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## Insights and Applications

# *Siam Mapped* and Mapping in Cambodia: Boundaries, Sovereignty, and Indigenous Conceptions of Space

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*This article explores differences and similarities between the introduction of mapping into Thailand in the beginning of the nineteenth century and efforts to map customary land use in Cambodia at the end of the 20th century. The comparison suggests that indigenous conceptions of space have been overwhelmed by the need to have a location that can be recognized by political power. That mapping should not stop with the delineation of boundaries but needs to be carried to its conclusion in the recognition of the bundles of overlapping, hierarchical rights that define property. Finally, who does the mapping is not as essential as who controls the maps. Imbedded within the context of who makes and controls maps is the challenge of balancing the need for community participation—with implications for lower levels of technology and accuracy—against the need to establish legal rights to these lands—with implications for more sophisticated technology and greater accuracy.*

**Keywords** boundaries, geomatics, GIS, mapping, indigenous knowledge, sovereignty

For centuries, mapmaking has been a tool for recording and controlling space. As Harley (1992) wrote: "Power comes from the map and it traverses the way maps are made . . . to catalogue the world is to appropriate it." The recent growth in the availability of low-cost global positioning satellites (GPS) and geographic

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information systems (GIS) technology, however, has begun to make mapping technology accessible to those who were traditionally disenfranchised by it. Community mapping provides an alternative to the authoritative mapping by government agencies and enables communities to draw maps of their lands and resource uses, which are not acknowledged by official maps. The process allows people to bolster the legitimacy of their customary claims to resources by appropriating the state's techniques and manner of representation (Peluso 1995).

More and more projects are using participatory mapping tools to develop a deeper and more fully conceptualized understanding of indigenous claims to land, and to design resource management plans and conservation studies that are compatible with local land-use norms and practices (e.g., Aberley 1993; Brody 1981; Dana 1998; Denniston 1994; Gonzalez et al. 1995; Mohamed and Ventura 2000; Rocheleau 1995; Sirait et al. 1994). Poole (1995) studied 63 locally initiated or managed projects that used spatial information technologies for a variety of purposes including recognizing land rights, demarcating traditional territories, protecting demarcated lands, gathering and guarding traditional knowledge, managing traditional lands and resources, building community awareness and mobilization, and resolving conflicts.

In the last decade, community mapping has gained such widespread support that it is in danger of becoming the "thing to do," a magic bullet that is applied uncritically or simply misused. Mohamed and Ventura (2000), for example, present an excellent discussion on how local communities can use spatial information technologies to map and document their indigenous tenure systems. In their discussion of "geo-coded participatory maps," "geo-coded thematic maps," and "attribute data," however, there is no recognition that adopting these technologies might have social implications. Several recent papers (e.g., Aitken and Michel 1995; Chapin 1998; Currey 1995; Fox 1998; Peluso 1995; Rundstrom 1995) have questioned the context and implications of community mapping efforts and have set the groundwork for further constructive and critical analysis of these technologies. Among other issues, these papers suggest:

1. Mapping destroys the open and dynamic character of local resource tenure practices, freezing these practices into maps that cannot easily be changed—in other words, mapping destroys indigenous conceptions of space and replaces them with imagined lines on the ground.
2. Mapping accentuates conflicts between villages because of how maps eliminate fluidity and overlapping rights among communities.
3. Community-based mapping raises the questions of who initiates and does the mapping—foreign nongovernment organizations (NGOs), local NGOs, government agencies, academic researchers, and/or local communities—and of the role of these organizations: Do they merely offer technical support and play an "apolitical" role, or do they bring their own interests and agendas that may differ from those of the communities with which they are working.
4. Community-based mapping efforts often fail to question who controls access to the maps and the traditional land-use information they contain.

While many if not all these problems are true of mapping in general, it is precisely because community mapping seeks to address issues of inequity and to put mapping at the service of local communities that organizations and individuals involved in community mapping need to be particularly conscious of these problems.

In his intriguing book *Siam Mapped*, Thai historian Thongchai Winichakul (1994) explored what happened when Western mapping technologies and paradigms of space were introduced into Siam[1] in the early 19th century. He examined two basic themes: how a map created the geo-body (national boundaries) of modern Thailand, and how the confrontation between modern and indigenous conceptions of space generated conflict, confrontation, and misunderstanding, and ultimately led to the displacement of indigenous knowledge of political space.

