Chapter 2
Pre-existing Fisheries Management Systems in Indonesia, Focusing on Lombok and Maluku

Arif Satria and Dedi S. Adhuri

Abstract In Indonesia pre-existing systems of fisheries management were delegitimized during the 'New Order Era' (1966–1998), and revived after the 'Reform Era' began, in 1998. Three such systems are examined; the *awig–awig* and *sawen* of North Lombok, and the *petuanan* and *sasi* of Maluku. Based on the pre-existing system that contained sawen, with its basic values and norms for integrated management of forest, farmland and coastal resources, local people took the initiative to revive three awig–awig, and adapted them to both combat destructive fishing practices and implement sustainable fisheries management. Sea tenure in Maluku is based on the concept of *petuanan laut*, the sea territory of a particular social group, to which 'the right to eat' (compounded from the rights of access, usage and exploitation) and 'the right of ownership' are attached. Sasi refers to the beliefs, rules and rituals regarding temporal prohibitions for a petuanan laut. The performance of pre-existing fisheries management systems is evaluated and national policy for them examined.

Keywords Awig–awig • Marine resources • Petuanan • Sasi • Sawen

2.1 Introduction

Pre-existing management systems have been retained in parts of Indonesia, and particularly in Sulawesi, Maluku and Irian Jaya. In Maluku Province sasi has continued since the seventeenth century, and refers to local communities' regulations that govern the harvesting of resources (Naamin and Badrudin 1992). It has the three

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K. Ruddle and A. Satria (eds.), *Managing Coastal and Inland Waters: Pre-existing Aquatic Management Systems in Southeast Asia*, DOI 10.1007/978-90-481-9555-8_2,

fundamental objectives of ensuring (1) fair and equal opportunities of access for community members in exercising their mutual rights to the nearshore fishery; (2) effective and sustainable management of sedentary marine species in nearshore waters; and (3) that community members can satisfy their subsistence needs and obtain an income from the community's marine waters. Sasi regulations are comprehensive, but focus mainly on the timing of the fishing season, regulation of target species and gear, and sanctions. Gear regulation also aims to promote an equitable distribution of income, in addition to attempting to manage fisheries sustainably. As a result, the use of gear like the purse seine is forbidden, as is diving apparatus to harvest Topshell, pearl oysters and other valuable aquatic resources. Sanctions may include fines, public shaming, and either temporary or permanent confiscation of fishing gear.

In North Sulawesi a pre-existing fisheries management system known as *seke* has existed since the Dutch colonial era (1521–1945). Rooted in Para Village, this system governs three types of fishing grounds: (a) *Sanghe*, a particular coral reef area that supports many fish species; (b) *Elie*, a fishing ground furthest from shore; and (c) *Inahe*, a border area separating the Sanghe and *Elie* (Wahyono et al. 2000). The term s*eke* denotes a group of fishermen legally recognized by the village government who use a traditional fishing gear to catch scad (Wahyono et al. 2000).

To avoid conflict and ensure equity of access among the six groups of *seke* fishers in Para Village there is an agreed schedule that determines when and where a group can fish in the four suitable fishing areas. A payment of five to ten sacks of cement is imposed on whoever violates the agreement (Wahyono et al. 2000).

The *rompong* is an old established form of marine tenure in South Sulawesi that originated in the Bugis community at Makassar. It is practiced especially in the Makassar Strait, Bone Bay and Flores Sea. Satria et al. (2002) describe the rompong as providing fishing rights to areas of about one hectare and delimited by *adat* (customary law). Basically, rompong refers to a traditional fish aggregating device (FAD) made of bamboo poles and coconut fronds. A group of fishermen usually works together to construct a rompong. The area where they are placed is claimed as a property right, so that nobody can fish there except the rompong owner and rod-and-line fishers. This fishing right is usually obtained through transferability (in terms of legacy or granting) and/or is simply recognized by the community. Several rules apply for operating the rompong (Satria et al. 2002). Its owners have an exclusive fishing right, but must allow other fishers both unhindered transit and to fish with rod-and-line within the area. This property right may be transferred to other fishermen in the community. An owner not operating his romping must allow others making a request to fish in his area. Those who violate a rompong right usually have their boats sunk and nets burned by the right holder.

Marine tenure in Irian Jaya is based on village customary law, with the boundaries of a tenured area normally marked by natural features. Imaginary boundaries may also be included that extend the area to the horizon. However, those boundaries have recently become blurred owing to amalgamation of tribes and other social processes. Authority for fishing is strictly divided among tribes, with the larger being the more powerful. Matters related to marine territorial affairs are under *suku*

Sanyi authority, and issues regarding fishing technology are handled by *suku Drunyi*. Recently, authority has been gradually granted to smaller tribes, called *keret*, and the village often has assumed the traditional authority to protect its fishers from non-residents. Wahyono et al. (2000) describe the principal fishing rules, all of which were made at meetings led by the village unit (*Ondoafi*) and involving keret and adat members. Both church and village office representatives sometimes were involved, although they performed only advisory roles.

Important rules deal with fishing by outsiders, and the scheduling of fishing. Any outsider wishing to fish in a tribal area must first request through the village chief permission from the village unit, which consults with the property rights owning small tribes. That is followed by a meeting of a customary board (*dewan adat*) composed of the three main elements (village chief, church and tribal marine affairs leader). Local fishers must do the same when wishing to use modern gear. After having been issued a permit, a recipient is obligated to share his catch with the *adat* board. A series of sanctions may be imposed on violators including (a) an oral warning, (b) the confiscation of coconuts, (c) being ordered to hunt for pigs for customary ceremonies, and (d) being sentenced to death. All have been enforced at some time or other. Punishment for outsiders is different. Local fishers punish outsiders corporally for fishing illegally and by confiscating fishing gears and imposing a monetary fine. However, corporal punishment has declined under the influence of Christianity. Other rules concern the scheduling of fishing according to area of residence.

In Tobati and Enngros villages the marine tenure system is characterized by gender-based rules, with women being granted specific areas, especially in mangroves and shallow waters, to catch shrimp and crabs, and collect mollusks. These areas also become special places for women's education prior to marriage, and men are forbidden to fish in them (Wahyono et al. 2000).

A specific rule relates to the customary ceremony of *pele karang*, intended to invite fish. This is conducted for about 6–12 months, and usually at a village border with abundant coral. During the ceremony nobody may enter or transit the area, and violators are punished by *hobatan* (murder using magic). In recent years this ceremony has declined, under the influence of Christianity.

