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ENGAGEMENT AT ALL SCALES: CORAL REEF CONSERVATION ACTIVITIES WITH SMB AND CORPORATE TOURISM CSR PARTNERS

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ABSTRACT: Small-Medium Business (SMB) scale tourism enterprises are the main access points for younger tourists in coastal Asia. Corporate tourism enterprises are likewise ubiquitous in tropical islands and coastlines, and focus on older and wealthier customers than SMB operations. An increasing number of these enterprises that cater to the dive tourism market are realising that positive engagement with environmentally sustainable practices provides a clear marketing edge, since it is indisputable that customers of all wealth and educational backgrounds respond positively to healthy reef communities, and negatively to degraded environments. Corporate Social Responsibility (CSR) is increasingly recognised as conferring market advantage in the competitive island resort industry. Unfortunately, reef rehabilitation and the restoration of ecosystem services are seen as prohibitively expensive and technically difficult, and beyond the scope of usual CSR paradigms for either SMB or corporate operators.

Here, we document two case studies examining how a coalition of dive shops and small hotels engaged with conservation groups and government resource managers to create a roadmap for sustainable development and active impact mitigation, as well as to act cooperatively to enhance their marine environment. We also examine a similar coalition of multinational corporate resorts who have engaged with government agencies and NGOs to integrate their CSR programs to augment marine resource use sustainability in the intensive tourism market of Phuket. Our data indicate that forming coalitions of tourism enterprises is the most effective way of engaging government agencies. We have taken the experience of developing the low-cost models of small enterprise and community NGO conservation groups to capture the resourcing potential of large enterprise CSR, enabling the rescue and rehabilitation of reefs adjacent to large resorts, which are effectively under the management of the tourism enterprises. We intend to develop standard models for conservation engagement and cost-effective practices that would encourage large and small tourism enterprises to promulgate the concepts through their networks, creating easily applicable CSR pathways for them.

Keywords: corporate social responsibility, Thailand, coral reefs, multi-stakeholder, public-private

INTRODUCTION

The concept of Entrepreneurial Marine Protected Areas (EMPAs) was first proposed by Colwell (1998), who suggested that dive resorts that have an economic incentive to protect marine life can be the primary protectors of small-scale commercially supported MPAs. These EMPAs can protect small areas of reef that serve as refuges for threatened marine life while also building local capacity in MPA management and increasing public awareness of MPAs. Many resorts with private beaches already demonstrate *de facto* control over adjacent reefs by controlling the only land-based access to the reef area. Developing multi-stakeholder partnerships to legitimize this management can lead to more effective marine protection. Ultimately, the development of EMPAs in tourism hubs can create an expanded multi-stakeholder network of small, locally run MPAs that use tourism and commercial support to achieve long-term economic and environmental sustainability (Colwell 1997). Historically, 54% of terrestrial parks have had private sector involvement, however, marine parks have significantly less private sector participation (Dearden *et al*. 2005). What is lacking is a consistent mechanism to establish mutually beneficial *quid pro quo* between official agencies and enterprise sponsors. Over the last

three decades, small-scale enterprise-based marine management projects have been developed in coastal countries, with varying degrees of success.

In Southeast Asia, Whale Island Resort, in Hong Ong, Vietnam observed damage to the resort's house reef from destructive fishing techniques such as blast fishing and cyanide fishing (Svensson *et al.* 2008). The resort approached the local provincial government for permission to restrict public access to the bay and negotiated a 10-year lease on the reef to protect it, creating a Hotel Managed Marine Reserve (HMMR). Surveys subsequently reported that fish density, size and diversity within the reserve were significantly higher than those measured outside the boundaries of the protected area (Svensson *et al*. 2008). A "willingness-to-pay" survey found that guests staying at the resort would be willing to contribute an additional median cost of US $9.60 per night (10% of nightly room rate) to stay at a location with a hotel-managed marine reserve, providing incentive for the business to continue its conservation program (Svensson *et al*. 2008).

Conservation fees levied on hotel guests proved to be a successful means of funding at Lankayan Island Dive Resort located in Sugud Island Marine Conservation Area (SIMCA Enforcement 2018), Malaysia (Teh *et al*. 2008). Reef Guardian, a private non-profit organization, charged resort guests a nightly conservation fee of 25 Malaysian Ringgit/ night (about $6.15 USD), and the funds were used for training staff, enforcing the no-take zone, reef cleanups, Crown of Thorns starfish removal, and maintaining patrol boats (Reef Guardian 2018). Reef Guardians were certified as Honorary Wildlife Wardens by the Sabah Wildlife Department, highlighting the effectiveness of collaborative management among stakeholders and the importance of government support.

