WESTERN CONSERVATION AS AN ACCIDENTAL VECTOR FOR CAPITALISM: A SOCIOECONOMIC CROSS-NATIONAL COMPARISON OF IRRAWADDY DOLPHIN CONSERVATION PROJECTS

by

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A DISSERTATION

Presented to the Environmental Studies Program
and the Graduate School of the University of Oregon
in partial fulfillment of the requirements
for the degree of
Doctor of Philosophy

June 2017

DISSERTATION APPROVAL PAGE

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Title: Western Conservation as an Accidental Vector for Capitalism: A Socioeconomic Cross-National Comparison of Irrawaddy Dolphin Conservation Projects

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Degree awarded June 2017

DISSERTATION ABSTRACT

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Doctor of Philosophy

Environmental Studies Program

June 2017

Title: Western Conservation as an Accidental Vector for Capitalism: A Socioeconomic Cross-National Comparison of Irrawaddy Dolphin Conservation Projects

As sites of global environmental degradation continue to emerge and pose significant threats to life on Earth, the world's natural resource managers persist in attempts to mitigate and reverse this degradation. While approaches to conservation have evolved over the years to include locals in the policy-making process, the experiences of those policies by locals - once in place - are often overlooked.

This dissertation examines the socioeconomic and political changes associated with conservation projects from the perspectives and experiences of the people most affected by these projects. Through 128 individual interviews, 25 focus group discussions, and participant observation, I compare two approaches to Irrawaddy dolphin conservation: one in Myanmar that focuses on preservation of livelihoods and the other in Cambodia that focuses on economic development. I endeavor to bring local experiences and perceptions of these projects to the forefront to examine their impacts on livelihoods and to help identify potential gaps in policy intentions and effects. I also draw on political ecology theory to assess and critique the relationship of capitalism to international conservation.

After explaining the unique issues and barriers associated with this project, I lay out the direct socioeconomic and ecological effects of each conservation project by comparing participant experiences and perceptions of the projects with those of conservation officials. I then compare conservation projects to examine the indirect effects of each approach. I trace the pathway of the capitalist conception of nature as

commodities upward from 'developed' countries to its global institutionalization through the process of eco-governmentality and then downward to 'developing' countries through the delivery system of NGO governmentality. I explain how Myanmar blocked this process while Cambodia embraced it and attribute the apparent shift from a 'communal ideology' to a 'consumerist ideology' in Cambodia, and lack of such a shift in Myanmar, to these opposing tactics. I then focus on the capitalist approach to conservation in Cambodia and show how it has led to the subsequent exacerbation of environmental and social problems it intended to fix. Lastly, I offer specific recommendations for each project, as well for international conservation in general, based on findings.

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ACKNOWLEDGMENTS

I am sincerely grateful to the 288 participants, without whom this project would not have been possible, who put their trust in me and took the time to speak with me. I'm also deeply appreciative for my committee members who offered support and invaluable advice throughout the research and writing process. I especially thank my committee chair Richard York for his patience and assistance as I navigated my way through the planning, transcription, translation, coding, and writing processes. I also thank Jocelyn Hollander, Jill Harrison, Ryan Light, and Lamia Karim for their advice before leaving for the field, as well as on issues I encountered in the field and during the writing process. Thanks also go to my interpreters, who not only assisted in interpretation, but in organizing transportation and locating participants, as well as offering advice. Additional thanks go to my transcribers and the translators who translated the transcriptions. I'm also grateful to Mulung Hsu and Marshall Kramer for their incredible advice and assistance while planning the Myanmar portion of my field research.

Several individuals were vital in helping me stay grounded and supporting me throughout this project. I especially thank my partner Randy Tullous for his emotional support, encouragement, and companionship through each step in this process. I also deeply appreciate the love and support of my mom Carol and stepfather Tom and their indelible belief in me. I also thank my family Todd, Jen, Brett, my dad Doug, and stepmother Dee for their love and support. Many friends also supported and inspired me throughout this process, particularly the 'Sunday dinner crew,' and I will never forget the bonds we have formed in this chaotic and exciting time in our lives.

