RUPES in Thailand: A case study of Doi Inthanon National Park

Rewarding Mountain Communities for Maintaining Environmental Services of Inthanon Mountain:

Transformation of villages in a park into eco-tourism communities

By

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Introduction and background

This is a report on findings of a study conducted in northern Thailand in association with the "Rewarding Upland Poor for Environmental Services that they provide" (RUPES) Program. RUPES is a long-term research program that seeks to integrate rewards for environmental services into development programs in order to help alleviate rural poverty and protect the natural environment. Its focus is on practical environmental services schemes that can be adapted to work in different countries with different circumstances and provide important benefits to downstream and larger national to global societies. Yet its sites have included relatively few examples where biodiversity is the main environmental service, and this is the first study site located in Thailand.

Accordingly, this study has collaborated with local communities and staff of an important national park in northern Thailand to explore mechanisms that might reward local communities for helping to provide stewardship for natural resources that have become part of the Kingdom's protected forest system. Initial explorations focused on potential for application of a PES[1]-orientation to an existing mechanism providing funds to elected local sub-district governments near national parks based on a percentage of revenues collected by the park from visitors. After it became clear that political and bureaucratic issues would preclude application of PES-like principles once funds have entered the government domain, the study shifted to a broader exploration of how PES-like concepts and mechanisms are or might be useful for national park management at Doi Inthanon National Park (DINP). This required examination of the local context and important issues as viewed by local communities and park officials.

Our explorations into the political economy of dominant mountain area-related narratives aggressively disseminated by the state and its agencies, as well as our assessment of impacts associated with emergence and expansion of Thailand's protected forest area system with particular focus on impacts on ethno-agroecologically diverse settlements and local areas around Doi Inthanon, are presented in considerable detail in our earlier report under this study. The mountainous Upper North region of Thailand has been especially targeted during the last 50 years by state programs that claimed 80 percent of the region's total area as national reserved forest lands, with more than half of that later being incorporated into the national protected area system, while vast areas were also assigned protected watershed forest status. As a result, by 2009 land pressure as reflected in average population density per unit of land outside of state forest reserves was higher in the upper north than in any other region of the country, despite its relatively low overall population density. Moreover, nearly all Upper North lands not declared reserved forest are located in valley lowlands occupied by ethnic Northern Thai communities, whereas virtually all lands traditionally claimed and occupied by mountain ethnic minority communities were declared to be property of the national government and assigned to be managed by state natural resource management institutions, and especially by its evolving forestry agencies. The dominant forestry agency in this area today is the Doi Inthanon National Park (DINP) operating under the Department of National Parks, Wildlife and Plant Conservation within the Ministry of Natural Resources and Environment. Involvement by DINP in any PES-like activity is limited by the

[1] 'PES' is the abbreviation of 'Payment for Environmental Services'

legislative mandates, regulations and policy framework of its parent agencies, which have no provisions for traditional claims or for local resource management in protected areas.

Local communities of people living in this area since long before the government established DINP have tried to assert their land and resource use rights. But since they are nearly all members of mountain ethnic minorities, their land use claims were never acknowledged at all, and even their rights to citizenship were initially unrecognized. Yet rather than evict them completely, the state allowed them to remain in enclave villages where they were 'induced' to change their land use practices in directions specified by Royally-initiated projects. Now that a new generation speaks Thai language and has obtained citizenship, and at least some forestry officials have begun to have some insights into various strong points of some minority cultures, there has begun to be some recognition that perhaps alliances can be built with local communities to more efficiently and effectively manage the national park. In some enclave villages small areas of land that have long been irrigated paddy fields have even been cut out of the park and returned to local ownership, but local rights to access and other village and resource use areas still remain unrecognized and officially illegal, and many communities have been subjected to intimidation by lowland groups.

Views on PES-oriented concepts and mechanisms

Awareness of and some interest in PES concepts were identified at various levels of the parent agencies within which DINP is nested. Factors our earlier report identified as related to this interest include: (a) perceived needs for new terminology to help attract more sources of outside funding; (b) some feelings (but not open discussions or admissions) of guilt about how local and especially mountain ethnic minority communities have been treated since the state appropriated lands where they live without recognition or compensation; (c) perceived needs to reduce park management costs by mobilizing assistance by local communities; (d) fear of local resistance or even political unrest resulting from perceived injustices and inequities; (e) recognition that efficient and effective management cannot be achieved without more equitable and participatory processes involving local communities and stake-holders. With such a range of interests and motivations, it is not surprising that how these concepts are interpreted and applied tends to vary somewhat from international literature and experience.

Since DINP exemplifies a relatively highly state-managed national park with high revenues from tourists, it also follows that "PES-like" concepts used by park officials tend to reflect this orientation. Given their position of state-assigned authority, DINP leadership sees the park as the main provider of environmental services, with only optional supporting roles to be played by relevant groups and networks, local communities and village households. And as state management systems tend to be quite rigidly bureaucratic with emphasis on upward rather than downward accountability, while any governance structures for PES-like arrangements may be described with participatory rhetoric, they will clearly be seen as necessarily dominated by top-down relationships among officials and experts closely linked to the state and its previous or current programs. Most attempts by officials to apply PES-like concepts focus their notions of 'beneficiaries of environmental services provided by the park' almost exclusively on 'tourists' who are park visitors willing to pay for these benefits through entrance fees and other fees for park services, as well as for goods and services related to tourism provided in the park. Any group or individual business ventures within the park require formal or informal approval or endorsement by the park, and some operate on a concession basis. Since only DINP has legally

recognized rights to use or manage any natural resources within boundaries of the national park, this approach is viewed as a legal necessity.

Moreover, any potential PES-like rewards for supporting activities by local communities have been seen as quite complex and interdependent, which at least partially reflects confusion and lack of clarity about what is to be provided as a reward and to whom and for what. Rewards are basically viewed as outputs or outcomes of projects designed and initiated by the park, either on its own or in collaboration with other state agencies, royal authorities, research or academic institutions, or other state-approved independent organizations, sometimes with a role for local government, networks or groups. Activities under such projects are seen by officials as providing three types of 'rewards' to local communities. First are those viewed by officials as 'direct' rewards derived from improved access due to infrastructure or better livelihood opportunities resulting from agriculture-related projects, although the degree to which these are seen by local community members to be 'rewards' depends on whether and how much their incomes and livelihoods actually improve. The second group of activities provides 'rewards' that are more general, unclear and uncertain by focusing on forms of education *cum* indoctrination thought by officials and experts to increase awareness, concepts, ideas and knowledge that local communities can use to transform their lives and livelihoods into more 'appropriate' forms and directions. And the third set of activities are claimed to provide 'rewards' that are even more indirect in the form of precisely the kinds of environmental services from which river basins and broader levels of society have been found to benefit far more than local communities. Indeed, it appears this third type of activities in DINP are specifically aimed at meeting demands of lowland northern Thai communities downstream from the park, since it is unclear how there could be rewards for upland communities (other than reduced intimidation) unless upland communities receive some type of labor compensation or at least cost-sharing or co-investment from project sources. But since the state has widely disseminated its narrative focused on the notion that local communities in the park have only negative impacts on its natural resources, which are then claimed to have especially bad impacts on environmental services provided to downstream locations, it would now appear very difficult to justify to downstream or national society why any state funds should be used to reward their behavior rather than simply evicting them from the park.

Thus, our initial explorations under this study concluded that more conventional PES-like approaches were unlikely to find the key components seen as critical for their application and success. Environmental services are poorly defined and not systematically monitored and measured. Despite some pioneering preliminary quantitative estimates of benefits accrued at various social and spatial levels, tourists and local communities are still viewed by state agencies as the major beneficiaries of environmental services provided by parks such as DINP. Local enclave communities have little security, no legal basis for involvement with provision of environmental services, and a bad reputation under the dominant narrative disseminated through government, education, and popular media. Notions of 'reward mechanisms' appear confused and difficult to differentiate from agency-claimed outputs of projects implemented without 'PES concepts'. Moreover, once funds enter government channels they are subject to regulations and top-down governance structures under which conditionality and the inclusion, transparency and accountability required for credibility among all stakeholders are virtually impossible to achieve.

Eco-tourism as a PES-like mechanism

Yet despite these circumstances, we were able to identify a surprising degree of agreement and even enthusiasm among both DINP officials and leaders of local enclave communities within the park regarding the potential for eco-tourism to provide a basis for achieving most major objectives of PES mechanisms. Tourism has been an important aspect of DINP since its inception, and its parent state agencies view tourism as especially important in protected areas such as DINP that are able to consistently attract large numbers of paying visitors. Most agency officials and park staff working directly in DINP also understand at least informally that it will be very difficult if not impossible to maintain a high quality park environment and provide sufficient high quality eco-tourism services increasingly demanded by visitors without support and participation by local communities within and near the park. Moreover, local communities that became enclave villages when DINP was established have found themselves increasingly embedded and enmeshed in the growing and evolving dimensions of tourism at DINP. Successive waves of Royal and state projects have sought to transform their agroecosystems into very intensive cultivation on very small areas producing for ever-changing and often volatile commercial markets. Meanwhile, narratives blaming them for destroying or over-using natural resources with their intensive practices are used to mobilize lowland ethnic Thai communities to demand their removal from the park. And when minority cultures also became an attraction for up-market international visitors to the park, this led to efforts to exploit local communities that many of these visitors began to find offensive. Yet, while most lowland Thai have been taught to look down on mountain minorities with disdain, younger generations are increasingly attracted to learning and experiencing more about nature in national parks and some of them, along with various specialized conservation groups, have begun realizing that mountain ethnic minority cultures have extensive amounts of local knowledge about local plants, wildlife and ecosystems that greatly complements and extends academic knowledge of these life forms and environments. Thus, both DINP and local communities have had growing interest in a new set of tourism opportunities that can complement natural diversity by providing a focus on improved appreciation and understanding of both natural and cultural diversity through real engagement with members of local communities rather than simply treating them as objects for amusement, entertainment or derision.

