

# Chapter 7

## Conclusion: Errors and Insights

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**Abstract** In addition to the erroneous assumption that tropical fisheries are ‘open access’ and not managed by pre-existing systems, and therefore require externally imposed management systems to protect resources from collapse and lift fishing communities out of poverty, the Western approach to fisheries ‘development’ and management suffers from several other basic flaws. These are that (1) pre-existing systems are as much, if not more, concerned with the community of fishers and their families and not just fisheries, and their principal role is ensuring community harmony and continuity; (2) pre-existing systems can involve multiple and overlapping rights that are flexible and adapted to changing needs and circumstances; (3) fisheries are just one component of a community resource assemblage with fisheries managed in their ecological context of being dependent on the good management of linked upstream ecosystems, and on risk management and ensuring balanced nutritional resources of the community; and (4) pre-existing systems are greatly affected by a constellation of interacting external pressures for change. If these cultural, ecological, economic, political and social context factors are not appreciated, any ‘imposed management system’ would likely fail from the outset to achieve its goals.

**Keywords** Fishing community management • Context factors • External pressures • Linked ecosystems • Risk

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## 7.1 The Hegemonic Capitalistic-Industrial Model

The Modernization Theory, formulated in the 1950s and 1960s and inspired by the Marshall Plan for the post-World War II reconstruction of Europe, insisted that to successfully transplant social, economic and financial systems and values of industrial societies to poor tropical countries required that, because they were obstacles to development, their pre-existing economies and social systems be destroyed. Only by doing that could countries prosper and their people escape the trap of poverty.

As a consequence, tropical developing countries became enmeshed in a post-World War II system that is more nuanced than direct colonial administration, but nevertheless remains one in which the capitalistic-industrial model of the richest countries controls an uneven global resource exploitation that masquerades as ‘development’, ‘growth’ or ‘progress’. However, in reality it is the underlying cause of the uneven impact of the interlinked global crises of environmental degradation, persistent poverty and food insecurity (Ruddle 2008). Dissident thinking that challenges the conformity with agendas set by political power brokers and the institutions that implement their policies is either filtered from the various funding processes, or co-opted and ‘neutered’, and thereby rendered harmless in a politically correct fashion. One such ordained solution, for example, has been to promote ‘resilience thinking’, based on a conformist approach of consensus, trivialization of problems and the blind implementation of pre-packaged policies (Homborg 2009).

## 7.2 The Mismanagement of Tropical Nearshore Fisheries

Within that context nearshore fisheries ‘modernization’ and management in the tropics have long been characterized by a Western scientific bias exacerbated by a lack of understanding or interest in local management systems, except where they hampered colonial administration (e.g., Ruddle 1995, 2007a), and an unwillingness or inability to try alternatives. As a consequence of development assistance, in the tropics as in temperate latitudes conservation of fish stocks became the main goal of transplanted Western fisheries management models, with fisheries policy and management based on a familiar bio-economic model.

The most socially pernicious impacts of this Western model derive from the erroneous assumption of the lack of prior local institutional arrangements among fishers to govern a fishery, and that fisheries are unregulated by local collective action. Thus the management model argues that to manage stock externalities institutional arrangements must be imposed on local fishing communities by some outside level of government. Such schemes are based on the falsehood that the institutional context of fisheries in the tropics is one of open access. Although this is simply not true for vast tracts of the world’s nearshore waters, the lie was perfectly aligned with Western colonial and later assistance prescriptions for tropical developing countries.

Not uncommonly, fisheries biologists and social scientists who advise them have limited experience in the tropical milieu. Moreover, few fisheries scientists based

in temperate latitude institutions sense any career advantage to working in the tropics. Not surprisingly, therefore, few appreciate the differences between the temperate zone industrial fisheries, with which they are familiar from their own training and research experience, and tropical nearshore fisheries. Consequently erroneous interpretations either are learned by or passed on to those who fund and make development policies and programs (Ruddle and Hickey 2008). For example, despite a huge amount of contrary evidence accumulated over the last three decades, it is still not well appreciated that opportunities to increase catches often are limited by exclusive rights systems. This is no small matter, because in many tropical areas marine tenure with associated rights limiting entry has been customary for centuries, with fisheries management based largely on such qualitative controls as limited access, closed seasons, areas and species, and a range of behavioral prohibitions which limited fishing pressure (Johannes 1978, 1982; Johannes and Hickey 2004; Hickey 2006). In contrast, an all too common and incorrect generalization is that the problem with fisheries lies in their open access nature (cf. Chapter 3, this volume).

