

4.3.2 Views on the needs, challenges, concerns, and suggestions for possible functions of the Sub-regional Network

A summary of the results of the questionnaire on views on the needs, challenges, concerns and suggestions for possible functions of the sub-regional network is explained below.

Detailed responses are shown in Annex 5-2, Table 5-2-3, 5-2-4 and 5-2-5.

(1) Possible functions of the Sub-regional Network

The responses on possible functions reflect three aspects. These are Exchange/Transmission (2 organisations); Contribution (2); and Academic/Research (1).

(2) Challenges and concerns on possible functions of the Sub-regional Network

The responses on challenges and concerns reflect four aspects. These are Policy/Institutional System (3 organisations); Limited Recognition (3); Research/Dissemination (2); and Gap/Differences (2).

(3) Suggestions on possible functions of the Sub-regional Network

The responses reflect five aspects. These are Share/Exchanges (5 organisations); Research/Documentation (4); Facilitation (3); Dissemination (3); and Others (Funding/Policy/Training) (3).

4.3.3 Contributions of organisations to the Network

The responses on contributions reflect three aspects. These are Research/Documentation (13 organisations); Facilitation/Connection/Sharing (9); and Training/Capacity Building (3).

Detailed responses are shown in Annex 5-2, Table 5-2-6 and 5-2-7.

4.3.4 Ideas and suggestions to secure the sustainability of the network, and challenges or constraints for that

Ideas and suggestions to secure the sustainability of the network are explained below. There were no clear responses to challenges or constraints. Detailed responses are shown in Annex 5-2, Table 5-2-8, 5-2-9 and 5-2-10.

Ideas and suggestions on how to secure the sustainability of the network include Financial/Human Resources (9); Research/Publication (7); System/Mechanism (4); and Collaboration/Exchange/Facilitation (2).

4.4 Outline of the discussion at the South-East and North-East Asia Sub-regional workshop

The Project compiled all the information provided by the participants and presented them during the sub-regional workshop. The presentation was followed by a discussion on the proposal. The following is a summary of the discussion:

-The participants welcomed the concept and idea of an ILK network, fully recognising its importance.

-Several participants expressed their willingness to participate in the ILK network, once it is established.

Additional suggestions by the sub-regional workshop participants on the establishment of an ILK network were as follows:

- (1) It is necessary to identify all organisations engaged in ILK, including universities in the sub-regions and develop an exhaustive list and map of ILK organisations and networks.
- (2) It is also important to clarify the roles of the proposed network and to avoid duplication with existing ones. The proposed network should complement the objectives of other networks.
- (3) It is important to identify a volunteer organisation to host the secretariat of the ILK network.
- (4) There is a need for joint and voluntary commitment of the member organisations.
- (5) Linkage, building bridges, and information exchange between ILK and Biodiversity protection should be elaborated.

- (6) Comparative analysis of ILK across countries can be proposed as a task of the ILK network and the analysis of ILK across countries in the sub-region can provide the basis for a strong joint statement on biodiversity protection from several indigenous peoples' organisations and groups.
- (7) It is necessary for the ILK network to set its own scope of the work, such as dissemination of ILK.
- (8) The body agreed to form an initial group of organisations, and interested participants will share information relevant to IPBES assessment activities at the sub-regional level. It was also mentioned that such activities should be held based on a reasonable availability of financial and human resources.

A detailed record of the discussion is presented in Chapter 3.4 "ILK Sub-regional Networking in South-East and North-East Asia".

4.5 Proposal of a Sub-regional ILK Network for IPBES in South-East and North-East Asia

Based on the results of the questionnaire and discussions at the sub-regional workshop, the idea of establishing an ILK network in the sub-region was generally agreed upon by the participants. Participants shared the view that the sustainability of the network is critical and that it should be reasonably functional yet practical, as well as realistic in terms of human, institutional, and financial resource requirements.

In the questionnaire, eleven responses indicated agreement to participate in a sub-regional network. During the discussion at the workshop, several participants showed an interest in contributing to the network. As was suggested in the discussion session of the workshop, a group of such interested organisations will form an initial network for the South-East and North-East sub-regions. To facilitate the communication among participating organisations, a mailing list or its equivalent will have to be prepared.

Although no organisation was initially willing to host or play the role of a hub or secretariat for the ILK network, it would be helpful to identify such organisation(s) in the future.

To develop and expand the sub-regional network, the following issues have been identified:

- Criteria for membership and procedure for approval of membership to the network;
- Scope of the activities of the network; and
- Steps to expand the network

In order to respond to these issues, the idea is to establish one decision-making body, such as a steering committee, based on the current members of the Organisation Committee for the South-East and North-East Asia sub-regional workshop in order to continue consultations and discussions, and together with the JBF team, follow up on the above mentioned issues and proposals. The goal is to find ways and means to establish network(s) and/or hub(s) at the sub-regional level.

Annex 1: Participants list

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Annex 2: Participants of the Dialogue with Local Communities (14 October)

No.	Name	Affiliation	Country
Local Communities:			
1	Ms. Nittaya Earkanna		Thailand
2	Mr. Waiying Tongbue		Thailand
3	Mr. Songpolsak Rattanawilailak		Thailand
4	Mr. Boonchan Chanmor		Thailand
5	Ms. Chutima Morlaeku		Thailand
6	Mr. Sing Wongtae		Thailand
7	Mr. Chaiprasert Poka		Thailand
8	Mr. Sing Rapeechamcharas		Thailand
9	Mr. Wutingpong Suwannachot		Thailand
10	Ms. Nangnoi Saeseng		Thailand
11	Ms. Lucie Bouet		Thailand
12	Mr. Prasit Siri		Thailand
13	Mr. Sutipol Praiwankul		Thailand
14	Mr. Somsak Patakietchewin		Thailand
15	Ms. Salajit Rapeechamcharas		Thailand
Participants from Chiang Mai workshop in June 2016:			
16	Prof. Wilfredo V. Alangui	TF member	Philippines
17	Mr. Kittisak Rattanakrajangsri	ILK-holder	Thailand
18	Mr. Gam Shimray	ILK-holder	Thailand
19	Mr. Danesto Bacdayan Anacio	ILK-holder and ILK-Expert	Philippines
20	Dr. Dayuan Xue	TF member and ILK liaison	China
21	Ms. Joji Carino	TF member and ILK liaison	UK (Philippines)
Authors of the Regional Assessment for Asia and the Pacific:			
22	(Chapter 1) Dr. Ryo Kohsaka	CLA	Japan
23	(Chapter 2) Dr. Kaoru Ichikawa	LA	Japan
ILK holders and experts (participants of the SE and NE Subregional workshop):			
24	Ms. Milanie June Cadalig Batang-ay		Philippines
25	Dr. (Ms.) Jintana Kawasaki		Thailand (Japan)
26	Ms. Maria Elena Rafanan Regpala		Philippines
27	Dr. Lun Yin		China
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28	Mr. Yoichi Sakurai	IGES, IPBES-JBF project	Japan
29	Mr. Wataru Suzuki	IPBES-TSU-AP	Japan
30	Mr. Yasuo Takahashi	IGES	Japan
31	Ms. Satomi Tanaka	IGES, IPBES-JBF project	Japan
32	Mr. Naoya Tsukamoto	UNU-IAS	Japan

Annex 3: Results of the participatory activity (15 October)

During the dialogue sessions on 15 October 2016, the facilitator asked the participants to note down on idea cards the key points for each presentation by ILK holders/experts. Then, as a way to wrap up the discussions, all participants had a participatory activity to classify the key points under the chapter that is most relevant to each key point that is written in the idea card. Following is the result of the activity.

Chapter 1: Setting the Scene

Key point:

- Cultural revival contributes to natural restoration – knowledge transition is important.

Chapter 2: Nature's benefits to people and quality of life

Key points:

(1) Rituals (9)

- Concrete knowledge for the ritual.
- Dictate schedule of rituals.
- Richness in culture, rituals and biodiversity, and tourism.
- Cultural rituals also preserve varieties because these are used for festivals/rituals.
- Ritual supports preservation of traditional rice varieties.
- Rituals bind social and ecological systems (e.g. Begnas).
- Ritual as a regulatory system and supportive of resource management.
- Traditional rice varieties are associated with rituals, ceremony's special wine and cake etc.
- What is the link between rituals and biodiversity?

(2) Beliefs, spiritual (6)

- Beliefs in forest as the source of their life (e.g. soil, water, air and spirits)
- Sacred trees are not cut.
- Interaction between holistic land use and livelihood systems.
- Important levels of biodiversity in Begnas; Mountain peaks are important and spiritual. Sacred trees are important species. Rice varieties. Interpretation of indicators.
- The role of spirituality and knowledge in conserving biodiversity and sustainable use.
- Forest is dwelling place of spirits, of forest, of ancestors of community.

(3) Culture and biodiversity (4)

- Link of biodiversity and ecological services, and cultural diversity. (5)
 - Cultural revival and worldview as essential to restoration of environment.
 - Worldview: Everything starts from forest and ends in forest. No forest, no life. (2)
 - As long as we know, perform ceremonies, the community will flourish.
- (4) Forestry (2)
- Chiang Rai logging left only 10% of big trees.
 - ILK in order to live depending on forests.
- (5) Rice varieties (7)
- Importance of traditional rice varieties.(2)
 - Traditional knowledge of using native rice varieties for their livelihood and customs.
 - Rotational farming contributes to saving biodiversity, rice varieties and other crop, and carbon stocks.
 - Preservation and traditional rice varieties; Food security.
 - Traditional rice varieties and genetic varieties of rice.
 - Rural resilience supported by local rice varieties.
- (6) Genetic resources diversity (3)
- The importance of traditional knowledge to manage genetic diversity
 - Conservation of genetic resources.
 - Customary law: sustainability, Biodiversity conservation and genetic resources.
- (7) Foods (3)
- ILK on food access and food availability.
 - The value of Biodiversity contribute to the food bank.
 - Breeding, cultivation and preservation.
- (8) Land use (8)
- Land use and biodiversity.
 - Value of Biodiversity and Ecosystem Services, and different types of land use.
 - Beliefs and worldview, grounds customary practices land use and resource management.
 - Mix farm as sustainable and productive use of land.
 - Rotation farming is an ecosystems landscape management system – all the land uses complement each other. (2)
 - Home gardens and biodiversity, importance of biodiversity in small spaces and urban areas.
 - If you done have a home garden, you are not a human.
 - Importance of landscape and ecosystem protection.
- (9) Inter-generational transmission (3)

- Inter-generational transfer of traditional knowledge.
- Inter-generational transmission.
- Folklore and folk talks often told between the villages that relating to natural resource use.

(10) Species diversity

- Relationship and allure of ecosystem species.
- Identify the ILK which links with the species of the planet.

(11) Others (7)

- Household level indigenous practices supportive of biodiversity.
- Diversity is a source of resilience.
- Wildlife management.
- Cultural and social management.
- Validation of data.
- Closer relationship.
- Use of YouTube.

Chapter 3: Status, trends and future dynamics of biodiversity and ecosystems underpinning nature's benefits to people

Key points:

(1) Commercial crop production (3)

- Trend of native plant species is reducing due to commercial crop production with intensive chemical inputs.
- Many areas are under drastic change from rice farming and forest to cassava plantation with heavy use of herbicide.
- Indigenous people shift from growing indigenous varieties to growing Cassava.

(2) Land use changes (2)

- Rapid transition of forest lands.
- Land use changes, and biodiversity and ecosystem services.

(3) Others (2)

- ILK and traditional rice varieties face the challenge of market and policy.
- Songs and folk tales as forms of transmitting sustainable practices.

Chapter 4: Direct and indirect drivers of change in the context of different perspectives on quality of life

Key points:

(1) Logging (7)

- Impact of logging and settlers to biodiversity.
- Trend of wildlife's reduction due to miss-logging concession and clearance of forests.
- Forest concession destroyed biodiversity including wild food plants.
- Concessions destroy wildlife - how to engage companies into concession environment practices.
- Wildlife and domestic plans disappear or refused in the past 20 years due to logging, mono culture agriculture.
- Concession and community's identity related to forest.
- Impact of logging and settlers to the environment.

(2) Agriculture (8)

- Intensive/permanent agriculture.
- Conversion of traditional farming to commercial farming associated with intensive chemical inputs provides negative impacts on Biodiversity and Ecosystem Services.
- Rotational farming creates a carbon bank at a landscape level.
- Temptation of free herbicides to promote expansion of mono-cultural plantation.
- Sustainability of rotational farming as opposed to monocrop farming
- Why is cassava being promoted? Incentives for commercial agriculture.
- Implications of uncontrolled or irresponsible cash cropping.
- Association of local rice varieties and biodiversity.

(3) Climate change (2)

- Climate change: Impacts of climate change on medicinal plants and wildlife.
- Climate change is a threat to Biodiversity and Ecosystem Services.

(4) Tourism (4)

- Drivers of biodiversity and loss of tourism.
- Tourism as a driver/threat.
- Impact of tourism in the rituals - major driver of change.
- Valuation of biodiversity and ecosystem services.

(5) Others (10)

- Market oriented transaction. Value chain of products are important for income generation of local people to conserve the ecosystems and biodiversity based on ILK.
- Sustainable resource management.
- Traditional medicines.
- Threats to biodiversity.

- ILK is threatened across the region.
- ILK impact on biodiversity and ecosystems services.
- Vietnam pesticide.
- Unsustainable change in land use.
- Genetic erosion.
- Policy drivers of the decline of ILK (e.g. Incentives needs further investigation).

Chapter 5: Integrated and cross-scale analysis of interactions of the natural world and human society

Key points:

- Requires deeper analysis of policy drivers and contradictions in practice of law between formal and customary law.
- Importance of ILK eco-calendar for understanding status change.

Chapter 6: Options for governance, institutional arrangements and private and public decision-making across scales and sectors

Key points:

(1) Sustainable forest management (6)

- Forest management knowledge.
- Sustainable use of forestry.
- Importance of permanently setting up forest areas.
- Presentation on Sagada: Traditional institution as the centre for sustainable forest management.
- Saguday: Local term of community forests and penalties for violators.
- How to deal with concessions.

(2) Research (3)

- Importance of IPBES-like multi-stakeholder participatory research to produce the evidence/outputs focus on specific ecosystems.
- Importance of Ecosystem Services, community based research, capacity building and mainstreaming traditional knowledge with scientific knowledge.
- Use of both scientific knowledge and ILK to respond to environmental problems.

(3) Food bank (3)

- Idea for a food bank is a good strategy for the future.
- Food bank is a concept effective for raising community awareness on ecosystem services.

- Food Bank as a good governance system to sustainability use local biodiversity.

(4) Benefit sharing (3)

- Benefit sharing.(2)
- Fair benefit sharing can provide income and can be sustainable.

(5) Customary laws (3)

- Important for synergy of state law and customary law.
- Customary laws.
- Customary law and norms are followed in resource and land use, which excludes outsiders to be settled in their area.

(6) Climate change (2)

- Traditional knowledge can help people adapt to climate change.
- Climate Field School.

(7) Others (9)


- ILK and Karen village governance contributes conservation of Biodiversity and Ecosystem Services.
- Interaction between traditional spiritual leader and the government administrative headman.
- Community to protect original rice species and external pressures to change.
- ILK based eco-calendar is a useful tool to assess the change of Biodiversity and Ecosystem Services over time.
- Different elements of the landscape are associated with the spirits, mountain peaks, specific tree species etc.
- Conservation of biodiversity.
- Emphasis on participation of Indigenous Local Communities in promoting Biodiversity and Ecosystem Services.
- Important/critical role of indigenous women In Biodiversity and Ecosystem Services.
- Indigenous governance systems support biodiversity and ecosystems services.

Annex 4: PPT slides on cases presented (15-16 October)

Introduction - Background and Objectives -


The JBF-IPBES Sub-regional Dialogue Workshop on ILK for South-East and North-East Asia sub-region

15 October 2016



About JBF-IPBES Project

- Project Title:
Capacity Building Project for the implementation of the IPBES Asia-Pacific Regional Assessment
- IGES (Institute for Global Environmental Strategies) conduct this project funded by JBF from SCBD (Secretariat of the Convention on Biological Diversity)
 - ◆ Japan Biodiversity Fund (JBF)
Fund provided by the Japanese Government (Ministry of the Environment) and managed by SCBD.



Project Components

- ◆ **Component 1:** Piloting approaches for bringing ILK into the Asia-Pacific regional Assessment
- ◆ **Component 2:** Application of outputs from scenario analysis and modeling assessment (Deliverable 3c) to APRA and other regional assessments
- ◆ **Component 3 :** Policy support for decision-makers and stakeholders

Component 1 - Approaches -

- Organizing dialogue workshops at the sub-regional level
- Helping to identify ILK holders and experts, as well as ILK documentation in the region
- Establishing ILK network at the sub-regional level

Sub-regional Dialogue Workshops planned for the Asia-Pacific Region

Sub-region	Country	City	Partner	Dates
South-East & North-East Asia	Thailand	Chiang Mai	Indigenous Peoples' Foundation for Education and Environment (IPF)	October 14-17
Pacific	New Zealand	Whangarei	He Puna Marama Trust	November 1-4
South & West Asia	Nepal	Dhulikhel	ReCAST	November 29 – December 2

Objective of the Workshop 1

1. Follow up the outcome of the IPBES ILK WS for Asia-Pacific in Chiang Mai in June 2016 for South-east and North-east Asia.
2. Share ILK cases relevant to IPBES Assessment to fill the gaps in terms of regional and thematic aspects.
3. Build respect, mutual understanding and network among ILK holders/experts, assessment authors and ILK Taskforce Members.

Objective of the Workshop 2

4. Enhance capacity and facilitate the involvement of ILK holders/experts and assessment authors in the IPBES Asia-Pacific Regional Assessment (APRA).
5. Provide support to indigenous peoples and local communities for their contributions to conservation and sustainable use of biodiversity.
6. Facilitate the possible processes of establishing ILK network for South-east and North-east sub-region.

Programme of the Workshop 1

- **15th October 2016** (Introduction and sharing cases from ILK holders/experts)
 - 9:10- Introduction of the WS
 - 9:20- About IPBES Asia-Pacific Regional Assessment
 - 9:30- Self-introduction of participants
 - 9:50- Summary of the outcome of the sub-regional Dialogue Workshop
 - 11:00- Presentations by ILK holders/experts participants
 - 18:30- Reception

Programme of the Workshop 2

- **16th October 2016** (Writing sessions and discussion on possible ILK network)
(could be changed depending on the 1st day)
 - 8:30- Introduction to the writing sessions
 - 9:30- Presentations by author participants and discussions for writing sessions
 - 14:30- Wrap-up for the writing session
 - 15:30- Discussions on establishing possible ILK network
 - 17:30- Wrap-up

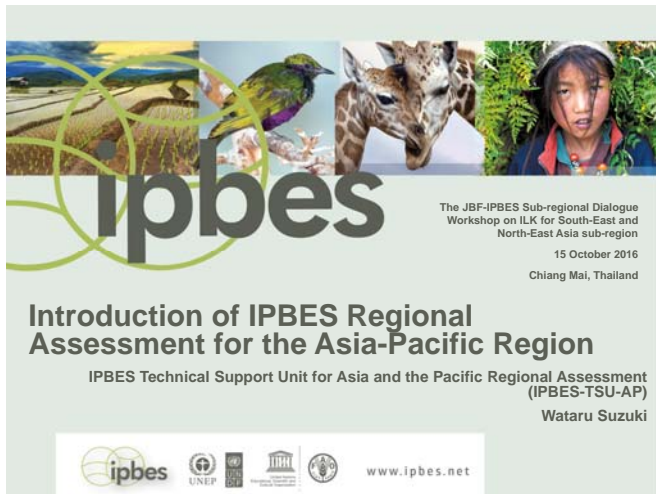
Outline of the Report for the WS

1. Proceedings
ILK holders/experts
2. Programme / Participants list
Organizers(Secretariat)
3. Summary of discussion
Participants / Organizers(Secretariat)

Thank you!

