

# LEGAL COMPLEXITY IN NATURAL RESOURCE MANAGEMENT IN THE FRONTIER MAHAKAM DELTA OF EAST KALIMANTAN, INDONESIA

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## 1. Introduction

As of the late 1960s, the Indonesian government has been practicing a policy of territorial zoning in the governing of natural resource use in the Mahakam Delta of East Kalimantan, Indonesia. The zoning of certain areas through various technical means, followed by the exercise of state jurisdiction over territorialized areas by creating regulations to delineate how and by whom the resource can be used, is a key instrument of what has been termed ‘territorial strategy’, a type of resource control strategy (Vanderveest and Peluso 1995: 387).<sup>1</sup> In the late 1960s, part of the Mahakam Delta area was declared a State Mining Zone (hereafter SMZ). Thirteen

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<sup>1</sup> This article perceives the ‘territorial strategy’ as internal strategy. Internal strategy is distinguished from external strategy. External strategy deals with state boundaries, construction of national identity, or center-periphery relations (Vanderveest and Peluso 1995: 387). Internal territorial strategy refers to the modern state, to distinguish it from non-territorial strategy which was practiced by pre-colonial rulers. The rulers of the earlier period, instead of controlling resource use by practicing territorial strategy, controlled people by imposing obligatory taxes per head, or forced labor (Vanderveest and Peluso 1995: 390; Peluso and Vanderveest 2001: 774).

years later, in 1983, the entire delta area was also declared a State Forest Zone (hereafter SFZ). Following those two demarcations as state property, both the Ministry of Energy and Mineral Resources and the Ministry of Forestry have applied state laws and regulations to the use of resources in the Mahakam Delta. An important provision of those laws and regulations states that no use of natural resources in the area shall be undertaken without an official license, either from those two ministries or from the provincial and district government. A second key provision states that the use of resources shall protect the forest and the environment from destruction and degradation.

In practice however, the use of resources in the Mahakam Delta does not comply with these two provisions. Several resource tenure rights have been granted by central and local authorities. Yet the granting of rights is often not in accordance with existing laws and regulations; for example, the resource tenure rights given to pond owners in the SFZ were not awarded by the Forestry Minister, and thus do not follow forestry laws and regulations. The use of the Mahakam Delta's SFZ for oil and gas extraction is without a license of any kind. Most fishery resource use also occurs without a license. Such use of resources without strict accordance to existing laws and regulations, and without licenses from authoritative government agencies, indicates that the territorial strategy in the Mahakam Delta does not work. Further, such resource use has resulted in the destruction and degradation of the environment of the Mahakam Delta – in particular, the deforestation of its mangrove forest.<sup>2</sup> This deforestation has precipitated many additional ecological consequences for the delta, including a severe decline in fishing productivity (Noryadi et al. 2006), and increased sedimentation and seawater intrusion (Aspar in Kusumastanto and Bengen 2001: 28, Sidik 2009: 5).

This article argues that ineffective formal state control over coastal resource use and lack of application of formal rules does not necessarily lead to a situation where rules are absent. In reality, there exist widespread informal and semi-informal rules governing how coastal resources are allocated. There is customary law as practiced by local residents (*Buginese of Kalimantan*), and new informal rules brought to the area by recent immigrants (*Buginese of Sulawesi*). The semi-

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<sup>2</sup> In 1996, the deforested area of the Mahakam Delta mangrove forest totalled 15,000 hectares. Three years later this had reached 67,000 hectares, and 85,000 hectares by 2001 (Duitrieux 2001: 64). In 2007 the Government of East Kalimantan Province estimated that deforestation totalled 90,000 hectares or 80% of the entire Mahakam Delta.

NATURAL RESOURCE MANAGEMENT IN EAST KALIMANTAN  
Rikardo Simarmata

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informal rules in the Mahakam Delta constitute the process by which local government officials establish their own interpretations of formal rules, which they use to authorize local tenure arrangements. In this respect, the semi-formal rules are a hybrid of informal (non-state) rules and re-interpreted formal (state) rules (Michaels 2009: 15). Thus all informal, semi-informal, and to a lesser extent formal rules co-exist, bringing about normative complexity of resource use arrangements in the Mahakam Delta.

This article examines the extent to which coastal use in the Mahakam Delta does not comply with formal rules. It aims to identify key factors that may have caused the formal rules to be ineffective, and investigates how and why the alternative semi-formal rules have evolved.

After the Introduction, the article will proceed with a brief account of the changes in natural resource use in the Mahakam Delta through the Kutai Sultanate period (late fifteenth to nineteenth century), colonial period (nineteenth century to 1942), and post Indonesia's independence in 1945. The article will then describe the present resource use rights in the Mahakam Delta, which are governed by formal, semi-formal and informal rules. The article will present the reasons given by local government officials for their decisions and actions related to authorizing actual resource use; and will examine these findings.

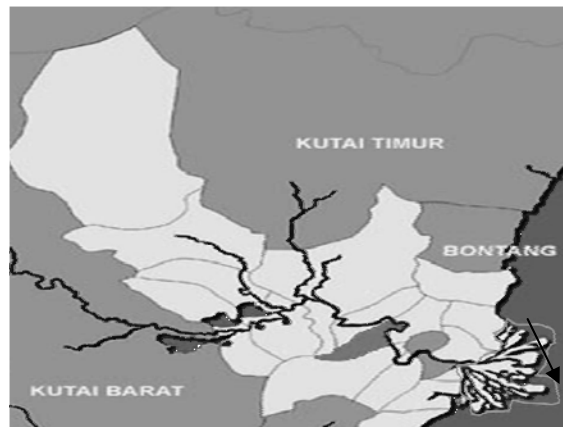
*The Mahakam Delta*

The Mahakam Delta is located at the mouth of Mahakam River, in the eastern part of Borneo Island. Administratively, the Delta is situated in the district of Kutai Kartanegara (henceforth Kutai district) in the province of East Kalimantan (henceforth 'the province'). Kutai district is known as the richest district in Indonesia in terms of annual budget. The delta is three hours by car and boat from the province's capital, Samarinda; and four hours from Tenggarong, the capital of Kutai district.

The delta comprises a chain of 92 islands (totalling 1,000km<sup>2</sup>), in addition to several tributary rivers and the coast (Bapedalda Kutai Kartanegara and PKSPL IPB 2002: III-64). The total delta, including islands, channels and coast, covers 1,500km<sup>2</sup>. The delta is situated across three sub-districts (Muara Badak, Anggana and Muara Jawa) which include eight villages and 12,000 people.



