

Using institutional arrangements to teach undergraduates about commons in Thailand, and beyond

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Abstract: How can we introduce more people to the concepts of commons and institutions earlier in their careers? Despite the wide variety of academic fields that contribute to commons research, there are few undergraduate university courses that center on this theme. This study describes how a study abroad program in Thailand uses guiding questions about institutional arrangements to teach North American undergraduate students about commons resource-dependent communities' control and access regarding coasts, forests, and rivers. Components that will enable students to transfer this learning to other, more familiar settings are built into the field-based courses. This paper outlines how students learn institution-focused questioning on history of local resource management groups, resource access and use, exclusionary mechanisms, strategic collaborations, and power relations in very unfamiliar contexts. Through the lens of political ecology, the paper describes how focusing on institutions has shaped students' understanding of the commons, and how they have been able to transfer their newly acquired institutional perspective to a range of situations in their home contexts.

Keywords: Commons, institutions, pedagogy, political ecology, sustainability education, Thailand

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I. Introduction: the challenge of teaching undergraduates about the commons

The wide span of academic disciplines that embrace commons studies make this subject a rich and accessible anchoring theme for the multidisciplinary classroom. From politics to economics and anthropology to geography, students can use examples of common resources to learn about topics including environmental decision-making and social organization. And yet, formal teaching about the commons more often happens at the postgraduate school level, with advanced students potentially prepared to apply this approach in their own disciplinary research. Here, we describe a case of teaching multidisciplinary undergraduate student groups about commons issues by examining and comparing institutional arrangements throughout a semester-long program that focuses on the pedagogical integration of culture and ecology. We demonstrate that this introduction to study of the commons is instrumental in transforming how students from various courses of study perceive and approach situations they subsequently encounter. In keeping with the program's thematic focus, we apply the transdisciplinary lens of political ecology.

The approaches of political ecology are often applied to studies of the commons, as they share concern for biophysical and socioeconomic interdisciplinarity, human-environment interactions, and the political and institutional factors that imbricate commons access and use. Recent scholarly attention has been given to applying political ecology tools and analyses to contexts and themes different from the majority of such studies to date – newly focusing on urban, regionally scaled, consumptive, and industrialized research subjects (Walker and Fortmann 2003; McCarthy 2005; Schroeder et al. 2006; Reed and Christie 2009). There are efforts to link political ecology, often associated with rural agrarian contexts, and the environmental justice movements of urban, industrialized regions (Walker 2003; Emery and Pierce 2005; Chitewere 2010). This “extension” of political ecology approaches entails transcending tacitly established geographic and methodological boundaries. McCarthy (2005, pp. 955) asks, “Why is it...that we look for informal property relations in some places and not others”?

McCarthy (2005, pp. 953) notes, “Nearly all work in the field of political ecology has been centered on case studies of small-scale primary producers in rural areas of ‘developing’ countries.” Similarly, until recently, the majority of research on commons issues concerned similar contexts, in part because the livelihoods and survival strategies of rural smallholders are disproportionately

dependent on common resources of forests, grazing land, and waters (Rangan 2004). As many educators in industrialized regions have found, it would be a pedagogical challenge to teach an undergraduate political ecology course primarily using literature and cases from students' home contexts (for notable exceptions, see Breyman 1996 and Jarosz 2004). Barriers to such courses focused on commons concepts and issues may include the complex and multidisciplinary nature of commons studies (Berge and van Laerhoven 2011), students' relative lack of familiarity with the resource use contexts of much commons research, and a perceived relative dearth in industrialized societies of the customary institutions often used to illustrate commons issues. Filling a syllabus with cases from diverse and distant places runs the risk of exoticizing political ecology of the commons as an approach only applicable in far-away contexts, potentially reducing student retention or application of their classroom learning.

For a field-based study abroad program, such as that studied in this paper, the risk of compartmentalizing new perspectives distinct from one's normal experience is also great. For those who first study the commons and political ecology in contexts far from home, the challenge is to shorten "the long intellectual journey home" (Fortmann 1996, pp. 545) toward applying this learning more broadly in one's familiar context. This paper describes methods used to help students bridge this educational gap and to internalize contextually transferable approaches, drawing from the example of a place-based experiential environmental education program in Thailand.

This paper outlines the following four aspects: a theoretical background to this teaching from the perspective of political ecology; an institutional arrangements approach to teach about commons resource access and use; an overview of what students are able to learn in field situations by using structured guiding questions; and students' reported experiences of how using this approach has impacted their subsequent approach to resource use dilemmas.

2. Experiential education and political ecology on the commons

Learning about a transdisciplinary theme invites a kind of teaching different from traditional classroom lectures. Jarosz (2004, pp. 920) describes the radical pedagogy in political ecology as destabilizing the teacher-expert/student-learner divide, "facilitating dynamic forms of open-ended knowledge seeking and production", foregrounding ethical and social justice issues, and uniting theory with practice. This shares transformative learning principles from experiential and adult education, including use of elicitive techniques, critical incidents, field-based teaching wherever possible, connecting new learning to previous knowledge and experience, direct engagement with concrete examples, and "learning by doing with reflection" (Priest and Gass 1997, pp. 17). Pairing action with reflection is integral to experiential education (Kolb 1984).

Based in Chiang Mai, Thailand, the International Sustainable Development Studies Institute (ISDSI) teaches North American university students¹ about resource-dependent communities' ownership of and access to coasts, forests, farmland, and rivers through experiential field courses. Commons management issues are central themes in every course. The semester includes a series of month-long field courses grounded in diverse ecological and cultural regions throughout Thailand, which each begin with one week of course-specific theory in the classroom, followed by three weeks of immersion learning about that theme.² Students study ecology, species identification, local resource use, and socio-political aspects of environmental issues in development.

