Brief minutes of the workshop on Rotational Farming, Biodiversity and Climate Change

1. Introduction

The workshop on Rotational Farming, Biodiversity and Climate Change was organized on 28 June 2010 at Chiang Mai University with the collaboration with the Asian Indigenous Peoples Pact, Center of Ethnic Study and Development, the Sub-Committee of Karen Life Revival, Lawyer Council, IMPECT Association, Northern Development Foundation, and Karen Network for Culture and Environment. There were 96 participants (male 59, female 37) came from government representative (University, Forestry official, Environment Policy Development Office, and military), academy, NGOs, indigenous leaders, students and medias.

The objectives of the this workshop is to 1) share and discuss on rotational farming and its benefit to the biodiversity, plants, food security, and the sustainable use, 2) discuss on the role and contribution of the rotational farming to the climate change and adaptation, 3) develop the cooperation with the government office, and 4) promote the recognition of rights to culture and territories.

1.1 Opening by Jorni Odochao, the Karen Philosophy. He mentioned about the legend of Karen people. Karen people respect to "Khoo Hi Kha" the Mother goddess of grain. Before using the land we have to ask for permission. In a legend told that there is a orphan boy want to plant rice and he has to ask permission from the king, the king allow him but he has to plant on the stone. Then the orphan boy stole soil from the king's land and put in the stone, so he can plant rice and got nine clusters of rice. He shares the products to his neighbors. Then the king allows him to plant in the land and rotate in nine plots. We would see that to negotiate with the king is not different to the currently situation. Currently, the rotational farmers argue and try to negotiate with the forestry officer. We accept the modernize but not forget to see the past.

To do "Kue" (rotational farming), always together with ceremony and ritual since the beginning to harvesting. Today we will invite Mr. Precha Siri to do small ritual and forecast to see what will happen in the future.

Mr.Precha Siri, the leader of Ban Hin Lad Nai use chicken bone to do the ritual, after finish pray he said the issue of rotational farming still more talking and negotiation.

1.2 Welcome speech by Dr.Chayan Wannaphuti, director of Centre for Ethnic Study and Development. I would like to welcome all of you to this workshop. The Ethnic Research Center

was established in 1963 under the Public of Social Welfare. In that time, the rotational farming was called slash and burn. Then Mr.Sanga has done a research on Farmers in the Forest to clarify the highland agriculture. Then the public understand more about the rotational farming. In 1990, the issue of rotational farming was raised and more discussed among the academy and researcher. In 1997, the Constitution of Thailand included the human rights. The rotational farmers, academy, and NGOs tried to push this into the policy level but it is not yet recognized. Currently, the issue of climate change which is the hot issue also relate to the rotational farming. So how shall we response that the rotational farming is contribution to the mitigation of climate change.

2. Presentation of Research finding

2.1 Rotational farming, the Situation and Changes

2.2 Pga k'nyau Knowledge on Rotational farming in the Northern of Thailand

2.3 Rotational farming, sustainable system and contribution to the climate change

2.1 Research report on Rotational farming, the Situation and Changes, by Dr.Pinkeaw Luangaramsri

During 2002-2004, there was a lot of serious conflict on the land issue in the northern of Thailand. This research aims to see the reason of this conflict. With the cooperation of the Faculty of Social Science, Faculty of Forestry Science, Chiang Mai University, and the Ethnic Research Institute conducted this research with the objective of finding the policy to resolve the conflict. The research covered 11 communities in Mae Hong Son, Chiang Mai, and Chiang Rai, the communities can at present be divided into 3 types as follows;

(1) Communities that have been able to adjust sustainability,

(2) Rotational farming communities that have adjusted through alternative methods of farming and income generation,

(3) Rotational farming communities that have adjusted by complete elimination of traditional farming methods owing to heavy pressure from state policy to cease rotational farming.

