Part III. Local Interventions

Chapter Five

Community Mapping, Tenurial Rights and Conflict Resolution in Kalimantan[1]

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Introduction

Conflicts over land and natural resources often occur where there are overlapping resource interests among groups, communities or states. These overlapping interests usually become clear when each party is asked to define their own boundaries. Disputes are mainly related to tenure, which 'determines who can (and can't) do what with the property in question and under which circumstances they can (or can't) do it' (Lynch and Alcorn 1994: 373–4). Property is defined as 'a bundle of rights' (Bruce 1998: 1) and responsibilities (Lynch and Alcorn 1994: 374), which can be held by a state, a corporation, an organisation, a family, an individual or a community. These rights, which are complex and often overlap, have spatial, temporal, demographic and legal dimensions.

In Indonesia, conflict over land usually arises between indigenous communities and the state (Ruwiastuti 1997: 55) because state-created property rights overlap with customary (*adat*) rights. This is often the case when conflict arises between the holders of timber concessions and members of indigenous communities. Timber concession holders use state forestry laws and maps to define and claim their rights, while indigenous communities claim that customary (*adat*) rights entitle them to stake ownership over the land that their ancestors have long lived on. Similar conflicts can also arise over protected forest areas and land designated for large-scale development activities such as open-cut

mines, transmigrant settlements and plantations. A lack of understanding and recognition of indigenous customary laws and practice (*hukum adat* and *hak ulayat)* are major factors in these land use conflicts (Peluso 1995: 391; Ngo 1996: 137).

The Indonesian government has long been criticised for managing natural resources poorly within the Indonesian archipelago. During the Suharto era, Indonesia lost over 20 million hectares of forest between 1985 and 1997 (Holmes 2000: 3) and another 10 million hectares of agricultural and forest land was burned during the 1997–98 forest fires (McCarthy 2000: 91). Commercial interests, producing 11.5 million tons of palm oil in 2004 (USDA 2005), have also contributed to unprecedented forest conversion in Sumatra and Kalimantan. In addition, because of the anticipated timber shortage and the need to decrease the exploitation of natural forest, Industrial Timber Plantations (Hutan Tanaman Industri) have been promoted by the government (McCarthy 2000: 114–15). Use of a monoculture of fast-growing species in these estates has changed the microclimate and increased the risk of large-scale fires.

Indigenous communities are often marginalised by these large-scale development activities (de Jong 1997: 188). This is because most of their *adat* lands overlap with industrial timber estates and oil palm plantations, and the government has categorised these lands as grasslands or unproductive lands to be converted into productive uses. This has led to increasing calls for land reform and more sustainable resource-management options, such as involving indigenous communities in land use decisions and allowing them to incorporate their own approaches to natural resource management into a system of community-based management.

In response to land use conflicts on the ground and the demand for equity in accessing land and resources, some research institutions and non-government organisations (NGOs) have worked together with indigenous communities to use maps as a tool for identifying and obtaining formal recognition of indigenous rights to land and natural resources. This has led to community mapping — termed 'counter-mapping' by Peluso (1995) because it takes a bottom-up approach. In order that alternative management systems for natural resources can be proposed, these maps are being used to document indigenous management systems (Peluso 1995; Stockdale and Ambrose 1996).

Peluso (1995) and Sirait (1997) have identified some of the key issues underlying community mapping. On the positive side, it can empower local people and allow them to gain land rights. However, on the negative side, community mapping can freeze property rights and create a static situation for local communities. Therefore, the role of these mapping activities in reducing conflicts over land and promoting indigenous systems in the management of natural resources is ambiguous. This chapter explores this dichotomy and

proposes ways in which community mapping can result in more positive outcomes.

Land Tenure and Natural Resource Conflict in Indonesia

Land tenure arrangements have undoubtedly influenced the way in which natural resources are controlled by the state and indigenous communities in Indonesia. They reflect the imposition of Western tenure systems on existing customary systems. In many cases, these arrangements replace the diverse and complex tenure systems used by local communities with a unified and simplified framework developed by the Dutch. Conflict over land or natural resources has increased as a consequence of the contradiction between these arrangements. The following sections describe state land-tenure systems in Indonesia and indigenous customary land-tenure systems in Kalimantan to shed further light on this issue.

State-Imposed Tenure Systems in Indonesia

Even though the state did not formally own all of the 'free' land, the notion of state-controlled land was interpreted, during the Suharto period, as an exclusive authority over any territories classified as *kawasan hutan* (forest area) — including all aspects of human activities within it (McCarthy 2000: 93). In other words, the state had an authority to divide forest areas into several land use categories with different policy objectives, such as timber production and conversion of the forest area into agricultural land, using the *Basic Forestry Law* (No. 5/1967) as a legal framework. As a result, a *Forest Land Use Consensus Plan* (*Tata Guna Hutan Kesepakatan*) was established in 1982. This land use plan classified 75 per cent (or 144 million hectares) of Indonesia's land as forest areas (Evers 1995: 6), and still wields influence over the planning process for such areas, although the *Land Use Management Act (*No. 24/1992) gave the National Development Planning Agency (Badan Pembangunan dan Perencanaan Nasional or BAPPENAS), the Ministry of Home Affairs and the Ministry of Environment (Kementrian Lingkungan Hidup) more possibilities to play a key role in spatial planning (McCarthy 2000: 94–5). During this period, *adat* and *hak ulayat* were not fully recognised or understood, especially in the outer islands of Indonesia (outside Java and Bali).