In this article I delineate differences and similarities between the processes and outcomes Winichakul describes for 19th-century Siam and those of a mapping project I conducted in northeastern Cambodia at the end of the 20th century. Surprisingly, despite being nearly 150 years apart, the two projects have many similar outcomes. I argue that these similarities are not coincidental but are the direct consequence of introducing Western mapping technologies into non-Western societies. This comparison of two mapping projects conducted over a century apart consequently provides a time-tested assessment of the implications mapping technologies can hold for indigenous societies.

## *Siam Mapped*

In 1825 the British conquered the southern part of Burma, making it the British Tenasserim Province. The British envoy to the court of Siam, Captain Henry Burney, requested Siam to send a high-ranking official to negotiate the boundaries between their two territories. The Siamese court, however, showed a lack of interest in establishing a boundary. After Burney repeatedly urged the court to negotiate the boundaries, the Siamese finally responded:

> With respect to what is said about the boundaries . . . no boundaries could ever be established between the Siamese and the Burmese. But the English desire to have these fixed. Let them inquire from the old inhabitants residing on the frontiers . . . what they know respecting the contiguous territories, and let what they point out be the boundaries between the English and the Siamese possessions. (Winichakul 1994, 64)

> The boundaries between the Siamese and Burmese consisted of a tract of mountains and forest, which is several miles wide and which could not be said to belong to either nation. (Winichakul 1994, 64)

It is clear that a ''boundary'' as understood by the British and the Siamese was a similar thing but not the same. For the Siamese court, it was hard to imagine why the question of boundaries should be so important—it should be a matter for local people to decide, not those in Bangkok.

Winichakul argues that modern mapping with its emphasis on bounded territories represented a new way of thinking for the Siamese. There had not been any need for boundaries in the premodern political hierarchies of the region. People looked at the world in terms of centers that ranged from the large, wealthy, and powerful, to the smaller, weaker centers at the bottom of the hierarchy. The sovereignty of a state in this premodern period was neither single nor exclusive. ''It was multiple and capable of being shared—one for its own ruler, another for its overlord—not in terms of a divided sovereignty but rather a sovereignty of hierarchical layers'' (Winichakul 1994, 88).

The Siamese had to first come to terms with the ways in which their country was shown on Western maps, and then to explore the uses of modern mapping technology in their own country. Winichakul (1994, 101) argued that once the Siamese court came to terms with mapping, it used it to secure its own interests. The first modern map of Siam (the so-called 1887 McCarthy map) in fact showed the Siamese boundary as running from Chiang Khaeng (on the Myanmar–Laos border today) to the Black River (covering parts of what today is in Laos and Vietnam), then southward along the mountain ranges parallel with the coast (approximately the modern boundary between Vietnam and Cambodia) and then westward to join a previously agreed on boundary at Battambang.

In the contest between Siam and France for the upper Mekong watershed and the entire Lao region, Winichakul suggested that the chief losers were the chiefdoms along the routes of both the Siamese and the French forces. Not only were they conquered, but they also were transformed into integral parts of the new political space. The ultimate loser, however, "was the indigenous knowledge of political space. Modern geography displaced it, and the regime of mapping became hegemonic" (Winichakul 1994, 129).

Winichakul concluded that the emergence of the geo-body of Siam was not a gradual evolution from the indigenous political space to a modern one. Rather, it was more or less a violent process "in which critical moments erupted, determining the ambiguity in a particular way" (Winichakul 1994, 61). The new discourse threatened, destabilized, or simply made the existing discourse ambiguous and then displaced it. The geo-body of Siam is then the result of the hegemony of modern geography and mapping.

## Mapping in Northeastern Cambodia

The Cambodian province of Ratanakiri lies about 600 km northeast of Phnom Penh, to the immediate west of Vietnam, and to the south of Laos (see Figure 1). Due to its distance from major regional centers and to the high prevalence of malaria, the province remained remote and isolated from Western influences until recently (Bourdier 1995). With the exception of two ethnographies (Fontanel 1967 and Matras-Troubetzkoy 1967–1968 published in 1983), no study of human geography or anthropology had been undertaken in the province until the 1990s.