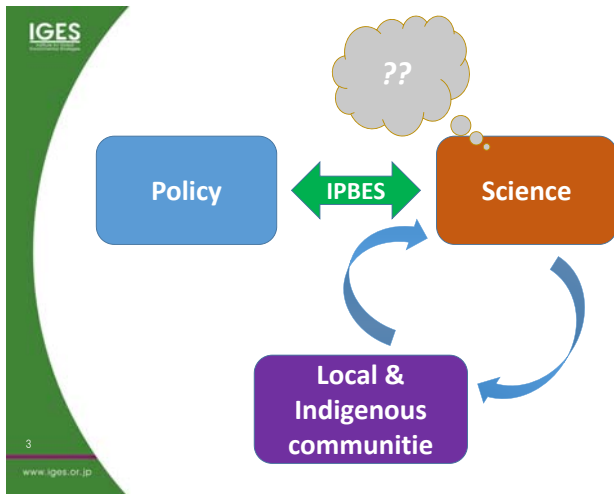
For any further questions/comments, please contact the JBF-IPBES Capacity Building Team at:

cbdjf@iges.or.jp

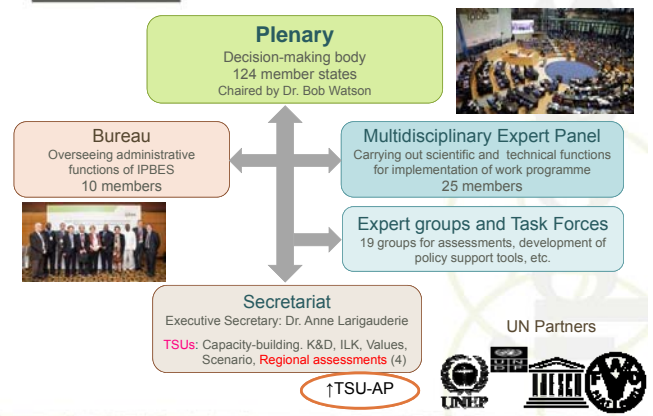


IPBES: The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

- **Objective:** IPBES provides policy relevant knowledge on biodiversity and ecosystem services to inform decision makers
- Currently 124 Members (Governments, as of April 2016)
- Placed under the auspices of the United Nations
- Currently implementing its first Work Programme (2014-2018)



IPBES Organization



Four key functions of IPBES

IPBES was established with four agreed functions.

Assessment

Deliver global, regional and thematic assessments on biodiversity and ecosystem services

Knowledge Generation

Catalyse efforts to generate new knowledge

Capacity Building

Prioritize key capacity building needs, and provide and call for financial and other support to address them

Policy Support

Identify policy relevant tools/methodologies, facilitate their use, and promote and catalyse their further development



IPBES Work Programme 2014-2018 18 Deliverables

Goal: Strengthen the science-policy interface for biodiversity and ecosystem services.

Objective 1: Strengthen the capacity and knowledge foundations to implement key functions of the Platform.

Deliverable 1(a): Priority capacity building needs
 (b): Developed capacities necessary for the implementation
 (c): Procedures, approaches and participatory processes for working with indigenous and local knowledge systems,
 (d): Priority knowledge and data needs for policymaking

Objective 2: Strengthen the science-policy interface at and across sub-regional, regional and global levels.

Deliverable 2(a): Guide on production and integration of assessments,
 (b): Regional/sub-regional assessments
 (c): Global assessment

Objective 3: Strengthen the science-policy interface with regard to thematic and methodological issues.

Deliverable 3(a): Thematic assessment of pollinators, pollination and food production,
 (b): Thematic assessments (land degradation and restoration, invasive alien species and sustainable use of biodiversity)
 (c): Policy support tools and methodologies for scenario analysis and modeling,
 (d): for the diverse conceptualization of values of biodiversity and nature's benefits to people

Objective 4: Communicate and evaluate Platform activities, deliverables and findings.

Deliverable 4(a): Catalogue of relevant assessments,
 (b): An information and data management plan,
 (c): Catalogue of policy support tools and methodologies,
 (d): Set of communication, outreach and engagement strategies, products and processes,
 (e): Reviews of the effectiveness of guidance, procedures, methods and approaches



Asia-Pacific Regional Assessment

2 full assessments completed and approved by IPBES-4 (Completed and approved at IPBES-4 in Feb 2016)

- Pollination and pollinators associated with food production
- Scenarios and models of biodiversity & ecosystem services

5 assessments on-going (to be delivered mid 2018)

- Land degradation and restoration
- 4 Regional/Subregional assessments
 - Africa
 - Americas
 - **Asia-Pacific** ←
 - Europe and Central Asia

1 new assessment beginning in March 2016 (ending mid-2019)

- Global Assessment of biodiversity & ecosystem services



Asia-Pacific Region

Oceania: Australia, Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, New Zealand, Palau, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu, plus Tokelau, New Caledonia, American Samoa, French Polynesia, Guam, Commonwealth of the Northern Mariana Islands, Pitcairn Island and Wallis and Futuna, Oceanic and sub-Antarctic islands in the Pacific region (or Pacific and Indian Ocean regions)

South-East Asia: Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand Timor-Leste and Viet Nam

North-East Asia: China, Democratic People's Republic of Korea, Japan, Mongolia and Republic of Korea

South-Asia: Afghanistan, Bangladesh, Bhutan, India, Iran (Islamic Republic of), Maldives, Nepal, Pakistan and Sri Lanka

Western Asia: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates and Yemen, (Arabian peninsula); Iraq, Jordan, Lebanon, State of Palestine and Syrian Arab Republic (Mashreq)



Chapter outline for the regional assessments

- **Chapter 1:** Setting the Scene
- **Chapter 2:** Nature's benefits to people and quality of life
- **Chapter 3:** Status, trends and future dynamics of biodiversity and ecosystems underpinning nature's benefits to people
- **Chapter 4:** Direct and indirect drivers of change in the context of different perspectives on quality of life
- **Chapter 5:** Integrated and cross-scale analysis of interactions of the natural world and human society
- **Chapter 6:** Options for governance, institutional arrangements and private and public decision-making across scales and sectors



Authors?

- **Co-Chairs (CC)**
- **Coordinating Lead Authors (CLAs)**
- **Lead Authors (LAs)**
- **Fellows**
- **Contributing Authors (CAs)**



Time schedule of the AP assessment and relevant events

2015	2016	2017	2018	2019	2020
Plenary3	Plenary4	Plenary5	Plenary6	Plenary7	Plenary8
RA approved	2nd Authors Meeting				
• Select co-chairs	2nd Draft and 1st SOM				
• TSU-AP set up	Expert & Gvmt review				
• Committee meeting	3rd Authors Meeting				
• Select CLAs, LAs	Final text changes				
• 1st Authors Meeting	Final Gvmt review				
	1st draft				
	External review (May 30 – Jun 10)				
	GA start				
				CA Approval	
				Evaluation of the Aichi Biodiversity Targets	



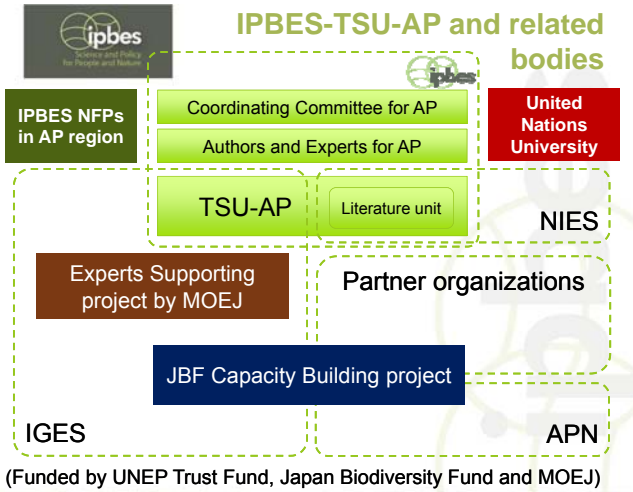
Key dates

Events	Dates	Remarks
IPBES-5	6-10 March, 2017	
Second Order Draft and Summary for Policy Makers will be out for external review	1 May until 26 June, 2017	External review by review experts and governments
IPBES-6	19-24 March, 2018 (TBC)	IPBES regional assessment report adopted



Background of IPBES

- IPCC established in 1988. 5th Report published
 - **Millennium Ecosystem Assessment (2001-2005)**
- 2010 Busan outcome at the ad hoc meeting
General Assembly resolution 65/162
- 2011 Decision 26/4 adopted at the Governing Council of UNEP
- 2012 **IPBES established at the meeting in Panama**
- 2015 **Approval of the implementation of the Regional Assessment**
Establishment of the Technical Support Unit for AP at IGES
Tokyo Office, Japan





Goals of the piloting process

- Bring together relevant knowledge from indigenous & local knowledge holders and ILK experts.
- Provide access to relevant oral knowledge by publishing it as grey literature with prior informed consent.
- Establish a face-to-face dialogue between ILK holders and authors, facilitated by the task force members.
- Develop a rigorous and consistent approach to ILK within the assessment and across assessments (concepts & definitions)
- Build the capacities of both ILK holders and authors.

Challenges

Science and ILK are anchored in different ontologies.

Building synergies between them in an intellectually rigorous and culturally respectful manner is one of IPBES' greatest challenges.

Piloting Procedures for ILK Asia-Pacific Regional Assessment

1. **Call for Submissions** of relevant ILK on biodiversity and ecosystem services
 - Call first released 2015, rereleased in 2016 in **three languages** (Arabic, Chinese, English)
2. **Selection** of ILK holders and experts
 - Received and reviewed: Arabic – 0, Chinese – 3, English – 40
3. Preparatory meetings
4. **ILK Dialogue Workshop** (26 to 28 June 2016, Chiang Mai)
5. Follow-up work sessions by selected ILK communities
6. Assist with the identification of relevant ILK from the scientific and grey literature

ILK Dialogue Workshop for Asia Pacific (Chaingmai, June 2016)

- Participants:
 - Indigenous and local knowledge holders & Indigenous and local knowledge experts;
 - co-chairs of the Asia Pacific assessment;
 - assessment authors;
 - ILK-TF members from Asia-Pacific region;
 - TSU staff

ILK Dialogue Workshop for Asia Pacific (Chaingmai, June 2016)

- Methods used:
 - **Participatory methodologies** including world café and drawing/modelling sessions,
 - presentations and small group discussions
- The foundations for exchange revolved around the **ten case studies** brought by the knowledge holders and experts

ILK stories presented

- **China** - Traditional knowledge response to **seasonal drought (Miao people)**; Xiangxi Tujia and Miao Autonomous Prefecture)
- **China** –**Sacred natural sites** for biodiversity conservation (Local communities; **Yunnan province**)
- **India** - Preparation of **Marine Biodiversity Register** and the documentation of **fishermen's knowledge and practices** (Trivadrum Coast, Kerala)
- **India** - Resource use and **forest** conservation (**Kaani indigenous community**; Kanyakumari forest , Western Ghats)

ILK stories presented (cont'd)

- **Nepal** – Barghariya system (**traditional irrigation and water management system**) (**Tharu people**; Tharai area plain land beneath the Himalayas)
- **Iran** - **Qanat system** and community management (Local communities, including **Bakhtiari nomads**, Tang-e Saiad and Sabzeh- Kuh Biosphere Reserve)
- **Laos** – Documentation of **medicinal herbs** from the forests (Hmong people; Luang Prabang)
- **Philippines** – Begnas ritual (**a thanksgiving ritual**) (**Kankana-ey Igorot**)
- **New Zealand** – Knowledge and observations gained from harvesting the natural **whale** strandings (**Maori people**; Northern coast of New Zealand)
- **Papua New Guinea** – **Cultural links** to biodiversity. **Sacred forest** (e.g., name after natural features) (Gimi people)

Forest, Communities and Ecosystem Functions: A case of Huay Hin Lad Nai community

Research team:

Indigenous Peoples' Foundation for Education and Environment
with
Chaiprasert Phoka, Nevet Siri, Pichet Sinhearndoi, Suthiphon Phaiwangul,
Wallapha Chapoh, Chalearmphon Wetchakit and Precha Siri.

Huay Hin Lad Nai community

- The community in Huay Hin Lad Nai belong to the **Pgakenyaw tribe** of the Karen group.
- The Karen, with a population of approximately 400,000 people, is the largest indigenous group in Thailand and comprises at least **20 sub-groups**
- Huay Hin Lad Nai village is in Moo 7, under Wieng Pa Po district in **Chiang Rai Province**.

Huay Hin Lad Nai community

- The community's village territory measures 10,279.75 rai (**16.45 km²**) consisting of mostly mountainous lands.
- Huay Hin Lad Nai consists of 20 households with 35 families.

Number of households and population

Population of Huay Hin Lad Nai			
Households	Male	Female	Total population
20	57	49	107
	53.5%	46.5%	100%

Huay Hin Lad Nai community

- The population of 42 years and below is 34 (19 male; 15 female)
- The number of youth in the community is 30
- Number of youths studying outside the village is 11:
 - bachelor's degree: 6 (2 male; 4 female)
 - high school: 2 (1 male; 1 female)
 - junior school: 3 (1 male; 2 female)
- 19 of them are studying non-formal school

Village governance

- Appointed by the government:
 - Headman
 - Assistant Headman
 - 15 member Village Committee (2 women representatives and 6 youth representatives)
- Traditional leader is the Zee Khou (spiritual leader)

Village governance

- The villagers follow the government rules for formality.
- **Within their village, they follow their customs and customary law.**
- Community leadership is based on personal capacities described as fingers on a hand by the community. Each person has a unique talent but they work together for the betterment of the community.
- **The village follows consensus decision making and agrees on its leadership through discussion rather than formal election.**

Village governance

- The villagers work together and understanding among them is achieved through such informal interactions.
- Specific issues and concerns regarding women and youth are handled by themselves so they have committees of their own.
- The community has separate sets of rules for resource management, economic activities and citizenship in the village, etc.
- The elders in the village work closely with the youth and they have a very strong sense of responsibility for preserving their beliefs and traditions into the future.

History of Huay Hin Lad Nai

- During the first half of the 1900 Mr. Suka along with 3 other families set out to look for a better place to live.
- They changed their settlement sites 9 times before they arrived at the **present site in 1966**.



History of Huay Hin Lad Nai

- The government granted concession to the Chiang Rai Tha Mai logging company in 1986 in the Khun Chae area covering about 80,000 rai (12,000 ha) of forests.
- As accounted by the villagers, only about **10% of the big trees** were left in their village forests.
- **Sacred forests** such as De Paw and burial site were also destroyed in a very short span of time.

History of Huay Hin Lad Nai

- Destruction of the forests **dried up water springs** and heavily **polluted the streams**.
- Heavy rain washed down mud and clay that blocked the holes where aquatic species live such as crabs and fishes.
- This caused **heavy decrease in aquatic life**.
- Important animals such as **tigers, pheasant, bears, chamois, deer, and gibbon** and so on disappeared, including jungle fowl and several bird species.

History of Huay Hin Lad Nai

- The communities were deeply hurt that they were branded as 'destroyers of the forests' and 'illegal occupants' by the government.
- **The Huay Hin Lad Nai community resolved to continue to stay and prove to the government and the world that human and nature can co-exist based on their worldview.**
- In 1992, the Khun Chae National Park was established and many communities were evicted.
- Some of the communities responded by forming the Northern Farmers' Network (NFN)

History of Huay Hin Lad Nai

- They also joined the 'Assembly of the Poor' (national level) in 1996 and carried out several protest actions.
- As a result, **in 2003 the village was officially registered as Huay Hin Lad Nai** under Wieng Pa Pao town of Chiang Rai province.
- Since 1992, the community has won several awards. In 1999, the village was honoured for its work on environmental restoration and sustainable management of the forest.
- The government of Thailand also recognized the village as a model for **'sustainable village'**.



Cultural revival and worldview

- Revitalizing their culture and worldview was the most important means available to them to renew their symbiotic relationship with the forests.
- In the worldview of the community, everything starts from the forest and ends with the forests.
- In the words of the community, they say, “No forest, No life”.

Cultural revival and worldview

- What does “No forest, No life” mean?
 - the community is referring to dependence of life on different kinds of ecosystem functions and services of the forests i.e. in terms of products from the forests, water sources for drinking and irrigation for farming.
- For example, the community say, “we ask the forest for using the water from the stream or river and we thank the forest for the same”
- And “we take care of whatever we eat or use”.

Cultural revival and worldview

- The community also refer to the forest as:
 - habitat for flora and fauna
 - for the maintenance of good soil
 - air and weather in the area.

Most importantly, forest is the dwelling place for different types of spirits, including their own spirits and of their ancestors.

Therefore, if all the forest is destroyed not only will the resources disappear, but all the spirits will also be gone; and this will mark the end of all life.

Cultural revival and worldview

- The above belief and worldview is clearly demonstrated in their ceremony called *Ta lue ko*
- The ceremony is performed by the Zee Khou and male population participate as observers.
- Every family contribute a chicken each and is offered to the Guardian spirit:
 - as a respect for providing protection
 - as well as to symbolically give back something for what they have been receiving from the forests

Cultural revival and worldview

- Reciprocity and respect to the Guardian spirit is recognized and renewal of their symbiotic relationship is achieved through this ceremony. *Forest will give as long as we take care of the forest.*
- Further, their reverence and connection with the forests is also expressed through the tying of umbilical cord of a new born to a tree.
- This is to symbolically express that the spirit of the new born lives in that tree and that she/he will rest in peace in the forest when she/he grows old and die.

Cultural revival and worldview

- Their beliefs and worldview associated with the forest determines the moral grounding of their social institutions and customary practices.
- The core values and principles that guides their customary rules and practices, and land use and resource management comes from this belief and worldview.
- It is because of this that the community does not encourage an outsider taking citizenship in their village. Because it is not easy for an outsider to understand their beliefs and worldview.
- This can affect the integrity and sustainability of the community.

Holistic land use and livelihood system of the community

- It is important to understand how their land use practices and livelihood system strongly supports one another and are interlinked and inseparable.
- The relationship between their holistic land use and sustainable livelihood system is best understood by the effective management of their agriculture, forests, natural resources and income generation activities.

Livelihood

- The main source of subsistence and cash income of is through both **self-sufficient and commercial farming**.
- Engaged in gathering forest products, production of handicrafts and utensils, furniture, blacksmithing, natural dyeing and weaving, etc.
- Engaged in rearing domestic animals such as chicken, pigs, cattle, buffalo, dogs and cats for their daily food and other purposes.

Livelihood

- **Labour exchange** is commonly practiced. But during the harvest season, there is shortage of labour and some community members get paid for working in the field of others.
- There is no one from the village engaged in wage labour outside the village
- During the main harvesting period for tea, the villagers engage paid labourer from other villages.

Livelihood

- There is no shortage of farming land and all families in the village are engaged in farming.
- **92%** of the food comes from household production and natural resources.
- only **8%** of the food comes from markets outside the community.
- A study conducted in 2008 which shows that **annual saving per head in the community is THB 1,986**

Livelihood

- The Zee Khou and members of the village firmly asserts that as long as they know how to perform their ceremonies, the community will flourish.
- Otherwise the community will parish because their system will stop working without their ceremonies.

The assertion from the community shows that they consider spirituality as the highest form of consciousness and nothing works without it.

Livelihood

Ceremony	Participants/performer
Ta lue ko	Men are allowed to observe the ceremony. And women wait at home, as owner of the house to prepare the chicken.
Jue M-nga Koh	The ceremony is led by Zee Khou and performed by a virgin male and female because virginity symbolizes purity in the community. And purity is need for sanctification ceremony in order to receive the blessings from the spirits.
Ta Ter Moh	The ceremony is led by Zee Khou. The community also explains this metaphorically that this is also for prevention of the use of artificial fertilizers.
Ta ka Keh	The ceremony is led by Zee Khou. The community also explains this metaphorically that this is also for prevention of the use of pesticides.

