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The Transformation of Organizational Partnership in the Management of Common-pool Resource: A Case Study of Marine Protected Areas in Green Island, Taiwan

Ren-Fang CHAO¹

Abstract

The oceans, as a common-pool resource, are facing an ever increasing number of crises and challenges, and the promotion of marine protected area (MPA) management is viewed as the best path to resolving such issues. This paper takes MPA management in Green Island as the basis for its analysis, employing the method of participant observation with the aim of discussing changes that occur in institutional partnerships throughout the process of MPA management. Results show that, in Green Island, in accordance with developmental requirements, there was a trend for partnerships to become increasingly complex, and for community level organizations to have close ties. Outside organizations are the spark that ignites MPA mechanisms, but such organizations first have to court the trust of the local people, in order to successfully promote their establishment. When community partnership networks mature, further challenges to their power develop. 'Learning-as-participation' can go some way to reducing conflicts that arise from power struggles. As well as this, local intermediary organizations play a key role in the development of institutional linkages, their main functions being coordination of inter-organizational communication, resources integration, and expansion of partnership networks. Such organizations are unique in their promise of an 'indefinite' service, and so can build close ties with fundamental community organizations.

Keywords: social-ecological systems, co-management, institutional linkages, collaboration, community-based, sustainable development.

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Introduction

The oceans, which cover 70% of the Earth's surface, are important ecosystems with a key role in the survival of humanity, providing humans with around 19% of the protein that they consume (Botsford *et al.*, 1997), and as a function of climate regulation (Ekstrom & Crona, 2017). In addition, the oceanic biological pump can effectively transfer organic carbon from the surface to the deep ocean, and this process is helpful in regulating the climate of the earth (Honjo *et al.*, 2014). In the past, many people regarded the oceans as inexhaustible resources that could forever be utilized by the fishing industry (Shao, 2009). This has led to the overuse and willful destruction of ocean environments and a gradual eroding away of the natural balance that was originally in place. The nature and extent of pressures on the oceans would be great, due to the exhaustion of their natural resources, marine conservation has become an important battle in the fight for environmental protection (Hawkes *et al.*, 2009). Over the last decade, the governments of the world have continually focused on the issue of marine conservation with the hope of achieving the long-term sustainability of marine resources (Druel & Gjerde, 2014). Especially, the outcome document of the United Nations Conference on Sustainable Development 2012 ('Rio + 20'), recognized that "oceans, seas and coastal areas form an integrated and essential component of the Earth's ecosystem and are critical to sustaining it" (Wright *et al.*, 2016). The importance of conservation and sustainable use of the oceans was reinforced by the UN member states (Vince & Nurse-Bray, 2016; Eikeset *et al.*, 2018). Management of Marine Protected Areas (MPAs) facilitates the recovery and the increase of marine life populations, and has a spillover effect with regard to neighboring areas that are not under the same management regime. This spillover effect can, in turn, be advantageous to neighboring fisheries and help guarantee the sustainability of the fishing industry (Gell & Roberts, 2003; Colleter *et al.*, 2014). As such, the most ideal method in maintaining sustained development of marine ecosystems is the promotion of protection and management mechanisms through MPAs (Shao, 2009).

The concept of common-pool resource is considered that an inability to exclude users from the natural resources and usage by one person leads to a reduction in benefits for other users (Ostrom, 1990). When defined as a common-pool resource (Ostrom, 2008), the oceans must be regulated via collaboration of many different organizations in order to avoid a situation such as that Hardin (1968) inferred the dangers of over use of natural resources by humans. The issue of common-pool resource governance faces many serious difficulties such as: appropriation externalities, technological externalities and difficulties with distribution (Ostrom *et al.*, 1994; 1999). Ostrom (2009) consider that the Social-Ecological Systems (SEs) Framework is likely to prove the best option in resolving these issues. Because the nature and human society are interdependent, we need to seek some kind of organic connection into a unified system between the natural and human

society. SES is to emphasize the integration of human socio-economic system and natural ecosystem. The role of man as a governor should also be incorporated into the whole system to resolve the governance issues of common-pool resource. SESs is designed that when resource users are allocated resource units, they receive them in accordance with the conditions of the overall system, and the related ecological, social, political and economic situation; this also ensures adherence to regulations and procedures, and maintains resource systems (McGinnis & Ostrom, 2014). It can, therefore, be stated that SESs are an ideal route towards the goal of the sustainable development of common-pool resources.

It is now widely recognized that co-management with local groups is an ideal way to manage common-pool resources (Ostrom & Cox, 2010; Gutierrez *et al.*, 2011). Previous research has also shown that participation of local residents to the decision-making processes also a key factor in the success of MPA management (Claudet & Pelletier, 2004; Himes, 2007; Chao, 2014a). Governance systems, as a first tier category within the SESs framework, reveal the importance of organizational partnerships and operational cooperation (McGinnis & Ostrom, 2014). Berkes (2009) states that within a successful community, development usually requires a complex web of between 10-15 cooperative public-private partnerships. Such public-private partnerships often cross levels of political, social and economic organization (Seixas & Berkes, 2010), and so the governance system can be affected by organization to organization interaction, which in turn can have a knock-on effect with regard to a community's development.