This case study was conducted in four hamlets (Kres, Kralaa, Tannich, and Ganchueng) in Khum (commune or village) Poey in O Chum district.[2] People of Krung ethnicity populate the 10 hamlets of Khum Poey. The project sought to help villagers to identify physical features (rivers, streams, hilltops) that define their landscape, and to record the spatial history of Kres hamlet. The project integrated the development of a spatial database with information collected through interviews with farmers and other key informants and an analysis of relevant socioeconomic policies (Fox et al. 1995). We used aerial photographs, GPS and GIS technologies, and participatory rural appraisal techniques to locate the physical features identified by local participants and to walk the recently established boundaries. Interviews were conducted in both Khmer and Krung languages and translated into English by experienced field workers.

The oral history we recorded for Kres traced at least 9 voluntary movements and 1 forced movement over the last 50 years (see Figure 2). When the village moved, the movement tended to be within its ancestral cultivation area and often only a few

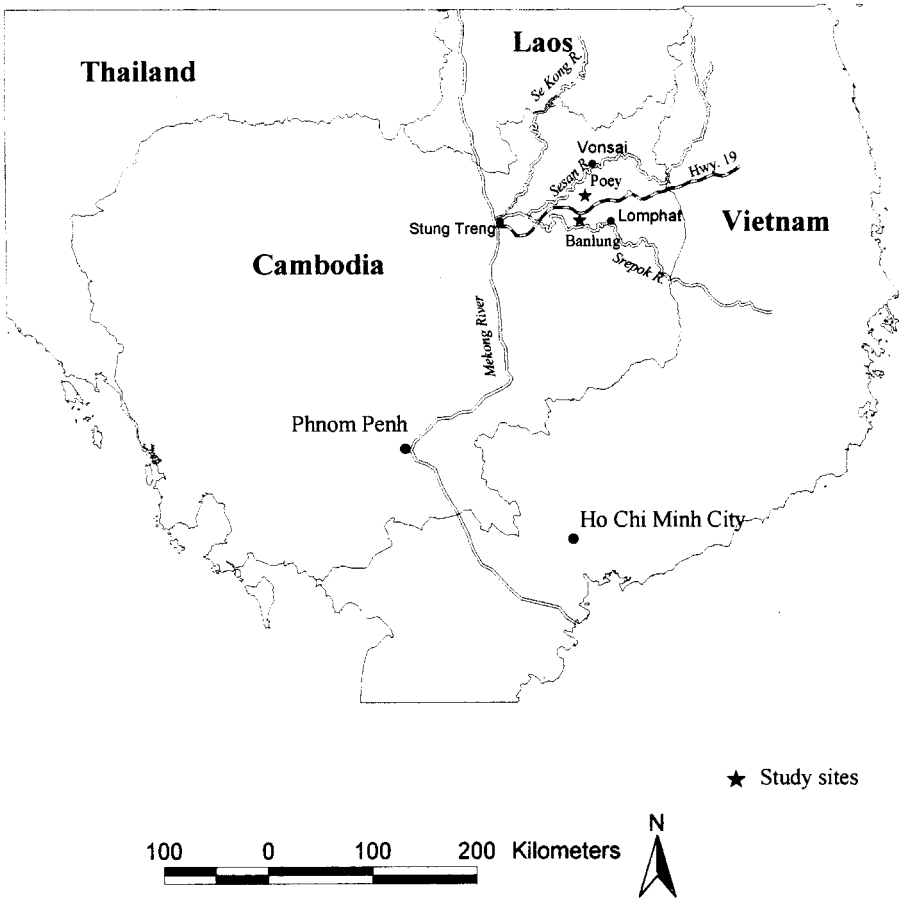


**FIGURE 1** Location of Ratanakiri province and Khum Poey in northeast Cambodia.

kilometers. Moves were generally for specific reasons such as political upheaval, government relocation, bad omens, excessive illness, or other hardships at the current site. Villagers consider this entire tract of land to be their ancestral land. After having been forcibly removed by the Khmer Rouge, they returned here once they were free.

While villagers in Poey have a clear sense of ancestral lands, specific boundaries between hamlets were not traditionally required unless the cultivation areas from two hamlets met one another. Villagers believe that if they farm on the other side of another hamlet's swidden fields and hence have to cross those fields frequently, the spirits will be unhappy and cause misfortune or death. When a hamlet's swidden fields are adjacent to those of another hamlet, village elders may meet to decide the boundaries. But in most cases the physical location of the swiddens and the taboos against crossing each other's field for cultivation define the limits of cultivation.

