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Cross-Boundary Peer Learning in the Mekong: A Case of Field-Based Education in Natural Resources Management

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Abstract: This article analyzes the process and output of a cross-boundary peer learning exercise about policy and implementation on natural resource management in the Mekong. The exercise involved university students and academics from Cambodia, China, Thailand, and Australia. The pedagogic approach taken was student-centred learning, whereby students learned with and from their fellow students, and about their peers' perspectives in other Mekong countries on similar issues. The article consists of four parts. The first part introduces the exercise and discusses conceptual frameworks including cross-cultural learning, peer-based learning, and experiential learning. The second part describes the Mekong Learning Initiative research exchange program, explaining the process by which students from different countries and different learning cultures engage in peer-based learning. The third part uses students' own reflections to show ways in which learning outcomes from the student research exchange differ from conventional learning activities. The discussion section draws on the successes and challenges of the exercise to explain how we as teachers engage with adaptive learning for both research and pedagogic purposes, to identify elements critical to enhancing experiential learning in the cross-boundary peer based learning situation.

Keywords: *Cross-boundary, peer learning, experiential learning, natural resource management, Mekong*

The Mekong has been the subject of a great deal of research and institutional innovation, both in the fields of regional economic integration (Australian Mekong Resource Centre 2007; Oehlers 2006) and of transboundary river basin management (Hirsch and Jensen 2006; Lebel et al. 2007). The Mekong Region as a cooperative development arena and the Mekong River Basin as a shared resource are represented institutionally through the Greater Mekong Subregion framework and the Mekong River Commission respectively. Bilateral and other multilateral institutions have also proliferated to respond to emerging challenges and opportunities. Increasingly, and despite considerable obstacles, such intergovernmental arrangements have been mirrored by non-governmental initiatives and strategies to develop civil society linkages through a kind of "regionalization from below" (Hirsch 2001; Khaosa-ard and Dore 2003).

To date, however, active educational linkages within the Mekong framework have been quite limited. Within each riparian country, teaching about development, environment, and natural resource management has been limited mainly to generic knowledge, case studies from within each country, or textbook-based examples from other parts of the world. Despite high-level initiatives among university administrators such as the Greater Mekong Subregion Academic Research Network, there has been sparse exposure of teachers and students to comparative material from neighboring countries, and limited understanding among tertiary-level students of the Mekong River Basin as a shared resource or the Greater Mekong Region as an integrated development arena. This means that university students as the new generation of professionals continue to lag behind the rapid pace of regionalization in terms of a shared knowledge base and mutual

understandings of diverse perspectives in different countries of the region.

In this paper, we present an innovative exercise designed to be a modest building block in the construction of a regional learning community. The exercise is a research-based teaching exchange (hereafter referred to as "research exchange") between programs at Yunnan University in China, Ubon Ratchathani University in northeast Thailand and the Royal University of Phnom Penh in Cambodia. The Yunnan students are enrolled in a Master of Human Geography, which emphasizes development issues with a primary focus on China and draws case studies mainly from Yunnan. The Ubon Ratchathani students are taught by the Department of Social Sciences, Faculty of Liberal Arts which offers both undergraduate and graduate degrees in Social Development. The main focuses of the program are social sciences research methodology and development theory, providing students with basic skills through a practicum course outside the classroom. The program includes field-based learning in communities, and most of the field work is in northeastern Thailand. Therefore, learning about neighboring countries is very limited. The Royal University of Phnom Penh students are undertaking an undergraduate degree in Environmental Science. The program mainly focuses on classroom-based teaching within inter-disciplinary fields relevant to natural resources and environmental management. Field-based learning has the status of a supplementary course without credits. In all three cases, therefore, there is limited opportunity for learning outside the classroom and beyond the national context.

The cross-boundary research exchange is innovative in two main respects. First, it is a central activity of the Mekong Learning Initiative, the first significant attempt to develop a practical collaboration between teachers and students in cognate areas of environment, natural resource management, and rural social change at eight universities in five Mekong counties. Second, it challenges conventional teacher-focused classroom-based learning through development of a field-oriented approach that we refer to as cross-boundary peer learning. The research exchange concept emerged from a series of eight workshops held under the auspices of the Mekong Learning Initiative between 2003 and 2008 to develop teaching materials and teaching methods within an experiential learning framework.