In the remainder of this chapter we examine in detail pre-existing fisheries management in Indonesia, based on the awig–awig (lit. 'a local rule')[1] of Lombok Barat (Fig. 2.1), and the petuanan and sasi of Maluku (Fig. 2.2). The awig–awig, a local institution that since the 1940s had managed resources effectively (Satria 2007a), exemplifies a revitalized management system. Those in Maluku represent the continuity of pre-existing systems.

In Lombok Barat, the revitalization of awig–awig was the local fishers' response to the national reform movement that began in 1998, with the dismissal of former President Soeharto, and which marked the end of the 'New Order Regime' (1966–1998) and the

[1]Although awig–awig was introduced when the island formed part of the Balinese Empire, the institution has long been an integral part of the cultural system of Lombok (Bachtiar 2002).

Fig. 2.1 Locations in Lombok Island

beginning of the 'Reform Era' (from 1998 until the present). This was a critical period during which political instability led to a lack of government accountability and authority to enforce formal rules in marine fisheries. The legacy of low enforcement rates was exacerbated by the Reform Era, which in effect created 'stateless areas' throughout much of Indonesia. Local people took advantage of that political vacuum to assume a new role as 'regulators'. The phenomenon of self-regulation in marine fisheries enabled them to replace various formal rules by revitalizing their own pre-existing institutions. As a consequence, following the recognition of increasing use of destructive fishing practices, especially blast fishing, in Lombok Barat local people decided to replace the formal rules for fisheries by revitalizing awig–awig (Satria and Matsuda 2004a).[2]

[2] Blast fishing was introduced to Lombok by Japanese soldiers, who fished with explosives during the military occupation of Gili, Lombok Barat, which began in 1942 (Satria and Matsuda 2004a).

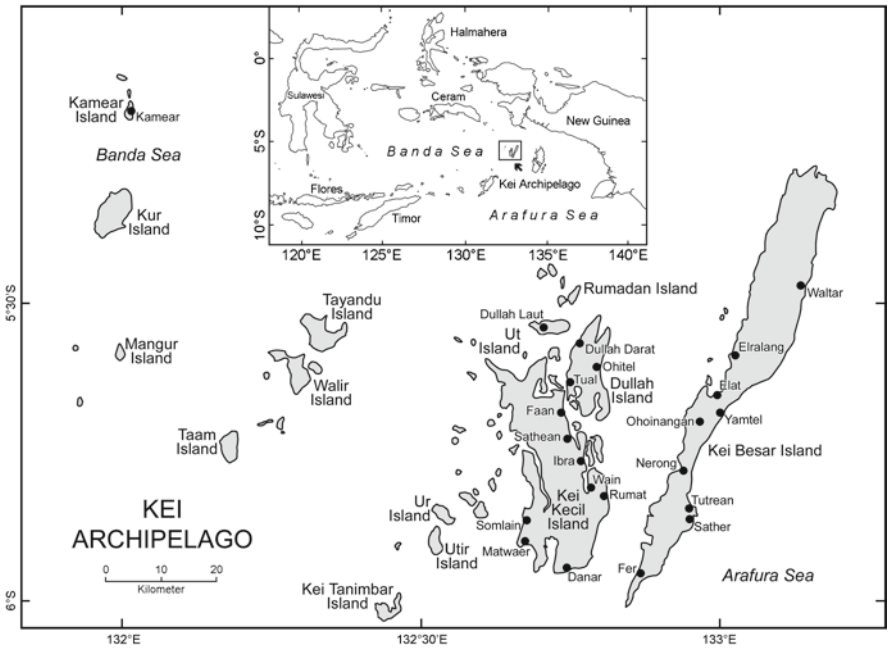

Fig. 2.2 The Kei Islands of Maluku Province

Since the mid-1980s, Maluku has been the geographical focus of attention on pre-existing marine resource management in Indonesia. And in Maluku the thematic focus has been on sasi, a system of beliefs, rules and rituals pertaining to temporal prohibitions on using a particular sea territory or specified resources within it. That is unfortunate, since it has diverted attention from petuanan laut, which is arguably a more important aspect in marine resource management, since it deals with property rights or marine tenure. In practical terms the issue of petuanan laut is important in Maluku, because whereas the practice of sasi was delegitimized and therefore weakened during the 'New Order Regime' (1966–1998), the tenurial practice of petuanan laut was strengthened (Adhuri 2002a).

How the awig–awig, petuanan and sasi operate is the focus of the first section of this chapter. We then examine the institutional performance of the awig–awig and sasi, and the impact on them of national policies. We conclude that pre-existing systems have an important role to play in the future management of small-scale fisheries and fishing communities throughout Indonesia. However, the systems analyzed in this chapter need further refinement and adaptation before they can both function properly in their own 'native' environments and serve as models for wider application.

2.2 The Awig–Awig of North Lombok

2.2.1 The Sawen System

Awig–awig is rooted in a pre-existing conceptual order known as sawen or *nyawen* (lit. 'boundary delineation') that prior to beginning of the 'New Order Regime' in 1966 was applied to forests, farmland and the coast. According to sawen, the forest is regarded as 'the mother' (*buana alit*), since it is seen as the source of water. Therefore if the forest is disturbed adverse effects would cascade through the entire ecosystem, via the hydrological system, to impinge eventually on farmland and the sea. Farming and fishing communities would be endangered through a decline in downstream agricultural resources, like irrigation water, which in turn would threaten coastal resources. This sophisticated human ecosystem concept provides the rationale for integrated resource management by the *mangku* authority (Satria 2007a).

Each section of the longitudinal profile has its own management authority, with distinct roles and responsibilities for resource sustainability. The forest is managed by the *mangku alas*, the *mangku bumi* manages farmland, and the *mangku laut* is responsible for marine resources. Reflecting the human ecosystem on which their responsibilities rest, these mangkus shared a strong commitment to managing resources in an integrated manner. As a result, coordination and collaboration among them was given a high priority, resulting in a functional interdependence of their roles.

Further, the mangku was a hereditary resource management authority that could be held only by a descendant of a mangku family. In other words, the status of mangku was ascribed rather than achieved. This arose from the belief that mangku families have both supernatural power and the knowledge to deal with resource management issues. The villagers' respect for the power of a mangku legitimates the mangku, and ensures voluntary compliance, as decisions of each mangku were perceived as a contribution to a safe and peaceful life.

A mangku had two main roles. First they had to maintain the traditional value of social and human–nature relationships that would ensure a harmonious community life. Second was resource management, which required a mangku to undertake *menjango* (survey or observation), *membanggar* (visual mapping and boundary marking and *membuka* (opening) (Kamardi 1999). Applied to forest, farmland and marine resources, these practices were based on a combination of traditional knowledge and myth. Many of the religious ceremonies that preceded them demonstrate that myths were influential in resource management.