Map of Kalimantan Island



Mahakam Delta

## 2. Changing Resource Use

From the period of the Kutai Sultanate (late 15th century) to the present, the three main natural resources uses in the Mahakam Delta have been fishing, cultivation of fish (in ponds), and oil and gas extraction. Until the period of Dutch administration (1844-1942) two additional resource use sectors existed: rattan

gathering and coconut planting (Levang 2002: 4). Rattan gathering declined during the timber boom in the late 1960s, driven also by increased central government control of rattan collection, purchase and sale in the early 1970s (Peluso 1983). With the extensive opening of fish ponds in 1997-2001, rattan gathering in the delta effectively ceased. Coconut planting also declined during the timber boom and the initiation of oil exploration in the early 1970s.

Concurrent with oil exploration and exploitation in the delta, the prospects for fishing improved due to increased international demand from Japan and elsewhere. In the 1970s, shrimp fishing in the Mahakam Delta and across Indonesia was conducted by trawling. Trawling was banned in the early 1980s because of its negative environmental and social impacts (Jhamtani 2003: 27; Bailey 1988: 13, 36). Some publications suggest a causal relationship between the trawl ban and the emergence of the shrimp ponds in the delta as the fishers required an alternative source of income.<sup>3</sup> However, shrimp ponds first emerged in the delta in the latter 1970s (Bourgeois et al. 2002: 36; Bapedalda Kutai Kartanegara and PKSPL IPB 2002: III-64), and pond development continued at low levels until the 1997 economic crisis, when a surge in shrimp export triggered an unsustainable boom in the number of ponds.

Cultivated fishing has declined since 2000, as productivity has decreased sharply. In the period 1996-1999, when pond productivity peaked, a one-hectare pond could yield 20-40kg of tiger shrimp and 600kg of wild shrimp and crabs (Bourgeois et al. 2002: 65) One study even predicted that a one-hectare pond could yield up to 200-1,000kg of tiger shrimp (Sumaryono et al. 2008: 25-26). More recently, productivity has fallen to only 21,5kg/ha and 24,5kg/ha for tiger shrimp and wild shrimp respectively (Noryadi et al. 2006).

### 3. Existing Use Rights

As the Mahakam Delta has been designated as state forest, all non-forestry activities, such as oil and gas extraction and other land uses, require licenses from the Minister of Forestry. However, this requirement is disregarded without penalty: Total E&P Indonesia, a French-Japanese joint venture oil and gas

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<sup>3</sup> For example see Bapedalda Kutai Kartanegara and PKSPL IPB 2002: III-66, and Hidayati et al. 2005.

company<sup>4</sup>, has been exploring and exploiting within the SFZ without a license. Land holders likewise occupy and cultivate the forests without licenses.<sup>5</sup> Similarly, most fishing in the delta is conducted without licenses from either the Ministry of Marine Affairs and Fisheries, the provincial governor or the district head (*bupati* or regent). Given that the formal licensing rules governing coastal resource use have not been effectively implemented, they have been replaced by other tenure arrangements involving informal and semi-informal rules. Except in the use of oil and gas resources, informal and semi-informal rules are the dominant determinants of coastal resource use and forest land distribution among users in the delta.

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<sup>4</sup> The company was founded in 1968, a member of Total group, a French company operating in 130 countries. Due to its operations in the Mahakam Delta, Total E&P Indonesia is presently the biggest gas producer in Indonesia, producing 30% of Indonesia's gas production.

<sup>5</sup> According to Indonesian land law and administrative practices, tenure over land could have been acquired through either state law or *adat* customary law. A piece of land is titled land as long as it is supported by certain written documents, issued or signed by either the National Land Agency, head of district, head of sub-district or *adat* leader. The National Land Agency issues certificates; the head of district issues land reclamation permits; the head of the sub-district (together with the village head, head of hamlet (*ketua RT*) and *adat* leader) sign a land letter (Harsono 2005; Ilyas 2005). Titled land in the Mahakam Delta is supported primarily by land letters. Of the delta's 103,682ha of land, only 891 hectares were certified at the time of writing. In practice the difference between certified land and land supported by land letters is vague and confusing, particularly when undertaking land procurement. Many land procurement and other land transfer cases perceive the two to be similar, and assign them equal value with respect to compensation or sale prices (Sutedi 2007: 79, 129, 130). However, in other cases the two are perceived to be different, with *adat*-based titled land considered to be primarily state land, in which case a title holder is only entitled to compensation for trees and buildings above the land (Fitzpatrick 1997, 2007). For practical purposes, here I use the term 'land holder' to mean someone whose tenure over land is based on informal rule, either *adat* or another form of informal rule. This is distinguished from the term 'land owner,' which means someone whose tenure over land is based on formal land law.

### 3.1. Complex existing tenure arrangements

#### 3.1.1. Oil and gas resources

During Dutch colonial rule, oil production was undertaken through a concession system. Pursuant to the *Indische Mijnwet* (Indies Mining Act) of 1899, concession holders owned all oil that they drilled, as they had paid land rent and royalty (Simamora 2000: 83). The amendment of the Mining Act in 1918 reduced the duration of the concession from 75 years to 40 (Lindblad 1989: 55). After oil was discovered in Tarakan and Balikpapan, two other prominent oil centers in East Kalimantan, mining companies, engineers and the Dutch government reduced their interest in offshore exploration in the Mahakam Delta area, which presented logistical and financial difficulties related to access, and the limited technology available for offshore exploration.

The exercise of state jurisdiction over petroleum resources in the Mahakam Delta commenced later than on the mainland, in the mid-1960s.<sup>6</sup> In 1967 the Indonesian central government and the Ministry of Mining awarded to Japan Petroleum Exploration (hereafter Japex) a large offshore area of the Mahakam Delta, including Tarakan Island. The area comprised 34,125 square kilometres, called the Mahakam-Bunyu block (Idham 1973: 125). The award comprised part of an exploration contract between Japex and the state-owned company Pertamina. Based on this contract, from 1966 onwards Japex undertook exploration of their work area, but failed to discover oil (Idham 1973: 125). In 1970, Japex (now renamed Inpex Corporation) handed over the work area to the French company Total E&P Indonesie<sup>7</sup>, with an agreement between Inpex Corporation and Total E&P Indonesie in which the latter would be an operator and in which each company

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<sup>6</sup> On the mainland petroleum, exploration commenced in the late 19th century (Magenda 1991: 10; Lindblad 1988: 32; Lindblad 1989: 53). In 1888 the Sultan of Kutai granted a large concession to a Dutch engineer, JH Menten, which was later split into three concessions, situated in the Sanga-Sanga district (Idham 1973: 119).

<sup>7</sup> Later this name was changed to Total E&P Indonesie. The company was founded in 1968 as a member of Total group, a worldwide French company operating in 130 countries. From its operation in the Mahakam Delta, Total E&P Indonesie is presently the biggest gas producer in Indonesia, yielding 30% of Indonesian gas production.

would have a 50% share.

