

*Individual motivation, collective action and the tension between conservation and development in local natural resources management: Comparative Case Studies in the Upper Mekong Catchment*

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**Abstract**

Drawing on empirical evidence from five villages in the upper Mekong catchment in China and Thailand, this study explores the links between resource use patterns, the motives for undertaking collective action, and local institutional capability. Using qualitative case studies, this study examines the ways in which local institutions and community-based conservation actions seek to resolve the dilemma of increased development needs and limited ecosystem capability at the local level. This paper argues that despite limitations, local institutions have potential in motivating participation of collective action, balancing the conflicts between local needs and state's conservation efforts, as well as facilitating the sustainable nature resource management at the local level. The findings of the study are important in the design of national and local policies in natural resource management.

**Key Words:** Community-based Natural Resource Management; Local Institutions; Individual Motivation; Collective Action

**Introduction**

The most challenging issue facing Natural Resource Management (NRM) in many developing countries is the conflict between state conservation agendas and multiple stakeholders' unwillingness to forego the benefits of utilizing local resources. The restricted capability of ecological systems and, the use value of natural resources and their external characteristics, have determined that there are potential tensions between resource use and conservation targets. Generally speaking, a state's interests are more varied than the direct interests of many resource users, and it is usually necessary for a government to manage natural resources, not only as a source of local livelihoods, but also for the sake of

ecological sustainability and bio-diversity protection. However, it is also inappropriate and unrealistic to simply achieve the optimal conservation objectives by limiting local people's access to resources. Sometimes, establishing locally-led resource governance and applying direct control over resources according to local livelihoods needs, may conflict with macro, national environmental objectives (Marshall, 2001), in particular when poverty is still the main concern of the local people, or when a more lucrative economic activity gains wide support in the empowered community (Hackel, 1999)

One perspective that prevails among policy makers and development practitioners in many developing countries is that this dilemma can be resolved by reducing the local resource-dependency level and increasing the profits that local people can generate from current resource use. However, one apparent problem with this approach is that it assumes that the local aspirations for improved well-being remain static. Alternatively, when there are few restrictions imposed by either formal or informal institutions, local resource users' aspirations for economic gain are likely to be encouraged and will grow in scale.

Two fundamentally opposing perspectives have emerged from efforts that explore possible solutions regarding these issues. Some authors have insisted that the majority of local resource users are non-strategic but rational actors driven by the desire for immediate profit, who usually behave so as to maximize short-term benefits whenever possible (Alvard, 1993). They believe that the hypothesis which says that native people are "ecologically noble savages" who are natural conservationists, living in "harmony" with their environment (Redford, 1990) is inflated rhetoric, because the conflict between development and conservation is inevitable and will persist. Therefore, this school of thought insist that the sustainability of resource management should be monitored and enforced by the state (Lynch & Talbott, 1995) and, when forced to prioritize between the goals of conservation and of economic gains for local people, conservation should come first (Wells & Brandon, 1993). This opinion has been selectively implemented by many policy-makers and conservationists, and has led to the implementation of some policies that restrict local people's rights over natural resources, and to the establishment of a large number of conservation areas where the local communities are forced to move away from their original home.

In contrast, increasing number of scholars has been convinced by empirical evidence showing that indigenous people have undertaken the effective stewardship of their surrounding environments over a long period. They believe that indigenous knowledge has been produced through a long, mutually adaptive process of human communities interacting with their environment. Therefore, the environmental protection characteristics of local values are actually rooted in many customary institutions and cultures (Leach, Mearns & Scoones, 1999; Lynch & Alcorn, 1994; Ribot & Peluso, 2003). These scholars admit that under the conditions of resource shortages and an

aspiration for increased cash income, the unregulated market can encourage the inappropriate and commercialized use of resources and a profit-driven production process. However, they also believe that the inherent environmental protection ethic of local actors could be encouraged or promoted through programme initiatives and appropriate incentives (Ribot & Peluso, 2003). These authors believe that once the conservationist agenda are integrated with local resource governance systems properly, the stewardship of resources can go hand-in-hand with economic progress and thus achieve a balance in terms of local development aspirations and ecological standards (Dietz, Ostrom & Stern, 2003).

However, the existence of contradictory studies suggests that neither of these two perspectives is conclusive. Increasing empirical experience from developing countries (see Dietz et al. 2003; Ribot, 2002a; Agrawal, 2002), where poverty reduction has continued to be a major policy concern, has shown that it is certainly possible to reconcile development and conservation, but that they do not automatically fit together (Barrett, Gombya-Sembajjwe & Bahatí, 2005). The results of many external intervention attempts aimed at reconciling these two objectives have been mixed, due to highly ecologically and socio-economically specific context of each case (Gjertsen & Barrett, 2004).