Rice cultivation

- The cultivation of rice determines the life and work of the people throughout the year.
- Shifting cultivation is more reliable under unpredictable climatic conditions and is valued higher by the community.
- The yield in the wet-paddy field is higher so it is a major contributor to food security and the control of expansion of agricultural land.
- Therefore, they feel that it is crucial to maintain both the system of farming for sustainability.

Other crops and sources of income

The community feels that household expenses mostly pertains to:

- education
- hospital
- transportation
- cloths
- food from outside
- toileteries and detergents

Other crops and sources of income

Cash income in 2015 from Mix farmland

Product	Annual income in THB	Annual income in USD
Wild tea	414,000.00	11828.60
Seasoned food, herbs and macadamia	56,000.00	1600.00
Honey and mushroom	246,000.00	7028.60
Bamboo shoot	350,000.00	10,000.00
Honey soap	Not available	
Bamboo worm	Not available	
TOTAL	1066000.00	30457.14

Other crops and sources of income

Upto a maximum of 30% of the income from selling products from the mix farm goes to the funds setup by the community. There are three types of funds in the village:

- women's fund
- youth fund
- village revolving fund



Land types and their uses

The main types of land distinguished by the people of Huay Hin Lad Nai are:

a.	Settlement area	14.08 rai (5.57 acre)
b.	Cemetery area	04.97 rai (1.97 acre)
c.	Wet-paddy field area	49.98 rai (19.77 acre)
d.	Shifting cultivation area	786.77 rai (311.06 acre)
e.	Mix farm area	788.58 rai (311.78 acre)
f.	Community forest	8,635.75 rai (3414.31 acre)

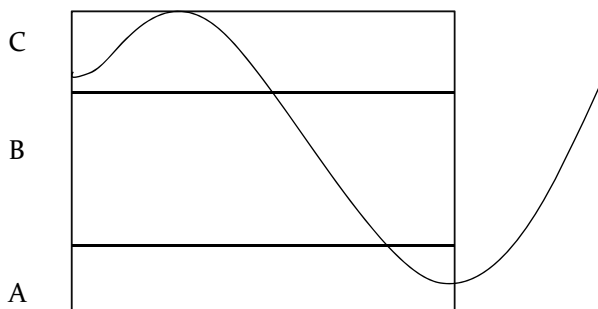
Land types and their uses

Land use types	Functions (list only major ones)	Resource found/How many types (list only major ones)	
Community (conservation) forest	Dwelling place of spirits, income and livelihoods for the community; grazing area; habitat for wild animals; herbal medicine, etc.	Edible fruit trees: 20 types Bamboos: 7 types Wild animals: 100 species Mice: 20 species Protected large animals: 20 species Protected birds: 30 species Vegetables: 50 types	Perennial herbal plants: 50 types Herbal vegetables: 30 varieties Perennial edible plants: 200 types Tree: 250 types Protected trees: 150 types Total = 925
Rotational farming (Current cycle)	Source of stable diet (rice) and other food for human consumption; source of food for domestic animals such as pigs, cows, buffalos and chicken, etc.	Rice: 5 types Vegetables: 20 types Chilli: 3 types Taros: 3 types Yams: 7 types Cucumbers: 5 types Sesame: 4 types Lemon grass: 1 type Turmeric: 1 type	Galangal: 1 type Pumpkin: 2 types Green shallot: 3 types Corn: 4 types Beans: 4 types Bamboo: 4 types Eggplants: 5 types Rat: 20 Total = 96
Rotational farming (fallow land year 5-10)	Fallow land; source of foods; herbal medicines; building houses and huts; hunting animals for consumption and weaving/making products.	Bamboo: 7 types Herbal plants: 50 types Rattan: 3 types Trees: 250 types (minimum)	Fruit trees: 10 types Kaw tree: 1 type Wild life: 70 types Insects: 100 types Total: 491

Shifting cultivation

- The Karen's form of shifting cultivation is called *rai mun wian* (means rotating upland fields).
- Total land size for this type of farming is 786.77 rai (311.06 acre).
- Out of this, the total area under actual cultivation in a year range from 80 -100 rai (12.7 – 15.9 acres).

How to Choose the landscape



Mix farm land

The total area of the mix farm land in the village is 788.58 rai (311.78 acre).

Mix farming helps them address three crucial issues and concerns:

- Able to farm for cash income without exerting additional ecological pressure
- Able to resolve their dilemma of controlling opening up new forest area for commercial farming as well as solving the problem of demand for labour
- Enhancing resiliency, livelihood diversification and food security of the community

Resource management rules and strategy

- No hunting zone** of one kilometre radius just outside of the settlement area.
- The villagers explain that no hunting zone has been declared immediate to the settlement area because it is easier to enforce the rules and at the same time easier to keep a count of wildlife.
- Hunting is allowed outside this zone but selling of wild meat is strictly prohibited.
- Use of nets or glue for catching birds is also prohibited, including electric shocks or fish poisoning in the streams/rivers.

Resource management rules and strategy

- Outsiders are prohibited from taking any resources from or to exploit any forest resources.
- Outsiders are also not encouraged to take citizenship in the village except through marriage.
- One of the most important measures they take is implementing the firebreak line system.



Resource management rules and strategy

- The community make two main firebreak line at the boundary of the village
- The second one at the inner circle of the village forest forming the second layer of protection.
- In addition to this, for all shifting cultivation plots, they make firebreak lines to prevent fire outbreak from inside.
- Furthermore, the other important firebreak line the community make is for all watershed forests.

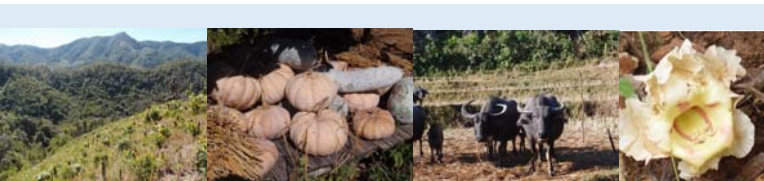


Indigenous Knowledge

1. Healing: ceremonies and herbal medicines
2. Rituals, ceremonies and cultural practices
3. Alternative livelihood: commercial farming; honey soap making, tea processing and food processing, etc.
4. Agriculture: wet-paddy and shifting cultivation
5. Weather reading and prediction: insects and plants
6. Musical instruments
7. Blacksmithing
8. Irrigation
9. Weaving
10. Natural dyeing
11. Handicrafts
12. Carpentry
13. Traditional architecture
14. Rearing animals



Thank you!



Assessment of the role of Karen's ecological knowledge to sustain biodiversity, ecosystems and ecosystem services in northern Thailand

Presented by Jintana KAWASAKI,
Institute for Global Environmental Strategies,
Natural Resources and Ecosystem Services Area,
Forest Conservation Group

IPBES Sub-regional workshop: ILK for the sub-regions of SE and NE Asia,
Chiang Mai, Thailand, 14-17 October 2016

Contents

- Land use patterns, ecosystems and biodiversity from different land use types
- Karen's traditional rotational farming and ILK for biodiversity, ecosystems and ecosystem services

Background of the study



A mixed agroecosystem centred on traditional rotational farming (RF)

The institute for Global Environmental Strategies (IGES), in partnership with the Indigenous Knowledge and People Foundation (IKAP) jointly conducted a study in 2015 to document the role of Karen's indigenous and local knowledge (ILK) in their management of the land and natural resources, with a view to enhance the policy recognition of the importance of Karen's ILK for the sustainability of biodiversity, ecosystem and cultural heritage of Karen people

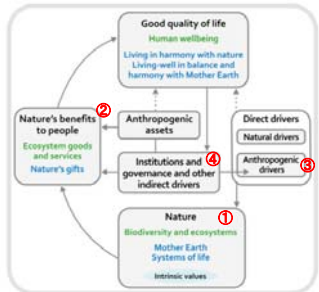


Objectives of the Study

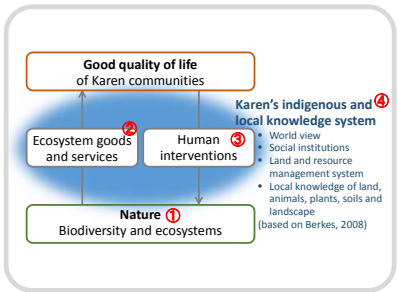
- To understand land use patterns and ecosystem services under different land use types
- To describe Karen's ILK and traditional rotational farming practices for biodiversity and ecosystem services



Analytical framework for this study, compared with the IPBES Conceptual Framework: Circled numbers 1-4 corresponds between the left and right figures respectively



IPBES Conceptual Framework (extracted from Diaz et al., 2015)



Analytical framework for this study

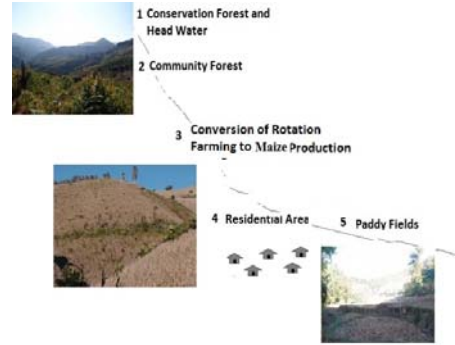
I. Land use patterns, ecosystems and biodiversity



Traditional land use pattern



Conversion of traditional rotational farming to modern monocrop farming in other neighbour villages



Azuki bean and maize production



Trends of land use change over past 20 years in the study sites

Type of land use	Hin Lad Nai		Mae Um Pai		Mae Yod	
	E	% R	E	% R	E	% R
1) Forest land						
1.1 Conservation forest and head water	5	100.00	5	93.10	3	89.47
1.2 Utility forest	5	88.89	4	93.10	3	94.74
1.3 Community forest	3	88.89	4	86.21	3	89.47
1.4 Cemetery forest	3	100.00	3	100.00	3	100.00
2) Agricultural land						
2.1 Rotational farming	2	77.78	2	96.55	2	78.95
2.2 Permanent fields	3	77.78	3	82.76	3	84.21
2.3 Paddy fields	4	66.67	3	86.21	none	

Note: E-Evaluation of trends of land use change by using scores of 1-5 if 5-substantially increased, 4-increased, 3-not changed, 2-decreased, 1-substantially decreased; %R-Percent of total respondents

List of wildlife species and domesticated endemic plants disappeared or substantially reduced in the past 20 years

Classification	Taxon	Species name	Hin Lad Nai		Mae Um Pai		Mae Yod		
			F	RF	F	RF	F	RF	
Animal	Vertebrates	Mammal	Bear	●		●		●	
			Serow	●		●		●	
			Gibbon	●		●			
			Macaque	●				●	
			Colugo	●					○
			Tiger			●			
			Barking deer			○		○	
			Civet						●
			Deer					●	●
			Monkey					●	
			Boar					○	
			Pongolin						●
			Porcupine						○

Note:

- Locally extinct
- Substantially decreased

Plant	Invertebrates	Avia	Ecosystem services from different land use types					
			Forest lands	Rotation Farming (RF)		Paddy Fields		
		Great hornbill	●		●			
		Hornbill			●		●	
		Zebra dove	●				○	
		Green pigeon			○			
		Green peafowl	●					
		Yellow parrot	○			●		
		Asian barbet			○			
		Blue magpie			○			
		Brown prinia				●		
		Red junglefowl				○		
	Invertebrates	Cicada		●				
	Vascular plants	Shallot						
		Taro		●				
		Black berry lily		●				
		Cassumunar ginger		●				
		Small ginger		●				
		Millet		●				
		Corn		●			●	
		Giant cucumber		●				
		Small cucumber		●				
		Tobacco		○				
		Black rice					●	
		Red rice					●	

Key ecosystem services from different land use types

Category of values (Corresponding to 'Instrumental' type of value under IPBES classification)*	Ecosystem services from different land use types	
	Forest lands	Rotation Farming (RF)
Nature's gifts, goods and services	Provisioning	<ul style="list-style-type: none"> Food <ul style="list-style-type: none"> Wild birds and animals Wild foods (i.e. mushroom, bamboo, insects, honey) Medicines <ul style="list-style-type: none"> Local medicinal herbs Wood and materials <ul style="list-style-type: none"> Timber Cotton Fuels <ul style="list-style-type: none"> Fuel wood Genetic resources <ul style="list-style-type: none"> Stocks of native plants and animal species and varieties
	Regulating	<ul style="list-style-type: none"> Climate regulation <ul style="list-style-type: none"> Increasing carbon stocks Air quality regulation <ul style="list-style-type: none"> Increasing fresh air and moistures Water flow regulation <ul style="list-style-type: none"> Forest water retention Increasing rainfall Water purification <ul style="list-style-type: none"> Clean water supply
	Supporting	<ul style="list-style-type: none"> Food for household consumption (mix cereals-rice, corn, bean, sesame; mix vegetables and fruits; wild edible plants; insects and wild animals) (confirmed by field study) Local medicinal herbs Fuel from wood and crop residues from clearing fields Diverse local varieties of valuable plants (> different species growing during the 3-4 years of the fallow cycle), mainly for food, fibre and medicine (confirmed by field study) Native rice species (both glutinous and non glutinous rice)
	Resilience	<ul style="list-style-type: none"> Increasing carbon stocks (confirmed by field study) (DS) Increasing GHG emissions from burning the fields Increasing fresh air and moistures from tree (DS) Increasing air pollution from burning the field Farmland water retention (confirmed by field study) Better quality of surface water by putting charcoal from burned fields into streams

Cultural	Aesthetic	Beauty of natural forests		
	Spiritual	<ul style="list-style-type: none"> Sacred groves for performing rituals Cemetery forest for burying the dead and other respected objects Navel (sadar) forest for putting the umbilical cord of an infant into a bamboo hollow stem and placing under large tree as the child's spirit (khwon) Khun huay watershed forest. 		
	Inspiration	Traditional festivals	Providing inspiration for folksong (confirmed by field study)	Traditional tea ceremony
	Others			Protecting forest from outside etc.
Nature's ability to supply benefits				
Basis for benefits	Nutrient cycling	Nutrient retention in forests and supply	Increasing nutrients in the soil by using <i>Moranga denticulate</i> as native tree species in the RF practice (confirmed by field study)	Providing shade trees to keep th natural health cc nutrient cycling
	Soil formation	Increasing soil fertility	<ul style="list-style-type: none"> Declining soil degradation and erosions Declining damage to soil structure from rice planting and weeding only surface of soil 	<ul style="list-style-type: none"> Minimizing soil e Preventing top s loss of sediment erosion

II. Karen's ILK and traditional rotational farming practices for biodiversity and ecosystem services

1. Agrobiodiversity-conservation of local varieties and wildlife relatives of valuable crop species

- ✓ The survey confirmed earlier observations of high plant species diversity in these system

More than 60 types of native plants were found in the RF systems, including 15 types of native rice (three glutinous and 12 non-glutinous), 15 varieties of bean, and more than 40 species/varieties of vegetables and herbs

Table Samples of native plant species in the rotational farming of study sites in year 2015

Type of plants	Species (Local names)	Total number
Glutinous rice	Pi Ai Su Bu Ru, Pi Ai Kor Kare, Pi Ai Su	3
Non-glutinous rice	Bue Ker, Bue Pho, Bue Pa Mae, Bue Kee, Bue Tho Pokee, Bue Kare Wa, Bue Bu Ru, Bue Ma Li Doi, Bue Pa Kor, Bue Lor, Bue Ka, Bue Su	12
Bean	Ser Bei Su, Ser Gor Bei Su, Ser Bei Ker, Bor Ba Sa, Per Ter Nor Ki, Per Ter Chi Mue, Ser Baw, Per Ba Per Chi, Per Ter Per Pue, Ser Ber, Per Ter Ker, Ser Ker Bei Wa, Ser Ker Na Ra, Ser Ker Ka, Ser Ke Pho	15
Chilli	Mu Sa Pa Bor, Mu Sa Ber, Mu Sa Pa Dor	3
Cucumber	De Wa, De Mue Wa, De Ge, De Pa Wa	4
Corn	Bue Ke Pho, Bue Ke Wa, Bue Ke Jor Wa	3
Burweed	Hor Ter Der	1
Tomato	Ser Kor Chi, Ser Kor Lue	2
Basil	Hor Wor, Hor Wor Sei, Por Kae, Ser Ker	4
Pak Choi	Ser Ba Wa, Ser Ba Yo,	2
Sesame	Nor, Nei Sor	2
Bitter melon	Sor Ka Sar	1
Loofah	Chi Pho Dei	1
Pumpkin	Lu Kei Gi	1
Ginger, Galanga	Ser Aei, Ser Aei Cha Kei	2
Millet	Sue, Per Sue	2
Herbs	Por Ker Vae, Nor Por, Cho Por, Chor Tum Mae, Tod Kad Wa	5
Taro	Kue Kor, Kue Wa, Kue Sue	3
	Total	66



- ✓ Some of the native rice varieties are now difficult to find in the lowland
- ✓ Scientists of Chiang Mai University (Yimyam et al., 2012; Rerkasem et al., 2002) concluded that land under traditional Karen management can be viewed as one of Thailand's indigenous rice genetic centres

2. Forest conservation and high carbon stocks

- ✓ In preparation for opening-up fallow forests for seed sowing, trees and bamboos are cut at certain heights to allow stumps to sprout and quickly regenerate



- ✓ Before burning, fire breaks are created around the fallow area to avoid the spreading of the fires

Table Carbon stocks of the rotational farming for the 12-year fallow cycle and permanent fields in Mae Yod village in year 2015

Types of land use	Area (ha)		Carbon stocks (ton/ha)	Total carbon stocks (ton)
		%		
1) Rotational farming				
Fallow year 1	3.28	0.18	96	314.88
Fallow year 2	184.51	9.95	95	17,528.03
Fallow year 3	108.83	5.87	104	11,318.36
Fallow year 4	170.61	9.20	105	17,913.67
Fallow year 5	203.09	10.96	96	19,497.06
Fallow year 6	145.48	7.85	93	13,529.34
Fallow year 7	235.63	12.71	106	24,976.31
Fallow year 8	144.23	7.78	121	17,452.27
Fallow year 9	163.56	8.82	137	22,407.06
Fallow year 10-12	494.43	26.67	152	75,153.18
Total	1,853.64	100.00		220,090.17
2) Permanent fields (Azuki bean, maize)	631.63		65	41,056.18
3) Paddy fields	2.04		49	100.04

3. Limited negative impacts on biodiversity and ecosystem services-no synthetic chemical inputs

- ✓ Small tree branches and leaves are scattered over the ground to encourage the burning and to produce a higher amount of charcoal and ash, which enhance soil nutrients
- ✓ Average yield of upland rice at patch level under the RF system (3.66 ton/ha) was higher than average yield of paddy rice (1.85 ton/ha)
- ✓ Apply organic pest methods using homemade bio-pesticide; Physical weeding methods such as gently piercing the soil surface



Tools for trapping rats and birds, which destroy rice gains in the rotational farming without using poisons

4. Sustainable land and resource management and biocultural diversity

- ✓ Traditional RF practices contribute to strong social cohesion among the communities members through frequent exchanges of food and labour sharing
- ✓ Songs and folktales are mediums for passing on knowledge from old to young on how the and land natural resources should be managed

“Do not prune all the branches, leave some for the fire birds to perch”

“If you get benefits from forests and rivers, you have to conserve the forests and rivers, if you eat fishes, you have to protect the fish species”

The ritual of feeding the spirit of fields in the study sites



The ritual of feeding the field was performed in the beginning of August to ask for blessings from the spirit of rice, and ask the spirit to help the rice plants well grow and produce high yields

Summary of the linkage between Karen's ILK and its implications for biodiversity and ecosystem services

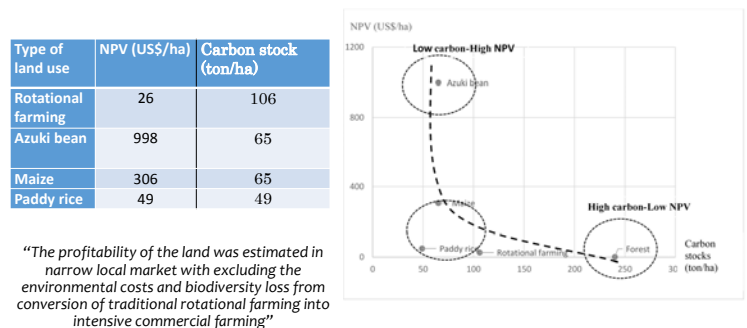
Land use type	ILK	Implications for the elements of biodiversity and ecosystem services
RF	Community consensus on the identification and allocation of the RF plots for cultivation	Control overuse
	RF plots for cultivation cleared from bottom to top	Prevent disturbance of tree stands surrounding the plots to be cultivated
	Trees are cut at certain height	Retain root system and promote coppicing in the fallow period
	Plots for cultivation are burned right before the rain season comes; firebreaks are created along the cropping area boundary	Avoid spread of fire beyond the cropping area boundary
	Cut and scatter small branches and leaves to intensify burning within the boundary and to produce higher amount of charcoal and ash	Enrich soil nutrients
	Songs and folktales for passing knowledge from the old to the young	Transfer the knowledge for sustainable land and natural resource management; norms and taboos relating to natural resource use
Forests	Sacred groves for performing rituals and ancestor sanctuary; cemetery forest for burying the dead and other respect objects and traditional festival; navel forest; khun huay watershed forest	Forest protection

5. Ecosystem services trade-offs-traditional rotational farming vs. competing land use for intensified monocrop agriculture

Table Annual costs and revenues of different land use in Mae Yod village in year 2015

Items	RF upland rice		Paddy rice		Azuki bean		Maize	
1. Costs (US\$ per ha)	714.26	%	459.20	%	742.74	%	758.73	%
1.1 Seeds	70.76	10	55.10	12	120.94	16	8.51	1
1.2 Fertilizers and pesticides	none		22.29	5	115.58	16	265.45	35
1.3 Labors	643.5	90	381.81	83	506.22	68	484.77	64
2. Revenues (US\$ per ha)	1,060.31		537.37		2,344.0		1,250.08	
2.1 Selling price (US\$ per kg)	0.29		0.29		1		0.16	
2.2 Yields (ton per ha)	3.656		1.853		2.344		7.813	
3. Profits (1-2)	346.05		78.17		1,601.26		491.35	

Cluster of land use by net present value (NPV) and carbon stocks in Mae Yod Village



Conclusion

- The study confirmed that ecosystems in forest and agricultural lands provided different and various benefits to the communities in the studied villages
- We perceived conservation forests and headwaters, and rotational farming fields particularly important for the sustainability of Karen people's life.
- Land use changes, in particular the clearance of forest to agriculture, have resulted in extirpation of wildlife species
- The study found the rotational farming provide high biodiversity with high carbon stocks, and contributes to conservation of biodiversity and ecosystem services.