### 7.3 Centralization Versus Decentralization

States exercise special claims to control common pool resources and manage the environment. In most countries fisheries management has usually been top-down, centralized, science-based and bureaucratic. Historically, that approach was basic to most development assistance programs. Criticisms of the failure of central management are commonplace. For example, fisheries management problems in Indonesia have been attributed to failures of the centralized fisheries system (Satria et al. 2002). In common with general criticisms, for Indonesia it was widely argued that environmental and resource concerns were subordinated to other development priorities, such that the central government was unwilling to address fisheries issues specifically. It also lacked human and financial resources to do so, should a compelling need have arisen. In addition, there was a limited financial and professional capacity to develop effective policy for resource and environmental management, as well as to monitor and enforce the implementation of any measures designed. Another important constraint has been resistance of resource users, owing to poor relationships between local communities and state authorities (see, for example, Bailey 1988; Bailey and Zerner 1992; Bolland and Platteau 1996).

From the perspective taken in this volume, the critical aspect of that centralization policy is that, as in Indonesia, for example, it turned all nearshore marine waters into de facto open access, even though they were regulated de jure. This led to resource depletion, a main reason being that the high cost of enforcing centralized management made it impossible not to delegate to local people the responsibility for managing the great range of marine and coastal ecosystems. Meanwhile, many pre-existing fisheries management systems were undermined, and so could not bring their valuable social capital to bear on local management issues, owing to a lack of recognition and protection by central government. The de facto open

access regime situation impelled 'free competition' among fishermen of different economic levels and ethnic and cultural backgrounds, among other distinctions. Resource depletion through overfishing and the destruction of mangroves and coral reefs was the inevitable result, which threatened the sustainability of fisheries, thereby leading to social conflicts.

Mostly conceived of as a failure, as evidenced by the collapse of fisheries managed according to this approach, it has been replaced by decentralization and approaches that emphasize participatory arrangements. But there are formidable stumbling blocks inherent in this model, too, and especially in the near-shore and small-scale fisheries of tropical countries (Ruddle and Hickey 2008). In the Philippines, decentralization was practiced from 1991, following enactment of the Local Government Code (Ebbers 2004), Section 16 of which gave a Local Government Unit or municipal government delegated authority for the management, conservation, development, protection, utilization, and disposition of all fish and fishery resources within their respective municipal waters. Further, the Fisheries Code of 1998 embodied the decentralization spirit, as demonstrated by the clarity of the roles, functions and responsibilities of the local government for coastal aquatic resources (Ebbers 2004). The Fisheries Code of 1998 promoted collaboration between government institutions and fishing communities in managing coastal fisheries resources (Ebbers 2004). In the Philippines the mechanisms to ensure community participation have been formalized, at least in law. In Indonesia decentralization was advanced by the Local Government Law of 1999, which empowered local governments to make decisions regarding local marine fisheries management. However, the way to institutionalize and establish decentralized marine fisheries management is still being considered. Nevertheless, the decentralization policy in Indonesia has had some positive impacts, particularly in the state recognition and strengthening of pre-existing fisheries management systems and the devolution of fisheries management to the community (Satria and Matsuda 2004a, b).

Decentralization is now regarded as the appropriate way to manage fisheries, by enabling local governments to control them. Ribot (2002) also justifies decentralization as a means of increasing the efficiency and equity of development activities and services delivery, since democratic decentralization is a promising means of institutionalizing and scaling up the popular participation that makes community-based natural resources management effective. However, Seddon (1999) argued that only if information flows between citizens and local government would the proximity of 'sub-national governments' to their constituents enable them to respond better to local needs and efficiently match public spending with private needs. On the other hand, the process of decentralization can itself enhance the opportunities for participation by placing more power and resources at a closer, more familiar and more easily influenced level of government. Hence, pre-existing fisheries management systems are potentially recognized, revitalized and developed. However, in addition to the potential positive impact of decentralization the process may lead to conflict, particularly when it involves the transfer of natural resources management and powers (Ribot 2002). But reality tempers such optimism.

## 7.4 Differing Perceptions of the New Western Decentralized Management Concepts

Community-based and co-management systems have been widely examined to replace the centralized system. The former refers to the form of management whereby a community controls the planning, implementation and evaluation of fisheries management. The latter is a practice by which fisheries management authorities and obligations are shared between government and the community (McCay 1995). Co-management has been particularly fashionable in recent years, and has been widely advocated regardless of its suitability to local social conditions, and commonly without regard for pre-existing systems of management.