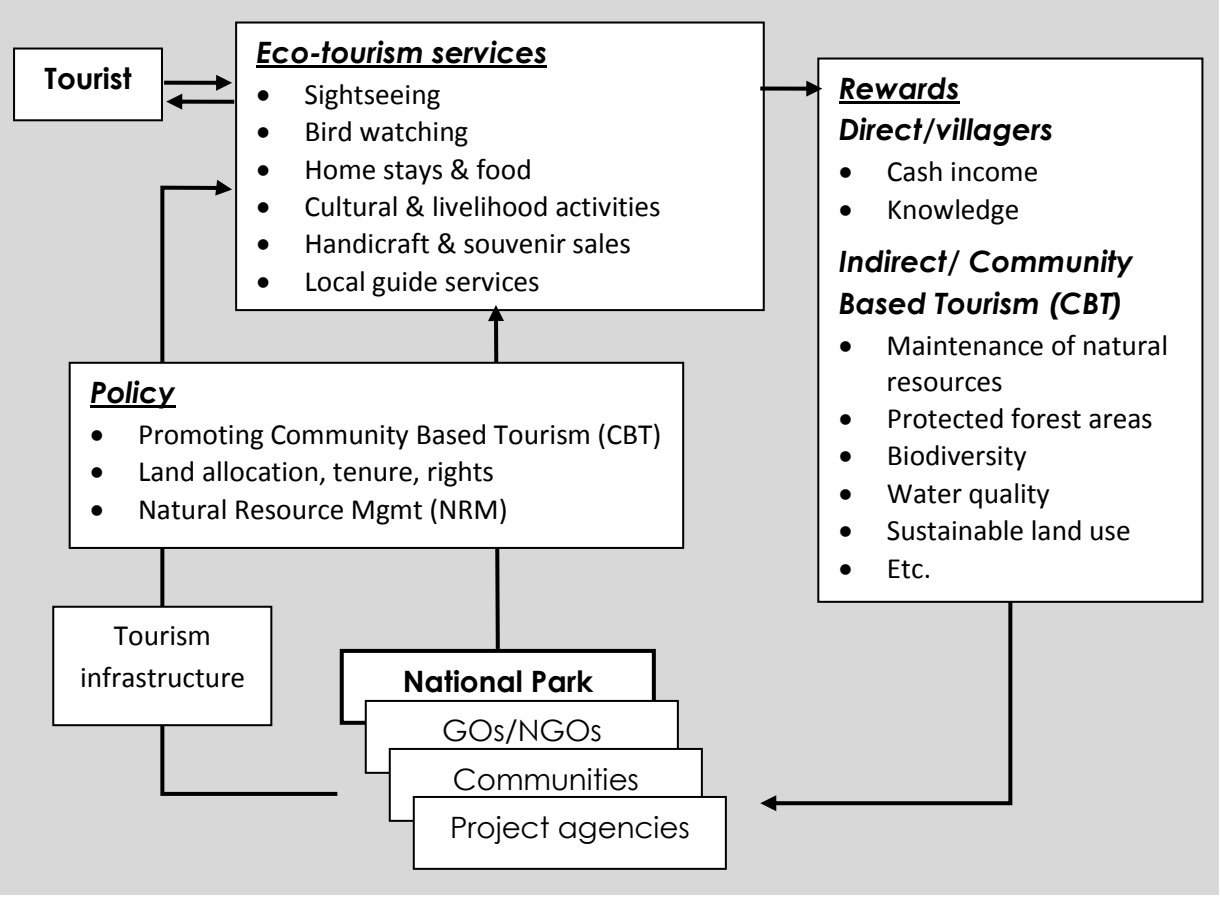
To their credit, officials in leadership positions at DINP have actively engaged in stakeholder discussions and evolution of ideas about how further development of eco-tourism might help address various key issues and problems in the park. As a result, DINP became an important pilot case study for officially-endorsed promotion of eco-tourism as a means to strengthen conservation programs and activities in the park, including a clear policy directive allowing enclave villagers inside the park to share benefits and pursue innovations in the use of environmental services. One important dimension of how this pilot study has been conceived and promoted within the ministry and environmental conservation community is based on perceptions that it is a PES-like reward for local communities who collaborate in protecting and managing natural resources in the national park. The basic orientation of their approach is diagrammed in Figure 1, which also helps identify some of the ambiguities in perceptions of what a PES-like approach entails.

Eco-tourism is viewed by DINP staff as being based on four key components: protected areas, local people, appropriate infrastructure, and tourists. As they indicated in Figure 1, both eco-tourism services and associated infrastructure development and maintenance must be conducted under

policies declared by the national park, which reflects legal reality. The various actors involved in providing the services and infrastructure, however, are grouped together at the bottom with no clear indication of relationships among them. Moreover, how policies related to land allocation, tenure and rights might relate to enclave communities may currently be more rhetorical than tangible, and previous 'informal' agreements related to these topics have usually been ephemeral.

The 'direct' rewards that villagers would receive are portrayed as including cash income from providing services, as well as knowledge. The types and sources of this knowledge are not clear, nor is the source of funding for either knowledge or local infrastructure. Thus, the nature of this type of 'reward' would depend on the degree to which these elements are actually provided or whether the 'reward' would be to allow communities to seek knowledge and infrastructure from other sources. It is the 'indirect' rewards, however, that seem to appear most unclear in this diagram, since they are basically the same as overall benefits used to justify national parks – and it has already become apparent that these benefits primarily accrue to wider levels than local communities. While it might be useful to argue that maintenance or even improvement in ecological conditions would assure or improve the marketability of eco-tourism in the park, it does not appear to be particularly useful to view this as a 'reward' or form of compensation to local communities.

Figure 1: DINP perceptions of PES-like aspects of eco-tourism



Our initial findings suggested that it might be more useful to view eco-tourism as more of a distinct market-based enterprise, wherein tourists are willing to pay (or not) an amount appropriate for the satisfaction they receive from environmental and cultural experiences they have at the park. Indeed, by using a more enterprise-oriented point of view, community efforts to provide services and goods for

eco-tourism could be assessed for their ability to achieve market-based rewards that could improve incomes in a potentially sustainable manner by reducing dependencies on state agency bureaucracy or continuing subsidy from supporting organizations.

Study Objectives:

Thus, the pilot programs operating at DINP are seen as a rare opportunity to explore and assess the manner in which local communities are able to engage in eco-tourism enterprise to achieve market-based rewards that are contingent on maintenance of attractive settlement and natural conditions in the national park. In order to accomplish this goal, three major objectives were established for this phase of our study:

1. To understand conditions and processes underlying the emergence and development of eco-tourism in local communities on Inthanon mountain.

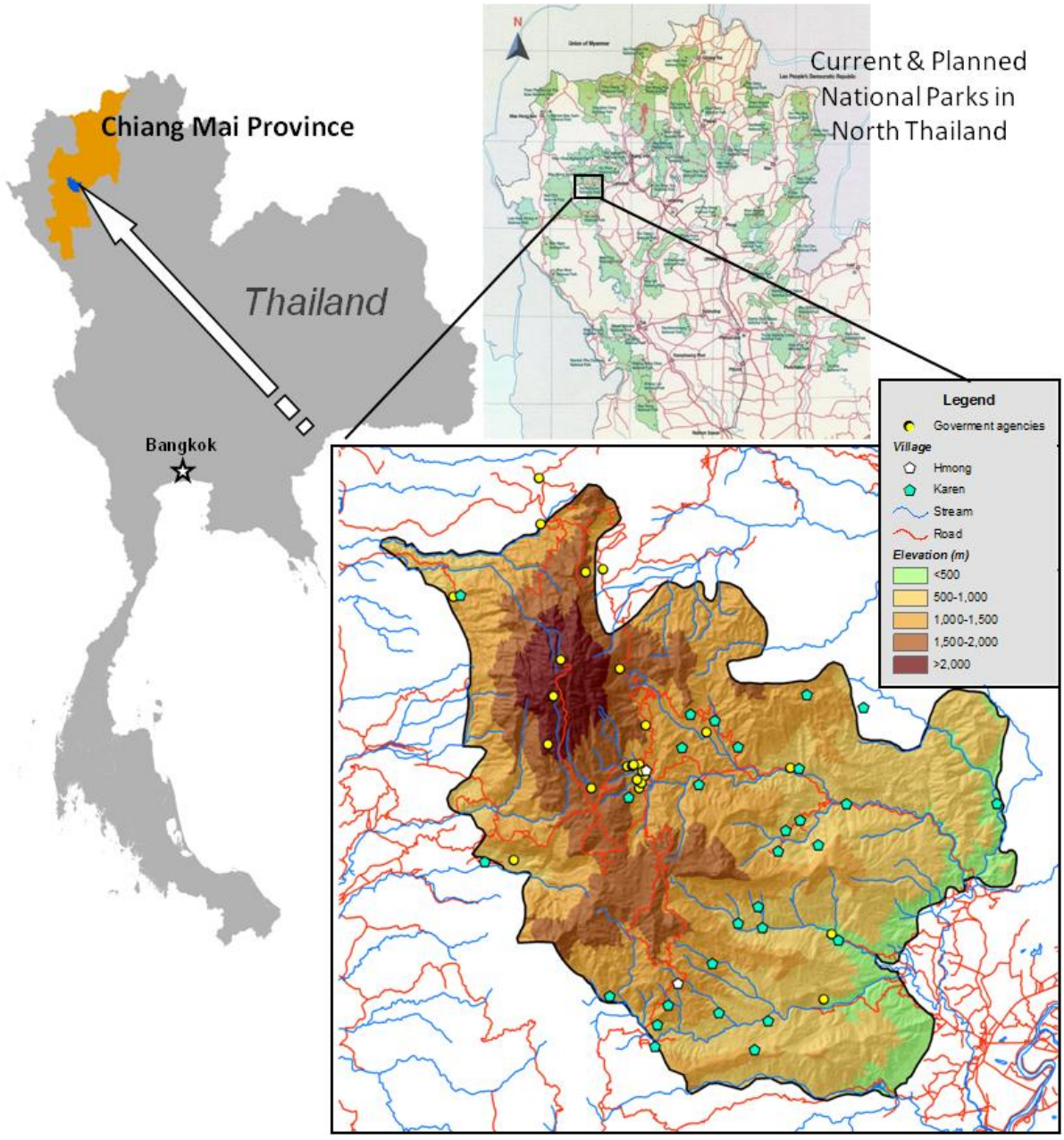
2. To understand the organizational and functional patterns of eco-tourism services provided by pilot enclave communities located within Doi Inthanon National Park.