Examination of private sector engagement at two reefs in Indonesia suggests that the sustainable use of coral reefs can be coordinated with pre-existing local governments and community structures (Bottema and Bush 2012). On Gili Trawangan, local dive operators came together to create the Gili Eco Trust, an alliance to remove industry competition, and developed a dive tax to compensate local fishermen who had lost their traditional fishing grounds due to a new marine park. In Bali, two entrepreneurs began educating local fishermen about reef degradation and developed a coral nursery, creating a no take zone and charging entry fees to some reefs (Bottema and Bush 2012). In 2006 they established the Reef Gardeners, a group of former fishermen trained to protect the reefs (Bottema and Bush 2012).

These case studies demonstrate a wide range of approaches to the establishment and funding of private sector managed marine conservation areas. While resorts in many countries in Southeast Asia have done this, no businesses in Thailand have been formally acknowledged as having a similar hotel managed marine reserve or entrepreneurial marine protected area, therefore funding for marine protected areas remains low, and enforcement capacity is limited. A recent analysis of entry fees for marine parks in Thailand, Malaysia and Indonesia found that potential increases in user fees would have a limited effect on the total number of international divers frequenting these destinations (Pascoe *et al*. 2014). The funds generated from these fees could lead to increased enforcement and more effective management, leading to an increase in reef health and subsequently increasing diver satisfaction.

Oceanfront resorts and businesses similar to the ones mentioned above, which have *de facto* control over adjacent house reefs, provide a solution to the prevalent issue of understaffed marine park agencies. The staff has direct access to the reef and is often in the beach vicinity, allowing them to observe any forbidden activities taking place. A study analyzing the effect of resorts in the Maldives found that the house reefs had a higher cover of reef building hard corals and significantly less algae, than those near local community islands (Moritz *et al*. 2017). This suggests that the presence of the resort acts as a deterrent to local fishermen and can serve as a refuge for reef organisms include corals, echinoderms, and commercially important fish species (Moritz *et al.* 2017).

Historically, Phuket is Thailand's central hub for marine tourism, making it an ideal location to investigate the potential of engaging the corporate sector in reef restoration. Phuket tourism constitutes approximately 30% of Thailand's national tourism income, with dive tourism on the island's surrounding reefs contributing approximately $150 million per year in direct benefits to the local economy (Dearden *et al*. 2004). During the development of Phuket in the 1980s and 1990s there was a substantial increase from fewer than 10 commercial dive shops in 1980 to 85 in 2002 (Dearden *et al*. 2004).

The Thai government and associated non-profit organizations (NPOs) recognized the value of the marine areas and began developing marine parks to protect them: over 50% of Thailand's reefs are now located within areas that have been designated as marine national parks (Dearden *et al*. 2002. Despite marine park designations, the continuing exploitation of Thailand's once abundant marine resources has led to a decline in the health of coral reefs. According to the World Bank, over 80% of Andaman Sea corals and 50% of Gulf of Thailand corals were reported as being in medium or poor status (World Bank 2006).

Decreases in coral reef health can have significant impacts on Thai tourism. Recent research on the overall value of coral reefs to tourism has found that 1.08 billion USD was generated from "on reef tourism" such as snorkeling or diving throughout the country (Spalding *et al*. 2017). Islands such as Koh Tao, a small 19 km^2 island in the Gulf of Thailand, generate a vast amount of revenue from on reef tourism activities ('Koh' in the text refers to the Thai word for island). An estimated 90% of the 300,000–400,000 visitors to the island try snorkeling during their visit, while 60% try SCUBA diving (Larpnun *et al*. 2010). In addition to the direct uses, reefs also provide indirect tourism benefits including the generation of white sandy beaches (Perry *et al*. 2015), clear waters, seafood production, and protection from storms (Spalding *et al*. 2017). These "reef adjacent" benefits provide 2.4 billion USD per year in total tourism value in Thailand, the fourth highest value of any country in the world, emphasizing the importance of conserving these ecosystems (Spalding *et al*. 2017). Tourism on both Phuket and Koh Tao is highly dependent on healthy marine ecosystems, therefore, private businesses of all sizes have a vested interest in contributing to the conservation and restoration of these areas. The objective of this study was to employ lessons learned from the experiences of a small, locally run business to determine effective mechanisms to scale up coral reef conservation and restoration initiatives to larger multinational corporate businesses and have a greater overall impact on coral reefs throughout Thailand.