These roles of mangku were based on clear concepts of resource management, despite being the result of a combination of traditional knowledge and myth. For example, in the management of marine fisheries sawen is identical with a seasonal closure concept. After observing conditions of the sea, the mangku laut would decide whether a fishing season should be closed. To initiate closure he installed two bamboo posts approximately 1.5 km distant from the shoreline, to mark the boundary of the closed area. The closed season, usually lasting about a month, was intended to lure fish close inshore, so that they could be easily caught during the following open season. Unable to operate in more distant waters, the fishers depended on the nearshore area.

In this sense, sawen can be interpreted as a way of dealing with a scarcity of fish in nearshore waters.

These underlying myths of *nyawen* were based on such scientific rationales as a closed season to enhance fish stocks, although explanations were usually given in easily understood normative terms, like prohibiting or allowing such activities via a taboo (*pamali*). After a sawen was issued, rules like prohibiting fishing in a particular area during the sawen period were established. Violators were sanctioned morally, in the most severe cases with social ostracism. Such rules were easily enforced because fishers regarded them as sacred. When the closed season ended, mangku officially opened the fishing season with a religious ceremony (*syukuran*), at which the fish caught on the first day were offered to the supernatural powers.

To enforce these rules and practices, mangku laut appointed *lang–lang* (traditional coast guards) to monitor and control each sawen. Since the position was voluntary and open to all fishers, most had experience of the job. When a violation was committed, a lang–lang had both to warn the violator and report the incident to the mangku laut, who would decide on an appropriate sanction. Most sanctions were moral, and designed to shame violators publically.

2.2.2 Awig–Awig: Revitalization of Sawen

Local people took advantage of the political vacuum during the reform momentum of 1998 to assume a new role as regulators, and to replace various formal rules by revitalizing their own pre-existing institutions. In North Lombok, revitalization of sawen resulted in the awig–awig. Four types were established in Kecamatan (Sub-District) Tanjung, Gangga, Pemenang, Bayan, and Kayangan (Satria and Matsuda 2004b) (Table 2.1).

2.2.2.1 The Protection of Marine Fisheries Resources: Fishers' Council of Northern Lombok

The Awig–awig *Lembaga Masyarakat Nelayan Lombok Utara* (*LMNLU*) or 'Fishers' Council of Northern Lombok') was established in March 2000 by the fishers of the three *kecamatan of* Tanjung, Gangga and Pemenang to prevent such destructive practices as blast fishing and the use of poisons. *Samudera*, an NGO in Lombok Barat, participated in the establishment of this awig–awig. It functions as a lead organization of fishers in Northern part of Lombok Barat (Lombok Utara) that coordinates the awig–awig of each village. The village chiefs, sub-district chiefs and an NGO witnessed the promulgation of the awig–awig.

The rules devised for blast fishing and the use of poisons are that those fishing in this way will be taken to the official authority to sign a statement promising that they would not repeat the offense, and to pay a fine equivalent to USD 977.[3] Should they

[3]The currency rate has been converted at IDR (Indonesian Rupiah) 10,235.21 = 1 USD (July 07, 2009).

Table 2.1 Awig–awig system in Lombok Barat (2000–present)

Type	Rules	Sanctions	Compatibility with formal laws
Awig–Awig Gili Indah in Kecamatan Pemenang	a. Zoning system b. Prohibition of destructive fishing practices c. The mechanism of authorization for appropriation activities	Fine, and damaging seaweed culture	a. The Fisheries Law No. 9/1985: • Fine equivalent to USD 2,442 • Confinement of 6 months to 10 years c. The Environmental Law No. 23/1997: • Confinement of 10–15 years • Fine equivalent to 48,851–73,276 USD
Awig–Awig Kelompok Nelayan Pantura in Kecamatan Kayangan	a. Prohibition of fishing by blasting, trawling, and gill netting in awig–awig area b. Closed season	Fine, and confiscating fishing gear	a. Fisheries Law No. 9/1985: • Fine equivalent to USD 2,442 • Confinement of 6 months to 10 years b. Environmental Law No. 23/1997: • Confinement of 10–15 years • Fine equivalent to 48,851–73,276 USD c. Provincial Regulation of NTB No. 5 /1996 • Fine equivalent to 4.9 USD • Confinement of 6 months
Awig–Awig Sari Laut in Kecamatan Bayan	Prohibition of fishing by dynamite, potassium cyanide, trawl net	Fine, and physical sanction without resulting in death	a. The Fisheries Law No. 9/1985: • Fine equivalent to USD 2,442 • Confinement of 6 months to 10 years b. The Environmental Law No. 23/1997: • Confinement of 10–15 years • Fine equivalent to 48,851–73,276 USD c. The Provincial Regulation of NTB No. 5 /1996 • Fine equivalent to 4.9 USD • Confinement of 6 months

(continued)

Table 2.1 (continued)

Type	Rules	Sanctions	Compatibility with formal laws
Awig–awig LMNLU in Kecamatan Tanjung, Pemenang, Kayangan, and Bayan	Prohibition of fishing with dynamite and potassium cyanide	Fine, physical sanction without resulting in death, and burning gear and boat	a. The Fisheries Law No. 9/1985: • Fine equivalent to USD 2,442 • Confinement of 6 months to 10 years b. The Environmental Law No. 23/1997: • Confinement of 10–15 years • Fine equivalent to 48,851–73,276 USD

This table is based on ideas presented in a speech by the Chief of the Marine and Fisheries Service Office of Lombok Barat, in 2002

continue to use such fishing methods, their fishing gear and boat would be burned by the local fishers. Finally, if despite those actions a fisher persists in using destructive fishing methods, he will be punished corporally but not killed by the local people.

Apart from the rules regarding corporal punishment, those devised by the local fishers are compatible with the formal rules of the government (Table 2.1). Because the local government regards the local rules as more effective than formal rules in preventing destructive fishing, it has neither challenged the authority of awig–awig nor advised that the sanctions be withdrawn.

An Executive Committee elected by the fishers has the implementing authority. The organizational structure of the *LMNLU* consists a Board of Advisors, composed of the officials of the Sub-Districts of Pamenang, Tanjung and Gangga, and the village chiefs of Pamenang, Tanjung and Gondang, and an Executive Committee consisting of a Chairman, Vice-Chairman, Secretary, Treasurer, and Bureaux (for sea security, beach cleaning, social welfare, conservation and rehabilitation).