Although a community-based partnership approach can potentially involve the spanning of four levels of governance: local, regional, national and international (Berkes, 2009), most communities are not fortunate enough to enjoy national and international support. Particularly within communities that have just started such projects, or within developing communities, the issue of how to build and expand partnerships around limited resources is worth looking into further. On top of this, Seixas and Berkes (2010) suggest that over time, the volume of interaction between institutions raises. This is a common phenomenon in community development. So, as the network of institutions expands, which factors are key in promoting such expansion? And as the community network expands, what changes come about due to relations between institutions? What are the implications of such changes on the governance of common-pool resources? And how can the system of partnerships deal with and overcome such issues?

With regard to these questions, I chose Green Island in Taiwan as the focus for analysis. The community is adopting the MPA Management Plan, which aims at establishing an effective MPA management mechanism. I research began in Green Island in 2002, and employed the method of participant observation to carry out analysis, the aim of which is to address the issues stated above.

The significance of organizational partnership in the management of common-pool resource

Common-pool resource and social-ecological systems

Common-pool resource refers to a natural or man-made resource system that is large enough to exclude the high cost of potential beneficiaries of the gains from the use of resources (it would not, however, be impossible to exclude them) (Ostrom, 1990). Such a resource is a common or shared resource, but is shared between users in terms of resource units; this leads to a particularly exclusive and competitive situation. Fisheries, forests, groundwater basins, pastures and grazing systems, lakes, oceans and Earth's atmosphere are all examples of common-pool resources (Ostrom, 2008). These resources are used to the utmost by individual entities utilizing them for their own purposes, a situation that eventually leads to conflict with regard to what is most ideal for such individuals and what is ideal for the wider community; this creates significant difficulties with regard to common-pool resources. In reference to this problem, Ostrom (2008) believes that the resolution lies in the arrangement of various institutions. Such institutions include the government, private enterprises and community ownership initiatives. Previous research has shown that many common-pool resources are co-managed by the government and community organizations (Berkes, 2007; Kumar, 2006). As such, the question of how to build inter-organizational partnerships has become an important issue with regard to solving the institutional difficulties related to common-pool resources.

Ostrom (2008) has criticized other scholars for their tendency to develop simple models aimed at solving the issue of common-pool resources; a method which usually ends in failure. Instead, she puts forward the SESs framework: a complex network focused on solving the problems common-pool resources face. The framework is divided into many differing levels, with four core systems: resource systems, resource units, governance systems and actors (McGinnis & Ostrom, 2014), all of which interact with each other to form a larger, complex system. Since being put forward, the SESs framework has been revised several times (Ostrom & Cox, 2010). Of particular note is that, when amending the framework, McGinnis and Ostrom (2014) paid special attention to their explanation of governance systems, attempting to add a third-tier variable subsystem at the second-tier variable level of the overall governance system. Second-tier variable rule-making organizations include private sector organizations, NGOs or NPOs, community-based organizations and hybrid organizations, all of which are classified as part of the third-tier variable subsystem. This amendment shows the importance of community partnerships within the SESs framework.

The establishment and linkage of organizational partnership

Cooperation between a multitude of organizations is a key factor with regard to successful community development (Berkes, 2007; Seixas & Davy, 2008). Since community development must start somewhere, the problem of 'how to start' is an interesting one. Chuenpagdee and Jentoft (2007) discuss the early stages in the establishment of a co-management structure. Their research shows that the initial leaders want this to be a "nice to do", and in most cases, government officials and regulatory authorities introduce the co-management mechanism. Usually, the early stages of co-management development also require help from outside of government in the form of scholars or relevant institutions. Such ideas of involved by external forces in initial stage are of use in explaining problems, which occur during the early stages of community partnership development.

Stable community development usually involves the interaction of between 10-15 organizations (Berkes, 2009); however, such partnerships do not necessarily all have to be active at once, and over time, the volume of interaction between organizations changes (Seixas & Berkes, 2010). This is related to the ultimate aims of each stage of community development, as well as the social environment within which each stage takes place. Linkages between organizations are certainly not simply horizontal or vertical in nature, but instead form more of a network (Folke *et al.*, 2005). Factors such as the development needs and expansion of partnerships, expansion of geographical scope and expansion of the functioning nature of the relationship are all relevant in this (Seixas & Berkes, 2010).

Partnerships are not set in stone, but rather align with social factors, and evolve and adapt as interaction with the other organization takes place (Armitage *et al.*, 2007). Beem's (2007) research showed that with regard to community learning and adjustment within community organization management, leaders and key individuals play a vital role. Seixas and Berkes (2010) believe that leaders usually use the knowledge, skills and experience gained from previous experiences as their basis for organizational connections and in-house learning, allowing them to straddle or bridge organizations of differing levels. This enables inter-organizational relationships to become closer.