Since 1993, when Cambodia opened up for international investments, over a dozen concessions of 100 to 20,000 hectares have been granted for estate crops such as coffee, rubber, and cashews. Local people are unhappy about this "land grab" by commercial companies as well as government agencies. They see these developments

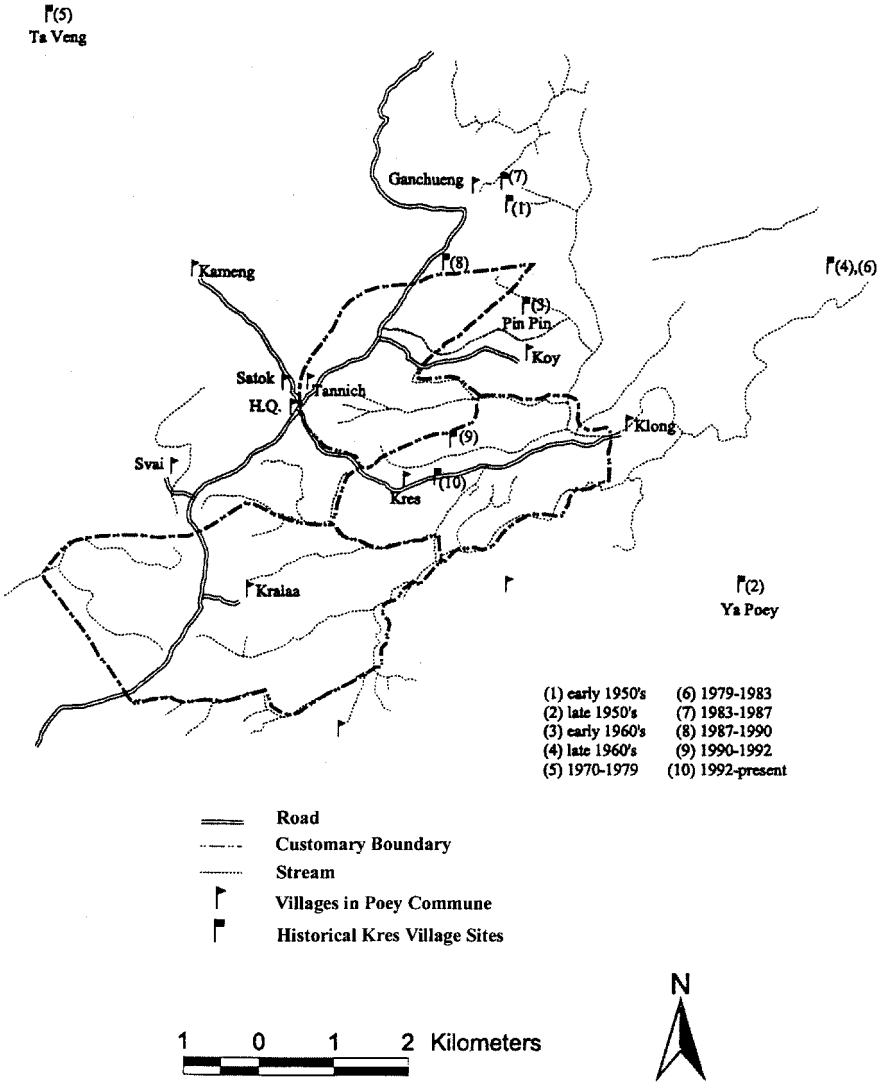


**FIGURE 2** History of Kres village sites between the early 1950s and today. (Map prepared by Dom Taylor Hunt, Sovanna, and Jeff Fox.)

as threatening their customary domain, their remaining farmland—both active swiddens and fallowed fields, their traditional land-use practices, and their ancestral landscape (Colm 1997; Poffenberger 1999). In 1997 the commune leader in Poey convened village headmen to discuss and map village boundaries. Between village boundaries, members of Poey Commune have started prohibiting the use of their lands for swidden by people from other villages (even in areas where other villagers do not have to cross their fields). Similarly, villagers in Poey reported they traditionally cleared their swidden fields, cultivated them for 1 to 3 years, and then abandoned them. Once they were abandoned, a farmer had no future claim to that piece of land. Today, however, many villagers in Poey are beginning to consider their current swidden fields as their private property. Neither customary nor government

institutions currently exist for protecting the private claims of swidden farmers to their swidden and fallow lands.