Because of these mixed results, there is a long-standing debate in the academic community on whether or not the discretionary power should be devolved to local actors, and whether or not the local people are capable of managing their resources in a sustainable way. However, once much of the existing research has concentrated on the issue of local employment, the ways in which local institutions and community-based conservation groups act to balance the local development needs and national conservation efforts has received less attention. Particularly in China, the role of local institutions in local resource governance has been undermined for a long time, where local institutions have been largely destroyed due to the historical and political reasons (Weyerhaeuser, Wen & Kahrl, 2006).

This paper aims to examine how the local institutions function in sustainable resource management by motivating the individual's willingness to participate in collective action. Although it is increasingly recognized that community-based collective actions are desirable in order to increase efficiency, reduce the over-exploitation and abuse of resources, minimize poverty, vulnerability, risk and inequality, and help mediate conflicts through enhanced cooperation (Parnwell, 2005, p149), this paper argues that a precondition for releasing all these potential is the formulation and empowerment of appropriate local institutional arrangements. In order to support this argument, it is necessary to elaborate the internal linkages between the incentive structure of collective action and local institutional capability to see how local institutions achieve the objectives of enhancing trust and increasing the collective efficiency by encouraging the participation and cooperation of members in the collective action. We do this by drawing on empirical evidence from five case studies from adjacent areas in

two different countries: northern Thailand and Yunnan Province in the south west of China.

### **1. Local Institutions and Collective Action**

Over recent decades, a body of empirical and theoretical research work in the field of NRM has been produced on the subject of collective action (Olson, 1965; Axelrod, 1981; Uphoff, 1986). Some of this work has focused on the theoretical discussion regarding the conditions that foster or inhibit effective collective action (Olson, 1965; Ostrom, 1990 and 1994). Other empirical research has been based mostly on case studies, or on a synthesis of a number of case studies (Uphoff, 1986; Baland & Platteau, 1996; Agrawal, 2001). A common issue shared by all these studies is on what conditions collective action can happen and can be sustained (Meinzen-Dick, DiGregorio & McCarthy, 2004a).

Marshall (1998) pointed out that when it is difficult to exclude non-participants from benefiting from the collective action of others, there is the potential that some individuals will seek out short-term benefits for themselves, but not contribute to the collective actions of others. In this situation, 'collective action problems' might occur (Marshall, 1998). Game Theory explains the causal mechanism of collective action problems; one individual's benefits can change, depending on how many other people actually contribute to a specific activity. A rational individual may make decisions according to others' behaviors. Therefore, the individual's decision of involving in certain collective action and his/her level of participation, is based on his/her assessment of other member's performance and contribution. For instance, the assumption that free-rider actions are being carried out by other members often prevents people from participating in collective action or contributing as much as they can. Therefore, a key obstacle to collective action and collective efficiency is derived from problem of trust (Meinzen-Dick et al. 2004a).

Fundamentally, the capability of communities to initiate and maintain particular collective action is mainly determined by the transaction costs involved, and these will vary for a variety of reasons. For instance, besides some macro factors such as the market, policy framework, technological or infrastructure elements, natural factors such as the stability and scarcity of the resources, the size of the ecological unit, the cost of monitoring the resource change, and social factors such as the existence or not of the democratic forums needed to set group agendas and implement collective activities, of transparent and accountable institutions, as well as credible and fair conflict resolution mechanisms, all help to contribute to the success or otherwise of collective action (McCarthy, Dutilly-Diane & Drabo, B., 2004; McCarthy, Canziani, Leary, Dokken, & White, 2001; McKean, 2000).

Among these, the level of local institutional capacity is one of the main factors influencing the transaction costs of collective action. For example, a locally-based approach, is associated with high program design costs, because effective participation is time-consuming and therefore costly, but the cost of

implementation, monitoring and enforcement is lower, due to its significant local legitimacy (Hanna, 1995). In order to encourage individuals contribute to collective action effectively, it is essential to enhance the communication and cooperation between members as well as to ensure the information transparency. Therefore, the role of local institution is of particular importance.

The “local institution” is a relative concept. Local institutions are either latent or explicit, and they can be classified in a variety of ways. These institutions may represent written community law which enjoys a local legitimacy, or may have been mediated (or implied) through a variety of cultural processes or collective actions, such as ritual activities, labor exchange and clan-based gatherings. For the purposes of this study, local institutions will refer to those locally-based rules and norms that guide the daily consumption of natural resources, including the rules in place with regard to resource allocation within the community, or between communities, rules for managing conflict, internal cooperation mechanisms, as well as reward and punishment systems (North, 1990; Riker, 1980; Meinzen-Dick et al., 2004; Agrawal & Ribot, 1999)

## 2. Field Methodology and Background of Case Site:

### 2.1 Study Site Selection and Variables Control

There are a large number of variables that influence the formation and performance of local institutions. In order to identify and assess the local institutions and their effect on NRM accurately, three sets of factors influencing local institutional formation and adaptation were applied in the site selection, and in order to control the number of variables.