Aside from this, Bene and Neiland (2006) make the point that co-management involves the relaxation of government control, a situation which allows for the strengthening of elitism at the community level. This way of thinking highlights the role of 'power' within the partnerships, with a strengthening of elitism influencing linkages within partnerships and having a negative effect on community development.

With regard to the network of community institutional partnerships, such partnerships usually begin simply and grow to become more complex. Seixas and Berkes (2010) analyzed ten successful UNDP Equator Initiative Cases, and came up with the following conclusions on institutional partnerships: (1) Among the institutional linkages, the number of two-way interactions (i.e. those benefiting

two parties) exceeds the number of one-way interactions; (2) The core set of strong two-way linkages occurs at levels closer to the community (rather than at higher levels, such as the national level); (3) Choosing initial partners carefully is fundamental to a project's success; (4) The institutions take advantage of a window of opportunity to establish linkages for their benefit; (5) The availability of a redundancy of partners with similar interests and capabilities may be important.

Seixas and Berkes' (2010) analysis of community cases did not look at why these partnerships were originally formed. Usually, at the international level the injection of resources required for a project is significant; however, most communities find it extremely difficult to not only garner attention at an international level, but also to then offer up the resources required at such a level. As such, whether or not the above conclusions apply to small scale, developing communities is a key issue discussed in this paper. Taiwan's Green Island is a small-scale community; this paper uses the above conclusions as the basis for investigation into the development of inter-organizational partnerships in the Green Island community.

Methods

Research area

Green Island is located in the Pacific Ocean off the Southeast coast of Taiwan, and has a surface area of 17 km². The island was formed by volcanic activity and is surrounded by coral reefs on all sides. In 1990, Green Island began developing its tourist industry. With a population of 3000, the burden of 300,000 visitors to the island each year, coupled with the fact the island is in a state of economic transformation, has meant that marine resources are under serious threat. According to research by Chen *et al.* (2008), Green Island's development of tourism has led to a gradual decline of certain fish species. Despite the local government decreeing the establishment of two marine protection areas as early as 1991, due to a lack of effective enforcement, the relevant rules have not been implemented. In 2006 the government proposed the designation of national parks with a mind to include within the scheme plans for the implementation of marine protection management. This was met with considerable resistance from certain local residents, but the idea of marine conservation endured and from 2006; an Ocean Patrol team of local people has taken up the task of patrol and protection. Eventually, in 2008 a Fisheries Protection Zone was set up, and in 2014 the protection zone was expanded with the banning of fishing certain species such as *Tridacna* shell.