Looking at the adjustments made by the three types of communities, the communities in Type 1 have been able to maintain their self-reliance, both in terms of food security. Because rotational

farming is still a very abundant source of food, having a high diversity of rice, vegetables and fruit varieties, and also in terms of the maintenance of a favorable state of the local environment. However, type 2 and 3 communities are beginning show problems in this area. Especially type 3 communities, where it is quite clear that the diversity of food and plant varieties is declining. Many plan varieties cannot grow on land which has been fallowed for less than three years. However, growing conditions such as these have been lost in the adjustment of the farming method, causing some of these plants to disappear. At the same time, because of repeated use of the land and intensive use of chemical fertilizers and pesticides. This situation has lead the type 2 and 3 communities to make efforts to seek out alternative for the survival of their communities.

To answer the claim of government that as the population rises, the land area under rotational faming will also rise. We found that the villagers use 1.82 % of their land to do rotational farming in each year, 0.87 Rai per person which is very small land. The counterclaim of the villagers is that even if the population increased greatly, but the land areas used for rotational farming have been reduced. This is because the villagers adjust the style of management of the rotational farming fields by reducing the size of the fields per household. Besides this, it is now possible for villagers to engage in a variety of other trades. Many communities have cleared new wet rice fields along streams and brooks, this form of farming receives the least impact from state policies. Some of them supplement income through production from mixed agriculture or local tourist.

The Forestry Science studied about the erosion of topsoil and found that in the type 1 communities, the erosion of topsoil is very less (less than 0.1 hectare per year). The villagers said they have never seen the phenomena of topsoil erosion or land subsidence in rotational farming lands, but that these phenomena do occur in virgin forest areas. For the type 2 and 3 communities, there is more soil erosion.

For the ownership of land, it is communal rights not individual. By tradition, the lands in general are not considered to be owned by humans. Anyone is able to use those lands provided they follow the traditional regulations of the community. When the time comes to choose the area to create to plant the swiddens, the member of each household will come to meet the traditional leader and discuss and do ritual to ask permission from the Supreme Being. The communities create traditional regulation to use, manage, and conserve the land based communal rights. This

means all people can access to the resources. However, the pressure of government policy impacts to communal rights, people need more individual rights to the land.

Recommendations: The government has to allow the rotation of land up to 5-7 years. The government should review the existing laws and policies that contradict to the article 37, 66, 67, 78, and 82 of the 2007 Constitution of Thailand. The processes of the formulation of laws and policies that may have adverse impacts on IPs should involve participation of IPs at all stages and should agree that the rotational farming is one form of highland agriculture that friendly to the natural resources and sustainable.

Mr.Phruek Odochao: Currently there is a case of land trespass in my community, the case was sent to the civil law and was charged with damaging 59 rai of land at a cost of several million Baht. The government is working with lack of understanding the traditional knowledge. We found that the communities that not practice rotational farming are open more new lands for cash crop which using a lot of chemical fertilizer and pesticide, and this increase debt for the villagers. The communal rights are changed to be individual which reduce the relationship of communities members and people have less awareness to conserve the forest.

2.2 Case study on Pga k'nyau Knowledge of rotational farming in the Northern of Thailand, by Mr.Thaworn Kampolkul

This case study is only part of a process of reaffirmation of indigenous cultures on their way to self-reflection and self-determination of their livelihoods. We mainly focus on rotational farming practiced by Karen people from the northern of Thailand as a counter discourse created by Karen people to defend this farming system as a way of life. We studied in the 3 Karen villages located in three provinces that would share similar characteristics and as the same time would represent a variety of ways of knowing, cultures and lifestyles of rotational farming. The three communities still practice rotational farming strongly when they are under pressure of the government forest management policy.

Knowledge on the fallow land: After cultivation in the plot, the land is then abandoned to return to its prior condition. These fallow areas, which are left to regenerate for differing lengths of time, from 6-10 years, show a variation according to the length period of fallowing and high degree biodiversity. It can be observed in the early stages of fallowing that the plants which reappear first are mostly grasses and herbaceous species and so on. Later, trees with longer life

spans appear and it is found that there are more saplings than previously. Especially, large numbers of new springs and shoots appear from the stumps of trees that were felled during the clearing of the plot, some of the tree trunks having as many as 15-20 new shoots. As well as the biodiversity of plants, diversity of wildlife is also enhanced.