I am also grateful to the many named and unnamed individuals who have inspired me and contributed to my knowledge through personal interactions and through helpful and insightful publications. Finally, I thank the several funders of this dissertation, including the Tokyo Foundation, the UO Graduate School, Richard York, The Coeta and Donald Barker Foundation, and the UO Sociology Department.

I dedicate this dissertation to those in the world fighting for social and environmental justice and to those who support them in their struggles.

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CHAPTER I

INTRODUCTION

As concern has grown over the alarming acceleration of global environmental problems since the emergence of the industrial era, social scientists have generally attempted to examine the ultimate (indirect, abstract) causes of these problems, while natural scientists have generally focused more on proximate (immediate/direct, concrete) causes. As these two broad fields of inquiry began to converge, the science of natural resource management has evolved in an effort to incorporate social considerations into management strategies (Berkes 2012; McLeod and Leslie 2009b). However, mainstream approaches to global environmental problems continue to prioritize the natural science proximate mode, overlooking the shared structural cause of environmental degradation as they seek to address the symptoms of that structure without questioning its legitimacy (Büscher and Arsel 2012; Corson 2010). In many cases, these approaches have served to aid in advancing the boundaries of capitalism, allowing for the commodification of nature and labor (Brockington and Duffy 2011; Brockington, Duffy, and Igoe 2008; Milne and Mahanty 2015a).

In recent years, mainstream conservation efforts have shifted from a species-focused to an Ecosystem-Based Management (EBM) approach and the concept of 'human dimensions' in resource management has moved to the forefront of Western environmental conservation (Berkes 2012; McLeod and Leslie 2009b). The concept of 'human dimensions' emphasizes the diverse forms of knowledge and beliefs of stakeholders and encourages natural resource managers to incorporate them in conservation policy and management (Decker, Riley, and Siemer 2012). As a result, it is now widely recognized that natural resource management is really about the management of natural resource *users* (Beasley 2007; Decker et al. 2012; McLeod and Leslie 2009b). Taking it a step further, recent research has pointed to the importance of including socio-economic analyses in conservation research strategies (Clausen and Clark 2005; Clausen and York 2008).

Thus, managers have recently made an admirable effort to incorporate local voices in the policy-making process through inclusion of Traditional Ecological Knowledge (TEK) and Local Knowledge (LK) and the incorporation of approaches such as community-based management (McLeod and Leslie 2009a; Wilson et al. 1994). Marginalized communities are now often consulted on conservation policy and TEK and LK are used to inform policy-makers. However, the difficulties inherent in resource management often mean that the voices of the people who depend on those resources for their livelihoods are often drowned out by well-intending managers who are tasked with managing resources to provide 'the greatest good for the greatest number,' an approach that often reinforces the oppression of marginalized voices (Kellert et al. 2000; Moore and Russell 2009). These issues of inclusivity in conservation are further exacerbated by hegemonic assumptions of 'nature' and 'value,' where the human/nature dichotomy and the commodification of nature imperative often guide international conservation policy, leaving little room for alternative worldviews and conservation approaches (Milne and Mahanty 2015a; Ulloa 2013).

Additionally, the *post hoc* question of 'Is this conservation project working?' is often answered using biological indicators and without taking the perceptions and experiences of the people whose livelihoods are most affected by conservation policies into account (Kellert et al. 2000; Moore and Russell 2009). While the importance of biological indicators in conservation work should not be underestimated, the question of how those measures are perceived and experienced by the local communities most affected is rarely asked. Further, as global capitalism continues to expand, theoretical critiques abound on the social and environmental devastation it brings in tow. Yet theoretical critiques of attempts to address these problems without addressing the shared structural cause are just beginning to emerge in earnest (*see for example* Castree 2008a; Fletcher and Neves 2012; Foster, Clark, and York 2010; York 2006).