Courses have been designed and modified in collaboration with host villages since 1999, and involve villagers as expert field teachers. Students live with local host families,³ and learn by direct experience with the people, places, and resources in question through fishing, planting, harvesting, processing, collecting, and traveling with local residents (as "villager instructors") through the landscape. For example, students learn about forest products and permissible harvesting practices in a community use forest by accompanying villagers to the forest, collecting edible wild species, and preparing a meal together. They come to understand local issues related to river access while paddling and talking with fisherfolk. Students also have individual and group interviews and meetings concerning resource access and use with villagers, NGO staff, and government representatives to hear the perspectives, concerns, and constraints of individuals in those positions.

¹ A typical semester includes 15–30 undergraduates from 8 to 10 schools in their second through fourth years, from the entire spectrum of disciplines. Most students are enrolled at small, highly competitive liberal arts colleges or universities in the U.S. The background perspectives and knowledge they bring to the program are widely varied.

² A semester includes the following field courses: Agroecology/Sustainable Food Systems, with lowland and upland ethnic minority farming communities of northern Thailand; Political Ecology of Forests, with forest-dwelling Karen villagers; and Culture and Ecology of the Andaman, in fishing communities using the islands, reefs, and mangroves in the south. Other courses have included an urban focus and environmental justice in regions affected by dams in Thailand's northeast. In each course, students engage in structured academic exercises designed around the everyday resource use activities of local residents. Course assessments center on field activities, guided reflective writing, and integrative essays on classroom theory and field content. An opening month of intensive Thai language, plus additional course-specific vocabulary during the initial classroom week of each course, enable students to communicate directly on a basic level; bilingual Thai and American field instructors assist with interpretation in group settings. Detailed syllabi are available on the ISDSI website.

³ Many of the host communities have developed community-based tourism structures for their villages, including several who requested organizational guidance from ISDSI in that process. Students and ISDSI staff pay the homestay room and board rates, and in some cases standard guide fees, established by the host communities. Because these remote areas are difficult to access, many (but not all) communities receive few visitors other than the ISDSI student groups, who stay in each village for one to nine days.

Students apply the same analytical lens to villagers' and governing bodies' perspectives and actions on resource management, not framing institutions as separate domains based on their status of state recognition or community-based legitimacy (Nader 1972; Goldman 2005; McCarthy 2005; Schroeder et al. 2006; Castree 2007). Conducting everyday livelihoods activities in commons areas alongside villagers, talking with communities whose commons access is newly circumscribed by dams or protected areas, and meeting with officials charged with overseeing regional resource use provide multiple opportunities for first-hand engagement with the socio-political and ecological issues regarding commons. However, although students are in constant contact with local institutions governing resource access, these institutions often remain largely invisible to the students, whose lack of prior *named* experience with such customary mechanisms blinded them to the existence of these elements. The ISDSI program sought pedagogical means of foregrounding local institutions so that students would see the issues and processes surrounding the commons.

Bryant and Jarosz (2004, pp. 808) note that "the various strands of political ecology share a basic radical ethical position ... as one that privileges the rights and concerns (often livelihood-based) of the poor over those of powerful political and economic elites even as it insists that peoples and environments be seen in an integrated fashion." Lectures and field programs are suffused with these classic themes as ISDSI students study a range of commons-access situations.⁴ By studying shifts in population, land uses, and resource availability, the political ecology approach employed to study these commons and associated institutions "combines the concerns of ecology and political economy that together represent an ever-changing dynamic tension between ecological and human change, and between diverse groups within society" (Peterson 2000, pp. 325). Students are prompted to observe and to understand the linkages among the well-being of communities and the resources on which their livelihoods depend. As students engage directly with resource justice issues alongside politically and economically marginalized communities, "[t]here is an acknowledgement that learning and teaching are political acts as well as intellectual endeavors" (Jarosz 2004, pp. 920).

Important for transferability of students' learning, courses approach issues through direct contact with people in a wide variety of social positions, humanizing the abstract issues, and enabling students to see decision-makers as individuals within a group or organizational context, rather than as undifferentiated categories of actors (Dove 1992; Pinkaew 2001). Throughout the program, students learn about people as part of local ecologies in specific places. This begins – and ends –

⁴ These include peri-urban farmers' experiences asserting control over mushroom-gathering and grazing rights in a community-designated watershed forest adjacent to a national park; agricultural land access challenges of recent Burmese migrants; fishing communities' settlements and livelihoods affected by dam construction; forest access negotiations of upland swidden farming communities; and indigenous resource access dynamics in a national marine park.

by specifically addressing students' own background understanding (Kolb 1984) and others' (often surprising) perceptions of humans' relation to nature, which enables them to make linkages to comparable issues in familiar contexts.

3. Guiding questions about institutional arrangements in teaching about commons

In 2009, ISDSI implemented a semester-long, trans-course emphasis on using institutional arrangements to systematically study commons issues. This initiative aims to equip multi-disciplinary student groups with new analytical skills to ask generative questions about institutional aspects of commons use in diverse field settings. It also seeks to enhance continuity in students' learning and action, applying their Thailand learning to other situations in their home communities after the program. Students learn about socio-political and ecological issues of commons access and use through multiple means: a short introduction to commons theory through classroom exercises, lecture, and discussion; informal interaction with host families; using a guiding questions framework to compare institutional arrangements in various village, NGO, and government interviews; and extending that tool to students' familiar situations.