3. To analyze rewards received from eco-tourism in pilot communities, as well as its impacts on local livelihoods and environment, and the resulting implications for Doi Inthanon National Park.

Study sites:

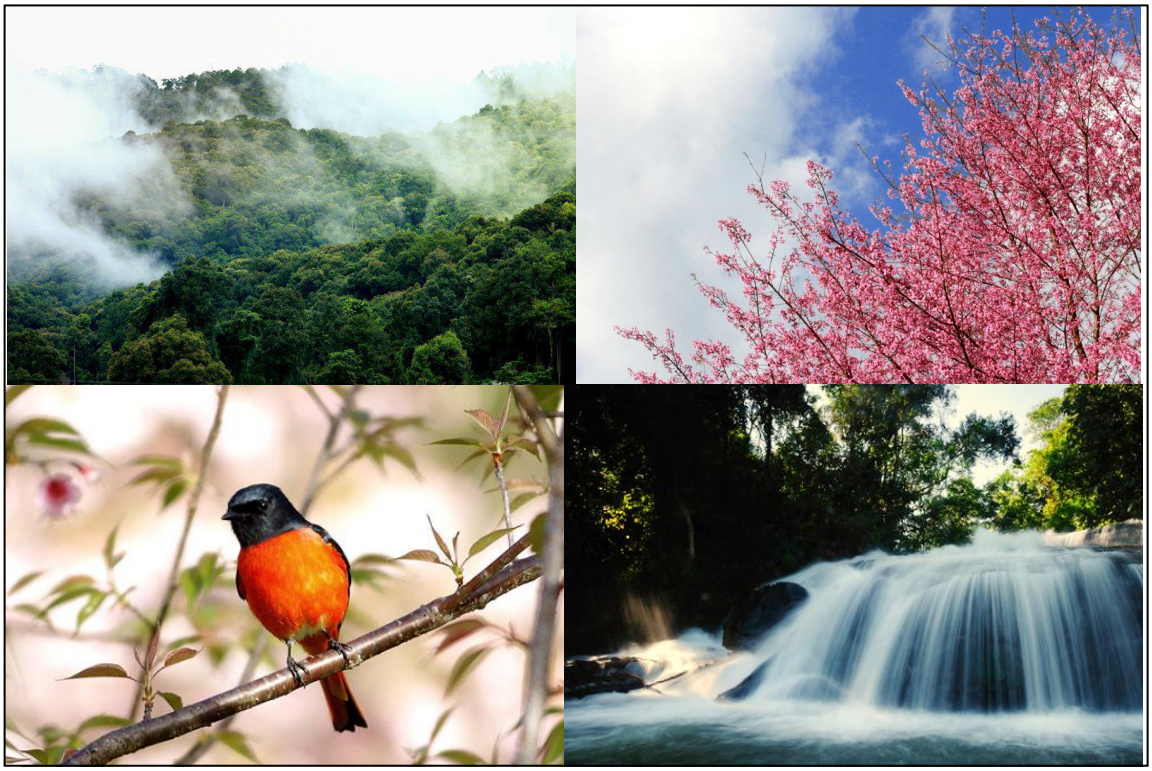
Doi Inthanon National Park (DINP) is very well-known and consistently maintains one of the highest popularity rankings among the many tourist attractions in Chiang Mai province (Fiqure 2). As it includes the highest mountain in Thailand, it contains areas of substantial spiritual and biophysical significance and is an ecologically diverse provider of environmental services that seen as especially important in terms of both biodiversity and watershed services. In addition to pilgrimages to the mountain peak and cloud forests, many visitors go to one or more of several wild and quite dramatic waterfalls in the park. Moreover there is a growing number of both Thai and international visitors who come to the park to view and experience aspects of the impressive biodiversity, which is particularly well known for its bird and plant diversity (Figure 3). During recent years, especially international tourists coming to DINP have shown increasing interest in visiting H'mong and Karen ethnic minority communities residing within DINP, which are also being promoted by several outside tour companies and associated private enterprises. Tourists appear to be particularly attracted to learning about the livelihoods and cultures of local people in Mae Klang Luang village and 3 additional villages (Pha Mon, Ang Kha Noi and Nong Lhum) all of whom are members of the Karen (or Pwokakanyaw) ethnic group and maintain cross-linked social and kinship networks. These enclave communities have become key target areas for eco-tourism, especially in Mae Klang Luang and Pha Mon villages where people are still heavily engaged in agriculture primarily in traditional terraced paddy fields surrounded by areas covered with abundant forests.

Figure 2. Doi Inthanon National Park (DNIP) terrain and spatial context



Source: ICRAF Thailand spatial database; National Park Office 2006

Figure 3. Natural diversity and views in Doi Inthanon national park



Thus, **Mae Klang Luang Village** and **Pha Mon Village** were selected for further in-depth study under this project. In addition to their strategic roles as targets of tourism and participants in eco-tourism development, these communities participate in a network established among six local communities (Figure 4) that has resulted in formation of a network committee to oversee local rules and regulations for tourism management and natural resource conservation that are seen as necessary in order to achieve viable and sustainable eco-tourism. These rules and regulations seek to control or prevent unacceptable negative environmental and socio-economic impacts from tourism and enhance local economic development.

Figure 4. Village members of The Karen Youth Network Environmental Conservation

Results and discussion

Findings of this study are presented and discussed in three sections corresponding to its three major objectives. The first section focuses on conditions and processes underlying the emergence and development of eco-tourism in communities within DINP, while the second section explains organizational and functional patterns of eco-tourism services provided by enclave study village communities. The final section then presents findings on income and indirect rewards received from eco-tourism in study communities, as well as its impacts on local livelihoods and environment, and the resulting implications for DINP.

1. Conditions and processes underlying development of eco-tourism at DINP

Eco-tourism on Inthanon Mountain (Doi Inthanon) began developing during 2000. It was first conceived by Doi Inthanon National Park (DINP) administrators as a way for villagers to earn income that would supplement agricultural earnings and reduce demand to further expand village agricultural lands into surrounding protected forest areas. They also believed it would help decrease conflict between ethnic minority communities located within the park and nearby lowland villagers located beyond park boundaries. These conflicts became serious in 1993 as a result of growing problems faced by mountain communities composed of Hmong and Karen ethnic minority groups located within and nearby DINP. Their continuing use of lands located within the national park after its establishment in 1972 resulted in their being portrayed as encroachers into national protected forest lands under official narratives vigorously disseminated by the state. This led to major conflicts both with DINP administration and with local leaders of ethnic Thai communities located in valley lowland areas who have demanded forced relocation of villages out from the national park based on claims that they destroy the forest and cause shortages of water needed by expanding and intensifying irrigated agriculture in the lowlands.

Then during April to June 1998, a large protest was held by many lowland Thais who closed 6 roads that included: (1) highway 1009 leading up Inthanon Mountain; (2) highway 108 that connects Chiang Mai to Mae Siriang; (3) the road to Khun Tae Village in the vicinity north of Mae Tia reservoir; (4) the road to Mae Pon Village in the vicinity of Mae Pa forest; (5) the road to Pah Kluay Village near the rock quarry; and (6) the road to Khun Ya Village near Mae Ya Waterfall. Their daring civil disobedience also included entering and burning local shops and breaking loose the base of a Buddha image at the Ban Khun Klang monastery. They justified their actions by accusing the monastery of being supported by mountain ethnic minority communities and of encroaching into protected forest and blocking the view of Siriphum Waterfall. It was also apparent that the aggressive Thai groups had implicit support from very powerful elements of society.

