

Strategic Engagement and Dynamic Adaptation: Customary Forest Management in Kerinci, Central Sumatra, Indonesia

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The ability of communities to use and manage forests and other natural resources in a sustainable manner has received much interest from various scholars, policy-makers, donor agencies, and non-government organisations. With regards to the management of forests and natural resources by customary communities in Indonesia, there are two opposing views of the customary institutions, or *adat*, and management practices. Some perceive *adat* institutions and management practices as weak, inert, and incapable of responding to changing economic and social conditions. Others see *adat* institutions as politically dynamic and innovative in their response to changing circumstances. This paper examines the strategies and processes used by *adat* leaders in Kerinci, Central Sumatra, to adapt and transform their customary forest institutions in response to the national government's policies for increased forest conservation. These policies were instituted by the creation of the Kerinci-Seblat National Park, accompanied by regulations defining forest areas and controlling people's access to natural resources within the park and the buffer zone. Drawing on key concepts in legal pluralism, institutional change, and theories of power, the paper illustrates the ways in which the *adat* leaders reshaped *adat* institutions and engaged with powerful external actors to claim authority and management rights over the forests. The conclusions point to need for policy-makers, scholars, and practitioners to move beyond typecasting *adat* institutions and focus instead on the strategic ways in which *adat* leaders and communities engage with local governments and external actors to redefine both customary and formal institutions of forest control and management.

Key words: *forest management, forestry, adat, institution, Indonesia.*

I. BACKGROUND

The ability of communities to use and manage forests and other natural resources in a sustainable manner has received much interest from various scholars, policy-makers, donor agencies, and non-government organisations. Their interest in this issue is growing even more with the current trend worldwide to devolve natural resource management to communities (Agrawal & Ribot, 2000; Enters *et al.*, 2000). Traditional management systems are now considered by policy-makers in their attempt to come up with a more ecologically sound economic development and socially acceptable resource management framework.

A substantial body of literature on common pool resource management has provided convincing evidence that traditional communities are capable of crafting and enforcing institutions to regulate resource use among their members, reduce free-rider behaviour, exclude non-members of their collectivities, and maintain important economic and cultural resources (Ciriacy-Wantrup & Bishop, 1975; Ostrom, 1990;

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Bromley, 1992). There are, however, opposing views on their ability to respond and adapt to the broader socio-economic and political shifts. A group of scholars viewed traditional communities and institutions as 'static' entities that do not have the ability to interact and cope with forces emerging from the so-called 'external' world, such as demographic pressure, market forces, state policies, and modern technologies (Monbiot, 1993; Richards, 1997; Warren & Pinkston, 1998). External forces were described as disruptive interventions that degrade, erode, or dissolve static traditional systems (Mosse, 1997). The representation of static community inherent in those views has been challenged by various scholars (North, 1990; Long & Long, 1992; Tsing, 1993; Li, 1999). They argue that those views undermined the dynamic and responsive nature of local institutions, their complex interactions with external interventions, and the active roles of local actors as agents of change. They assert that institutions are changed, not by external interventions, but by local actors as they interact and respond to the constraints and opportunities provided by external forces (Long & van der Ploeg, 1989; Long & Long, 1992).

Similar debates have occurred over customary communities and institutions in Indonesia. Many of the sociologists and anthropologists that have worked in Indonesia argue that customary communities are dynamic and open to externally driven innovations that serve their more localised interests, and that their customary institutions (*adat*) have adapted and evolved in relation to broader political and economic shifts occurring in the country and around the world (Dove, 1988; Peluso, 1992; Li, 1999). Despite these assertions, there is very little research on how local actors have actually engaged in the process of adapting customary institutions governing common pool resources to respond to the constraints and opportunities arising from the broader processes of change in Indonesia.

This study aims to examine the processes of change and adaptation of *adat* institutions that are engaged in regulating and managing forest resources in Indonesia. It focuses on Kerinci district in Central Sumatra where the communities have had to adapt their customary forest institutions to respond to the broader socio-economic and political shifts. Focusing on the period between 1980 and 1995, I will show that customary forest institutions in Kerinci are dynamic and responsive to the shift in national government's escalated forest conservation interests which affected their access to natural resources within the national park and its buffer zone. To develop this argument, I will first set out how the issues of the adaptability of local common property institutions and the process of institutional change are explored in the literature.

II. INSTITUTIONS AND INSTITUTIONAL CHANGE

A rich and extensive body of theoretical and empirical work on common pool resource management and institutions has looked into the adaptability of local common property institutions and the processes of change. A large number of common property and institutional theorists have underscored the key roles local common property institutions play in mediating and structuring users' access to and control over common resources and in shaping their resource use behaviour (Ostrom, 1990; Agrawal & Yadama, 1997; Robbins, 1998). The existence of local institutions, many are deeply rooted in the culture, norms, and traditions, are instructive in explaining the persistence of community managed resources around

the globe. Numerous sacred groves and protected forests, for example, can be found in Asia, Africa, and Latin America, within densely populated areas (Poffenberger, 1990; Gadgil *et al.*, 1998; Warren & Pinkston, 1998). Enough evidence has also been put forward by various scholars that underscore the dynamic and responsive nature of local institutions to external interventions (Long & van der Ploeg, 1989; Tsing, 1993; Li, 1999).

There exist two opposing schools of thoughts with regards to the process of institutional change within the large body of literature on institutions. The first school of thought view institutional change as the result of external-driven process. Within this school of thought, external interventions, such as demographic and market pressure, modern technology, and state's policies and development interventions were often described as erosive and destructive to local institutions (Hardin, 1968; Brewer, 1988; Monbiot, 1993; Chase Smith, 1995). Contemporary institutional theorists, however, support the second school of thought and propose a more dynamic view of the institutional change process. They assert that actors can organise themselves individually and collectively in a variety ways to respond to external interventions (Long & Long, 1992; Campbell, 2004). They argue that all forms of external interventions, which enter the existing life-world of the individuals and social groups, would be mediated and transformed by local actors and institutions. In this process of transformation, actors and their consciousness play a central role. Institutional change, therefore, is not linear and unilaterally determined by external factors. On the contrary, there is an interplay and mutual determination between local actors and institutions with external forces (Long & van der Ploeg, 1989; Campbell, 2004).

To support this dynamic view, the scholars present different case studies to show that external forces do not always degrade local socio-cultural institutions, group identities, and resource management practices. With regards to market force, the scholars show that increased demand for certain products does not necessary result in resource degradation as local users can craft and enforce rules to control excessive resource extraction (Stephen, 1991; Thorburn, 2000). They assert that effective local institutions can mediate and buffer the pressure of external forces on common resources (Agrawal & Yadama, 1997; Agrawal & Gibson, 1999). External forces may also strengthen, extend, and reproduce local institutions. In the case of indigenous craft producers in Latin America, Stephen (1991) reveal that market demand strengthen ethnic identity as local producers re-invested the generated economic benefits into their social and cultural institutions. This school of thought describes the relations between the state and local institutions as discursive. The emergence and maintenance of *adat* in Indonesia have been described by several scholars as the results of the engagement of *adat* communities with the state and other external interventions. Geertz (1983) shows *adat* in Java have interacted with and have been shaped by migrations and conquests that took place for centuries. Other scholars point out how the legalistic conceptualisation of *adat*, attributed to the work of Cornelis van Vollenhoven and his proponents, and its use by the Dutch colonial government as a basis for native legal system strengthened the use of *adat* by the communities to regulate their local affairs and their relations with outsiders (Ter Haar, 1948; Burns, 1999).

If local actors play an active part in the process of institutional change, how do they transform their local institutions? Based on the source of raw materials used in the

process, institutional theory offers two main concepts to explain the mechanisms of institutional change: *bricolage* and hybridisation. In the *bricolage* process, Douglas (1986) explains that actors modify the existing institutions by recombining them with other existing elements, analogies, or styles of thinking, which are available at his or her disposal. Through this creative and innovative process, the new constructed institutions differ but yet resemble the old ones. Institutional change can also occur through translation or hybridization. In this process, actors make use new external new elements and combined them with the old ones. Theorists contend that instead of simply adopting exogenous principles or practices, local actors would translate, mould, and transform the new principles, institutions, or ideas in varying degrees and combine them with the inherited institutional elements of the past. By doing so, local actors make the introduced principles more suitable to their local social and institutional context, prevent a sharp break with their past practice, and maintain stability (Czarniawska and Sevón, 1996; Lounsbury, 2001).

Evidence of how customary or indigenous institutions incorporate exogenous principles or practices collected around the world reproaches the perceptions of customs, traditions and other non-state normative structures as pure, local, and inert. These local institutions, instead, are 'hybrids' institutions shaped by local leaders, community members, and external actors (K. von Benda-Beckmann, 1984; Zerner, 1994). Customary laws in Minangkabau are shown by K. Benda-Beckmann (1984) as the results of hybridisation with Islamic concepts. They have incorporated concepts, such as donations, testaments, pious endowments. Moluccan common resource management institution, *sasi*, is shown by Zerner (1994) as a synthetic or a hybrid which is shaped, interpreted, and given new meanings by a variety of local actors and outsiders over time according to their interests.

Institutional theorists also provide insights into various factors that may affect the translation or hybridization process. They claim that the extent of the translation or hybridization depends on the contour of power at the local level and the implementation capacities of the local leaders (Lounsbury, 2001; Campbell, 2004). Furthermore, which new principles are likely to be incorporated or contested at the local level would depend on the actors' political and economic interests, the degree to which the new institutional principles suit the existing institutional expectations, especially the cultural-cognitive ones, and the costs associated with the translation process (North, 1990; DiMaggio, 1997). The ability of actors to change the existing institutions in creative ways would depend on the exposure of the actors to a wide range of ideas and information from the outside world. Campbell (2004) believes that creativity and innovation is more a function of the actors' position within a set of social relationships and institutions, rather than their individual qualities. He asserts that actors who are located at the borders or interstices of diverse social networks, connections, organizations, or institutions are more likely to receive more ideas, information, knowledge, and resources that increase their creative innovative thinking and ability. Consequently, actors who possess these diverse connections will have more capabilities to change the existing practice and rules of the game in a revolutionary way (Campbell, 2004).