When Suharto resigned in mid-1998, the Habibie government was forced to address problems arising from the *Basic Forestry Law* of 1967, and a new *Basic Forestry Law* (No. 41/1999) was released in late 1999. However, while this law recognises and understands *adat* and *hak ulayat*, it only provides possibilities for the *adat* community to manage and use *adat* forest 'as long as they are evidently in place and their presence is acknowledged' (Article 67). In other words, the *adat* community can only obtain rights to use and manage *adat* land

or forest if the state acknowledges their existence. They are not able to own land.

Moreover, Article 5 of the new *Basic Forestry Law* states that the Indonesian state will only recognise community rights to forest land if it can be proven that:

- the *adat* community in question is still in a group form (*paguyuban* or *rechtsgemeenschap*) and live in their own *adat* area;
- the *adat* community still follow their *adat* institutions;
- the *adat* community forest area has clear boundaries, approved and acknowledged by their neighbours;
- there is an *adat* law framework related to forest that is still practised; and
- the *adat* community still relies on the forest for subsistence, religion and social activities based on *adat* rule.

While this new regulation may give some new opportunities to *adat* communities, a management plan for *adat* forest has to be approved by the Ministry of Forestry (Article 10) and the plan must consider existing land use planning determined by the *Regional Land Use Plan* (*Rencana Tata Ruang Wilayah*).

In other words, the Indonesian state only acknowledges the rights of *adat* communities in principle rather than in practice. In principle, all forest area is controlled directly by the state framework, which gives the *adat* community the right to use and manage their *adat* forest area, but not to own it. However, the *Basic Agrarian Law* states that existing *hak ulayat* cannot be acknowledged as 'land controlled directly by the State' (Evers 1995: 5). *Adat* rights are not, therefore, explicitly clear in forest law, although they have been clarified further in Regulation No. 5/1999, which provides guidelines on how to solve problems related to the *hak ulayat* of *adat* communities. This attention to the *adat* community seems to be compatible with the idea of regional autonomy at the district level, which is governed by Law No. 22/1999 and Law No. 25/1999, and allows district governments to secure revenues from their own natural resource base.

Nevertheless, the new *Basic Forestry Law* gives *adat* communities some recognition of their rights to land and natural resources. Therefore, there is an opportunity for community mapping to play a crucial role in helping indigenous or *adat* communities to document their *adat* area, including the rights that are attached to it, and to help them create *adat* management plans to promote their own community-based natural resource management.

Adat Tenure Changes in East Kalimantan

East Kalimantan is one of the richest natural resource provinces in Indonesia. The province, which has a population of around two million, covers 211 440 square kilometres or 10.55 per cent of the Indonesian land area (Safitri et al.

1997: 26). The diversity of ethnic groups and sub-ethnic groups that live in this area reflects the diversity of resource control and tenure systems. Generally, within a community, resources concentrated in a particular area (such as bird nest caves) can be considered private property. Some wild resources, such as rattan, are also domesticated and planted by villagers in areas where it is abundant (see Eghenter, this volume). On the other hand, scattered resources, such as *gaharu* (agar wood) tend to become common property because it is difficult to privatise these resources or allocate them to individuals (Momberg et al. 1997: 170).

Most *adat* communities in East Kalimantan have formal control over territorial claims to forest areas, which have been marked geographically on natural features such as mountain ranges and rivers by past warfare or negotiations among different tribal groups (Fox 1993: 306; Momberg et al. 1997: 170). This control has long been governed by customary law (*hukum adat*) — a web of access rules which govern the use, exploitation and conversion of particular forest products (Fox 1993: 305). The largest territory covers 'continuous villages' with the same language, and the second largest territory covers three or four villages using a 'lieutenant customary law' (*temenggung adat*). Although villages and tribal groups are diverse, they share common land and tree tenure systems. Outsiders have to apply for permission to access these areas or resources. Sanctions are also applied as a form of customary law, or *adat* fines apply if violations occur in relation to resource use (Momberg et al. 1996: 6). These *adat* communities usually practize rotational swidden cultivation and harvest timber and non-timber forest products using their *adat* management systems. These systems may differ from one *adat* community to another but, in general, *adat* communities have traditionally used their local knowledge of ecosystems and soil properties to manage natural resources (Sorensen 1997: 247).

In recent years, a range of internal and external pressures has weakened indigenous tenure systems. The weakening of cultural, social and family ties is usually a response to external pressures. Less cohesion and social control within communities causes 'individualisation of communal rights'. The absorption of communal rights within an *adat* community creates a situation where outsiders, including government, have unlimited access to *adat* land for agriculture, mining, logging, road construction and other 'land hungry' development activities. Conflicts arise between these large-scale developments and local people because the state has failed to acknowledge *adat* rights when allocating concessions and development permits. Moreover, *adat* communal lands have been threatened by 'unofficial' encroachment, such as illegal land purchases and illegal logging, which are often supported by police, armed forces or local government staff (Evers 1995: 12; Eghenter 2000a).