MATERIALS AND METHODS

Stakeholder Engagement Pathways

There are various approaches to engaging local stakeholders in reef conservation and restoration. Small Medium Businesses (SMBs) in Thailand generally engage in small-scale, cheap, and non-technical reef restoration with minimal resources that are diverted from their marketing budgets. They participate in these activities to capture the niche eco-tourism market, and also because the owners or managers may have aesthetic or environmental concerns on a personal level. Small medium businesses such as dive shops or boutique hotels tend to develop small-scale reef restoration projects with limited scope that often include clonal transplantation and marine debris removal. Individuals with limited ecological insight organize these activities, which often result in a minimal change in overall reef health. Branching *Acropora* spp. corals are often propagated in PVC pipes as an easy mechanism to increase coral coverage, however these methods do not increase genetic diversity on the reef (Koh Talu Island Resort 2019).

Similarly to SMBs, non-governmental organizations (NGOs) will often develop small, inexpensive reef conservation initiatives. These programs focus on public outreach and raising awareness through various types of installations and events. The impetus for these activities often comes from aesthetic and environmental concerns as well as an opportunity for funding and publicity. Resources for NGOs such as Save Koh Tao are generally limited, relying on public donations and other external funding. Non-profit organizations generally use posters, signs, and events to raise awareness of the plight of coral reefs. Events such as beach clean-ups and workshops can help to activate large numbers of community members and visitors to the area (Koh Tao Community Group 2019).

International corporate enterprises see eco-tourism as an emerging market, and a mechanism to attract younger, more environmentally-minded guests. Reef conservation can increase the enterprise's corporate social responsibility (CSR) profile, and aid in mitigating bad press or improving relationships with the local community. Reef conservation and

restoration initiatives at this level are often non-technical installations and activities that focus on guest engagement or developing outreach and education materials. Substantial funding for these activities can be diverted from the marketing or room budgets, or from guest donations. International hotels engaging in corporate social responsibility initiatives in Thailand have previously focused on sourcing local handicrafts and sustainable seafood, and sponsoring beach clean ups or mangrove replanting programs. Increasingly, resorts are focusing on initiatives targeting the reduction of single-use plastics (Phuket Hotels Association 2019).

Government agencies are one of the largest stakeholders that can be engaged in reef conservation. In Thailand, it is within the mission statement of the Department of Marine and Coastal Resources, however, in other countries, other government agencies may intervene to improve the relationship with the local community, or to mitigate bad press or public sentiment. These projects are often strong, technical interventions, but can also include behavioral modifications such as zoning. The government budgets can be large and include infrastructure, allocated personnel, and operational key performance indicators. In the past, Thai government interventions have focused primarily on creating artificial reefs using old ships, planes and other vehicles. They have also deployed concrete cubes to be used as fisheries modules to provide habitat for commercial fishes, to improve livelihoods for local fishers.

Multi-Stakeholder Collaboration in Koh Tao

Due to the continuing decline in the health of Thailand's reefs, restoration projects – both privately funded and using donations from paying volunteers – have increased in popularity in the region serviced by the tourism industry. Local initiatives on Koh Tao have shown that small, community-driven activities supported by local businesses can have substantial effects on remediating ecosystem health. Rapid development of tourism infrastructure on the island led to the degradation of the surrounding rivers and nearby bays. Community leaders and business-owners sought advice and support from conservation professionals, including the International Union for Conservation of Nature (IUCN), on how to address the situation and mediate future impacts. The community NGO "Save Koh Tao" was established to bring together like-minded stakeholders concerned about the ecological impact of tourism, and develop projects to ensure the sustainability of the island's future. The NGO sought funding via member subscriptions and micro-grants to underwrite consultancy advice from nationally prominent academics and to subsidize the cost of knowledge-generation workshops and activities.

Business owners on the island have found that there is high willingness-to-pay for the protection of natural ecosystems amongst visitors to the island, especially if they are able to actively participate in protection (Scott and Phillips 2010). A partnership was established between New Heaven Dive School and the Thai Department of Marine and Coastal Resources (DMCR), to ensure that restoration activities were being implemented in line with government research and regulations. The dive shop began offering reef restoration dives to teach visiting divers various reef restoration techniques, and allowing them to get actively involved in addressing reef threats. This initiative was well received by guests, and has since grown to hosting international coral researchers, and offering multi-week marine conservation courses (New Heaven 2018). The level of focus developed by the community was such that they were able to negotiate with multiple government agencies to create usage and development zones around the island and to persuade local fishers to transition to (more lucrative) tourism activities. Four different dive schools have since developed marine conservation programs, training visitors and locals in reef monitoring, and providing long term ecological monitoring data on reef health at 10 different sites around the island (Scott and Phillips 2011). This was achieved through the agency of well-connected, but financially disinterested NGOs and academic advisors who provided advice and facilitated negotiations with government agencies.