III. KERINCI: PAST AND PRESENT DAYS

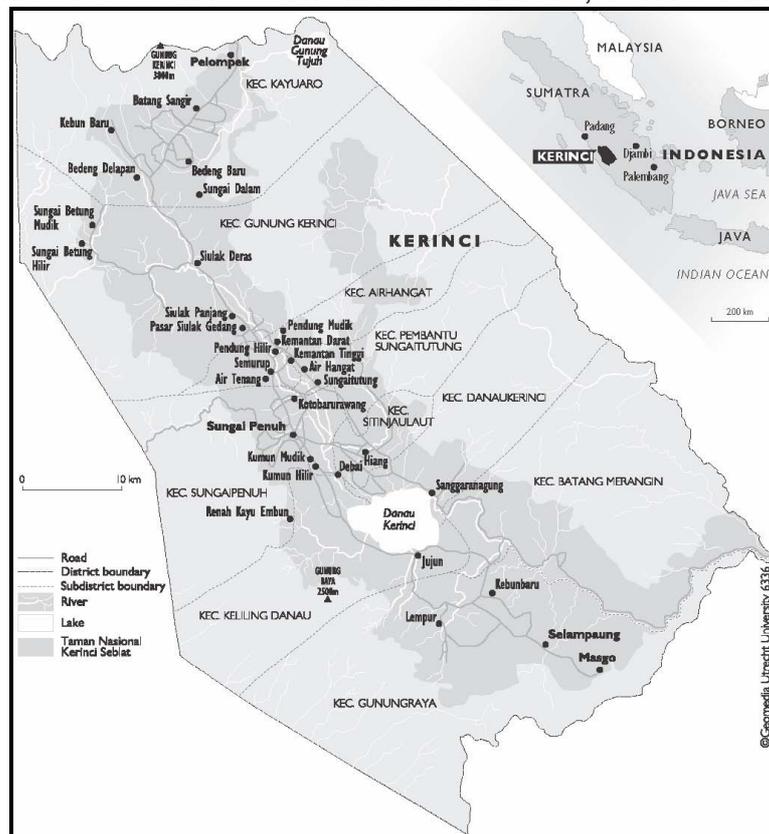
This study was conducted in Kerinci district, Central Sumatra. Sumatra is the world's sixth largest island with the total length of almost 2,000 km and the total area of almost 450,000 km². Oriented approximately NNW-SSW, it sits almost precisely astride the equator (Miksic, 1980). Kerinci lies at the northwest part of Semangko or Median Graben, a tectonic depression which is located between the two parallel Barisan mountain ranges. These mountain ranges run almost continuously from Aceh in the north to Lampung in the south (van Bemmelen, 1949). Kerinci district encompasses Kerinci valley and the surrounding upland areas, with the total areas of 4,200 km². The valley, over 80 km long and 10 km wide, features Mount Kerinci (3805 meters), the highest volcano in Indonesia, at its north part. At its southern part lies Kerinci Lake which drains eastward into Merangin River. The altitude within the valley itself varied from 900 meters in the north to 1300 meters above sea level in the south (UNDP/FAO, 1981). By 2004, the district consists of 272 villages and 6 urban villages (*kelurahan*), with a total population of more than 300,000 people (BPS Kerinci, 2005).

The inhabitants of Kerinci valley, referring themselves as *orang Kerinci* (the people of Kerinci), were known to trade various products at the east and west coasts for centuries. Based on the archeological evidence found in different parts of Kerinci, such as glass beads, local pottery wares, imported Chinese jars from different Chinese dynasty era, several scholars speculated that Kerinci inhabitants may have been engaged in trade since the advent of the Christian era (Djakfar & Idris, 2003; Bonatz *et al.*, 2006). Djakfar & Idris (2003) claimed that, between the 6th and 12th century, Kerinci was often described as prosperous area, and the inhabitants were known to trade various forest products, elephant tusks, rhinoceros horns, gold and other jewel stones at the east coast and the west coasts, in particular Inderapura and Muko-Muko. Extracted from various gold mines such as in Pangkalan Jambu, Sepurak, Tamiai, and Lempur, gold was the commodity which attracted the Europeans to Kerinci as early as the 17th century (Watson, 1984; Kathirithamby-Wells, 1986).

The extremely fertile soils on the alluvial plain and the accumulated humus on the hillsides, in combination with the annual rainfall of 1000 mm, make Kerinci a suitable agricultural area for a wide variety of crops. From the British and Dutch accounts, it was clear that the inhabitants of Kerinci valley had already engaged in the cultivation of both rice and tree crops by the early 19th century at the latest. Rice was commonly planted in fertile valley bottoms while tree crops were planted in the surrounding hillside forests (Marsden, 1966; Kathirithamby-Wells, 1986). During those early times, coffee trees were planted in the forests without much weeding and tending (Huiteima, 1935 in Burger, 2004). Cinnamon (*Cinnamomum burmanii*), which grew naturally in Kerinci forests, had not been intensively extracted (Suyanto, 1999; Burger, 2004). The importance of those tree crops, and other agricultural products such as rice and tobacco, in trading increased as the production of gold declined in the 19th century (Watson, 1984; Kathirithamby-Wells, 1986). The production and commercialization of rice and tree crops were further promoted by the Dutch colonial government after they conquered Kerinci in 1903. They introduced new rice strains, robusta, and rubber to farmers, and constructed a road connecting Sungai Penuh to Tapan. Completed in 1922, the road integrated the once isolated valley closely to the regional and international markets and boosted development in the region (Watson, 1984).

Prior to the incorporation of Kerinci into the Dutch colonial territories and, later on, the Indonesian nation state, *adat* leaders governed village population based mainly on *adat*. The records of the two British explorers of the early 19th century revealed that Kerinci consisted of numerous politically autonomous villages or village confederations without prominent center of power. Each village or village confederation was governed by *depatis* whose authorities did not extend beyond the boundaries of their own territories (Marsden, 1966; Kathirithamby-Wells, 1986). *Adat* leaders in Kerinci villages consist of *depati nenek mamak*. They governed the village with the support of *nenek mamak* and *adat* officers (*pegawai adat* or *hulubalang*). *Depati nenek mamak* were vested with a wide range of roles and responsibilities in the village. They set directions for economic development of the villagers, disposed land within the *adat* territories to village members for their housing, rice and tree crop cultivation areas, set up rules and imposed sanctions, settled disputes, managed *adat* forests, held *adat* ceremonies, etc. (Pajung *et al.*, 1969; Djakfar & Idris, 2003). Watson (1984) observed that variations in *adat* governance structure existed among villages in Kerinci. These variations were also observed among the three locations where this study was conducted.

Figure 1. The three research locations in Kerinci District, Central Sumatra, Indonesia



Source: adapted from Burgers (2004)

In the four Hiang villages, located around 8 kilometers south-east of the capital town of Sungai Penuh (see Figure 1), the inhabitants of Betung Kuning and its off-spring village of Muara Air Dua were under the governance of 4 *depatis* and 4 *nenek mamaks*. These *depati nenek mamak* were under the leadership² of the most senior *depati*: Rajo Depati.

² Several scholars assert that the most senior *depatis* are not superior of other *depatis*. They are best described as *primus inter pares* (Watson, 1992; Djakfar & Idris, 2003). This most senior *depati* would represent the whole *adat* leaders within the village and the whole population outside, for example

The inhabitants of Hiang Tinggi and its off-spring village of Hiang Karya were under the governance of 5 *depatis* and 5 *nenek mamaks*, led by Depati Atur Bumi. Since the four villages originated from Hiang Tinggi, Depati Atur Bumi was vested with the highest authorities. Keluru, situated around 28 kilometers from Sungai Penuh at the southern side of Kerinci Lake, were governed by three *adat* leaders: Rio Gilang, Rio Ganum, and Menggung. Roles and authorities were clearly delineated among them: Rio Gilang was in charge of the village governance, Rio Ganum was in charge of village territories and *adat* forest, and Menggung was in charge of dispute settlement. Despite the delineation of responsibilities, they usually handled the tasks collectively. The four Lempur villages, locating 35 km south of Sungai Penuh, had a total of 80 *depatis nenek mamak*. The governance of Lempur Mudik and its off-spring village of Desa Baru Lempur was under the leadership of 6 *depatis* and 3 *nenek mamaks*, while the governance of Lempur Tengah and Lempur Mudik was under 4 *depatis* and 3 *nenek mamaks*. The authorities to oversee the management of common resources or to regulate affairs affecting the four villages were vested with the three most senior *depatis*, each has their own specific roles and responsibilities: Depati Agung (law), Depati Anum (governance), and Depati Sukoberajo (economy).

Prior to the reorganisation of village political and administrative structure in 1979, *adat* leaders were the central figures of authority in the village. They held the leadership positions in the village. According to the former *adat* leaders interviewed, village head position was held by Rio Gilang in Keluru, Depati Anum and Depati Sukoberajo in Lempur, one of the *depatis* following a rotation system (*sko bergilir*) in Hiang. Following the implementation of Village Government Law in 1979, these positions were no longer automatically held by those *depatis*. Village heads had to be democratically elected by the village members. In the three research locations, up to the early 1990s, these positions were nevertheless still largely taken up by one of the *depatis nenek mamak*. *Adat* leaders also retained their authorities over *adat* related matters, including enforcing *adat* rules, settling disputes, managing *adat* funds, regulating the use of *adat* land and *adat* forest (KD 08/08/2006, NZ 11/12/2006, DN 26/01/2007).

Villagers' access to *adat* forest has been regulated by customary forest institutions. The interviewed *depatis* revealed that, prior to 1990, customary forest institutions in the three locations were very simple. Access was given to members of their own villages to extract resources from *adat* forests, such as timber and non-timber forest products, such as bamboo, rattan, fruits, medicinal herbs, etc. for their own use. *Adat* leaders carefully protected their *adat* forests and territories against the intrusion of outsiders, even against the neighbouring villages with whom they may share the same ancestors. The villages were very territorial in this respect. Outsiders could get access to forest products from *adat* forests by obtaining a permit from the *adat* leaders. The establishment of tree crop gardens (*ladang*) inside the *adat* forests is prohibited. In 1929, a portion of Hiang and Lempur forests was incorporated into the Dutch established protected forests. In response to this, *adat* leaders in Hiang created a position called *Petinggi* with the main task of overseeing *adat* forest and forest use (JM 04/11/2006, AN 28/11/2006, SKB 29/01/2007).

during the *adat* meeting among the villages in Kerinci. Their authorities can be said to be stronger outside than inside the village (AU 04/11/2006).

Adat forests in the three research locations experienced tremendous pressure as farmers responded to the escalated demand for cash crops. Aumeeruddy (1992) claimed the market boom of cash crops of the 1970s induced massive deforestation in Kerinci as farmers cleared forests to cultivate cinnamon and coffee. The total area in the district cultivated with cinnamon trees increased from around 6,000 ha in the late 1960s to almost 28,000 ha in 1972 and 42,000 ha in 1988 (BPS Kerinci, 1982; Rismunandar, 1989; Aumeeruddy, 1992). By the 1970s, cinnamon production from Kerinci has already constituted 63% of the Sumatra's total export volume which made Kerinci the most important exporter of cinnamon in the archipelago (Rismunandar, 1989).

Among the three research locations, *adat* forests in Lempur experienced the highest market-related pressure, followed by Keluru and Hiang. This is because Lempur farmers based their household economy heavily on tree crop production. Village demographic data and the information collected from farmers showed that although each household currently had access to around 1 ha of rice fields (*sawah*), much larger than those in Keluru and Hiang (see Table 1), 50% of these fields were rain-fed and hence can only be cultivated once a year (MI 13/02/2007, TH 16/02/2007, SOL 05/03/2007). The fertility of the uphill soils, consisting mainly of rich andosols as the results of ash deposition by the surrounding mountain, further supported tree crop cultivation (Aumeeruddy, 1992). In contrast, Hiang farmers did not fully engage in tree crop production due to low fertility and high erodibility of the upland soil (Aumeeruddy, 1992), limited land availability for *ladang* (0.4 ha per household in average), and high incidence of crop theft in their villages. They built their livelihood mainly on rice production (SR 13/11/2006, ABD 21/11/2006, AS 01/12/2006). In the case of Keluru, farmers engaged in rice and tree crop production in almost the same enthusiasm. This is because Keluru farmers had access to much smaller *sawah*, i.e. 0.3-0.4 ha per year. The availability of vast areas suitable for tree crop cultivation and the absence of crop theft incidence enabled farmers to engage in tree crop cultivation to complement their rice production (RA 03/11/2006, AN 28/11/2006).