Although these events occurred more than 10 years ago and mountain ethnic minority villages remain in their same locations, these communities still clearly remember these events and their implications. As a result, they continue to actively seek means to ever more clearly demonstrate the ability of their communities to live in harmony with forests. This includes establishing conservation groups in nearly all communities with particular emphasis on the Upper Mae Klang Watershed Network that covers the especially high conflict area located near the summit of Inthanon Mountain. It also includes efforts by ethnic minority communities in surrounding areas to establish a joint highland

conservation group covering both DINP and neighboring Ob Luang National Park (OLNP) with membership from 5 local sub-watershed areas: (1) Mae Tia sub-watershed; (2) Khun Tae sub-watershed; (3) Khun Ya sub-watershed; (4) Khun Pae sub-watershed; and (5) Mae Pon sub-watershed. The highland conservation group coordinates activities to maintain a participatory network among village groups and encourage systematic management of forest resources in the form of village-level community forestry committees responsible for looking after the forest, increasing awareness, and controlling village use of forest resources.

Ethnic minority communities located within DINP and OLNP have subsequently established community forests throughout their sub-watersheds that employ a common set of standards and rules that include: (1) not allowing agriculture and forbidding use of fire within community forests; (2) requiring approval by village committees of requests to cut timber of the size used for poles in house construction or larger; (3) requiring collaboration by all households in making firebreaks each year during February to April; (4) in the event of a forest fire, requiring everyone to help fight the fire; (5) forbidding the cutting of timber for use by anyone from outside the village; (6) not allowing sale or renting of land to people from outside the village; and (7) fostering collaboration in maintaining local culture. There may also be local exceptions for appropriate use of community forest resources such as collecting edible fruits that have already fallen from trees, permitting collection of medicinals, or collecting leaves for roof thatching. One very important outcome of efforts by mountain ethnic minority communities located in the vicinity of the mountain summit, as well as communities in surrounding areas, is strict implementation of forest fire prevention that includes construction and maintenance of fire breaks by each local community every year during the dry season, as well as control and monitoring of communities themselves to assure there is no destruction of forest resources and to prevent disputes with national park officials.

Role of DINP in community-based development of eco-tourism

Although mountain ethnic minority communities had established and were operating their own efforts to monitor and control forest encroachment and forest resource utilization problems, national park officials felt that benefits derived from eco-tourism as it began becoming popular should also be able to provide incentives and tools that could further help efforts to solve such problems. They thought it might become a channel for obtaining income for communities that should reduce forest encroachment by communities for agriculture, as well as a good channel for instilling conservation of natural resource and environment concepts that should help reduce conflict among various communities within and around national park boundaries.

DINP administration convened frequent meetings to propose these ideas to local community leaders and began providing support for villagers to prepare themselves for eco-tourism development. During this initial period of promoting community-based development of eco-tourism, national park promotion only provided basic ideas, key related training such as for tour guides, and dissemination of knowledge related to the Guew Mae Pan-Angka nature trail. This meant that local communities were required to make their own investments in basic facilities such as office structures or resort accommodation rooms, using local cash contributions and local community labor. Development of all activities, including their own public relations and connections with various tour companies, were all conducted by local communities themselves.

During this initial phase of development, although many villages at various locations in the park received ideas about eco-tourism at the same time, most communities were unable to begin such development immediately. Important conditions related to differences in village responses to this new opportunity were primarily linked to communications and community geographic and landscape characteristics. For example, some villages were located many kilometers away from main roads resulting in a total lack of tourists reaching their locations; access to other villages is via gravel roads that make travel very difficult especially during the rainy season, while still other villages are located near to main roads but have local landscapes with such steeply sloping terrain that it is difficult to develop suitable facilities. As a result of such factors, only some villages were fully prepared to begin developing eco-tourism immediately, such as Mae Klang Luang Village where the community is located near a major road and has gently sloping community lands that include a substantial area of terraced paddy fields.

In the case of Mae Klang Luang Village, their initial development framework was based on individual responsibilities and obligations directly related to tourism. For the community's tourism manager, they selected a person from outside the community with business experience related to tourism. Once they had a manager and a framework and preparations in place for the first three year phase, Mae Klang Luang Village was able to begin providing community resort and homestay-style accommodation services for more than 10 rooms, while most other villages were still in early study and preparation stages. Disadvantages of having an individual manager responsible for these activities began to emerge, however, when the former community eco-tourism manager became corrupt and embezzled community funds and financial resources totaling 100,000 baht. As a result, the community tourism enterprise was forced to close down and was nearly unable to reopen. This was because the community became disheartened and uncertain about whether they could operate the enterprise by themselves.

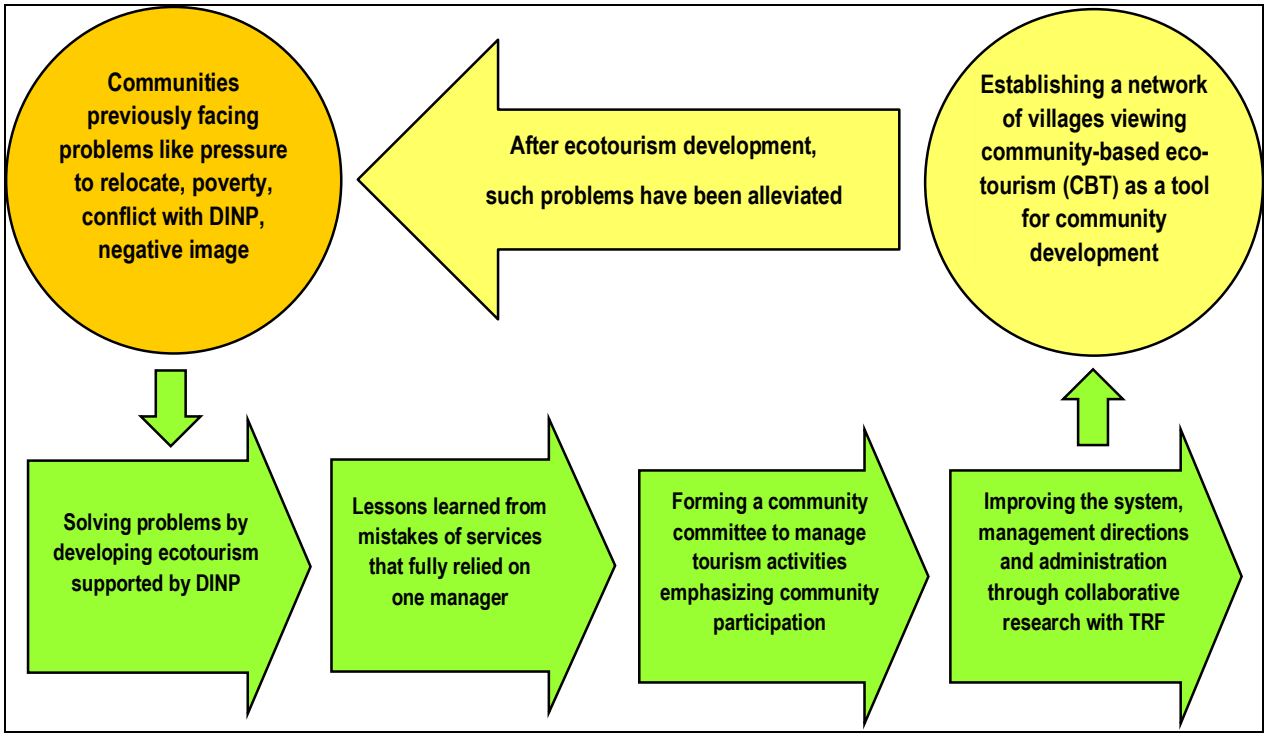
But after further consideration at many meetings, community members felt they should reorganize and try receiving tourists in the community once again. They began by developing a new management approach and a village tourism committee chaired by a local leader to monitor and control activities and continually report results. This operation functioned as a sub-committee of the local village committee and emphasized equitable distribution of benefits from tourism to reach as many members of the community as possible, in order to stimulate interest of all households to participate in development of community tourism. The number of households developing their houses to provide homestay services has subsequently grown to twenty, and when large groups of tourists come, they are divided into groups of no more than 4 to 5 persons to stay in each house. There is also a centrally-owned community resort that has grown to 10 cabins, as well as 15 more private resort cabins that villagers themselves are operating at various locations, in addition to a rehabilitated and expanded campground area for tents. This has resulted in the community having a total capacity for more than 200 tourists per day. The community also provides funds for a central budget to employ two local members of the community as staff for its local tourist center.

Each homestay household in Mae Klang Luang Village is assured equitable access to tourists by a rotational system for assigning tourists among participating households. The community believes that income derived from tourism should not all remain with one group, because when benefits are received by all it encourages everyone in the community to collaborate both physically and spiritually to

develop community improvements and further improve services to attract more tourists. When there are numerous types of associated activities, more people in the community will become interested in engaging with various aspects of the enterprise, so that tourism operations are conducted by the entire community and are not seen either as a burden on others or as benefitting only one special group. Figure 5 illustrates developing processes of eco-tourism at Mae Klang Luang village.

Current joint operations with DINP continue to provide training related to various types of knowledge. Examples include training for guides and knowledge about nature trails, joint management of firebreaks with the community, and understanding of forest maintenance. They also include joint convening of community meetings on various issues related to both resources and tourism, so that management of tourism can continue to be conducted primarily by local communities themselves.