The highest authority is vested in the General Assembly, held every 3 years and open to all fishers of Lombok Utara. The General Assembly elects the Executive Committee and formulates the programs of the LMNLU. Because of the large geographical area involved, the chairman's role is to coordinate the awig–awig of each village in Lombok Utara. The role of the Bureau of Sea Security is monitoring fishing activities and arresting those who violate the rules. The task of the Bureau of Beach Cleaning is to enhance awareness of environmental sanitation and management of fishing boat anchorages.

The awig–awig *Kelompok Nelayan Pantura* in Kayangan Sub-district. was revitalized in August 2002 by local fishers acting alone. Aimed at protecting marine fisheries resources, the rules prohibit blast fishing, trawling and use of gillnets (*seret* net). All fishing is prohibited when a sawen or closed area has been declared, and sanctions are imposed on violators. Those catching ornamental fish are fined the equivalent of USD 49; those blast fishing are fined the equivalent of USD 489, and their boats and gear confiscated (Photo 2.1); those either trawling or using a *muroami* (drift-in net)

Photo 2.1 A violator's fishing boat confiscated by villagers at Gili Air, Lombok Barat, Indonesia

are fined the equivalent of USD 1,465, and their boats and gears confiscated; and those fishing with potassium cyanide are fined the equivalent of USD 244.

2.2.2.2 Prevention of Destructive Fishing Practices: The Awig–Awig *Sari Laut*, Bayan Sub-District

This awig–awig was established by local fishers in October 2000, to prohibit blast fishing, the use of potassium cyanide and trawling. The *Sari Laut* NGO and village government are supporting and advisory bodies, and the lang–lang laut play a major role by monitoring implementation by warning violators, making them to promise not to repeat the offense, and confiscating their boats. Should a violator persist, the *Persatuan Nelayan Sari Laut* (the local fishers' organization) and lang–lang laut can arrest them, confiscate their gear and impose a fine. The following fines are specified; for blast fishing the equivalent of USD 684, for using potassium cyanide the equivalent of USD 977; and for trawling the equivalent of USD 489. After a third violation, *Persatuan Nelayan Sari Laut* and *lang–lang laut* and other fishers first will punish the violators corporally, and then hand them over to the police.

2.2.2.3 Coral Reef Management and Prohibiting Destructive Fishing

The awig–awig at Gili Indah Village was established in 1999 to manage coral reef conservation by zoning for tourism and fisheries, and to prohibit destructive fishing practices. It includes three kinds of rules: (a) Those to establish protective, buffer and exploitation zones; (b) those to separate permitted and prohibited activities by zone; and (c) those to authorize appropriation activities. Zones were established considering the condition of the coral reefs. Where coral was plentiful protection

zones were restricted, and only snorkeling and diving allowed, and net fishing and seaweed culture forbidden. Diving, snorkeling and angling are permitted in the buffer zones, whereas in the exploitation zones most activities were allowed, except drift-in and gill netting. Collecting marine biota (including turtles, turtle eggs and the giant clam [*Tridacna gigas*]) except fishes, whether for commercial purpose or private, is prohibited in all zones (article 20), although collecting marine biota for scientific purposes must be licensed (article 21). Pearl culture is prohibited in all zones within 50 m of the outer reef slope (article 22), and seaweed culture must be authorized by the sub-village (*Dusun*) chief (article 23).

The three awig–awig described here are initiatives taken by local people to overcome destructive fishing practices. They were aware that awig–awig were part of a local pre-existing management system that was delegitimized after 1966, when the 'New Order Period' began. However, they were also aware that the pre-existing system contained sawen, with its basic values and norms for resources management. Sawen was revitalized and adapted to contemporary conditions.

2.3 The Maluku Case

From the latter half of the 1980s discourse on pre-existing marine resource management in Indonesia concentrated on sasi, and neglected property rights or marine tenure, which in Maluku is known locally as petuanan laut. Because of that we begin the discussion of the pre-existing system of marine resource management in Maluku with an examination of petuanan laut (Table 2.2).

Table 2.2 Some basic characteristics of Petuanan and Sasi

Type	Rules	Sanctions	Note
Petuanan	a. Boundary definition	Driven away	Petuanan practice is an integral part of the social construction of society. During conflict, petuanan becomes part of the conflicted issue
	b. Beyond subsistence use, exlusive use/ exploitation of marine territory for right-holding unit members only	Monetary fine and/or traditional goods	
Sasi	a. Closed season b. Gear restriction c. Size limit for *Trochus niloticus*	Monetary fine Confiscation of catch	The closed period shortened from 3 years to 1 year Transfer of control from community to village government

2.3.1 Petuanan Laut

The basis of tenure practice in Maluku is embodied in the concept of petuanan,[4] which is generally understood throughout the region as the estate or territory of a particular traditional social group (Zerner 1992). The concept includes both land and sea, a linked expression found in the pairing of such terms as petuanan laut (sea estate), *met* (coastal area) and *roa* (sea), referring to a sea territory on the one hand, with *petuanan darat* (land estate), *nuhu* (island), and *nangan* (land) referring to a land territory on the other. For sea territory the object of the ownership is called 'petuanan laut'.

The conception of petuanan laut boundaries varies among communities. In a seaward direction some claim that petuanan laut includes the area from the maximum high tide line to where shallow water meets deep sea (*tohar*). Others believe that the seaward boundary of petuanan laut is 'as far as eyes can see,' whereas yet others associate the seaward boundary with technology, claiming that their territory includes the entire area in which their boats and gear can operate. Rahail (1995), the late 'king' of Maur Ohoi Wut, in Watlar, Kei Besar Island, claimed that the petuanan laut of his domain covered the area as far as *tahait ni wear*, meaning the water more than 10 km from the beach and more than 5,000 m deep.

On land a petuanan laut boundary always is associated with the land boundary that divides two traditional domains. This mostly is a natural landmark, such as a rock, hill, embayment, or large tree. Although an easily visible and named natural landmark, a land boundary is often a source of conflict between neighboring communities. This occurs because boundary claims, like the entire petuanan area, are legitimated by oral history, of which there are often multiple versions open to multiple interpretations.

Traditionally, two rights are attached to the territory of petuanan laut. The first is *hak makan* ('the right to eat'), which is compounded from the rights of access and usage. Fishing operations provide an example of how hak makan is exercised. The second right is *hak milik* ('the right of ownership'). Hak milik is superior to hak makan; not only may holders of this right of ownership freely use the territory (hak makan), but they can also transfer their hak makan to another party. A contract between a representative of village leaders under the leadership of the village head and a fishing company concerning permission for the latter to fish in the village sea territory would exemplify how hak milik holders transfer their hak makan to another party.