Sometimes, *adat* institutions also break down when community members seek to gain quick profits from particular resources, such as agar wood, rattan or timber (Sorensen 1997: 249). In the past, noble families in communities with social stratification, like the Kenyah for example, more or less willingly devolved their lands to the larger community. However, a desire to accumulate wealth and engage with the modern world has driven many of these élites to exploit natural resources for personal gain. For instance, after the fall of Suharto many élites benefited from timber harvesting after Permits to Use and Harvest Timber (Ijin Pemanfaatan dan Pemungutan Kayu) based on Forest Product Harvesting Rights (Hak Pemungutan Hasil Hutan or HPHH) were allocated to individuals, primarily members of the élite within a given community. This is despite the fact that legislation governing these permits (Regulation No. 6/1999) stipulated that these rights should be allocated to *adat* communities through cooperatives.[2] Dramatic environmental change resulting from natural disasters, such as the 1997–98 forest fires, has also threatened *adat* resource management systems as these tend to break down when the resources become scarce and more valuable.

Community Mapping and Its Implications

Efforts to reduce conflict over land ownership and resource management have increased since the fall of Suharto because the state has become more willing to acknowledge indigenous rights in an era of social reform and decentralisation (Persoon and Est 1999: 1). In light of these changes, community mapping has been used as a tool to attempt to solve conflicts over land ownership and natural resource management.

The Purpose and Role of Community-Mapping Initiatives

Community mapping can be used to collect information about traditional land uses and village boundaries, and also as a tool for local decision making and conflict resolution between villages (Momberg et al. 1996). However, the use of maps for securing rights and recognition of indigenous tenurial systems is often criticised because the outcomes may not align with existing property rights and it may not be possible to establish boundaries that reflect the nature of the community (Sutton 1995). Wood (1993: 32) has argued that maps cannot 'grow or develop', but mapping or map making do. By this he means that maps show fixed boundaries but the process of mapping and the people who create the maps are dynamic. This argument also suggests that mapping might curtail property rights.

Traditional tenurial rights and the adoption of indigenous management systems have recently received considerable attention in conservation literature

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[2] This regulation led to rapid deforestation in several areas and was officially revoked in 2002. Nevertheless, district officials continue to issue small-scale concessions in defiance of the central government.

(Kleymeyer 1994; Lynch and Alcorn 1994). In Indonesia, some case studies and projects have involved local communities in park management — for example, in the Cyclops Mountains (Mitchell et al. 1990), Kayan Mentarang National Park (Sirait et al. 1994; Sorensen 1997) and Wasur National Park (Craven 1993). Most attention has focused on the safeguarding and promotion of indigenous rights in conservation areas and community participation in co-management of the conservation area. In these processes, indigenous management systems have been recognised and integrated with conservation purposes.

Several other countries have also adopted mapping initiatives in various projects and programs. These projects are concerned with the management and co-management of natural resources and contribute to national and global environmental protection initiatives (ECOSOC 1999). For example, in Belize, the Toledo Maya Cultural Council and the Toledo Alcaldes' Association produced documents (including maps) of the Mopan and Ke'kchi Maya people's land in 1998. These provided information on the traditional and current use of their land. They include a specific description of Maya culture, land tenure, history and socio-economic activities (ibid.). A land assessment project on Aboriginal land in central Australia, which has been developed by the Central Land Council, is another example of a community mapping initiative documenting indigenous land-use planning and management (CLC 1994).

The relationship of community mapping to the nature of the community and state land use is shown in Figure 5.1, which summarises the purpose of community mapping initiatives in general. This figure shows the role that community mapping can play in helping to identify indigenous rights or boundaries, and in promoting indigenous resource-management systems. It shows that conflict over land generally arises when governments apply land use plans and boundaries which are designed without consulting the community (see the arrow connecting Parts A and C). This conflict is caused by the occurrence of two different tenure systems, namely state tenure and customary tenure.

Tenurial conflicts between the state and indigenous communities have occurred through legal disputes and land use boundary disputes. As shown in Part A of Figure 5.1, state agrarian law and forestry law delineate one type of land use; while community uses, customary law and practices delineate other land uses. Figure 5.1 illustrates a situation where village territory overlaps with state land use assigned by government in categories such as nature reserves, protected forest, timber concessions and limited production forest for selective logging purposes. Community mapping is proposed as a tool which can be used to give indigenous communities the opportunity to identify their indigenous rights over 'state' land. It may also be used to promote indigenous management