Cross-boundary peer learning draws from, but does not limit itself to, three main educational concepts. The first is cross-cultural learning, which means understanding ways in which particular phenomena and issues are perceived and interpreted in other cultures and across academic disciplines. It encourages students to view issues from other cultural perspectives. It goes beyond just awareness and appreciation of other cultures, allowing a student's views to broaden and transform as a result of cross-cultural experiences (Myers et al. 2005). Further, the complexity of humanistic and social phenomena calls for a trans-disciplinary approach to study. Transdisciplinarity is not simply a case of combining disciplines, but instead deals with issues by forming new frameworks from constituent disciplines (Russell 2005). A single issue can thus be understood across both national and disciplinary cultures. In our case, the key issues involved concern the relationship between policy on decentralized natural resource management and the experience of its implementation at the village level. The issues are perceived and interpreted in three different country contexts and through diverse academic disciplines, ranging from rural sociology through geography to environmental science.

The second main concept is peer learning. This takes the focus of learning off the teacher as a repository of knowledge and facilitates mutual learning between students of similar ages, levels of educational attainment and subject interests. The research exchange was designed around the premise that peers have the potential to establish a unique learning situation, distinct from the teacher-student interaction, in which they have close connections, active involvement with one another and ease of communication (Goldschmid and Goldschmid 1976). Although peer learning is an effective way to learn (Boud et al. 1999), without adequate organization and structure it can easily fail (Goldschmid and Goldschmid 1976). A recent study systematically analyses forms of peer tutoring and cooperative learning and identifies critical elements to make peer

learning more effective (Topping 2005). In our case, peer cooperative learning is an integral part of the cross-boundary learning process, as students from Cambodia, China, and Thailand develop knowledge and perspectives on each other's countries through their peers first, policy makers and villagers second, and only then through their and their peers' teachers. Similarly important to the learning process is the different academic background of participating students as well as their teachers.

The third and related educational approach underlying the cross-boundary peer learning employed in the research exchange is experiential learning (Kolb 1984). Experiential learning emphasizes that knowledge results from the combination of undergoing and transforming experiences. To learn from experience requires preparation for the experience, engagement in educational activities and evaluation (Wilson 1982). For present purposes two key components of the approach are salient. First is the direct experience of issues, for example through fieldwork. Second is the learning cycle, whereby understanding is produced iteratively through experience, facilitated reflection, and assisted conceptualization. The cycle is repeated in new empirical contexts.

We commence our account of a cross-boundary peer learning exercise in the Mekong by contextualzing the research exchange within the Mekong Learning Initiative program and describing the basic logistics and design of the exercise. The learning outcomes are reported according to the experience of the research exchange through an analysis of the perspectives reflected in students' written work. We then discuss elements critical to enhancing experiential learning in the cross-boundary peer based learning situation, through a review of the adaptive learning of the teachers involved as the exercise was iterated in three countries successively. Our discussion also considers the challenges presented by the exercise. We conclude with some suggestions for adapting cross-boundary peer learning as a means of strengthening and broadening a learning community around development, environment, and natural resource management as a progressive contribution toward meaningful regionalization in the Mekong Region.

Research Exchange

The idea of a student research exchange emerged through Mekong Learning Initiative teaching method workshops, held twice a year from late 2003 at various locations in the Mekong Basin. Academics from three participating universities in Cambodia, China, and Thailand were keen to apply field-based teaching methods and seek ways to enhance knowledge about their neighboring countries among their students. In particular, they saw the potential for a multi-cultural learning environment involving students from their three universities to give students direct experience of fieldwork outside their national contexts within the Mekong Region. The discussion among the three universities and University of Sydney (facilitator of the Mekong Learning Initiative) thus led to a research-based teaching exchange project that applies innovative teaching methods to address common themes relevant to the Mekong. First, students would learn about linkage of national policy to livelihoods at the community level through inquiry-based approaches instead of through the more passive learning commonly experienced in study tours. Second, students would be responsible for their learning and work together as peer groups with support of instructors. And third, the research-based approach would give students a sense that they are equal in knowledge acquisition through inquiry and sharing.