Knowledge on using equipments which help to conserve the soil structure: Conserving and improving of soil quality is important. Farming using the method of swidden cultivation has very little negative effect on the topsoil and is therefore in and of itself a type of soil conservation. When planting upland rice, small holes are made with a stake and the seeds placed inside the holes. When it rains, the topsoil washes down to cover the seeds. In additional, the fallow period protects the topsoil in a sustainable manner. If the soil is very poor, some farmers will gather tree and bush branches and make a pile on the field, which they then burn to ashes to nourish the soil.

Knowledge on selection of plot for rotational farming: The Karen also make many distinctions on types of forest according to belief. There are some forests that a community has declared as taboo and cannot be used to perform any activities that will intentionally disturb the ecology. The *Pga ta deu* forest include *day meu der* (a kind of frog), characterized by the presence of water or a marshy area surrounding a small hill or mound, the top of the hills has a ridge resembling the shell of a turtle or an island, the area cannot be cleared nor can the water be used. *Ta de do* (long narrow ridge forest) is characterized by a forest atop a wide ridge. Such areas are used as trails by animals and by humans and if anyone builds a house or a shelter or performs any activity here, it will obstruct the path and greatly offend the spirits so much that the violator might die as a result. *Pga thi per thaw* (water coming out of a hole) is characterized by having springs that are the source of streams that flow all year.

2.3 Research on Rotational farming, sustainable system and contribution to the climate change: by Ms.Chonthira, research team from the Northern Development Foundation (NDF)

The objectives of this research are 1) to study the form and potential of the agro-forestry system and natural resource management in the highland that contribution to the food security and sustainable livelihood of the villagers who live in the forest, 2) to study the ability to absorb gas emission in the area which are increase the carbon from the agriculture activities which include rotational farming, paddy field, and orchard, 3) to compare the using of natural resources between the Thai and American social, and 4) to recommend to the policy to promote the ago-

forestry and natural resource management of indigenous community that contribution to the food security and mitigation of climate change.

From the research we found that the livelihood and agricultural system of the highland people is not cause of climate change. In the opposite, it helps to maintain the balance of ecosystems and contribute to the mitigation of climate change. These can explain as following;

1) The agricultural production activities of the highland community cause of release of carbon in low rate. The rate of carbon loss is 476 tons in the rice field, 68 tons from the corn field. Gas methane from paddy field is 0.8 tons which increase the nitrous oxide from fertilizer urea 0.1 ton, while the carbon storage potential of the community up to 720,627 tons. This means that if we compare with the potential to store carbon, the carbon emission of community is 0.08% only.

2) The consumption of the community is very less, and to use the resources the villagers will partridge in conjunction with management for the sustainability of resources in a variety of dimensions, such as the beliefs, rituals wisdom and regulatory agreement for using of natural resources. So the ways of production and livelihoods of communities in the upland, the ecological footprint are smaller. The community resources are used and consumed less than the amount of resources available.

3) The community prefers local food than bought from outside. Most of the vegetable take from the rotational farming field which is kind of vegetable foods and genetic diversity.

Recommendations

The data and findings of this study reflect that the highland community and living in the forest have the potential and capabilities to manage agricultural and forest resources, including the use of existing resources in the community to meet the consumers and economy of the community. So in order to ensure the communal rights especially the communities those have a proven ability and acceptance to access and manage the natural resources as mentioned in the Constitution of Thailand. And to develop alternatives to resolve conflicts between government and community as well as a participation of civil society and community organizations to play their role in alleviating the problem and impact of global climate change which tend to be more intense, the researcher has suggestions as follows;

1) In order to build confidence and create an environment of collaboration between government and community organizations in the highland community, should review the guidelines and measures to end the threat of state and deprive the rights of communities such as the declaration of national park, the prosecution arrested a member of the community live in the forest. And activities of the state that impact the life of local communities who live and cultivate in the forest area should open to participation from the community and the decision of transparency and fairness.