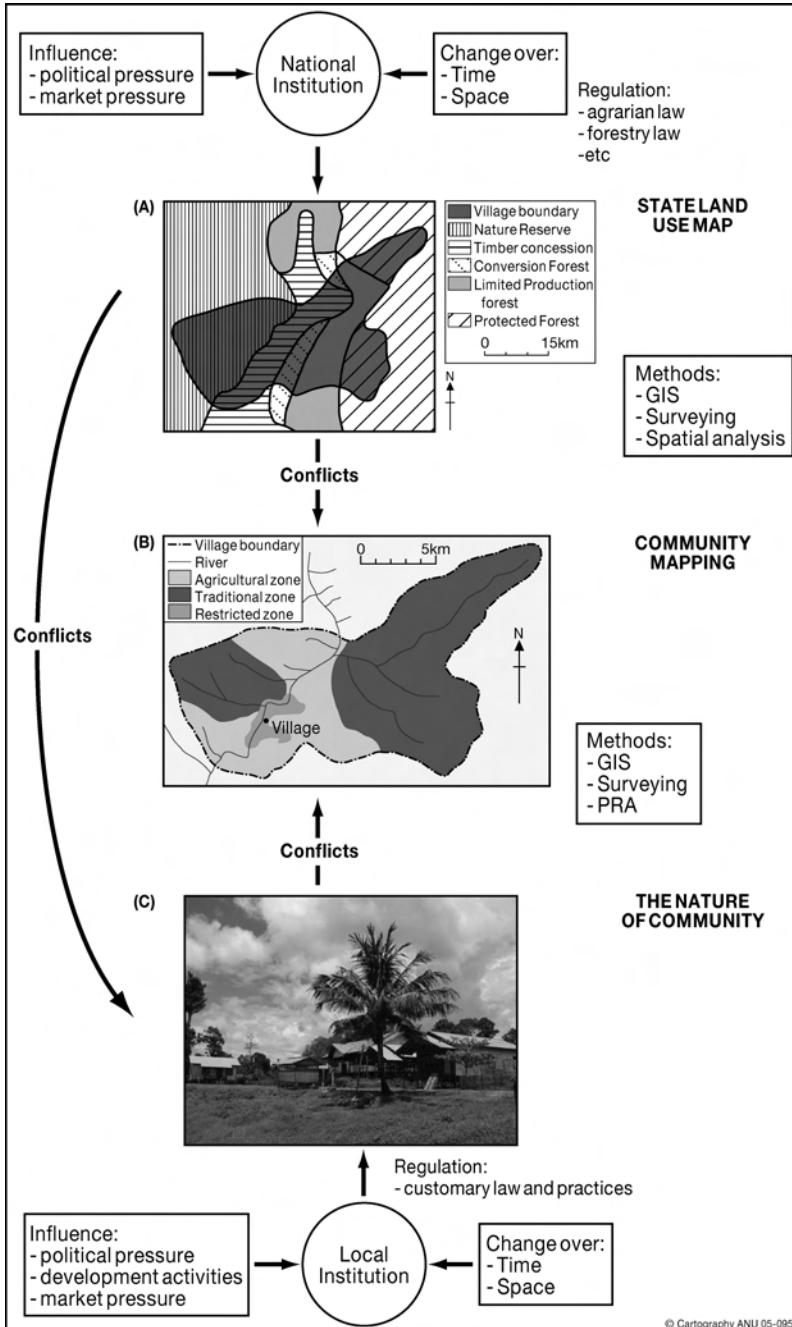systems for community-based management. This is shown in Part B of Figure 5.1.

Figure 5.1. Community mapping, state mapping and the nature of community

Community mapping can allow indigenous communities to conduct local decision making and resolve conflict using spatial illustration. It can also be used as a tool to suggest alternative management strategies for natural resources. As the example in Part B of Figure 5.1 shows, village land use can fall into three zones — agricultural, traditional, and restricted. The agricultural zone is set aside for settlement and cultivation. The traditional zone is set aside for protected forest where hunting activities, timber harvesting and the collection of non-timber forest products are highly restricted. This area can be opened up for collection purposes but cultivation is prohibited. The restricted zone is used for daily subsistence purposes, such as fishing, hunting and collection of timber and non-timber forest products. A collective permit will be needed if a community member wants to open up this area for cultivation.

Conflicts of interest within the community and with other community groups often happen during the mapping process. These conflicts are sometimes difficult to avoid and to solve. This is shown by the arrow connecting Parts B and C of Figure 5.1. These conflicts will also occur when community maps are combined with state land use maps. The arrow connecting Parts A and B of Figure 5.1 describes this situation. Therefore, negotiation would be needed to combine the community's identified zones with those identified by the state.

Participatory rural-appraisal methods and spatial information technology or geomatics, such as geographic information systems (GIS), combined with other surveying technologies, are used to support community mapping initiatives and to integrate them with other information. Various governments have also used geomatics for spatial information management. The design for land use is usually based on 'scientific' criteria and the results are obtained using spatial analysis methods.

Part C of Figure 5.1 shows how the appearance of the community will change over time because of the influence of external and internal factors such as political pressure, development activities and market pressure. This is reflected by changes in the customary institutions for managing natural resources. These changes vary across space as the influences also vary. National institutions also change when domestic and international markets and political situations are involved.

Community-Mapping Activities in East Kalimantan

Demand for community mapping in Indonesia has increased over the last decade. Between 1994 and 1999, more than 1.6 million hectares of indigenous land was mapped in 14 provinces (Figure 5.2). This included 350 000 hectares (between 130 indigenous areas) in West Kalimantan (Nazarius 2000) and more than 100 village territories in East Kalimantan. Non-government organisations, research institutions and academics have played an important role in facilitating this process.

Although all of these community-mapping activities had similar concerns, different strategies were used and different backgrounds and objectives influenced their outcomes. In the case of East Kalimantan, these outcomes can be categorised into three types of initiative: those for protected area management, those with research objectives, and those for recognising indigenous rights.