Scaling-up Reef Conservation Initiatives

Save Koh Tao's successes have highlighted that there is ample support for reef restoration activities on an island that depends on dive and snorkel tourism. We wanted to explore whether there was similar support amongst a high-end clientele on Phuket, where tourism activities are more diversified. Phuket tourism constitutes approximately 30% of Thailand's national tourism income, with dive tourism on the island's surrounding

reefs contributing approximately $150 million per year in direct benefits to the local economy (Dearden *et al*. 2004). By scaling up the model developed in Koh Tao to the multibillion baht marine tourism market of Phuket, conservationists and government agencies theoretically can restore and conserve greater areas of reef. In addition, engaging the management of corporate hotels that have international reach and larger corporate budgets can serve as a new method of procuring much-needed resources for active reef restoration.

The potential impact of conservation activities at corporate hotels in Phuket with over 400 rooms is amplified compared to smaller boutique hotels. In addition, the pre-existing Phuket Hotels Association (PHA) provides a network for expanding the program to over 60 member hotels, with over 10,000 guests rooms total, and environmental awareness campaigns and fundraising can have a correspondingly higher impact at these properties. Studies on the development of hotel managed conservation areas reinforce the concept that guests support projects where the hotel has aligned its objectives with the local community, government, and an environmental agency (Svensson *et al*. 2008). Enhanced visibility of conservation areas on website homepages and any advertising targeting international tourists is a consequence of the marketing power of large corporate hotels (Svensson *et al*. 2008). Moreover, environmental certifications and awards serve to increase marketing value and provide hotels a return on their corporate social responsibility initiatives (Riedmiller 2003).

Multi-stakeholder partnership development in Phuket

The pilot partnership development project took place at the Phuket Marriott Resort & Spa, Merlin Beach. Marriott International recently took over management of the 440-room resort, after having previously been under local management. The property is located on a peninsula south of Patong, on a southwestern facing cove with a coral reef throughout the bay. The hotel controls the majority of access to the beach, with the exception of a small access road where locals can enter the area. Before opening the resort, the management expressed interest in working with the International Union for Conservation of Nature (IUCN) to develop reef education programs. Marriott and IUCN have previously collaborated on Mai Khao Marine Turtle Foundation at the JW Marriott Phuket and to plant mangroves as part of the Mangroves for the Future initiative. This is the first partnership project focused on coral reef ecosystems.

Before opening, the hotel management converted a beachfront pavilion to a Reef Education Center, where IUCN hung posters highlighting the reef and best-practices for snorkeling and diving. The on-site dive shop, Sea Bees Diving, is also present at the reef center to offer diving and snorkeling programs and courses. The area is used for snorkel and dive briefings for guests, ensuring guests utilize the reef in an eco-friendly manner. Weekly reef surveys are conducted; removing discarded fishing gear and reattaching broken coral to the reef. Guests are encouraged to participate in these activities.

IUCN staff based at the hotel regularly consulted hotel management and guests on their views of the conservation initiative. By monitoring guest and management feedback, combined with a literature review of past projects in similar tropical resort destinations, the researchers tailored the project to meet the budget requirements and educational engagement requested by stakeholders. Researchers drew on advice and experience from the Save Koh Tao work, utilizing various elements of the outreach and education components.

IUCN has served as an intermediary, connecting the hotel to the web of government agencies, which often have multiple vague and overlapping roles. For example, coral reef management in Thailand involves various national level agencies, including Department of National Parks, Wildlife and Plant Conservation (DNP) and Department of Marine and Coastal Resources (DMCR), both under the Ministry of Natural Resources and Environment (MONRE). These national agencies are supported by provincial and local agencies including Provincial Environment Office (PEO), Sub-district Administration Organization (SAO) and Municipal Administration (Tessaban). Under the Marine Fisheries Management Plan of Thailand, fishing by local and commercial interests is notionally administered by the Department of Fisheries (DOF), under the Ministry of Agriculture and Cooperatives. Objective 6 of the Plan aims to increase mangrove areas by 4,000 rai^3, and effectively manage 4% of coral reefs and 4% of seagrass beds by 2019 (Marine Fisheries 2015). The Department of Marine and Coastal Resources is the government agency responsible for the management and restoration of coastal habitats. To achieve this objective, the

DOF will have to increase their involvement in habitat protection and restoration activities carried out by other agencies at the national, provincial and district levels, particularly Integrated Coastal Management (ICM) activities. The DOF can also initiate an Ecosystem Approach for Fisheries Management (EAFM) program for coastal communities. Navigating the network of which government agency should be consulted for marine conservation projects can be a complicated and confusing task, likely a main reason why there has been limited private sector/government collaborative projects in Thailand thus far. Large NGOs with an established presence in Thailand, such as IUCN, can facilitate project applications and aid in developing relationships with the necessary government partners.