The Irrawaddy dolphin (*Orcaella brevirostris*) is an oceanic dolphin found in coastal waters in the Indian and Pacific Oceans from the Bay of Bengal to the Philippines and also inhabits rivers throughout southeast Asia (Stacey and

Leatherwood 1997). Although Irrawaddy dolphins are rarely intentionally killed, they are listed as Threatened with five sub-populations listed as Critically Endangered (IUCN). Thus, because their endangered status does not seem to be attributable to their direct consumption, there are likely other socioeconomic factors at play in their decline. Among the countries that have attempted to address the causes of this decline, Myanmar and Cambodia offer a particularly interesting comparison, owing to the similar size in their relative dolphin populations and their apparently opposing socioeconomic approaches to addressing the downtrend of these Irrawaddy dolphin populations.

In the struggle to conserve the Irrawaddy dolphin and its habitat, conservation officials in Myanmar[1] have focused more on the *preservation* of livelihoods in rural communities (Smith and Tun 2007). Meanwhile, conservation officials in Cambodia have taken an approach that seeks to preserve the status quo of privatized resources and has focused more on the *diversification* of livelihoods and economic development of rural communities (Beasley et al. 2009). Yet the perceptions and experiences of these policies by the people that are most directly affected, while taken into consideration during planning and implementation (Beasley 2007; Smith and Tun 2007), seem to have been largely ignored once the policies have been implemented.

The main objective of this dissertation is to comparatively evaluate the socioeconomic and political dimensions of these two different approaches to conservation via assessment and characterization of perceptions and experiences of participants. Thus, this project was guided by the following general research questions (1) How are the policies implemented by these conservation projects

[1]The country was originally known as Myanmar before British colonial forces started calling it 'Burma' (Aung-Thwin and Aung-Thwin 2013). So, many people in the country do not call it Burma (we were told that only Americans and some Europeans continue to call it Burma). It is also true that the SLORC readopted the name 'Republic of Myanmar' soon after taking control and without a democratic vote (Houtman 1999). The move, as with much of the government's propaganda (the government discourse is often democratic and inclusive, but very far – in fact often opposite – from how things are practiced), was meant to signify solidarity and inclusivity (although the majority of residents are Burmese, there are many non-Burmese ethnic groups in the country). In short, we found that most people residing in the country prefer the name Myanmar. Thus, throughout this dissertation, I refer to the country as 'Myanmar,' in recognition of that preference.

experienced and *perceived* by people in local communities?; (2) Are there gender or age differences in how these policies are experienced and/or perceived by people in local communities?; (3) Are the policies actually implemented as intended, or do local practices differ from those expected or dictated by policies?; and (4) Are the experiences and perceptions of people in local communities where these projects have been implemented (a) different in Cambodia and Burma and/or (b) different than those of adjacent communities less affected by the policies implemented by these projects?

There are four main accompanying goals of this dissertation. First, this entire project was predicated on the willingness of 288 participants to take the time out of their very busy lives to speak with me and/or my interpreters and share their stories. Thus, I endeavor to honor and recognize the diverse voices that contributed to this project by including as many of them as possible. Second and third, I attempt to incorporate the lessons learned from participants to both assess the impacts of the conservation projects on local livelihoods and to illuminate proximate causes of the dolphin's endangered status. Finally, I use a cross-national examination of conservation projects - one developed within the capitalist structure and one developed mostly without - to more fully develop a theoretical understanding of how conservation done with capitalist conceptions of 'nature' and relationships can actually contribute to the detrimental environmental and social symptoms of capitalism.

To address these goals, I examine the social and economic dimensions of the two conservation projects from the perspectives of the people who live in or near the foci of these projects using one-on-one in-depth interviews, focus group discussions, and participant observation. I specifically chose these projects because they focus on the same object (Irrawaddy dolphin subpopulations), facing similar threats, and under similar conditions. Thus, the key differences between these two projects are their contrasting primary approaches to conservation and the apparent disparity in their rates of success. I use a 'zoom in to zoom out' strategy, where I 'zoom in' spatially and temporally to examine the conservation projects from local perspectives. By zooming in, I attempt to examine proximate causes for the

dolphin's endangered status and elucidate the social and economic dimensions of the spatio-temporal 'ripples' initiated by each respective conservation project, as well as to act as a megaphone for local voices. Thus, I first compare the data to previously stated findings of conservation scientists in an effort to (1) uplift local voices to demonstrate the extent to which the conservation projects have affected local livelihoods and to evaluate how conservation officials' findings align with local experiences and perceptions and (2) supplement officials' evaluation of the proximate causes of the Irrawaddy dolphin's endangered status.