Figure 5. Development of eco-tourism management at Mae Klang Luang village



Role of the Thailand Research Fund in community-based tourism

In addition to the national park, the Thailand Research Fund (TRF) has also played a very important role in supporting development of eco-tourism in the vicinity of Inthanon Mountain since 2000 when it began conducting a sequence of key action-oriented collaborative research studies related to eco-tourism at sites in DINP in response to a request from local communities with park endorsement.

- During 2000-01 an initial study was conducted on "Models of cultural tourism linked with birds and nature-related concepts of ethnic Karen people living within Inthanon National Park". This culture-oriented research emphasized exploration of relevant indigenous knowledge of ethnic Karen communities that could provide a basis for developing local guides to work in activities related to bird watching and additional aspects of Karen culture that could become a special feature and strength of tourism in this area.

- A subsequent research study was then conducted by TRF researchers in collaboration with local villagers during 2001-03 on "Management of community eco-tourism in Mae Klang Luang Village on Inthanon Mountain in Chiang Mai Province". This study investigated the potential of the Mae Klang Luang community to develop eco-tourism services, including examination of the potential of tourism to provide enough income for the community to be self-sufficient without expanding agricultural fields to encroach into forest areas of the national park, while also reducing problems related to community forest utilization. In order to help provide evidence that the community would not suffer too much negative impacts from tourism, it also included study of directions for eco-tourism development that would be viewed as appropriate for the context of the local area.
- This was followed by a TRF study conducted during 2004-07 in collaboration with another local community, entitled "Sustainable ecological and cultural tourism for the Pa Mon Village community on Inthanon Mountain of Chiang Mai Province". This study viewed tourism as a mechanism for community development by emphasizing the role of villagers in determining their own directions for tourism. Providing various types of alternative possible operations allowed villagers to choose according to the real needs of villagers, including avoidance of behavior or needs of tourists that would cause negative impacts on livelihoods or cause difficulties or annoyances for villagers. At Pa Mon Village there was a strong emphasis on the community dealing with local changes resulting from tourism. Specific results of research aimed at achieving sustainable tourism at Pa Mon Village found that the community was poorly prepared for tourism but did have substantial capacity in the community for developing eco-tourism. After completion of this collaborative research, villagers had a well-rounded knowledge base about nature and their own culture, as well as directions for tourism management. Villagers also contributed their labor and funds received from conducting research for building a community resort that is now able to receive small groups of tourists.

After various communities on Inthanon Mountain participated in joint research with TRF, they all joined together in developing a community-based tourism (CBT) network under TRF management. In 2006 it was registered as the Thailand Community-Based Tourism Institute (CBT-I) through collaboration with the Tourism for Life and Nature Project (REST) that is based on beliefs that tourism is a community development tool and that in order for tourism in rural areas to be sustainable, communities must participate in and receive benefits from tourism. Indeed, their definition of community-based tourism requires it to be conducted in a manner that is environmentally, socially and culturally sustainable. Community-specified directions include management by communities for communities, as well as clear ownership roles for communities with rights in management and maintenance that result in understandings with outsiders based on these principles:

1. Community participation in determining directions and making decisions
2. Promotion of pride in themselves
3. Improving local quality of life
4. Maintaining environmental sustainability
5. Maintaining local identity and culture
6. Strengthening and sharing knowledge among people of differing cultures
7. Human dignity and mutual respect between differing cultures
8. Resulting rewards that are viewed as equitable by local people
9. Distribution of a share of income to community public uses

Participation as members of CBT has resulted in a clearer operational framework and directions for community tourism on Inthanon Mountain. This follows from CBT-type tourism viewing itself as differing from overall eco-tourism because CBT emphasizes the centrality of community in operations whereas eco-tourism emphasizes the centrality of nature with communities being only one other component. It also differs from homestay-type tourism that emphasizes contact with rural culture based on the centrality of the guest room, whereas CBT assigns importance to community participation in management by promoting a broader level of management in the form of community organization.

This orientation is in accordance with dynamics underlying local eco-tourism because initial stages of tourism emerged in the context of resource competition between the state and communities. Since tourism was viewed during that period as a tool for reducing conflict between the national park and communities located in forest areas, one very important objective was for communities to become self-sufficient while reducing further "encroachment" into forest areas, thereby reducing law enforcement problems and clashes between officials and villagers. If forest resources are secure and there is no increase in encroachment, communities are likely to have more security for their continuing existence within the national park. During the period that CBT-type tourism was developing, the level of conflict was reduced a great deal. Resulting forms of tourism were an important mechanism for strengthening the community in terms of both natural resource management and cultural aspects. Emphasis on participatory processes engaging with people in communities helps assure that communities have a sense of ownership and there is broad participation in determining directions of development and equitable sharing of benefits from tourism.

Emergence and evolution of local eco-tourism over a reasonable period of time has resulted in communities developing and organizing local rules pertaining to community tourism services. Since the period of joint research with TRF, research findings on management directions emphasizing community centrality in developing CBT-type tourism resulted in development of tourism handbooks for Mae Klang Luang and Pa Mon villages, as well as development of local rules and regulations for local tourism based on agreement among the views of various factions within communities, as follows:

1. Must give respect and not show disdain for village traditional beliefs
2. Must help care for and not damage community public property
3. Prohibit taking narcotics into the village
4. Prohibit obscene or inappropriate conduct toward village women
5. Those coming to use tourism areas must dress appropriately
6. Prohibit making loud noise that disturbs others during nighttime
7. Prohibit gambling in the village
8. Prohibit causing trouble, quarrels or brawls
9. Must maintain cleanliness and dispose of trash appropriately both within the village area and within all tourism areas
10. Must notify the tourism committee in advance
11. Study tours of nature and livelihoods must always have a local guide
12. All tourists must contribute 20 baht/person/visit to the community environmental conservation fund

While these rules serve as important guidelines, in operational terms there is a considerable degree of flexibility for individual communities to have differing degrees of strictness in enforcing each rule. For example, at Mae Klang Luang Vilage tourists are able to obtain more convenient service and request lodging on a "walk in" basis without advance reservations, whereas at Pa Mon Village tourists are required to make advance reservations only with the tourism manager or assistant manager. There are also still various problems with nature and livelihood study tours because tour companies often evade use of local guides in order to save money and many communities are not yet able to manage this problem with strict enforcement of relevant rules.

The Royal Project

Another agency that provides support for community eco-tourism is the Highland Research and Development Center (HRDC) in collaboration with the Royal Project, which supports agricultural tourism business as a component of community operations. The main example is opening of the area occupied by the research center of HRDC and the Royal Project where demonstration plantings of various temperate plants can be observed and admired by tourists. It also provides some funding support for various types of public relations materials such as brochures and posters in order to provide publicity for community tourism on Inthanon Mountain. In addition, the Royal Project still continues to have the status of advisor on community tourism.

2. Organizational and functional patterns of community-based eco-tourism services

It is also important to understand how community-based eco-tourism services are being organized and marketed to meet the needs and expectations of potential visitors or tourists. At Mae Klang Luang Village the substantial range of current options focus on lodging accommodations, support activities, and tour programs (Figure 9). Overall patterns of lodging accommodation services are based on three distinct models:

- The **community resort** or **village-stay model** of accommodations has an atmosphere of privacy and characteristics similar to cabins or private houses, including basic facilities such as bedrooms, bathrooms and kitchens. Thai tourists, families and tour groups prefer this model. Rental rates range from 500 – 2,000 Baht/house/night during the low season (February – October), and 800 – 3,000 Baht/house/night during the high season (November – January). Tourism at Doi Inthanon attracts a continuous flow of people, particularly during the winter when they come to feel chilly temperatures on the highest mountain peak in this tropical country. Consequently, in addition to the central community-operated resort enterprise, additional separate tourism operations based on the resort model have been developed by small groups of households in Mae Klang Luang village, but all facilities still operate under the overall administration of the community committee.
- The **home-stay model** welcomes tourists to stay with village families in their homes, where tourists can participate in traditional Karen dining with host families, learn about lifestyles of mountain minority groups, and join directly in daily activities of villagers. Foreign visitors tend to prefer this model of accommodations, which costs only 300 Baht/person/night including 2 meals.
- The **campground model** is based on areas reserved for tent accommodations that are located in the vicinity of the community tourism center. This model is quite popular with youth or teen groups, and provides for expansion of accommodation capacity during periods when community resort and

home-stay accommodations are fully occupied. The cost of this alternative form of housing is also very reasonable at only 30 Baht/person/night.

In addition to lodging accommodation services, the community organizes various forms of **supporting activities** to serve tourists, including: (1) ***cultural shows*** such as the Karen sword dance for 750 Baht/show and Karen string music (Tae Nha) for 1,000 Baht/show, which can be provided either during daylight hours or at nighttime around a campfire; (2) ***tour guide services*** provided by local tour-guides or so-called "communicators", with charges ranging from 100-600 Baht/group/day depending on each type of services in each community and the distance travelled; (3) ***vehicle rental services*** for tourists are also provided by the community, with rates ranging from 200 Baht/day for a motorcycle to 1,000 Baht/day for a car with a driver.