The question of perceptions must be paramount in any evaluation of the suitability of the co-management approach, since at least national governments, donors and user communities are normally involved, regardless of the details of any local setting (Hara 2000). Each is likely to have different perceptions of the benefits, basis and hidden agendas in the co-management process, such that the inevitable conflict undermines programs or projects from the very beginning. Among the most pernicious of all these differing perceptions is that national governments and donors commonly assume that user communities are not organized, and that existing local institutions based on pre-existing systems and customary law are not suitable for use in a new management regime. As a consequence, it is usually assumed that the national government must organize and mobilize the community to participate effectively in the new management regime. Usually, the new institutions are created by government facilitators, nominally employing Western democratic principles and processes (Ruddle and Hickey 2008).

Common sense would suggest that the principal interest of fishers is not in the type of management system under which they operate so much as an improved household and community economic situation, and general social well-being. Although there is much theory, there is little practical evidence that co-management would contribute to this any more than the failed management regimes it is advocated to replace. It probably would not, since the principal general economic issue in fishing communities is not the condition of the fishery but of the narrow economic base of all rural communities.

Overcoming the weaknesses that constrain the ability of communities to manage themselves and their resource endowment in an integrated manner is a key to local development; not some elaborate plan devised from afar. Unfortunately, many of the Western-designed projects simply take too long, their design is too elaborate, they involve too many actors and levels, and there is far too much scope for sabotage. In contrast, many of the earlier studies on non-Western management systems (e.g., Johannes 1978, 1981, 1982) proposed using pre-existing local systems for a modern purpose in precisely those locations (e.g., Samoa, Vanuatu and Solomon Islands) where pre-existing systems remained either still functional or well remembered, as had been done effectively long ago in Japan (Ruddle 1987). Unfortunately, others, in the service of donors, latched onto these concepts and devised convoluted schemes to have 'locals' in many diverse parts of the tropical world want what they needed, whether they realized it or not. That was a serious misapplication of ideas.

## 7.5 Poorly Examined Basic Issues

In addition to the now familiar design principles, structure and content of authority, rights, rules, monitoring (etc.) and sanctions, the five studies in this volume have demonstrated some fundamental issues not usually examined in studies of pre-existing aquatic resources management systems. We summarize them here.

### 7.5.1 *Managing Fishing Communities not Fisheries*

The five cases in this volume demonstrate that each system described is as much, if not more, concerned with the community of fishers and their families as with fisheries per se. It can be argued that the principal role of the pre-existing management systems described in this book is ensuring community harmony and continuity, which commonly emphasizes importance of ancestors. This is clearly demonstrated for the cases from Batanes Province of the Philippines (Chapter 4) and Vietnam (Chapter 6), and to a lesser extent those from Indonesia (Chapter 2). It is also less apparent in the studies of Laos (Chapter 3) and Thailand (Chapter 4), which were designed to highlight other aspects of systems. Central to the systems described here for Indonesia, Batanes Province of the Philippines, and Vietnam is the role of sacred functions to achieving community harmony and continuity. It is less evident in the study on Laos (Chapter 3), but was examined by Tubtim (2006).

As explained in Chapter 2, under the awig-awig system of Lombok Island, Indonesia the coordinated authority resides in the mangku, an hereditary position the power of which is regarded as supernaturally rooted. Community members comply with the decisions of the mangku based on their belief in his sacred powers, which also represent community continuity through his inherited lineage. In his sacred role a mangku maintains the traditional community values regarding society and human relationships. His resource management role, which is based on his being a knowledgeable person with the secular ability to practice *menjango*, *membanggar*, and *membuka*, is also based on the sacred, since all of these secular activities/abilities are accompanied by religious ceremonies. Monitoring of rules regarding closed seasons and areal closure is done by *lang-lang*, the traditional coast 'police' appointed by the mangku laut, and therefore by extension deriving their authority from his sacred authority. Similarly, in Maluku Province, Indonesia, the *sasi* rules that govern the use of the *petuanan* are accompanied by religious ceremonies performed by a ritual practitioner, thus giving *sasi* also a sacred basis.