Figure 5.2. Community mapping activities in Indonesia

Initiatives for Protected Area Management

The first community-mapping pilot project in East Kalimantan was conducted by WWF Indonesia in the Kayan Mentarang National Park in 1992. The project used geomatics and community-mapping techniques to assess the position and nature of forest tenure boundaries in Long Uli (Sirait et al. 1994: 411). Another community-mapping exercise was undertaken in four villages in 1994: Long Alango, Long Pujungan, Lembudud and Tang Laan. These case studies aimed to determine community perspectives about the decision to change Kayan Mentarang's status from a Strict Nature Reserve to a National Park. The research also aimed to establish a new model of community-based zoning processes (Stockdale and Ambrose 1996: 183) and has shown that indigenous land rights and resource management systems can be recognised and accommodated within a National Park (Eghenter 2000b: 1).

After Kayan Mentarang was declared a National Park in 1997, community mapping was also used to identify and resolve boundary disputes between different stakeholders and to facilitate community participation in the management of a significant conservation area (Eghenter 2000b: 4). Maps produced from these exercises were used to establish the park's overall boundaries and those of zones inside the park proposed by local communities. In addition, the maps were expected to facilitate acknowledgment of customary land and recognition of indigenous management systems (ibid.: 1).

As a part of a community development program on sustainable economic options and local capacity building, the maps were presented to local government officials and other communities for official acknowledgment (ibid.: 12). Several workshops were conducted at the village and sub-district level, before the maps were presented to officials at the district level, to reduce the potential for conflicts to arise over boundary delineations and to ensure that community members regarded the maps as legitimate. By 1998, 65 villages with approximately 1.5 million hectares of territory had been mapped within and around the Kayan Mentarang National Park (Damus 2000). Two kinds of map were produced, one showing land use and the other showing natural resource distribution. Copies were held by village leaders and by the WWF office in East Kalimantan. There were no clear rules about who could use and control the maps. The WWF combined these maps with other spatial information relating to vegetation types, animal habitats, geology, and government land-use plans to facilitate a possible consensus between the community and other parties to establish appropriate zones within the park. However, the community used the maps as a tool to negotiate their rights with other parties. For example, in 1997 *adat* leaders from the villages of Pujungan and Ulu Bahau used the maps to negotiate with the operator of a local timber concession — PT Sarana Trirasa Bakti. The maps indicated restricted forest areas (*tana ulen*) and the community leaders were able to negotiate that these areas should not be logged. They also used the maps to obtain assistance from the Minister of Forestry to help them solve this problem. In this case, the community succeeded in forcing the timber company to acknowledge their rights and traditions.[3] The Minister of Forestry encouraged the company to solve the issue and to help the villages with rural development programs.

Initiatives for Research Objectives

Since 1999, research institutes such as the Centre for International Forestry Research (CIFOR) have used community mapping techniques to document and facilitate local conflict-resolution mechanisms. The CIFOR primarily became involved in this initiative because it sought to document local conflict resolution mechanisms and to involve the local community in the regional land-use planning process. According to the *Land Use Delineation Law* (No. 24/1992) and Regulation No. 69/1996, indigenous people have a right to be involved in mapping activities. That is why CIFOR personnel used community mapping as a tool to apply a bottom-up approach to land use planning and to resolve boundary conflicts between villages on the upper Malinau River in 1999.

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[3] During the community mapping activities in the Kayan Mentarang National Park (from 1993 to 1998), the author was involved in providing base maps, setting up the process, conducting training, and helping to compile and analyse the community maps using a GIS.

Twenty-four of the 27 villages on the upper Malinau River were mapped using community mapping techniques and most boundary conflicts were resolved during the process (personal communication, Miriam and Fajar, July 2000). The approach used in this mapping process was similar to the WWF's approach in Kayan Mentarang National Park, but in order to simplify the process, boundary mapping was undertaken before other types of mapping. Most of the facilitators were former WWF staff who had previously participated in the community mapping exercise in Kayan Mentarang National Park. Geomatic tools such as a GPS and GIS were also used to improve the map products.

Initiatives for Recognising Indigenous Rights

Indonesian NGOs have also used community mapping as a tool to obtain recognition of indigenous rights to land, forests and other natural resources in East Kalimantan. After a community-mapping network (Jaringan Kerja Pemetaan Partisipatif) was established in 1995, the improvement of human resources in facilitating community-mapping, and financing aid within local NGOs was prioritised. These NGOs have committed themselves to facilitating community mapping exercises provided that the initiative comes from the community. The mapping is meant to encourage local potential, facilitate learning, and promote equity and respect, while the mapping results become the property of the community in question (personal communication, K. Romadan, 2000).

These activities involved participatory rural-appraisal techniques in combination with traverse surveying using compasses, tapes, a GPS and a GIS. Five GIS centres were established in Indonesia to support indigenous communities in conducting their community-mapping activities. Using this technology, the information was spread among NGOs and the indigenous community.