These two rights are not distributed equally within a community. Whereas every member of a community has 'the right to eat', 'the right of ownership' is held only by descendents of the originating kin groups, whose ancestors founded the community, as recorded by oral history. Therefore whereas all community members

[4] *Petuanan* is derived from *tuan*, lit. 'owner' or 'master'. The prefix *pe* and suffix *an* add the notion of place to 'tuan'.

can participate in every activity to exploit a petuanan laut, only members descended from the originating kin groups can transfer the use rights to a second party. Such a transfer, either through auction or by a contract, is usually decided by a representative of the originating kin groups.

Based on those concepts, a petuanan laut is an exclusive territory, the use of which is under the control of a community. Only the members of that community can use it freely. Outsiders seeking access, particularly for commercial purposes, must obtain permission from the originating kin groups. Only then can an outsider become involved in any commercial activity that exploits a petuanan laut.[5]

The terms 'community' or 'traditional domain' are used here to refer to a social unit claiming ownership of a particular petuanan laut. However, 'traditional domain' is applied to different sizes and types of social unit. In the Kei Islands, for example, various differently constituted traditional domains control petuanan. Some are attached to a settlement (*kampung*) community, such as *petuanan kampung* Hollay and Hoko, on Kei Besar Island. Despite being administered as a single village, each of these two settlements controls its own petuanan autonomously. Other petuanan are controlled by a *negeri* or *desa* (village) community. Dullah Laut Village provides an example. Although it consists of two different settlements, they share control of a single petuanan. As a result, Dullah Laut Village as a single unit deals with outsiders seeking access to the petuanan. A federation of villages that traditionally is considered to be a kingdom (*ratschap*) illustrates another traditional domain that controls a single petuanan. This is exemplified by Ratschap Ibra, on Kei Kecil Island, where the three villages of Ibra, Sathean and Ngabub control a single petuanan. In this case no one village autonomously handles petuanan issues, and all three together, under the leadership of King of Ibra, are entitled to speak for it. Finally, some petuanan were controlled by a larger social unit, such as moiety or an ethnic group.

Members of some coastal communities not only claim ownership of a sea territory based on the concept of petuanan laut, but also have developed sets of pre-existing rules that further address in detail the inter-related issues of who may use what resources contained in the territory, and when and how they are permitted to do so. Such sets of regulations are called sasi (lit. 'to witness' or 'witness').

2.3.2 Sasi

Sasi refers to a system of beliefs, rules and rituals pertaining to temporal prohibitions on using a particular resource or territory. When sasi is applied (*tutup*) to a particular resource, no usage whatsoever is permitted until the sasi is lifted (*dibuka*).

[5] In contrast, outsiders do not require permission for non-destructive subsistence activities. However, community members will observe outsiders to evaluate their activities, and would not hesitate to drive them away should they suspect that their activities are illicit.

When applied to a coconut palm, for example, nuts may neither be harvested nor fallen ones used. The prohibition is applied to everybody, including the owner of the resource.

The various types of sasi are differentiated by the resource or territory concerned, as well as by the belief system, type of ritual leadership, and location of the rituals.[6] Common examples of sasi applied to resources are *sasi kelapa*, for coconut, and *sasi lola*, for Topshell (*Trochus niloticus*) and other shellfish. Territorial sasi is differentiated into that on land (*sasi darat*) and at sea (*sasi laut*). Several types of sasi are distinguished by belief system, ritual leadership and location. *Sasi negeri* (village sasi) is based on local belief, with the rituals of applying and lifting sasi led by traditional leaders, and performed at sacred places in the village. S*asi gereja* (church sasi) is based on Christianity, with rituals conducted in a church by a priest, according to Christian beliefs. Similarly, *sasi mesjid* (mosque sasi) is based on Islamic belief, with rituals led by an *imam* and conducted in a mosque.

Only by using the term *sasi laut*, often called *sasi meti* or *sasi labuhan*[7] or *sasi bia lola*, is specific reference made to pre-existing marine resource management. Sasi laut is applied to either an entire petuanan laut, or to just a portion of it. In the ritual of applying sasi (*tutup sasi*), the leader announces the sea boundaries of the area under sasi, and the resources thus regulated. He announces the gear types and fishing techniques excluded from sasi regulations, and, in the case of sasi negeri, stipulates a fine for violators. The fine can be a sum of money or traditional goods like antique gongs and cannons. Confiscation of the gear, catch or other items used in the illegal operation is also a common action following an apprehension.

The same ritual practitioner performs *buka sasi*, a ritual to open or lift the sasi regulations. In addition to communicating with the spirit world, the ritual also functions to inform about the conduct of harvesting. The information provided usually includes the resources and quantities that may be harvested, participation, permitted gear types, the manner of distribution, and the length of harvesting period.

Sasi bia lola, applied to Topshell, is one of the commonest forms of sasi used in Maluku. No harvesting is permitted when the sasi is in operation, and in some places diving or fishing using gear considered to disturb either the Topshell or its habitat is forbidden. In former times a sasi would be closed for three or more years, but since the 1980s, frequently has been opened annually, with the harvest period ranging from few days to two weeks.

Regulations pertaining to participation and allowed gear and fishing techniques differ among communities. At least since 1968 in Nolloth village, Central Maluku, only appointed people could participate in harvesting, whereas in communities on the east coast of Kei Besar Island, in Southeastern Maluku, representatives of all households could dive for Topshell. Gear was limited to just diving goggles, and

[6] See Monk et al. (1997) for a more detailed account.

[7] The second word in each pair refers to local names of locally controlled sea territory.

free diving was the only technique allowed. The generally accepted minimum harvestable size was a diameter of 'three fingers', or approximately 6 cm.

The distribution of the catch also varies among communities. During the 1990s in Nolloth, for example, all divers were hired by the village government. They were either paid a fixed amount of cash, or with a percentage of the value of the total catch. In Watlar village, on Kei Besar Island, the divers received the meat and 20–30% of the total sale price of the shells. In both villages, the balance of the sale price was supposed to be used for community infrastructure projects. In Nolloth some of the income was used to pay for the special traditional committee that oversaw the implementation of sasi.

The sasi laut and sasi for Topshell is administered by either a special traditional committee (*kewang;* lit. 'police'), or by the traditional government. A kewang consists of a leader (*kepala kewang*), a secretary and some functionaries. Among other duties, this committee is responsible for leading the implementation of sasi laut. This includes conducting both opening and closing rituals, monitoring the territory to ensure no rule violation, and sanctioning violators. In Central Maluku, the kewang together with the village head usually leads the practice of sasi laut. In Southeastern Maluku traditional government usually organized the practice. In Nolloth and Haruku villages, on Saparua and Haruku Islands, of Central Maluku, respectively, a kewang manages both land and sea petuanan. In contrast, communities in Southeastern Maluku lack a special committee to observe sasi, so all everything is handled by community government officials.