2) The government organization and relevant agencies should recognize and support the role of the community on areas of high potential for exploitation and sustainable management of natural resources. Under the production model that corresponds to ecosystems and local wisdom by guarantee the rights to live and cultivate. This is to reduce conflict and confrontation between officials and community forestry. It also creates incentives of the highland community to aware on the model of production which risk on the food security and destruction of resources such as cash crop.

3) To identify clear guideline for policy to promote the highland community to do rotational farming including mange their forest which could expand the practice to the wider communities to created stability and reduce poverty impact of climate change?

4) In order to resolve the long term should improve forest law or secondary legislation to guarantee rights community as a concrete constitutional law community. Corporate network or the community that sustainable use and manage natural resources with the participatory of community in all processes.

General discussion: Rotational farming challenge to the sustainable management and climate change

Dr.Samsak Sukkhawong: The rotational farming issue is the learning process and adjustment of the people living in the tropical forest. Rotational farming is a kind of clean development technology to reduce the global warming. The tropical forest has high potential to absorb carbon. We think that the quality of soil in this area is plenty but from my experience, the rain falls infrequently which cause of topsoil erosion and reduce the nutrients in the soil. Example, the repeating of planting the same specie in the area for several years, it reduce the nutrients

(Kg./hectare) in 30 cm. of soil depth and nutrient concentration in dry weight (Nye and Greenland 1960) (Sabhasri 1978) (Paul Zinke 1978).

It can conclude that the major nutrients (calcium, phosphorus and potassium) return to the soil again in the form of ash from the practice of rotational farming. This means that the practitioners of rotational farming collected knowledge and apply for long time. The summarizing of these characteristics of tropical agriculture needs a system of nutrient cycling.

Dr.Anon Sanitwong N. Ayuthaya: When a human accelerating, it increase the various environmental changing. The question of rotational farming is impact to the climate change or not, we need to see the existing carbon dioxide emission. We think about the process of carbon dioxide has a cumulative surrounding area. The result burning more (greater frequency resulted in the accumulation of substances more dust and vapor into the atmosphere when it caught up with the cloud, some may affect the amount of rain clouds that can be less in the absence of chemicals in agriculture. It is a natural flow of nutrients as it the agricultural use of chemicals can cause a chemical oxide is even more away. The case of smog (especially in Chiang Mai) is to include land use management and direction of weather conditions, based on the cause of the smoke; 50% from the fallow field, 20% from the permanent agriculture, and remaining percentage from the waste burning, and collecting of forest products. So that the future direction of developing project have to adjust the direction consistent with the needs and consent of those areas. To change the policy it is necessary to increase understanding both internal and external people to reduce their feelings. Beside, to develop the policy or law may be combined both modern and traditional knowledge.

Recommendations:

(1) The practice of rotational farming is not the main cause of increase the global warming.

(2) Using the simple term for more easily to understand that the rotational farming is a kind of clean development technology.

(3) Increase the sense of places to the people.

Summarizing of the group brain storming

Outcomes:

1) Definition of the rotational farming, we mainly focus on the traditional way of agriculture which is not expanding to the new area or forest.
2) Knowledge
    2.1) Rotational farming is friendly with ecosystem and environment
        2.1.1) Increase biodiversity
        2.1.2) Conserve forest area
        2.1.3) Create futility to the land and increase the products.
    2.2) Rotational farming is culture, life, and community
        2.2.1) create resources, especially the four factors.
        2.2.2) co-management by the whole community.
        2.2.3) self-sufficiency
    2.3) Rotational farming system respect to the nature and create the balance to the nature.
3) Problem of rotational farming comes from
    3.1) Less of understanding to the process and benefit, it is necessary to see the field.
    3.2) Corruption within the government.
    3.3) Less of information.

4) Suggestion

4.1) The studying, developing of document, and tools for communication especially in the school should be revised.

4.2) Rotational farming is the right of community to manage their own area based on the Thai constitution 2007.

4.3) Prove the rights to live and use that land

4.3.1) Participatory of the community in all processes, need to create a working group or committee to follow up.

4.3.2) Stop arresting all cases related to the rotational farming.

4.3.3) Study more and find the appropriate compensate cost.

4.3.4) Recognize the cultural rights and allow indigenous peoples to continue practice rotational farming.