As a contractor, Total E&P Indonesia (Total) has rights to explore and exploit oil and gas resources in the block, but it does not have ownership rights over the exploited oil and gas, as the rights still belong to the state. Total is, however, entitled to obtain cost recovery and profit sharing. To date, Total has been awarded four production sharing contracts (PSC) by the Indonesian government: Mahakam PSC (1970); Tengah JOB PSC (1988); Saliki PSC (1997); and Southeast Mahakam PSC (1998), covering an area of 5,962km<sup>2</sup>.

In 1983, nearly the entire area of the Mahakam Delta was officially declared an SFZ by the Ministry of Forestry. Following this ruling, Total E&P Indonesia and other companies are required to obtain a forest use permit from the Ministry of Forestry, before they can log trees inside the forest areas or use the areas for other activities. Any offence against this provision carries a sentence of up to ten years' jail or approximately US\$950,000 in fines. At the time of this research, Total E&P Indonesia claimed to be writing a proposal for submission to the Ministry of Forestry. This proposal was still in draft form after 40 years of company operations in the delta, and 25 years after the enactment of the 1985 Government Regulations on forest protection forest, which legally obliged the company to possess a forest use permit before undertaking work.<sup>8</sup>

### *3.1.2. Land resources*

According to the 1960 Act on Oil and Gas (now replaced by the Act of 2001), rights to explore and exploit oil and gas resources do not include rights over land (Kartasapoetra 1992: 15-16, 77, 80). If the land to be used by contractors is privately owned or state land that is being cultivated, the Act stipulates that contractors shall acquire the land through selling, exchange, compensation, recognition, or other exchanges, in negotiation with the land owners.

In the Mahakam Delta, the situation concerning land ownership is rather different; as nearly all the delta's area is SFZ. According to existing laws and regulations, certain land rights are precluded inside the SFZ, as all forest resource use shall be through license from the forestry minister, the provincial governor or the head of

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<sup>8</sup> The Government Regulation of 1985 was more recently superseded by Government Regulation No. 45/2004.



NATURAL RESOURCE MANAGEMENT IN EAST KALIMANTAN  
Rikardo Simarmata

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Kutai district. In reality, the actions of Total and Upstream Oil and Gas Supervisory Agency (hereafter Executive Agency) suggest that land rights exist there.<sup>9</sup> Before paying compensation, Total and the Executive Agency required the land owners to present land certificates or a 'land letter'. Interestingly, they did not examine whether those lands were located inside or outside the SFZ. They also did not examine whether the land owners lived inside or outside the Mahakam Delta. An officer of Anggana sub-district explained the actions of Total and the Executive Agency as follows:

They behave in this way not because they do not know that the land is located inside the Forest State Zone, but because they want to avoid a prolonged process. Instead of following legal rationale, they prefer to use economic rationale.

Only after land owners presented a land certificate or land letter would Total and the Executive Agency provide compensation. In arranging compensation, the two organizations considered land letters signed by village and sub-district government officers to be comparable with land certificates. Therefore, Total and the Executive Agency appear to consider that all people in the Mahakam Delta who can present these documents are land owners, rather than just land users. The documents are perceived to be proof that there are certain rights relationships between land holders and land. What are these documents actually? Why do they serve, as an instrument to denote the rights relationship?

#### *3.1.2.1. Land letters*

In 1972, the Minister of Home Affairs promulgated a decree authorizing a head of sub-district to issue a permit called a Land Reclamation License (*Izin Membuka Tanah*).<sup>10</sup> According to the decree, the maximum size of a piece of land that could

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<sup>9</sup> Following the replacement of Oil and Gas Act of 1960 by Act of 2001 and the enactment of Government Regulation of 2002, all authority to control oil and gas contractors and to conduct PSC has been transferred from *Pertamina* to the Executive Agency.

<sup>10</sup> The Land Reclamation License originated from Land Reclamation Rights as stipulated in the 1960 Basic Agrarian Law. The Land Reclamation Rights originated from *adat* customary law, referred to as forest reclamation rights (Parlindungan 1986: 121; Harsono 2005). Forest reclamation rights are granted by

be given through the license was two hectares. The decree also stated that in issuing the license, a head of sub-district should heed advice from the village head. It could thus be argued that seeking such advice was a requirement to obtain the license. In practice however, this advice became standardized as a land letter (*surat keterangan tanah* or *surat tanah*). The letter was also popularly known as a *leges* letter or *segel* letter. Land letters contain information about the owner, origin of the land, location, width, and actual usage of the land. Regarding the accuracy of information in the land letter, in some letters the village or sub-district head takes responsibility, and in others the owner takes responsibility. Every holder of a Land Reclamation License is entitled to benefit from and use the land.

In 1984, the Minister of Home Affairs issued an instruction to abolish the authority of heads of sub-districts to issue Land Reclamation Licenses. This means that as of 1984, a head of sub-district remains prohibited from issuing licenses. In 1995, a governor's decree stated that at the provincial level, the authority to sign or issue a letter confirming land rights now belongs to the village head.<sup>11</sup> Despite sub-district heads no longer having this authority, some sub-district heads, including those of Anggana and Muara Badak sub-districts, remain active in providing the land documents needed for compensation and donation. These documents comprise four separate papers: (1) a letter declaring a named person to be the owner of a certain piece of land (similar to a land letter); (2) a letter declaring that the land is undisputed; (3) a field observation report; and (4) a letter notifying that rights over the land have been transferred to a new owner. The first, second and fourth documents are required when land owners transfer (sell, inherit or expropriate) their land to others, and are signed by the sub-district head; the third is required to support the first, and may be signed by any official of the sub-district office.<sup>12</sup>

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the *adat* community leader either to a member of the community, or to an outsider, to clear a piece of forest for agriculture. However the Basic Agrarian Law prioritized the administrative aspects of the provision of Land Reclamation Rights (Abdurrahman 1979: 16); and in the later regulations, Land Reclamation Rights were converted into a license instead of rights.

<sup>11</sup> The governor's decree is No. 31/1995 concerning guidance to carry out the reorganization of land letters.

<sup>12</sup> Before a sub-district head signs the first document, there should be a field check to verify the information provided by land holders. In practice, sub-district officers rarely attend field observations, as land holders do not have the finances to pay the officer for this duty. Instead sub-district heads rely on information provided by village government officers.