There is also a set different types of **tour program** options from which visitors can choose a standard type of tour activity package. Options currently offered at Mae Klang Luang village include:

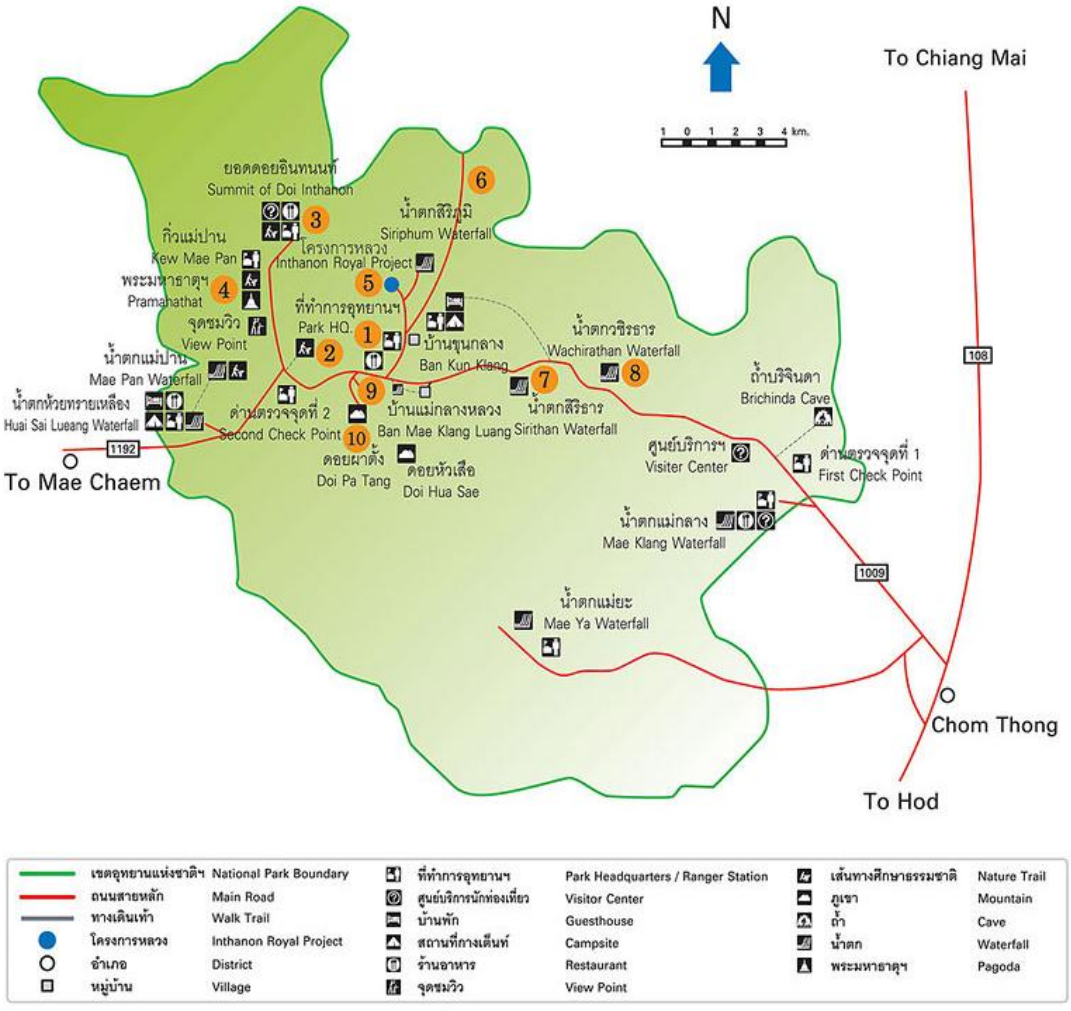
- A **day eco-tour** program that does not involve an overnight stay centers on a nature education trail (Figure 10) leading to Pha Dok Siaew Waterfall. The trip takes about half a day of walking through nature and learning about livelihoods of the ethnic Karen (Pwokakanyaw). Tourists are taken to the starting point by car for their walk to the waterfall and then walk back to the village with a stop along the way to taste fresh brewed coffee and a short-cut through terraced rice paddy fields before reaching their final destination at the community tourism coordination center in Mae Klang Luang village. This tour charges only 200 Baht/group/day.
- An **overnight eco-tour** program centers on a nature education trail (Figure 10) leading to Doi Hua Suea mountain, which is the fourth highest peak (1,881 meters above sea level) of the Inthanon range, and tourists must be prepared to stay overnight in the forest. This area is covered by pine forest mixed with hill evergreen forest, and a three-color "thousand year" Phu Kradueng rose can be found during May-June, as well as an annual bulb plant known as Vhan Me Yup. In addition to abundant forests, views are spectacular and beautiful. This tour is for 2 days and 1 night with local tour guides and costs 600 Baht/group/day with an extra cost of 600 Baht/group /day for carriers.
- Another tour program involves **bird watching tours** with local guides (communicators) from each community who take birdwatchers along their community bird watching route. At Mae Klang Luang village, tour guides for bird watching can communicate in English with foreign tourists because of the training they received at Inthanon Bird Center, which coordinates all bird watching activities on Doi Inthanon and serves as a source of academic data. The rate charged for this tour is 1,500 Baht/group/tour.
- A **tour of community areas** is also available that includes agricultural tours and activities such as raising red prawns in paddy fields, terraced rice paddy fields, coffee plantation, rainbow trout aquaculture, and plots of temperate flowers, strawberries, and organic vegetables. This tour charges 100 Baht/group/tour.

Additional tour services focus on well-known tourism locations (Figure 6) where tourists can go by themselves or rent a car and hire their own local tour guides, including the summit of Doi Inthanon, the twin Thai pagodas of Nopamaynatidol Chedi and Nopapolbhumsiri Chedi, nature trails leading around the rim of Guew Mae Pan valley and leading to Doi Angka, the local Hmong market, and

waterfalls along the Doi Inthanon highway route including Vachirathan, Mae Ya and Mae Klang waterfalls. The rate is 300 Baht/group/tour.

Communiity-based eco-tourism options at Pha Mon Village are currently much more limited and linked with traditional lifestyles in the community. Tour programs at Pha Mon village are scheduled in accordance with seasonal patterns of the various types of livelihood activities in which local people are engaged throughout the year, as indicated in Figure 7. Advance booking is required, however, and lodging accommodation services for tourists or visitors is quite limited (Figure 8).

Figure 6. Travel routes and tourist sites in Doi Inthanon National Park



(Source: http://park.dnp.go.th)

Figure 7. Relationship of seasonal tour programs to local livelihoods at Pha Mon village

Figure 8. Tourist house "Bamboo Pink House" and its overlooking view at Pha Mon village

Figure 9. Eco-tourism activities at Mae Klang Luang village

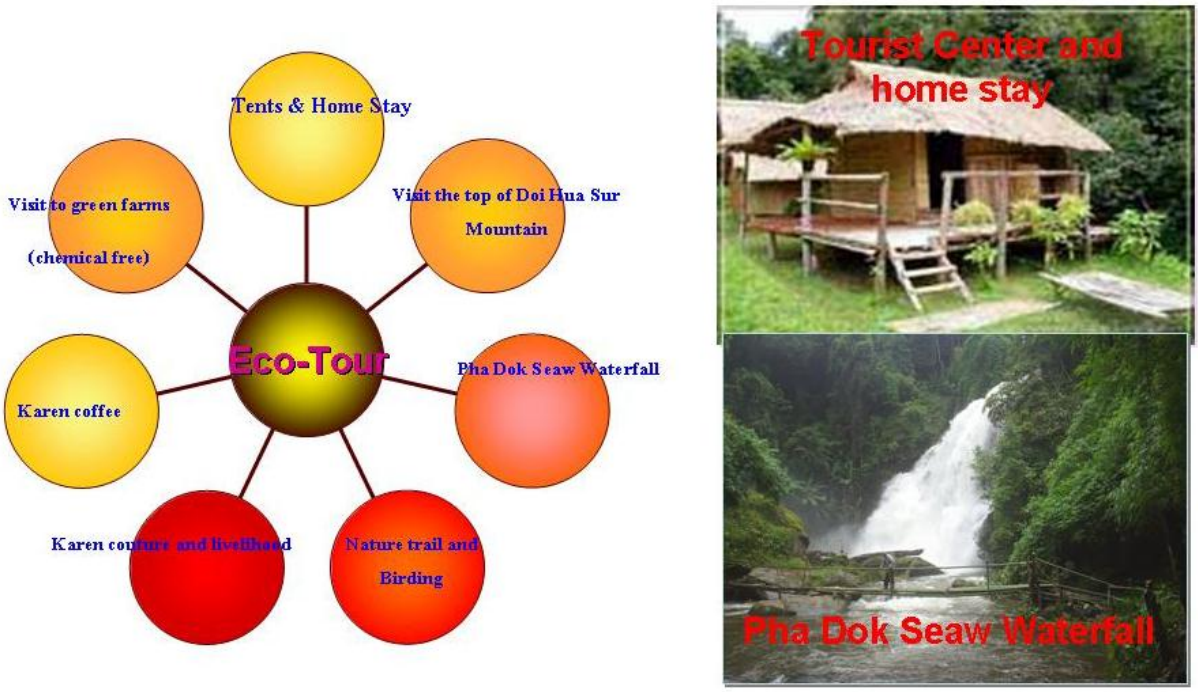


Figure 10. Views along Mae Klang Luang nature education trails *(Source: http://www.pk-trip.com)*

3. Rewards, benefits and impacts of community-based eco-tourism

Community-based eco-tourism is having various positive and negative impacts on participating communities in DINP and the environment in which they operate. Since these are critical components of what might become considered as "rewards" in the context of a PES-like approach, this section presents and discusses our findings on these topics in three sub-sections dealing with rewards as direct income, rewards in the form of more indirect benefits, and negative impacts and their mitigation.