References relevant to the study

I. Documents on traditional land use management, native rice production and climate mitigation in the rotational farming

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- 4) Yimyam N., A. Sirabanchongkran, S. Jamjod and B. Rerkasem. 2012. Genetic diversity and adaptability of local rice varieties of the Montane Mainland of South-East Asia (MMSEA). Land Management in Marginal Mountain Regions: Adaptation and Vulnerability to Global Change. Bishen Singh Mahendra Pal Singh, Dehara Dun, India. 265-274.
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- 6) Takeuchi K., L. Liang, J. Kawasaki, O. Sengtaheuanghoung, N. Yimyam, K.G. Saxena and S. Takahashi. 2014. Critical analysis of effectiveness of REDD+ for forest communities and shifting cultivation based on lessons learnt from conservation efforts in Laos and Thailand. APN E-lib. 135 p.

II. Documents on Karen's ILK and traditional rotational farming practices

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- 8) Trakansuphakorn P. 2014. Rotation farming, biodiversity, food sovereignty and climate change of Karen (Pgaz K'Nyau) community in Northern Thailand. in J. Nauber and A. Palusch, *Indigenous valuation of biodiversity and ecosystem services compared to other ways of valuation in the context of IPBES*, Bonn: Bundesamt für Naturschutz: 28-30.
- 9) Trakansuphakorn P. and T. Kampholul. 2010. Knowledge and practice on rotation farming of Pgaz K'Nyau (Karen) people, Hin Lad Nai Community in Northern Thailand. in Tebtebba Foundation, *Towards and alternative development paradigm: Indigenous peoples' self-determined development*, Baguio, Philippines: 249-329.
- 10) Rerkasem B. and Rerksasem K. 2002. Agrodiversity for in situ conservation of Thailand's native rice germplasm. *Chiang Mai University Journal of Natural Science*. Vol 1(2): 129-148.
- 11) Schmidt-Vogt D. 2001. Secondary forests, shifting cultivation, agriculture, forest policy, land use, fallow, community forestry, highlands. *Journal of Tropical Forest Science* 13(4): 748-767.



Our Karen ILK video can be viewed at https://youtu.be/DjY6BOE4_WI

Thank you very much for your attention



The presentation has 6 parts:

- **Part 1 Why conduct this case study?**
- **Part 2 Why study about local rice varieties and new ones?**
 - Current status of local traditional rice varieties, what? How?
 - Currency of the new rice varieties, what? How?
 - Why have had these changes?
 - The changes of rice varieties (old and new ones) any correlation with resources management practices especially forests and land and water in the upper watershed areas?

The presentation has 6 parts:



- **Part 3 Why choose the Po E commune area?**
 - Why choose H're indigenous minority community?
 - Why choose the 04 villages: Vi Ô Lắk, Vi K Oa, Vi Pờ Ê 2, and Vi Klằng 2 for study?
- **Part 4 Study methodology, information collection?**
- **Part 5 Findings from the period from 10-19 August, 2016**
- **Part 6 Inputs and comments from the local communal authority and villages representatives**



Part 1 Why conduct this case study?

1.1. Why conduct this case study?



- The IPBES program (2016-2020) in the world currently review and assess the current status and how trends of the local indigenous knowledge has been and would be for many sites across the world
 - UNESCO as well as IPBES for Asia-Pacific region continues to gather more evidence and information with regards to gain better understanding of status and trends of ILK in this Region: **what are the currency, losses and or changes, for the better or for worse? Causes of these changes? What would be the future?**



1.1. Why conduct this case study?



- The IPBES program (2016-2020) in the world currently review and assess the current status and how trends of the local indigenous knowledge has been and would be for many sites across the world
 - UNESCO as well as IPBES for Asia-Pacific region wants to hear from direct on-the-ground villagers and representatives' voices and inputs what they want to see the current and future of their local indigenous knowledge and how?



1.1. Why conduct this case study?



- With regards to the cooperation with SPERI, UNESCO/IPBES recognized SPERI's contribution from the recent Ethno-botany paper in which emphasized **the need to continue using and conserving local herbal/medicinal forest plants then this can help promoting further the need to manage, maintain and protect Land and forests resources in the upper watershed**. There are two cases:
 - Case 1: Conserving Ethnobotanical Knowledge of the Hmong community in Long Lan village, Luang Prabang province, published in 2014.
 - The case gained recognition from International Scientific Journal.

1.1. Why conduct this case study?

Learning with Elders: Human Ecology and Ethnobotany Explorations in Northern and Central Vietnam

Cary William Whiters, Xung Tin Min, Li Hanyang, Vu Van Cam, Keith Barber, and Tran Thi Lanh

This article explores the human ecology and ethnobotany of the Hmong and Kinh communities in Northern and Central Vietnam. It examines the traditional knowledge and practices of these communities, particularly in relation to forest resources and medicinal plants. The study highlights the importance of maintaining and protecting these resources for future generations.

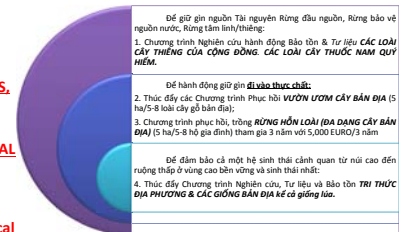
- With regards to the cooperation with SPERI, UNESCO/IPBES recognized SPERI's contribution from the recent Ethno-botany paper in which emphasized **the need to continue using and conserving local herbal/medicinal forest plants then this can help promoting further the need to manage, maintain and protect Land and forests resources in the upper watershed**:
 - Case 2: Conserving Ethnobotanical Knowledge of the Diverse Ethnic Minorities Groups from the Human Ecology Practice Area, Huong Son district, Ha Tinh province, northern central Vietnam, published in 2016.
 - The case gained recognition from 02 International Scientific Journals.

1.1. Why conduct this case study?

- So, reflected upon the efforts from SPERI for a long time and recognition from IPBES/UNESCO, we proposed an additional case study for Po E commune at 04 villages (conducted in 10 days, co-incident with the Rice ritual of the H're minority, and so we can ask for information and witness the practices of the community with regards to rice varieties):
 - This also adds to the current works to promote the need to strengthen protection and long-term management of the land and forests in the upper watershed despite the every-day challenges and complex issues happening with resources management in the commune
 - **For instance: the continued changes between forest land to now upland barren field with only cassava crops, and the changes over the rice fields (between areas planting local rice varieties and new ones).**
 - **And that, how do we engage communities/villages to continue preserving their upper forests and land (largely spirit forest, sacred sites) and that NOT convert to cassava plantations in order to ensure food security from water sources provided by the upper-stream, cultural preservation, and local knowledge maintenance through protection both forests landscape and the lower zones for delicious local rice varieties.**

1.1. Why conduct this case study?

- Research and Development program of SPERI focuses in Vietnam and Lao PDR on the following key topics:
 - Documentation of **SACRED TREES OF ALL COMMUNITIES, RARE HERBAL MEDICINAL PLANTS.**
 - Promote **NURSERIES OF LOCAL SPECIES** for restoration and plantings. Promote **Rainforestation Farming (Diversity, mixed species, local native species)**
 - Research, Document, and Preserve **Local Indigenous Knowledge e.g. Rice varieties**



→ This case study is also one of our priorities.

Part 2 Why study about local indigenous species (for instance: forest tree species, rice varieties)?

Conducted researches already pointed out:

- Focusing on local indigenous species will ensure the following advantages:
 - Contribute towards the **conservation and maintenance of local gene pools** (the local genes will not be lost);
 - Local indigenous species (trees, animals) have existed for a long time, **adaptive and self-evolution with regards to the natural conditions of a particular site** associated with land and soil, topography, climate, culture, and methods of cultivation there;

Conducted researches already pointed out:



- Local indigenous species have attached with social lives and culture and ways of cultivation as well as **local knowledge system of the villagers/communities/villages there, which often make them more happier and more confident to use and share** (INSTEAD, now they are passively dependent upon external species, fertilizers, techniques, information, and the market which often causes villagers not happy due to indebted, lack of independence whilst the payment/benefits villagers received are often very low).
- Local indigenous species** always relevant with local ecosystem at site and provide maximum yield (from the ecological value meaning). This is very different with concept of "high yield" from exotic/hybrid species.

Conducted researches already pointed out:



- Promoting further uses of local indigenous species will also **save from external costs**: e.g. chemical fertilizers, herbicides, new species (often hard to save seeds)
- Indirectly contribute to maintain the local customs and **unique local culture that are distinctive to only the H're community**.
- Save native trees species and local rice varieties will contribute to **maintain the local biodiversity** (e.g. birds, mammals, etc) in the forests.

1.2 Why focus on local species?



- Over the years efforts from SPERI on topic of maintaining Local Indigenous Knowledge such as Rice varieties, we conducted a study at:
 - We conducted a study on local rice varieties of the black Thai indigenous minority in Na Sai village, Nghe An province (from years 2011-13);
- The study indicated that the black Thai has maintained many wonderful local knowledge on rice varieties. They play very important role in social and daily lives, culture and spiritual life, and also ecological and ecosystem values.



1.2 Why focus on local species?



- During 2014-2015, Research program of SPERI documented a Publication: **SACRED TREES OF ETHNIC COMMUNITIES**
- SPERI conducted at 02 sites: Huong Son district, Ha Tinh province and also Vi Ô Lắc village, Pờ Ê commune (years 2014-15);
- The study of local sacred tree plants of the H're in Vi Ô Lắc village also indicated - these are the plants playing very important role in social and cultural lives including the spiritual parts of the H're people. It is therefore crucial to maintain the forests and land in the upper watershed where these trees are also located to be able to survive and continue to be part of the cultural lives of the H're community.



1.2 Why focus on local species?



Documentation of local sacred trees play very important role in the process of contributing towards the recognition and maintenance of H're culture towards their sacred forests, spiritual forests in their social lives. This also adds value to the conservation mission of preserving land and forests in the watershed region

The key mission of SPERI in Po E commune (2016-2019)



After land and forests rights secured for villages/communities; the next important task is to strengthen tighter the collaboration between communal authorities, villages, Thach Nham management board of protection forests, district authorities to promote use and effective management of forests and land resources;

Also, promote the **setting-up and development of 04 nurseries of local species at 04 villages**

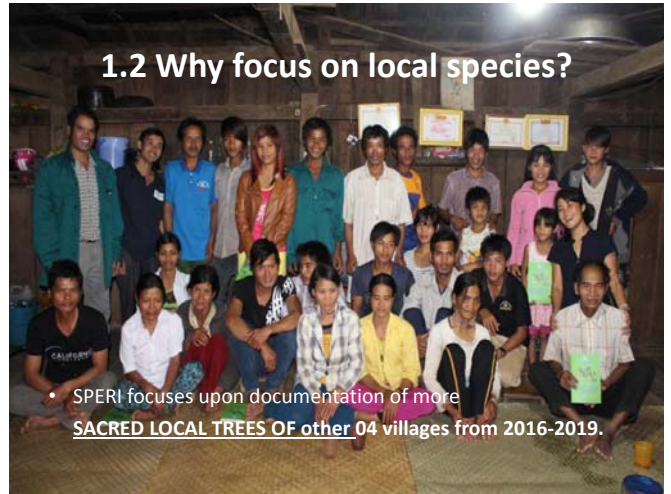
	Year	Area (ha)
Vi Ô Lắc village	2017-2019	5 ha
Vi Pờ Ê 2 village	2017-2019	5 ha
Vi Klàng 2 village	2017-2019	5 ha
Vi K Oa village	2017-2019	5 ha

1.2 Why focus on local species?

In the year 2016, villagers of Vi Pờ Ê 2 village are interested in applying for a Nursery of Local Species at their village. Student Hoang Van Duoc will continue to be at Vi Po E 2 village by this October to help setting up the Nursery.



1.2 Why focus on local species?



- SPERI focuses upon documentation of more **SACRED LOCAL TREES OF other 04 villages from 2016-2019.**

1.2 Why focus on local rice varieties?

• Po E communal authorities and SPERI and the 04 villages

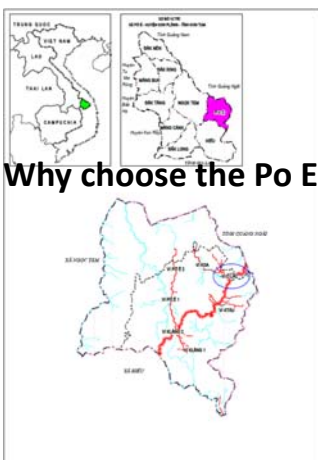
- Vi Pờ Ê 2, Vi Klàng 2, Vi K Oa, and Vi Ô Lắc (in 2016-2017)

– We will be documentation, and conservation of Local Knowledge e.g. through rice varieties.

1. Current status of local traditional rice varieties, what? How?
2. Currency of the new rice varieties, what? How?
3. Why have had these changes?
4. The changes of rice varieties (old and new ones) any correlation with resources management practices especially forests and land and water in the upper watershed areas?

Part 3 Why choose the Po E commune?

1.3 Why choose the Po E commune?



Po E commune has 04 villages that currently are part of the target areas for facilitation and supports from 2014-2018.

- Village Vi Ô Lắc
- Village Vi K Oa
- Village Vi Klàng 2
- Village Vi Pờ Ê 2

The key mission of SPERI in Po E commune (2014-2016)

Allocate land and forest rights to communities/villages (especially the sacred areas, watershed areas, water protection areas and spiritual forests) for the 04 villages in accordance to Joint Circular 07/BTNMT-BNNPTNT received huge positive supports from District and communal authorities as well as villages

	Year	Area (ha)
Vi Ô Lắc village	2014	56.4 ha
	2015	174.6 ha
Vi K Oa village	2016	152.16 ha
Vi Pờ Ê 2 village	2016	76.24 ha
Vi Klàng 2 village	2016	215.3 ha
Sum		674.7 ha

The key mission of SPERI in Po E commune (2016-2019)

After land and forests rights secured for villages/communities; *the next important task* is to strengthen tighter the collaboration between communal authorities, villages, Thach Nham management board of protection forests, district authorities to promote sustainable use and effective management of forests and land resources;

Also, promote the **setting-up and development of 04 nurseries of local species at 04 villages**

	Year	Area (ha)
Vi Ô Lắc village	2017-2019	5 ha
Vi Pờ Ê 2 village	2017-2019	5 ha
Vi Klàng 2 village	2017-2019	5 ha
Vi K Oa village	2017-2019	5 ha

1.3 Why choose Po E commune? Looking from the entire landscape

If looking from the landscape, entire area from the lower zone along the high-way road leading to Po E commune, over the last 2 years have witnessed much changes

Land uses changes: much mountainous areas used to have old growth trees now turn into barren hills, or acacia plantations area. These changes happen widely.

If looking from the landscape, entire area from the lower zone along the high-way road leading to Po E commune, over the last 2 years have witnessed much changes

Land uses changes e.g. forestlands now turn into acacia plantations, cassava plantations continue happening.

If looking from the landscape, entire area from the lower zone along the high-way road leading to Po E commune, over the last 2 years have witnessed much changes and these changes are critical to the forest and ecosystems

Land uses changes towards cassava crops plantations have increased at critical rate.

1.3 Why choose Po E commune? Along two sides of high-way road No. 24 along the Po E commune

On the top: Old growth forests are now changed to pine forests, acacia

Spread-out the mid-hills: we see areas of cassava plantations. In some mountains they go up till the top of the mounts.

At the foot hills, tiny areas of local rice varieties remain.



1.3 Why choose Po E commune?
Along two sides of high-way road No. 24 along the Po E commune

On the top: Old growth trees very few; replaced by acacia, and fast-growing species

Foot-hills: villagers start

Foot-hills: tiny area of local rice varieties

Surrounding areas: cassava plantations wide-spread hugely

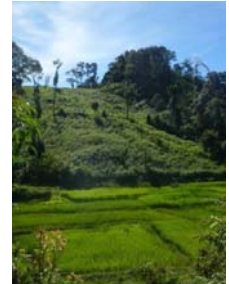


Rice plantings areas continue decreasing

Forestland continues to be cleared and transferred to cassava plantations

Local rice varieties grown at the bottom.

Above are cassava plantations. Presence of herbicides on the hills, worrying signs!