NATURAL RESOURCE MANAGEMENT IN EAST KALIMANTAN  
Rikardo Simarmata

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During land transfers to Total, it is thus evident that neither Total, the Executive Agency, nor village nor sub-district heads typically check whether land owners possess the required land rights or permits from the forestry minister, provincial governor or district head, despite the lands in question being situated within the SFZ. By paying compensation to land owners, Total and the Executive Agency appear to be acknowledging that land owners do have certain land use rights. Village and sub-district heads appear to acknowledge similar rights when they sign the aforementioned land documents and allow land owners to use and transfer land. In 2005, this acknowledgment at the local government level was actually strengthened by a verdict of Kutai district court,<sup>13</sup> which accepted local-level land documents as legal evidence proving rights of a certain piece of land. The case involved a land dispute between two big *punggawas* in the delta, who each claimed ownership of 500 hectares of land located in Muara Pantuan village, Anggana sub-district. Both the plaintiff and the defendant provided written evidence to support their claim. The defendant then provided a 1998 letter signed by the village and sub-district heads, which the judges accepted, awarding the land to the defendant. The verdict was upheld in 2007 by the East Kalimantan court of appeal.<sup>14</sup>

Regardless of government officials and Total's employees acknowledging land letters as legal documents, it is interesting to consider why sub-district heads continue to sign such land letters, despite their authority to do so having been withdrawn by the Ministry of Home Affairs in 1984. Questions also arise as to why Total's employees and government officials did not examine whether lands were located inside or outside the SFZ, nor ask land holders whether they had obtained particular rights or permits from the Ministry of Forestry to occupy the forest land. These questions suggest a deeper reason behind the official acknowledgment of the legality of land letters. One reason that government officials – particularly local government officials – have offered is that they consider land holders to have rights over their land based on their long residence in the delta, and because they cultivate and manage the lands in question.

Further investigation reveals how such land holders are able to claim rights over their forest land without compliance with forestry legislation. To some extent the land letter is simply an acknowledgement that a person is occupying and managing a particular plot of land. A letter does not deal with how someone should occupy, manage or possess the land. Therefore, in the Mahakam Delta these ownership

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<sup>13</sup> Verdict No. 44/Pdt.G/2003/PN Tgr.

<sup>14</sup> Verdict No. 132/PDT/2006/PT.KT.SMDA.

issues, along with land transfers, have instead been managed according to local, informal and generally accepted rules.

One of these local rules is that anybody can occupy, manage and own a particular plot of land, unless somebody else has claimed it in advance. A plot of land which is not subject to a private claim is perceived to be state land, and is considered to be available for anyone to claim (Hidayati et al. 2005: 47). Plots of land that have been claimed (locally named *rintis*) are usually identified by particular physical marks, such as planted trees, or jacks tied around particular trunks. Village officials and their relatives are held to be the appropriate people with whom to speak, to obtain information about unclaimed land. In many cases, village heads authorize local farmers' associations to coordinate and distribute unclaimed land among their members. In a few cases, village heads have even granted rights to *punggawas* (patrons or heads of complex local networks) to control particular areas. Having such rights, the *punggawas* could distribute them to others or utilize them for their own use (Lenggono 2004: 114).

After exercising occupation and control over claimed plots of land, most land holders have not sought land letters, as they appear to believe that the physical marks used to identify the plot, in addition to the acceptance of neighbouring land holders, is sufficient to represent land ownership (Hidayati et al. n.d: 65). Yet some land holders will approach village heads to request a land letter. To obtain a land letter, land holders are required to present a sketch map of the claimed land, showing the size of the land and the names of holders of neighbouring lands. They also pay a small fee to obtain the land letter (approximately US\$32 per letter).

In addition to these local rules, there are two other widely accepted rules by which to obtain land rights. Firstly, any land located directly behind the yard of a house is considered to belong automatically to the house's owner. Secondly, a person can buy claimed land. Recent migrants and outsiders have been the primary solicitors of such land from local villagers. Most of these financial transactions are supported only by receipts from the sellers; very few are supported by official documents or signatures from sub-district heads.

A desire to sell claimed land to outsiders is a common reason for land holders to attempt to acquire a land letter. Due to a spate of land disputes in which local villagers reoccupied land that they had previously sold to outsiders, many purchasers now demand a land letter from sellers, to strengthen their claims of rights over the purchased land. The other most common reason for arranging a land letter is to increase the likelihood of receiving compensation from companies

interested in acquiring the land. As mentioned before, only if land holders can present land letters will Total and the Executive Agency compensate them. This requirement for a land letter (and identity card) refers to a decree by the head of the Executive Agency in 2007.<sup>15</sup> It was apparent during the research for this article that although most land holders felt secure with their customary evidence of land rights, they still accepted the need to fulfil the legal requirements for obtaining compensation for their land. They did not contest the requirement by arguing that their local informal rules awarded them sufficient rights over their land. Instead they continued to obtain land letters, despite the expense and length of the process.

It should be noted that the people of the Mahakam Delta do not merely consider land from an economic point of view; land is also embedded in their socio-cultural life. Some research has suggested that the construction of fish ponds is often an important prelude to marriage. When preparing a dowry for the family of a woman whom their son will marry, parents may construct numerous fish ponds in the hope of a high return from their harvest (Bapedalda Kutai Kartanegara and PKSPL IPB 2002: III-53). Another proposed reason for the escalation in pond construction is the desire to raise funds for a pilgrimage to Mecca. For the delta's Buginese people, although the hajj title (a title a Muslim will hold after conducting a pilgrimage to Mecca as a religious duty) has less religious meaning, it is still a social symbol which indicates financial success and demonstrates the holder's power over local tenure.<sup>16</sup>

### 3.1.3 Fishery Resources

In the Mahakam Delta, fisheries resources are almost always used without the provision of official rights by the provincial or Kutai district governments. Up to 2008, the Kutai District Fishery and Marine Affairs Agency had only ever granted two fishery licenses (*Surat Izin Usaha Perikanan*) neither of which was for an area located in the delta.<sup>17</sup> Agency data refer only indirectly to the fact that no local fisher in the delta possesses a fishery license for catching or cultivating fish. The delta fisheries are dominated not by local residents but by fishers from the upper

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<sup>15</sup> See Number KEP-0113/BP00000/2007/S0 concerning guidance for land expropriation.

<sup>16</sup> See Wijaya n.d: 2.

<sup>17</sup> See Dinas Perikanan dan Kelautan Kutai Kartanegara 2008: 34-35.

Mahakam River and South Kalimantan, who have returned to using trawl nets following a lack of enforcement of the official ban (Hidayati et al. 2005: 52-62). According to one Kutai District Fishery and Marine Affairs Agency officer, the outside fishers do not possess the required permits either; merely a 'ship certificate', which does not include the right to exploit fishery resources.