Villagers in Poey traditionally protected forests that were too far from any hamlet to be used for swidden yet were close enough to be valuable for collecting rattan and other products. Even today, forests do not have clearly delineated boundaries, and several hamlets and even villages often share the same forest area in overlapping ranges. These villages have different regulations and taboos for using the same shared forest area. People believe resident spirits forbid cutting and other activities, and different spirits, each with their own taboos or spiritual regulations that effectively provide for forest and wildlife conservation (Colm 1997), are believed to rule different forests.

## *Siam Mapped* and Mapping in Cambodia: A Comparison

### *Methods*

According to Winichakul, between 1847 and 1849 the British surveyed, with the assistance of the five oldest Karen living in the area, every fork of the Salween River in order to identify the main stream, which would be regarded as the boundary dividing the British province of Tenasserim from Lanna (Winichakul 1994, 69). Then in 1880 the British India government requested permission from the Siamese court to conduct a survey in Siam in order to complete the triangulations for the boundary map of British India (Winichakul 1994, 117). Triangulation is a trigonometric operation for finding a position using bearings from two fixed points a known distance apart.

This description of how mapping was done in Siam in the mid-19th century resonates with the mapping exercises today (e.g., Poole 1995; Sirait et al. 1994; Dana 1998; Mohamed and Ventura 2000). Foreigners (usually Westerners) are assisted by national technicians to survey village boundaries and land-use practices based on information collected in interviews and in field visits with local informants—often elderly people with historical knowledge of the region. Triangulation also plays an important role in community mapping today, only instead of using surveying poles and marking points, we use GPS technology that locates a given unknown position in terms of its distance from at least two fixed satellites.

Two differences between these mapping efforts, however, are the role of participation, and the importance placed on map accuracy. The British and eventually the Siamese used local participants to identify and map the local geography, whereas in Poey (and other recent community mapping projects; e.g., Chapin 1998; Dana 1998; Poole 1995) local participants were encouraged to become partners and, if possible, to take the lead in defining and defending their traditional places. The differences in the way local participants became part of the process has implications for how villagers react over the long term to mapping exercises. In the case of Siam, Winichakul (1994, 118) noted that native people did not necessarily welcome mapping. However, when community mapping is done well, the community defines what should be included in the map and how the information should be represented. Because of its close involvement, the community becomes owners of the map (Chapin 1998; Dana 1998; Poole 1995).

The differences in the way local participants became part of the process, however, also have implications for map accuracy. Map accuracy can range from a

first-order survey, with a relative accuracy of one part in 100,000 (1 m in 100 km), to a reconnaissance or preliminary survey, whose goal is often to merely sketch out an idea of a parcel of land. The British used sophisticated surveying and triangulation techniques to achieve high accuracy. But many community mapping projects choose to use low accuracy because it is more appropriate for the education level of village participants and is less expensive to acquire and difficult to maintain (Dana 1998).

### *Boundaries*

Winichakul wrote that boundaries in premodern Siam were not determined or sanctioned by a central authority. As far as the Siamese elite was concerned, boundaries were something the British could do by themselves with the help of local inhabitants. The area of each town was determined primarily to be the extent of surrounding area it could protect. A town may or may not have a common border connecting it with another town, let alone a line dividing the realms of two towns or countries. A kingdom was a conglomeration of towns, with a lot of unclaimed, often lawless area in between.

These characteristics are also true of the boundaries of the 10 hamlets in Poey (and other community-based mapping projects; e.g., Chapin 1998; Jacobs 1993; Poole 1995). In these hamlets, boundaries were not been determined or sanctioned by a central authority. The area of each hamlet is determined primarily by the extent of the surrounding area it actively uses. Hamlets did not have a common border connecting them with other hamlets, let alone a line dividing the realms of the two hamlets.

### *Sovereignty and Indigenous Conceptions of Space*

In terms of sovereignty, Winichakul wrote that the sovereignty of a state in premodern Siam was neither single nor exclusive. Instead of establishing an independent state as a buffer zone, the overlords shared sovereignty over the buffer zones. Hence, not only had Siam never been bounded by the modern kind of boundary, but it was also surrounded by common frontiers, border areas of shared sovereignty.

While there are differences because of the scales (national versus local), this description mirrors the way forests are managed in modern-day Poey. No hamlet has absolute sovereignty over a piece of forest. Rather, neighboring hamlets have overlapping rights to use forests and to protect forests using different rules, regulations, and guarding spirits. When I described this forest management regime in an article submitted to peer review, one of the reviewers responded, "How do villages that do not talk to one another 'manage' land—it seems more like benign (or not-so-benign) neglect." I suggest that this reviewer's reaction is similar to that of the British when they first encountered Siam's perception of shared sovereignty over tributary states—"it was a peculiar custom in which the power over individuals and land was separated" (see Winichakul 1994, 164). In both cases the indigenous system seemed "peculiar" because it was outside the reviewer's cultural paradigm.