#### 2.1.1 Spatial Scale and Geographical and Demographic Controls

The research sites in this study were selected from communities located far from the county or sub-district seat of local government, or in mountainous terrain that had road connections to local markets. The sites were of medium size (with a population between 400 and 2000 people), and had a relatively low spatial dispersion of village residents (not more than six sub-villages). These proxies were used to control the variation in demand for specific public goods provision, and also the cost of monitoring the collective actions.

#### 2.1.2 Temporal Scale and Temporal Control

A historical review of the formulation and transformation of local institutions over time was applied in this study, in order to understand the key drivers behind the institutionalization of community-based collective conservation and management programs. This narrative method, one based on historical accounts, is able to describe the long-term institutional changes and provides a comprehensive understanding of the mechanisms of change that may operate in a specific context. The institutional schemes that were in place at the time of the research were analyzed in this study, not only as a reflection of the enabling environments of the time, but also as clues to be used to trace back the path of local institutional evolution.

### 2.1.3 Site Selection Criteria for Control

The original rationale for the case-study site selection strategy was to be able to identify the external and internal factors contributing to institutional transformation, and their impacts on NRM practices. In order to reduce the variables and ensure that the selected cases were representative and had the variables and criteria to compare, the site selection criteria chosen were as follows:

- **Indigenous Knowledge Systems:** The selected communities have perceivable indigenous knowledge and customary institutions to guide their NRM practices.
- **Property Rights or Management Responsibility:** The existence of collective ownership, or collective management with private ownership, was selected as a criterion, because the motives and capacity characteristics of local institutions to initiate and maintain collective actions are easier to detect in these types of property rights arrangements.
- **Local Institutional Ability:** The sites selected needed to demonstrate the potential of the role of local institutions within an effective NRM and conflict management framework, or to show the negative results of weak local institutions. The performance of some resource-related local organizations was assessed, as a proxy of local institutional capability.
- **Levels of Involvement:** The targeted communities and community-based NRM practices, needed to involve multiple stakeholders in order to better explore the different roles and contributions that they played, and the potential for cooperation between them. The central role of local actors was to be highlighted within the collective resource management structure.

Based on the criteria set-out above, five case study locations were selected from western Yunnan in the south-west of China and from Chiang Mai in northern Thailand (See map 1). The findings presented here were collected from three villages (Mengmao, Xiao Heishan and Pingzhang) from Longlin County, in China’s Yunnan Province and two villages (Huay E Kang [Karen ethnic group] and Mon Ya Nuea [Hmong ethnic group]) from northern Thailand. Out of the three Chinese cases, two villages, Mengmao and Xiao Heishan, are situated within the same sub-watershed but at different altitudes. Mengmao was selected because of it has more than ten years of experience in effective community-oriented collective forest management and institution building. Xiaoheishan village was chosen on the other hand, because of its location within a natural reserve and therefore it could be a good example to emphasize the issue of the trade-off between conservation and development goals. Another case site, Pingzhang village, is located in the same river system as the other two villages but in a different watershed, and was selected as a comparative case because an NGO-facilitated and community-based NRM program was being carried out there.

Two hill-tribe communities, a Karen ethnic village called HuayE Kang and a Hmong ethnic village known as Mon Ya Nuea, were selected from northern Thailand. These two settlements are situated within the same watershed area, but at different elevations and are characterized by a variety of resource management systems in association with their different settlement histories and ethical heritages. As the two communities shared some of their natural resources at the time of the study, such as their sources of water, it was felt that they might have some sort of social relationship and link with each other.

### 2.2 Framework for Comparative Analysis

Although these five cases vary at the village institutional development level, as well as in terms of their levels of economic development, their cultural and ethnic heritages and their settlement histories, they were representative of the situation across most of the Great Mekong Sub-region, where traditional livelihoods are agriculture-based, forest resources-dependent, and the biodiversity and the upland ecosystem under the sub-tropical monsoon climate are threatened by intensive resource extraction and increasing population pressure over the last three decades. Moreover, as the two areas are geographically close to each other, local communities that have settled in these two areas for generations have shared many similarities in terms of traditional livelihoods, indigenous knowledge and resource use patterns, as well as customary institutional arrangements due to some historical connection, the common characters of natural ecosystem and productive system (see Table 1 and Table 2)

Given both the tremendous variations and similarities between local institutional developments in the two areas, contemporary rural China and northern Thailand provide a particularly useful setting for comparative study to examine the local institutional factors that affect sound NRM practices. Two types of comparative study were applied in the research. First, a study compared the local institutional schemes from the two study countries. This was done in order to understand how the local institutions interacted with their enabling or restricting environments and how different power relationships and formal institutional structures had influenced the specific local institutional configurations.