As a result, by 1999 local NGOs together with local communities had mapped 26 *adat* areas in East Kalimantan. SHK Kaltim mapped the areas of three *adat* communities (Engkuni Pawek, Benung Pituq and Tepulang) in 1996–97 (Nazir 2000). Another local NGO called Puti Jaji facilitated community mapping in six villages (Telivaq, Mamahak Teboq, Lutan, Ujoh Bilang, Mamahak Besar and Tanjung Jaatn) and the Sungai Belayan area in 1996 (Juk 2000). Yayasan Plasma, an NGO based in Samarinda, facilitated community mapping in Gunung Menaliq, Mejaun and Lotaq in the same year, and also facilitated the mapping of Paking, Bintuan, Birun, Long Iman and Sebaing on the Mentarang River (Romodan 2000). Yayasan Padi Indonesia facilitated the community mapping of Kampong Muluy, Muara Payang, Rantau Layung, Paser Mayang, Olong Gelang, Sungai Terik, Biu, Samurangau, Simpang and Lembok (Amin 2000). Land use, settlement and regional maps were generally produced, although SHK Kaltim also produced maps showing ownership, cultural areas, natural resource distribution and areas affected by fire. These maps were primarily stored in the homes of elected community leaders and the offices of local NGOs.

Community Mapping as a Tool to Reduce Conflict over Land

Community mapping has been used as an effective tool to reduce conflict over land in East Kalimantan. For example, village boundaries have been established within and around the Kayan Mentarang National Park as a result of the community mapping initiatives undertaken in the area. A decision was also made to establish the outer boundaries of the park, which excluded the current and future areas of use by the community. In addition, core zones, traditional use zones and other zone boundaries were identified during the community mapping process and proposed to the park authorities and other parties.

The CIFOR has demonstrated that land conflicts can be solved through community mapping exercises (personal communication, Miriam and Fajar, July 2000). Through this initiative, most village boundaries along the upper Malinau River were mapped and many boundary conflicts were resolved during the mapping process. In addition, some customary (*adat*) boundaries were mapped in the districts of Kutai Barat, Kutai Induk and Pasir. Most of the villagers interviewed by the author said that they were satisfied with the boundaries that were drawn on the maps, and after seeing clearly defined boundaries they felt secure enough to enforce their own communal rights. This demonstrates that community mapping can help to define or 'formalise' undocumented customary or village boundaries.

However, in many cases, conflicts over land and other natural resources have not been resolved, and in some cases further disputes have even arisen. The disputes tended to arise because of outstanding conflict over:

- ancestral and administrative boundaries;
- vested interests driving the mapping process; and
- the current needs of the community.

These issues are significant and are discussed in the following section, which draws upon the experience of community-mapping exercises conducted by two local NGOs (Yayasan Plasma and Lembaga Bina Benua Puti Jaji) in four villages in East Kalimantan — Lotaq, Mejaun, Ritan Baru and Buluksen. Lotaq and Mejaun are located in the upper reaches of the Lawa River within Kutai Barat district, around 250 km from Samarinda. Buluksen and Ritan Baru are located in the upper reaches of the Belayan River within Kutai Tengah district, around 260 km from Samarinda (Figure 5.3). In-depth observation, using a combination of group discussions and semi-structured interviews, was conducted between 26 June and 23 July 2000 within these four villages. A combination of group discussions and semi-structured interviews was also conducted with other communities, government staff and various community-mapping facilitators,

such as local and international NGOs, research centres and inter-governmental projects.
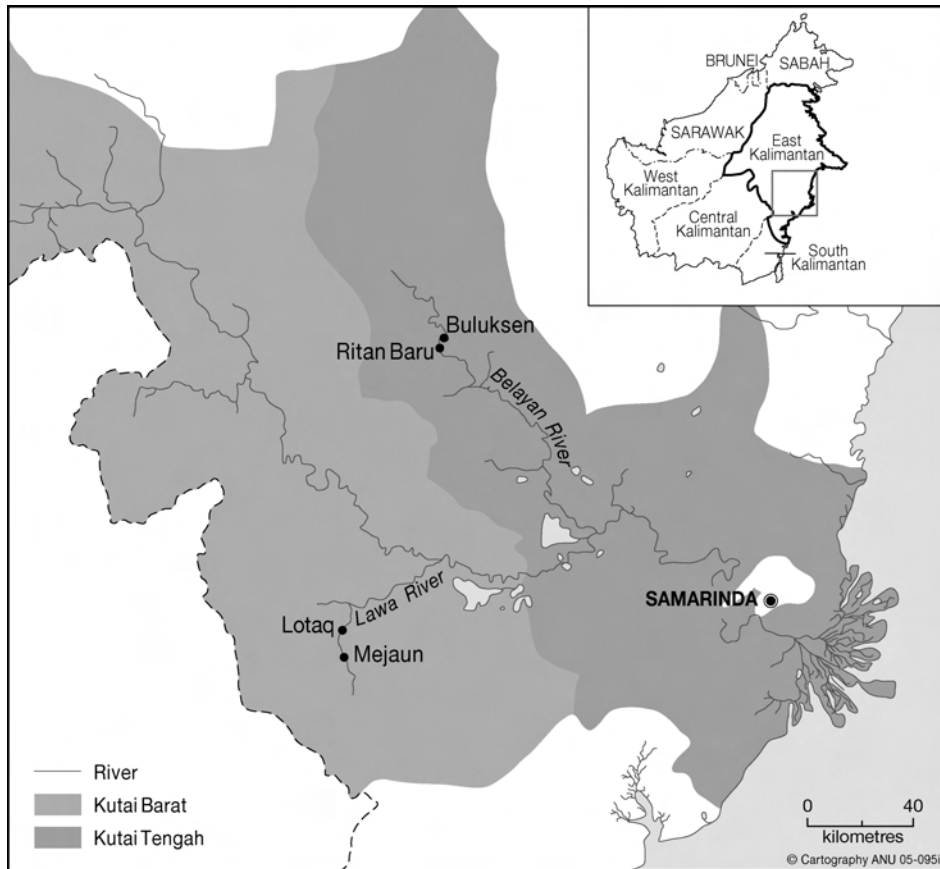
Figure 5.3. Case study locations