McKeown (2002, pp. 30) notes that “[r]ather than being clear, simple and unambiguous, the concepts involved in ESD [education for sustainable development] are complex. Their complexity stems from the intricate and complicated interactions of natural and human systems.” The pedagogical challenge is to “illustrate such complexity, without overwhelming or confusing the learner” (30). In identifying the instances and cases for which students study the institutional arrangements, faculty select examples in which communities have already worked actively on negotiating commons access, and are able to articulate how resource control works in practice. Assigning students to learn about a specific resource in a defined context has proven best for helping students to understand community management.

Based on incoming ISDSI students' descriptions of their perceived environmental problems and priorities, their environmental knowledge is usually resource-centric, focusing on ecological aspects of forests or water resources. Few have studied the social or institutional aspects of resource use and governance. North American students also have little experience with community-owned natural resources that are actively used for economically productive purposes, and generally lack prior ability to query these unfamiliar, complex issues on their own. Students find these topics difficult to conceptualize for many reasons. Most students are unfamiliar with land regulation by a non-governmental agency, and discovering community-level institutions on resource access surprises them. Their (conscious) experience with locally generated resource regulation is so limited that students often express disbelief or amazement upon encountering communities' own rules around forest use or fishing zones. The scale and variety of resources in question are also new to the students. The social complexity and

relational embeddedness of rules of use are aspects of environmental issues that they had rarely considered.

A related challenge is to communicate the central concepts regarding decision-making and use of the commons in ways that enable students to apply this learning to their home contexts. After examining these matters in ecological, social, and institutional situations quite different from familiar environments, students may sequester this knowledge within their study abroad experience, relegate their insights to a foreign context, and not easily extract lessons applicable in familiar settings. We aim to enable students to apply political ecology methods – including power analyses, identifying environmental narratives, and tracing the genealogies and trajectories of various actors' positions – to contexts beyond the program. For this reason, the courses make explicit that phenomena of customary property norms are not uniquely found in far-flung contexts. Similarly, introducing the topic of commons by raising students' own norms and formal rules governing property serves to de-exoticize the concepts surrounding customary practices, bringing them within the realm of familiar behaviors.

The term “institutions” is used here in the sense of “[r]ules that groups of individuals evolve for themselves” as in Ostrom (2010, pp. 809). Teaching about commons using institutional arrangements, then, focuses on the “sets of rules, norms, and strategies” (Siddiki et al. 2010, pp. 2) that formal and informal organizations use to govern resource ownership and access. A political ecology perspective foregrounds power relations regarding permission to access certain resources, and differential aspects in conditions of use.

3.1. Classroom introduction to concepts of commons, property, and customary norms

“Draw or bring a picture of your favorite natural place.” In this opening exercise for the “Political Ecology of Forests” course, students make a sketch or post a photograph, noting why they like that place and its location. Students view their pictures, and together they comment on the commonalities and striking features among their drawings. Aspects they usually notice first include: the pervasive presence of mountains, trees, and bodies of water; a wide and long visual perspective; and predominantly recreational and rural settings. On occasions where students have brought photographs rather than sketches, they note the prevalence of sunrise/sunset scenes. After several minutes, they may comment on the absence of people from the sketches, and mention that many of the places are parks or other publicly owned landscapes. We then look at students' comments on why they selected their places, and notice that most contain elements of “getting away” to a “place of peace” and a break from their daily lives.

Once they compile a list of common features, we post sketches done by Thai people given the same instructions, which display a more stylized village setting in the foreground, complete with people working to plant and to harvest paddy rice; human dwellings and field huts; and a variety of domestic and wild animals,

against a backdrop of mountains, often featuring rivers or waterfalls, trees, and birds flying overhead. Upon comparing, students notice the absence of any animals from their own drawings, and comment on how any people present in their own pictures are temporary visitors, as tourists and hikers posing for a photograph, while the people in the Thai sketches are working and permanently living in cultivated environments. This leads to a discussion of semantic differences between the term “natural” and its Thai translation *thammachat*, which carries no connotation of excluding people (Pinkaw 2001).

Such exercises,⁵ which query differences between students’ and others’ emic or “insider” understandings, unsettle their tacit expectation that the people they will encounter in Thailand will share their own view of people as separate from nature and transitory visitors to the forest, and make them query the genesis of these varied understandings. In this course and others, student assignments include structured written reflections about challenges to their pre-conceived notions of the inter-relationship of culture and ecology. Activities that challenge students to identify and to analyze their internalized categories enable them to see others’ categories when they encounter them, and to relate that new learning to their own lived experience (Bennett 1993; Moule 2012).

The students’ (unwitting) introduction to the topic of joint resource decision-making is through a situation⁶ in which they discover a haphazard pile of candy bars apparently left on a table in a public space near their classrooms (and the photocopier, so the loitering instructor may conveniently eavesdrop and note comments, for subsequent class discussion). There are just more than twice as many candy bars as there are students, and most are of the same type, with a few premium samples included in the pile. When students spot the candy bars, a cluster inevitably forms around the resource, and they excitedly ask each other a series of questions. The inevitable student discussion centers on many critical aspects of commons management: “Are these for us?” (user group membership)

⁵ Other activities that also employ contrast to teach include readings and reflections about the American food system during a course comparing subsistence and commercial Thai agriculture, an essay assignment comparing river resource use and perceptions in North America and Thailand, writing assignments that compare vignettes from home and from field experiences, and side-by-side visits to conservation fishery areas and industrial shrimp farms.