The situation differs slightly between traditional fishers, and peasants who own ponds covering not more than two hectares. According to laws and regulations, these groups are not obliged to have a fishery license; instead they must have a kind of registration code (*Tanda Pencatatan Kegiatan Perikanan* or *TPKP*), issued by the Kutai district head. The *TPKP* must be renewed annually. During 1995-1997, 500 fishers and pond owners obtained the *TPKP*. After authority to issue *TPKPs* was transferred to sub-district heads in 2001, no renewal of *TPKPs* has been reported. To address this decreased compliance, the fishery agency created a registration program in collaboration with the District Public Transportation Agency, and in 2007 this joint program supported 300 fishers and pond owners in the delta in obtaining ship certificates from the public transportation agency. The fishery agency expected that after obtaining ship certificates, fishers and pond owners would register their fishery resource use; however, not a single person did so. A staff member from the sub-district fishery agency explained what they believed to be the reasons for the lack of registration:

The fishermen were lazy and reluctant to register because they did not know the regulations, and more importantly because they knew they were not going to be punished for not having the registration code.

The official probably simplified when saying that a lack of knowledge of formal fishery rules, and a belief in a lack of enforcement, were the chief causes of non-compliance. A case involving static *julu* nets in Sepatin village demonstrates that legal non-compliance is not always attributable to either of these reasons. Twice in 2009 a team of 20 personnel, including Total employees, regional and district officials, local military and police officers, visited Sepatin village to direct ten fishers to remove their *julu* nets from near Total's installation, under threat that officials would remove the *julu* gear themselves. The officials, military and police personnel stated a belief that the *julu* nets were installed against fishery and public navigation regulations. Yet eight of the ten fishers disobeyed the order. The reason they gave was that they deserved compensation for their *julu* nets. The fishers noted that local fishing rules concerning *julu* net has been long established, and appeared to call on the authority of these informal rules. An elder fisher of the

group of ten *julu* owners said:

Those *julu* fishing grounds have been inherited by our ancestors. Our ancestors have developed them since the first settlement was established in the Mahakam Delta. They have completely divided the water of the Pemangkaran through Sepatin into the *julu* fishing grounds.

According to local fishing rules, *julu* net owners are entitled to prohibit others from installing *julu* nets on their sites. In addition, an owner can sell or rent his fishing ground to others for a period of time. The local rules state that anyone can fish in any location, unless it disturbs another fisher who has already occupied a nearby fishing ground. The rules also specify a permitted fishing period, namely, 2 a.m. to 5 a.m. Given that these local fishing rules exist and are widely known, the elder fisher's statement challenges the perceptions of officials, who claimed to be suspicious that financial compensation was the real reason behind the continued instalment of the nets.

### *3.2. Prominent factors in the ineffectiveness of formal state control*

From the above descriptions, it is clear that at the time of this research, formal state control over resource use in the Mahakam Delta's SFZ is ineffective, and legal regulations are being disregarded. Pond owners occupy and use the SFZ without rights or licenses from the forestry minister, provincial governor or Kutai district head, and their land use is supported instead by 'administrative documents' signed by village and sub-district government officers. Although Total, the Executive Agency, and provincial and Kutai district government officers do not consider these land documents as allotting full rights or licenses, in practice they have treated them as so. In addition to the absence of correct licenses for fisheries operations, Total itself has been operating in the Mahakam Delta's SFZ since the early 1970s without the required permit from the forestry minister.

This article develops a view that the aforementioned management failure is supported by two conditions: (1) the lack of legal implementation and law enforcement, and (2) administrative conflict about authority over forest management within the process of decentralization.

*3.2.1. Lack of legal implementation and law enforcement*

The lack of legal implementation and law enforcement in relation to land use in the Mahakam Delta's SFZ includes the following two management deficiencies: (1) lack of demarcation of land use zones; and (2) lack of surveillance and control of forest areas.

Regarding demarcation, in accordance with forestry laws and regulations, and in particular Government Regulation No. 33 of 1970 concerning forestry planning, the Ministry of Forestry should have delineated the declared production forest area in the delta, in order to clarify its legal status. However, demarcation activities for the production forest did not commence until 2000, seventeen years later. The main reason for the delay appears to be that priority was given to demarcating other SFZs on the mainland and the upper Mahakam River, where there are numerous timber concessions and small settlements which were perceived to be a threat to the timber concessions.

The provincial government began demarcating the production forest of the delta in 2001, following the 1999 decentralization, and encountered several obstacles. The provincial forestry service unit in charge of the demarcation, *Unit Pelaksana Teknis Daerah Planologi Samarinda* (hereafter *UPTD Planologi*) encountered serious budget constraints. The unit requested funding from the provincial government for demarcation activities several times, but each time both the provincial development planning agency and the provincial legislature rejected the proposals. *UPTD Planologi* was often also forced to compete for funding against another division of the provincial forestry agency, which also dealt with demarcation issues and tended to be awarded funding preferentially.

In an attempt to resolve its budget constraints, *UPTD Planologi* eventually submitted their budget proposal to the Ministry of Forestry. The proposal was approved, with the provision that demarcation was to be carried out in collaboration with *Balai Pemangku Kesatuan Hutan Region IV (BPKH)*, a service unit of the Ministry of Forestry based in the province. Despite these obstacles, by 2005 the *UPTD Planologi* had completed most of the demarcation of the delta's SFZ. Budget shortages prevented full demarcation, but 81,180.80 hectares (94% of the delta's total forest land) was demarcated, with several smaller islands being excluded (Tim Sosialisasi 2008: 20).

With respect to formal law enforcement and land use in the SFZ, the second management deficiency relates to surveillance and control, neither of which was



NATURAL RESOURCE MANAGEMENT IN EAST KALIMANTAN  
Rikardo Simarmata

---

effectively implemented in the delta. Between 1965 and 1998, responsibility for protection of the delta's SFZ belonged to *KPH/CDK Mahakam Ilir*, another service unit of the provincial forestry agency. *CDK Mahakam Ilir* has responsibility for 676,528 hectares across East Kalimantan, 3% of the total land area. Of this area, about 9 per cent (75,200 hectares) is mangrove forest, most of which is reported to be in the Mahakam Delta. During the 1980s and 1990s, 17 timber concessions and 31 sawmills and plywood companies existed within *CDK Mahakam Ilir's* managed area.

None of the annual reports of *CDK Mahakam Ilir* mentions surveillance activities in the Mahakam Delta's SFZ. For example in the 1999-2000 report, at a time when pond development was flourishing in the delta, there is not a single word about the delta. Very few annual reports provide information about forest resource use or management. The 2002 report briefly mentions surveillance activity to manage forest fires and forest occupation, but does not refer to the delta as a place where surveillance occurred.<sup>18</sup>

A former head of Muara Badak and Samboja forestry offices acknowledged that during his terms (1985-1989 and 1999-2002) he never visited the Mahakam Delta, despite it falling under his authority. The head of forestry offered several reasons why he did not direct his men to enforce the laws on pond ownership, including: insufficient officers (six men); high shrimp prices; a situation in which several villages were found before he was assigned to his position,<sup>19</sup> and uncertainty regarding whether pond owners had official permits. Another forestry staff member mentioned that he had never visited any of the delta's islands for surveillance purposes, but that during a sailing holiday he had visited two islands, noticed the many new ponds, and reported these to his supervisor. The supervisor submitted the report to more senior management, but there was no response nor action taken.