Table 1. Socio-economic and demographic data of the three research locations

Factors	Keluru	Hiang	Lempur
Names of villages	Keluru	Hiang Tinggi Betung Kuning Muara Air Dua Hiang Karya	Lempur Mudik Lempur Tengah Desa Baru Lempur Lempur Hilir
Total administrative areas (ha)	945.75	1967.75	7722
Total population	524	2485	3572
Number of households	164	751	1109
Access to <i>sawah</i> (ha/household)	0.4	0.85	1
Access to <i>ladang</i> (ha/household)	1.1	0.4	0.75

Source: Kerinci Bureau of Statistics (2006), Kerinci Agency of Agriculture and Estates (2006), Aumeeruddy (1992), interviews with the farmers.

Insights into how customary forest institutions in Keluru, Hiang, and Lempur villages were transformed in response to the national government's escalated forest conservation interests were gathered during a nine-month fieldwork conducted between June 2006 and March 2007. I interviewed a wide range of local actors in each research locations, which include key *adat* leaders, *Petinggi*, village heads, members of village councils, forest users, rice farmers, and tree crop farmers. Field

visits were conducted to *sawah*, *ladang*, and *adat* forests during my stay in the villages. I also interviewed different actors at the sub-district and district levels, such as the head of and staff of Kerinci-Seblat National Park, the District Forestry Department, the District Agricultural and Estate Department, local NGOs, and the former WWF staff. I obtained supplementary background materials, such as WWF project reports, national park and district government reports, village and demographic data, from Kerinci Bureau of statistics, various district government offices and libraries in Jakarta, Bogor, and Sungai Penuh.

In the following sections, I will describe the forces behind the Indonesian government's ideology shift, how the shift affected Kerinci, and how *adat* leaders in the three research locations responded to this shift.

IV. THE SHIFT IN THE IDEOLOGY OF THE INDONESIAN GOVERNMENT

Up to the early to mid 1980s, the Indonesian government boosted development and achieved remarkable economic growth mainly by promoting intensive natural resource exploitation, attracting foreign investments, and utilized international loans. Several scholars argued that government promoted intensive natural resource exploitation by large private firms and parastatals for the world market without much consideration of the impacts and costs of the exploitation on the environment (Cribb, 1988; Poffenberger, 1990; Barber *et al.*, 1995). Since the late 1960s, more than 60 million hectares of forest land had been allocated to more than 500 commercial timber concessions (Barber *et al.*, 1995). Bappenas (1993) showed that substantial forest areas had also been converted for the production for food crops. In the outer islands, the production area of six major food crops expanded from 5.2 million hectares in 1969 to 7.6 million hectares in 1989, while, in the same period, the production area of rubber, coconut, and oil palm increased almost three folds, i.e. from 2.7 million hectares to 7.4 million hectares (Bappenas, 1993). Apart than exploiting natural resources, the Indonesian government also banked on foreign investments, international loans, and donor aids to finance development (Schwarz, 1994). By 1994, World Bank (1994) reported that per capita income has reached US\$650, quite an impressive achievement in comparison to the 1967 figure of US\$50.

Up to the late 1970s, conservation issues were of secondary importance for the government as indicated by the absence of specific regulations on conservation, the miniscule budget allocated for Natural Conservation Department, and the excision of reserve areas for logging or other development projects. In the absence of specific conservation law³, the Forestry Law of 1967, primary emphasis of which was on timber exploitation, served as the legal framework for forest protection and wildlife conservation (Bappenas, 1993). Cribb (1988) revealed that although the government established new reserves, they were established only in areas of low economic values, i.e. areas not ear-marked for logging or transmigration. According to Basjarudin (1971), there were 122 nature reserves in Indonesia by 1970. A total of 31 reserves, covering a total area of more than 3 million hectares, were located in Sumatra. Despite the existence of numerous nature reserves, the government

³ The new law on Conservation of Natural Resources and Ecosystems did not come into effect until August 1990.

allocated very small financial resources to the nature conservation and wildlife management division of the Forestry Department⁴. During this period, Cribb (1988) stressed that exploitation interest came first before conservation that the nature conservation division was forced to allow a portion of the reserve areas, such as in Gunung Leuser and Kutei, to be incised for logging purposes.

Rapid forest degradation to finance economic growth alarmed the international scientific and donor communities especially during the heightened conservation awareness of the early 1980s. According to Bappenas (1993), the annual rate of deforestation was estimated to be between 600,000 and 1.3 million hectares in the early 1980s. By the late 1980s, the result of the National Forest Inventory showed that the total natural forest cover in the country had declined to around 109 million hectares only (Bappenas, 1993). Sumatra's forests in particular had disappeared rapidly as the results of extensive logging and agricultural activities. By early 1980s, Bappenas (1993) estimated that Sumatra has lost nearly 70% of its lowland forests. The rapid rate of deforestation and its environmental consequences in Indonesia alarmed international scientific and donor communities. Although the international scientific and donor communities did not impose serious political or economic pressure on Indonesia, Cribb (1988) claimed that the government was compelled to take into consideration the longer term consequences of the unrestrained logging.

The 1980s and the 1990s witnessed a heightened awareness of the consequences of natural resource exploitation and rapid economic growth on the environment, the need to control the rate of species and habitat loss, and the importance of engaging local people in conservation initiatives. Peluso (1993) asserted that the flurry of environmental awareness of the late 1980s had led to the proliferation of international environmental agreements to get the nation states to commit to the conservation of ecosystems and biodiversity and to adopt sustainable forms of development. Zerner (1994) and Barber *et al.* (1995) observed that new kinds of talk about environment, sustainable development, and biodiversity conservation found their way into policymakers' rhetoric, policy pronouncements, and legal declarations. Within the same timeframe, the international conservation communities started to question the effectiveness and the appropriateness of the dominant roles the states played in conservation. The 1982 World Parks Congress in Bali, with its 'Parks and People' theme, marked the increased awareness of the need to engage and empower local communities in the management of natural resources upon which they depend (Sayer *et al.*, 2005). The next decades, following this congress, witnessed a proliferation of initiatives attempting to reconcile conservation with local development (Wells *et al.*, 1999; Sayer *et al.*, 2005).

The Indonesian government adopted these emerging discourses and tapped the technical and financial support from the international conservation and donor communities to develop conservation strategy and implement conservation initiatives in the country. Tapping the support from international organizations such as the Food Agriculture Organisation (FAO), the World Conservation Union (IUCN), World Wildlife Fund (WWF), the Indonesian government developed a national conservation strategy and established national parks throughout the country (Sumardja, 1981;

⁴ Department of Forestry, with its own nature conservation division, was established in 1964 (Cribb, 1988).

Cribb, 1988). In March 1980, they declared the establishment of the first five national parks, i.e. Gunung Leuser, Ujung Kulon, Gede Pangrango, Baluran, and Komodo national parks⁵ (Sumardja, 1981). During the third National Park Congress in Bali in 1982, the Indonesian Minister of Agriculture announced the establishment of eleven more national parks⁶, including Kerinci-Seblat National Park (Barber *et al.*, 1995). Bappenas (1993) stated that by the early 1990s, the Indonesian Government has gazetted or designated 348 conservation areas covering a total of 16.2 million hectares (8.2% of the country's land area), while 2.7 million hectares (1.4% of the country's land area) were proposed as reserves. Many of those parks and reserves nevertheless existed on paper only back then (Bappenas, 1993). Their management improved only when substantial financial and technical assistance from the World Bank, bilateral agencies, and international conservation agencies started to become available around 1993 (Wells *et al.*, 1999). By 2000, Indonesia's protection area system has covered a total area of 21.2 million ha or around 12% of the total land area, exceeding the IUCN recommendation of 10% (PHKA, 2002).

The Indonesian policymakers' increased attention to conservation issues was also partly shaped by the emerging forces within the country. Cribb (1988) claimed that the first force was exerted by the emerging middle class in Indonesia, such as conservation NGOs and student nature lovers, who put some pressure on the government to give more serious attention to conservation issues and to produce pro-conservation policies (Cribb, 1988). A greater force to be reckoned was nevertheless Professor Emil Salim, the first Indonesia's Minister for Population and the Environment. Taking up the role as an advocate and a watch-dog for conservation issues in the country, he also occupied a place of prominence in various international forums and processes (Cribb, 1988). Since 1981, the ministry gave recognition, in the form of environmental Kalpataru awards, to individuals and groups within the country who have pioneered, undertaken, or served as role models for others in the management, rehabilitation, or protection of the environment (Ministry of the Environment, 2005).

The Indonesian government was also responsive to the new emerging paradigm which attempts to reconcile conservation and development, and to engage local participation in the management of protected areas. Several scholars contended that Integrated Conservation and Development Project (ICDP), the embodiment of the new model for the management of protected areas⁷, emerged as a defined concept around the same time as the United Nations Conference on Environment and Development of 1992. It promoted community participation, socio-economic development among communities adjacent to the park, and attempted to mitigate poverty which was perceived as the primary cause of forest degradation (Wells *et al.*, 1999). Other scholars highlighted the fact that this model was a departure from the past conservation approach which advocated for top-down state-centric practices, and which perceived protected areas as being "pristine" and "fragile", and labelled the surrounding communities who live from the resources as "illegal encroachers"

⁵ These five areas had the status of natural reserves. As national parks, a greater degree of protection was imposed on these areas (Cribb, 1988).

⁶ The establishment of these eleven national parks was legalized by the decree of Ministry of Agriculture No. 736/Mentan/X/1982 dated 14 October 1982.

⁷ The model also comes in different names, i.e. Integrated Protected Areas Systems (IPAS) and Biosphere Reserves (Barber *et al.*, 1995).

(Peluso, 1992; Barber *et al.*, 1995). For developing nation states, ICDP approach was appealing because, rather than perceiving development as threats, it viewed development for the surrounding communities as the solution to the protection of conservation areas (Barber *et al.*, 1995; Wells *et al.*, 1999). The Indonesian Government prescribed ICDP approach for Indonesian protected areas, as specified in its National Biodiversity Action Plan of 1993 (Bappenas, 1993; Barber *et al.*, 1995). With the support from the international donor communities and international NGOs, they launched a concerted effort in 1992 to implement ICDP approach in 8 national parks (Barber *et al.*, 1995). By 1999, it was implemented in 21 terrestrial and marine protected areas, including Kerinci-Seblat National Park (Wells *et al.*, 1999).

ICDP was implemented in Kerinci-Seblat National Park (KSNP) for 6 years, between 1996 and 2002, after a 4 year preparation stage. According to Wells *et al.* (1999), the long preparation stage was partly contributed by the extent and complexity of the park. When the government proclaimed the establishment of the park in 1982, the total area proposed to be included in the park amounted to almost 1.5 million hectares making it the second largest national park in Sumatra and one of the largest protected areas in Southeast Asia (Wells *et al.*, 1999). The park includes 17 forest areas located in four provinces: West Sumatra, Jambi, Bengkulu, and South Sumatra (Barber *et al.*, 1995). The responsibilities to manage the park were put in the hands of the Directorate General of Forest Protection and Nature Conservation of the Ministry of Forestry (UNDP/FAO, 1981). Through ICDP, this agency attempted to establish integrated conservation management regimes for the preservation of the park's wide range of habitats, from lowland tropical forests to upper montane forests, the preservation of its rich biodiversity, the maintenance of its hydrological functions, and the development of some park areas for recreation and conservation research purposes (UNDP/FAO, 1981; Wells *et al.*, 1999). To enable the agency to achieve those objectives, the World Bank-Global Environment Facility provided 75% of the total project costs of US\$46 million. The rest was provided by the Indonesian Government (Barber *et al.*, 1995; Wells *et al.*, 1999).