The learning process was designed into three periods. The first period was a national policy study during which students at each University undertook desk research on their natural resources policy, respectively. The second period was cross-boundary field study that brought students from three countries together to undertake field learning activities. The third period was regional synthesis whereby students returned to their home countries to integrate material from all three field-learning components into a common analysis.

The research exchange project was publicly announced and received applications from students at each university. Students were selected according to their command of English, relevant fields of study, and their commitment to the exchange project. The selected students have varying degree backgrounds. The six Cambodian

participants were enrolled in Royal University of Phnom Penh's Bachelor of Environment Sciences at third year undergraduate level, the six Chinese students were enrolled in Yunnan University's Master of Human Geography course, while the four Thai students included two at Masters level and two at Bachelor level, all enrolled in Ubon Ratchathani University's Social Development Program.

National Policy Reviews: Three Cases

The thematic and empirical subject of the research exchange was policy on decentralization of natural resource management in the three countries. In China students reviewed sloping land conversion policy. In Thailand, students reviewed the water grid policy that was purportedly to bring agricultural prosperity to the poor northeastern region. In Cambodia, students worked on fisheries policy, in the context of the devolution of management to community fisheries under the 2001 Fisheries Law. The policy review approach was designed to enhance the students' understanding of linkages between policy and its implementation that impacts on local livelihoods. It gave both contextually specific topics of field study in each country, and a comparative theme for working across the national cases in the Mekong Region.

At each university instructors held the first session with the selected students and introduced concepts of policy and livelihoods. The students were then formed into peer groups and assigned to undertake desk research on national policy of natural resources management that was selected by the research exchange project. They discussed their plans and assigned each other specialized tasks to collect papers and reports in key areas from library and online sources. The students met regularly to discuss their findings after distributing and reading the collected materials. When they felt that they had sufficient understanding of the policy they began to organize their thoughts into a draft policy brief. Only then was a session held with participation of the instructors. Students presented their understanding of policy content and critiques, and this was followed by discussion facilitated by instructors. Students had to answer, clarify, and discuss questions posed by instructors. Students continued their desk research after they identified gaps and further information requirements. Completion of each policy review took students about six weeks.

The policy reviews were in areas specific to each country, and more specifically relevant to the areas targeted for fieldwork. In China, central government response to flooding in Changjiang in 1998 had resulted in a large-scale program in 2002 to contain environmental degradation, referred to as Upland Cropland Conversion to Forests. Participating farmers received annual compensation of 200 Chinese Yuan per mu (1 hectare = 15 mu, US$1 = 6.38 Yuan, so US$ 470 per hectare) with a length of eight years for conversion of upland cropland to forests. The program had tangible impacts on farmers' livelihoods (Wang and Bennett 2008) in several respects. Farmers would permanently lose their rights to farm certain areas of land, while maintaining rights to use the area as forestland, receiving compensation. This program made for a stark case for students to investigate linkages between land tenure, policy, and livelihoods. It has also provided a window into governance issues by investigating where, by whom, and how the program was implemented.

Within Thailand, Isan (the northeastern region) is discursively represented as a poor and dry region in need of assistance from Bangkok through large scale infrastructure development. To achieve economic development and poverty reduction, the long-standing policy response is to irrigate Isan, reflected in such programs as Isan Khiew, or Green Isan. The Water Grid Project in Thailand was officially initiated in 2003 to triple Thailand's irrigated area (Molle and Floch 2008). This project provides an opportunity for students to explore (1) policy justification and implementation, (2) project impacts on poverty alleviation and local economic development, and (3) local stakeholders' responses to this policy.

In Cambodia, Tonle Sap Lake is a critical part of the Mekong River ecosystem. The lake absorbs 20 per cent of annual flood water from the Mekong and then releases the water to the lower part of the river below Phnom Penh as the flood recedes. Its fisheries provide a major protein source to Cambodia's population (Sokhem and Sunada 2006). In 2001 the Cambodian government

released 56 percent of commercial fishing lots to communities as community fishery lots with support of the Asian Development Bank. One important instrument was to establish community fishery committees at the village level to manage the community fishing lots. This provides an interesting case for students to explore relations of fishery policy and regulation, implementation of decentralization and livelihood impacts at a local level.