In addition to the abovementioned factors, another prominent institutional factor

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<sup>18</sup> See Dinas Kehutanan UPTD Peredaran Hasil Hutan Samarinda 2003: 2.

<sup>19</sup> A similar reason was offered by forestry officials whose jurisdiction included a collaborative management initiative in Gunung Halimun-Salak National Park, West Java. The officials claimed they did not enforce the laws with local villagers who cultivated rice paddies and vegetables and harvested forest products, because the villagers had practiced this livelihood before the park was established (Kubo 2010: 244).

which hampers effective surveillance and control is the pro-timber orientation of the government management agencies. The organizational structure of the service units *CDK Mahakam Ilir* (later re-named *UPTD PHH Samarinda*) and *UPTD Planologi* indicate that both units were designed to serve and support the timber concessions. For example, the sub-district offices of both service units were always established in areas with timber concessions, and their checking offices only occurred on log-truck routes. The organizational structures of both units clearly imply that they focus primarily on protecting forest concessions and ensuring that trees are transported and sold legally.

Such pro-timber oriented management in the delta may explain why production forest over which government has not granted rights or permits has been overlooked by local officials.<sup>20</sup> Some local officials have claimed, incorrectly, that the delta's mangrove forest is conversion production forest.<sup>21</sup> It is more surprising that in the *UPTD Mahakam Ilir*'s annual reports, the delta's SFZ is not marked as part of their area.

### *3.2.2. Administrative conflict about authority over forest management*

The forest management failures in the Mahakam Delta are attributable not only to the lack of implementation and enforcement of law, but also to administrative conflict over forest management. Major conflict arose in 2000 when the provincial

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<sup>20</sup> In the early 1070s, the central government granted mangrove forest areas in northern East Kalimantan to four timber companies: Karyasa Kencana, Bina Lestari, Inhutani, and Jamaker. The total area of those four forest concessions is 213,040 hectares (Soetrisno 2007: 12). Prior to that time, the Dutch colonial government and the Sultan of Kutai had granted a forest concession to a Philippines company in the first half of the 20th century (Lindblad 1988; Obidzinski 2003).

<sup>21</sup> This misperception was also held by the provincial forestry officials, including the former head of the provincial forestry agency, who commented to local press that the mangrove forest's status was conservation forest but then 'corrected' himself to say that it was production forest. See *Kaltim Post*, Delta Mahakam, Kewenangan Pusat, 23 September 2003, and *Kaltim Post*, Mahakam Jadi Hutan Produksi, 19 May 2004. A higher official of the Ministry of Forestry also misunderstood the status of the delta's mangrove forest, thinking it to be a protected area.

NATURAL RESOURCE MANAGEMENT IN EAST KALIMANTAN  
Rikardo Simarmata

---

government refused to hand over nine forests areas to the Kutai district government. Since 2000, the Kutai district government had been calling for the provincial government to transfer to them the authority over the forest areas, including the production forest of the delta. The Kutai district government cited two reasons for the transfer of the authority: (1) a 1995 commitment by the provincial government to hand over the nine forest areas at some late time; and (2) their interpretation of national and regional legislation regarding the transfer of government affairs, which states that authority over forest areas should be transferred from provincial to district government once the latter has established a forestry agency and the former has dismissed their district-based service units.<sup>22</sup>

In response to the Kutai district government's request, the provincial government declined to transfer authority for forest management, citing legislation to back their own position, including the provincial regulations of 1981, 1987 and 2001<sup>23</sup>. The provincial government's forestry agency argued that, regardless of the fact that the district government had established their own forestry agency in 1995, authority for forest areas could be retained by the provincial government because their district-based service units had not been dismissed and were still in force.

Frustration with the process led the Kutai district government to establish a branch in Muara Badak sub-district in 2003, in the hope that this would force the provincial government to transfer authority. To date this strategy has failed, and the provincial forestry unit remains the authority in the area. Since 2003, officers of the Kutai district government have stated publicly that they cannot do more to protect the Mahakam Delta's SFZ, beyond advising pond owners and undertaking rehabilitation to limit forest damage, until the provincial government officially transfers its authority over the areas.

Following these statements from Kutai district officers, some provincial government officers expressed surprise and stated that they believed the Kutai

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<sup>22</sup> The national legislative provisions are Government Regulation No. 8/1995 and directive of the Ministry of Internal Affairs No. 5/1995, whereas the regional provisions are Provincial Regulation No. 02/1995 and decree of provincial head of forestry agency No. 5223/579/DK-IV/1998.

<sup>23</sup> Those three provincial regulations are respectively No. 13/1981, 4/1987 and 2/2001, concerning the structure of provincial government organization.

district government already shared the authority and responsibility for the forest areas. They pointed to Government Regulation No. 62/1998, by which the Ministry of Forestry handed a total of nine forestry responsibilities over to the district government, including responsibility for forest protection.

This ongoing administrative disagreement has led to mutual suspicion between provincial-level and Kutai district government officers. Kutai officers suspect that the provincial government refuses to transfer authority for the forest areas because by doing so, they would lose control over several timber industries as well as their authority to issue recommendations for mining and oil concessions. However, officers from the provincial government and the Ministry of Forestry suggest that district government officers may have two hidden agendas. Firstly, they suggest that district officers may want broader control over the delta area; and they support their view by asserting that Kutai district officers are deliberately allowing people to use and deforest the SFZ as a prelude to requesting the Forestry Minister to release the areas from the SFZ.<sup>24</sup> Secondly, they note that several high-ranking Kutai district officers actually have ponds in the delta.

#### 4. Administrative Culture of Justification

The final section of this paper examines the administrative culture of justification regarding government agencies' failures to manage the use of resources in the Mahakam Delta formally or effectively.

It is clear that at least some officials at central government level in Indonesia were aware of the failures in the delta, and expressed their concerns directly to local officials. In one case in July 2007, an official from the central Ministry of Forestry attended a coordination meeting jointly sponsored by Total, Inpex Corporation, and the Kutai district government, and strongly warned the provincial and Kutai government officials present, advising them to reconsider their proposal to convert parts of the delta's mangrove forest into non-forest area. The central government official argued that such forest conversion would raise environmental concerns and might expose Indonesia to negative international pressure. On another occasion, an official from the National Land Agency warned local officials from the Kutai district fishery agency that all fish ponds in the Mahakam Delta were illegal, and

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<sup>24</sup> Some Ministry of Forestry officials made similar allegations against the Kutai district officials.

that if agency officials assisted the shrimp farmers they would be assisting in illegal activities.