2.3.2.1 An Interpretation of Sasi

Since the early-1980s sasi has been interpreted and evaluated by various agencies and scholars. Initially, the discourse was aired widely by NGOs, research centres and legal scholars based in Ambon, Maluku. A research report prepared jointly by an NGO and academic researchers from the Law Faculty and Maluku Research Centre at the University of Pattimura observed that "[Sasi] strongly supports conservation of living marine resources … in addition to being rather useful because it regulates the resource use, extraction and protection, it also ensures an even distribution of the harvest"[8] (translated from Anon 1991: x, see also Pusdi-PSL Unpatti 1995).

That is consistent with a definition by a *kewang* leader in Haruku village, Central Maluku (Kissya 1995), who notes that "sasi can be described as a prohibition on the harvesting of certain natural resources in an effort to protect the quality and population of that biological natural resource (animal or plant) " (Kissya 1995: 4). This argument is also supported by a legal scholar based in Ambon (Lokollo 1994), who went further and suggested that sasi should be considered as the basic model for the national policy on rural environmental management (Lokollo 1988).

[8] The translation is taken, with slight modification, from Zerner (1994: 1114).

Such arguments persist. However, a more critical perspective on sasi emerged from the early-1990s, based on the argument that earlier thinking was misleading because it was constructed without reference to the historical and socio-political context of sasi. Thus it was argued that "[S]asi has undergone considerable change over the past 400 years … it has developed from a ritual protection of communal resources to a governmentally regulated regime of agro-ecological control of private and common resources, and from there to a largely commercialized and privatized means of theft prevention." (Benda-Beckmann von et al. 1992: 5). Such historical analyses demonstrate that the practice of sasi has been mostly crafted by elites from inside and outside local communities.[9] In the late colonial era, for example, the ratification of sasi rules was initiated by local traditional elites in collaboration with local Dutch officials to meet the economic and political interests of both (Zerner 1994: 1087).

More recent elite initiative was exemplified during the 1960s by the sasi laut of Nolloth village, on Saparua Island (Zerner 1991). During the 1950s, the market demand for Topshell reached Maluku. Thus stimulated, the head of Nolloth village started raising the issue of a sasi for Topshell on the village sea territory. It was enforced in 1968. However, he made some changes to sasi practice. Before the sasi was implemented the sea territory was open to all villagers, who could benefit from harvesting Topshell. When the 'new' system of sasi was introduced the village headman declared that the territory was closed to community members, and the village administration took full control of it. Henceforth all income from the Topshell harvest would be for the village, and was earmarked for such village programs as roads and public toilets. Problems emerged regarding distribution of the income, and villagers began to question whether the money from the Topshell was really used to benefit the entire community. They also asked why the village committee hired outsiders to harvest the Topshell, when it should have hired villagers.

Studies on the contemporary practice of sasi provide further insights into the local realities. Pannell (1997: 297) notes that

> [T]he practices referred to and associated with *sasi* in the marine environment of Luang [south-eastern Maluku] minimally involve the interest and actions of residents of this island, the commercial machinations of regional traders and internationals exporters, the fashions and fads of distant consumers, the compliance and blessing of the Church and its agents, as well as the endorsement of village representatives of local government institutions and the support of government personnel from other jurisdictions. In addition, let us not forget those fishermen who, though their non-sanctioned exploitation of local marine resources, contribute to the social delimitation of the efficacy of invoking *sasi*.

Having noted the involvement of various agencies, as well as interests, in the practice of sasi, Pannell suggested that it might mean different things to different agencies with different interests. For example, "… for the traders the opening of *sasi*

[9] However, data on the pre-colonial context are very limited, making convincing arguments difficult to construct.

ensures that they enjoy exclusive rights of purchase [on the harvest] … for people on Luang, the payments made by traders [for his {*sic*}monopolistic rights to buy the harvest] also amount to *de facto* recognition of their rights and interests as customary and communal title holders of these marine areas." (Pannell 1997: 296). In evaluating the contemporary sasi practice in Watlar village on Kei Besar Island, among other things it was found that the monopolistic control by a traditional leader in the village had stimulated villagers to both overharvest Topshell and question the distributional equity of the practice (Antunès and Dwiono 1998; Antunès 2000).

These historical and contemporary analyses raise questions about the conservation and equity factors that have been presented as an inherent part of sasi. When the discourse on sasi is analyzed in its socio-political context, it is evident that local traditional leaders, NGOs and scholars have been actively engaged in the process of 'greening' it. On this point, Zerner (1994) writes that the political context of the emergence of green sasi includes both a growing environmental awareness and also the resistance of local elites and NGOs to growing resource control by the central government and fishing industry. In this sense, the discourse of green sasi can be seen as a political discourse that aims to empower marginalized local people.

2.4 Institutional Performance

Here the performance of pre-existing fisheries management systems is evaluated using indicators modified from the six design principles of traditional fisheries management system proposed by Ruddle (1998). These are definition of territorial boundary, rules, rights, authority, monitoring and surveillance, and sanctions.

2.4.1 Clearly Defined Territorial Boundary

The territories of awig–awig *Kelompok Nelayan Pantura* (Pantura Fishers Group) and *Sari Laut* are clearly bounded, because the awig–awig area is similar to the sea area over which a village has jurisdiction. In addition, the awig–awig of Gili Indah Village has a clear territorial boundary located 30–100 m from the coastline around its island. In principle, the territory of the awig–awig is the water area in which the coral reefs are located. The territory is then divided into various zones, each with different usage and regulations. Zonal boundaries are delimited by such physical marks as bungalows, trees, floating balls, buoys, and other features.

In contrast, the territory of the *LMNLU* is not clearly distinguished, because it is not a territory-based organization, unlike the *Kelompok Nelayan Pantura* and *Sari Laut.* Although in practice the *LMNLU* is positioned as a coordinating organization to deal with destructive fishing practices, it was established by fishers in the different Sub-districts, who understand the importance of resource sustainability.

In Maluku, the boundaries of managed marine areas are physically distinguishable, since they are delimited by natural marks. However, exclusive claims to territories can be contested, because their source is a narrative relating to territorial origins. There sometimes exist multiple versions of a narrative, and these are open to various and conflicting interpretations.