Winichakul argued that the biggest impact of mapping was the loss of indigenous knowledge of political space in a process that did not occur gradually in a smooth, continuous adjustment, but rather that was more or less violent. He suggested that modern geography never passively coexisted with indigenous concepts of space (Winichakul 1994, 60); once the members of the Siamese elite understood the

new paradigm of mapping, they used it as a means to claim their territory against the colonial powers, as well as a tool for increasing their power over their tributary states. "To fulfill the desire to have [its geo-body] concretized and [its] margins defined for exclusive sovereignty, the Siamese . . . fought both with force and with maps" (Winichakul 1994, 112). What is important is not the success or failure of these efforts in the face of colonial powers, but rather that the introduction of the Western mapping paradigm destroyed indigenous conceptions of political space.

Again, while the scale is different, the impact of the mapping on indigenous perceptions of space in Poey was similar to that which occurred in Siam. It is quite clear that up until about 1993 the 10 hamlets in Poey never had boundaries in the Western sense of a line delimiting the margins of a territory. Yet since Cambodia opened up for international investment and commercial companies as well as government agencies began to "grab" land for development, village and hamlet leaders quickly adapted the paradigm of mapping and initiated their own efforts to identify the boundaries of their lands. Most villagers now accept the new paradigm, can identify hamlet boundaries on the ground and on aerial photographs, and are actively seeking government acknowledgment of these boundaries. The change in their spatial perception of boundaries occurred as Winichakul (1994, 61) suggests, not in a gradual, smooth, and continuous adjustment but rather "that it was more or less violent." Indigenous conceptions of space were lost rapidly in the decade of the 1990s and replaced with modern mapping discourse.

Like their Siamese counterparts, leaders in Poey are attempting to use the new mapping paradigm to claim their share of the landscape. At previously noted, in response to the interest outsiders have expressed in their land since Cambodia opening up for international investments, these leaders have mapped village boundaries using the Western paradigm. Residents of Poey may yet become victims of commercial development, but it is not because their leaders are not attempting to use a new paradigm and technology to make their claims to territorial space.

### *Conflict*

Another impact of the introduction of mapping and Western perceptions of boundaries and delimited space is the potential they cause for conflict between neighboring units. Winichakul devoted many pages to describing the dispute between Siam and France over the Lao region and the role maps played in both exacerbating and finally resolving this conflict. To my knowledge, conflict over boundaries has not yet occurred in Poey, but it is certainly a common feature of other community-based mapping exercises (Chapin 1998; Fox 1998; Sirait et al. 1994). As long as boundaries remain fluid and flexible, conflicts between competing interests (within villages or between neighboring villages) can be minimized. Once boundaries are "mapped" and legitimized by the state, however, conflicting images of reality cannot be overlooked any longer and must be addressed.

### *Implications for Local Governments and Resource Tenure*

In Siam the process of changing these soft margins to firm boundaries also led to reform of provincial administration. Unlike the quick change in the Siamese conception of space, this was a gradual process of displacing traditional local autonomy,

especially in tributary states, by the modern mechanism of centralized administration. Winichakul wrote, "The tempo, tactics, problems, and solutions may have varied from place to place but the final outcomes were the same—the control of revenue, taxes, budgets, education, the judicial system and other administrative functions by Bangkok through the residency" (Winichakul 1994, 102).

Vandergeest and Peluso (1995) suggested that the changes in provincial administration that came about in Siam because of mapping, however, were incomplete. They noted that Thailand has failed to take over the administration of property rights to land in a coherent manner. They suggest that the state's ignorance of local claims—both private and common (i.e., forests and water resources)—continues to render boundaries on land and resource use more contested and ambiguous than mapmakers and state land planners assume.

In Poey the situation is similar. While the threat of change may have caused villagers to see the world differently, to understand the usefulness of maps for delineating boundaries and for defending their lands with lines, it has not yet affected the processes the state uses for registering land claims. As in current-day Thailand, local property rights and claims "continue to comprise complex bundles of overlapping, hierarchical rights and claims" (Vandergeest and Peluso 1995, 415). This reality contradicts the clear boundaries assumed by state titling programs and impedes the land titling process, complicating state efforts to claim property for itself. Mapping may change indigenous concepts of space in a rapid period of time, but the implications of mapping for provincial administration and territorialization of space, at least with regard to land and resource claims, are not yet resolved in Thailand after nearly 150 years of mapped space.