I then use the findings of each project to 'zoom out' to compare the two projects for possible insights on their methods and reasons for the apparent disparity in their success. I attempt to show how the use of hegemonic tools in international dolphin conservation in Cambodia has served to circumscribe the ultimate cause of the dolphin's endangered status and instead exacerbate environmental and social degradation associated with global capitalism. I do this by comparing the study areas in an effort to trace the emergence of capitalist values in the Cambodia study area from the introduction of a new value for the dolphin through its commodification, to the general adoption of capitalist values of individualism and monetary wealth. I then show how the apparent adoption of these values has contributed to further social and environmental degradation, rather than alleviating them. Zooming out further in time and space, I use the lessons learned from this comparison to critique capitalist approaches to conservation in general.

In the following sections, I define 'neoliberal' and 'capitalist' as used in this dissertation, give a brief overview of the post-colonial political economic histories of Myanmar and Cambodia, and discuss the status of the Irrawaddy dolphin and general approaches to conservation in Myanmar and Cambodia. I then outline the chapters to follow.

'Neoliberal' and 'Capitalist' Defined

Throughout this dissertation, I use the terms 'neoliberal' and 'capitalist' interchangeably to refer to the current hegemonic global economic system. While

'capitalism' refers generally to the system of privatization of natural resources and modes of production for profit (Zimbalist and Sherman 2014), 'neoliberalism' is much more difficult to define, but generally refers to the current management ideology of the capitalist system (McCarthy and Prudham 2004). After a brief attempt at Keynesian economics which emphasized public policy and government regulation of capitalism in the post-World War II era, the major global economies shifted back to the liberal capitalism of the late 19th century in the 1980s. Now known as 'neoliberal capitalism,' this economic strategy seeks to minimize government interference of markets and instead relies on private sector control of the economy (Brockington et al. 2008).

An economic system based on capitalism requires constant growth by necessity because it must always be accumulating capital (i.e. profit) in order to function (Foster et al. 2010; Harvey 2006). Thus, as sites of exploitation become exhausted, capitalism seeks to expand through the commodification of previously untouched land (nature) and labor for incorporation into this accumulation apparatus (Castree 2008b). The (neo)liberalization of economic policies allows access to these resources for their commodification. Thus, I refer to such projects of commodification for incorporation into the global capitalist market as 'neoliberal' or 'capitalist' throughout this dissertation.

Brief Post-Colonial Political Economic History of Myanmar and Cambodia

Although Myanmar and Cambodia are both culturally diverse and differ in many ways, they are separated only by Thailand and bear several similarities. Both countries have been subjected to colonial rule, followed by violent repressive regimes, which in the case of Cambodia led to an estimated 2 million deaths (1/4 of the population) (Locard 2005). Although Myanmar has a population of 54.4 million people, compared to Cambodia's 18.1 million, the population density is similar with 83.2 and 89.7 people per km^2, respectively. Populations of both countries also have similar birth rates (2.3 in Myanmar & 2.7 in Cambodia) and similar life expectancies (m/f; 67.7/63.6 in Myanmar & 69.6/65.5 in Cambodia) (UNdata 2015a, 2015b). Additionally, and perhaps particularly relevant to the current study owing to its

influence on cultural values, Buddhism is the major religion of both countries (80.1% in Myanmar & 96.9% in Cambodia) along with Thailand - the country that separates them - and Theravada Buddhism dominates in all three countries (Hackett et al. 2012).

In addition to these similarities, both Cambodia and Myanmar have been slowly making a shift to capitalist economies in recent years. However, this shift was initiated in Cambodia in the post-conflict era of the 1980s, while Myanmar's shift to capitalism is more nascent, occurring in earnest with the democratic election of Thein Sein in 2010. I now turn to Myanmar and Cambodia to briefly explore how and to what extent these shifts occurred, as well as to examine the relative role of Western influence in these shifts.