The second type of comparative study was undertaken between several communities exposed to the same policy and political environments, but differentiated in terms of their ethnic identity, socio-economic conditions and resource management patterns, in order to understand what specific variables had contributed to their different institutional responses. This comparative study was able to explore the degree to which these institutions promote efficiency, to understand their differing processes of adaptation, and also to gauge the sources of inefficiency associated with community-based conservation and the collective management of resources.

### 2.3 Field Data Collection Methods and Procedures

During the one year field work semi-structured and open-ended interviews

were held with local inhabitants, non-government organizations, research institutions, community representatives and community-based organizations, as well as with officials in the township (sub-district), county, municipal government and state resource agencies. In-depth interviews were held with various key informants, such as village heads, local teachers, village elders, monks, women, and other community elites and non-elites, and these were used together with participatory observation in various agricultural activities, at meetings or gatherings at the case-study sites, or at related conferences and workshops hosted by host institutions during the field work period. Although most analysis was focused on the local institution at the community level, in order to consider the interactions between institutional layers, the research data and interviewees were extended from the 'natural' village, to the administrative village, township and county levels in China; and from sub-village and village level, to the sub-district level in Thailand.

In addition, intensive group discussions were held with representatives of the local governments involved, with the private sector, as well as with different sub-groups of the local inhabitants. The data were then complemented and cross-checked using participant observations at meetings, during people's daily production activities, and at informal social gatherings.

## 3. Findings from five case studies

### 3.1 Individual Motives for Becoming Involved in Collective Action

Results of the study indicate that there are a number of factors which affect an individual's motivation to become involved in collective action, these being economic, environmental and social.

#### 3.1.1 Economic motivation:

In many, if not most cases, individual farmers will make decisions based on direct, rational economic calculations. Many interviewees in this study admitted that they were more apt to participate in collective action if the tangible economic benefit from the membership is greater than individual action.

In the two study areas, this rational calculation capacity has been embodied in villagers' attitudes to all types of externally-initiated development projects. The direct and potential economic benefits are the major parameters used when the local people decide whether to adopt various development projects, and how to participate in them. For example, according to an investigation into the main land use concerns of the villagers in three Chinese cases who were engaged in contract farming group, the top concerns of the villagers were the relative proportions of the land they could use for growing cash crops; the possible amount of inputs and the returns they could gain from joining this group to sell their products. Meanwhile the environmental consequence, effects on biodiversity and community cohesion associated with new land use were put as the last concern on their assessments list. In this case, the economic benefit is the main motivation for involvement.

In the two Thailand cases, villagers have built and maintained a road connecting their village to the main road, and have also built temples, churches and community halls. All these voluntary-based and collective actions have performed the same function as the provision of local public goods. Involvement in such collective action therefore, has endowed the participants with social recognition and the right to utilize public services in the future. Therefore, for local people, the benefit to be gained from the development of local public services is also an important motive for becoming involved in collective action.

### *3.1.2 Environmental concerns*

Those resource users who work closely with ecological and agriculturally productive systems are the first actors to detect evidence of ecological change caused by the inappropriate resource use. Interviews with the local villagers showed that environmental concerns are a common characteristic that exists across different cultures and social groups. According to the interviews held at five study sites, when asked about their perspective on the sustainable use of resources, the majority of villagers understood the ecological significance of biodiversity and the importance of environmental sustainability.

In general, local people's calculations involve environmental concerns when the environmental consequences of inappropriate management are apparent and cause an economic loss, or when there is security to be achieved in terms of receiving a future income from their conservation efforts. A typical example of this is provided by the Forestry Self-Management Group which was started by Mengmao villagers to collectively manage their forest. This initiative was a response to the suffering experienced by the villagers after decades of insufficient water, landslides and farmland damage caused by over-exploitation of forest resources. The villagers reported that the condition of the forest near the village after that improved much, when compared to the situation ten years before. According to the senior villagers, the regeneration of the forest, both through planting and through natural regeneration, has resulted in the return of streams that had once dried up. Villagers interviewed expressed their satisfactions with those changes.