In Batanes Province, Philippines, the underlying function of the seasonal fishery is community management by ensuring the continuity of its values rooted in ancestor worship and associated symbolic behavior. Fishers make a 'vanua of the ancestors' based on sacred rites to ensure fishers' and community safety and a good catch. Authority is vested in a 'lead fisher', who makes the new season's first fishing trip and thereby inaugurates the *vanua*. He is a master fisher selected by the members of the *vanua* based on his experience and skill in fishing, and his good relationships within the community.

Symbolic authority consists of making the vanua and a ritual contract based on cooperation and conformity of the fishers, who ask the fish to appear and thereby ease the spirits of the community's ancestors. The principal rules governing the fishery reinforce this sacred nature of the fishery. In particular this can be seen for the set of rules that prescribe etiquette during fishing, when speaking of the fish, handling the catch, and distributing and eating fish. The object of this set of fish-related rules related to symbolic behavior is to maintain social harmony, order and cooperation in the community by all members showing respect for the Dorado fish. The only type of punishment described is social pressure to cease fishing temporarily on those perceived to be transgressing etiquette rules.

Management of the community and not just of the fishery and the role of the sacred is of paramount importance in Vietnam, where 'remembering the source from which one drinks' summarizes the focal importance of the ancestors and continuity of the community through interpersonal management that includes all fisheries stakeholders (Ruddle 2009). Although varying by locality, the veneration of deities and ancestors combined with the sacred obligations of mutual assistance remain the underlying and all-pervasive principles of a van chai. The linkage between shrine annual festivals and mutual assistance implies that mutual assistance is a sacred duty of van members, and thereby demonstrates the traditional moral authority of the van (Ruddle 1998, 2009; Ruddle and Luong 2009). The rituals performed at these festivals emphasize the importance of harmonious relationships among the various stakeholders in the fishery, and the vital importance of mutual assistance, both of which ensure the continued prosperity of the community and thereby venerate the ancestors. Mutual assistance obligations are specified in detail. The predominant design principles of a van chai are those reflecting and governing human relationships among the various stakeholders in the fishing community, in the context of mutual assistance and respect as governed by the precepts of the whale shrine. Despite years of turmoil, the core of the van chai system has proven remarkably resilient, undoubtedly because its salient characteristic is regulation of inter-relationships among fisheries stakeholders, within the framework of the strong moral authority of the community shrine, rather than regulation of fishing and the fishery per se.

## ***7.5.2 Complex, Flexible and Dual Rights Systems***

### **7.5.2.1 Complex Systems**

As particularly well demonstrated for the Thai study (Chapter 5), pre-existing systems can involve multiple and overlapping rights that are nevertheless flexible and adapted to changing needs and circumstances. Rights revolve around a primary (i.e. a birthright) to access common property resources. Such an entitlement is meaningless if not accompanied by the right to exclude outsiders, or to negotiate access restricted by obligations, as is demonstrated in the cases from Maluku Province, Indonesia (Chapter 2), Laos (Chapter 3), and especially from Thailand (Chapter 5).

Whereas most of the commonly acknowledged rights in the literature emerge in these cases, straightforward assumptions regarding their discreetness either in form or operation are often revealed to be simplistic; rights are usually complex. The situation is varied and defies facile observation. Nevertheless, the fundamental rule of birthright operates in all cases except that of Batanes Province, Philippines, where any resident fisherman has the right to participate in a vanua and can select which he will belong to. Similarly the right of exclusion of outsiders or, better put, negotiated entry rights for them, is common, as in Maluku Province, Indonesia (Chapter 2), Laos (Chapter 3) and Thailand (Chapter 5).

In Maluku Province, Indonesia (Chapter 2), fisheries property rights are based on the concept of *petuanan laut*, a community-controlled exclusive territory, which convey a property right within an integrated estate system. In that territory community members have a birthright of *hak makan*. However, only the decedents of the original community founding group have the *hak milik*. Two basic rights are (1) *hak makan* ('the right to eat') and (2) *hak milik* ('the right of ownership'). *Hak makan* is compounded of the right of access and the right to use. *Hak milik* also contains the 'right of transfer'. The set of use rules governing a *petuanan laut* is known as *sasi*. The main ones pertain to access rights of outsiders. This is permitted via *hak makan*, but based on the concepts of transfer contained within *hak milik*. *Sasi* is accompanied by religious ceremonies performed by a ritual practitioner, which gives it a sacred basis. Authority is vested in the *kewang*, a traditional special committee headed by *kepala kewang*, who heads the village and leads the practice of *sasi*. There exist many detailed variations based on the type of resource area controlled, the belief system, the type of ritual leadership and the locations where the rites are performed.