Ancestral and Administrative Boundaries

The debate about ancestral (*adat*) and village administration boundaries is related to the debate about the authority of both *adat* and government institutions. In some villages these boundaries are similar (personal communication, D. Amin, July 2000), but there are also cases where several villages exist within a single *adat* territory (personal communication, I. Damus and B. Juk, July 2000). Although conflict may have existed before the community-mapping process was conducted, the process has tended to clarify or formalise divisions of the *adat* territory and, as a consequence, village disputes have increased due to an increase in apprehension about the loss of private ownership.

For example, Marhum Pemarangan, the King of Kutai Karta Negara (1730–32), gave the villages of Buluksen, Ritan Baru and Long Lalang an *adat* area larger

than the current mapped area (personal communication, Ana, July 2000). Administrative boundaries overlap with the *adat* area and divide it into village territories. Restricted communal property such as *tana ulen* and *tana saru* within this *adat* community is located in Ritan Baru territory, and this makes the ownership of these areas unclear. Some questions regarding communal ownership can be raised, such as: which institution will govern (control and access) the use of the former communal natural resources? Will it fall within the jurisdiction of *adat* institutions or village administrations? And who will benefit from this situation? Community mapping was conducted within these five villages in 1998. These administrative boundaries have been used as a reference for conflict resolution and the community did not have a problem with these boundaries, but members were concerned that the remaining land or resources should be protected.

The administrative boundary is not actually clear, and most of the community mapping conducted in these villages primarily helped the district government to delineate village boundaries. The choice of mapping unit, whether administrative or ancestral, raises further questions. If the administrative political unit was chosen, was it an indication of the irrelevance of indigenous management systems? If customary units were used, how could the process be implemented in an increasingly heterogeneous and commercially oriented community?

Some community members, who were not involved in the community mapping process, used the maps to propose HPHH rights (rights to harvest forest products) for their own benefit (personal communication, Suto, July 2000). It was apparent that the conversion of communal property into private property accelerated after the mapping process.

Besides the division of customary land into village territories, the administrative-boundary approach cut social ties within communities. For example, conflict between communities (Lotaq and Muara Begai) increased after the Lotaq village people made the maps. Members of the Muara Begai community were concerned that their rights to use land or resources within the Lotaq area may have been affected. This was despite the fact that the *adat* leader of Lotaq village stated that the Muara Begai community would still be able to practice swidden cultivation within the Lotaq area as long as they reported their activities to *adat* or village leaders (personal communication, July 2000). However, the discussion proved that no clear regulation had been approved to address this problem during the mapping process.

The above examples illustrate that the complexity of indigenous tenure, which has governed the use of land or resources and governed the ownership of resources such as trees as well as the social relationship between villages, has been simplified or frozen by 'clear' boundary regimes produced by some of the community-mapping processes. Atok (1998: 46) stated that common discussions

about ancestral or *adat* boundaries centred around different concepts of boundaries. *Adat* boundaries do not usually form neat lines as they tend to follow natural features, such as rivers or mountain ranges. This needs to be considered before conducting mapping exercises. Empowerment of *adat* institutions to enforce their regulations, understanding local conditions and indigenous tenure systems including the boundary concept, and considering the impact of map production on the indigenous tenure system, have to be taken into account before deciding which unit of mapping (administrative or ancestral) will be used. The community-mapping process, where all parties sit together to solve their problem using spatial tools as a medium of discussion, can play a key role in resolving conflicts over land and resources provided it does not encourage a set of boundaries on maps that ignore the indigenous tenure system.

Vested Interests behind Community Mapping

In addition to the potential for conflict to arise over *adat* or administrative boundaries, an assessment of mapping activities in these four villages also demonstrated that there are different interests involved in boundary claims. Most of these interests have been driven by a desire to exploit natural resources. For example, conflicts between Lotaq and Muara Begai villages have been steered by interests in coal deposits within both areas. When fieldwork for this study was completed in 2000, no consensus or decision had been reached about how to solve this boundary dispute. Lotaq villagers wanted to enforce their ancestral boundaries, but Muara Begai villagers disputed the village boundaries mapped by the Lotaq community. According to the *adat* leader of Lotaq village, the Muara Begai community had claimed some coal deposits within the Lotaq area (personal communication, Ahen, July 2000). Some of the Muara Begai community representatives attended the mapping process in Lotaq village but they did not complain about the boundaries during this process. The dispute only started when the Lotaq villagers later asked for their maps to be approved by the Muara Begai community.