Given that at least some officials from central government ministries drew on formal, legal rules and international expectations when advising how to deal with resource management in the delta, it is interesting to consider how closely the views of local government officials, particularly street-level bureaucrats, matched those of higher-level government. The findings of this research suggest that officials who interact directly with shrimp farmers and fishers, and observe the abundant and widespread ponds in the delta, have developed very different views from central government officials, which have shaped their management decisions and actions.<sup>25</sup>

This section examines four aspects of behaviour and decision-making that local officials tend to employ when managing the delta's natural resources. These are: (1) the use by officials of economic and social reasoning rather than legal argument to justify official decisions; (2) their interpretation of existing laws and regulations; (3) the permissive behaviour of street-level bureaucrats; and (4) their recognition of local rules concerning land and fish resources use. These four aspects are described below.

#### *4.1. Economic and Social Considerations*

There appear to be three reasons why village heads in the Mahakam Delta continue to sign land documents for development activities, particularly fish ponds, in the delta. Firstly they are simply continuing a tradition. The second reason relates to historical and sociological factors; namely that land holders have resided in the delta for a long time, and are perceived by the officials to be controlling and cultivating the land. The third and most important reason is economic: the ponds generate an income for local people. Village and district agency officers have observed that for some local people their ponds are their entire livelihood, and for others the ponds have at least improved their economic position. The Head of

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<sup>25</sup> The term 'street-level bureaucrats' refers to the officers of the Kutai district agencies, village and sub-district governments. This is similar to Lipsky's (1980: 3) use of the term 'street-level bureaucrats' to refer to public service workers who interact directly with citizens in the course of their jobs, and who have substantial discretion in the execution of their work.

Muara Pantuan village stated:

I like outsider investors (people who want to buy land in the Mahakam Delta for ponds) coming to our village, as they will bring money so that the villagers' economic position will improve.

Moreover, according to the officers, the removal of land holders and pond owners would require a large financial outlay, as the government would need to pay compensation.

An officer of the Kutai District Fishery and Marine Affairs Agency revealed the reasons why his agency did not prohibit fishermen in the delta from using trawls. He stated that it was because the fishermen are poor people, and the numbers of fishers are already big; and because, in his opinion, "handling trawl users is not the same as handling a thief". In addition to these reasons for inaction, there is also a perceived requirement that the government must provide an alternative source of income.

#### *4.2. Interpretation of Existing Laws and Regulations*

The head of Anggana sub-district has claimed that his signing of land documents did not constitute a violation of existing laws and regulations. He has pointed out two reasons to justify his view. Firstly he claims that, in his perception, signing the documents does not mean that land owners have ownership rights. Instead, land owners only have rights to cultivate the land. Therefore, as the existing laws and regulations only forbid him from granting ownership rights, he believes that he did not break the law. Secondly, he claims that by signing the documents he does not "issue" or authorize any license or rights, because his role in signing the documents is only the role of a witness. He states that he has always considered that the first and the second land documents are no more than statements from land owners that they do indeed cultivate their land. However, such an interpretation has been disputed by an officer of Muara Badak sub-district, who acknowledges that the signing of land documents by a sub-district head means that he or she does issue and authorize a permit, or at least provides a strong recommendation. Interestingly, this official still stated the belief that signing land documents was not a violation of existing laws and regulations, and gave two reasons. First, there had been no objection from superior officers from either the Kutai district government

NATURAL RESOURCE MANAGEMENT IN EAST KALIMANTAN  
Rikardo Simarmata

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or the National Land Agency, nor had they reminded officials not to sign the documents.<sup>26</sup> Second, the practice continued because officials felt they had a consensus with local villagers. Beside those two reasons, the official stated:

If we ask the land owners to comply with all legal requirements, that process will take a long time, and moreover the land owners will possibly protest while asking why the government officers did not previously inform them ahead about the requirements. Besides, we also feel that imposing the existing laws and regulations strictly would be sometimes culturally improper when the applicants are older men or community leaders.

Legal interpretations are also used to explain the absence of surveillance and enforcement in the Mahakam Delta's SFZ. A former head of the provincial forestry unit claims to have reached an interesting interpretation of the law. According to him, the ponds in the Mahakam Delta are not illegal for each of three reasons. First, he perceives the documents as being equivalent to a timber or mining extraction permit, and therefore the legal status of the land resource use as similar to the legal status of a forest and a mining concession. Second, when constructing ponds, the local people only cut nypah palm, which is not included in the Ministry of Forestry's list of 'forest products', and therefore the land owners are not violating any formal rules. Third, the nypah palms cut by the local people are not sold, and thus the people are not engaged in any illegal forest trade.

In August 2008, a team established by the head of the Kutai district, comprised predominantly of officers from the various Kutai agencies involved in the issue, conducted a 'socialization activity' in Anggana and Muara Jawa sub-districts. The main task of this team was to 'socialize' or highlight the importance of the delta's mangrove ecosystem to the local people, and to inform them of its legal status. At that meeting, the deputy head of the Kutai district agency explained to land owners and pond workers that they had illegally entered and occupied the Mahakam Delta's SFZ, because they did not possess a license from the governor, the head of

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<sup>26</sup> This claim is contested by a statement from a high-ranking officer of the Kutai district government, who stated that they had warned the sub-district head several times not to sign any land letters for land located within a forest zone. He added that sub-district heads claimed they had difficulty following this directive, because land holders would ask them to point out the physical signs of the borders of the state forest, which they were unable to do.

the Kutai district or the forestry minister. Therefore according to existing laws and regulations, certain sanctions could be imposed upon them. However, the deputy head then stated that as the numbers of ponds had become enormous, the government would not ask people to leave the delta's SFZ. He said that in exchange for this leniency, and given that pond owners had deforested the area, they were responsible for rehabilitating the forest.

#### *4.3. The Permissive Behaviour of Street-Level Bureaucrats*

Street-level bureaucrats are also known as field officers. In the Mahakam Delta, their behaviour and decisions have greatly strengthened the perceived legitimacy of resource use rights, especially land use rights. The delta's field officers or street-level bureaucrats tend to avoid discussion about the legal status of the delta's ponds when they are conducting routine jobs such as assisting local people to plant mangrove trees. When pond owners or pond guards have asked about the land's legal status, the officers have been reported as saying only that it is not within their authority to answer such questions, because their job only deals with technical matters. The reasons for this avoidance may include the reasons proposed above by the district agency officers that ponds were established before the officers had been assigned to their current positions; and claims of official uncertainty over whether land holders may indeed have had license to cultivate (in Indonesian *izin* or *hak garap*).