RESULTS

Project funding and guest engagement

During the first year of the reef education program, the hotel raised a total of $17,854 USD from the nightly room donation program. Upon check-in guests were informed about the IUCN and Marriott house reef conservation partnership, and snorkeling and diving opportunities. Guests were asked to donate $1 per night of their stay to support these conservation projects. The Reef Education Center hosted more than 3,309 guests during the twelve-month period from April 2017-March 2018.

Reef Ecosystem Health

The Reef Education Center hosted three reef clean-up events, with volunteer divers collecting over 78 kilograms of marine debris. During cleanups, the most common waste was discarded fishing gear, from both the local fishermen and ghost nets from offshore boats. Inviting locals, government staff, and professional dive guides created a sense of community and highlighted the biodiversity of nearshore reefs in Phuket. A survey of reefs throughout Phuket found that public-access reefs and those within the weakly enforced Sirinat National Park had substantially more discarded fishing gear than reefs adjacent to private enterprises that limited access to paying guests (Bimson 2018). This highlights that oceanfront hotels already provide a type of *de facto* marine protection, and that developing formal partnerships with the agencies charged with marine resource protection will further increase conservation effectiveness.

Reef surveys at Merlin Beach frequently showed new physical damage to the reef. During high season (December-April) recreational boaters would anchor in the bay to spend the night while cruising the western coast of Phuket, or on day charters from nearby Patong. Divers captured an underwater video of an anchor on the reef, showing significant damage to a *Porites lutea* (Milne Edwards and Haime, 1851) colony and shattered colonies of *Acropora* spp. coral. The video and photos of the damage and the boat were presented to the Department of Marine and Coastal Resources and the agency approved the installation of four mooring buoys in the bay to prevent future damage, a similar initiative to the one in Koh Tao. Divers from the government, IUCN, the dive shop, and the Prince of Songkla University collaborated to install the moorings, making the installation a multi-stakeholder achievement.

Educational Materials

IUCN and Marriott worked together to develop "House Reef Marine Guides" for four beachfront resort properties around Phuket. These guides were created using professional underwater photographs of the resort's house reef, with the premise that they allow guests to get a complete understanding of the marine life on the reef, encouraging them to explore it. All resorts that participated in this program are located on the western coast of Phuket, and can potentially be engaged in establishing a network of entrepreneurial marine protected areas along the coast. Many guests were shocked to learn that the colorful reef fish could be found in front of their hotel, making the guide an important tool for creating valuable guest experiences and increasing ecosystem interaction. The marine guides also included a section directly speaking to reef conservation, explaining the IUCN/Marriott partnership, risks to coral reefs in Thailand, and how guests can minimize their impact on coral reefs in their daily lives. By providing these books in each guest room, it was realized that the resort can advertise their unique natural resources and engage guests in ways that were previously unavailable to them. Moreover, the guidebooks serve as souvenirs of the guests' experiences, and prolongs the impact of the conservation message.

Establishing (*de facto*) Protected Areas

De facto marine protected areas can be developed in tropical tourism destinations with hotels adjacent to healthy coral reefs which are isolated from outside access. The management must have a vested interest in optimizing guests experience to increase the number of return customers. NGOs can provide qualified scientists to survey and assess the ecosystem, inviting local government and national management agencies to advise, providing the project with local legitimacy. Provisions within national environmental management laws allow petitions for various levels of legal protection (e.g. Aquatic Species Sanctuary, or No-Hunting Area), which can be incorporated into potential co-management agreements for the areas. In 2014, Samui and Pha-Ngan districts of Surat Thani Province were declared as an Environmental Protected Area, another mechanism to protect particularly biodiverse areas within Thailand (Ministry of Natural Resources and Environment Notification 2014). Despite this declaration, research has shown that members of the Committee for Managing Marine and Coastal Resources, Koh Tao, a regulatory regime for coastal resources in Koh Tao, had only a partial understanding of the EPA Notification, highlighting a gap in effective implementation (Satumanatpan *et al*. 2017). Perhaps the most relevant avenue to establish a small-scale marine conservation area is through the Marine and Coastal Resources Management Act. The Act was passed in 2015, and allows the Department of Marine and Coastal Resources to designate Marine and Coastal Resources Protected Areas to protect important coastal areas (IUCN 2015). The law encourages communities and other local stakeholders to engage in coastal conservation, and could support the establishment of a multi-stakeholder initiative. In the model most-often discussed, resorts provide financial support for the setup and maintenance of the area, which can be subsidized by guest donations, or user-pay fees. The presence of hotel staff and government signage acts to prevent poachers and rule breakers, so that the local government agencies can focus on enforcing elsewhere, increasing the effectiveness of protected areas.