Cross-Boundary Field Study

The field studies were organized according to similar procedures at three sites in the Mekong river basin from China's Yunnan, to Northeast Thailand, to Cambodia's Tonle Sap Lake. Students in each component of the field studies included all participating students of the host university, two students of each guest university, one instructor from each of the participating universities and one or two observers from the Mekong Learning Initiative. Each field study took between five and seven days, depending on return transportation time required to reach the communities to be studied. At the beginning of each field study, a one-day workshop was held to share results of the national policy study and to develop a plan for the field interviews. In the morning, students of each university presented their understanding of their national policy, explained what challenges the country faced, and how policy addressed these challenges. The morning session was open to other students from the host university. It was observed that discussion was vigorous among students. Some questions went well beyond the specific topic of study, extending to social, economic, and political fields.

In the afternoon of this first day workshop, students for the field study were divided into two peer groups consisting of students from three countries. They were assigned to develop a field study plan, which had a clear research question, a specification of what information would be collected from whom, and indicative questions for interviewing different categories of informants such as householders, community heads, and local officials. Each group received comments and questions of clarification from fellow students as well as instructors after they presented the field study plan.

During the first two days of field study, students interviewed various stakeholders such as local officials, community heads, and householders of different economic status. There was no pre-assigned sequence of stakeholder interviews. Local officials often first presented their situation, current programs and outcomes and were then interviewed by students with a set of probing questions. At the community level, students first met and interviewed community leaders, and then interviewed householders selected by community leaders according to the self-set criteria of their field study plan. At the end of each day peer groups were requested to hold a short meeting to reflect their thoughts and identify information gaps. The third day of the field study was reserved for peer groups to discuss findings, analyze the information, and write a three-page report. In the late afternoon, each peer group presented its findings and clarified questions posed by the other peer group. Students then reflected on their field studies, facilitated by instructors. At the end of the field study each peer group completed and submitted a three-page report.

The main criteria to select field study sites included accessibility, observable policy impacts, and the level of local support for students to conduct such an exercise. In Yunnan, the two studied villages are located in steep parts of the Yangbi River subcatchment, a tributary of the Lancang River (upper Mekong). They have an easily accessible road from Dali, a famous tourist spot in China. The Upland Cropland Conversion Program had been implemented here for 2 years. In northeastern Thailand, the two study villages were formerly resettled from the Sirindhorn Reservoir and were pilot project sites of the National Water Grid Project. It takes four hours to reach these two villages from Ubon Ratchathani town. In Cambodia's Tonle Sap Lake, the two study villages are floating villages that are highly susceptible to changes in fisheries policy. They are accessible by boat from Kompong Luong.

Regional Synthesis

A regional synthesis process was implemented at each university respectively. After each field study, a sharing session was held to share experiences. Students who participated presented

their impressions, feelings, and experiences about the field studies. Students then discussed their cross-boundary learning of policy implementation and its impacts on livelihoods. The students were requested to compare the similarities and differences of two countries – their own, and the one just visited. They also reflected on the learning process, discussed which learning activities had been most useful, and suggested improvements for future field studies. Two sharing sessions were held at each university.

Chinese students held two sharing sessions after visiting Thailand and Cambodia. The first impressions that students who visited Thailand shared with their peers were of a general nature, for example observation of Buddhist practices and driving on the left. Students realized that the "water grid project" is a kind of irrigation system and may not automatically benefit the poor. The water grid project had been criticized for its potential impacts in terms of agricultural production, with serious economic and environmental implications. People living in the project area did not have sufficiently fertile soil to grow high quality products and only higher income people who had bought land close to the project infrastructure were able to invest in land and water. Some poor families had sold their farmland and had seasonal jobs in Bangkok. Regarding their experience of Cambodia, two students briefed their peers on the experience of Phnom Penh, Tonle Sap Lake, and Angkor Wat, including excitement at eating insects from street stalls! More substantively, they reported on the extreme dependence of floating villages in Tonle Sap Lake on fishing, with few other choices to making a living.