Herbicides in Vi O Lak village



March – April trip, 2016

March – April trip, 2016



Herbicides in Vi Klang 2 village



March – April trip, 2016

March – April trip, 2016



Herbicides in Vi Po E 2 village



August trip, 2016

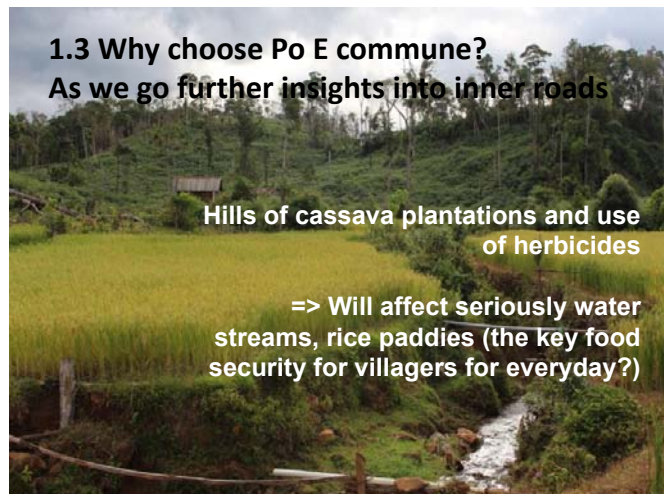
August trip, 2016



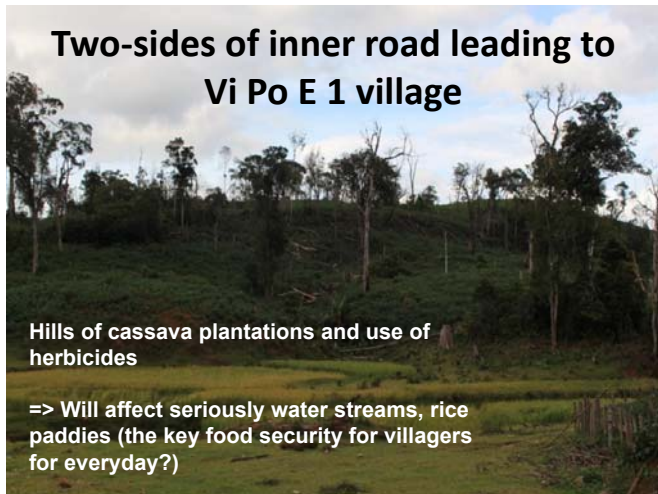
1.3 Why choose Po E commune?
As we go further insights into inner roads

Hills of cassava plantations and use of herbicides

=> Will affect seriously water streams, rice paddies (the key food security for villagers for everyday?)



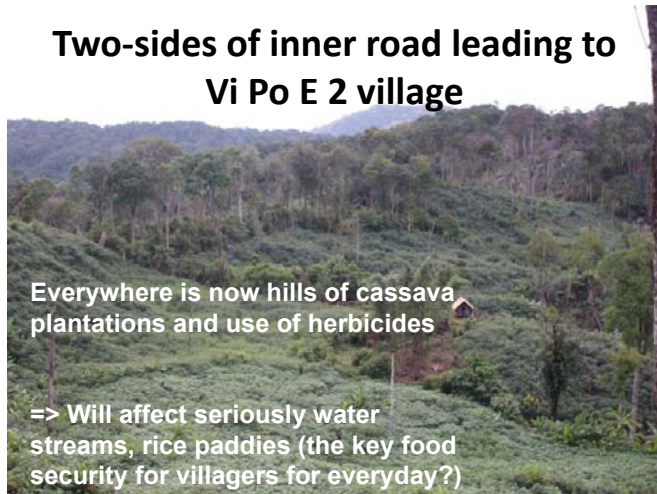
Two-sides of inner road leading to Vi Po E 1 village



Hills of cassava plantations and use of herbicides

=> Will affect seriously water streams, rice paddies (the key food security for villagers for everyday?)

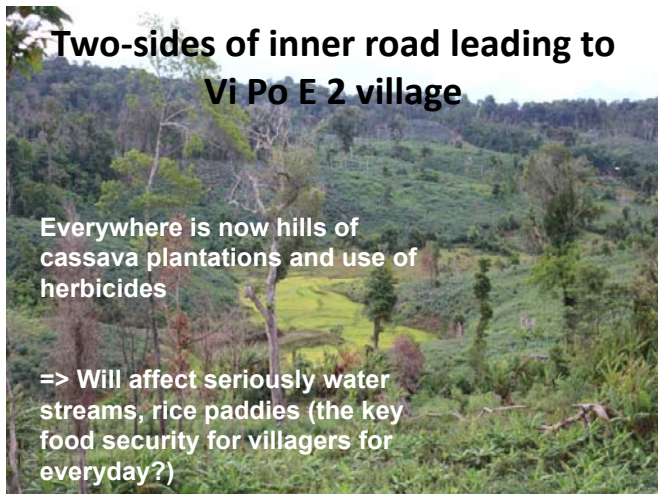
Two-sides of inner road leading to Vi Po E 2 village



Everywhere is now hills of cassava plantations and use of herbicides

=> Will affect seriously water streams, rice paddies (the key food security for villagers for everyday?)

Two-sides of inner road leading to Vi Po E 2 village



Everywhere is now hills of cassava plantations and use of herbicides

=> Will affect seriously water streams, rice paddies (the key food security for villagers for everyday?)

Reserve area of rice paddies to ensure food security



Why everywhere is now hills of cassava plantations and use of herbicides

=> Will affect seriously water streams, rice paddies (the key food security for villagers for everyday?)

Overview of Po E commune (communal data) – changes over land areas



Land types and areas	2014	2015	2016 (early first 6 months)	2016 (planning for entire year)
Hilly areas (largely corns and cassavas)	384 ha	442 ha	419 ha	405 ha
Rice growing areas (? affected by herbicides spraying?)	320 ha	364 ha	246 ha	364 ha
Forestland areas (largely production forests such as acacia, cinnamon, bamboo)	644.6 ha	655.6 ha	655.6 ha	698 ha

Overview of Po E commune (communal data) – interviews as well villages representatives



Land types and areas		Vi Pòr Ê 2 village	Vi Klâng 2 village	Vi K Oa village	Vi Ô Lák village
Rice growing area	Entire rice area	43.5/40.1 ha	50/53.6 ha	45.5/53.1 ha	58 ha
	Local rice area	39.15 ha	25 ha	31.85 ha	
Cassava growing area	New rice area	4.35 ha	25 ha	13.65 ha	
	Entire cassava area	32 ha	39 ha	36 ha/41 ha	63 ha
	Local cassava area	4 ha	4 ha	4 ha	5 ha
	Hybrid cassava area	28 ha	35 ha	32 ha	58 ha
Community forestland area that SPERI has attempted since 2014	Watershed forests, sacred forests must be protected collectively under titles	76.24 ha	215.3 ha	152.16 ha	231 ha

Short summary of the findings

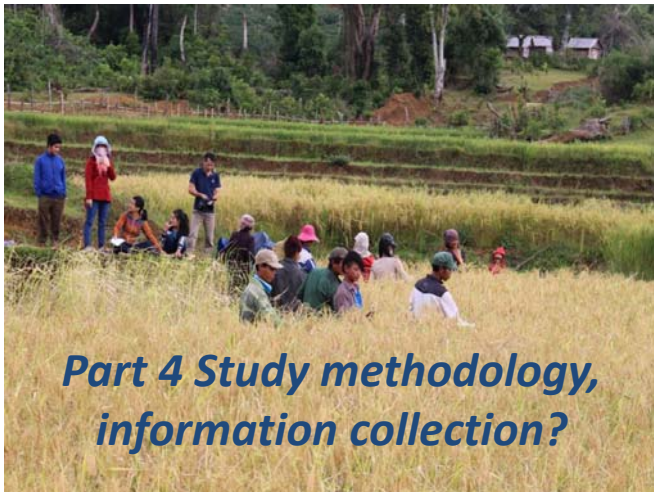


- Po E commune is an area that SPERI has recently put a lot of priorities with strong ties with local authorities and concerned actors in order to allocate community forest and land titles to villages for better and strong protection – avoid deforestation. Total forest and land area were allocated with titles were **674.7 ha of watershed forests, water protection forests, and sacred forests over 04 villages.**
- However, it is also observed that entire landscapes and ecosystems have been changed rather dramatically. Numerous watershed forests have been transferred to now hills of cassava plantations.
 - The speed and areas of used-to-be forestland to now hills of cassava plantations in the last recent years have been too fast and dangerous given the associated use of herbicides widespread which could lead to threatening community health.
 - Over the last 6 months of 2016, according to communal data, **hilly areas (largely cassava) had already gone above the limit (i.e. 419 ha compared to 405 ha as planned).**

Short summary of the findings



- **Rapid transition from forestland to now cassava plantations, combined with use of herbicides widespread will be extremely dangerous threatening the Food Security zone (largely rice paddies in the lowest areas)**
- If continued shifting towards cassava plantations and more use of herbicides, these will be affecting entire landscapes including local native species, quality of the rice paddies, soil quality and water sources, as well as health impacts to community.
- The land resources are not going to produce more; and so, without proper control and management of the current entire land resources of the commune, there would be huge consequences we have to bear in the next 3-5 years.



The field based research methodology



- Direct interviews in all villages:
 - Direct interviews the women’s group in villages;
 - Direct interviews with all knowledgeable elders in villages;
 - Videos with asking permissions from the knowledgeable persons of the rice varieties in villages;
 - Direct talks with key persons of villages and communal authorities;
 - Organize groups discussions in evenings at villages;
 - Interviews without using formal questionnaires-like, interviewing followed the most natural manner, random, direct, reality-based with people engaged at particular time and space;

Interviews women’s group in Vi Ô Lăk village



Interviews women’s group in Vi Ô Lăk village



**Interviews women's group
in Vi K Oa village**



**Interviews women's group
in Vi Po E 2 village at rice fields**



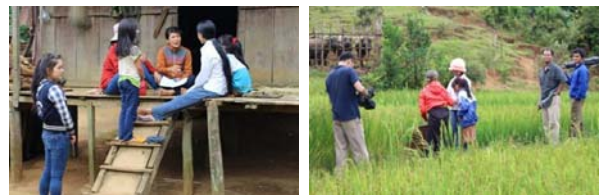
**Consults with elders and group in
Vi O Lak village**



**Interviews key persons
of Vi Po E 2 village**



**Interviews women's group
in Vi Po E 2 village**



**Always consults and discussions
with key persons from commune**



**Villagers' meeting
in Vi Pờ Ê 2 village**



**Villagers' meeting
in Vi Pờ Ê 2 village**



**Evening discussion
at Vi Pờ Ê 2 village**



**Villagers' meeting
in Vi O Lak village**



**Villagers' meeting
in Vi O Lak village**



Villagers' meeting in Vi K Oa village



Evening discussion at Vi K Oa village



Villagers meeting in Vi Klang 2 village



Villagers meeting in Vi Klang 2 village



Villagers meeting in Vi Klang 2 village



Field based methodology



- Field based direct observations at villages (entire landscape system, around the rice paddies, at each households visited and also their rice storage area)
- Ask for opinions and ask for permission to document their knowledge from knowledgeable persons in the communities in terms of their local rice varieties. Deep listening and documentation of their exchanges and knowledge sharing.
- Direct interviews at the rice fields (area where they harvest, where and when they dry rice, or when villagers help each other (on rotational labor exchange to harvest, rice separation)).
- Consults as well as ask for data from communal authorities.

Valuing the knowledge from indigenous elders



Valuing the knowledge from indigenous female elders



Valuing the knowledge exchanges amongst the females



Valuing the knowledge from indigenous elders



Learning and documentation right at the rice field site when people harvest



Learning from field work



Learning from field work



Invite young H're people to engage in the process



Invite young H're people to engage in the process



Invite young H're people to engage in the process



Invite young H're people to engage in the process



Group presented earlier findings at the Po E communal authority





Part 5 Findings from the period from 10-19 August, 2016

1.2 Why focus on local rice varieties?

- Po E communal authorities and SPERU and the 04 villages
 - Vi Pờ Ê 2, Vi Klàng 2, Vi K Oa, and Vi Ô Lắk (in 2016-2017)
- We will be documentation, and conservation of Local Knowledge e.g. through rice varieties.

- Current status of local traditional rice varieties, what? How?
- Currency of the new rice varieties, what? How?
- Why have had these changes?
- The changes of rice varieties (old and new ones) any correlation with resources management practices especially forests and land and water in the upper watershed areas?



Current status of local traditional rice varieties, what? How?

Names of villages examined of local rice varieties	The total number of local rice varieties still maintained, saved and using (till 2015-16)
Vi Pờ Ê 2 village	21 varieties documented but 07 varieties without images
Vi Klàng 2 village	14 varieties documented
Vi K Oa village	11 varieties documented 05 varieties without images
Vi Ô Lắk village	07 varieties documented
Vi K Tau village	20 varieties documented
Vi Pờ Ê 1 village	
Vi Klàng 1 village	14 varieties documented

Names of local rice varieties (in H're language)	Làng Vi Pờ Ê 2	Làng Vi Ô Lắk	Làng Vi K Oa	Làng Vi Klàng 2	Làng Vi Klàng 1	Làng Vi Pờ Ê 1	Làng Vi K Tàu
1. Mao Nụ	X	X	X	X	X		X
2. Mao Nét	X	X	X	X	X		X
3. Mao Hroa (nếp)	X	X	X	X			X
4. Mao Kđút (nếp)	X	X					X
5. Mao Mong con/cán	X			X & X	X & X		X & X
6. Mao Diu	X		X	X	X		X
7. Mao Gở	X		X		X		X
8. Mao Prã	X			X			X
9. Mao Tdoàng gam (nếp đen)	X		X		X		X

Names of local rice varieties (in H're language)	Làng Vi Pờ Ê 2	Làng Vi Ô Lắk	Làng Vi K Oa	Làng Vi Klàng 2	Làng Vi Klàng 1	Làng Vi Pờ Ê 1	Làng Vi K Tàu
10. Mao Tdoàng mong (nếp trắng)	X		X	X	X		X
11. Mao Kroóch	X			X	X		X
12. Mao Đrinh	X			X			
13. Mao Rĩa	X			X			
14. Mao Mong B'lem	X						X
15. Mao Ting (nếp)	X		X	X	X		X
16. Mao Hanhê (*)	X			X	X		X
17. Mao Vác	X	X		X	X		X
18. Mao Lước	X						X
19. Mao Pà	X						X
20. Mao Erở Gam	X	X	X		X		
21. Mao Co	X	X	X				X
22. Mao Mrum (*)				X			
23. Mao Cun					X		

Local indigenous H're rice varieties documented



Local indigenous H're rice varieties documented



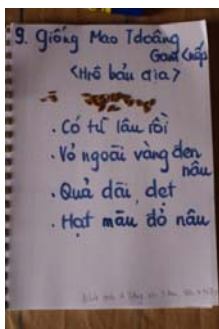
Local indigenous H're rice varieties documented



Local indigenous H're rice varieties documented



Local indigenous H're rice varieties documented



Local indigenous H're rice varieties documented



Local indigenous H're rice varieties documented



Local indigenous H're rice varieties documented



Local indigenous H're rice varieties documented



Short summary of findings of current status of local traditional rice varieties, what? How?

- The total sum of local rice varieties examined and documented was 23 varieties.
 - Vi Pờ Ê 2 village keeps most of the varieties: 21.
 - Vi K Tàu village keeps the 2nd most of the varieties: 20.
 - Vi K lằng 2 village keeps the 3rd most: 14.
 - Vi K lằng 1 village keeps the same as Vi K lằng 2 village: 14.
 - Vi K Oa village keeps the 5th most of the varieties: 11.
 - Vi Ô Lắc village keeps the 6th most of the varieties: 07.

Currency of the new rice varieties, what? How?

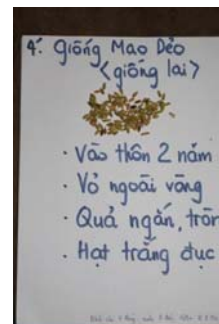
Names of villages examined of new rice varieties	The total number of new rice varieties used for the last 5 years
Vi Pờ Ê 2 village	02 new rice varieties documented
Vi Pờ Ê 1 village	02 new rice varieties documented
Vi K Oa village	08 new rice varieties documented
Vi Ô Lắc village	08 new rice varieties documented
Vi K Tàu village	04 new rice varieties documented
Vi Klằng 2 village	02 new rice varieties documented
Vi Klằng 1 village	02 new rice varieties documented

Names of new rice varieties	Làng Vi Pờ Ê 2	Làng Vi Ô Lắc	Làng Vi K Oa	Làng Vi Klằng 2	Làng Vi Klằng 1	Làng Vi Pờ Ê 1	Làng Vi K Tàu
1. Mao Trăm Thơm	X	X	X				X
2. Mao Mông		X	X	X	X	X	X
3. Mao Krằng	X	X	X	X	X	X	X
4. Mao Đèo (nếp dẻo)		X	X				X
5. Mao Nếp thơm		X	X				
6. Mao Krế		X	X				
7. Mao Rơ mông		X	X				
8. Mao Ờ Gam		X	X				

New rice varieties documented



New rice varieties documented



New rice varieties documented



Short summary of findings of currency of the new rice varieties, what? How?



- The total number of new rice varieties are 08.
 - Vi Ô Lắc village uses the most new varieties: 08 giống.
 - Vi K Oa village is same with Vi O Lak village: 08 giống.
 - Vi K Tàu village uses: 04 new varieties.
 - Vi Pờ Ê 2 and Vi Pờ Ê 1 use: 02 new varieties.
 - Vi Klông 2 and Vi Klông 1 village also use: 02 new varieties.
- The families whom use new rice varieties have already used chemical fertilisers and possibly since 2010.

Overviewing of 04 villages and percentage of families whom use local/new varieties địa/giồng lai



% of families in each village	Vi Pờ Ê 2 village	Vi Ô Lắc village	Vi Klông 2 village	Vi K Oa village
% of families use local varieties	85%	Only keep 03 local varieties: Mao Hroa, Kdút, Co	100%	30%
% of families use new varieties	15%	100%	90%	70%
Total number of families	44	57	98	69
Total number of people	128		450	248
Total number of women	48			120
Total number of elders (> 60 old)	15		22	14
Total number of knowledgeable persons whom know and save and use local rice varieties	15 người	9 người	20 người	12 người

The most favorite rice varieties



Names of villages	Names of most favorite rice varieties and continue using and saving	For what use purposes?
Vi Pờ Ê 2	+ Mao Kdút + Mao Luốc + Mao Hroa (nếp) + Mao Táo ăng gam (nếp đen)	More seeds and higher yield; Make wines most tasty
Vi Ô Lắc	+ Mao Hroa (nếp) + Mao Kdút (nếp) + Mao Co (nếp)	Make wine For sacred ritual (traditional New Year) Make special cake (Tép)
Vi K Oa	+ Mao Nu + Mao Hroa (nếp)	For sacred ritual Make wine Make special cake Lâm cốm Women eat during 3 months after delivery (Mao Nu)
Vi Klông 2	+ Mao Tdoảng mong + Mao Tinh + Mao Nét + Mao Mong + Mao Diu	Make special cake Make wine For daily uses



Over view of findings of current status and changes over rice varieties

- The total of local traditional rice varieties documented is 23 species: with Vi Pờ Ê 2 village keeps the most and Vi Ô Lăk village keeps the least.
- The total of new rice varieties documented is 08 species: with Vi O Lak village uses the most (100% families) and 04 villages (Vi Pờ Ê 2, Vi Pờ Ê 1, Vi K lằng 2, and Vi K lằng 1) only use for now 02 species (many villagers still testing on their rice fields)
- Families whom use new rice varieties already used chemical fertilizers since 2010. Most obvious is families in Vi Ô Lăk (since 2013, 2014) and about 2/3 of families in Vi K Oa. Very few households in Vi Klang 2, Vi Po E 2 start using new rice varieties in 2015-2016 with some chemical fertilizers (depending on families whom have money to buy fertilizers)

Over view of findings of current status and changes over rice varieties

1. The changes of rice varieties (old and new ones) any correlation with resources management practices especially forests and land and water in the upper watershed areas?

Reserve area of rice paddies to ensure FOOD SECURITY for long term

Over entire landscapes area of Po E commune, why everywhere is now hills of cassava plantations and use of herbicides

⇒ Will affect seriously water streams, rice paddies (the key food security and health concerns for villagers for everyday?)

This is not only affecting their food security reserve area but also security of local knowledge of the H're

Overview of Po E commune (communal data) – changes over land areas

Land types and areas	2014	2015	2016 (early first 6 months)	2016 (planning for entire year)
Hilly areas (largely corns and cassavas)	384 ha	442 ha	419 ha	405 ha
Rice growing areas (? affected by herbicides spraying?)	320 ha	364 ha	246 ha	364 ha
Forestland areas (largely production forests such as acacia, cinnamon, bamboo)	644.6 ha	655.6 ha	655.6 ha	698 ha

Over view of findings of current status and changes over rice varieties

1. The changes of rice varieties (old and new ones) any correlation with resources management practices especially forests and land and water in the upper watershed areas?