## Implications for Community Mapping in the 21st Century

Winichakul's description of the advent of Western mapping in Siam is perhaps the best example in the literature of how the introduction of a new paradigm can destroy an indigenous paradigm in a quick, more or less "violent" process. As Winichakul (1994, 131) wrote, Western mapping "threatened, destabilized, or simply made the existing discourse ambiguous and then displaced it."

Yet it is precisely because the Siamese elite adopted and utilized the new paradigm quickly that Thailand exists today. If the Siamese leaders had continued to insist on using their old paradigm of overlapping hierarchical states, their tributary states, and perhaps even the core of Siam, would have been gobbled up by the competing colonial powers. It is important to realize at the same time that mapping alone may not be sufficient—as witnessed by Michael's (1999) description of mapping in India under the English East India Company. Clearly, one lesson to be learned is that while mapping may not be enough, we have to map—there is no alternative—you are either on the map or you run the risk of being gnawed away. It is not possible to protect an unmapped area. Within the boundaries of a protected area, such as a Native American reservation, you can have unmapped land uses, but the outer boundaries must be established and recognized. We may not have a choice to map, but we can document, record, remember, and honor indigenous conceptions of space. Perhaps in another 150 years it will not take a historian of Winichakul's caliber to reimagine indigenous concepts of space in Poey before the advent of Western mapping.

Likewise, mapping does create conflicts. It is part of the "violent" struggle between the competing paradigms of space. As modern maps replace indigenous

conceptions of space, conflicts will occur. Perhaps more importantly, these conflicts will continue to occur over a long period of time if the paradigm change affecting how land is managed and not just bounded is not completed.

Thailand's failure to take over the administration of property rights in a way that acknowledges and recognizes local land claims continues to this day to render boundaries on land and resource use contested and ambiguous. While we cannot stop these conflicts from occurring, we can be aware that they will happen and we can take steps to minimize and control them as they occur. We can also recognize that mapping has many implications beyond the definition of boundaries and that one of these is its impact on the administration and control of land. We can take steps to see that mapping does not stop with the delineation of boundaries and that it includes efforts to secure recognition of land claims and resource rights.

Does it matter who initiates and does the mapping—foreigner or local, government or NGO, outsider or community member? And does it matter whether these organizations merely offer technical support or that they bring their own interests and agendas? Contrary to Peluso (1995) and Kosek (1998), I am not sure it makes too much difference. Foreigners did most of the mapping in 19th-century Siam, trained Siamese officials to be their assistants, and utilized elderly informants in the field to identify important landscape features. Clearly, the objectives of the European mappers differed from those of the Siamese. Yet even with foreigners doing the mapping with different interests and agendas, Siam was able to map its geo-body and to protect it. As Winichakul wrote, Siam was not a victim of mapping, but rather used maps to expand and enforce a stronger grip over its tributaries.

I suspect that the more important question than who does the mapping (foreigner or national) is the question of who controls the maps. I do not believe that it was by accident or coincidence that *Siam Mapped* was written by a Thai historian. Of the 18 maps Winichakul chose to include in his book, 3 were in the collections of British or U.S. libraries, 3 were published in the international domain, and 12 were from Thai libraries or publishers. To an unusual extent for Southeast Asia, Thailand controls the historical and topographical maps and aerial photographs of its domain. Community mappers working in other countries in the region (e.g., Cambodia, Laos, Indonesia) know that it is usually easier to obtain maps and aerial images from collections in the United States or Europe than from within the country. The fact that the Siamese controlled their maps while the Indians did not control theirs may be related to the fact that Siam was not colonized and India became a colony.

Consequently, I believe that perhaps the most important aspect of mapping is who controls the maps. This is important for at least two reasons. First, whoever controls the maps can use them to tell their stories—as Winichakul has used the maps of Siam to tell the story of the geo-body of Thailand. Second, control of the maps has implications for the surveillance and privacy of local informants. Robert Wavey (1993), a Native American, argues that complete indigenous control of traditional land-use information is fundamental to maintaining the proprietary nature of much of the resource and land use information.