DISCUSSION

Partnership Roles in Thailand

The success of this project was the result of incorporating various stakeholder groups, with complementary strengths and weaknesses. In developing a *de facto* marine conservation area, coastal corporate hotels provide the oceanfront location, staff on site to monitor reef usage, and a funding mechanism for initial site evaluation and ongoing active restoration. The resorts lack a comprehensive understanding of the reef ecosystem and have no legal standing to limit access to natural resources, therefore a partnership with government agencies is essential. The Thai Department of National Parks, Wildlife and Plant Conservation (DNP) is a legal authority with an established presence on Phuket, however, they have a minimal enforcement capacity due to understaffing in the ecology unit, coupled with the complicated bureaucracy of establishing a new national park. The Department of Marine and Coastal Resources (DMCR) is a scientific government agency with a strong background in reef restoration and access to special funding, but is not authorized to develop fishing restrictions, has a minimal enforcement capacity, and an understaffed ecology unit with limited operational funding. The Department of Fisheries has the authority to restrict fishing and subsequent coral damage, but has historically been more focused on fish than reef ecosystems, and like the other governmental agencies has a minimal enforcement capacity. NGOs such as IUCN act as an active intermediary, providing global scientific knowledge, but have no local jurisdiction to establish laws and no independent funding. Each agency's strengths and weaknesses make it important to involve overlapping groups to achieve conservation outcomes.

One of the most important findings of this study was that there is a significant lack of communication between government agencies charged with managing the near-shore marine environment in Phuket. While the Department of Fisheries, under the Ministry of Agriculture, had established an aquatic species sanctuary in the area, this was done without consultation with the Department of Marine and Coastal Resources, under the Ministry of Natural Resources and Environment, (which is responsible for nearshore areas outside of national parks), nor with the Department of National Parks, neighboring local community or private sector. This finding is consistent with a previous study on community perceptions of marine protected areas in southern Thailand: "the inability to manage the area was attributed to lack of capacity within the agency and coordination with other agencies by NGO

representatives, academics, and individuals from other government agencies" (Bennett and Dearden 2014). It is not that Thai government agencies are unaware of, or uncommitted to their joint responsibility to manage the environment, but rather the historical balkanization of bureaucracy that plagues governments all over the world. Reporting tends to occur within a ministry, but minor matters are seldom passed between ministries, even when their areas of responsibility overlap.

This deficit highlights an operational space for a coordinating agency, such as a financially disinterested NGO to create a network of personal contacts between stakeholders and act as a go-between for local reef management. While government agencies play an essential role in the establishment of no-take fishing areas, their field teams are often chronically understaffed, and the operational funding to inform the local community and enforce the law is sparse. In the absence of visible engagement, the area risks becoming a "paper park." An increasing number of tourism enterprises that cater mainly for dive tourism are realizing that positive engagement with environmentally sustainable practices provides a clear marketing edge. Likewise, large resorts with effective control over access to adjacent reefs are realizing that customers of all wealth and educational backgrounds respond positively to healthy reef communities, and negatively to degraded environments. Engaging the corporate tourism sector can provide funding avenues to subsidize mitigation of impacts, extend the reach of agency enforcement, and help to increase visibility and stewardship of protected areas adjacent to the property (Dharmaratne *et al*. 2000). Tourism enterprises benefit by receiving sympathetic treatment by management agencies, and recognition of their proactive stance by the tourist market.