- The speed and areas of used-to-be forestland to now hills of cassava plantations in the last recent years have been too fast and dangerous given the associated use of herbicides widespread which could lead to threatening community health.
- Over the last 6 months of 2016, according to communal data, hilly areas (largely cassava) had already gone above the limit (i.e. 419 ha compared to 405 ha as planned).
- The reduce of area of rice paddies and introduction of new rice varieties (combine with use of chemical fertilisers) may threatening the losses of local traditional rice varieties and associated indigenous local H're knowledge if without urgent actions to address these



Part 6 Inputs and comments from the local communal authority and villages representatives



Thanks and acknowledgements

- Many women, elders, youths and key persons in villages.
- Key persons from Po E communal people's committee such as Y Nga, A Chôn, A Sáp, Đinh Thái, A Thọ). Our special thanks to Mr. Thọ and Mr. Điềm for accepting us to do research, thanks to the young H're voluntarily participating this study especially: em Đinh Chắt, em Y Gieng, em Y Quế, anh A Thấp, mẹ Y Plen, mẹ Y Trâng.
- Thanks to all the families, and parents and villagers of the 04 villages for accepting us to allow us asking information, video, taking photos and learning. Thanks to all the village leaders and key leaders to contribute into our final presentations.
- Thanks to UNESCO and IPBES program for supporting us this cause and all IP communities.



The study group engaged

- Mr. A Đói, Mr. Đinh Thái, Mr. Đinh Theo, Mother Y Trâng, Ms. Y Nga, Ms. Y Giêng (from Vi K Oa village),
- Mr. Đinh Chắt, Mr. Mườì, elders, Mother Y Biết, Mother Y Liễu, sister Y Thân (from Vi Ô Lắc village)
- Mr. A Thấp, sister Y Bôm, Mother Y Plen, Mr. A Phong (from Vi Pờ Ê 2 village), and other families
- Mr. A Chờn, Ms. Y Quế, Ms. Y Voa (from Vi Klâng 2 village) and elders
- Mr. A Chôn, Mr. A Sáp, Mr. Thọ, Ms. Y Nga, Ms. Y Pha, Mr. Đinh Thái, Mr. A Biu support hugely (Po E communal people's committee)
- Mr. Tran Ngoc Thanh, Mr. Hoang Van Đức, and mrs. Dang To Kien (staff of SPERI)

Biodiversity Requirements of the *Begnas* Ritual System in Sagada, Northern Philippines

In: *Linking Culture and Environment: Identifying Environmental Degradation in Sagada, Northern Philippines through the Begnas Ritual System*

Danesto B. Anacio
(Dane/Makko)

Indigenous Person (Kankana-ey and Ibaloi)
PhD Student, Environmental Science
School of Environmental Science and Management (SESAM)
University of the Philippines Los Banos

The *Begnas* Ritual System in Sagada, Northern Philippines

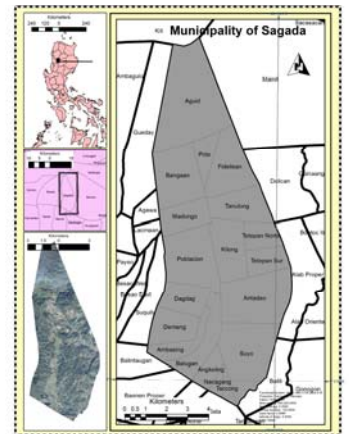
- The *begnas* (bagnas) is a northern Kankana-ey (indigenous group in the Philippines) sacred ritual for invoking community welfare and personal well-being.
- The purpose for any *begnas* is commonly associated with agricultural events, although it can also be for communal thanksgiving or invoking good luck and seeking protection from unfortunate events.
- A *begnas* is a ritual system since it is highly interconnected and dependent on irrigated rice agriculture (agriculture in general), biodiversity, culture, and indigenous and traditional knowledge systems and worldviews

Begnas and Ecosystem Services

- Synchronizes planting and harvesting activities
- System of rituals enriches community experience and participation in food production
- Relies on cooperation of community members, communal effort, and cultural and social arrangements
- Invocations in the various rituals seek blessings for good growth, good harvest, and self-replenishing supply of grain from indigenous deities, mainly Kabunian, and the spirits of ancestors

Sagada, Philippines

- Total land area of 9,969 hectares (24633.94 acres)
- Around 99.3% is classified by national law as forest and public land
- Elevation range of 1,313 meters (4307.743 ft) above sea level (masl) to 2,318 masl (7604.987 ft)
- Two pronounced seasons: dry season November to April, wet season May to October



Begnas Biodiversity Requirements







http://4.bp.blogspot.com/-D6dPh_nLwda/UqQ-h5-V9ri/AAAAAAAAFBA/hu_qU4pDpWU/s1600/DSC_0218.png



Sagada, Philippines 3.staticflickr.com/2877/10500449295_a873e28fa6_z.jpg www.SolitaryWanderer.com



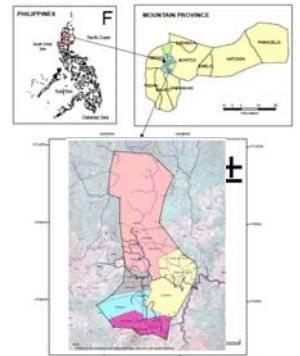


Sustaining the indigenous forest management system: the case of *saguday* in Sagada, Philippines

June Cadalig Batang-ay

ENTAKO ID SAGADA

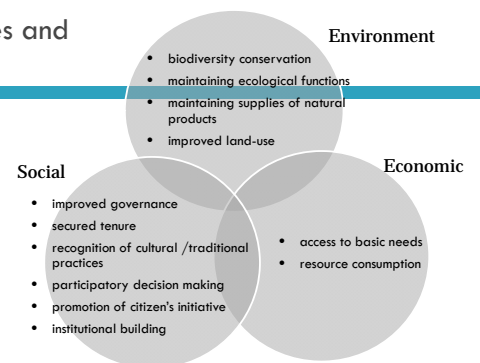
- 5th class municipality
- total land area: 9,969 ha
- forest area: 7,613 ha
- population: 11,44
- ethnicity: Applai
- IKSP in resource management



saguday

indigenous forest management system to a portion of a forest established on an open land, swidden gardens, or unproductive crop land which were protected through the development and enforcement of culture-based activities and policies (ADSDPP, 2004; CGN, 2007)

opportunities and benefits



the system of *saguday* governance

- collective action
- strengthening indigenous governance system
 - *dap-ay*
 - elders
 - *umili*
 - culture and tradition

the system of *saguday* management

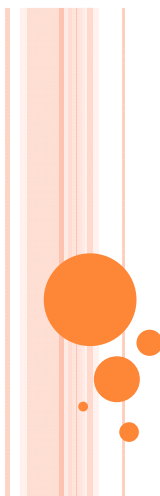
- membership rules
- harvesting and allocation rules
- grazing/cattle management
- fire management
- penalties for violators

development challenges

- unregulated land conversion
- privatization of land
- unregulated extraction of trees
- occurrences of forest fires
- claims over communal lands
- introduction of market-oriented transactions
- weakening traditional forest management rules and practices



iyaman



LEARNING INDIGENOUS EARTH WISDOM FROM THE IBALOY BA-ENG HOME GARDEN

By Maria Elena Regpala
Indigenous & Local Knowledge Dialogue Workshop,
SE and NE Asia Sub- region for IPBES Asia Pacific
Assessment of Biodiversity and Ecosystems Services,
Oct. 14-17, 2016, Chiang Mai, Thailand

OBJECTIVE

- To document different Ibaloy *ba-eng* home gardens in Baguio City, Philippines
- To establish an enhanced *ba-eng* home garden at the Maryknoll Ecological Sanctuary as a learning garden for children and the public

METHODS

- key informant interviews, focused group discussion, participant observation, process documentation of the establishment of the learning garden

IBALOY BA-ENG HOME GARDEN

“Nu awan ba-eng mo kasla ha-an ka nga tao.”
(If you do not have a home garden, you are not human. - common Ibaloy saying)

- -a yard garden
- a plot of ground in or near a residential area planted with bananas, coffee, papaya, sweet potato, other non-staple crops & medicinal plants
- -small orchard
- -one of the basic categories of agricultural land, along with *payew* and *oma*

INDIGENOUS EARTH WISDOM

1. *madmad* prayer and/or ritual offering (pig) to the unseen Creator, ancestors and nature spirits asking permission to use the land, and for their help for a bountiful harvest
2. detailed knowledge of diverse plants for food and medicine
3. appropriate timing for planting, harvesting & management of the *ba-eng*
 - - rainy season for planting & when the moon is out, taking into consideration the life cycle of pests
 - - summer for seed selection
 - - harvesting depending on the right maturation of crops

INDIGENOUS EARTH WISDOM-2

4. land preparation – knowledge of types of soil and matching it with right crops (eg. Rootcrops such as sweet potato & potato is good in sandy soil)
5. appropriate handmade garden tools
6. good combination of crops (beans, sweet peas and *petchay*)
7. pest management done manually daily at early dawn

CHANGES

- 1- Non-practice of prayer & rituals
- 2- change of crops being planted from home consumption to sale for the market (from taro plants to high value fruits & flowers, e.g. lemon & anthurium)
- 2- manual pest control to use of pesticidal plants and chemical pesticides
- 3- decreasing number & size of *ba-eng* home gardens
- 5- seasons, phases of the moon and life cycle of insects seldom observed
- 6- dominantly fertile soil to infertile soil (use of sunflower, cattle dung to in-organic fertilizers)
- 7- right combination of plants in a garden plot not observed
- 8- limited knowledge & use of medicinal plants (from medicinal plants to tablet from drug stores)

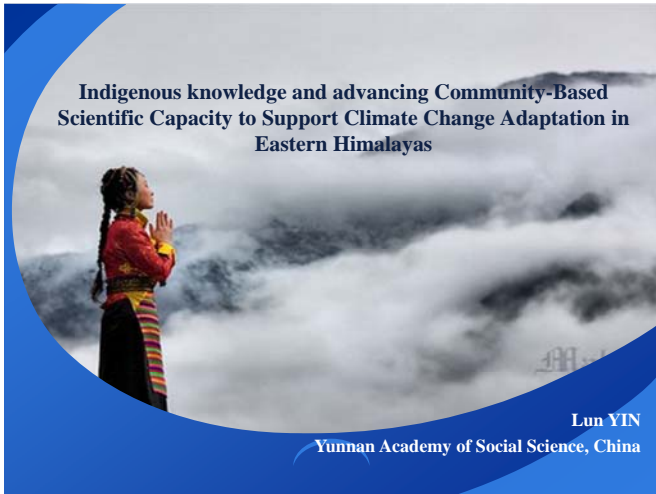
ENHANCED BA-ENG HOME GARDEN

- The importance of inter-generation transfer of indigenous knowledge enhanced by other knowledge systems by teaching children and the public
- 1- Use of vermiculture
 2. Pesticidal plants and spray
 3. Indigenous micro-organisms
 4. Appropriate tools



o *SALAMAT! THANK YOU!*

Indigenous knowledge and advancing Community-Based Scientific Capacity to Support Climate Change Adaptation in Eastern Himalayas

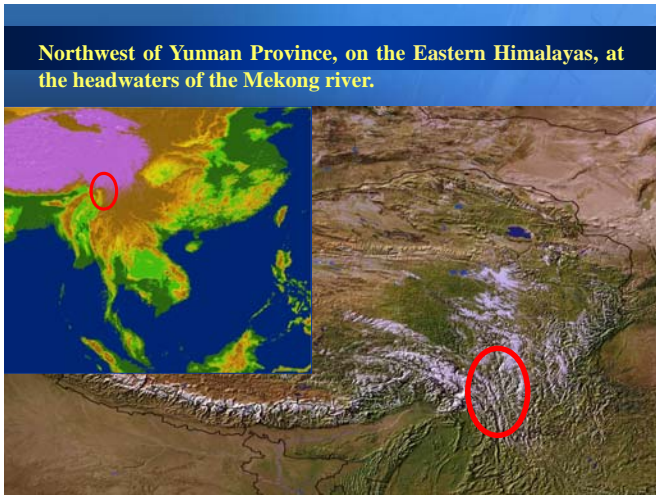


Lun YIN
Yunnan Academy of Social Science, China

Contents

- 1 Principal Goals
- 2 Specific Objectives and Methodology
- 3 Activities undertaken
- 4 Outputs
- 5 Conclusion
- 6 References

Northwest of Yunnan Province, on the Eastern Himalayas, at the headwaters of the Mekong river.



with diverse altitude and ecosystem.....

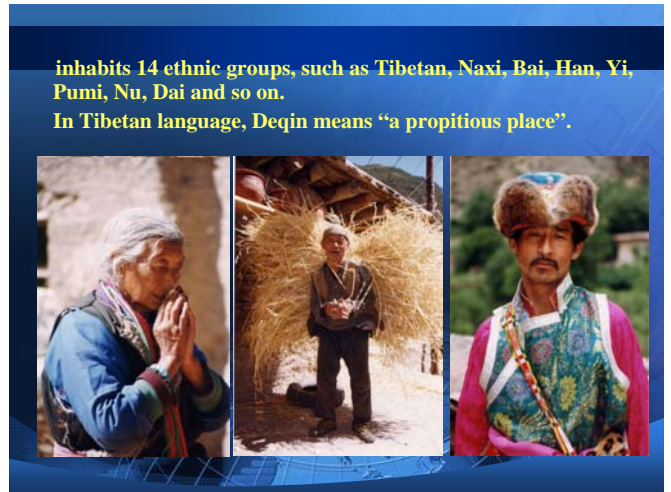


4000m	Mesic Cold Evergreen Dwarf-Shrubland
3800m	Cold Mixed Evergreen-Deciduous Shrubland
3100m	Cold Evergreen Needle-Leaf Forest
2800m	Temperate Evergreen Needle-Leaf / Sclerophyll-Leaf Forest
2500m	Temperate Needle-Leaf / Broad-Leaf Forest
2000m	Subtropical Valley Vegetation



It is one of hotspot of biodiversity in the world.

inhabits 14 ethnic groups, such as Tibetan, Naxi, Bai, Han, Yi, Pumi, Nu, Dai and so on.
In Tibetan language, Deqin means “a propitious place”.





Principal Goals

- The project aims to develop the Scientific Capacity of Local Government, Scientists, and Indigenous People in the Eastern Tibetan Himalayas of North-West Yunnan Province, China, to assist in effectively and sustainably responding to the impacts of Climate Change through the participatory, community-based development of a Climate Change Vulnerability and Impact Assessment.
- This project aims to use the best of 'top-down' scientific, policy relevant approaches with 'bottom-up' Indigenous Knowledge research to achieve its objectives - seeking to reconcile indigenous knowledge with mainstream science.

Specific Objectives

The main objectives of the project were:

- 1. Document the ILK which links with the Biodiversity in the context of Climate Change
- 2. Empower the local people to research and use their ILK to make the livelihood sustainable.
- 3. Building the bridge between ILK and scientific knowledge, enhanced the understanding, communication and cooperation and between Indigenous Knowledge and Scientific Knowledge.
- 4. Building the bridge between ILK experts, scientists, and policy makers, put the ILK in the process of climate and biodiversity policy making.
- 5. Scientific capacity building of multi-stakeholders in Climate Vulnerability and Impact Assessments in a China context.
- 6. Best Practice in Interfacing Indigenous Knowledge with National, Regional and International Global Change Policy. Improved information and advice to relevant international assessments and conventions on Climate Change on the scientific and socio-economic aspects of impacts and vulnerability to climate change in the Eastern Himalayan region of North-West Yunnan Province, China.



Activity undertaken

1. Gender perspective on Traditional Knowledge

Traditional Women Association and Climate Change Training and Investigation. In Hongpo Village there has one Tibetan women organization named "Sisters Association". Main work of Sisters Association is about organizing female villagers to participate in activities during holidays, and raising money for collective activities such as going to temple and praying to Buddha. All women from Hongpo Village are members of the association. Usually women with age between 12 and 65 can participate in activities. Sisters Association has its regulations. The association administrators will be selected by villagers themselves and take responsibility in turn. Every year 6 women will be selected as administrators.

Based on Sisters Association., the project carried out trainings to local women on climate change, disasters and traditional subsistence. It organized local women to carry out investigation on agro-pastoralist, NTFPs, herbs and gynecopathy in the context of climate change. Document the traditional knowledge of women about agro-pastoralist, NTFPs, herbs, and gynecopathy.

Activity undertaken

2. Based on the classification of TK associated with biological resources (Dayuan Xue, 2009), take the community-based action research on TK and biodiversity

- A. Use of livelihood species and genetic resource;
- B. Use of medicinal species;
- C. Technical innovations for use of biological resources and traditional farming and lifestyle practices;
- D. Traditional cultures and customary laws related to conservation and sustainable use of biological resources;
- E. Traditional local products.



Activity undertaken

3. Community-based research on Traditional Knowledge (Example of use of medicinal species)

Establishment of Climate Field School based on Deqin Tibetan Medical Association, Training and Investigation. Deqin Tibetan Medical Association is organized by local experts who have indigenous knowledge of herbs and Tibetan medical knowledge. These experts devote themselves to traditional herb protection and plantation, carry out research on traditional medical treatment, herb making and its usage, and document the traditional knowledge which link with the Tibetan Medicine and Biodiversity. Currently the association has 56 local experts.

According to high (above 3500 meters), middle (2500—3500meters) and low (below 2500meters) altitude. It had carried out 2 times investigation on plants (summer and autumn): 1. 20 local experts had carried out investigation on plants for two months, and collected 120 plant specimen. 2. 20 local experts had carried out investigation on plants for three months, and collected 137 plant samples, and document the traditional knowledge .



Activity undertaken

4. Make Traditional Knowledge Mainstream

Indigenous Knowledge, Climate Change Science and Policy Conference. The conference has been successful implemented in Yunnan University, the researchers, indigenous experts, governments officers and NGOs have participated the conference.

In the conference, the project team has present research results from the project, and the different stakeholders has shared the ideas, input and new methodology about Indigenous Knowledge and Mainstream Science working hand-in-hand in climate change processes.



Activity undertaken

5. "Scientific capacity building " to the scientists and local experts

Based on the Climate Field School , scientists carried out trainings to the local experts on the concept of climate change, natural resources management and plant specimen data collection etc.

Joint Research about 1. climate change, biodiversity and traditional knowledge, 2. watershed management and traditional knowledge, 3. Agro-pastoralist and traditional knowledge, 4. nature resource management and traditional knowledge



Outputs

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



Conclusion

Firstly, although climate change is a global phenomenon, it still can be alleviated at local level through local people's efforts and adaptation based on their indigenous knowledge;

Secondly, TK can help local people adapt to climate change to some extent. the project show the values of TK and culture of Tibetan which associated with biological resources in adapting climate change. It also provides very important information for government to make policies for climate change in the future.



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Some thinking of ILK in the context of IPBES APRA

1. The identify and classification of ILK, the method to document the ILK, to make the ILK become available, useful and measurable for the assessment.
2. Encourage the ILK holders/experts participate the process of assessment.
3. Based on the classification and documentation of ILK, put the ILK on the different step of the process of assessment.
4. The activities of network, just like the Community-based research on ILK, Joint Research between ILK holders and experts with regional assessment authors, comparative research of ILK on different countries in the sub-regions etc. to make the network become effective for put the ILK into the process of assessment.

Possible contributions to ILK for the APRA

- Case study of ILK which links with the Biodiversity and Ecosystem Services;
- Sharing experience of community-based research on ILK which links with the Biodiversity and Ecosystem Services;
- Enhancing the ILK holders and experts of ethnic-minority peoples in Yunnan, like Tibetan etc., to join the network;
- Joint Research cooperation based on the network in the Southeast and Northeast Asia Sub-region.