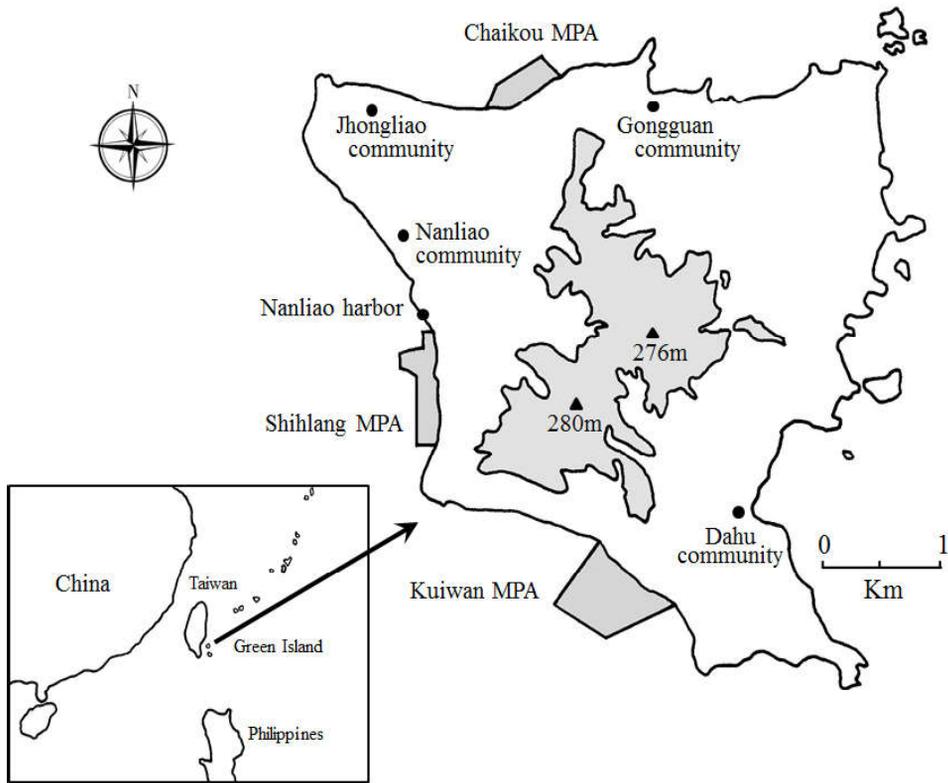


Figure 1. Research area

Research Methods

Due to the changing nature of institutional partnerships, and the fact that such partnerships play out over a protracted period of time, researchers are often unable to provide thorough conclusions as their investigations are limited to a certain time frame. Stronza (2009) carried out ethnographic research over a period of 12 years for her analysis of the development of common management and ecological tourism in the Amazon. This method of protracted research effectively resolved the shortcomings of research that was carried out over lesser periods of time. Although Green Island only covers an area of 17 km², and the MPAs do not make up a large area either (Figure 1), the research put forward in this paper was carried out over a period of 15 years, beginning in 2002. Through participant observation over this time period, effective analysis of the causes of change in partnerships within the management structure of MPAs in Green Island can be put forward.

Case study: The development of organizational partnership for MPAs in Green Island, Taiwan

When this research project began in 2002, tourist numbers in Green Island were gradually increasing and marine population sizes were beginning to decrease due to over fishing. Local residents had also begun to realize that marine resources were depleted and they were facing a crisis. They further became aware that destruction of marine resources would be damaging to the tourist industry, which they had now come to rely on as a source of income. In the beginning, locals were at a loss as to how they could prevent further damage to marine life. Through discussion and dialogue, the establishment of NGOs and implementation of initiatives, a complex MPA management network was developed. Institutional linkages within MPA management networks develop gradually, and tend to start simply and become more complex over time (Seixas & Berkes, 2010). Relationships are affected by a range of factors and certain key events can lead to changes in MPA management or institutional linkages. In order to understand the MPA management network and the causes of change within it in their entirety, this paper will separate the following four key factors for greater analysis. These key factors are: the development of institutional partnership networks, how community institutions and partnerships are set up, the effect of changes in power structure with regard to local governance and intermediary organizations at the local level.

The development of institutional partnership networks

The development of institutional partnerships on Green Island can be separated into three stages: the preparatory stage (pre-2006), the developmental stage (2006-2010) and the developed stage (2011 - 2016) (Figure 2; Figure 3). The institutional network during the developmental stage is small and lacks interaction between organizations. At this point, there was only a section of researchers that were calling for the government, on moral grounds, to place more attention on the subject of marine conservation. Marine researchers' appeals to the government appear to have little effect, and Chuenpagdee & Jentoft (2007) suggest that in the early stages of co-management development the education of government officials is very important because it is only when the government has enough analytical knowledge and understanding of the necessary concepts that they will be equipped to help promote co-management mechanisms. A turning point occurred in 2005, when the Society of Sustainable Development (SSD) stepped in and convinced the government to invest resources in the promotion of MPA management. Almost immediately, local enthusiasts began to prepare for the establishment of local organizations.

Between 2006-2010, Green Island entered the development stage with regard to institutional partnerships. Two local organizations were set up: the Ecological Conservation Association (ECA) and the Cultural and Ecological Association

(CEA). Seixas and Berkes (2010) state that careful selection of partners is extremely important in the early stages of institutional partnership development, as it will impact heavily on the future success or failure of the endeavor. These two organizations in Green Island were made up of enthusiastic elites who could guide the development of the institution. As well as this, the aims of the two organizations were different, but their key figures overlapped with each other producing cross-scale linkages (Seixas & Berkes, 2010) which facilitated inter-organizational communication. During this stage of development, the government provided funding and enforcement, the ECA were responsible for carrying out patrols of MPAs, the CEA aided in the monitoring of resources and the SSD was responsible for integration and coordination of resources. Compared to the previous stage, this stage greatly expanded the level of participation in the resource of human and finance. The government and three community organizations had, through the intermediary SSD, developed a close partnership resulting in what Ostrom (1996) referred to as synergy.