In the Lower Songkhram River Basin (LSRB) of Northeast Thailand fishers operate under dual system comprised of the Fisheries Law of 1947, administered by the Department of Fisheries, and pre-existing village authority and rights. The latter recognizes that fishers have ownership of fishing rights areas and that they also have the right to exclude others from fishing within them. The result is a complex and multiple set of overlapping, complementary and conflicting individual, common and state property rights within a fishing ground (Khumsri et al. 2009). Communities recognize differing 'bundles' of *de facto* rights over fishing grounds, the ownership of which is restricted to those families, relatives or partners with traditionally established user rights over particular water bodies. The principal bundles of rights are (1) property rights as an authorized user, (2) property rights as a proprietor, and (3) property rights as an owner. As a consequence, all the best locations have long been owned. The basic features of these rights are that (1) owners can exclude others from their fishing ground, and (2) the rights can be sold,

### 7.5.2.2 Local Change in Rights Systems

The barrage fishery in LSRB of Northeast Thailand provides a detailed example of local change. As a result of both administrative change and the evolution of the

rural economy since the 1950s, major changes have occurred in the barrage fishery. Formerly, grounds for it were owned by individuals as a private property. But from 1986 the barrage fishery was reclaimed by communities, and converted to a common property. Nowadays, possession of the de facto rights for the barrage fishery alternates between the community and individuals. Communities collectively agree to auction barrages and to decide access and use rules for them. Winning bidders are the authorized users, since they have only operational rights of access and withdrawal, and cannot establish management and exclusion rules. However, they can transfer and sell their harvesting rights, as when they sell them to small-scale fishers, and others may access the barrage areas for collecting wild foodstuffs, but not for fishing. Finally, after barrage operations cease the fishing grounds again become a common property open to the entire community (Khumsri et al. 2009).

### **7.5.2.3 Local Acceptance of Illegal Gear and the Conflict Between Local and State Rights**

In the LSRB the consensus is that for both ecological and social reasons barrage fisheries have more negative than positive impacts. So most fishers and fisheries officers regard barrage fishing negatively, and agree with the Fisheries Law concerning its illegality. However, barrage fishing produces the highest fish yields of any large-scale gear used in the LSRB, and since this relates to the local communities' objective of maximizing revenue, rules are relaxed when applied to barrage fishing, and local DoF officers do not monitor compliance. As a result the barrage fishery is widespread and has gained increased political and economic importance under the auction system. This situation is tolerated by government, even though known to threaten the sustainability of fisheries resources (Khumsri 2008; Khumsri et al. 2009).

## **7.6 Fisheries Are Just One Component of a Community Resource Assemblage**

The 'estate concept' in which fisheries are just one component has fundamental implications for management. Within the 'estate framework' fisheries are managed in their ecological context of being dependent of the good management of linked upstream ecosystems as well as risk management and ensuring balanced nutritional resources of the community (Ruddle 2011).

Although pre-existing systems of resource integrated resource management have long been widespread in tropical regions, they have not been well described for Southeast Asia. They are widespread in the South Pacific, and on high islands 'estates' are usually wedge-shaped, extending from a central watershed along lateral ridges into inshore marine waters. These are or were self-contained units that include a complete set of the resource areas and habitats required to provision the society that inhabited them. It remains a widespread integrated management strategy, as

Ruddle (1994) noted. Examples also occur in Africa (Manshard 1974; Ruttenberg 1980), and South America (Ruddle and Chesterfield 1977).

The awig-awig of Lombok Island, Indonesia (Chapter 2) provides a Southeast Asian example. It is based on the integrated estate concept known as sawen, a sophisticated human ecosystem concept that links ecological systems and resource assemblages from the upland forest through the coral reef (Satria 2007). Although each section of the longitudinal profile has its own management authority, with distinct roles and responsibilities for resource sustainability, their management roles were highly coordinated, which resulted in functional interdependence.

In the system described for Batanes Province, Philippines (Chapter 4) it is important to note that the maximization of the Dorado catch is not the object of this fishery. Rather, it is used as a currency with exchange partners to pay them for other economic services that they have performed for the fishermen (like farm labor during the Dorado fishing season, for example). So in this sense in addition to being a system for community management, it could be envisaged as an ‘integrated estate system of the mind’.