When officers of the Ministry of Forestry service unit *UPTD Planologi* were undertaking the long-awaited demarcation of the protected zone, they deliberately avoided potential confrontations with land owners and pond workers. During the officers' work, whenever land owners or pond workers asked the purpose of the officers' visit, they avoided explaining the actual purpose of their activity, and instead claimed they were simply measuring and mapping the area. The officers even persuaded owners and workers that their activity would not affect the existence of ponds, by saying that they would not measure the inside sections of ponds, but only the outside sections.

A field officer from the district forestry agency in Muara Badak sub-district, who is also a member of the forestry police (*polisi kehutanan*), reported that he saw many instances of people cutting mangrove trees in the vicinity of Total installations. Although he confirms that he knew this was illegal, he did not take any action. His excuse for this inaction was that he was borrowing a boat from a local fisher and believed that if he detained the loggers and confiscated their chainsaw, they could potentially harm the boat owner in retribution, as they would



recognize to whom the boat belonged.

In addition to economic and administrative factors, and potentially factors associated with self-interest, local officials frequently argued that their management decisions and actions were acceptable according to “rule norms”, including both formal and informal rules. However, with respect to the formal rules, local officials have deliberately or inadvertently created new interpretations of the laws, in favour of the shrimp farmers’ interests, and in opposition to the interpretations intended by central government officials. These new interpretations are clearly against the objectives of forest protection, which include preventing forest depletion by human activities, and security of state property such as the forests. Unclear or ambiguous wording of existing laws may have contributed to inadvertent misinterpretation of the formal rules.

In contrast to the lack of attention which local officials paid to the formal rules, it is clear that the officials were not only aware of, but strongly influenced by, local informal rules regarding land and fishery management. When village and sub-district heads signed land letters to confirm land rights, in each case they were abiding by the local informal rules concerning property rights, as earlier described. This research found no instances in which land letters were signed for land that was not already considered to belong to the letters’ applicants, according to local rules. It is also apparent that these informal property rules do more than regulate the relationships between people and their land; they also regulate social norms between and among persons with respect to possessions (Benda-Beckmann and Benda-Beckmann 1994: 20-23; Hanna et al. 1996). Evidence of this is the statement by one official from Muara Badak sub-district, who said he could not refuse to sign a land letter presented to him, as it would be considered culturally improper. Thus, it is not only the informal rules regarding land ownership and use which pose a challenge to formal land management in the delta; informal rules regarding social correctness may pose an additional challenge.

## 5. Concluding Remarks

This article has identified and examined the many factors and conditions which impede the implementation and enforcement of formal resource tenure rights in the Mahakam Delta. As a result of these factors, the policy of territorial zoning does not meet its goals. Most resource use occurs without an official permit or license, and the ecology of the Mahakam Delta has been significantly degraded.

Many studies have attempted to explain the factors hampering the effectiveness of formal natural resource regulations in East Kalimantan. As Manning (1971: 14, 59) and Obidzinski (2003: 120) have observed, the Ministry of Forestry has hardly ever been able to implement government regulations over the SFZ in East Kalimantan. This is due partly to a lack of manpower, and partly to the fact that the power to do so rested with military and bureaucratic leaders in Jakarta, who have had other priorities. Vargas (1985) provided a clear case study of how a big forest company was required to deal directly with a Dayak indigenous community and migrant groups which lived within and near the company's forest interests, because of a lack of adequate involvement by Ministry of Forestry and other local officers.<sup>27</sup> The company contended directly with 'pirate' activities by the immigrant groups (Vargas 1985: 175, 249), and also dealt directly with the indigenous community regarding compensation for tress and crops; only afterwards reporting the results to sub-district government officers (Vargas 1985: 170).<sup>28</sup>

Despite some suggestions that resource use in the Mahakam Delta occurs without property arrangements (so-called open access), this study indicates that despite a lack of application of formal rules, resource use in the delta is regulated by complex rule arrangements.<sup>29</sup> Informal, semi-formal and formal rules co-exist. Local residents and new immigrants are capable to create rules concerning land rights, and the migrant Buginese people may have brought their own rules, to be applied fully or partly in the delta (Benda-Beckmann et al. 2005: 18). Other researchers have also reported that once a local shrimp farming community interacts with a larger social arena which favours formal rules and authority, the shrimp farmers may voluntarily accept the application of formal authority over their land rights (Moore 1978: 56).

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<sup>27</sup> The company is PT International Timber Corporation Indonesia (ITCI). This company was a joint venture company of Weyerhaeuser Company of the United States, and PT Tri Usaha Bhakti of Indonesia. In 1971 the company was awarded a 601,100 hectare, 20-year timber concession in East Kalimantan. Most of this land was located in the Kutai district.

<sup>28</sup> For further information about how heavily Indonesian forestry officials relied on the timber concessionaries, see World Bank 1990: xxii.

<sup>29</sup> For the full account of the open access on land resource use in the Mahakam Delta, see Bourgeois et al. 2002: 2, 24; and Hidayati et al. 2004: 98.

The *jul* net case described in this study likewise exemplifies the application of formal rules to manage the use of fish resources, and their use by officials to supersede local fishing rules. In contrast, with respect to managing land arrangements, officials appear to use semi-formal rather than formal rules to provide authorization over informal land rights. A major challenge for officials is that nearly all the delta's shrimp ponds are located illegally inside the production forest. In response to this, local officials have created new interpretations of existing formal rules, in an apparent attempt to make their authorization efforts legitimate. Thus their authorization of resource use is often based on a misrepresentation of the formal rules. In particular, their authorization of land letters is largely against forestry legislation. In Indonesia, such local administrative discretion may have emerged to provide land tenure security over the million hectares of land which are not yet titled in accordance with Basic Agrarian Law, and which have already lost their established *adat* arrangements. In many areas of Indonesia, these semi-formal land and resource rights are obtained and managed through local-level negotiation (Fitzpatrick 2007: 139, 141).

This study illustrates the fluid nature of land tenure arrangements and use in the Mahakam Delta, as exemplified by land holders' voluntary acceptance of the application of the re-interpreted formal rules by local officials, and at the same time their acceptance of local officials' authorization. Land arrangements are negotiable and flexible (Peters 2006: 87-88), and dominated by informal and semi-formal rules at the expense of existing laws (Griffiths 1986; Benda-Beckmann and Benda-Beckmann 2006: 19). Although the co-existence of plural land arrangements appears acceptable to both land holders and local officials, with respect to fishery arrangements the co-existence of different sets of rules is more strongly contested. The disputes over the validity of formal and informal rules are not only between resource users and local officials; they also occur between levels of government, with central government officials citing formal laws as evidence that local officials' authorization of local land arrangements is illegal. Thus, the government itself is internally plural with respect to rules, a factor which greatly increases the challenges to Indonesia's effective and sustainable management of its natural resources.

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NATURAL RESOURCE MANAGEMENT IN EAST KALIMANTAN  
Rikardo Simarmata

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