### *3.1.3 Social motivations*

According to observations in the field, individuals with high self-esteem and self-expectations are willing to actively participate and perform above the average, in order to receive acknowledgment and respect from others. In this situation, a fear of social isolation and the aspiration to achieve a moral standing, become powerful incentives. In some cases, community members may lack sufficient individual incentives, or are reluctant to participate in collective action, but still do so in order to satisfy specific moral standards, or to act in accordance with conventional behavior which is well-recognized by other community members or by mainstream discourse. As one villager said: "If someone asked me to stop dumping the rubbish into the Supa River, I would refuse, because it would change nothing. But if rules and a monitoring institution were there to make sure all [the] people who live close to the river...obey

the rules, of course I would do [the] same thing. I do not want people to throw stones at my back". Sometimes, these standards may not necessarily be explicit, but ignorance of them, or non-compliance, might lead to an individual losing the trust of his or her peers.

Moreover, organized and wider-scale collective action makes it possible for local groups to address their problems at a higher political level, and to voice their claims with respect to policy development (such as in the case of the Community Forest Bill in Thailand). Clearly, participating in collective activities can improve local people's bargaining positions and power.

Sometimes, high economic returns are associated with higher risks, which local people are not able to afford individually. Collective action may therefore enhance local people's ability to adopt risk taking behavior, as they are able to face the risks together. This type of self-help mechanisms is found to be widely existing in both two study areas. For instances, the rice banks and savings group systems in hill-tribe communities in northern Thailand can provide the poor with peer help and decrease their individual level of insecurity. Huay E Khang villagers reported that they feel more secure, because they have the flexibility to save or borrow from these collectively-managed loan sources when required.

In summary, the motives of local resource actors involved in collective action are multiple; including economic, environmental and social concerns. Local people assess the costs and returns of becoming involved in such activities, by their own methods, which are informed by their own economic, social and political position in the community or wider society. Also these motives might be dynamic as a result of a number of factors, including technology, the market and other social and policy elements. Local institutional factor is one of them.

### *3.2 Collective action and local institutional capability*

According to the above discussion about the multiple motives regarding collective action, it is not difficult to figure out how important it is to link the local institutions with the collective action. Besides time, energy and sometimes money reasons, an individual's faith in his or her group's ability to initiate and maintain successful cooperation was an important parameter to take into account when assessing whether an individual decides to become involved or not in collective action. Evidence from the case studies shows that communities with a successful cooperation history and with diverse and active organizations are more likely to convince their members of the necessity for collective action and cooperation (as Mengmao case in China and Huey Hey Khang case in Thailand). Thus, a history of successful collective action and established trust among members reinforced by local institutions have significant roles to play in transferring an individual's potential motives and conservation ethics into real action. As what Ostrom (1990) pointed out, well-designed community social institutions can help overcome obstacles to collective action.

Therefore, to some extent, the success of a new initiative depends upon the existence of either a 'virtuous' or a 'vicious' cycle within a community. It may

explain why it is easier to call upon collective action in one community, but more difficult in another. Well-crafted and accountable local institutions can play a substantial role in establishing and maintaining such virtuous cycles within a community. Informal incentive structures shaped by local institutions, however, influence the ways in which people weigh-up costs. Well developed networks and cohesive connections between members, as forged by and through local institutions, make future cooperation both more likely and potentially more lucrative. Of course, this virtuous cycle might be broken once members lose their trust in the fairness and accountability of the local institutions, particularly when external factors intervene to alter the status-quo.

In reality, not all communities are able to initiate effective collective action. Empirical evidence from the case studies shows that some communities are able to mobilize their members more easily than neighboring communities although they share lots of similarities in terms of natural and economic conditions. And that sometimes within a community, some sub-groups are more likely to engage in collective action and cooperate than others. One of the underlying reasons is the difference in local institutional capability.

#### 4. Discussion

##### 4.1 *Local Resource Users: Strategic, Rational Actors or "Ecologically Noble Savages"?*

In many cases, the local people, when their livelihood security is challenged, may adopt an opportunistic perspective in terms of their priorities, and so may trade-off long-term and sustainable resource utility, with the effort to consolidate or improve their livelihoods over the short-term (Morduch, 1999; Li, 2002). This is the key reason why economic benefits and cost-efficiency are frequently emphasized by economists as the key incentives for individual rational choice, in particular in many developing countries, where poverty is widespread. These economic outcomes, with their explicit and measurable characteristics, are widely embraced by both local actors and policy makers as major indicators of development. Historically, in the two study areas, it indeed has happened that the local people have over-exploited their resources, driven by the desire for immediate benefits and due to uncertainty over property rights.