Although the Indonesian government engaged with the emerging conservation paradigm and paid more attention to conservation issues, they still maintained their control over protected areas as reflected in the conservation policies enacted during this time. Scholars claimed that the state government's stance indeed was in line with the prevailing paradigm of the period which perceives the states as the primary means of environmental conservation and assumes that the state bodies have the capacity and internal legitimacy to control the behaviour of all resource users, and the will to engage in conservation efforts (Peluso, 1993; Sayer *et al.*, 2005). Furthermore, as pointed out by Sayer *et al.* (2005), the United Nations until recently required protected areas to be placed in their list to be put under the jurisdiction of the 'highest competent authority' of the states. The authority the state retained over resources was reflected in conservation policies and legislations. Barber *et al.* (1990) pointed out that the 1990 Law on Conservation of Natural Resources and Ecosystems, which provided a comprehensive framework for biodiversity conservation and utilization in the country, granted the state the authority over protected areas and their management. It did not address the rights of the tribal and *adat* communities who live inside or adjacent to the protected areas. Subsequent legislations, such as 1993 decree of Ministry of Forestry on the use of forest products by *adat* communities within timber concession areas, and 1993 joint decree

between the Ministers of Forestry, Home Affairs, and Transmigration, similarly undermined the rights of *adat* communities, forest dwellers, and shifting cultivators over resources (Barber *et al.*, 1995).

State's strong control in the management of national park and the old nationalist view favouring commercial extraction of forest resources over conservation, local communities' rights and welfare were discernible during the implementation of conservation initiatives. They were also transpired during the ICDP implementation in Kerinci-Seblat National Park. To accommodate logging interests, Barber *et al.* (1995) reported that the park boundaries have been repeatedly revised, partly to exclude lowland forests. Seventeen logging concessions bordered the full length of the park boundary in Jambi and Bengkulu provinces. Some of these concession areas even overlapped with the 1982 designated park areas (Barber *et al.*, 1995). Wells *et al.* (1999) pointed out that timber concessions were major economic forces in the four park provinces and had provided the local government with royalties and taxes of almost US\$2 million per year. Furthermore, the Ministry of Forestry themselves were not willing to cancel or phase out these concessions. They instead required them to improve their logging practices and to adopt biodiversity conservation measures (Barber *et al.*, 1995). Through a series of interventions that took place between 1985 and 1992, the total park areas came down from 1.48 million hectares in 1982 to 996,850 hectares in 1992. Since then, there have been several countervailing efforts to reallocate the excised areas into the park. By 1999, when KSNP was legally gazetted by the Minister of Forestry⁸, its total area amounted to 1.375 million hectares. The inclusion of the area of permanent production forests of Sipurak Hook in Merangin district, Jambi province, in 2004 further increased its size to 1.389 million hectares (Bahri, 2006).

The state's old paradigm, viewing surrounding communities and their livelihood activities as the main threats, was also reflected in the heavy emphasis given to the park's village development program. Various scholars have come up with a long list of threats various activities imposed on the park, ranging from logging operations, illegal logging, illegal sawmills operations, gold mining, poaching of endangered species, large scale oil palm and rubber estates, to poorly designed roads (DHV-Kepas, 1993a; Rufendi, 2001). Despite these various identified threats, Wells *et al.* (1999) pointed out that ICDP interventions had been heavily targetted at controlling the local people in the 134 adjacent villages and, in particular, their agricultural activities. The biased perception towards local communities' agricultural activities was quite explicit in several official documents. UNDP/FAO (1981: 27), which served as the preliminary management plan for the park stated: "on both sides of the [Kerinci] valley, *ladangs* and permanent cultivation are spreading into the forest like a cancer". The World Bank (1995) shared this conviction in their project preparation report and identified agricultural activities as "the principle direct threat to the park". Over the period of 20 years, the World Bank (1995) reported that a total of 15,000 households had cleared a total of 50,000 ha forests inside the park. Contrasting this figure to the total 100,000 hectares of tea, oil palm, and rubber estates established adjacent to the park⁹, and more than 400 ha being illegally logged within the year of 2000 only (Rufendi, 2001), it becomes clear that the threat the agricultural activities

⁸ The decree of Ministry of Forestry and Estate No. 901/Kpts-II/1999

⁹ Wells *et al.* (1999) argued that the establishment of these estates would cut across the elephant migration routes.

posed on the park have been exaggerated. The park manager attempted to control local people's access to forest resources within the park by offering a financial incentive¹⁰, amounted to US\$50,000 over the period of 6 years, in exchange for their commitment to implement the NGO-facilitated land use plan, to follow the park's rules, and to assist the park manager in protecting park boundaries from the outsiders' intrusion (Barber *et al.*, 1995; Wells *et al.*, 1999).

The biased perceptions towards local communities and their livelihood activities underlie the state's coercive interventions in evicting "forest encroachers" and in demarcating the park boundaries. The boundary demarcation processes had largely ignored local resource use and land rights. A 1993 socioeconomic survey the DHV-Kepas conducted in six KSNP border villages (1993b) revealed that local participation was non-existent and the villagers were upset about the land appropriated from them without any compensation. It is therefore hardly surprising that when boundary demarcation process was considered completed in 1999, Wantoro (2001) reported that many established markers had disappeared, being pulled out, or had never established in the first place. In other villages, the residents were even evicted by force. Burger (2004) claimed that the armed forces were used to force the villagers of Pelompek, in the northern part of Kerinci, who had settled themselves there since the early 1950s, to leave when the village land was incorporated into the park.

Set against the international supported-stronger state control over conservation areas, various environmental NGOs launched initiatives which promoted local resource management institutions and practices. Scholars described how, since the late 1980s, environmental NGOs began identifying and documenting local resource management institutions, knowledge and practices that they can deploy to legitimize local communities' rights and to resist the appropriation of local resources by the government and private enterprises (Lynch, 1992; Fox, 1993). Resistance against the marginalization of the rights of the local communities and the striking power imbalance between the state and local communities appear to be the underlying motivation. As pointed out by Zerner (1994), local resource management institutions are 'discovered' in areas where control over natural resources is most intensely contested. Several scholars stressed the unique roles these environmental NGOs played. They facilitated the dissemination and penetration of international discourses, paradigms, rhetorics, and movement to the local communities and the different government agencies (Lindayati, 2002). Their connections with larger movements allowed them to strengthen the bargaining position of the local communities in their struggle (Zerner, 1994). In Kerinci, these crucial roles were played by WWF-Indonesia Program¹¹ which started to operate in Kerinci since June 1990. They 'enrolled' *adat* leaders and communities in Keluru, Lempur, and Hiang villages in the implementation of their Primary Environmental Care program¹² between the period of

¹⁰ The incentive was packaged in a contractual agreement between the park manager, district government, and village government institutions (Barber *et al.*, 1995; Wells *et al.*, 1999).

¹¹ The World Wide Fund for Nature (WWF) International started to operate in Indonesia since the early 1960. In partnerships with the Ministry of Forestry, they engaged in the protection of the country's rich biodiversity and natural resources (<http://www.wwf.or.id>).

¹² This program was funded by WWF International, WWF Switzerland, and Primary Environmental Care. WWF worked in Keluru intensively in the period of the end of 1991 and mid 1992. They worked in Lempur and Hiang at the same time, i.e. between 1992 and 1994 (Bappeda *et al.*, 1993; Bappeda Kerinci, 1993).

1990 and 1994. The program aimed to strengthen the existing local institutions to protect and optimally use natural resources while meeting their basic livelihood needs (Pretty & Guijt, 1992; Bappeda Kerinci, 1993). At the supra-local level, they were an important force which compelled district government and the different government agencies in Kerinci to adopt a pro-people approach in the management of the national park and its buffer zone (Risman, 1992).

In the following sections, I will show how *adat* leaders in the three research locations responded to the stronger central government's control over Kerinci-Seblat National Park areas, which affected their access to forest resources and the extent of their *adat* forest, and transformed their customary forest institutions. As multiple actors and multiple, and often, conflicting interests, existed within the community, it is necessary at this stage to specify which actors were fully engaged in transforming customary forest institutions in the three research locations. The information I collected from the former staff of WWF, several *adat* leaders and prominent figures (Msw, AbbR, MD, HH, US) revealed that in Keluru, the three *adat* leaders, the staff of village government and members of Village Community Resilience Council, and two locally hired WWF staff were the ones who fully engaged in the process. In Hiang, they were the two highest *adat* leaders (Depati Atur Bumi and Rajo Depati), a few *depati nenek mamak*, village heads and the heads of village council), *Petinggi*, and several villagers who worked in different district government agencies. The involvement of farmers was generally low as their dependency and interaction with forests had been very limited by the early 1990s. In Lempur, the three highest *adat* leaders (Depati Agung, Depati Sukoberajo, and Depati Anum), and around 12 other *adat* leaders, some of whom were village heads and the heads of village council), and two locally hired WWF staff spearheaded the processes. For practicality purpose, I used the terms *adat* leaders, village government, and farmers in the following discussions. These terms, however, do not represent the whole individuals who hold the *adat* titles, who sat in the village government, or all the farmers in the three research locations.

V. TRANSFORMATIONS OF CUSTOMARY FOREST INSTITUTIONS IN THE THREE RESEARCH LOCATIONS

5.1. Keluru

Adat leaders were not only enrolled by the WWF to participate in their program but they also enrolled WWF in their own 'projects'. They made use of the opportunities provided by WWF program, which was first introduced to them in November 1992. From the minutes of their initial meetings, it appears that the *adat* leaders revealed to WWF staff the problems facing them in terms of managing their 23 ha *adat* forest (Temedak) which is located around 700 meters from the main settlement. They revealed that the agricultural encroachment into Temedak, excessive bamboo extraction by villagers, and extraction of timber and bamboo by outsiders without the approval of *adat* leaders had transformed some western and eastern parts of the forest into shrub and grassland and reduced the irrigation water. They further expressed their interest to get their *adat* rights over Temedak forest strengthened by the state government (WWF Minutes of Meeting, 20, 21, and 28 November 1992). *Adat* leaders and WWF subsequently explored this possibility with the district head

and the park manager. They received positive response. In his letter (52/551/118/Bappeda dated 4 February 1992), the district head further approved the proposed activities that Keluru leaders and communities would undertake in collaboration with WWF. The activities include, among others, *adat* forest boundary demarcation, plant nursery establishment, forest monitoring, the setting up of an information board at the gate of Temedak, and the formulation of collaborative forest use management plan.