Representation and responsibility are fundamental issues in a participatory community-mapping process. Most of the respondents interviewed did not know about the mapping process and were not directly involved in it. For example, in the village of Lotaq, women rarely participated in the mapping process because they were kept busy preparing food for those attending the meetings. Field survey work was generally conducted by younger men. However, during my own fieldwork, *adat* and village leaders said that all of the community members were involved in the mapping process. This information was contradicted when the same question was put to some women and younger men, who responded that they came to the place where the sketch map was produced but did not participate in the technical mapping. Nevertheless, my interviews suggest that

most of the people within the Lotaq community were satisfied with the result because they thought the maps would protect their territory from encroachment.

A different situation was found in the village of Buluksen. None of the respondents from this village knew about the community-mapping process because all of the people involved in the process were pursuing their own interests. In this particular case, two local NGOs facilitated community mapping in five villages along the Belayan River to protect village territory from logging companies and to promote indigenous forest management systems. The Buluksen community was only represented by village officials. It was later revealed that these officials then went to Samarinda to organise permits for harvesting forest products for their own benefit. These members of the village élite were driven by a desire to use common agreements for their own profit. Maps produced through the mapping process were used as evidence of agreement within the community about land use — a prerequisite for obtaining HPHH. This situation increased conflict within the Buluksen community. Many community members did not want to attend village meetings unless these were facilitated by outsiders such as NGO staff. A similar situation also occurred in Ritan Baru, where competition arose between members of the élite after they sought to obtain private rights over a communal forest using maps as evidence of communal interests.

To make sure that maps will be used for communal purposes, almost all of the villagers involved in the community-mapping process stated that those who want to use the community maps should consult with the *adat* or village leader and have their request approved by all community members.[4] However, it was not clear how the community itself should control or use maps stored in the *adat* or village leader's house (personal communication, Ahen, July 2000). Outsiders could still access the maps without obtaining permission from all community members. For example, in the village of Lotaq, agrarian staff were able to obtain these maps from the village leader's wife and the maps were not returned. The community was hence worried that unauthorised parties would use the maps for their own purposes and this threatened the community's rights over the land.

Government interest in community mapping has recently increased. This may be driven by a desire to find solutions to conflicts between local communities and logging companies, but could also be driven by a search for 'empty' land (*tanah kosong*) by investors. The idea of an 'empty forest' reflects a lack of understanding about indigenous tenure systems, since the 'empty' space drawn on the maps does not mean 'empty' in real terms. The interest in maps produced through community mapping can divert attention away from gaining an

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[4] From a group discussion in Lotaq, 6 July 2000.

understanding of the complex nature of indigenous communities and their rights to 'empty' forest. As a consequence, community mapping can be used as a cheap means of data collection for government timber planners.

Indigenous Communities in Transition

Conflicts over the management of natural resources have resulted from various external and internal changes. Migration, resettlement and regrouping of villages, as well as various development activities, have made most communities heterogeneous, with changes in their interests, knowledge and livelihoods, as well as changes to their environment. Because of these changes, conflicts will always occur.

Under these conditions, those leading community mapping processes need to endeavour to facilitate the sharing of power within communities so that local élites can be controlled and the *adat* land rights remain as communal rights rather than private property rights. This was highlighted in a group meeting in the village of Mejaun when a participant said that 'natural boundaries are fixed but people change'. Through the involvement of all parties (including migrants) in the process, community mapping can accommodate power sharing and represent the needs of all parties.

Changes have also occurred in the environment. For example, in the case of Lotaq village, almost 80 per cent of the community's forest was burnt during the 1997–98 forest fires. As a result of this loss the villagers can no longer practise their traditional systems to manage remaining natural resources. In this situation, mapping the former condition of land use can be just as important as documenting how to protect their land from outsiders.

Conclusions

Community mapping has been widely used in East Kalimantan to secure indigenous property rights and promote community-based management of natural resources. In most cases, conflicts over land and natural resources have been solved during the mapping process through delineation of boundaries. Such conflicts may occur between local communities and the government, between communities, and within communities. Conflicts between communities are especially likely in relation to claims over areas that have high economic value, such as mineral deposits or timber concessions. These disputes highlight debates over ancestral and administrative boundaries, ownership of resources and land, and the rights of other parties, including migrants. In addition, conflict among village members has increased as a result of village élites allocating natural resources for their own economic benefit. As shown in the case study, in some villages maps were used to legitimise individual ownership rather than communal village ownership.

This demonstrates that conflicts remain and the mapping process tends to be driven by élites and facilitators. Consequently, the effectiveness of community mapping in promoting community-based management of resources remains questionable. However, local economic and social development can be achieved when power sharing between parties leads to more equitable and sustainable resource use. The land-use planning process in community mapping can provide opportunities for participatory democracy and decentralised decision making where an effective conflict-resolution mechanism can be established. However, these opportunities may be compromised by the way that maps are used when the mapping process is complete.

Some conflict over natural resource management is generally unavoidable and is part of the dynamic nature of indigenous communities. However, this conflict should be managed in order to maintain stability within the community and sustain equity in resource use. The combination of co-management and adaptive management, where management adapts to changing ecological and social conditions, may enable greater involvement of indigenous communities in natural resource management. In addition, adaptive conflict management, through repetition of community-mapping processes, may be an appropriate solution for maintaining power relations and equity within communities.

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