Rewards as direct income from community-based eco-tourism

More than 11 years of eco-tourism development by communities in DINP has revealed clear distinctions in community strengths between villages where eco-tourism has been rather successfully developed and those where it is still in earlier stages of the development process. Discussions with villagers of Mae Klang Luang Village indicate that before this period of eco-tourism began, the local economy was poor and their cash incomes relied on prices for agricultural products such as cabbage and coffee that fluctuated strongly from year to year. Thus, villagers who were previously relatively poor and very indebted are now earning additional income directly from eco-tourism activities. There are currently three sources associated with community-based eco-tourism from which Income is being directly received by members of local communities within DINP:

The first source of direct income is from accommodation facilities and arrangements provided by local communities according to the three models of lodging accommodation services described in the previous section. While we were not able to obtain a comprehensive systematic accounting of income from all accommodations services, Table 1 presents a substantial accounting of income received by five private management groups in the community operating community resort or village-stay model of operations, as well as income received by a group of households participating in home-stay model operations. Both the magnitude and seasonality of income from these types of operations are reflected in these data, including the strong peak in visitors during the cool winter season.

Table 1. Income from tourism operations in 2011 of Mae Klang Luang village.

	Private management					Committee management	Total
Home stay name/owner	คุณอุ่น	คุณเอดิศักดิ์	คุณนิพัฒน์	คุณชาดี	คุณแพรวพลอย	Comm.homestay/ พงษ์ทู	
Telephone	089-952-0983	081-960-8856	081-020-3615	086-189-4075	081-297-1473	086-115-8298	
no.of house or room	**10**	**7**	**2**	**7**	**6**	**27**	**59**
max.of guest/night	**40**	**150**	**30**	**37**	**24**	**54**	**335**
Jan	5,000	6,000	15,000	5,000	4,000	6,000	**41,000**
Feb		7,000	5,000	5,000	1,500	6,000	**24,500**
Mar		5,000	6,000	-	6,000	3,000	**20,000**
Apr		6,000	6,000	-	6,000	3,000	**21,000**
May		6,000	5,000	2,000	-	7,000	**20,000**
Jun		4,000	5,000	2,000	-	6,500	**17,500**
Jul		4,000	5,000	2,000	-	6,000	**17,000**
Aug		3,000	6,000	2,000	2,000	8,000	**21,000**
Sep		3,000	6,000	2,000	2,500	16,200	**29,700**
Oct	12,000	50,000	52,000	10,000	15,000	45,000	**184,000**
Nov	40,000	55,000	55,000	80,000	30,000	50,000	**310,000**
Dec	50,000	80,000	65,000	100,000	83,000	60,000	**438,000**
	200,000	***229,000***	***231,000***	***210,000***	***150,000***	***216,700***	***1,236,700***
Everage/month	**16,667**	**19,083**	**19,250**	**17,500**	**12,500**	**18,058**	**103,058**

Source: Interviews with village-stay resort owners and a leader of Home-stay groups.

Note: These accommodation service income figures were provided by owners and a leader of a home stay-group. There may be some errors due to a lack of detailed records and failure to subtract some expenses from total income, such as soup & shampoo costs.

A second source of direct income is from additional market outlets that emerge as tourists come to visit local communities. In the past, for example, marketing of coffee produced by local communities was only in the form of raw bean sales to middle-men. Now, however, there are also options to sell roasted dry coffee or freshly brewed coffee directly to tourists at home-stay and resort locations where there is a demand for coffee consumption (Figure 11). The emergence of direct marketing of products to tourists within local communities has also grown to include agricultural products such as local rice, vegetables, fruits and meat products. Tourists also like to purchase distinctive handicraft souvenirs, such as the traditional shirts, bags and woven cloth of the ethnic Karen, which provides more supplementary income for the community. Overall, emerging tourism markets are significantly improving the Mae Klang Luang community economy and generate as much as 900,000 to 1,000,000 Baht in income each year.

Figure 11 Supplementary income from selling coffee products and local handmade textile souvenirs at Mae Klang Luang village

Source: http://www.pk-trip.com

The third source of direct income is from tourism services and associated supporting activities as also described in the previous section. The central and most obvious set of activities is tour guide services which vary from general to quite specialized, and from part of a package tour to a freelance service. Local communities are continuing to develop these services in terms of knowledge, format, style and language, and returns to their increasingly skilled labor should reflect their investments and the quality of their services. Other activities in this category include other services and activities such as cultural shows and transportation services and rentals. Current rates charged for these services are presented along with their descriptions in the previous section. But since we were unable to obtain data on the quantity of these services provided last year, we are unable to calculate an estimate of the overall village-level value of this source of income.

One crucial factor affecting tourism operations at Mae Klang Luang village has been their efforts to control development and mitigate negative impacts on the community from the increasing number of rooms for lodging accommodations and from various other tourism activities that require approval by the village tourism committee. But this does not appear to have significantly curtailed expansion of tourism, which has continued to develop quite well in response to needs of the rising numbers of tourists, and appears to have created many good initial impressions. Lodging accommodations with a wide range of rates are available, including large rooms. There are also village restaurants and souvenir shops, and walk-in visitors are welcome if rooms are available. The main issues regarding tourism management at Mae Klang Luang village relate to the transparency of income benefits and their equitable distribution in the community. Since each household is encouraged to recognize the importance of tourism and opportunities associated with it, nearly all households participate in and have adapted to tourism activities that include home-stays, family resorts, selling goods to tourists, tour guides, car renting, preparing and conducting cultural shows, and so on. It appears that this community has been able to successfully develop tourism in a manner that is quite distributed throughout the community. Active tourism operations are able to attract a continuous flow of tourists, which helps generate an acceptable level of community income and also provides local job opportunities for young people so they do not necessarily need to leave the village to find jobs in towns as happened in the past.

At other locations, community-based tourism is still in much earlier stages of development. At Pha Mon Village, for example, major obstacles include not only its geographic location at more than 7 kilometers from the main road, but also various internal factors regarding tourism management. Both of these factors create conditions that slow down the growth and development of tourism, despite existence of a community tourism committee and an eco-tourism center. Since most villagers are generally not very aware of tourism operations, benefits from tourism tend to be poorly distributed and accumulating within particular groups. There is only one place for lodging accommodations here and advance reservations are required. Home-stay services are quite limited, despite previous efforts to persuade villagers to participate, because most are busy with farming and either lack sufficient knowledge to take care of tourists or are not yet ready to participate. Currently, home-stay and other services including food services and tour guides are only provided by one group of villagers and their assistants. Since most villagers rarely share in benefits from tourism, they are discouraged from paying attention to tourism development, so that while activities are operated under the name of the community, only particular groups are responsible for and have benefits from them.

Although tourism is expanding in the Pha Mon community at a gradual pace, people's livelihoods are still peaceful and differ little from the past. There is little improvement in local economic conditions, the community remains quite isolated, and people still rely primarily on income from agriculture. Unless there is more participation in further development and growth of existing tourism operations, accommodation facilities and other tourism activities will remain quite limited and unable to attract a reasonable number of tourists. If so, benefits are likely to remain poorly distributed and unable to improve the overall community economy.

Indirect benefits of community-based eco-tourism development

In addition to the income and other economic benefits they have obtained directly from eco-tourism operations, communities residing in DINP have also received various types of indirect benefits

that are essential for the security and strength of their communities. For example, eco-tourism is considered a key driving force helping to motivate villagers to protect and maintain forests and community landscapes in order to retain their natural beauty and richness. Interesting eco-tourism activities are able to attract a continuous flow of tourists, which requires conservation-oriented management of natural resources to maintain a fertile green atmosphere. Thus, people in these communities usually help take good care of the environment and surrounding forests. Clearing of forest land for cultivation has gradually vanished, while former opium fields and barren mountain areas have been returned to forest cover and become tourist spots for taking photographs. Thus, eco-tourism plays an important role in demonstrating the value of conservation for local communities, in addition to its value for downstream and higher levels of society, and provides clear incentives in the forms of income and indirect benefits to reward them for helping maintain flourishing natural resources and environmental sustainability.

Moreover, eco-tourism has presented occasions that provided opportunities for villagers and officials of relevant government agencies who previously had problems and conflicts related to ethnic minority community settlements within national park areas to adjust and improve their relationships. In order to help overcome such problems, for example, meetings were held to discuss and negotiate co-management of natural resources through eco-tourism. As a result, roles and relationships of park officers began to be adjusted from law enforcement officers arresting villagers as illegal intruders into state forest land to become providers of training in aspects of eco-tourism for villager trainees. Such efforts have resulted in improved relationships between villagers and park officers, which are now benefitting both sides as forest land management and administration in park areas have been clearly defined to include community residential areas, agricultural areas, forest for utilization with conservation, and restricted forest for conservation and protection as diagrammed in Figure 12.