2.4.2 Legitimacy and Enforceability of Rules

Because consensus building is conducted by local people, and therefore an awig–awig is regarded as being legitimate, its rules are easily enforced. This is particularly true for the *Kelompok Nelayan Pantura* and *Sari Laut*,

In contrast, the legitimacy of the *LMNLU* is not as strong, owing to its inherent characteristics and representational problem. The *LMNLU* covers many sub-districts, within each of which exist many fishers' groups with different interests that have not been organized into a fishers' association. As a result, the *LMNLU* deals with the problem of fishers' representation of each sub-district, so it is not legitimate in fishing communities lacking an awig–awig. These fishers assume that the *LMNLU* cannot represent the fishers of Lombok Utara. Nevertheless, the *LMNLU* is legitimate in the fishing communities where an awig–awig exists, because they share a mission to end destructive fishing practices.

However, the existence of an awig–awig does not necessarily mean that rules are easily enforceable. This is the situation at awig–awig Gili Indah, where, apart from banning the drive-in net, zoning and prohibition of blast fishing, most rules cannot be enforced. At Gili Indah there is a crisis of legitimacy within the community, and conflict among stakeholders is frequent.

In Maluku the legitimacy and enforceability of petuanan and sasi rules varies by location. Where legitimacy is strong and the implementer well respected, the rules are obeyed by most people. Elsewhere conditions have weakened. Although the basic regulations are rooted in tradition, not all community members have always agreed with various adjustments and modifications to them. It was often the case that adjustments were made only on the initiative of traditional elite, to serve its own interest. Where that occurred community members who felt pushed aside resisted the new regulations, resulting in a decline in the pre-existing management practices.

2.4.3 Monitoring

The monitoring authority of an awig–awig is vested in the *pamswakarsa* (voluntary task force) of the LMNLU, and in the lang–lang laut of the *Kelompok Nelayan Pantura* and *Sari Laut.* Both are composed of local fishers. Monitoring activities are conducted intensively by both the *Kelompok Nelayan Pantura* and *Sari Laut*, unlike the LMNLU, because of their different mandates. There is a fixed monitoring

schedule for each member, apart from the LMNLU, owing to its limited monitoring capacity and unclear territorial boundary. Therefore the LMNLU regards all fishers in Lombok Utara as monitors, and hopes they will call the pamswakarsa if violations occur.

The monitoring authority in the awig–awig Gili Indah is the *satgas* (security task force), which focuses on blast fishing. The satgas were appointed by businessmen in the tourist industry, who provide financial support for their operations. Therefore monitoring in awig–awig Gili Indah is not done on a voluntary basis.

In Maluku monitoring is conducted either by a special committee, called kewang, or by village officials. The kewang seems to perform better, probably because it has only to implement the petuanan and sasi, whereas village officials are concerned with general village management, and so can devote little time to monitoring.

2.4.4 Graduated Sanctions

Overall the regulations of the awig–awig have proven enforceable. This is especially true of the prohibitions on destructive fishing, as indicated by the decrease in blast fishing after the awig–awig were established, and the success in arresting violators. However, enforceability of sanctions also resulted from police and *KSDA* (Station for Natural Resources Conservation) support.

When awig–awig rules are violated, especially those regarding blast fishing and the use of poison, the LMNLU is invited to join the awig–awig authority to devise a sanction. LMNLU is supposed to be responsible for eradicating destructive fishing practices in Lombok Utara, even in areas where awig–awig exist.

In awig–awig Gili Indah sanctions for violation of the zoning rule ineffective, whereas those regarding blast fishing remain valid. Previously, the satgas of Gili Indah was firmly united, and the enforcement of sanctions was also supported of the police and KSDA, which had representatives in the popular tourist destination of Gili Trawangan (Satria et al. 2006).

In Maluku, various degrees of sanctions have been applied to petuanan and sasi. In Haruku, for example, rules are have been observed and, consequently, sanctions have been few, a situation attributable to powerful and committed kewang. In contrast, Antunès (2000) reported that the sasi in Kei Besar was not implemented well, and many people harvested undersized Topshell without fear of sanction.

2.4.5 Legitimate Authority

The awig–awig is linked with higher institutions, especially for the prohibition of blast and poison fishing. The LMNLU collaborates well with KSDA, Dinas (Local Fisheries Service) and an NGO, whereas the Kelompok Nelayan Pantura is relatively

exclusive and, apart from the LMNLU as a coordinating body, is not linked with other agencies. The Sari Laut is an NGO that supports the institutions with technical assistance, facilitation and advice. However, the legitimacy of the traditional authorities in enforcing awig–awig rules is relatively high, both in the eyes of external parties and local people. The awig–awig Gili Indah is linked with a higher institution, especially regarding the prohibition of blast fishing. However, that authority tends to include only the tourist industry businessmen, and fishers are excluded. As a result, although the external parties regard it as legitimate, it is weak within the local community.

The legitimacy of petuanan and sasi was strong and, although not formally supported by or linked to either government regulations or institutions, it had informal local government support. In Maluku, pre-existing management practices, authorities and institutions are often stronger than the government. However, in communities where traditional leaders do not perform well or are either proven or accused of manipulating tradition for their own interest, people question the leadership and even the tradition. In this circumstance the implementation of petuanan and sasi rests on an unstable foundation (Adhuri 2005).

2.5 National Policy on Pre-existing Fisheries Management

Pre-existing fisheries management was not recognized during **'**The New Order Period' (1967–1998), based on *Undang–Undang* No 5 1979 ('The Rural Governance Law'), which required a uniform system of rural governance nationwide. Thus pre-existing systems were neglected and local people, having no responsibility for or participation in the management of marine resources lacked any sense of stewardship for conserving and protecting them. Under those conditions marine resources and became depleted.

The situation began to change in 1999, with the beginning of the 'Reform Era' (1999 to present), the establishment of the Ministry of Marine Affairs and Fisheries (MMAF), and passage of the Local Autonomy Law. At the beginning of the Reform period, Minister of Agriculture Decree No 392/1999 was issued as a revision of the Minister of Agriculture Decree No 607/KPTS/UM/9/1976 on fishing zonation. Three zones were fixed, as follows: (a) Zone I.a (0–3 nm) is reserved for traditional fishers using boats without engines, and Zone I.b. (3–6 nm) is reserved for traditional fishers with either outboard engines or using a boat of less than 5 gross tons; (b) Zone II (6–12 nm) is reserved for fishers using a boat of less than 60 gross tons, and (c) Zone II (6–12 nm) is reserved for fishers using a boat of less than 200 gross tons.

This regulation, aimed at protecting small-scale fishers, contains use rights instead of management rights. Nevertheless, the limitation of traditional fishers' rights to access and withdraw the resources only within Zone 1 ignores the possible existence of traditional fishing grounds seaward of Zone 1 (Saad 2003).