International

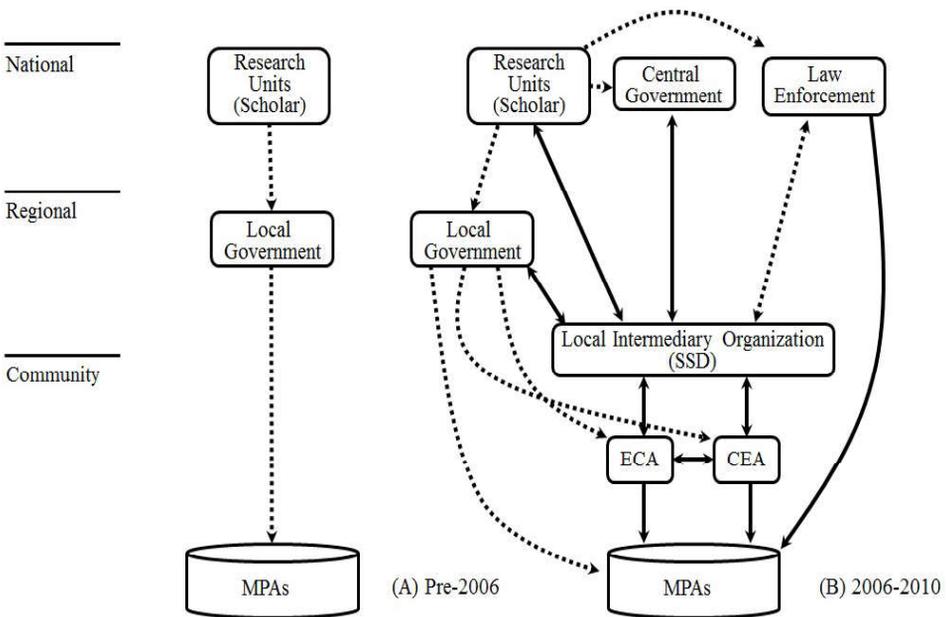


Figure 2. MPA management partnerships in Green Island before 2010

Solid lines represent strong linkages; broken lines represent weak linkages. Two-headed arrows show two-way interactions; single-headed arrows show one-way interactions. SSD refers to the Society of Sustainable Development. ECA refers to the Ecological Conservation Association. CEA refers to the Cultural and Ecological Association.

From 2011-2016 Green Island Institutional Partnerships entered the developed stage. During this stage, partnerships were more expansive. As well as the creation of two new community NGOs which joined the institutional network, national NGOs also invested resources creating a more complex, diverse network with regard to MPA management (*Figure 3*). In terms of organizational change, the SSD had become the Society for Nature and Humanity (SNH), offering professional assistance for the purpose of local development. It is also worth noting the establishment of a community organization, the Association of Humanist, Tourism and Ecology (AHTE), which was set up by a group of young people that had returned to their hometown to assist with tourism and marine management, and became dissatisfied with the methods of the CEA and ECA. The key leaders of the AHTE lacked experience and skills in running an organization and their interaction with other institutions was weak. As such, their influence on MPA management was not great, but their organization does shed light on the meaning of 'power' within the context of community organizations. Hughes *et al.* (2010) state that the empowering of, and education of locals is key to the protection of coral reefs. For the Green Island locals, MPA management by community NGOs represents this empowerment; it is also a form of environmental education, and in the long term will be of direct help in educating the locals in the concepts of environmental protection. A concrete example of this phenomenon could be seen in 2014 with the expansion of MPAs.

The development of the MPA management partnerships network in Green Island follows, at its core, the model laid out by Seixas and Berkes (2010). The complex nature of institutional partnerships is of use in resisting the influence of external environmental factors. Between 2011-2013, due to conflicts in the local government over the distribution of power, the government cut off the funding and administrative support it had previously offered community NGOs with regard to MPAs. This effectively ended the MPA management mechanisms. In reaction to this, the SNH requested funding from the national government and national level NGOs, which strengthened community NGO linkages and allowed the management of MPAs to continue. The reason that a complex network of partnerships is so important is that allows for a reaction to conflicts that occur through community or environmental changes. As Seixas and Berkes (2010) put it, complex partnership networks create a redundancy of function, enabling community governance systems to adapt to changes in their working environment. The case of Green Island appears to back up this conclusion.