Figure 12 Community land administration of Mae Klang Luang & Pha Mon villages

Yet another issue that should not be overlooked is that transformation of "communities in the national park" into "eco-tourism communities" is helping to change perceptions that villagers are a group that poses risks of generating negative environmental impacts into their being a conservation group that lives in harmony with forests. This is particularly relevant for helping erase old perceptions of government officials and lowland farmer groups who have long been taught by government sponsored narratives to view ethnic minorities as "hilltribes" who practice shifting cultivation that destroys forest and causes water scarcity in lowland areas. By changing such intangible images and perceptions, mountain minority communities should gain more security in their ability to continue residing and surviving inside the national park, despite the images and portrayals long buried in the minds of lowland ethnic Thais that almost resulted in forced resettlement of highland communities out from their settlement sites located in areas that were later declared to be within the national park.

Other indirect benefits of eco-tourism include encouraging local people to preserve their ancestral culture, traditions and indigenous knowledge. This includes pride in various elements of their own culture, such as the Karen sword dance and ancient musical traditions like the Tae Nha instrument which has nearly become extinct because young generations prefer to play guitars and western music. In addition to the Karen sword dance and Tae Nha, there is a growing renewal of interest in weaving and dressing in traditional clothing and costumes, with increasing popularity among both local youth and outside visitors who are now interested in learning about them.

Furthermore, eco-tourism has also brought development in various aspects of the quality of life for local communities, including electricity, tap water systems, improved road transportation, and telephone service. Previously, development of infrastructure inside national park areas was quite difficult due to strict enforcement of laws, rules and regulations following declaration of the area to be a national park. Since community-based tourism began, however, such difficulties have been reduced and basic infrastructure can now be approved and developed in a much shorter period of time. Portions of profits gained from tourism are also now allocated and used for activities with public benefits such as bridge repair and road maintenance and improvement, as well as for education funds and scholarships for children.

And at another level, community-based eco-tourism is helping alleviate some of the very high seasonal pressures on DINP resulting from numbers of visitors that exceed the existing capacity of national park facilities. DINP is always on the list of top tourist attractions in Thailand, with visitors coming to admire the beautiful natural scenery and to make a pilgrimage to the summit of Doi Inthanon, which is the highest peak in the country. Particularly during the cold season, tourists always come to enjoy the frozen-dew "frost" or "Mae Kaning" phenomenon, and local communities are providing additional lodging during such peak surges in tourist flows that helps ease pressures from the excessively high visitor density and demand for accommodations at the park.

Negative impacts of community-based eco-tourism and their mitigation

Although the overall set of community-based eco-tourism activities described above generates substantial amounts of both direct and indirect benefits for both local communities and DINP, at the same time tourism development has also brought some negative impacts. The large increase in the amount of waste (trash and garbage) resulting from tourism operations is a particularly important issue, especially in Mae Klang Luang village where the number of tourists has increased rapidly. The waste

problem was an especially crucial problem for the community during the earlier period of tourism. Since then, however, more systematic waste management has been developed by collecting all trash and garbage from each resort cabin and guest house at one place where it can then be removed from DINP by municipal garbage trucks for further waste treatment and disposal outside the national park. This approach has mitigated this environmental impact in DINP tremendously.

Other impacts of tourism are associated with tourists coming from various distant places with different cultures, resulting in changes from previously peaceful conditions in local communities and reduction of privacy in villagers' personal lives. Manners of some tourists are sometimes seen as improper and inappropriate role models for local youth, such as behavioral relationships between men and women in public places and improper or overly scanty clothing. Despite such changes, villagers of Mae Klang Luang village have been adapting and are trying to mitigate some more serious negative impacts by requesting the understanding of visiting tourists and explaining local regulations to them. On the other hand, in Pha Mon village the personal lives of villagers and the behavior of tourists are critical issues for the group involved with tourism operations. As a result, tourists are not able to travel very freely in the community because they must be closely watched over and guided by local caretakers in order to avoid inappropriate manners and behavior.

Conclusion:

Conditions in North Thailand generally suggest that it would be extremely difficult if not virtually impossible to establish and operate efficient and effective PES-style arrangements to reward people living in mountain forest communities for helping to maintain provision of environmental services using appropriate incentives that are contingent upon delivery of services that are valued by the beneficiaries. Indeed, initial efforts under this study to explore more conventional approaches, mechanisms and arrangements only underscored their very bleak prospects for application in situations encountered here. But as we began to think more broadly about the motivations for and objectives of PES-style arrangements, ongoing efforts to develop community-based eco-tourism within Doi Inthanon National Park (DINP) emerged as a very interesting and quite promising approach.

Development of community eco-tourism was initiated when various local communities saw opportunities to engage in tourism activities as a response to intimidation and pressures from outside communities and conservation interests to forcibly relocate their communities from settlement sites that were declared part of a national park. Motivated by optimism and good intentions, they earnestly sought to build and improve community-based eco-tourism operations as part of a solution to their conflict and security problems. This required overcoming many difficulties encountered during early stages, including lack of management skills, insufficient funds, corruption problems, poor roads and transportation, lack of respect from tour companies, and so on. The main role of DINP administration was to serve as an enabler, providing only their endorsement, encouragement, a discussion forum, and very minimal amounts of some types of knowledge and training. Thus, all major investments, labor, innovation and negotiations have been led and provided by members of local ethnic minority communities themselves. This has assured genuine motivation of local communities, a true sense of activity ownership by members of local communities.

Local communities and their leaders have sought additional assistance and especially technical support from outside facilitator sources they felt they could trust. Strengths and weaknesses of eco-tourism operations were reviewed and carefully reconsidered using a collaborative research process involving organizations skilled in community research under support from the Thailand Research Fund. A realistic operational framework was then developed so that tourism management could become more efficient under more understandable and practical regulations for visitors that still are effective in providing reasonable controls on impacts of tourism on community social rules and peacefulness. Under an efficient tourism management system, home-stay services are rotated among participating households in order to assure a careful and equitable distribution of income that provides incentives for local people to conserve natural resources and the environment in sustainable ways. Good responses and positive feedback from tourists have resulted in improvement and expansion of various aspects of community tourism services, including the community resort, villagers' private group resorts, home-stays and tent accommodations. Other tourism activities conducted by local people such as cultural shows and both nature and cultural tour guides have also expanded in response to tourists' needs.

Moreover, community eco-tourism has gained competence and confidence and is responding to opportunities for further growth through coordination with other types of tourism service providers in the area. One especially clear example is the Inthanon Bird Center (also known as Uncle Daeng's House) that provides support for all aspects of the needs of birdwatchers coming to see birds in Doi Inthanon areas, including information, academics, accommodations, food, guides, equipment, etc. There are not enough rooms at the center, however, to accommodate the large number of visitors, especially during the cold season (see Table 1). Thus, with systematic collaboration there should be important opportunities to further develop and improve accommodation services for the many birdwatcher groups and conservationists who travel from all over the country and usually prefer to stay in a simple atmosphere that is close to nature.

Table 2. Comparing conditions before and after development of community-based eco-tourism

Before eco-tourism development	After eco-tourism development
Villagers are relatively poor, in debt and dependent on agriculture for primary income plus forest products	Villagers are better off and gain additional income from eco-tourism
Illegally expanding agricultural fields into areas declared as state protected conservation forest	Reduced land expansion for agriculture and incentives for villagers to conserve natural resources & cultures
Conflicts regarding village settlements within DINP	Reduced conflict resulting from eco-tourism
Bad image of ethnic minority groups due to portrayal in past state narratives as forest intruders and destroyers	Eco-tourism building new portrayal of ethnic minorities due to conservation, knowledge & DINP endorsement
Politically charged calls for forcible relocation of ethnic minority village settlements to areas outside DINP	Communities becoming popular tourist locations and having more security in their settlements
Lack of basic infrastructure development such as roads, electricity and bridges	Developing basic infrastructure and improving various aspects of local quality of life

Overall, these communities are displaying considerable entrepreneurial skill in developing their community eco-tourism enterprise operations, including their ability to handle prevention and mitigation of negative impacts reasonably well. Their community-based operations are demonstrating their ability to generate substantial levels of regular income from tourism-related activities that improve the community economy as well as perceived improvements in local infrastructure and other important aspects of the local quality of life as summarized in Table 2. These include some of the important

issues that were crucial factors in motivating initiation of community-based eco-tourism, such as halting expansion of agricultural areas into areas that are also national park lands, as well as reducing conflicts both between villagers and park officials, and between mountain minority villagers and lowland ethnic Thai populations. This is also perceived to be helping improve the image of local mountain minority communities in the minds of lowland and national populations, thus increasing the security of community settlements located in areas that have been declared to be state protected forest lands.

Thus, findings of this study support the notion that at least under conditions found in North Thailand, it is possible for community-based eco-tourism to serve as a market-based mechanism for rewarding upland communities for helping to maintain provision of environmental services from the environments in which they reside. The critical factors of environmental service assessment, valuation, and monitoring are all effectively dealt with by economic market mechanisms, thereby bypassing many of the problems found in more conventional PES arrangements. Sufficient levels of economic and indirect rewards are required for continued engagement by local communities, while sufficient quality of cultural and environmental conditions and ecotourism services are required for continued purchase by visitors. And an additional level of social and environmental engagement is required to maintain their improving image without further strong negative attacks from government or conservation interests. Both national park officials and local communities agree that these arrangements effectively avoid the many problems with government programs that experience indicates are insurmountable, and appear to be succeeding where other previous types of efforts have failed. These findings suggest that more strongly market-based approaches may be worth further exploration and testing elsewhere.

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