Using Ostrom's (1990) approach, Satria (2007) reviewed coastal and fisheries policy, emphasizing the protection of local people. The related formal laws are the

revised Fisheries Law No 31/2004, the revised Local Government Law No 32/2004 (popularly called the Local Autonomy Law) and the Coastal and Small Island Management Law. Together they demonstrate a meaningful commitment to empower fishers and develop small-scale fisheries, because the government is responsible for providing financial support and promoting fisheries cooperatives. The revised Fisheries Law No 31/2004 appears supportive of pre-existing fisheries management systems, because in article 61 it addresses the access and withdrawal rights of the small-scale fishers. It states that "small-scale fishers are free to fish in all fisheries management areas of the Republic of Indonesia" (article 61). This article was inspired by the Local Autonomy Law No 22/1999, elucidation of article 10, and its revised version No 32/2004, and elucidation of article 18. By the latter "small-scale fishers are defined as traditional fishers who engage in fishing using traditional fishing technology and on whom an enterprise certificate and tax are not imposed, and are free to fish in all fisheries management areas of the Republic of Indonesia". This means that small-scale fishers gained rights to access and withdraw marine resources in all areas.

There are two critical issues regarding fishing rights as stated within the revised Fisheries Law and the revised Local Autonomy Law in the Reform Period (Satria 2007b). The first is that the articles addressing fishing rights for small-scale fishers ignore pre-existing property rights. Generally, many fishing communities develop property rights based on either their own local rules or customary law. These pre-existing rules address management rights by which fishers manage some marine resources and exclude outsiders seeking to fish in designated areas. As a consequence of limited communication conflicts will arise if all small-scale fishers can fish freely without prerequisites, since they may be either unaware of or unwilling to accept the local operational rules devised by the local fishers.

The second issue is that, although the revised Fisheries Law No 31/2004 is better than Fisheries Law 9/1985, there is no article in it that explicitly addresses management rights, although they have existed for centuries. This means that the local fishers must follow the rules devised formally from outside, either by the central or a local government. The critical issue is if the formal rules do not coincide to some degree with social norms, or are perceived as being unfair, they provide an immediate incentive for violation. Eventually, the rules are likely to be only weakly enforceable, resulting in poorly managed marine fisheries resources.

However, by the Local Government Law 22/1999 the central government must transfer the authority for marine resources management to local governments. Based on a case study in Lombok Barat (Satria and Matsuda 2004b) the positive impacts of that decentralization policy are state recognition and strengthening of pre-existing fisheries management systems, and devolution of fisheries management to local people. These results demonstrate that decentralization can be an external factor for strengthening pre-existing fisheries management systems, and indicates that to some extent local autonomy indirectly affects their importance and strengthening.

The direct policy of recognizing pre-existing fisheries management is stated in the Coastal and Small Island Management Law No 27/2007, Article 62, which clarifies

that communities and the private sector have an equal opportunity to participate in the planning, implementation and supervision of coastal and small islands management. It also mentioned in article 9 (3) that planning of zones is done considering the obligation to allocate community space and access in coastal and small islands.

That demonstrates that all coastal stakeholders are guaranteed fair treatment. Further, in article 61 it is affirmed that (1) the Government admits, respects and protects the rights of customary communities and traditional communities and local regulations of coastal areas and small islands that have been in operation for generations, and (2) it admits rights of customary and traditional communities and local regulations as a reference of coastal and small island management.

The Agrarian Principle Law (UPL) of 1960 also contained an article, stated in general terms, about the admission of customary rights. Also, in article 16 subsection 2 the UPL mentioned conservation and fishing rights. But this was of little importance because it barely regulated a withdrawal right, and not a management right, admission of which is of fundamental importance in the devolution of coastal management. However, the policy remains to be implemented via either a Government Act (*Peraturan Pemerintah*) or a Ministerial Decree (*Peraturan Menteri*).

2.6 Conclusions

The awig–awig, petuanan laut and sasi contain elements essential for the development of workable fisheries resource management for modern conditions. These include communal marine tenure and a combination of such input and output controls as seasonal closure, gear limitation and target size restrictions. These are all modern instruments of management that often cannot be implemented owing to the resistance of fisheries stakeholders, among other impediments. Further, as the practice of sasi demonstrates, some level of community compliance is fundamental to the successful implementation of these instruments.

In Indonesia pre-existing marine resource management systems can play an invaluable role in the protection of small-scale fishers in modern society. The prohibition of trawling, drive-in nets and other larger-scale fisheries in Lombok and Maluku assures exclusive access rights for local traditional fishers. The indirect benefit of such rules is reduction of social conflict and a theoretical improvement of the traditional fishers' income. In addition to material and quality of life benefits, these systems have a major role in fostering reinvention of a marine cultural identity for communities. The revived values, norms and cultural symbols (i.e. traditional ceremonies) of sawen and sasi have reinvented the marine cultural identity of Lombok and Maluku people, respectively, and have tangibly restored community pride in their way of life. This implies that fisheries are not considered just as a livelihood, but also as a way of life, a culture and a worldview. As part of that process, local marine ecological knowledge may become integrated in fisheries management. The use of pre-existing fisheries management systems also can stimulate a revival of local

traditional ecological knowledge and its use as a complement for common or conventional scientific knowledge.

Nevertheless, major adjustments are required to adapt these pre-existing elements to present-day conditions. Three main aspects need to be examined. The first is that the awig–awig requires an enhanced institutional legitimacy to ensure its wider acceptance. Second, and as was demonstrated by the discourse on sasi in particular, pre-existing systems can mean different things to different people. Therefore a strenuous effort is required to ensure that the various stakeholders accept them as a legitimate, community-based form of resource management. To do that also requires adapting the sasi, for example, to accommodate the biological and ecological parameters that are also essential in comprehensive marine resources management. Third, and extremely challenging, is the need to separate pre-existing systems from some of aspects of their original social context. In Kei Besar Island for example, control over petuanan laut has been the issue of conflict between the 'nobles' and the 'commoners,' two of the three distinct stratifications in Kei society (nobles [*mel*], commoners [*ren*] and slaves [*ri*]). Ownership is a token of the relationship between these classes (Adhuri 1998, 2002b). One likely problem is that because they are embedded within the social construction of the community, under particular contexts petuanan and sasi can be manipulated for social purposes that might be contrary to their functions as an instrument of resources management. As a result, a major adaptation would be required and a strong consensus needed that would function to separate petuanan and sasi from their pre-existing social functions, and to enable them to function in the modern context.

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