Cambodian students organized two sharing sessions at the Royal University of Phnom Penh after visiting Yunnan in China and Ubon Ratchathani in Thailand, respectively. Like their Chinese counterparts, the Cambodian students who visited Thailand recognized that irrigation is crucial to farming in the area visited and that the water grid project could benefit villagers if they depended on farming for their livelihoods. However, they also observed that its implementation failed to take account of the local situation and farmer concerns, particularly as most income in the area came from off-farm activity. Students who visited Yunnan in China realized that the program of converting upland cropping into forests follows a clear and nation-wide policy with standard payments to compensate farmers for losing use rights to farm certain areas of land. Under this program, the government of China provided incentives for local people to reforest as a means to conserve water and curtail soil erosion. The Cambodian students felt that the incentive approach with subsidies might become a burden to governments.

Thai students organized two sharing sessions after visiting China and Cambodia respectively. Staying overnight at the floating village, visiting other fishing communities and interviewing local authorities in Tonle Sap Lake of Cambodia left a deep impression on the Thai students. In particular, they recognized for the first time the complete dependence of the villagers on the fishery and their vulnerability if the Tonle Sap fishery were to decline. In China, climbing up the hill to visit the Upland Cropping Conservation Program of Yunnan gave them a sense of connection with local Chinese villagers whose lives and livelihoods had been completely unknown to them before the visit. Students were impressed by ways in which local development had been influenced by government policy, and it seemed to them that locals accepted the policy. Nevertheless, the students continued to wonder whether top-down policy could really benefit local people, and they were also concerned about the sustainability of this policy.

These sample reflections show a number of things about the learning process. First is that students' most lasting and deepest impressions from their exchange visits concerned aspects of everyday life, particularly those which were unfamiliar to them in their respective home country contexts. Second, students understood each local situation through their own interpretive lenses, so that Thai students, for example, maintained a scepticism about central government policy in Cambodia and China, while Chinese and Cambodian students saw Thailand's water grid as a genuine attempt to provide irrigation benefits for the poor, but which had shortcomings in its failure to meet real local needs. Third, it was the visceral experience of the field visits that most affected students, whether it was the harsh conditions of fishers at Tonle Sap or the experience of trekking

to a steep upland community. The policy analysis framework set by the program's instructors was, in this respect, only a secondary means through which to shape students' individual take-home learning experiences, which meant that the reflection and sharing sessions were fundamental in putting these experiences back into an analytical framework relevant to the research exchange's pedagogic objectives.

At the end of this research exchange, participating students at each university were assigned to write a report comparing the three field studies. Students were first organized into their peer groups again to discuss the report outline. With lecturers' assistance, students developed report outlines that consisted of regional policy introduction, country cases, comparison or analysis, and conclusion, then divided their responsibilities accordingly. It was planned that each student would complete their part and come together to write the comparison and conclusion together. However, the final synthesis was not completed as planned. The causes of this are considered in the discussion section below.

Learning Outcomes Reflected in Students' Written Work

This research exchange aimed to enhance students' conceptualization of natural resource policy and rural livelihoods, to help them gain understandings of the linkages between them, and to enhance their comparative understanding of the Mekong through the lens of natural resource management policy and its implementation. The following review reports the learning outcomes against our aims by drawing mainly from the three-page report of each peer group and individual student reflections.

Student projects clearly helped them develop wider and deeper understanding of policy and its implementation. One peer group framed its research question into "What are the local stakeholders perspectives on the Community Fisheries (CF)?" They interviewed fishery officers, an environmental officer, CF committee, four villagers, and held a focus group discussion. After analyzing their findings, reasoning, deliberating, and debating, the peer group concluded:

> The concept of community fisheries is different among stakeholders, especially local people. Most local authorities including fishery officers, environmental officers and community committees seem to have a positive view of CF, but even they don't know how CF will succeed without the support of the Asian Development Bank. The CF committee doesn't understand clearly what the concept of CF is. The CF in their perspective is just like a way to empower themselves to manage fishery resources. In fact they don't know how to use their power as fishery communities. Local community members have a different perspective on CF. Some people have positive, some have negative and others have no idea about CF. The perspective of local people is different from the concept of CF. Community fisheries cannot be a success if local people have a different perspective of the concept of CF.

The peer group attributed these different perspectives to lack of participation from community members, insufficient financial resources, no coordination with NGOs, unclear boundary maps, lack of a strategic plan, insufficient dissemination of CF-related information to local people, and low education/skills of CF committee and local people. They also implied that conflicts and imbalance of power exist. "The people who have a negative perspective on CF say it has not provided them with any benefit since they started. Secondly, CF committees have corruption with lot owners. Third, CFs benefits only people who are better-off." The peer group argued that community fishery policy cannot be successful if local stakeholders have different perspectives from one another.