Environmental mitigation and restoration projects are commonly espoused for their ecological positives, but such projects can also provide significant socioeconomic and cultural benefits to local communities; projects that explicitly incorporate efforts to build community awareness, involvement, and a shared responsibility for a site may ultimately create the long-term capacity for sustainable stewardship programs (Kittinger *et al*. 2016). Public-private conservation partnerships are increasingly being seen as a mechanism to augment the jurisdiction of management agencies with limited resources or mandate to achieve mutually beneficial conservation outcomes. Moreover, engagement of corporate partners can have unexpected and powerful conservation outcomes; for instance, the engagement of high profile hotel chains in initiatives aimed at reduction of single-use plastics has cascaded into Phuket municipality declaring itself "foam-free" in 2018 (Mueanhawong 2018). Corporate Social Responsibility (CSR) is increasingly recognized as conferring market advantage in the competitive island resort industry. Increasing pressure from stakeholders has forced tourism companies to adopt sustainable practices and those that do may see market advantage (Fatma *et al*. 2016). Guests are increasingly employing CSR profiles as an adjunct to decision making for their holiday accommodation, and data suggest that consumers exhibit more positive response toward establishments which display higher levels of social responsibility, even when the extent of such practices is unclear (Parsa *et al*. 2015).

The development of a multi-stakeholder approach to nearshore reef conservation can enable various groups to contribute expertise and funding to accomplish their shared goals. There is potential to create similar partnerships in other international tourism areas that are highly dependent on healthy nearshore reefs, such as Indonesia and the Philippines. By coordinating activities and responsibilities within the network, weaknesses within the current system, such as a lack of funding and enforcement, can be reduced, and the effectiveness of coral reef conservation and restoration can increase substantially.

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REFERENCES

Bennett, N.J. and P. Dearden. 2014. Why Local People Do Not Support Conservation: Community Perceptions of Marine Protected Area Livelihood Impacts, Governance and Management in Thailand. Mar. Pol. **44:** 107–116.

Bimson, K. 2018. Leveraging Enterprise Partnerships for Coral Reef Conservation Outcomes. Prince of Songkla University, Hat Yai, Thailand. 97 p.

Bottema, M.J.M. and S.R. Bush. 2012. The Durability of Private Sector-Led Marine Conservation: A Case Study of Two Entrepreneurial Marine Protected Areas in Indonesia. Ocean Coast. Manag. **61:** 38–48.

Colwell, S. 1998. "Dive-Tourism and Private Stewardship of Small-Scale Coral Reef Marine Protected Areas." In: Proceedings of the International Tropical Marine Ecosystems Management Sym posium. Townville, Australia. pp. 217–221. http://msm-host3-reefed.gbrmpa.gov.au/__data/as sets/pdf_file/0007/1879/itmems_217-221_s05_2.pdf.

Dearden, P., M. Bennett and J. Johnston. 2005. Trends in Global Protected Area Governance, 1992–2002. Environ. Manag. **36(1):** 89–100.

Dearden, P., S. Chettamart and D. Emphandhu. 2002. Experience with coastal and marine protected area planning and management in Thailand. In: Dearden, P. (ed.), Environmental protection and rural development in Thailand. Bangkok: White Lotus Press. pp. 113–136.

Dearden, P., S. Chettamart, M. Bennett, G. Roman and M. Theberge. 2004. Diving and Marine Protected Areas in Thailand: Lessons Learned. In: Proceedings: First International Conference on the Management of Coastal Recreational Resources, 20–23 October 2004. Malta. pp. 193–202.

Dharmaratne, G.S., F. Yee Sang and L.J. Walling. 2000. Tourism Potentials for Financing Protected Areas. Ann. Tourism. Res. **27(3):** 590–610.

Fatma, M., Z. Rahman and I. Khan. 2016. Measuring Consumer Perception of CSR in Tourism Industry: Scale Development and Validation. J. Hospit. Tourism. Manag. **27:** 39–48.

IUCN. 2015. Thailand's New Marine and Coastal Resources Management Act: Engaging Coastal Communities in Conservation. https://www.iucn.org/content/thailand′s-new-marine-and-coastal-resources-management-act-engaging-coastal-communities. Accessed 6 August 2019.

Kittinger, J.N., T.M. Bambico, D. Minton, A. Miller, M. Mejia, N. Kalei, B. Wong and E.W. Glazier. 2016. Restoring Ecosystems, Restoring Community: Socioeconomic and Cultural Dimensions of a Community-Based Coral Reef Restoration Project. Regional Environmental Change **16(2):** 301–13.

Koh Talu Island Resort. Experience - Koh Talu Island Resort. https://www.taluisland.com/main/experiences. Accessed 10 February 2019.

Koh Tao Community Group, Thailand. 2019. Save Koh Tao. http://www.savekohtao.com/. Accessed 16 February 2019.