Unfortunately, many community-mapping efforts are not able to leave control of the maps in the villages after the organizers (foreigners or nationals) depart (Jacobs 1993; Rundstrom 1995; Sirait et al. 1994). This is often because villagers lack both the educational and monetary resources necessary for storing, maintaining, and updating these maps. Yet if they do not have control of their maps, villagers may not

be any better off than they were before their lands were mapped. While clearly it is ideal if local people make the maps as well, because in making them their maps become part of them, I think the critical factor that will determine the long-term success or failure of these maps will be who has access to them, who controls them, who can use them in a familiar and easily available setting. As previously recognized, mapping may be necessary but insufficient to protect a community's claims to its lands; similarly, control of a map may be necessary but insufficient to guarantee a community's claim to that land will be legally recognized.

Participatory mapping is not enough if it only means that villagers helped to make the map. True participatory mapping means that the villagers claim and use the map; they will not do this if they do not have any incentives to do so. The way to engage people in mapping is to link mapping to the policy dialogues that affect people's rights to use and claim their land. This requires collaboration with the broader policy making, decision-making community in terms of what rights will be granted/respected with regard to the map.

## Conclusions

This comparison of the processes Winichakul describes for 19th-century Siam with those of a mapping project in northeastern Cambodia at the end of the 20th century has highlighted significant differences and similarities between the two. Surprisingly, despite the nearly 150 years difference in time and the differences in scales, the similarities between the two projects are striking. Both projects found that before the advent of Western perceptions of space, boundaries were not determined or sanctioned by a central authority, and sovereignty over a piece a land was neither single nor exclusive. Furthermore, both projects found that once modern mapping discourse was introduced, premodern perceptions of space were lost rapidly, and that in both cases political leaders attempted to use the new mapping paradigm to claim their share of the landscape. I argue that the fact that these conclusions remain valid over more than a century in time suggest that they are an accurate assessment of the implications of introducing mapping technologies into non-Western societies.

This analysis suggests several lessons that can be learned from this comparison. First, indigenous conceptions of space are secondary to Western perceptions. When Westerners became interested in their resources, both the Siamese and the residents of Poey responded by adopting the Western spatial paradigm and using modern mapping techniques to define and protect their claims. Clearly, both the Siamese and the residents of Poey felt that if they did not abandoned their traditional conception of space and adopt modern maps, then the British, the national government, international corporations, or other more powerful forces would lay claim to their land. The second lesson is that consequently we have to map—there is no alternative—you are either on the map or off. But while we may not have a choice about whether to map, we can document, record, remember, and honor indigenous conceptions of space.

Third, the introduction of Western paradigms of space has many implications beyond the physical act of mapping. One of these is that mapping does not stop with the delineation of boundaries between states or between villages, but must be carried to its logical conclusion in the recognition of the complex bundles of overlapping, hierarchical rights and claims that define property rights and claims over a variety of resources.

Fourth, who does the mapping is not as essential as who controls the maps. Control of the maps is important for telling your own stories (and maintaining control of your cultural identity) and establishing your claims to land, and it also has implications for the surveillance and privacy of local informants. Imbedded within the context of controlling the maps is also the challenge of balancing the need for higher levels of technology against local capabilities. This may be the greatest challenge facing community mapping projects around the world. We need to find ways of balancing the need for developing full community participation and ownership of the mapping process, with the implications this has for lower levels of technology and accuracy, against the desire of these communities to demarcate their traditional territories and to establish rights to these lands, and the implications this has for more sophisticated technology and higher levels of accuracy.

Finally, this study suggests that it is important that community-based mapping projects look beyond the immediacy of their mapping work and its intended objectives, to consider the social implications of mapping to the indigenous society in which they are working. Mapping never occurs in a vacuum—it always affects and is affected by the broader political, economic, and civil realm of which it is part.

## Notes

1. I follow Winichakul's use of the terms *Siam*, *Siamese*, *Thailand*, and *Thai*. *Siam* and *Siamese* are used for the country and its people before the change of the country's name in 1941; *Thailand* and *Thai* are used for the post-1941 context.

2. This article is the product of research I conducted during several visits to Ratanakiri between June 1995 and October 1998. The project was funded in part by the Rockefeller Brothers Fund; the International Development Research Center, Canada; and a World Bank–funded Forest Policy Reform Process Project. While I worked independently, I often collaborated with the Novib and Oxfam UKI-funded NTFP project in Ratanakiri.

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