However, it is often ignored that a person's pursuit of benefits might actually be restricted by the values, ethics and many other social norms embedded in his or her decision-making mechanism. For example, one member from Mengmao Forest Self-management Group claimed that the income to be gained from unrestricted logging was socially unacceptable, even if it was indeed lucrative. Besides formal laws and regulations, it was found in study sites that the existence of a variety of social norms, regulations, internalized ethical and moral standards at local level, as well as many other social factors, have prevented local people and local groups from chasing maximum individual benefits.

Comparing the two villages in northern Thailand, it is noticeable that the entrenched cultural and socio-economic differentiations across the different

ethnic groups create varying incentives to contribute to collective action in resource management. For instance, as new immigrants in the Mae Win watershed, the Hmong people have less secure resource rights, and so, have little hesitation in extending their intensive resource use. The landscape of Mon Ya Nuea is dominated by large areas of vegetable plots and fruit gardens on the sloping land with forest cleared, accompanied by the intensive usage of chemical pesticides and fertilizer. In contrast, because of their long and intimate relationship with the forests, the Karen people are very proud of their identity as forest inhabitants and as rice cultivators. In Huay E Khang, people have still maintained some ecologically friendly resource management approaches and institutions, such as rotation cultivation system, forest Zoning system and Indigenous irrigation systems (meuang fai). As one elder said, "It is just a kind of Karen tradition to maintain all of these (systems). Our ancestors told us we should not take more than we need from the nature." Of course, some adaptation of local institutions regarding natural resource management in Karen community had occurred during the last several decades due to the sweeping impacts of market economy and globalization. For example, during fieldwork in Huey E Khang, the fallow period had been cut to three to six years. The "Karen consensus" of forest was no longer applicable in an environment of intensified resource competition (Walker, 2001). However, it is still apparent that, guided by their own culture and values, specific development trajectories and resource use patterns may differ between ethnic groups. And different ethnic groups may adapt differently to the ideas and realities of development and conservation because of the different customary institutional arrangements and norms they shaped.

When economic growth is cited as the main cause of rapidly deteriorating natural resource systems and environments in developing countries, this paper argues that research effort should be extended to uncover the underlying social, cultural and ethical factors that define the characteristics and scale of "money-driven" choices. The conclusion that economic drivers are the key determining motives for initiating locally-based collective action is too rough. Different people may weigh-up the costs and benefits involved differently, depending on their own economic, social or political situation. For example, when asked about the sustainability of community-based collective forest management, some villagers interviewed thought that economic benefits should be given the highest weighting, and therefore should be first on the list of criteria evaluated, while other villagers (most of them members of the local elites, or [in China] cadres) said they are more likely to partially compromise economic benefits for moral reasons. For this latter group, moral standing is a factor to which they ascribe a greater weighting. Similarly, fieldwork observations show that the reasons why different communities initiate varying modes of sanction system are based upon how people weigh the costs and benefits. One factor that influences a community's choice between moral condemnation and economic punishment for non-compliance, is how much

weight the majority of community members place upon their social reputation and moral standing.

Therefore, we can see that community-based conservation regime is neither being driven purely by so-called 'inherent' conservation ethics, nor by a purely economic rationale. The community-based conservation regime is actually the result of a synthetic evaluation of the possible costs and benefits involved, including economic, environmental and social benefits; short and long term costs, and direct or indirect costs and benefits. Driven by various incentives and interests, the creation of a locally-based collective management regime can be seen as a rational decision and as a form of self-adjustment. For example, when considering only the time and economic investment aspects, it may appear too costly for local people to become involved in community-based social gatherings or ritual activities. However, when considering how much this action may contribute to the building of social capital as well as help to enhance community cohesion, both of which may affect future levels of participation and cooperation, then the conclusion and corresponding strategies may be quite different.

The assessment of costs and benefits of involvement in collective action, either economic or social, vary according to the underlying incentive structure in place. An incentive structure shaped by local institutions may influence the ways in which people weigh-up the costs involved. Fieldwork results showed that people think of themselves as being too weak to change the large-scale environmental deterioration problems by themselves, but are willing to contribute to a group or institutional approach.

Sometimes it is the case that, even though the benefits from conservation are apparent, and the conservation activities are well-recognized by the members involved, there is still a failure in the initiation of the relevant activities. In contrast, some communities are able to overcome the incentive to 'free-ride' and have voluntarily established community-based NRM initiatives. Obviously, because institutional arrangements are able to actually shape the incentives and constraints faced by local people, rather than a simple unitary benefits-driven mechanism, institutional factors have a significant role to play in reducing the transaction cost of cooperation and transferring an individual's potential motives and conservation ethics into real action. Ascertaining the social and ethical concerns that lie beneath the economic motives, and stressing them through the rekindling of local institutional structures, may therefore be helpful in restricting the profit-driven natural resource exploitation activities that prevail in many developing countries.