⁶ An infinite number of similar situations contrived or not, could be used to set the requisite backdrop for class discussion on commons norms already present in students’ lives. For example, students could be given (without much explanation) a short pre-class assignment to observe how people “claim” tables or chairs upon entering the school cafeteria or lounge. In a traditional classroom setting, the instructor could remove or add some chairs ahead of time to create a shortage or great excess, or cluster chairs and tables in such a way that entering students would (probably) rearrange the room to accepted norms of chair:table ratios. The important part is for the instructor to unobtrusively observe and to take note of the details of action and verbal responses: How many students arrived before anyone took action? Did they consult the instructor about the situation before starting? Who initiated the rearranging, and how did they engage others to help? Did already seated students get up to participate? Did students rearrange just enough for their own immediate needs, or also take extra measures to prepare the classroom for subsequent classroom users (e.g. stacking chairs along a wall)?

“How many are there?” (resource quantity and distribution – though no counting occurs) “Why would they be put here near the student area if they weren’t for us to take?” (access, boundaries, exclusion) “Remember last week when the coconut ice cream just appeared at the office? That was for us.” (established resource use patterns) “There’s no note here. Should we ask someone before we eat them?” (authority, leadership) “I think if we all eat them now, we won’t get in trouble. No one’s around to ask.” (sanctions, monitoring) And then to a passing administrator: “Are these all for us?” (Answer: “I don’t know what they’re doing there or whose they are. Don’t eat them unless you are explicitly given permission!”)

Ignoring authoritative prohibition against enjoying so great a resource, once a student takes one (or more) from the pile, some others follow suit and the pile rapidly depletes. As class is about to begin, the instructor collects the few remaining candy bars and takes them to class. The 90-minute lecture on Resource Rights, Tenure, and Institutions introduces the following topics:

- Definitions of property rights, tenure, and ownership
- Types of tenure arrangements and commons
- Legal pluralism and customary law/tenure

Students then discuss these questions in small groups:

1. What are common resources that students use around the ISDSI campus?
2. What norms and mechanisms govern student use of those resources?
3. How do you know those norms, and how did they come to be?

Each group generates a list of commons management issues they face in the campus space, often including hierarchy of claims and quantifiable limits to scarce comfortable couch seating, stored items in the student refrigerator, audible playing of one’s music in the library area, and shared use of computers and other equipment. For each situation, they elaborate a list of customary norms and examples of behaviors that breach those norms, enforcement means available to them, and how these norms developed within the group over the course of one month of close interaction.

We then debrief the recent candy bar situation – which initially they do not recognize as a commons problem – to focus the discussion on the evolution of institutional arrangements governing resource use. Students disclose, discuss, and examine reasons for their own behavior, from those who took and furtively hoarded far more than their share and the premium selections, to those few who refrained from taking any. Clearly, the distribution was uneven, and students discuss measures they took to moderate any potential inequity; e.g. all those who took more than four candy bars stored some of them rather than eating them on the spot, in the event that they would have to surrender them to a fellow student later; and those who took the premium bars all shared them with others to moderate the

social sanctions over taking the best products for themselves. Following Ostrom (Acheson 2011), students then *generate* some conditions under which more equitable resource sharing could occur, including a prior inventory of the resource quantity and quality; awareness of special conditions influencing distribution (e.g. allergies); user group discussion over optimal use and conservation of the available resource; and developing a decision-making body and monitoring mechanisms. Several of these points are reminiscent of Ostrom's (1990) principles of effective commons management.

This discussion and debrief serves two primary pedagogical purposes in sustainability education: 1) students will better understand the categories and terms used in their field assignments to query social institutions in resource use; and 2) students are aware from the outset that customary norms and institutions of resource access and control exist in their familiar contexts – indeed, among themselves – and are not only an artifact found among “traditional people” in “exotic” circumstances.

The lecture continues with a brief overview of international land tenure policy regarding privatization and titling; Garrett Hardin's already familiar perspectives, contrasted with commons concerns; Ostrom's (1990) design principles; and a summary of policy recommendations made by CAPRI (Mwangi and Patrick 2006).

3.2. Using guiding questions to learn about institutional arrangements

Concluding this session, we introduce the guiding questions framework about institutional arrangements (Table 1) that students will use in field work. This was adapted from Table 2 in Sudtongkong and Webb (2008) concerning coastal resource use, and draws heavily on the multiple typologies set forth by Ostrom (Acheson 2011). We developed this framework as a guiding tool because most students are unfamiliar with naming the various elements used to examine institutional arrangements. Students receive this framework with the categories they will use to ask about commons institutions on their field courses (Table 1, left column), and a column we fill in with a mundane example known to all: treatment of leftovers from our buffet lunches (right column). We discuss and define each unfamiliar term, with reference to the students' previously discussed scenarios and/or the written example provided, until students are confident that they understand the guiding question prompts for use in meetings and interviews. Students paste the categories into their field notebooks for easy access to these prompts, or use looseleaf sheets with the question prompts and empty columns to be filled (in place of the catering example), if they find that easier at first. Using this tool, students are equipped to ask questions about a range of institutional matters important for understanding commons issues. Similarly, Meinzen-Dick (2007) found that a structured visual guide enabled communication about institutional issues with audiences from diverse disciplinary backgrounds.