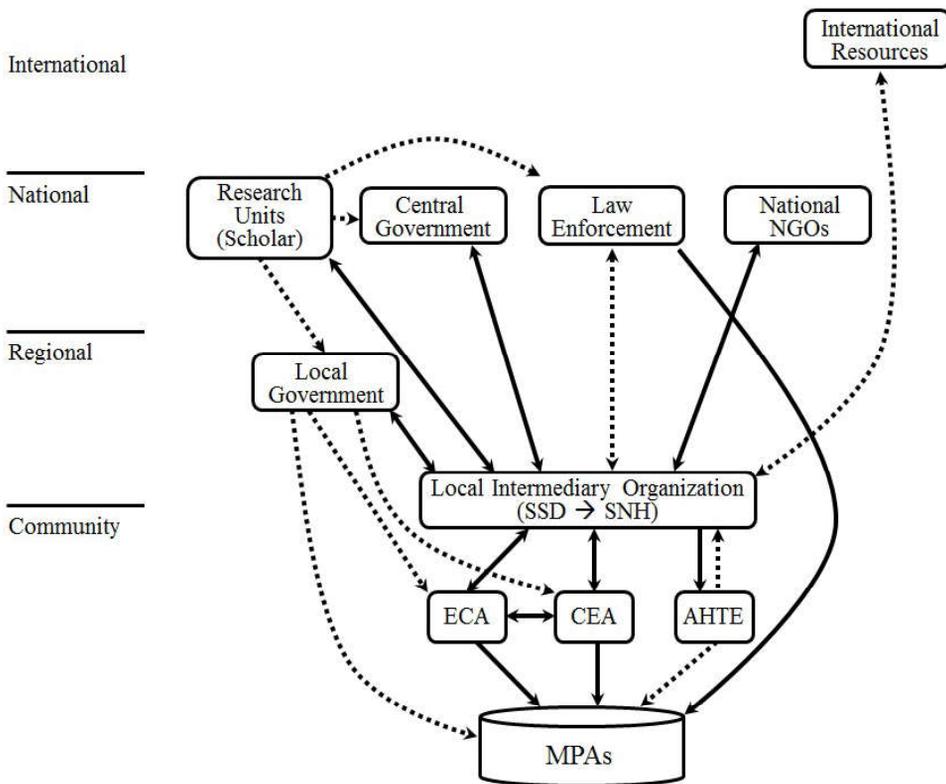


Figure 3. MPA management partnerships in Green Island 2011-2016.

Solid lines represent strong linkages; broken lines represent weak linkages. Two-headed arrows represent two-way interactions; single-headed arrows represent one-way linkages. SSD refers to the Society of Sustainable Development. ECA refers to the Ecological Conservation Association. CEA refers to the Cultural and Ecological Association. AHTE refers to the Association of Humanist, Tourism and Ecology.

Table 1. The model for the development of organization partnerships in Green Island is supported by Seixas and Berkes' (2010) hypothesis

The hypothesis of institutional linkages*	Empirical study of organizational partnership for MPA management in Green Island
Among the institutional linkages, the number of two-way interactions (i.e. those benefiting two parties) exceeds the number of one-way interactions.	MPA Management during Green Island's developed stage consisted of a complex network of 10 partnerships (Figure 3) MPA management during Green Island's developed stage enjoyed a network in which organizations engaged in two way interactions which were clearly stronger than one-way interactions (including strong and weak linkages: Figure 3)
The core set of strong two-way linkages occurs at levels closer to the community (rather than at higher levels, such as the national level).	The overall network related to Green Island's MPA management consisted of three fundamental local organizations that were engaged in its promotion including the ECA and CEA, which carried out practical work with regard to protection of the areas and the local intermediary organization the SSD/SNH. The three organizations formed close relationships with each other and had more amicable relationships than organizations at a higher level.
Choosing initial partners carefully is fundamental to a project's success.	The relationships between the ECA and CEA were formed by key figures with experience and skills. Many key figures also participated in both organizations, which increased the bridging effect.
The institutions take advantage of a window of opportunity to establish linkages for their benefit.	Community members of the ECA and CEA, including the AHTE, were often involved in the running of the tourism industry. Investment in MPA management was to the benefit of the tourism industry. The mission of the SSD/SNH was to aid the development of community organizations. Investment in MPA management was conducive to the achievement of this goal.

<p>The availability of a redundancy of partners with similar interests and capabilities may be important.</p>	<p>Within the institutional network of MPA management, several different local and central government departments offered aid. Many research bodies and NGOs offered aid in the form of professional help and skills. The ECA, CEA, and AHTE all engaged in practical tasks related to the protection and study of the protected areas; it was simply that the focus of their efforts was different and the tasks they engaged in; however, they were similar.</p>
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* Source: Seixas and Berkes (2010)

How do community-based institutional partnerships begin?

Top-down development is not necessarily of benefit at community level, but compared to the lengthy and difficult process of development that takes place from the grassroots up, it is significantly faster (Chuenpagdee & Jentoft, 2007) despite the fact that it may contradict collective choice agreements (Schreiber & Halliday, 2013). However, this does not necessarily mean that strong government intervention is required, but rather that such intervention needs to be channeled by intermediaries (usually scholars or community organizations). With regard to intervention from scholars and outside organizations, the first issue that must be faced is that of garnering the trust of local people. Green Island is a remote community, and local identity is strong; a basis for earning the trust of locals is that they regard you as 'one of their own'. The key figures in the SSD, the organization that sparked the development of partnership mechanisms, were descended from or related to 'Green Islanders'.² Because of this, they very quickly earned the trust of the locals and began to promote the establishment of the MPA management structure. Frey and Berkes' (2014) discussion of coral reef protection in Bali, Indonesia shows that there they started from the point of view of economic benefit in order to get locals on board. It is clear that in the initial stages of community development, the involvement of outside organizations is necessary, but a precursor to their intervention is that they first earn the trust of local people. In terms of how this trust is developed, one must base it on the social environment and goals of the area in question.