Adat leaders must subsequently retrieve a portion of Temedak forest land which they had disposed to villagers in 1972. According to the *adat* rules with regards to the use of Temedak, traced back as early as 1927, Temedak forest is put under the protection of *adat* leaders so that it can continue providing villagers with timber and non-timber forest products, in particular bamboo, candle nuts (*Aleurites molucana*), rattan, and palm fibers. The forest has also been traditionally used by villagers as a grazing area for buffaloes and other cattle. *Adat* leaders prohibited clearance of this forest for *ladang* establishment. In the face of high market demand for tree crops, in 1972, the three *adat* leaders, under consultation with other prominent figures, changed the rules and disposed a total of 3 ha of the north-western part of Temedak forest land to villagers. Fifty households purchased the land and planted it with cinnamon, clove, and *surian* (*Toona sp.*) trees (Risman, 1992). To get the legal support from the district government over Temedak, covering a total of 23 ha as declared in the agreement of 1927, *adat* leaders had to retrieve this land from those households. They subsequently sought the agreement from Keluru villagers to their intention to retrieve the Temedak land. Upon the agreement from the villagers, they retrieved the land and compensated each land owner Rp 10,000 for the land and the tree crops (AN 18/08/2006, RG 19/08/2006).

Adat leaders subsequently transformed the existing *adat* rules with regards to forest use and engaged village government in the processes. The engagement of village government institutions was a strategic and sensible move considering that *adat* leaders would like to get their management rights over Temedak forest recognised and legitimised by the district government. This would be difficult to do without the support of village government. Furthermore, this strategy did not challenge the existing power distribution between *adat* and village government institutions. The two institutions in Keluru had fused as the three *adat* leaders also held the positions within the village government structures. During this time, Rio Gilang held the position of village head and *ex officio* the head of village councils (Village Consultative Council and Village Community Resilience Council), while Rio Ganum and Menggung served as members of Village Consultative Council. With the facilitation from WWF, Rio Gilang-*cum*-village head and members of Village Consultative Council discussed how Temedak forest should be used in the future and what rules should be put in place to regulate such use. Their decisions with regards to the objectives of Temedak forest management and conservation, the rights and responsibilities of Keluru villagers, the forest institutional arrangements, forest use rules, and sanction mechanisms were formulated and issued as village government regulation. This regulation, Keluru Village Government Regulation No. 1/1992, was signed on 10 July 1992 by the village head and the 25 members of the Village Consultative Council.

The interaction of *adat* leaders with WWF exposed them to conservation discourse and language which they later used in transforming the existing *adat* rules. During the period between 1927 and 1991, customary forest institutions had indeed evolved and transformed but the rules remained simple and were put in place mainly to regulate the extraction of timber, bamboo, and other non-timber forest products by Keluru villagers. The hybridisation of customary forest institutions with external materials completely transformed the existing rules. The new rules contained vocabularies frequently used as a part of conservation discourse. With regards to the aim of *adat* forest management and protection, the village government regulation stated that they were to be carried out for the maintenance and protection of the functions and processes of forest ecosystem. They include, among others, to serve as water catchment area and water source, to prevent flood and soil erosion, to regulate village climate, to protect soil fertility, and to promote and maintain the diversity of plants and animals. The regulation also stated that to achieve those aims local communities would engage in replanting and would not dispose non-biodegradable waste in *adat* forest, use fire in areas adjacent to the forest, develop permanent infrastructures and *ladang* inside the forest. Forest resource utilisation, as stated in the regulation, should be undertaken wisely and sustainably by following the conservation principles as close as possible. All those conservation principles and vocabularies were not found in the previous *adat* forest rules.

The newly installed forest rules, however, did not diverge much from the existing forest use practices. The new rules specified that forest resources, such as bamboo, candlenuts, palm fibres, medicinal plants, etc. can be extracted to meet the household needs and cottage industries, while seedlings can be extracted for individual or public needs. Although the regulation was not explicit about timber extraction, several forest users revealed that the activity can no longer be undertaken by Keluru villagers. The prohibition was imposed based on the consideration that the quantity of timber trees within the forests had declined as the results of extraction in the past. This prohibition was the only significant change to the past forest resource use practices, while the new rules with regards to the extraction and commercialisation of non-timber forest products mirrored the old ones (AN 18/07/2006, RG 11/08/2006, RO 16/09/2006). With regards to violations, the regulation stated that state laws and regulations would be taken into account in deciding the sanctions (Keluru Village Government Regulation No. 1/1992).

The strategic alliance with WWF enabled Keluru *adat* leaders to tap the power of district government and to gain legal recognition for the management of Temedak forest. To gain this legal recognition, Temedak forest had to be properly marked on the ground and legalised by the District Agrarian Agency. With the support from WWF, several community members set up 29 concrete markers along the forest eastern, northern, and western borders. The southern part, which is bordered by Serenti Gorge, was left unmarked. Based on the obtained GPS coordinates, WWF staff created a map of Temedak forest. Officials from the District Agrarian Agency, district and sub-district governments, local forestry department, and the national park ground-checked the established markers in April 1992. The *adat* communities obtained a legal recognition over Temedak forest from the district head in July 1992.

Based on Keluru success story, WWF pursued their own agenda of getting a political commitment from the district government to support the management of forest by

adat communities and to make it a model for the park's buffer zone management in Kerinci. Their attempt was successful. The district government expressed their commitment by issuing a decree in November 1992¹³ which explicitly mentioned the success of *adat* forest management in Keluru as one of the bases of their consideration. Recognising the important role local people could play in environment and forest conservation, this decree provides a legal basis for other *adat* institutions in Kerinci to gain legal recognition over *adat* forests within their territories.

5.2. Hiang

Adat leaders of Hiang Tinggi and Betung Kuning also responded positively to WWF initiatives after WWF staff properly introduced their program in 1992. This was because the *adat* leaders had found it difficult to deal with the external pressures in protecting and managing the *adat* forests which are located around 3 km from the settlement. In the letter sent to the district head in the early December 1992, *adat* leaders and village heads of Hiang Tinggi, Betung Kuning, Muara Air Dua, and the neighbouring villages of Ambai and Kota Baru Hiang expressed the pressure that they had to face against outsiders' agricultural encroachment and forest resource extraction activities. The availability of good timber trees inside Hiang forests had attracted outsiders to extract timber. Some of them followed *adat* procedure and paid the sum of money the *adat* leaders requested, while others encroached into the forests to extract timber, rattan, bamboo, and other products. In the letter, *adat* leaders and village heads revealed that as the consequences of those violations, certain parts of their *adat* forests had transformed into tree crop gardens or degraded into grassland. The letter also explained that the survey conducted by several *adat* leaders, village heads, and WWF in November 1992 found that the forest conditions along the rivers of Maliki, Batu Hampar, and Sangkir, all of them fall under the *adat* territories of Hiang Tinggi, have been degraded and turned into *Imperata* grassland. Similar situations were observed in the forests of Kota Baru Hiang which had mostly turned into the grassland. Only the forests within Betung Kuning and Ambai territories remained in relatively good conditions. By cooperating with WWF, *adat* leaders could get the support they needed in protecting the forest against those external threats.

Although the causes of degradation were blamed on the outsiders, Hiang villagers had also contributed to the degradation. According to several *depatis* and forest users, *adat* rules in Hiang Tinggi and Betung Kuning did not prohibit their own villagers to extract timber from the forests and only require them to obtain the approval from *Petinggi* beforehand. Up to the mid 1980s, timber for house construction was commonly obtained from the *adat* forest. This extraction had largely stopped by the early 1990s since timber trees can no longer be found around the forest edges and it would be too difficult and costly to extract those located deep inside the forests (JM 04/11/2006, AH 07/12/2006, US 14/12/2006). The survey conducted by WWF in 1992 found that around 10 Hiang Tinggi villagers were engaged in charcoal making to complement their main source of livelihood. Furthermore, in the period between 1948 and 1992, a total of 27 households had

¹³ Decree of District Government No. 176/1992, dated 6 November 1992, on the development of the village's *adat* forest for the management of the buffer zone of Kerinci-Seblat National Park in Kerinci.

established *ladang* inside the *adat* forests, covering a total of 33 ha (Bappeda *et al.*, 1993).

The *adat* leaders and village heads of the four Hiang villages, who tied together culturally and historically, did not share the same interests. Only those in Hiang Tinggi and Betung Kuning decided to get their *adat* forests legalised by the district government. The *adat* leaders and village heads of Ambai and Kota Baru Hiang, both of them sprang from the original *adat* village of Hiang Tinggi decided not to join in the efforts. The *adat* leader of Hiang Tinggi and *Petinggi* claimed that this was because the Ambai leaders did not fully grasp the importance of such an effort and did not want to invest their time and energy. In the case of Kota Baru Hiang, they did not have the reason to do so since their forests had almost disappeared completely (AU 19/07/2006, US 02/12/2006). A former WWF staff, nevertheless, explained that the leaders in Kota Baru Hiang declined to take part once they learned that WWF can not offer direct assistance in rehabilitating their degraded forests or in providing agricultural extension to farmers, while Ambai *adat* leaders found it difficult to participate as WWF concentrated their activities in Hiang Tinggi. He further clarified that WWF decided to do so because they considered Hiang Tinggi forest, which experienced higher level of disturbance, was in need of more support than Ambai. With the *adat* leaders and village heads of Kota Baru Hiang and Ambai decided not to join in the effort, it was decided that the *adat* forests within the territories of Hiang Tinggi and Betung Kuning, locating adjacent to one another, should be managed together as one unit (MSW 31/08/2006).

Strategic alliances were established at the local and district level during this time. Just like Keluru, Hiang *adat* leaders deployed the support from the village government. The new forest rules were issued as a joint village regulation by the village government of Hiang Tinggi, Betung Kuning, and Muara Air Dua on 17 December 1993. Apart than village heads, village secretaries, the heads of Village Community Resilience Council (*Lembaga Ketahanan Masyarakat Desa*), the regulation was also signed by four *depatis*, *Petinggi*, representatives of religious leaders, intellectuals (*cerdik pandai*), and women. At the district level, WWF concurrently engaged the District Development Planning Agency and KSNP in formulating a technical document which set out the strategy for the management of the *adat* forest in Hiang.

The authorities in charge of managing *adat* forests within the territory of Hiang Tinggi and Betung Kuning underwent major transformation during this period. A new organisation, called *adat* forest working group (*Kelompok Kerja Hutan Adat*), was established. Henceforth, the authorities and responsibilities over *adat* forest management and protection were no longer vested exclusively with the *depati nenek mamak* of the respective villages. The working group included not only *depati nenek mamak*, *Petinggi*, and *adat* officicers but also representatives from village government, intellectuals, religious leaders and women. Just like modern organisations, this working group consisted of an advisory committee, coordinator, head, vice-heads, secretary, treasurer, and four different divisions, i.e. public relations, planning and reporting, forest protection, and forest utilisation. The members of the working group were selected by the *adat* leaders and village government through deliberation processes (Joint regulation of Hiang Tinggi, Betung Kuning, and Muara Air Dua of 17 November 1993).