Table 1: Guiding questions framework students use to learn about institutional arrangements (left column), with students' own familiar, mundane example provided to illustrate meanings of question prompts (right column)

Organization or entity	Thai food catering at ISDSI
Resource (river, forest, fishery, etc.)	Food and leftovers from lunch buffet
Institutional history/timeline	Initiated on regular basis in Fall 2009 semester
Leadership and initiation of management group	Director approved, but office manager sets the menu each week in discussion with Thai staff
Exclusion from resource (of whom? by whom?)	Anyone present at lunchtime is invited to eat – former students, guests, staff, instructors, current students; temporary construction workers do not participate
Boundary or limits (how defined by space or time, visual cues)	Unlimited buffet style; serving platters refilled until the prepared food is exhausted; access ends when the cooks pack up any leftovers into small bags
Permitted uses and extractions	Eating lunch together at office; only staff take small bags of leftovers home, claimed by writing names on bag(s)
Monitoring or patrolling (frequency, by whom, and means – on foot, vehicle, satellite, etc.)	Public space during lunch makes food use (amount taken, eaten, thrown away) evident to all; close quarters expose those who take leftover bags
Ability to detain or to deter illegal harvesters (legal, physical, and means)	Most students or visitors learn about norms governing leftovers through observation; the cook gently prevents students from taking bagged leftovers when they attempt to do so
Punishments for infractions (form, value, graduated or not; who assesses or enforces)	Social shaming by Thai staff or fellow students with playful joking applied to students who would take leftovers, or former students who show up too frequently at lunchtime
Link with other institutions (state, customary, in/formal, other)	Office goods are to be used on site and not removed from office; exception: fruit set out on library table can be taken home
Source(s) of information	Participant observation, questions to individual staff, experience of individual students
Notes	

Students use these guiding themes in semi-structured interviews and community meetings with village residents and governing bodies at least three times over the course of a semester. Where schedules permit, students use the guiding questions framework with various parties concerned with the same resource (e.g. Mekong River Commission and fishing communities; Royal Forest Department officials and upland forest farming villages), so responses and perspectives can be compared. Repeating the exercise in the different course contexts enables students to internalize the approach and to conduct a free-flowing discussion on this theme guided by the topics provided.

Below are three examples, taken from consecutive courses, of what the students learn by using the institutional arrangements guiding questions framework in the field, during a 45–90 minute interview with leaders involved in commons oversight. These summaries are derived from instructor notes on student-run interviews and student discussions around the exercises. This illustrates the type of information about commons oversight that undergraduate students, new to these themes, can learn by asking questions about resource institutions. These cases provide rich detail about the actors, political sensitivities, economic realities, and management issues that user groups face regarding commons claims and access.

3.2.1. Case one: Agroecology/sustainable food systems field course: community-designated watershed forest, Mae Tha subdistrict, Chiang Mai province

Students have a one-day hike through a forest that an ethnically mixed population of lowland Thai villagers has designated as a conservation area, near a small reservoir for paddy rice irrigation that was built about thirty years ago. Villagers initiated the idea for using this hike to experientially teach student groups about forest use and the benefits of watershed management seven years ago; they had previously taught students primarily about their organic agricultural practices. Villagers view developing this type of education as useful in honing their own capacity to convey their central resource access and oversight issues to outsiders (cf. RECOFTC 2007, pp. 29–31). Using the guiding questions in conversations with village guides, students gathered the following information on use of the watershed forest, over the course of a one-hour discussion (including translation as needed), with supplementary information derived from the hike.

When the reservoir water was insufficient in 1993, the villagers with support from an NGO partner formed a natural resource committee and designated the adjacent uphill forest as a watershed conservation area where trees cannot be cut. Villagers made the connection between forest conservation and water supply because a nearby waterfall and stream dried up when the surrounding forest was cleared, and local NGO informational campaigns emphasized the importance of forests for water supply (cf. Forsyth and Walker 2008). Community rules specify that villagers may continue to use this conservation area for grazing cattle,

hunting (wild pigs, barking deer, forest chickens, pangolin, and other species), and gathering non-timber forest products (NTFPs, especially mushrooms, bamboo shoots and canes, and leaves used as wraps). Villagers can cut timber for household construction from a separate community use forest, with the explicit permission of a natural resource committee after a detailed case review. A significant portion of villager income is derived from this community forest use, primarily from cattle grazing and the collection of bamboo shoots (cf. Somying et al. 2007, pp. 62–68). Written rules governing the watershed forest were distributed to every user household, as well as to all the non-user surrounding villages. Boundaries are marked with staggered signs and follow a ridgeline.

Fines for cutting trees without permission are graduated according to tree size, with fines doubled for village leaders and natural resource committee members; any monies collected go to the central village committee to use for meetings and village activities. In the past fifteen years, there have been ten violations – half of them by village leaders – that resulted in a fine. When students showed surprise that leaders would be involved in breaking the rules, our guide informed us that the committee will specifically recruit individuals they perceive as potential violators to serve on the village natural resource committee, both to educate them about the forest's importance and so that the increased fine will serve as an extra deterrent to harvesting timber there. The villagers report no cases of external encroachment on timber harvesting by neighboring villages, due to distance and terrain; in two months of the year, people from neighboring villages do collect plentiful mushrooms for their home consumption, but this is viewed as unproblematic as long as they do not collect on a commercial scale. Monitoring is not formally organized; so many villagers walk through the watershed forest with their cattle that they can keep a frequent and close eye on what happens there.