A resource crisis can act as a trigger in creating demand within a community for a sustainable solution (Seixas & Davy, 2008). The view that an influx of tourists

² The identity of Green Islanders can be broken down into three levels. The first is those born and raised on the island; the second is blood relatives of those that were born and raised on the island, who are themselves regular visitors; the third is people from outside that have moved to the island for work. The key members of the SSD organization come under the second category, and as such were very quickly able to garner the trust of local residents.

was damaging the marine environment was the idea that got local residents on board with regard to marine protection. However, within the early stages of such projects, the majority of locals within a community remain in a state of observation rather than participation. Frey and Berkes (2014) suggest that most people take up the role of an observer in the beginning to gauge whether or not the actions of others prove successful, before being willing to make changes themselves. In the early stages of development, the main task facing outside organizations is the mobilization of local enthusiasts who can help the organization develop. In Green Island, key personnel within the initial community organizations were encouraged to participate for different reasons. ECA personnel recognized that depletion of marine resources would affect the development of the tourism industry in which they were involved. As such, their members partook in the patrol and protection of MPAs. The CEA, on the other hand, focused on the study of knowledge and expertise, and so their members were involved with resource monitoring and investigation. As the SSD played an important role in the establishment of both the ECA and CEA, the three organizations quickly developed close community partnerships.

The influence of the community governance power structure

Both personal and community level empowerment are at the heart of successful marine resource co-management (Cinner *et al.*, 2012) and the establishment of institutional partnership networks and co-management mechanisms are the ideal methods of achieving community empowerment. As community empowerment is related to the issue of community governance, and the major tasks of community governance lie in the areas of trust-building, institutional development and social learning, (Armitage *et al.*, 2011) and in these tasks the leaders of community organizations play a crucial role. The leaders of community organizations function as the linkages and coordinators of partnerships, (Olsson *et al.*, 2007; Seixas & Berkes, 2010) and linkages between participants and social learning often occur within organizations and not outside of them (Beem, 2007; Seixas & Berkes, 2010). As a result of this, the experience and skill set of leaders and key personnel are of considerable importance. Seixas and Berkes' (2010) research showed that such leaders or key personnel are crucial to community governance. In the case of Green Island during the developmental stage (2006-2010), the fact that MPA management mechanisms were established so smoothly, was due in no small part to the fact that the leaders and key personnel within the CEA and ECA were dynamic, talented members of the local community. They used their wealth of experience and skills to not only win the trust of locals, but also to ensure the establishment of institutional partnerships and smooth operation and promotion of community governance related tasks.

As governance is not merely concerned with actions, but also involves politics, rights and responsibilities, and setting objectives and a policy agenda (Berkes,

2010), from a long term perspective, allowing a small minority of organizations to take charge of community governance will most likely result in the strengthening of elitism (Berkes, 2009). This, in turn can create disdain within the local community, and eventually lead to conflicts. In the case of Green Island, the AHTE was established with a desire to create a greater balance of power. They disagreed with the methods of the CEA and ECA with regard to MPA management, and even began a social movement calling for ‘the chance for change.’ The key members of the CEA and ECA were all senior in years to the members of the AHTE, and so this call for a balance of power can be viewed as a generational wrestling match over political and economic resources. On top of this, the AHTE refused to enter dialogue with the CEA and ECA over the issue of MPA management, resulting in the organization’s community network being very weak. Although they succeeded in convincing the local government to prohibit the fishing of *Tridacna* shell, in 2014 the organization’s influence gradually began to decrease due to their lack of community relationships.

The case of the AHTE highlights the problems associated with transfer of power within a small-scale community governance setting. Small communities have limited resources, and when the power is concentrated in the hands of a few elite individuals, it is hard for other elements within the community to get a share of that power. This makes it hard for new members to bring their own talents into play. To resolve this problem, Berkes (2009) proposes what looks to be a good method, one which he calls ‘learning-as-participation’. Berkes believes that through the process of ‘learning-to-learn’ and ‘double-loop’, it is possible to effect fundamental changes in the behavior of an institution’s members, and even facilitate greater cooperation, mutual trust and the tackling of a greater number of problems. In Green Island, the promotion of communication between the AHTE and other institutions and powerful local elites, and their incorporation into social learning mechanisms to tackle together the problems facing the marine environment, could have been useful in resolving the conflict that the AHTE faced due to the generational power gap. However, creating linkages between an organization like the AHTE and community elites and institutions requires a suitable bridge platform; this was the role played by the SNH. In April 2016, due to a depletion in numbers of the Tiera Batfish (*Platax teira*) within the protected zone, the SNH launched a social movement around protecting Green Island’s marine environment. Surprisingly, they used this issue to discuss the joining together of the AHTE with powerful community elites and organizations, prompting the AHTE to get involved in the Green Island marine protection partnership structure.

The role of local intermediaries

Community governance mechanisms must balance the issues of efficiency and collective choice. Past cases have shown that the involvement of outside institutions (usually NGOs) can achieve this effect (Seixas & Berkes, 2010; Frey & Berkes, 2014). However, at the same time, there are many cases in which the outside institution is a national level or even international level organization. Chao

(2015) criticizes this kind of national or international NGO as their 'indefinite' focus on the development of one particular community is extremely unlikely, and when such outside NGOs finish their programs, local community development is often left with serious difficulties. Neamtu (2009) uses the extreme example of isolated communities where community governance eventually is handed over to the locals for self-governance, although the chances of this self-governance being successful are usually small.