Students acquired understanding of the concept of livelihoods within specific local contexts rather than as an abstract notion. For example, after the Yunnan field study one peer group described livelihoods of the visited communities as:

> People from both high areas and low areas rely on agriculture. They plant different crops in their farmland because of environment restrictions. Corn is planted in

> the high altitude and rice is grown in the low areas. People in low areas get income from tobacco and those who live in high altitude make a living from walnuts. Life is hard for people living in the upland areas. Poor infrastructure and poor soil quality lead to the poverty in this place, together with lack of education and skills. This area is far from the market and the road to this village is in bad condition. It is hard for people to transport their products to the market. Additionally, because people there aren't educated and lack skills, they cannot get high yields from their farmland and walnut trees, making their lives more difficult.

Students were also able to relate the concept of livelihoods to other variables such as location, crops, and infrastructure. This lateral thinking, relating livelihoods to other variables, results in concern over policy sustainability, in that the project provided people with support for only a few years so it is hard to estimate whether people will keep their forests or change them back to agriculture after the government stops providing them with money.

Students also developed capability to comment on the effectiveness of policy. In Thailand students visited resettlement villages that had farmed infertile rice fields without access to water. One peer group commented on resettlement policy and on the water grid project as follows:

> Resettlement areas don't have good soil and also lack the water system from the river, which they had prior to being resettled. In the past, they lived in low-land areas which are full of fertile soil and waterways around which to base agriculture or other plantations, such as rubber or cashew trees. Villagers are resettlement people, the people who moved from the reservoir of the dam to live in this place. They aren't willing to pay the full water-price in (Village A); or if they pay, they want to pay a low price (Village B). This is because they think the government should encourage them by providing the water for free. Villagers' lifestyle of this generation has been changed and they don't want to invest over a long time in order to receive benefits from farming. For example, the adults prefer going to the big city or foreign countries to find new jobs, so in the village it is just the old and very young people left, those who can't provide enough labor to do the farming.

The peer group identified that policy failure resulted from water pricing, and the fact that irrigation provision neglected to take into consideration agrarian change (i.e., a move out of agriculture) and daily life pressures. They also argued against the necessity of the project in a situation in which most people of (Village B) have sold their farmland. They have no land for agriculture. These people live from fishing or by selling their labor. They don't need the water. However, they also recognized the limitation of their field study and stated that if this policy takes place in another area, not a resettlement area, it might run more smoothly, especially for richer people who can invest money in agriculture.

The research exchange confirms the potential for cross-boundary experiential learning to help students to transform themselves in terms of adaption to and appreciation of different culture and awareness of differing value systems, recognizing their own limited perspectives (Myers et al. 2005). It also gives them skills in understanding different perceptions of the same phenomena by people from different backgrounds (Connell 2006). Students obtained different impressions and concepts about peoples and the Mekong. "After my coming back to China, I have the new idea about Mekong River." "Mekong is not only a river, but it's a region as well." Others were more affective: "It is common to find the people along the Mekong are honest and ardent, just like the mother river's character" and "I smell the fragrance of the exotic culture and really like it" or introspective: "I have found lots of shortages of mine but still find my own strengths, both of these make me more rational and confident."

Most students stated that the project provided a good opportunity for them to enhance their knowledge, skills, and experience of different learning environments. "I can learn and exchange something(s) are different from my country and

improve English language for me." There is also an important social dimension to the students' sense of achievement: "I am very excited to make so many friends in different countries. I really cherish the happy time we spent together this year, especially when we conquered one obstacle and work out our task." Another student observed that "after expressing our ideas, we can get good some recommendations from the students in others countries."

The research exchange cultivated some students' interest in policy and livelihoods. "The research makes me more and more interested about the government policy relating to the natural resource management that effect to local livelihoods." They recognized that if "policy (is) suitable for the local people, (it will be) useful for improving their livelihood." One student claimed that "studying at school just explain(s) what the policies (are), but it does not tell us why a specific policy is made and how it affect(s) the local livelihoods."