## 7.7 Change

Among the common major external forces causing change are the legacy of colonialism, contemporary government policy and legal change, and the replacement of traditional local authority. Demographic change, ‘modernization’, economic development, commercialization and commoditization of resources, technological change, donor conditionalities, and national policies for economic sectors other than fisheries collectively have generally resulted in changes in the perceptions of fishing communities regarding the value of aquatic resources. Often external factors are internalized by village elites, which can lead to the breakdown or weakening of pre-existing systems of management, all of which arose and developed within a specific social context to meet particular needs. Communities are not immune to the pressures that drive larger polities and commercial elites. Expanded markets introduce temptations for individuals to profit at the expense of the community equity and allocation of resources and thus undermine the moral authority of systems (as in the Kei Islands of Indonesia, Chapter 2). As a consequence, participants in pre-existing systems “... cannot be assumed a priori as being inherently benign resource-conservational and socially equitable actors. Hence any policy and program decisions about the present-day and future usefulness of local management systems must be based on a clearheaded and realistic evaluation of the moral authority, motives, interests and cultural conceptions that underpin and drive them” (Ruddle 1993:2).

Many of the earlier studies on non-Western management systems proposed using pre-existing local systems for a modern purpose in precisely those locations (e.g., Samoa and Vanuatu) where pre-existing systems remained either still functional or well remembered (Johannes 1998, 2002). That approach was applied with

the now clearly visible excellent results, meriting reinforcement and wider application. To do that demands a radically different approach to fisheries management (Ruddle 2007b), which recognizes (1) that the underlying characteristics of nearshore fisheries in tropical countries are vastly different from those for which the conventional Western approaches were developed; (2) that the various Western approaches to managing fisheries have not been successful in tropical nearshore fisheries; and (3) that there exist in many tropical developing countries pre-existing systems that provide proven alternative approaches to management and blue prints for new systems, since they are already pre-adapted to the characteristics of tropical nearshore fisheries and cultural milieux.

However, in many other places, including much of Southeast Asia, economic, political and related change triggers an alteration of management and property rights regimes (e.g., Ruddle 1993). In Vietnamese fishing communities, for example, the van chai was formed centuries ago in areas with little population and small and local markets for aquatic products, where there was little pressure on aquatic resources, and where fishing boats and gear were just those needed to harvest for local consumption. Other than for administration, such fishing communities were little connected with the larger national social organization. In human terms the van chai was based on 'neighborly affection', in which behavior and social standards were rooted in Confucianism, which remains fundamental in Vietnamese society. Satisfaction of the spiritual needs of its fishing community was a main function of a van chai.

But things can change fast, as during the post-colonial era, from 1954 to 1975, when conditions differed in the former Democratic Republic of Vietnam, in the north, and the Republic of Vietnam, in the south. In the former, coastal waters belonged to the state and governance of local waters was by the commune, the lowest level in the government structure. Fisheries production was collectivized. In the south, ownership rights remained unchanged; fishers leased rights from and were taxed by village governments. With re-unification, in 1975, the government initially extended nationwide the system prevailing in the north. Previous administrative organization and rights were abandoned, and the management of local fisheries according to national laws was handed to the provinces and the communes. During the period of cooperative development, the national government paid no attention to the van chai, so they declined. However, after the near universal collapse of fishing cooperatives, the national government is beginning to appreciate the potential of van chai as a vehicle for local fisheries management (Ruddle and Tuong 2009).

Despite those decades of turmoil and change, in many areas the systems have survived. It is noteworthy that because the salient characteristic of traditional management systems in Vietnam is regulation of inter-relationships among fisheries stakeholders, within the framework of the strong moral authority of the community shrine, rather than governance of fishing and the fishery per se, the core of the system has proven remarkably resilient. Nevertheless, the van chai is now strongly influenced by external forces, such that its autonomous identity has disappeared. As a consequence local social norms and standards have changed radically, undermining the social mechanism based on pre-existing or customary rules for van chai operations.

Further, the pressure on aquatic resources is now intense, with a greatly enlarged market that now includes all of Vietnam plus a large international demand. The means of production are now so intense that the resource has been greatly depleted. As a result of such massive changes in context, it is an illusion to consider restructuring the van chai system exactly in its pre-existing form. However, this does not preclude using the underlying principles embodied in the philosophy and pre-existing rules of the older van chai, to empower all fishing communities to participate in sustainably managing aquatic resources. The challenge is to create an appropriate legal framework for doing that. This is the situation throughout Southeast Asia.

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