Committee members then discuss how their primary perceived threat is from encroachment by a nearby national park, which made an effort to measure, to mark, and to designate various conservation levels of forest (and paddy rice) land fourteen years ago. Villagers' main concerns if the forest were to come under the control of the national park include losing hunting and NTFP harvesting rights, losing forest grazing access for their cattle, and that the reservoir water would be diverted for other state uses, leaving the villagers with insufficient irrigation water.

On the day-long hike, students see ample evidence of villagers' use of the watershed forest products – and, importantly, identify what they observe as parts of the resource access puzzle. On one visit, a young man passed the group carrying a shotgun which he stated was to protect himself in the event that a wildcat (which had recently killed cattle in that forest) attacked him; villagers gathered citrus fruits along the way; a man passed the group, laden down with baskets of mushrooms to sell; one man was slicing and bundling banana leaves to use as food and cigarette wrappers; several guides collected bamboo shoots

and bits of cinnamon bark along the way; and we passed several large trees with bamboo ladders leading up to wild honeycombs.

Especially in this first field course, student questions betray their limited background understanding of customary resource management institutions in this context. For example, they have a difficult time comprehending that the forest use rules are community-generated, separate from the formal legal system, asking multiple questions to clarify this aspect. They also ask repeatedly how the community management group can assess a fine, an action usually reserved for formal state agencies in the students' home contexts. During the discussion before the hike, students had difficulty imagining what forest products the villagers might use; but after seeing so many people gathering a range of items, the villagers' insistence on not losing their NTFP gathering rights was clearer to the students. Students commented how surprised they were with village leaders' emphatic discussions on the critical importance of forest conservation in protecting their water supply throughout the hike, and the elaborate nature of associated management institutions; students clearly did not expect to find this level of organization around resource management at the village level. In this first use of the institutional arrangements matrix, students tend to use it as a rote question guide, but through the hike and post-hike discussion, they see ways to use it to prompt their inquiry during activities as well.

3.2.2. Case two: Political ecology of forests field course: orchid conservation area, Huay Puling subdistrict, Mae Hong Son province

A second instance in which students use the institutional arrangements framework is during a one-day hike through a Karen community-protected forest that features orchid conservation. The forests around the village (population: 150) are extraordinarily rich in orchid species. In response to orchid theft, in 2003 the villagers designated this zone as part of a community-based ecotourism initiative with external NGO support. Initially, the village efforts attracted significant interest from the scientific community, who even fostered a village-based, tissue culture propagation program for some years, as well as attention from the Thai royal family. Because of this community's long interaction with outside visitors regarding the orchid conservation zone, many villagers speak readily about the institutional arrangements governing this area – just as in the previous case of the community watershed forest. The following information is what the students learn, using primarily the guiding questions over the course of half an hour, followed by discussions with village guides throughout the day.

Concerning resource management in the conservation forest related to ecotourism, villagers can belong to the orchid group, the fern group, and the bird-watching group. Each group forms the regulations concerning that resource. Outsiders are not allowed to enter the forest (accessed only by paths up from the village) without a local guide, available for a modest set fee. External conservation forest boundaries are unmarked, though the main orchid conservation area has

Thai-language signs along the trail to flag its location. Villagers allow cattle to wander in the forest and to graze. As with the watershed forest, villagers report that there is no defined enforcement group, but that all villagers are the “eyes and ears” who keep watch over the forest, often as they walk through to check on cattle. No orchids may be removed or sold, and as villagers see fallen epiphytic orchids in the forest, they place them back in trees to keep them beyond the reach of cattle. Limited quantities of medicinal plants and NTFPs for village use are gathered in the conservation forest.

When students asked about hunting large animals there (which is not permitted), an extensive debate ensued among village guides before answering, who explained that the previous permission to harvest forest rats and frogs for consumption was soon to be prohibited by mutual agreement of the villagers, who had recently noted a decline in downstream frog populations that they attributed to overharvesting upstream. The villagers had developed an elaborate system of graduated fines, though they report that it has never been used, as all prior infractions have been resolved with the first steps of prevention (through requiring local guides) and talking with individuals who attempted to remove orchids. This discussion gave students insight into the lived mechanisms of the institutions relating to resource use, and improved their confidence in investigating the topic in less structured ways. In the second course, the initial “shock” of encountering villages that can and do self-regulate their resource use has worn off, and field staff note that students ask far more detailed and well-rounded follow-up questions to their village hosts. As with the previous case, villagers view their structured conservation institutions, legible to outsiders, as important in their ongoing negotiation to remain on land that is officially designated as state forest area.

3.2.3. Case three: Coastal and Oceans field course: community mangrove, Haad Samraan Subdistrict, Trang province

The third, more contentious case describes a community-protected mangrove and seagrass area, where Muslim fishing villagers face ongoing resource incursions by outsiders, as well as neighboring villages’ conflict with a nearby national park. Students learn about these issues through interviews with village leaders, commercial shrimp farmers, former charcoal workers, and rubber-tappers, and by accompanying host families to collect the day’s food and other products in the mangrove area. The case as presented here reflects what students learn in a ninety-minute interview with members of a village’s fisheries protection group. By this point in the semester, most students ask about the topics of interest with little reference to the guiding prompts provided, and their questions range beyond the listed questions to the internal communication and record-keeping aspects of resource management; they also ask villagers to comment on differences in village and state resource management.