Discussion: Reflecting on the Learning Process

In this section we examine elements critical to the effectiveness of cross-boundary peer learning. We evaluate cross-boundary peer learning as the intersection of the three pedagogic approaches (cross-cultural learning, peer learning, and experiential learning) rather than individually. Our evaluation is drawn both from students' reflections, including those in the previous section, and our own observations as instructors.

An important starting point for cross-cultural peer learning is that there needs to be a framing issue around which students study and interact. Establishing a conceptual basis for study facilitates communication and comparative discussion within each cross-cultural peer group. The key concepts in our case were natural resource management policy, rural livelihoods and the impacts that policy has on livelihoods. The participating students brought with them to the field study diverse understandings on concepts of policy through their respective national policy reviews.

The learning challenges tended to emerge when concepts were applied in real-world contexts. For example, the students encountered difficulty when they designed their field study in Yunnan, regarding the delimitation of livelihoods. Questions posed in early discussions such as: "Is income (a part of) livelihoods?" "Should we assess all farming activities?" illustrate the difficulty resulting from a lack of basic understanding of livelihood concepts.

Intensity of interaction within each peer group depended on students' knowledge and cognitive level of the issue to be studied. Piaget (1971) suggested that knowledge is acquired when cognitive stability is directly challenged. In this case study, each peer group consisted of students from three countries, in each of which differing conceptions of policies, role of state versus society, and cultural values were brought to bear. A nervous student asked before the field trip, "Do I have to explain Chinese forest policy to other countries' students?" The student anticipated a situation in which each student of a peer group had to prepare to explain and share his or her knowledge and thoughts. This also served as a challenge to motivate them to advance their conceptualization of the issue to be studied and to brief themselves thoroughly through their home-country policy reviews. "I had to explain our fishery policy to my peers many times," a Cambodian student reflected. This statement demonstrates that significant interaction and negotiation occurred in peer groups. This interaction helped peer groups establish a collective understanding of the issues under study. It was observed that the learning was enhanced by exchanges between students with different degrees of knowledge of forest, water and fisheries policy.

Basic inquiry ability is another element helpful to enhance learning by probing and processing experiences. Three sets of inquiry skills were identified in this case study. The first ability is to translate research questions into interview questions. It was found that students initially encountered difficulties in differentiating research questions from interview questions posed to different stakeholders. When peer groups presented their field study plans, it was clear to us that research questions became interview questions, such as "what impacts do you think policy has on your livelihoods?" or "how did the policy change your livelihoods?" Only with critique and facilitated discussion on the part of the instructors did students break these up into questions more immediately relevant to interviewees' lives

and cognitive understanding. The second ability is to design and conduct interviews. It was a common mistake that students designed and asked leading questions and closed questions, such as "Is the community fishing lot good for you?" "does crop upland conversion have a negative impact because you lose your farmland?" The third ability is to interpret information collected. We observed that students often repeated exactly what interviewees told them with little analysis and interpretation. If the quality of experiential learning results from transformation of experiences (Kolb 1984), we then argue that basic inquiry ability can help acquire and transform experiences. Such prior ability was not considered a prerequisite for students to join the research exchange, but one of our lessons is that it needs to be given constant attention by instructors during the learning process.

Provoker, supporter, and monitor have been identified as roles of instructors (Scheurman 1998). As provokers, we challenged students' field study plans, findings and conceptions when they presented their work. It was at this time that students' cognitive stability was challenged and then re-established after peer groups made an agreement. As monitors, we had to learn the status of peer groups in terms of information collection, interaction, level of understanding, difficulties faced, and then preparedness to be responsive. It was also important to police students to follow schedules, complete tasks and pose reflective questions. As supporters, we provided frameworks or analytical tools that students could try to apply to deal with problems. Most of the time students worked with their peer groups without our intervention. Only when students approached us did we discuss with them by clarifying their questions or sharing additional information or other cases that students could compare with their current case. We also summed up ideas at the end of plenary sessions after students' own discussions.