In the hope of resolving this problem, Chao (2014b) proposes the idea of local intermediary organizations. The function of local intermediary organizations is similar to that of Berkes's (2009) bridging organization, although bridging organizations tend to focus on the merging of knowledge based resources, especially the pooling of scientific and local knowledge based systems. While Berkes (2009) feels that bridging organizations can effectively bring together NGOs, government organizations, research institutions and other partners to satisfy diverse requirements, there are three main issues that bridging organizations have with regard to community institutional linkages. There are as follows: 1) They are unable to attract resources from outside, and provide timely relief to local organizations; 2) Within the organizational hierarchy, NGOs are usually unable to focus on the development of a particular locality for a sustained and lengthy period of time; 3) Because of the important role which leaders play within the co-management mechanism, it is easy for community networks to be affected when a leader vacates a certain position. The purpose of local intermediary organizations is the timely garnering of the relevant local, national and international resources through the establishment of communication platforms formed using institutional power. This provides an essential service for the creation of sustainable community development. In the case of Green Island, we can see that the goal of the SNH forming out of the SSD was to implement the idea of a local intermediary organization out of the original institution's aims.

From the MPA management partnerships of Green Island shown in Figure 3, we can see that the local intermediary organizations SSD/SNH play a key role. Aside from kick-starting local governance mechanisms, such organizations also coordinate communications, integrate resources and expand partnership networks between organizations. In addition, although the SSD/SNH did not participate in front-line, hands-on tasks, they developed close relationships with community NGOs and played a role in coordinating communication and pooling resources between community institutions. They are important organizations within the community governance mechanism and with community institutions are helping to create a sustainable island.

Conclusion

Since Hardin's (1968) ominous 'The Tragedy of the Commons' theory was put forward, common-pool resource management has become an important issue within the context of sustainable development. The SESs framework is regarded as the best method in resolving the serious issues surrounding common-pool resource management. However, scholars have criticized this framework for overlooking the influence of historical power bases and changes in this power (Clement, 2010; Whaley & Weatherhead, 2014). In response to such criticism, McGinnis and Ostrom (2014) have proposed suitable changes to the framework, offering up further explanation of governance systems and proving that dynamism within governance systems is worthy of closer examination.

The development of the MPA management partnerships network in Green Island follows, at its core, the model laid out by Seixas and Berkes (2010), developing from a simple network into a more complex one, so that by the developed stage institution partnerships incorporated over ten organizations and institutions. The lower the level of the institutions, the closer their institutional linkages, showing that complex institutional networks are an essential factor of stable community governance.

The question of how to develop institutional partnerships is the first step in creating co-management of MPAs. In the case of Green Island, they used outside organizations to start the process. A key factor in this was that these outside organizations were able to spark community participation and develop local trust.

As well as institutional partnerships gradually increasing in complexity, local power relationships are also challenged. Often, in small communities, because resources are limited, power is concentrated in the hands of a minority of elites. In such a setting, when new participants become involved, conflicts can easily arise. In Green Island, the AHTE was established for the very purpose of challenging the leadership role enjoyed by the ECA and CEA. However, in this case, the AHTE was unsuccessful, which meant its influence over MPA management gradually decreased. As a means to resolving this problem, this paper proposes that Berkes' (2009) method of 'learning-as-participation' would be the best remedy.

As to the sequential development of community partnership in Green Island, each stage relied on the SSD/SHN as its key institution. Chao (2014b) calls this type of organization a local intermediary organization. Its function is similar to Berkes' (2009) bridging organization, although the main difference is the level at which the organization operates. The purpose of local intermediary organizations is to provide local services and so they can fulfill the role of an 'indefinite' partner to local organizations providing the community with communication coordination, resource integration and partnership expansion services. In this respect, such organizations accompany communities in their journey to sustained development.

The focus of this paper has been on changes in partnerships that have occurred during the process of MPA management in Green Island; as such, the main objects of the discussion are members of community organizations and in particular leaders and key figures. MPA management touches upon many institutional levels, especially in the case of small communities where residents are in close contact with each other. Questions such as what locals think of MPAs, and, with Green Island being a tourist destination, how tourists view MPAs are both worthy of further discussion. Green Island's MPA management partnerships have now been developing for around ten years, with the Island itself a developing community now facing changes in the local power structure. This paper is limited to analysis of the resources that I have compiled during this time, but the question of whether or not future development in the Island will continue along current lines is a worthy line of discussion for further work.

This paper is limited to the special nature of small communities, with Green Island enjoying many of the special features common to such areas, such as local identity being a basis for trust in organizations. These factors may not exist in other communities, and as to whether or not the conclusions made here will be of relevance elsewhere, it is up to the analysis of future research and comparison.

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