In this region, charcoal concessions for the mangrove area were auctioned 30 years ago, but one strong village leader prevented the lease of his village's mangroves, intending to preserve the forest for villagers' use. An inter-village fisheries protection group organized with networking and advocacy support from a local NGO to reduce illegal fishing and shellfish collecting or tree harvesting practices, by both village residents and those who came from nearby communities in their mangrove and shoreline area. In one village, the community-protected mangrove has tripled in size over recent years, and that village leader maintains a "team of eyes" who monitor the use of illegal equipment, in the course of their ordinary use of the area while collecting medicine, herbs, crabs, and other items. Their approach is to talk with any violator in a familial fashion, trying to resolve the problem without resorting to strong authoritarian means.

Villagers say that differences between the "use" and "conservation" forest areas are visible, because the "use" forest is tended and kept orderly, while the "conservation" forest has fallen trees just left where they fall. Boundaries are geographic features including canals and berms. Village members can collect fruit and cut non-fruit trees in the "use" forest for personal use, as well as shrimp, fish, crabs, and shellfish in the use forest without specific permission, but taking birds, flying squirrels, and other animals is always prohibited. Residents of other network villages of the inter-village conservation area network, relatives of village members, and people who are very poor may be granted specific permission to harvest for personal use only; no commercial extraction is allowed. The conservation forest, divided into an upland zone and near-ocean area that moderates strong waves, serves mainly as a hatchery and nursery for young fish and protected habitat for other animals. Sometimes dead trees are not disturbed, because they provide habitat for many animals, but they can also be used to build villagers' homes.

Villagers say that the key to community mangrove management is an open, regular monthly meeting to discuss any problems that arise and to publicize individuals' specific requests to use particular resources from the conservation area. For example, people requiring trees specify the type, the number, and in which areas they will cut individual trees, to reduce impact on a specific section of the forest; this public declaration and discussion prevents future claims by officials that villagers have illegally cut trees in protected areas. Permissible harvest amounts for specific projects are set in the meeting. Those who would exceed the specified number would be expelled from the group or risk losing their ability to get future requests granted by the group; over-harvesters need to locate and to return the excess wood. Violations are very rare because of strong rules and frequent monitoring. The groups deliberately avoided producing standardized fines, because this step was seen as a potential source of division within the group. Instead, the groups prioritize local villager informal education and agreed-upon understanding about the mangrove use to prevent violations. Forest use rules are posted at the house of the village leader, who serves as the reporting point for suspicious activities, and relays problem cases of outsiders' tree-cutting to the police.

In contrast to the government keeping written records of tree use, villagers do not write the resources because they can remember what is spoken in the meetings. They carry out their conservation activities without much involvement by the local government, and official support for conservation areas varies widely among regional governments. Villagers have experienced that collective action, like gathering at government offices to declare a village conservation area, is more effective than pursuing formal administrative channels to gain recognition or permission in the realm of mangrove protection.

4. Student learning from use of guiding questions on institutional arrangements

By studying cases in very different contexts across three courses, using the same guiding questions framework, students come to understand issues of membership in village management groups, processes of rule-making and rule-breaking, complex interactions with government institutions, and monitoring systems. After successive interactions with community groups who rely on the commons for part of their livelihoods, students can identify some aspects that recur across management groups. Without exception, students are surprised to find such elaborate and structured rules governing resource access among villagers. They also begin to contrast their prior concepts of conservation to what they encounter through these interactions. For example, many students remark how they used to understand conservation as keeping people out of protected areas, but in nearly all their interviews on institutional arrangements, villagers credit the monitoring that occurs through people's *presence* while *using* the commons with maintaining access and use within the agreed-upon bounds.

To assess medium-term student learning from using the matrix, six months after completion of the program we surveyed all program graduates from one 2009 semester about how using the institutional arrangements framework has impacted their approach to resource use dilemmas. Fifteen of 17 graduates (88%) responded with feedback and examples of how they have applied an institutional perspective to other situations since returning home. Complemented by analysis of student notes and interviews during the students' semester of study, we learned the following about using the guiding questions framework in teaching about commons institutions (with illustrative student quotes in italics):

- Structured study of institutional arrangements was new to nearly all students. Just two (political science) students reported prior experience with institutional analysis, but only of formal institutions. *"The chart [framework] pushed us to ask questions that we might not have normally thought to ask. As a result, we were able to find out about all the interesting nooks and crannies surrounding the laws about how the village could use the teak forest. I was also interested in those five rules surrounding the teak forest, and impressed at the foresight of the village for knowing how to effectively manage this resource."*

- Every student found the guiding framework helpful in investigating this unfamiliar topic. On a practical level, it provided those with limited social research experience some structure for taking notes and data analysis. Thirteen students reported that although they did not find the assignment inherently interesting at the outset, after using the framework to guide an interview, all noted increased interest in the subject, and an appreciation for what they learned through the exercises. *“The matrix gave me the tools and knowledge to break down a situation that at first seems overwhelming since otherwise I probably would not have known what questions to ask about how the resource was managed. Because I could understand it more fully, my interest increased.”* *“[I] initially thought it was too simplified, but while using it to summarize and form connections between the different resources and institutions, it became a much-needed tool/lens ... consistent perspective, guided format ... tool to link people and resources.”*
- Introductory classroom examples of students’ own customary property norms (e.g. use of shared computers and student kitchen) helped them to understand the complex, unfamiliar concepts related to the commons. However, most students point to a specific field instance, while completing the questions matrix or comparing different actors’ responses, as the moment in which they clearly understood commons use dilemmas and the issues surrounding community rights. *“I remember this as being a point of immense surprise: finding out that the people we stayed with who were so strong and happy actually were limited in their jurisdiction in the area, not being true ‘landowners’.”*
- The discipline of asking the detailed questions repeatedly helped students to internalize the topics and increasingly integrate meaningful questions more naturally in conversations about commons. *“It became second nature to think of all the different categories...when learning about the institution.... My brain seemed to default to institutional arrangements.”* *“[Having the topics] organized in a list was an incredibly valuable concept; repetition was good and definitely got the concept into my long-term memory.”* *“The village’s teak management was very interesting and also confusing, and ... the framework helped me make sense of it.”*
- Comparing villager responses to those from government bodies is a powerful means to illustrate the management complexities. The chart format for notetaking facilitated a pedagogically rich side-by-side comparison of different types of organizations; from a political ecology perspective, discussing different actors’ responses brings into relief the power relations and the different strategies available to various actors. *“I gained understanding of the dynamics of resource conflicts and how they revolved around local institutions.”*