Appropriate assignments or outputs make peer group work a more active engagement for all participants. Clear output is regarded as a catalytic device that helps a group to converge its energy toward the output that can be regarded as feedback for further action (Kayes et al. 2005). Assignments of presentations and reports were useful instruments to stimulate group work. National policy presentations motivated students as peer groups of the host university to collect and share information, and organize their collective understanding of policy into presentations to the visiting students. The field study plan presentation quickly drew students of the three universities together and focused their effort on the development of the plan. Students psychologically felt that the field study plan became a scaffold to guide their peer group to deal with uncertainty. The three-page report on the field study and presentation created a situation in which each peer group interacted intensively to conceptualize information collected. It was observed that students re-read their notes, analyzed, reasoned, deliberated, negotiated, and agreed to what they should or should not write in the report. However, the daily short peer meetings did not work well, except one when all students stayed overnight at a floating school building in one of the Tonle Sap Lake communities. Elsewhere, students either explored the city or town where they stayed or had fun as a social group, which of course enhanced the cultural experience of the exchange.

We also found that it is difficult for peer groups without common experience to conduct a joint study of regional integration. The intention was to enhance students' understanding of resource governance issues through integration of policy making, implementation, and their impacts on local livelihoods at the regional level. The integration exercise was intended to help students develop an ability to abstract, generalize, and conceptualize experiences of the research exchange. However, the method this study took neglects the requirement of common experiences. Students from each university formed a national peer group. However, the students in each national group did not have much by way of common experiences. For instance, among the six Chinese students, two of them visited Thailand and another two went to Cambodia and the remaining two were without foreign visit experiences. Second, this kind of assignment requires strong academic ability and a great deal of time to complete. Last, students were less motivated to undertake this synthesis as a group project than they might have been if

they had been assigned as an individual to write a reflective report to compare two case studies that they experienced.

The lecturers have identified three key challenges if a similar exchange program were to be repeated. First is English proficiency of participating students. Each of the six countries in the Mekong region uses a different national language, namely Khmer in Cambodia, Lao in Lao People's Democratic Republic, Chinese in China, Thai in Thailand, Vietnamese in Vietnam, and Burmese in Myanmar. English is the common language for academic communication among the six nations. However, there are varying levels of English proficiency among students in the Mekong Region. In this case study exercise, students faced difficulties to communicate, describe, present, and articulate in English. It made it even more challenging that much of the relevant literature is in English, especially in Laos and Cambodia. Language will impede many students to access information as well as participate in regional activities. Selection of students with a high level of English competency would take a higher priority in future selection processes.

The second challenge is the financial constraints of students. Cross-boundary experiential learning is valuable to students, but also costly relative to the current income level of the Mekong region. Meanwhile, most regional universities have constrained budgets and are not able to finance this kind of exercise. Only a few universities and students can afford cross-border immersion activities such as this, and alternative financing mechanisms or less costly operations must be sought out. On the other hand, the cost of the exercise is relatively modest compared to the large number of high-profile, elite-oriented regional integration programs supported by country governments, development organizations and NGOs, and we suggest that this sort of activity is a very cost-effective investment in "regionalization from below."

The last challenge is that there is no institutional agreement or arrangements for universities to transfer course credits with one another. While credit transfer constraints makes cooperation difficult for full-scale exchange programs and joint courses, a practical solution is for participating universities to design a common course based around the exercise described above that can be implemented jointly but credited separately by each university.

Conclusions

The Mekong is undergoing a rapid pace of regional integration, on the one hand, while university students lag far behind in terms of their knowledge and understanding of regionalization on the other. There is an urgent need to bridge this gap. The case of the research exchange described in this article illustrates that cross-boundary field-based teaching in the mode of peer learning is an effective way to offset the knowledge gap, build a shared knowledge base and cultivate positive and nuanced attitudes to regional cooperation.

Teaching the Mekong through a cross-boundary peer and field-based approach has proven to be effective, but there are continuing limitations and room for improvement. Selection of students from a wider base can help tackle the language barrier. Careful selection of field sites and proper course design can significantly reduce costs without compromising the high-quality learning environment. Courses can be jointly designed and independently implemented at each university to solve the problem of credit transfer.

Cross-boundary peer and field-based learning has an obvious advantage to generate common understanding on issues that transcend national boundaries, even within the constraints of the limited period available for field study. Peer groups work together closely to plan the field study, collect information, and analyze the collected data. Most academic learning and analytical skill development takes place within the peer group rather than in the direct field experience. Finally, as each peer-group member is a representative of her or his respective country and culture, the peer-based learning approach is also an instrument to cultivate the sense of belonging to a region.

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