The Way Forward



Lun YIN

Yunnan Academy of Social Science, China

Local Biodiversity Restoration for Food Bank in the Highland Community

Jarunee Pilumwong
Highland Research and Development Institute
(Public Organization)

Outline

1. Introduction
2. Objective
3. Methodology
4. Result
5. Conclusion

"ศูนย์อาหารชุมชน (Food Bank) ผลิตอาหารสดจากป่าชุมชน เพื่อลดต้นทุนของชาวบ้าน"

Highland Research and Development Institute (Public Organization): HRDI

Vision

To ensure socially and environmentally sustainable highland development by supporting the Royal Project's research and development efforts and extending them to highland communities throughout the country as well as to manage the Royal Park Rajapruek as an internationally recognized center of horticultural and cultural knowledge, biodiversity, culture, an eco-tourism.

Operation areas

- ▲ **Highland communities (Goal)**
(20 Provinces 3,829 Clusters)
- **Royal Project: 38 Areas**
(5 Provinces 500 Clusters)
- **Royal Project Extension: 29 Areas**
(7 Provinces 354 Clusters)
- ▲ **Expansion of the Royal Project Model for Sustainably Develop Highland Communities Program: 13 Areas**
(8 Provinces 453 Clusters)
- **Expansion of the Royal Project Model for Sustainable Opium Eradication**
(3 Provinces 126 Clusters)
- **Watershed Conservation project: 11 Areas**
(6 Provinces 118 Clusters)

1,064 Clusters (28%)

Goal: Highland people live with a sufficient income along with a better livelihood which is generated from more environmental friendly agriculture production and strengthened community.

HRDI Strategy

1. Research and Development
2. Support the Royal Project Foundation and Extension
3. Royal Park Rajapruek Management
4. Efficient Management

Royal Project Development Centre (38)

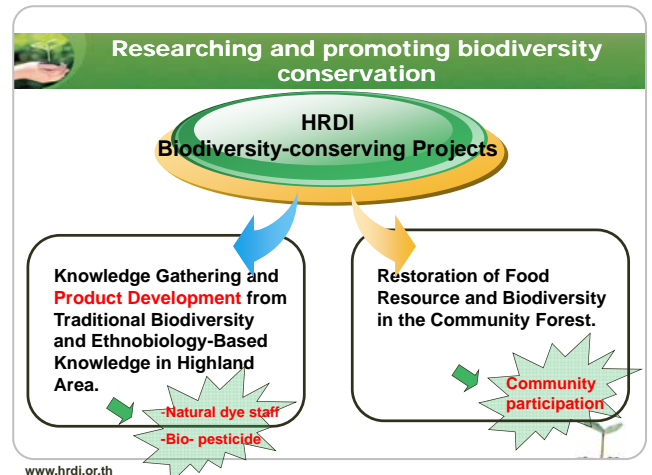
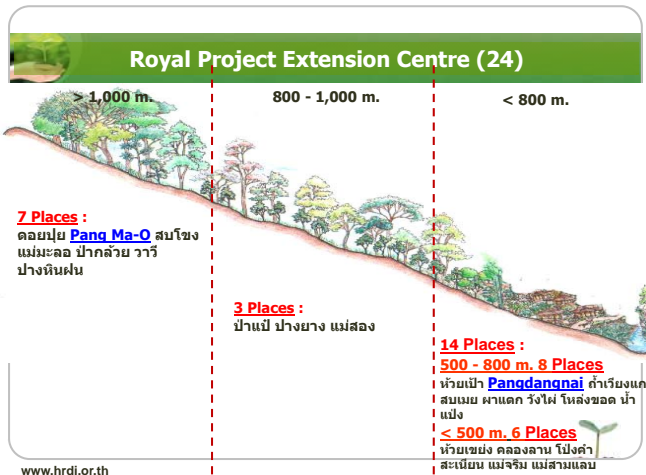
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15 Centres :
แกมดอม ชุนแปะ ชุนวาง ปางสูง ผาตั้ง มอนเงาะ แม่โก แม่ปูน หลวง เมลาน้อย แม่แฮ หมองหมอย ห้วยน้ำชุน ห้วยส้มป่อย อ่างช้าง อินทนนท์

9 Centres :
ทุ่งหลวง ปางตะ ป่าเมียง แม่แพะ แม่สะเรียง แม่สาใหม่ วัดจันทร์ ห้วยน้ำริน ห้วยเล็ง

14 Centres :
ต้นตก ทุ่งเรา ทุ่งเรง ปิงคำ แม่ทาเหนือ แม่สะป๊อก แม่หลอด พระบาทห้วยต้ม สะโงะ หมองเขี้ยว หมอกจุ่ม ห้วยปิง ห้วยลิก ห้วยเสียว

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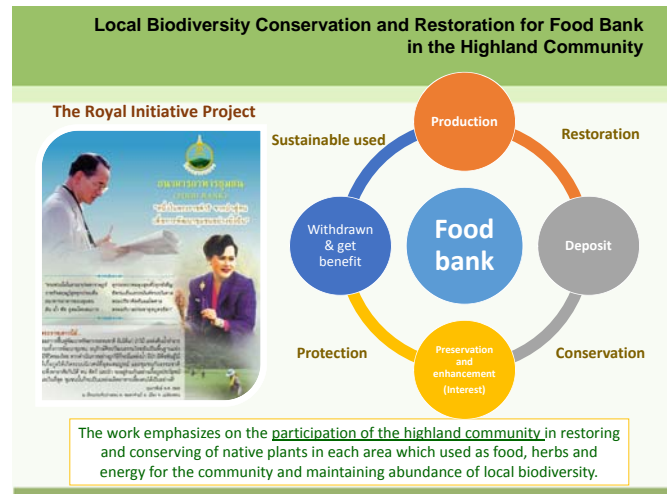


Highland biodiversity situation

- Urbanization (Less rely on natural resources)
- Lack of knowledge transfer from generation
- Lack of social awareness
- Wrong way of resources consumption (Over harvested and non replacement)
- Habitat destruction and exploitation of land use (forest cleared for settlement and agriculture)
- Environmental effects (climate change)

Causes of biodiversity and local wisdom loss in highland

Your company slogan



Project concept

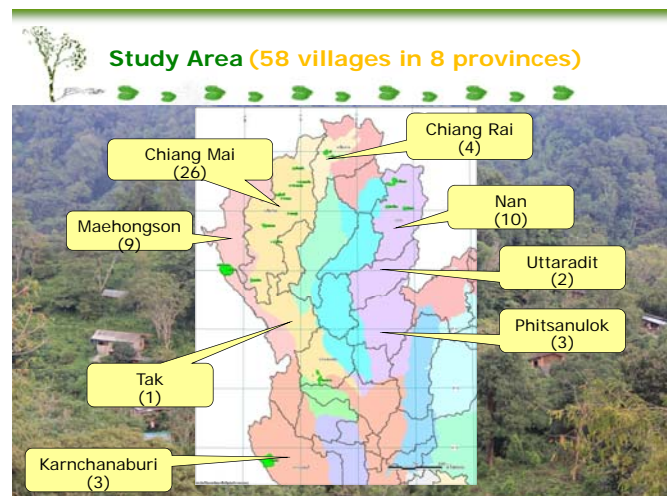
Objectives

- Promoting the Community Food Bank Initiative.
- Emphasis on Restoring and conserving of locally rare plant species to nature as a source of food and medicine for the community.
- Community learning development to achieve the conservation, restoration and sustainable used.

Goals

- Highland community has sufficient food sources and self-reliance.
- Highland biodiversity enrichment for sustainable used.
- The community learning network for conservation and restoration of food bank and biodiversity.

Your company slogan





Methodology

- Survey and inventory to gather data of ethnobotanical knowledge and local wisdom in each community in plant utilization.
- Study on plant propagation and cultivation of rare plant species and potential plants.
- Study an approach to restore community forest and nearby areas to create food, medicine and bio-energy from local plants.
- Develop a community's learning network on conservation and restoration of highland biodiversity between communities.

Participatory Action Research

Survey of traditional knowledge on indigenous plant usages

- Meeting and focus group interview
- Survey of plant diversity in the community forest and nearby areas

Foods
Herbs
Others

Your company slogan

Results

1. Inventory of biodiversity and local knowledge on plant utilisations

Database development: 1,262 species, 60 communities, 8 ethnic groups

Food, 680
Medicine, 669
Others, 482

Focus group interview
Survey
Classification
Database

www.eherb.hrdi.orth

Rare plants 38 species

T. coccinea Wall. *P. polyphylla* *H. heteroclita* *Rynchanthus* sp.

Calamus sp. *S. secunda* *A. pinnata* *M. siamensis*

Your company slogan

Potential plants (35 species)

<i>Z. limonella</i>	<i>C. floribundus</i>	<i>M. oleifera</i>	<i>A. sutepensis</i>
<i>Asplenium</i> sp.	<i>P. kerrii</i>	<i>S. cusia</i>	<i>G. inodorum</i>
<i>A. calamus</i>	<i>S. burkillii</i>	<i>Aspidistra</i> sp.	<i>C. paniculata</i>

Your company slogan

Farmer Gurus (145 guru)

Mr. Inthorn Chairawang	Mr. Moo Khantana	Mr. Srijurn Pintape	Mrs. Sangeay Sriamporn
Mr. Tee Rooppong	Mr. Eai Inkhum	Mr. Tawee Yingsanit	Mrs. Sanglar Chino
Mr. Boonsong Klaharn	Mr. Samak Takham	Mr. Thongbai Kaosuay	Mrs. Peng Klaharn

Your company slogan

2. Plant collection and propagation in local communities: Nurseries

Houy Pao Pang Ma-O Pang Dang Nai

□ 950 species (47 communities)

Doi Pui Wang Pai Wavee

Local seed bank
>150 species

3. Local biodiversity restoration in community forest and household area (41 communities)

Home garden
403 members

Community forest
1,032 rai

Community herbal garden:
Pang Ma-O
Area 2 rai, 115 species

**Raising awareness in plant conservation and restoration
(4,518 people participated)**



4. The community learning network for food bank conservation and restoration

- ❑ Knowledge transfer over the local course of instruction within 11 schools in Nan and Chiang Mai provinces.
- ❑ Traditional knowledge on plant utilization were shared between each community
- ❑ The 69 species of native plant were exchanged between 9 communities



Pa Dad School, Nan



Pa Klauy Pattana School



Pong Kham School

5. Value creation from biodiversity and local knowledge

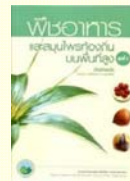
➤ Herbal products

➤ Plant seedling production



Income generation for 59 members : 822,100 Baht

6. Documents and publications



www.eherb.hrdi.or.th

Conclusions

- Plants used by each community represented a wide range of genera and families and most used for household consumption.
- Local biodiversity can be used to provide benefits to the local people, however proper management should be carried out to improve benefit sharing and distribute the opportunity to earn the new income.
- The conservation and restoration of local biodiversity should be managed properly and efficiently so that forest resources can be maintained and used in a sustainable way.
- Participatory process takes time, but it leads to more effective and sustainable results.



Thank you for your kind attention!

Annex 5: Sub-regional ILK networking

Annex 5-1: Preliminary proposal of IGES for the sub-regional networking and facilitation related to ILK

Table 5-1: The summary of preliminary proposal of IGES for the sub-regional networking and facilitation related to ILK

<p>1. <u>Draft criteria for the participating organizations to the network</u></p> <p>The preliminary draft criteria have been prepared to identify target organizations to participate in the network. There are three criteria;</p> <ol style="list-style-type: none">1) To have works/researches experiences on ILK;2) To be expected to continue their work; and3) To have interest in contribution to IPBES or similar assessment processes
<p>2. <u>Expected activities of the network (examples)</u></p> <p>A list of expected activities of the network has been prepared to identify the nature of the network. However, actual activities practiced by the network will be largely affected by the members of the network or hubs. Therefore the list is considered as examples of activities that will help the network members to develop concrete list of activities by themselves. It would be also necessary to consult IPBES experts about their needs for the network in the course of development of the network.</p> <p>The examples of expected activities are</p> <ol style="list-style-type: none">1) To identify ILK Holders/Experts;2) To gather information on documentation relevant to ILK; and3) To interpret ILK into relevant language or context usable to assessment processes.
<p>3. <u>Steps to establish networks</u></p> <p>Following are the tentative steps to establish the networks, hubs or other relevant framework to facilitate and networking ILK community with IPBES community.</p> <ul style="list-style-type: none">• Step 1: Prepare questionnaire to inquire the participants of the sub-regional workshops to identify the needs, suggestions, concerns, questions, related to such networks• Step 2: IGES compiles the result and analyze them, and share the result of the survey the participants during the sub-regional workshops and have discussion as consultation processes• Step 3: Establish a preliminary network by inviting interested participants of respective workshop with revised criteria, activities and procedure that reflects the needs of each sub-region.• Step 4: Prepare application procedures and make a call to have new additions to expand network members.

Annex 5-2: Results of the Questionnaire for sub-regional ILK networking

Table 5-2-1: List of the target regions, countries, and communities **by Organization**

Name of organization	Country	The target Regions	The target countries	The target communities
Organization A	Vietnam	Southeast Asia	Vietnam, Lao PDR (strong network with Thailand, Cambodia, Myanmar and Bhutan)	Upland indigenous ethnic minority communities, Indigenous minority youths
Organization B	China	The northwest of Yunnan province	China	The local Tibetan people
Organization C	Philippines	Asia	The Philippines	Indigenous peoples of the Cordillera
Organization D	Japan	Global	Thailand, Myanmar, Vietnam, Chinese Taipei(Taiwan)	Indigenous or local communities in the target areas
Organization E	Thailand	Highland areas in Thailand	Thailand	1,551 villages in 8 provinces
Organization F	China	Asia-pacific Region	China	Dong ethnic minority communities in Guizhou province
Organization G	Japan	Global	Global with certain emphasis on Asia Pacific	-
Organization H	Thailand	Southeast Asia, China	Thailand, Laos, Vietnam, Myanmar, Cambodia, China	Indigenous communities especially indigenous women in northern Thailand
Organization I	Thailand	South East Asia(Mekong sub-region)	Thailand, Myanmar	Indigenous communities in different sub-regions of Thailand ; Myanmar (through partner organizations)
Organization J	Philippines	The Cordillera region	Philippines	Local communities especially in the Ilocos and Cagayan regions in Northern Luzon

Organization K	Pakistan	South Asia	Pakistan	Village Organizations/CBOs in Gilgit Baltistan
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Table 5-2-2: List of the target activities, issues, fields of the activities relevant to ILK and major languages **by Organization**

Name of organization	The target activities, issues, fields of the activities relevant to ILK	Major languages
Organization A	<ul style="list-style-type: none"> ➤ Defending, securing and documentation of ILK relevant to land rights, community-forest rights, customary practices and uses of land and forests of upland indigenous communities. ➤ Restoration activities through identification of indigenous local seeds and species (high-valued timber, herbs, spices from the forests and local traditional rice varieties) ➤ Establishment of local nurseries of Indigenous Species and extension services to farmers, farming communities. ➤ Educational and practical hands-on trainings through Farmers' Field Schools (FFS) platform. <p>Documentation of species and indigenous knowledge in restoration for degraded land and forest.</p>	<p>Senior staff: English, Vietnamese, and Laotian.</p> <p>Indigenous young staff: Hmong indigenous language (Vietnam and Lao PDR), Kho Mu language (Vietnam and Lao PDR), San Diu and Tay-Thai indigenous languages (Vietnam and Thailand), Hre indigenous language and Sach-Ruc-Ma Lieng indigenous knowledge (Vietnam), Xinh Mun indigenous language (Vietnam).</p>
Organization B	<p>Bio-cultural diversity are maintained and enhanced in Southwest China and MMSEA region.</p> <p>Development options for social justice and public participation in resource management in China</p> <p>Key stakeholders have concepts, strategies, and methods for conservation and development of bio-cultural diversity</p> <p>The capability of indigenous people for livelihood security is strengthened in Yunnan.</p>	Tibetan, Chinese, English
Organization C	<p>Research, publication, inter-generation transfer of Indigenous knowledge, and advocacy for the value of Cordillera indigenous earth wisdom.</p> <p>Indigenous Knowledge is presently being discriminated by modernization such as dams, mines, logging, education system, fundamentalist religions, and urbanization.</p>	English, Pilipino, Ilokano
Organization D	<p>IGES is involved in two ILK-related granting schemes under the International Partnership for Satoyama Initiative (IPSI) Collaborative Activities: GEF-Satoyama Project and Satoyama Development Mechanism (SDM).</p>	<p>IGES researchers: English, Japanese, Thai and Laos</p> <p>(In addition to these, IGES has access to information based on</p>

Name of organization	The target activities, issues, fields of the activities relevant to ILK	Major languages
	<p>1. GEF-Satoyama Project is being implemented since 2015 up until 2018 by a consortium of three entities, i.e. Conservation International, United Nations Institute for the Advanced Study of Sustainability (UNU-IAS) and IGES, aiming to mainstream conservation and sustainable use of biodiversity and ecosystem services, while improving human well-being in priority Socio-Ecological Production Landscapes and Seascapes. The Project is composed of three components, i.e. i) On-the-ground demonstration through sub-granting to ten projects across Africa, Americas and Asia regions; ii) knowledge generation and iii) capacity building workshops and trainings where IGES takes responsibility for component with special focus on the value conceptualization, ILK and governance. Sub-grant project countries in Asia are India, Myanmar and Thailand.</p> <p>2. SDM was established in 2013 by a consortium of three entities: IGES, UNU-IAS and the Ministry of the Environment, Japan, with an aim to promote the implementation of activities under the IPSI Strategy and Plan of Action, which is to develop model practices for living in harmony with nature, as well as to strengthen partnerships between IPSI members through the provision of seed funding to promising project proposals from IPSI members. As of October 2016, 24 projects were selected, including those proposed from Chinese Taipei (Taiwan), Thailand and Viet Nam in North-eastern and South-eastern Asia.</p> <p>The current submission was based on an IGES's independent study building upon the result from and partnership with one of the SDM sub-grant recipients in 2013.</p>	<p>other languages that our partners use in their project sites, including Karen language in northern Thailand.</p>
<p>Organization E</p>	<p>1. Goal Our aim is achieve that Highland people live with a sufficient income along with a better livelihood which is generated from a more environmental friendly agriculture production and a strengthened community.</p> <p>2. Objectives</p> <ul style="list-style-type: none"> ➤ To extend and support the research and development activities of the Royal Project. ➤ To support conservation and sustainable utilization of the biodiversity inherent to the Thai highlands by researching, recording, conserving and developing local knowledge. ➤ To support and work with the Royal Project Foundation and related agencies in strengthening highland communities and environmental education ensuring sustainable co-existence with the environment that is in 	<p>Major Staffs: Thai and English</p> <p>Local staffs: Indigenous languages i.e. Hmong, Karen, Yao, Lisu</p>