The greatest challenge student groups overcame in using the framework was allowing people first to tell their experiences in free-flowing conversation, rather than turning the conversation into a series of rote questions from a worksheet.

Once students knew the categories well enough to identify the topics as people related their experiences, they no longer asked the listed questions sequentially. In developing the institutional arrangements teaching procedure and tool, most students initially reported that use of a framework format was both necessary (for them to learn the categories that inform the topic) and tedious. However, once familiar with the guiding questions, students found the structure helpful to prompt supplementary questions during community discussions. One student wrote, “[The chart] was a good reference and starting off point that was integral to our development as interviewers.”

5. Yellow bikes: applying students’ new commons perspective to other contexts

In each course’s final seminar, we revisit what the students have learned about how various groups of people, through their institutions, define and negotiate access to the commons. We compare the institutional arrangements frameworks side-by-side, and generate summaries about how decisions and actions are taken regarding the commons in question. Students discuss how customary institutions compare to the lived experience of formal law and government regulation, and how their understanding of the potential range of mechanisms for conservation shifted as a result of encountering local institutions and state agencies. One student wrote, “Being aware of who the stakeholders were and what types of formal management strategies and policies might be possible was a product of using the institutional arrangement method. Having completed several [frameworks] gave me the capacity that I may not have otherwise had.”

Students requested a closing discussion of how they might apply these new insights to their home contexts. We asked students for examples of commons situations at home in which they have been involved. In one course, two students from the same school described the highly successful “yellow bikes” program at their home campuses, in which a student-run program provides free, temporary bike use between campus buildings; anyone finding a bike parked outside a building is free to use it for transport to the next destination, but not granted exclusive or extended rights to any given bike. Student volunteers maintain the bikes, which are conspicuously painted bright yellow to discourage theft. Students from two other colleges mentioned similar initiatives on their campuses, one of which met with moderate success, and the other which faltered from the start and was eventually discontinued. With three contrasting cases of on-campus shared bike programs, the students applied their now-internalized institutional arrangements framework to highlight some of the differences among the three schools’ programs and bike-sharing operations, and offered possible reasons for successes and limitations in each school’s program. This discussion clearly demonstrated the degree to which students understood the issues of membership, boundaries, monitoring, and enforcement that surround commons access and use. Linking students’ recent field experiences to their everyday use of commons in the

world of technology and information would be another productive way to expand their field learning to other realms.

In our survey of 2009 program graduates, eleven (of fifteen responding) students reported having directly used or spontaneously applied the institutional arrangements guiding questions on their own within six months of completing the semester. Their examples included the following: analyzing how national park exclusions, patrolling, and the assignment of fines are part of conservation measures at home; applying the framework in subsequent university courses “to analyze who is excluded from a resource and how”; understanding multi-stakeholder conservation issues in their home communities; structuring a subsequent ethnographic study; organizing membership and monitoring components of a community garden and wilderness emergency response program; and addressing space access issues in student governance organizations. Upon return home, one student became aware of a local island shorebird protection issue, and said that by using the now internalized institutional arrangements framework, “I was able to effectively map out the leaders and group, what the resource is, how it is excluded from others, the boundaries of the limits, penalties for violating these laws, etc.” Another student wrote that the institutional arrangements approach “definitely changed my thoughts and views of resource management. ...[Before] I thought of resource management and protection as always being done and carried out by a government organization such as the DNR [Department of Natural Resources] in the United States and that other smaller groups were not doing similar actions. It is interesting to use this framework to look at the DNR now.”

Graduates of a 2010 semester, similarly surveyed in 2011, gave additional examples of their direct applications of the institutional arrangements framework to situations including the dynamics of local tour guides “claiming” tourists, seasonal permission for downhill skiing on public land, course projects on the absence of regulations on land use preceding the American Dust Bowl, and establishing norms for chores in group-living student housing. One graduate commented on her recent learning about the place of private land in conservation: “The framework brought resource management issues into a clearer light for me, and has allowed me to approach issues like conservation easements and really decipher what they are saying regarding property rights and public access.”

6. Conclusion

The purpose of this initiative was to introduce a multidisciplinary group of students at the undergraduate level to the concepts of the commons, and to increase their awareness of how institutions influence resource access and use in both novel and familiar circumstances. Introducing a structured framework to guide students' inquiry about institutional arrangements proved critical in enabling them to independently investigate these topics. This approach also facilitated students' transfer and extension of this learning to different contexts, also giving them a new lens with which to examine activities and organizations of which they are insider

participants rather than outsider observers. Importantly, this work demonstrates another way to introduce a wide range of people to this previously unfamiliar concept of the commons, and indicates ways in which other educators and scholars can communicate the substantial complexity of these matters to a broad audience of non-specialists – all of whom are also actors in using commons on a global scale.

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