Adat leaders, together with the representatives from the village government and other stakeholders within the village, hybridised the existing *adat* rules with new conservation values and languages WWF had exposed them to. As spelled out in the Joint Regulation of the three village governments, the existing *adat* rules were transformed into complex and comprehensive ones. Conservation principles and vocabularies peppered the hybrid rules. The new rules specified that forest resources would be managed sustainably and made accessible to village communities, for their own self consumption, following the principles of social justice. Forest users should obtain written permit from *Petinggi* before extracting resources from the *adat* forest. The new rules further required timber users to consider the location of the tree and species abundance, to plant 50 seedlings of the same species for each tree that they cut down, and to avoid using chainsaws. One of the Betung Kuning *depatis* revealed that these heavy requirements were intended to discourage villagers to extract timber altogether (CP 12/07/2006). Farmers who established *ladang* within the forest are required to adopt soil and water conservation measures, to help protecting the forests against encroachment and other illegal activities, and to maintain the boundary markers of *adat* forests and the park. *Adat* communities were given the rights to utilise the forests for recreation and educational purposes. With regards to violations, the new rules specified that inside violators would be sanctioned according to *adat*. If they did not comply, they would subsequently be reported to relevant state authorities and sanctioned according to state regulations. Outsiders nevertheless could be reported directly to state authorities. The property rights over the forests were also specified: land within the *adat* forests, including the land of the 27 *ladang* plots, belong to *adat* and can not be sold, pawned, or used as collateral, while the adjacent natural forests belong to the state and is managed by the national park manager (Joint regulation of Hiang Tinggi, Betung Kuning, and Muara Air Dua of 17 November 1993).

The strategic alliance that the *adat* leaders established with WWF gave them a stronger footing and enabled them to exert their claims and determined the boundaries of the *adat* forests even in the face of opposition from the District Agrarian Agency. Hiang *adat* forests border the park directly at its north and north-western parts. By demarcating the boundaries of *adat* forest, *adat* leaders thus shaped and determined the extent and boundaries of the park in their localities at the same time. As mentioned earlier, the Dutch colonial government incorporated a portion of Hiang *adat* forests into their established Merangin Timur protection forest and set up *Boschwezen* (BW) markers along its boundaries. According to the staff of the park, in areas where the Dutch protection forests and nature reserve exist, such as in Hiang and Lempur, the boundaries of Kerinci-Seblat National Park in Kerinci would follow those BW boundaries (SB 19/02/2007). Although *adat* leaders accepted the appropriation of their land by the Dutch colonial government in the past, they did not accept BW boundaries as the limit of their *adat* forest at its north-western side. This created a lot of tensions when this part of the forest was demarcated by the District Agrarian Agency and KSNP staff, together with WWF staff, *Petinggi* and 3 village representatives at the end of November 1993. *Petinggi* recalled that the demarcation process was halted and the officer from the Agrarian Agency was compelled to bring the issue up to the district head (Bupati). Bupati yielded and instructed the officer to accommodate the demand of the community. The

boundaries of the national park which border Hiang *adat* forest consequently were pushed 2 kilometers away from their designated locations (US 03/08/2006).

Related to this negotiation process was the decision made by the *adat* leaders to hand over a portion of their *adat* territories to the national park. The total area released was believed to be around 750 ha (Nazirman & Umar, 2006). This also appeared to be a realistic and strategic move by the *adat* leaders. *Petinggi* revealed that what being handed over were actually degraded forest areas that been cultivated by the neighbouring Pungut Mudik villagers for quite sometime, as indicated by the existence of big cinnamon trees. It would be tremendously difficult for the *adat* leaders to evict these villagers. After a long deliberation, *adat* leaders set the northern border of the *adat* forest up to Maliki river. The remaining *adat* territories in the north were handed over to the national park (US 12/08/2008).

The shape and the extent of the *adat* forest, covering a total of 858.95 ha, produced through these joint efforts differed from the *adat* forest known before. The shape and extent of the current *adat* forest is the product of a consensus among related stakeholders accommodating their different interests and reality on the ground, in particular the existence of the established *ladang* and the degraded areas. Following the legalisation of the result of the boundary demarcation processes by the District Agrarian Agency, the District Head (Bupati) inaugurated the *adat* forest in December 1993. The decree issued by Bupati (No. 226/1993) provides a legal status of the *adat* forest and legalised the forest management institutions proposed in the joint village government-*adat* council regulation and the produced technical document.

5.3. Lempur

The *adat* leaders in Lempur also welcomed WWF initiatives. As explained by the former Depati Agung (HH 28/06/2006), he welcomed WWF because WWF can assist them in the management of the headwater regions. *Adat* leaders had struggled in protecting the headwater regions, which surrounded Lempur villages in the west, south, and the south-east, against conversion. Several *depatis* and farmers explained that, to protect water and soil in these regions, *adat* leaders strongly prohibited villagers from establishing *ladang* within these regions. Forests within these regions can only accessed for hunting and the extraction of timber, bamboo, rattan, and other non-timber products. In the past, they focused their protection efforts on Paradun Kayu Aro and Air Abang waterhead regions which maintained the water of two important rivers: Air Lempur and Air Abang. The relative close proximity of these areas to the main settlements means their degradation would have immediate impacts on the village (DN 24/07/2006, SKB 29/01/2007, TH 16/02/2007).

Lempur farmers indeed needed as much assistance as they could get considering that many of them had expanded their *ladang* way beyond the BW and the 1982 park boundaries. The results of the inventory conducted by WWF showed that 605 Lempur households had established a total of 1334 ha *ladangs* in the headwater regions and the surrounding areas between 1920 and 1992. Almost 90% of these *ladangs* were planted with cinnamon trees (Bappeda Kerinci, 1993). Several farmers recalled that many trespassing Lempur villagers were arrested when the park boundaries were surveyed and temporary markers were established in the mid

1980s (AS and SBD 22/02/2007). Those farmers were at the brink of losing their *ladangs*.

With the support from WWF, *adat* leaders revived their efforts in regulating the use and management of headwater regions, and undertook a series of actions to get the district government's legal support to the headwater region land use management strategy. In September 1992, several *adat* leaders, village heads and WWF surveyed the headwater regions of Air Abang, Air Rasau, Air Lempur, Air Kesen, and Air Uap to find out the extent of agricultural conversion in these areas (WWF field trip report, 13-16 September 1992). In February 1993, several *adat* leaders, together with several community members, representatives from the District Agrarian Agency, the District Forestry Department, the sub-district government, and WWF set up temporary markers along the 12 km *adat* defined headwater boundaries (WWF field trip report, 4-9 February 1993). A former WWF field staff explained that within 3 month period after the temporary markers were set up, *adat* leaders attempted to resolve the disputes and disagreements the affected farmers brought up. Concurrently, WWF attempted to increase the awareness of the villagers of the environmental implications of forest degradation (ABR 22/02/2007).

Adat leaders and WWF established alliances with various local and district organizations in pursuing their goals. To obtain the legal support from the district government to the land use management strategy for the headwater region, *adat* leaders engaged village government (village heads and the heads of village representative councils), religious leaders, intellectuals, and other prominent figures in conceptualizing how the headwater regions should be managed, which areas within the headwater regions should be conserved, how to regulate farmers who cultivated inside the headwater regions, and what sanction mechanisms should be put in place. Similar with Keluru and Hiang, the produced rules and sanction mechanisms incorporated external conservation languages and the state legal systems. The management and conservation strategy of the headwater regions, and the new produced rules and sanctions were issued as a joint decree between the village governments and the *adat* council. The decree specified that Lempur villagers were allowed to extract resources from the headwater forests for their own self-consumption only. It also elaborated on a new organization called Permanent Working Institution (*Lembaga Kerja Tetap*) which was given the tasks of spearheading the management and conservation of the headwater regions. Apart than the *adat* leaders, the institution would also include representatives from the village and sub-district governments, farmers, share-croppers, youth, women, and other related institutions (Joint decree of the village government and the *adat* council, 8 June 1993). At the district level, WWF aligned themselves with the District Development Planning Agency, the park manager, District Agrarian Agency, and District Forestry Department to produce a comprehensive technical document outlining the management strategy of the Lempur headwater regions. The District Head subsequently provided a legal basis for the management and conservation of Lempur headwater regions (Decree No. 96/1993) according to the produced technical document and the village government-*adat* council joint decree.

By drawing upon the power of the district head, the *adat* leaders in Lempur were in a much stronger position to negotiate with the Provincial Forestry Department in setting the boundaries of the national park in the headwater regions. The former

WWF field staff recalled that, in early 1994, the officers from the Forest Inventory and Mapping Agency of the Jambi Forestry Department started to carry out their tasks in demarcating the park boundaries and establishing permanent boundary markers in Lempur. One of the *adat* leaders in Lempur claimed that these officers initially followed the general principles that the boundaries of the park overlapped with the BW markers. Consequently, many *ladangs* in the headwater regions were incorporated into the park. A portion of Lempur *adat* territories at the headwater regions, the exact total area was not known, was also included into the park. This created tremendous tensions as farmers protested these actions, and expressed their frustration and anger against the *adat* leaders and WWF (AbbR 22/02/2007).

The *adat* leaders deployed their alliance with WWF, the legal support they received from the District Head, their previous efforts in regulating the use and conservation of the headwater regions as 'weapons' in the struggle to maintain their authorities and to maintain farmers' access to *ladang* within the headwater regions. These proved to be quite effective in compelling the Inventory and Mapping Bureau to accommodate their demand. The park boundaries were renegotiated and redrawn, and hence the majority of *ladangs* in the headwater regions were excluded from the park. Several farmers revealed that they were allowed to access to *ladangs* which were located between the BW markers and the park's new boundaries. However, the land on which the *ladangs* were established remains the state land and therefore can not be registered as private lands. Furthermore, they were required to sign an agreement in which they pledged their commitment to respect the park boundaries, report any illegal activities, maintain and protect the markers, adopt the agricultural practice as specified in the joint agreement between *adat* council and village government, and not to expand their *ladang* (RFK 11/02/2007, AKL 13/02/2007).

The *adat* leaders subsequently put under their protection the last standing natural forests within the headwater regions. The remaining natural forests were scattered in three different locations: Gunung Batuah (22 ha), Bukit Kemulau (28 ha), and Bukit Sitangis (808.3 ha). All of them located outside the national park (Bappeda Kerinci, 1993). The decree of the District Head No. 96/1994 gives these forest areas their legal status, as *adat* forests, under the management of *Lembaga Kerja Tetap*.

Another ally, the United States-based Forest Trade International Inc., was brought into the scene by WWF to encourage farmers, whose *ladangs* bordered the national park, to respect the park boundaries. Forest Trade engaged those farmers in the production of organic cinnamon for international markets. This initiative was very much in line with the spirit of ICDP approach which views the fulfillment of economic needs of the local communities as the key to successful conservation efforts. The program was implemented in Lempur between the period of 1996 and 2002. A former Forest Trade local staff revealed that the program was limited to farmers who owned *ladang* in the headwater regions and had not applied fertilizers, pesticides, and other chemicals in the past three years. Following these criteria, a total of 455 farmers participated in the program (GYN 06/07/2006, MSW 31/08/2006). Several cinnamon farmers asserted that they can easily conform to the required selective harvesting and the prohibition on the use of chemicals as these had been an integral part of their existing agricultural practices. The program also brought a lot of prosperity to farmers and village in general. Apart than receiving the money for cinnamon bark they sold according to the market price, farmers also received

financial incentive¹⁴ which they could use to maintain their *ladang*, such as for purchasing agricultural tools, for planting tree species that could improve soil structure and fertility, etc. A portion of the financial incentive also went to *Lembaga Kerja Tetap* who could invest it in various socioeconomic, cultural and conservation activities (ML 08/02/2007, RDN 25/02/2007).