Name of organization	The target activities, issues, fields of the activities relevant to ILK	Major languages
	<p>line with the philosophy of a sufficient economy.</p> <ul style="list-style-type: none"> ➤ To investigate, research and disseminate data and information related to highland development and to act as a research and extension coordination center. ➤ To build up cooperative networks, both domestically and internationally, to exchange best practice research and development in the highlands. <p>To establish the Royal Park Rajapruek as a learning center of excellence in horticulture and biodiversity and as a tourist attraction for agriculture and culture.</p>	
Organization F	<ul style="list-style-type: none"> ➤ Focus on developing indigenous culture and application research of biodiversity conservation; exploring the research of adaptability method, approach and management mechanism of biodiversity conservation in ethnic groups. At the same time, protecting and improving the livelihoods, food security, the rural ecological agriculture environment and quality of life of indigenous peoples and local communities. ➤ Focus on the activities of land degradation and restoration, sustainable use and conservation in China. For instance, Dong people have created the "Rice-Fish-Duck Symbiotic System" for thousands of years in Conjiang County, China. The system contributing to improve grain and food production levels under limited resources conditions without chemical fertilizers and pesticides. ➤ Focus on the activities of traditional varieties and seeds saving, public participation, public awareness and the contributions of women. 	Researcher and local experts: English, Chinese, Dong language, Miao language, Tujia language.
Organization G	The relationship between Traditional Knowledge ILK and their relationship to biodiversity and ecosystem services are one of the key areas that we are interested in.	English and Japanese
Organization H	<ul style="list-style-type: none"> ➤ Research, documentation, publication, reviving, promotion and transmission of indigenous women's traditional knowledge e.g. handicrafts, herbal plants/medicinal plants, native edible plants, plants for natural dyed etc. ➤ Preservation and promotion of native plants and seeds including seed banks 	Thai, English, and 13 indigenous dialects e.g. Karen, Hmong, Mien, Akha, Lisu, Lahu etc.
Organization I	Development of database for the most vulnerable indigenous people in Thailand. These include Mani, U-rak-ra-woy, Mokan, Moklan, Chong, Yatkru, Saek, Bisu, Umpi/Kaw and Mrabli. Information collected covers 1) community and its history; 2) land, water and livelihoods; 3)	Thai and English Indigenous languages: Karen, Mien, Lisu and Khmer,

Name of organization	The target activities, issues, fields of the activities relevant to ILK	Major languages
	customary law and institution in natural resource management; 4) traditional knowledge, spiritual and cultural practices; 5) participation in local governance.	
Organization J	Research on ILKS, social change, environmental and biodiversity issues, and advocacy work to strengthen Indigenous Peoples' Organizations (IPOs), and local communities and organizations (through extension work).	Kankana-ey, Ibaloy, Ifugao, Kalinga, Tingguian, Ilocano, Pangasinense among others.
Organization K	<ul style="list-style-type: none"> ➤ Promoting community-based conservation and sustainable use of natural resources, especially wildlife; ➤ Sustainable use high pastures in mountain regions Preservation and marketing of Non-Timber Forest Products.	English Urdu

Table 5-2-3: List of view on the needs for possible functions of the sub-regional network **by Aspects**

Aspect	View on the needs for possible functions of the sub-regional network
Exchange/ Transmission	<ul style="list-style-type: none"> - To develop a mechanism to exchange experiences between ILK holders and experts. (1) - The network encourages ILK holders/experts to find ways to ensure that knowledge is transmitted systematically. (1)
Contribution	<ul style="list-style-type: none"> -To make visible contributions to Biodiversity and Ecosystem Services work by ILK holders and experts, and to support their work. (1) -ILK and Biodiversity in the context of Climate Change is very important to the indigenous and local people whom live in the Southeast and Northeast Asia Sub-region. (1)
Academic/ Research/ Documentation	Involvement of more academics in the IPBES process. (1)

Table 5-2-4: List of challenges, concerns, and suggestions for possible functions of the sub-regional network **by Aspects**

Aspects	Challenges, concerns, and suggestions for possible functions of the sub-regional network
Policy/ Institutional system/ Facilities	<ul style="list-style-type: none"> -How to ensure effective participation for all participants. (e.g. young -local people, local experts, etc.). (1) -Structures and functions of the network are not clear. (1) -The network will be able to work in China, because many websites (e.g. Dropbox, Google, Facebook) are blocked in China. (1)
Limited recognition/ Corrosion	<ul style="list-style-type: none"> -Language barriers and mobilisation of resources to sustain the work of sub-regional network. (1) - Continues corrosion of ILK related to Biodiversity and Ecosystem Services. (1) -Limited recognition of ILK holders/experts. (1)
Research/ Documentation/	<ul style="list-style-type: none"> -Proper documentation and dissemination of ILK. (1) -Mainstreaming ILK and customary laws into sustainable management of

Aspects	Challenges, concerns, and suggestions for possible functions of the sub-regional network
Dissemination	Biodiversity and Ecosystem Services. (1)
Gap/ Differences	-Differences in languages and culture. (1) -ILK knowledge gaps. (1)

Table 5-2-5: List of suggestions for possible functions of the sub-regional network **by Aspects**

Aspect	Suggestions for possible functions of the sub-regional network
Research/ Documentation	-Widespread dissemination of IPBES among Indigenous and Local Communities (ILCs). (1) -Documentation and dissemination of ILK in local languages. (1) -It is expected that the network secretariat develops and provides the protocol for ILK documentation and the network members can effectively document and deliver ILK-based information included the contact information of ILK holders and experts in the sub-region to future IPBES deliverables. (1) -To describe and highlight the uniqueness of Asia Pacific Region in the regional report. (1)
Share/ Exchanges	-To share information and knowledge as an information platform (e.g. past ILK-related knowledge, outputs, experiences, materials, resources, etc.). (4 organisations) -To exchange the ILK and Biodiversity conservation between the indigenous people and local communities among the Sub-region. (1)
Facilitation	-Identification and filling in of ILK gaps. (1) -To facilitate the exchange of ideas and experiences on ILK-related activities among partner organisations and to provide inputs to the IPBES assessment reports on regional and global levels. (1)
Dissemination	-To provide opportunities for indigenous people or local communities to participate in the network. (1) -Promoting complementarity of ILK and technical knowledge on Biodiversity and Ecosystem Services. (1)
Others (Funding/Policy /Training)	-To provide the opportunity of funding for the research and training of capacity building. (1) -Policy driving. (1) -To organise training or workshop for ILK holders/experts. (1)

Table 5-2-6: List of view on the needs, challenges, concerns, suggestions for possible functions of the sub-regional network **by Organization**

Name of organization	View on the needs, challenges, concerns, suggestions for possible functions of the sub-regional network
Organization A	Network: necessary Form and format: not sure Challenge: languages differences and cultural differences It is most important how we work to address some concerns practically from Indigenous Peoples and communities on the ground level.
Organization B	ILK and Biodiversity in the context of Climate Change is very important to the indigenous and local people whom live in the Southeast and Northeast Asia Sub-region. I wish the sub-regional network can provide the opportunity of funding for the research and training of capacity building. And also the opportunity of exchange about ILK and Biodiversity conservation between the indigenous and local communities among the Sub-region.

Name of organization	View on the needs, challenges, concerns, suggestions for possible functions of the sub-regional network
Organization C	There is a need for a mechanism that shall network ILK holders and expert, and for them to exchange experiences. There is also a need to make visible their contribution to BES work. And to support the work that they are doing.
Organization D	The network secretariat develops and provides the protocol for ILK documentation in the area, and with this the network members can effectively document and deliver ILK-based information to future IPBES deliverables. This could include the contact information of ILK holders and experts in the sub-region, as well as few headlines of their past ILK-related knowledge products in English language. Through such an arrangement, we can effectively share our knowledge and outputs through the network.
Organization E	<ol style="list-style-type: none"> 1. Organize training or workshop about for ILK holders/experts. 2. Policy driving. 3. Giving an opportunity of indigenous people or local community to participation.
Organization F	<p>View: Sub-regional network would be a good information platform. I hope the network will be able to work in China, because many websites are blocked in China. For example, we didn't succeed to reach many web pages, like "dropbox", "google", "facebook" etc.</p> <p>Challenge: How to ensure effective participation for all participants. How do we get this network make everything easier as more people could get involved, like young local people, local experts.</p>
Organization G	To describe and highlight the uniqueness of Asia Pacific Region in the regional report.
Organization H	It is necessary to have a network of people working on indigenous and local knowledge as this will encourage/show knowledge holders/experts to maintain, as well as find way to help knowledge holder in transmission of these knowledge systematically. However, we have no idea on how this network would structure and function.
Organization I	<p>Forming the sub-regional network on ILK is a good idea. The possible functions would be to facilitate exchange of ideas and experiences on ILK related activities among partner organizations and to provide inputs to the IPBES assessment reports and other relevant bodies at regional and global levels.</p> <p>The main challenges would be language barriers and mobilization of resources to sustain the work of sub-regional network.</p>
Organization J	<ol style="list-style-type: none"> 1. Widespread dissemination of IPBES among Indigenous and Local Communities (ILCs); 2. Involvement of more academics in the IPBES process; 3. Active exchange of experiences, materials and resources
Organization K	<p>Challenges:</p> <ol style="list-style-type: none"> 1. Proper documentation and dissemination of ILK; 2. Mainstreaming ILK and customary laws into sustainable management of BES. 3. ILK knowledge gaps <p>Concerns:</p> <ol style="list-style-type: none"> 1. Continues corrosion of ILK related to BES; 2. Limited recognition of ILK holders/experts. <p>Functions:</p>

Name of organization	View on the needs, challenges, concerns, suggestions for possible functions of the sub-regional network
	<ol style="list-style-type: none"> 1. Identification and filling in of ILK gaps 2. Sharing information and knowledge 3. Documentation and dissemination of ILK in local languages 4. Promoting complementarity of ILK and technical knowledge on BES.

Table 5-2-7: List of contributions from organizations to the network **by Aspects**

Aspects	Contributions from your organization to the network
Research/ Documentation	<ul style="list-style-type: none"> -To provide case studies of ILK and Biodiversity conservation. (6) -To identify the champions of ILK holders. (1) -To conduct Joint Research cooperation. (3) To develop documents (research reports and papers, policy brief and peer reviewed papers) and publication on ILK. (3)
Facilitation/ Connection/ Sharing	<ul style="list-style-type: none"> -To facilitate the discussion and exchange of information among involved organizations and networks through face-to-face meetings and through online platform. (1) -To connect the network with knowledge holders in the communities. (1) -To share the information (e.g. ILK, experiences of community-based research on ILK and Biodiversity conservation, common Indigenous Knowledge related to Biodiversity and Ecosystem Services, project data, ILK holders and experts, past outputs of ILK holders and experts to partners, etc.) (6)
Training/ Capacity Building	<ul style="list-style-type: none"> -To conduct trainings (sensitive action research and documentation methodologies on Indigenous peoples).(1) -To provide the human resources (young indigenous human resources). (2)

Table 5-2-8: List of contributions from organizations to the network **by Organization**

Name of organization	Contributions from your organization to the network
Organization A	To provide case studies, young indigenous human resources and certain inputs/comments/insights from our practical experiences to the network.
Organization B	<ol style="list-style-type: none"> 1. Case study of ILK and Biodiversity conservation; 2. Sharing experience of community-based research on ILK and Biodiversity conservation; 3. Joint Research cooperation in the Southeast and Northeast Asia Sub-region. Research paper on ILK and Biodiversity conservation.
Organization C	Sharing of common Indigenous Knowledge related to BES. Training in Indigenous peoples sensitive action research and documentation methodologies.
Organization D	<ol style="list-style-type: none"> 1. Research reports, policy brief and peer reviewed papers 2. Openly accessible project data 3. Introduction of ILK holders and experts in our partners and their past outputs, upon their prior consent.
Organization E	To provide case studies and further operation areas Cooperation research project in the future.

Name of organization	Contributions from your organization to the network
Organization F	To share case studies and experiences to the network. To help spread the word about the content on this website.
Organization G	We have rich experience in ecosystem service evaluation. In addition, Tohoku is affected by nature disaster in 2011 and have demonstrated resilience after the event.
Organization H	To provide inputs and connect the network with knowledge holders in the communities.
Organization I	IPF can help facilitate the discussion and exchange of information among involved organizations and networks through face-to-face meetings and through online platform. Addition, IPF can also provide a case study on different topics under IPBES assessment framework.
Organization J	Researches, documentation and publications on ILKS, and expanding network of academics and Indigenous Peoples' Organizations (IPOs) who may be involved in the IPBES process.
Organization K	1. Sharing information and case studies on ILK; 2. Identification of champions of ILK holders

Table 5-2-9: List of ideas and suggestions to secure the sustainability of the network, challenges or constraints from participants **by Aspects**

Aspects	Ideas and suggestions to secure the sustainability of the network. Challenges or constraints for it
Financial /Human Resources	-Secure the human resources (young indigenous people from the joint organisations, local policy, researchers, relevant experts, focal person from joint organisations, coordinator, indigenous and local knowledge holders etc.)(5) -Financial and material supports. (4)
Research/ Documentation/ Publication	-Establishment of the research team based on different subject. (e.g. ILK, Biodiversity and climate change) (1) -Identification and willingness of a host organisation. (1) -Publication of books, bulletins. (2) -Joint Research cooperation. (e.g. ILK, biodiversity conservation, sustainable use of natural capital, others related aspects, etc.) (3)
System/ Mechanism	-Development of mechanism to enable ILK holders and experts to interact. (1) -Development of an e-mail group. (1) -Development of defence and voice-up through the network. (1) -The network annual meeting. (2)
Collaboration/ Exchange/ Facilitation	-Collaboration with existing networks. (1) -Knowledge exchange between ILK holders and researchers and successful management via International platform. (1)

Table 5-2-10: List of ideas and suggestions to secure the sustainability of the network, challenges or constraints from participants **by Organization**

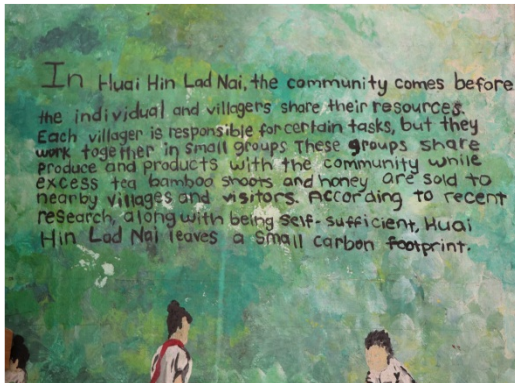
Name of organization	Ideas and suggestions to secure the sustainability of the network. Challenges or constraints for it
Organization A	I think we can try the best and persistent helps of Indigenous Peoples, communities. We can defend and voice-up through the network.

Name of organization	Ideas and suggestions to secure the sustainability of the network. Challenges or constraints for it
	It would be good to allow young indigenous people who is our staff to be a part of the network.
Organization B	<ol style="list-style-type: none"> 1. Establish the research team based on different subject, for example: ILK, Biodiversity and climate change; 2. Joint Research cooperation and publish the book; 3. A network annual meeting is necessary; 4. An email group is necessary.
Organization C	For the network to be sustainable, there must be a mechanism developed to enable ILK holders and experts to interact. To do this there should be financial and material supported for such work.
Organization D	Engage local policy, researchers, relevant expertise in the network.
Organization E	<ol style="list-style-type: none"> 1. Joint research cooperation about ILK and biodiversity conservation and sustainable used and also others related aspects. 2. Giving opportunity of ILK holders and researcher to exchange their knowledges and fruitful management via International platform. 3. Network annual meeting.
Organization F	<ol style="list-style-type: none"> 1. The opportunities of joint research cooperation on ILK issue in Asia-Pacific region. 2. A bulletin is necessary for the network. It will carry out trace and report of the work progress. 3. Network meetings.
Organization G	Financial mechanism is critical. Collaboration with existing networks are also important. I am co-chair of forest traditional network together with Korea (Seoul National University) and China.
Organization H	The best way to sustain this network is to get the involvement and engagement of indigenous and local knowledge holders.
Organization I	There should be a focal person selected per organization to directly deal with the ILK issues with a clear tasks and responsibilities, and actively engage in the work of the network. This may require additional financial support.
Organization J	There is a core of people coordinating work in the network; it regularly meets to provide guidance and direction to the work especially in ensuring that ILK holders and ILCs in our sub-region are involved in the IPBES process.
Organization K	<ol style="list-style-type: none"> 1. Identification and willingness of a host organization; 2. Mobilization of funding to facilitate functioning/operationalizing the Network.

Annex 6: Village visit (17 October)

1. Destination:

Hin Lad Nai village, Chiang Rai Province



2. Schedule:

17 October 2016

Departure from hotel:	7:30
Arrival in destination:	9:30
Excursion programme:	9:30
Departure from destination:	15:30
Arrival in hotel:	17:30

3. Summary

3.1 Greetings and introduction

Upon arrival at the destination, the workshop participants received warm welcome from the villagers. The participants and villagers introduced themselves to each other...



The participants from Hin Lad Nai village included the village headman, a senior person in the village committee, a spiritual leader, and youth leaders.

Then Mr. Sakurai gave an overview of the sub-regional workshop and explained the purpose of the visit to the village.



Village men leaders and villagers



Village women leaders and villagers

3.2 History of the village

(Story told by the senior village committee member and the village headman)

The first generation settled down in this area around 200 years ago (later Mr. Shimray corrected the year indicating that the year was 1966), and the current villagers are in the third generation. The original settlers migrated from one of Karen areas in Chiang Mai province. At that time the area was fully covered by forest, but most of the trees were cut when a logging concession came into the village, leaving, only 10% of the original vegetation. While a logging concession requires measures for reforestation after logging, the logging enterprise never came back to the area for that purpose. A number of wildlife species were lost after the forest has disappeared.

Then, villagers self-organised to take measures to recover the forest in accordance with what they have been traditionally practicing, mainly focusing on forest fire control – they created firebreaks and conducted forest fire surveillances.

3.3 ILK and natural resource management

(Told by the senior village committee member and the village headman)

The knowledge of Karen people relating to natural resource management and use is centred on rotational farming and agroforestry. Rotational farming supplies 60 kinds of edible crops. From agroforestry areas, they harvest bamboo shoots, fruits, tea, and bee honey, among others. The production of agroforestry products that exceed villagers' own consumption are traded for cash. After the sales, villagers contribute a certain amount of cash in accordance with the proportion specified for the type of product into the community fund.

The use of the community fund includes the budget for forest fire surveillance, where both elders and youths participate so that the exchange of skills and knowledge is promoted. Youth are really helpful in taking note of findings in the field. Nowadays villagers use smart phones (Instagram and Kechagram (tbc)) to coordinate with two neighbouring villages.



Bee keeping in the village forest



Paddy field in the village

3.4 Q&A

Q: On the legal status of the area:

The village area is classified as state reserved forest. National Park Law was promulgated 55 years ago, when the government proposed to classify the area including the village into a national park. Villagers however resisted this proposal, and after a series of negotiations, the proposal for national park in this area was withdrawn.

National Forest Law was promulgated after the National Park Law, under which the area including the village was classified as a National Forest Reserve.

Rotational farming is basically not allowed. Government fines on forest fire incidents range from 1 to 3 million Baht.

Q: On religion:

Villagers believe in a combination of three types of religion: Buddhism, animism (natural spirits) and ancestors (linked to household ritual ceremony)

Q: On rules on natural resource management and their enforcement:

In the first generation, they did not have written rules. Rules were transmitted through oral communications or through songs.

Enforcement of rules takes the form of social punishment, for example, those who violate village rules are not taken care of even when one is sick, or are prohibited to use community funds.

Q: On rituals:

Villagers have a common understanding that something wrong will happen to the community if they do not practice their rituals. In the past, the village experienced a serious crisis after they stopped sacrificing pigs for rituals – some villagers become sick and died and chickens suffered from unknown diseases. So now, villagers continue to pray to the good spirits for protection from bad spirits.

Q: About the future:

From the village women leaders: They are worried that the younger generation will not come back to the village after their schooling in the cities. The knowledge learned from government schools is hardly applicable to the life in the village.

From the male youth leader: He has the same concern as already expressed by the village women leaders, but he is more optimistic about the future of the village.

From the Spiritual leader: He is concerned that the younger generation will stop performing rituals in the future.

Q: On education:

The village has one primary school up to grade 5, where teachers from a nearby city come and implement the formal government curriculum. Youth members provide complementary teaching on traditional knowledge outside the formal curriculum. Children have no choice but to go to the school in the district centre for education higher than grade 6.

Q: On food supply:

They are basically self-sufficient – 90% of their food is sourced from the villagers' own production. Aside from subsistence production, villagers grow cash crops such as tea, bamboo shoots and *mako* fruit.

Q: On rules for land allocation:

New couples are allowed to open areas not used by others. The area is identified through community consensus and rituals.



Group photo at the foot of the sacred tree in the village forest.



The market place of the village where they sell locally produced coffee and honey, among others