This paper suggests that, rather than struggling with the dilemma of choosing the right balance between prioritizing local development needs or meeting conservation targets driven by scientific understanding, researchers should put more effort into thinking of ways to go beyond this paradox, and to seek practicable institutional solutions to deal with the externalities and uncertainties that exist within NRM systems.

In order to achieve a balance between conservation and development, a comprehensive assessment of the ecological significance of the local ecosystem involved, the level of local livelihoods dependent upon natural resources, the scale of externalities and most importantly, the local institutions' ability to balance these goals, is critical. Among these criteria, well-established local institutions can play a significant role in mediating the conflicting priorities of local and national players, and thus lead to more sustainable resource management. Rather than be trapped in a dispute on whether or not local people are equipped with an 'inherent' conservation ethic, and as to whether they should or should not be empowered with more authority, more research effort should be focussed on assessing the potential for establishing appropriate institutional support mechanisms, as well as the sufficient incentives needed to mobilize locally-based conservation actions.

#### *4.2 Limitations of Local Institutions to Mediate in Resource Externalities*

Of course, to over-exaggerate this aspect and to treat institutional solutions as a development panacea is dangerous. Like any other informal institutions, local institutions functioning in the NRM domain have their inherent weaknesses. Ignoring these weaknesses, as Parnwell (2005) has pointed out, may place NRM at the risk of spinning out of control. Several characteristics can be ascertained when carefully analyzing the weaknesses of the relevant local institutions in this study. First, the local institutions are context-specific and characterized by diverse structures and schemes connected to the local cultural, economic and ecological conditions. As a result, they cannot be applied on a more extensive scale, or as universal notions. Also, as a result of their informal, context-specific nature, their lack of (formal) legal legitimacy, power and capability to initiate coordination between different stakeholders, means that the local institutions' ability to resolve conflicts and mobilize cooperation on a wider scale is limited, especially when it has been shown that these local institutional arrangements are highly diverse and lack the ability to scale-up. It is noticeable that the local institutions in the study are ineffective when dealing with cross-boundary issues such as large scale negative externalities, whether on a watershed or regional level. It was notable in the study that externalities at the regional level or national level are rarely drawn into local institutional concerns, for example, we found the contents of the village law in five cases mainly focused on the enclosure and management of their own particular resources, and rarely mentioned the concept of watershed management or larger scale concern. Due to the differences in specific institutional arrangements between the Huey E Khang and neighboring villages, some conflicts have continued to exist. The tension regarding water resource distribution between upstream and downstream communities in Mae Wang watershed has persisted for more than 10 years and could not be given appropriate solutions.

Second, although local institutions are able to some extent to filter and modify national legislation and policies into locally-adapted forms (Banana et al, 2001), informal institutions are often relatively weak and limited in their

enforcement capabilities, due to their informal and spontaneous nature. Often, the power and legitimacy that many local organizations receive is locally endowed and their structures are based on patterns of residency. The majority of the local institutions in this study were formulated on the basis of local legitimacy, and many of them have not been formally recognized by local government or state law. Therefore, they have been quite fragile in the face of substantial socio-economic changes, such as the growing influence of the market economy; individualism and commercialization. They have also proven weak in the fight against the vested interests of influential actors or forceful interventions from outside. Sometimes the lack of legal legitimacy of these local institutions has been used by outsiders as a weapon in their negotiations. In these circumstances, local organizations or groups are unable to act as legal representatives of the local people in terms of their negotiations with outsiders. For example, when the members of the Forest Self-Management Group in Mengmao village tried to stop a small mine from destroying the forest during a period of road construction several years ago, the owner of the company accused this group of having no legal right to resolve disputes.

Therefore, it is critical to legalize informal institutions and to formally recognize and strengthen their roles in terms of sustainable resource use, as this formal legitimacy will endow local organizations with the greater level of negotiation power needed to protect their rights and claim support from outside. This will also help local organizations to gain an independent identity and create an enabling environment for the development of further local institutions.

## **5. Conclusion**

Evidence from the case studies shows that the individual motives for becoming involved in collective action and pursuing sustainable resource management practices, are varied and include economic, social, political and cultural factors. These motives are also likely to be dynamic and differentiated, changing with the individual's calculation of the current situation or the outputs that previous attempts achieved. Among them, the existence and the capability of the local institutions affect the way the local people calculate the cost and therefore affect their decision of becoming involved in certain collective action or not.