VI. THE ADAPTABILITY AND CHANGE OF CUSTOMARY FOREST INSTITUTIONS

Set against the escalated central government's conservation interests and control over the national park areas, *adat* leaders and the communities in the three research locations strengthened their power by 'enrolling' internal and external actors to claim authority and management rights over *adat* forests. The strategic alliance that they established with WWF opened doors for them to other alliances with other government and non-government agencies.

In searching for allies that could lend support to their endeavour, their alliance with WWF enabled *adat* leaders to maneuver their way within the plurality of the state legal systems and the legal jurisdictions of the different state agencies involved in park establishment and management. In contrast to the central government's inclination to maintain a strong grip on the country's natural resources, the district government, the District Development Planning Agency, and the District Forestry Department were more accommodative towards *adat* land claims. This has indeed observed much earlier. In the late 1970s, Watson (1992) observed that the officials of the Agrarian Department in Kerinci, some of whom must be members of the Kerinci *adat* community themselves, were reluctant in enforcing the state's policies and regulations which were in conflict with *adat* land rights. This stance can explain why those different district agencies provided their support to the *adat* communities in the three research locations to the extent that their decisions sometimes contradicted the policies or guidelines set up by the central government. *Adat* leaders also maneuvered their way within the legal jurisdictions of the district government vis-à-vis the national park manager. The state policies and legislations determine that the areas within the district fall under the jurisdiction of the district government and therefore should be managed according to the district government's policies and regulations. The district areas included into the national park nevertheless fall under the jurisdiction of the central government, in this case the Directorate General of Forest Protection and Nature Conservation of the Ministry of Forestry. By getting the legal recognition of the district head over the management of *adat* forests, which lay outside the national park and therefore under the district government's jurisdiction, *adat* leaders had both the *adat* and the district government legal systems at their disposal. These strengthened their bargaining position tremendously and enabled them to influence the park boundary demarcation processes in their localities.

The achievements of the *adat* leaders in Keluru, Hiang, and Lempur were tremendous in comparison to other villages in Kerinci who could only exert passive

¹⁴ Forest Trade provided an additional Rp 1,000 for every kilogram of cinnamon sold by Lempur farmers. The total financial incentives were distributed to participating buyers (25%), farmers (50%), and *Lembaga Kerja Tetap* (25%) (Gun). The distribution of these incentives seemed to change over time (MD; DJ).

resistance, at best, in the face of the central government's coercion in demarcating the park boundaries. By deploying various strategies described earlier, *adat* leaders affected the park boundary demarcation processes in their areas. In Lempur and Hiang, the processes and outcomes of boundary demarcation diverged from the general principle that the park boundaries should follow the BW markers. In the case of Lempur, they also deviated from the principle proposed in the park management plan (UNDP/FAO, 1981) which prohibited cultivation areas to locate directly adjacent to the park boundaries.

The strategic alliances with WWF also exposed the *adat* leaders to a wide range of new information and ideas which expanded their legal repertoires and institutional principles. These new resources enabled *adat* leaders to transform the existing customary forest institutions in significant ways. Firstly, they sought active participation of local actors in the village, in particular the heads of the village and the village councils, in transforming the forest rules. Although it was a common practice for *adat* leaders to engage religious leaders and other prominent figures in the decision-making processes, the roles of these different actors were usually limited to providing inputs and advise only. By engaging a wide range of actors in transforming customary forest institutions, *adat* leaders ensured that the new institutions would gain wider acceptance. Secondly, they blended the state's sanction system with the existing forest rules. By incorporating the state sanction system, applied to those who conducted illegal activities inside the state's conservation areas, *adat* leaders strengthened their position in dealing with outside violators. Several *adat* leaders admitted that *adat* sanctions, ranging from financial penalties to social ostracism, were not effective in dealing with outsiders who violated their forest rules. They were only effective in regulating the behaviour of their own village members (AN 18/07/2006, SHY 08/11/2006). The incorporation of the state sanction system allowed them to hand over outside violators, especially the powerful ones, to the state authorities. They nevertheless retained the power to impose sanctions according to *adat*, particularly to their own village members.

Lastly, *adat* leaders incorporated conservation discourse and vocabularies into the existing forest rules. Customary forest institutions consequently obtained a 'green' identity as the result of this hybridization process. As described earlier, customary forest institutions pre-1990 were simple. They were put in place with the purpose to regulate the use of forest resources by village members within their *adat* territories, to ensure sustainable flow of forest resources, to protect their territories against outsiders' intrusion, and to protect the village and villagers from dire consequences of forest degradation. They were not enforced with the specific purpose of protecting or conserving forest habitats, ecosystems, or wildlife in minds. The blending of the old *adat* forest rules with new external materials resulted in 'sophisticated' forest rules. These new rules, which accommodate conservation interests, did not, however, challenge the existing forest use practices. By early 1990s, villagers in the three research locations, except for Keluru, did not highly depend on forest resources from *adat* forests any longer. Hiang villagers depended on the forests mostly for the irrigation water only. Most of the villagers did not extract timber from the forests any longer as no more timber trees existed at the forest edges. Similarly, villagers in Lempur did no longer access the headwater regions for *ladang*. The newly crafted rules therefore gained acceptance from the villagers and can be enforced without much difficulty. Conservation vocabularies incorporated in the new

forest rules can be seen as the icing on the cake and serve more as the 'weapon' for the *adat* leaders in their struggle.

External actors played important roles in constructing this 'green' image. They often attributed the maintenance of the *adat* forests in the three locations to the timeless environmental wisdom of the *adat* communities who lived in harmony with the forests by respecting the long standing *adat* taboos and prohibitions. Phrases like "*adat* as the embodiment of environmental wisdom", "conformity to *adat* rules and prohibitions", "respectful relations with the environment" peppered key documents produced during this period, e.g. Kalpataru nomination proposal for Keluru (1992), the speech of the district head during the inauguration of *adat* forests (1993), Bappeda Kerinci (1993). The old written *adat* agreements of 1927 in Keluru and the written agreement of 1956 in Lempur which prohibited *ladang* established in the headwater regions were given high emphasis to project static and timeless efforts of *adat* communities in forest conservation. This image was further reinforced by the granting of the prestigious Kalpataru awards to *adat* institutions in the three research locations for their efforts. Their nominations were put forward by different institutions: WWF for *adat* institutions of Keluru and Lempur, and a senior national park staff for Hiang in 2004. All of these nominations were successful. Keluru *adat* institution received Kalpataru in 1993, Lempur in 1994, and Hiang in 2005 (Kalpataru nomination proposal for Keluru, 1992; Ministry of the Environment, 2005; ABR 27/02/2007).

This image projected a misconception that the maintenance of *adat* forests had been effortless and masked the struggle that *adat* leaders went through in reconciling the multiple, and often conflicting, interests within the community and among themselves with regards to *adat* forests and forest resources. The interests of certain members of the community to get steady supply of non-timber forest products and irrigation water conflicted with the needs of other community members for *ladang* areas. Others were more interested in getting compensation, in terms of cash or other development projects, like ICDP villages in Kerinci had received. All these different livelihood interests had to be reconciled by *adat* leaders. *Adat* leaders themselves were not homogenous entities and they may not necessarily pursue the same agenda in unison. This is especially true in Lempur where the total number of *adat* leaders in the four villages amounted to 80 people. Although the *adat* leaders may have agreed on the general principle of forest use and protection, they were differentiated in terms of how much emphasis should be given to the different interests. The majority of the *adat* leaders were cinnamon farmers themselves and some even owned *ladangs* at the headwater regions. In that struggle, *adat* leaders had been compelled to put community's livelihood interests above forest conservation, as reflected by the imprints the struggle had left on *adat* forests. Around 25% of the *adat* forest in Keluru and most of the protected headwater forest in Lempur had been transformed into cinnamon gardens. In Hiang, timber extraction and *ladang* establishment had degraded certain parts of the *adat* forest. Despite the above misconceptions, *adat* leaders in the three research locations nevertheless enforced the newly created customary forest institutions and continued asserting the newly constructed 'green' identity. This is because the identity had proved to be a powerful 'weapon' in their struggle to exert their authority and management rights over *adat* forests.

The results of this study paint a different picture of the nature of *adat* institutions and their responsiveness to broader shifts. They challenge the conceptualization of customary institutions as static entities that are inert and vulnerable to external forces. Instead of resisting change, the findings showed that customary institutions and communities engaged in dialectic and discursive relations with external forces. By triggering a series of dynamic adaptation at the local level, the state interventions during this period enforced and extended, rather than eroded, customary institutions and authorities over natural resources. Furthermore, this study also showed that *adat* leaders were dynamic and innovative individuals that were capable of maneuvering their ways in the complex contour of power at the local and supra-local levels, establishing strategic alliance with a wide range of more powerful local and external actors, and deploying a wide range of strategies and resources to maintain their authorities over *adat* resources over time. Insights generated from this study point to the need for policy-makers, scholars, and practitioners to move beyond typecasting *adat* institutions and focus instead on how to strategically engage *adat* leaders and communities in the management of common resources.

REFERENCES

- AGRAWAL, A. & GIBSON, C. C. (1999) Enchantment and disenchantment: the role of community in natural resource conservation. *World Development*, 27, 629-649.
- AGRAWAL, A. & RIBOT, J. (2000) *Decentralization, participation and accountability in Sahelian forestry: Legal instruments of political-administrative control*, Harvard, Center for Population and Development Studies, Harvard University.
- AGRAWAL, A. & YADAMA, G. N. (1997) How do local institutions mediate market and population pressures on resources? Forest Panchayats in Kumaon, India. *Development and Change*, 28, 435-465.
- AUMEERUDDY, Y. (1992) Agroforestry in the Kerinci valley: a support to bufferzone management for Kerinci-Seblat National Park - Sumatra, Indonesia. Bogor, Laboratory of Tropical Botany, Institute of Botany, Montpellier and PHPA Sungai Penuh, Kerinci.
- BAHRI, S. (2006) Kebijakan pengelolaan zonasi Taman Nasional Kerinci-Seblat. *Shared Learning Pengelolaan Kawasan Kelola Rakyat, 24-26 July 2006*. Muara Bungo, Jambi.
- BONATZ, D., NEIDEL, J. D. & TJOA-BONATZ, M. L. (2006) The megalithic complex of highland Jambi: an archaeological perspective. *Bijdragen tot de Taal-, Land- en Volkenkunde*, 162, 490-522.
- WORLD BANK (1994) Indonesia: stability, growth and equity in Repelita VI. Washington, D.C.
- WORLD BANK (1995) Kerinci-Seblat ICDP Preparation Report, Jakarta, World Bank.
- BAPPEDA KERINCI (1993) Rancang bangun restrukturisasi dan deregulasi pengelolaan sumber daya alam pedesaan dan kawasan lindung daerah hulu air Lempur sekitarnya dan Taman Nasional Kerinci-Seblat. Sungai Penuh, Ditjen PHPA, BPN Kerinci, Sub-balai RLKT Kerinci, Sub-seksi KSDA Kerinci, and WWF.
- BAPPEDA, TNKS & WWF (1993) Strategi dan pengelolaan hutan adat desa Nenek Limo Hiang Tinggi Nenek Empat Betung Kuning Muara Air Dua sebagai daerah penyangga (daerah interaksi) TNKS di Kecamatan Sitinjau Laut, Kabupaten Kerinci. Sungai Penuh, Bappeda Kerinci, Kantor TNKS, dan WWF
- BAPPENAS (1993) *Biodiversity: action plan for Indonesia*, Jakarta, Ministry of National Development Planning, National Development Planning Agency.