Larpnun, R., C. Scott and S. Pinsak. 2010. Practical Coral Reef Management in the context of ICM: Challenge of sustainability of Koh Tao, Thailand. MFF Case Study. Mangroves for the Future Case Study. IUCN Asia Regional Office. Bangkok. 14 pp.

Marine Fisheries Management Plan of Thailand. 2015. Department of Fisheries. http://extwprlegs1.fao.org/docs/pdf/tha165156.pdf. Accessed 9 August 2019.

Ministry of Natural Resources and Environment Notification. 2014. The Zonings and Environmental Protection Measures in Taling Ngam, Bor Pud Mared, Mae Nam, Na Muang, Ang Thong, and Lipa Noi Sub-districts of Koh Samui District; and Koh Pha Ngan, Ban Tai, Koh Tao Sub-districts of Koh Pha Ngan District, Surat Thani Province. Royal Gazette Volume 131, Part 91, dated 30th May B.E. 2557 (2014).

Moritz, C., F. Ducarme, M.J. Sweet, M.D. Fox, B. Zgliczynski, N. Ibrahim, A. Basheer, K.A. Furby, Z.R. Caldwell, C. Pisapia, G. Grimsditch and A. Abdulla. 2017. The 'Resort Effect': Can Tourist Islands Act as Refuges for Coral Reef Species? Diversity and Distributions **23:** 1301–1312.

Mueanhawong, K. 2018. Phuket to Be a Foam-Free City. The Thaiger (blog). https://thethaiger.com/thai-life/phuket-to-be-a-foam-free-city. Accessed 23 March 2018.

New Heaven. Reef Conservation Program. https://newheavendiveschool.com/marine-conservation. Accessed 24 July 2018.

Parsa, H.G., K.R. Lord, S. Putrevu and J. Kreeger. 2015. Corporate Social and Environmental Responsibility in Services: Will Consumers Pay for It? Journal of Retailing and Consumer Services **22(January):** 250–260.

Pascoe, S., A. Doshi, O. Thébaud, C.R. Thomas, H.Z. Schuttenberg, S.F. Heron, N. Setiasih, C.H. Tan, J.D. True, K. Wallmo, C. Loper and E. Calgaro. 2014. Estimating the Potential Impact of Entry Fees for Marine Parks on Dive Tourism in South East Asia. Mar. Pol. **47(July):** 147–152.

Perry, C.T., P.S. Kench, M.J. O'Leary, K.M. Morgan and F. Januchowski-Hartley. 2015. Linking Reef Ecology to Island Building: Parrotfish Identified as Major Producers of Island-Building Sediment in the Maldives. Geology **43(6):** 503–506.

Phuket Hotels Association. 2019. https://www.phukethotelsassociation.com/core-activities/. Accessed 3 February 2019.

Reef Guardian. 2018. SIMCA Enforcement Achievement - Reef Guardian Malaysia. https://www.reefguardian.com.my/index.php/programmes/simca-enforcement/simca-enforcement-achievement. Accessed 28 January 2018.

Riedmiller, S. 2003. Private Sector Investment in Marine Protected Areas-Experiences of the Chumbe Island Coral Park in Zanzibar/Tanzania. 5th World Parks Congress: Sustainable Finance Stream. IUCN, Durban. 12 p.

Satumanatpan, S., P. Moore, A. Lentisco, and H. Kirkman. 2017. An assessment of governance of marine and coastal resources on Koh Tao, Thailand. Ocean Coast. Manag. **148:**143–157.

Scott, C.M. and W.N. Phillips. 2011. A Sustainable Model for Resource Management and Protection Achievable Through Empowering Local Communities and Businesses. In: Proceedings of Ramkhamhaeng University International Research Conference. 13–14 January 2001. Bangkok, Thailand. 25–28.

SIMCA Enforcement. https://www.reefguardian.com.my/index.php/programmes/simca-enforcement. Accessed 21 July 2018.

Spalding, M., L. Burke, S.A. Wood, J. Ashpole, J. Hutchison and P. zu Ermgassen. 2017. Mapping the Global Value and Distribution of Coral Reef Tourism. Mar. Pol. **82(August):** 104–113.

Svensson, P., L.D. Rodwell and M.J. Attrill. 2008. Hotel Managed Marine Reserves: A Willingness to Pay Survey. Ocean Coast. Manag. **51(12):** 854–861.

Teh, L.C.L., S.L. Teh and F.C. Chung. 2008. A Private Management Approach to Coral Reef Conservation in Sabah, Malaysia. Biodiversity and Conservation **17(13):** 3061–3077.

World Bank. 2006. Thailand Environment Monitoring. World Bank Office, Bangkok. 48 pp.

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