Understanding these diverse motives will be helpful when trying to establish appropriate incentive mechanisms to narrow the gap between development and conservation goals in the future. The results of field observation on the two villages with most successful CBNRM experience shows that the cooperative partnerships and community-based collective management regimes supported by adaptive and flexible local institutions, with powerful rules covering monitoring and enforcement, have the potential to reconcile conservation and development goals at the local level. In order to balance the potential contradiction between state conservation agendas and local livelihood security, it is suggested

that the local institutions should be reassigned to play a role in mobilizing locally-adopted cooperation mechanisms and community-based conservation efforts. It should be realized that local institutions can serve not only as a vehicle for furthering local claims over resource rights, but can also provide strength in terms of providing locally-based environmental services and in eliminating localized negative externalities.

On the other hand, local institutions in the study have proven less effective at dealing with cross-boundary issues and negative externalities on a regional or wider scale. In some ecologically significant and vulnerable areas, when the locally-led resource use patterns driven by local livelihood conflicts with national environmental objectives, a more practicable approach might be to use minimum environmental standards to define the local autonomy domain, and to provide the necessary compensation for local residents when restricting their resource use for the reason of wider-scale environmental services concerns. Shifting to alternative livelihoods and decreasing their resource-dependency levels are also recommended. In short, the burden of environmental services delivery should not fall on communities alone; therefore, efforts that accommodate community-based conservation approaches and the appropriate level of state control are required. It is critical to balance wide-ranging state control with local autonomous space, and to provide local people with "discretionary" but not "unbridled" power through the establishment of appropriate incentive structures and institutional restrictions.

Evidence from the cases in this study also suggests that, no matter how hard the state tries to impose its conservation agenda, a reconciliation between conservation and development aims will not be achieved at the local level until outsider-driven efforts can be integrated properly into local institutional frameworks and local priorities. Because local people's expectations in terms of an improved well-being are not static, a certain level of institutional restriction with respect to arbitrary resource extraction is necessary. By merging the modern concepts of conservation into the local resource governance framework, such integrated institutional efforts have the potential to enable more effective and sustainable resource management.

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**Table1:** Basic Socio-Economic Conditions and Local Resource Management Institutions in the Three Case Study Sites, China, (2006)

	<b>Mengmao</b>	<b>Xiaheishan</b>	<b>Pingzhang</b>
Population	5421	960	1580
Number of Households (2005)	1170	230	406
Traditional Livelihoods	Agriculture-based, livestock raising	Agriculture-based, NTFP, livestock raising	Agriculture-based, livestock raising
Per Capita of Arable Land (mu )	1.2	1.03	0.9
Area of Forest Land(mu)	46110	12615	11015
Elevation (m)	1200-1800	1000-2800	1200-2200
Frequency of Village Meetings	High (2-3 times per month)	Medium (1-2 times per month)	High (2-3 times per month)
Natural Resource Management Issues	Land scarcity, conflicts with neighboring villages due to boundary issues and diverse management concepts	Land scarcity, conflicts raised between villagers and resource agencies due to contested rights claims over the forest	Land scarcity and soil deterioration due to poor forest conditions
Local Institutions Functioning in NRM	Community regulation and rules set up by the forest self-management group and the herbal group	Community regulation, although mostly it had been substituted by state policy	Community regulation and rules set up by the ICRAF programme

(Source: Compiled by the author from field investigations in Yunnan, China. Data provided by the members of the Township Government and Village Committees, 2006)

**Table1:** Basic Socio-Economic Conditions and Local Resource Management Institutions in the Three Case Study Sites, China, (2006)

	HuayE Khang	Mon Ya Nuea
Cultural Background	Pga-gan Yaw Karen community located in the midstream area of Mae win watershed.	White Hmong village located in the upstream area of the Mae win watershed.
Population	477	1148
Elevation	1100	1100-1200
Traditional Livelihoods	Rice farming and livestock raising	Vegetable and fruit farming
Per Householder of Arable Land(rai)	20 rai of paddy field and around 40 rai of swidden fields	N/A
NRM Issues and Local Concerns	Problems of the state national park encroaching on farmlands, with corresponding limitations on land-use and land tenure security. Land scarcity. Cross-boundary issues.	Water shortage during the dry season. Criticized by other villages downstream of Mae Win watershed, those which share the water and and natural resources; Land use and tenure insecurity. Danger of resettlement by National Park Plan.
Local Institutions for NRM Management	Traditional beliefs and traditional zoning system; Conservation Group.	Traditional beliefs and rituals such as the 'Dongsen' ceremony. Water Management Committee.
Frequency of Village Meetings	Very High: 2-3 per month	High: 1-2 times per month

(Source: According to interviews with Villager C and L; the village heads of Huay E Khang and Mon Ya Nuea, January 2007))