- BARBER, C. V., AFFIF, S. & PURNOMO, A. (1995) *Tiger by the tail?: reorienting biodiversity conservation and development in Indonesia*, Washington, D.C., World Resources Institute.
- BASJARUDIN, H. (1971) Nature reserves and national parks in Indonesia - present situation and problems. *IUCN Publications*, 19, 27-33.
- BPS Kerinci (1982) Kerinci dalam angka 1982. Sungai Penuh, Biro Pusat Statistik.
- BPS Kerinci(2005) Kerinci dalam angka 2004. Sungai Penuh, Biro Pusat Statistik.
- BREWER, J. D. (1988) Traditional land use and government policy in Bima, East Sumbawa. IN DOVE, M. R. (Ed.) *The real and imagined role of culture in development*. Honolulu, University of Hawaii Press.
- BROMLEY, D. W. (1992) *Making the commons work: theory, practice, and policy*, San Fransisco, Institute for Contemporary Studies.
- BURGER, P. (2004) Resource management under stressed livelihood conditions: changing livelihoods and management practices in the bufferzone of the Kerinci Seblat National Park, Kerinci District, Sumatra. Utrecht, Utrecht University.
- BURNS, P. (1999) *The Leiden legacy: concepts of law in Indonesia*, Jakarta, Pradnya Paramita.
- CAMPBELL, J. L. (2004) *Institutional change and globalization*, Princeton, NJ, Princeton University Press.
- CHASE SMITH, R. (1995) The gift that wounds: Charity, the gift economy and social solidarity in indigenous Amazonia. *Symposium on Community Forest Management and Sustainability in the Americas*. University of Wisconsin, Madison, 3-4 February 1995.
- CIRIACY-WANTRUP, S. V. & BISHOP, R. C. (1975) "Common property" as a concept in natural resources policy. *Natural Resources Journal*, 15, 713-727.
- CRIBB, R. (1988) Conservation policy and politics in Indonesia 1945-1988. IN DARGAVEL, J., DIXON, K. & SEMPLE, N. (Eds.) *Changing tropical forests: Historical perspectives on today's challenges in Asia, Australasia and Oceania*. Canberra, 16-18 May 1988, Centre for Resource and Environmental Studies.
- CZARNIAWSKA, B. & SEVON, G. (1996) Introduction. IN CZARNIAWSKA, B. & SEVON, G. (Eds.) *Translating organizational change*. New York, Aldine de Gruyter.
- DHV-KEPAS (1993a) ICDP KSNP: project history and background. Bogor, DHV-Kepas.
- DHV-KEPAS (1993b) Background report No. 16A: Diagnostik Sosio-ekonomi di enam desa daerah perbatasan TNKS. Bogor, DHV-Kepas.
- DIMAGGIO, P. J. (1997) Culture and cognition. *Annual Review of Sociology*, 223, 263-287.
- DJAKFAR, I. & IDRIS, I. (2003) *Pemerintahan Koying dan Segindo di Alam Kerinci*, Jambi, PD Lingga Harapan.
- DOUGLAS, M. (1986) *How institutions think*, Syracuse, Syracuse University Press.
- DOVE, M. (1988) *The Real and imagined role of culture in development: case studies from Indonesia*, Honolulu, University of Hawaii Press.
- ENTERS, T., DURST, P. B. & VICTOR, M. (2000) *Decentralization and devolution of forest management in Asia and the Pacific*, Bangkok, RECOFTC.
- FOX, J. (1993) *Legal frameworks for forest management in Asia: Case studies of community/state relations*, Honolulu, East-West Center, Program on Environment.
- GADGIL, M., HEMAM, N. S. & REDDY, B. M. (1998) People, refugia and resilience. IN BERKES, F. & FOLKE, C. (Eds.) *Linking social and ecological systems:*

- management practices and social mechanisms for building resilience*. Cambridge, Cambridge University Press.
- GEERTZ, C. (1983) *Local knowledge: further essays in interpretive anthropology*, New York, Basic Books.
- HARDIN, G. (1968) The tragedy of the commons. *Science*, 162, 1243-1248.
- KATHIRITHAMBY-WELL, J. (1986) Thomas Barnes' expedition to Kerinci in 1818. *Occasional Paper No.7*. Canterbury, University of Kent at Canterbury.
- LI, T. M. (1999) *Transforming the Indonesian uplands: marginality, power and production*, Australia, Harwood Academic.
- LINDAYATI, R. (2002) Ideas and institutions in social forestry policy. IN COLFER, C. J. P. & RESOSUDARMO, I. A. P. (Eds.) *Which way forward?: people, forests, and policymaking in Indonesia*. Washington, D.C., RFF Press.
- LONG, N. & LONG, A. (1992) *Battlefields of knowledge: the interlocking of theory and practice in social research and development*, London, Routledge.
- LONG, N. & VAN DER PLOEG, J. D. (1989) Demythologizing planned intervention: an actor perspective. *Sociologia Ruralis*, XXIX, 226-249.
- LOUNSBURY, M. (2001) Institutional sources of practice variation: staffing college and university recycling programs. *Administrative Science Quarterly*, 46, 29-56.
- LYNCH, O. (1992) *Securing community-based tenurial rights in the tropical forests of Asia: an overview of current and prospective strategies*, Washington, D.C., World Resource Institute, Center for International Development and Environment.
- MARSDEN, W. (1966) *The history of Sumatra*, Kuala Lumpur, Oxford University Press.
- MIKSIC, J. (1980) Classical Archaeology in Sumatra. *Indonesia*, 30, 42-66.
- MINISTRY OF THE ENVIRONMENT (2005) Informasi Hari Lingkungan Hidup. Jakarta, Kementerian Lingkungan Hidup.
- MONBIOT, G. (1993) The real tragedy of the commons. *Third World Resources*, 41, 6-7.
- MOSSE, D. (1997) The symbolic making of a common property resource: history, ecology and locality in a tank-irrigated landscape in south India. *Development and Change*, 28, 467-504.
- NAZIRMAN & UMAR, A. (2006) Pengelolaan kawasan hutan adat Nenek Limo Hiang Tinggi Nenek Empat Betung Kuning dan Muara Air Dua, Kecamatan Sitingau Laut. *Shared Learning Pengelolaan Kawasan Kelola Rakyat, 24-26 July 2006*. Muara Bungo, Jambi.
- NORTH, D. C. (1990) *Institutions, institutional change, and economic performance*, Cambridge, Cambridge University Press.
- OSTROM, E. (1990) *Governing the commons: the evolution of institutions for collective action*, Cambridge, Cambridge University Press.
- PAJUNG, A., SENDJI, S., ARIFIN, A., QARI, D., ABDULLAH, A. & JAKIN, A. R. (1969) Tambo/Adat Lekuk 50 Tumbi. Lempur, Kerinci.
- PELUSO, N. L. (1992) *Rich forests, poor people: resource control and resistance in Java*, Berkeley, University of California Press.
- PELUSO, N. L. (1993) Coercing conservation? The politics of state resource control. *Global Environmental Change*, 3(2), 199-218.
- PHKA (2002) Management framework for Kerinci-Seblat NP. Sungai Penuh.
- POFFENBERGER, M. (1990) *Keepers of the forest: land management alternatives in Southeast Asia*, West Hartford, Conn., Kumarian Press.
- PRETTY, J. N. & GUIJT, I. (1992) Primary environmental care: an alternative paradigm for development assistance. *Environment and Urbanization*, 4, 22-36.

- RISMAN, D. (1992) Desa Keluru, Kerinci: Pelopor pengelolaan hutan adat. *Mutiara*.
- RISMUNANDAR (1989) *Kayu Manis*, Jakarta, Penebar Swadaya.
- ROBBINS, P. (1998) Authority and environment: institutional landscapes in Rajasthan, India. *Annals of the Association of American Geographers*, 88, 410-435.
- RUFENDI, D. (2001) Tekanan dari desa sekitar terhadap TNKS. *Alam Sumatra*, 1(2), 22-26.
- SAYER, J., ELLIOTT, C., BARROW, E., GRETZINGER, S., MAGINNIS, S., MCSHANE, T. & SHEPHERD, G. (2005) Implications for biodiversity conservation of decentralized forest resources management. IN COLFER, C. J. P. & CAPISTRANO, D. (Eds.) *The politics of decentralization: Forests, people and power*. London, Earthscan.
- SCHWARZ, A. (1994) *A nation in waiting: Indonesia in the 1990s*, St. Leonards, Allen & Unwin.
- STEPHEN, L. (1991) Culture as a resource: four cases of self-managed indigenous craft production in Latin America. *Economic Development & Cultural Change*, 40, 101-130.
- SUMARDJA, E. A. (1981) First five national parks in Indonesia. *Parks*, 6, 1-4.
- SUYANTO, S. (1999) Evolution of indigenous land tenure institutions and tree resource management in Sumatra. Tokyo, Tokyo Metropolitan University.
- TER HAAR, B. (1948) *Adat law in Indonesia*, New York, International Secretariat, Institute of Pacific Relations.
- THORBURN, C. C. (2000) Changing customary marine resource management practice and institutions: The case of sasi lola in the Kei Islands, Indonesia. *World Development* 28, 1461-1479.
- TSING, A. L. (1993) *In the realm of the diamond queen: marginality in an out-of-the-way place*, Princeton, Princeton University Press.
- UNDP/FAO (1981) Kerinci-Seblat Proposed National Park: Preliminary Management Plan 1982-1987. Bogor, UNDP/FAO.
- VAN BEMMELEN, R. W. (1949) *The geology of Indonesia*, Den Haag, Government Print.
- VON BENDA-BECKMAN, K. (1984) *The broken stairways to consensus: village justice and state courts in Minangkabau*, Dordrecht, Foris Publications.
- WANTORO, U. (2001) Sejarah terbentuknya TNKS. *Alam Sumatra*, 1(2), 7-11.
- WARREN, D. M. & PINKSTON, J. (1998) Indigenous African resource management of a tropical rainforest ecosystem: A case study of the Yoruba of Ara, Nigeria. IN BERKES, F. & FOLKE, C. (Eds.) *Linking social and ecological systems: Management practices and social mechanisms for building resilience*. Cambridge, Cambridge University Press.
- WATSON, C. W. (1984) Kerinci: Two historical studies. *Occasional Paper No. 3*. Canterbury, Centre of South-east Asian Studies, University of Kent at Canterbury.
- WATSON, C. W. (1992) *Kinship, property and inheritance in Kerinci, Central Sumatra*, Canterbury, University of Kent at Canterbury.
- WELLS, M. (1999) *Investing in biodiversity: a review of Indonesia's Integrated Conservation and Development Projects*, Washington, D.C., World Bank.
- ZERNER, C. (1994) Through a green lens: the construction of customary environmental law and community in Indonesia's Maluku Islands. *Law & Society Review*, 28, 1079-1122.