Myanmar

Although Myanmar was subsumed by the British Empire in the 19th century, it regained independence in 1948 when the Socialist party within the Anti-Fascist People's Freedom League (AFPFL) assumed governance under the leadership of U Nu. Although the government emphasized private enterprise over nationalization during this time, it also focused on rural projects rather than industry, taking measures to improve 'education, public health, subsidized housing, reclamation, irrigation, easy credit, and elimination of old debts' (SarDesai 1997:235). However, a number of factors, including the plummeting of global prices of the country's main export (rice), eventually led to a coup d'état in 1962 when Myanmar began nearly 5 decades of military dictatorship from 1962-2010.

During the first of two military regimes led by Ne Win and his Burma Socialist Program Party (BSPP) from 1962-1988, Western influence was highly restricted and the government sought to develop a state-controlled economy with no outside interference (SarDesai 1997). From 1962 until 1988, '[t]here were long periods . . . when the country unilaterally renounced assistance from USAID, the World Bank, and IMF' (Myint 2006:265). Although the second military regime of the State Law and Order Restoration Council (SLORC) emphasized foreign investment, its horrendous human rights violations in the treatment of its dissidents led to

extreme censure and sanctions by Western countries during its rule from 1988 to 2010 (Pedersen 2006; Steinberg 2013). Additionally, assistance given to Myanmar by (mainly Western) member countries and multilateral agencies of the Development Assistance Committee (DAC) fell by about 1/3 from 1982 to 2002, and Myanmar received approximately 1/4 of the ODA received by Cambodia in 2002 (Myint 2006).There was also a marked withdrawal of corporate influence during the SLORC rule as Burmese expatriates in Western countries organized boycotts of corporations conducting business in Myanmar (Oo 2006).

Eventually, bad investments and international pressure led to Myanmar's shift back to a civilian government following the election of Thein Sein of the Union Solidarity and Development Party (USDP) in 2010. Following the election, many of the foreign sanctions were eased and international business interests have flowed into the country to develop private industry. Thus, Western influence on national policy in Myanmar was highly restricted and capitalism was mostly held at bay until this recent influx of international business interests beginning in 2011 (Steinberg 2013).

Cambodia

Like Myanmar, Cambodia was subjected to colonial rule. Cambodia's pre-colonial history is rife with power struggles and, beginning in the 19th century, France took interest in Cambodia. In 1863, Cambodia was established as a French protectorate, followed by a tightening of control by the French. Cambodia regained its independence in 1953, when power was relinquished to King Sihanouk and Cambodia prospered by some accounts. However, Sihanouk was labeled as 'pro-communist' by the US and, in 1963, he terminated all economic and military assistance from the US. Sihanouk was known for his tolerance of the left and seemed intent on 'making Cambodia a genuinely socialist state' (Chandler 1983:193) until his unwillingness to address a faltering economy led to a coup d'état in 1970 and Lon Nol was given power.

In the following years, Lon Nol struggled to maintain power as Sihanouk challenged his insurrection by joining pro-Communist forces allied with North

Vietnam. In 1973, the US conducted a bombing campaign on Cambodia, releasing over a hundred thousand tons of bombs over the countryside in an effort to thwart Communist advancement as Lon Nol lost control over portions of Cambodia. Then, in 1975, the Democratic Kampuchea (DK) regime (aka the 'Khmer Rouge') took control and over the next 3.5 years Cambodia lost an estimated 1/4 of its population to exhaustion from being overworked, starvation, torture, and execution (Chandler 1983; Locard 2005). Additionally 'money, markets, formal education, Buddhism, books, private property, diverse clothing styles, and freedom of movement' were forbidden (Chandler 1983:209) under the DK regime. This brief, but brutal period of Cambodia's history came to an end in 1979, when Vietnamese forces defeated the DK on several fronts leading to the establishment of the People's Republic of Kampuchea (PRK).

Following the fall of the DK, the civil war persisted in Cambodia until an agreement - facilitated by shared lucrative logging rent deals among competing factions that helped build alliances (Le Billon 2002; Milne et al. 2015)- was reached by all sides, culminating in the Paris Peace Accords in 1991. In anticipation of the multi-party elections that would follow the signing of the peace agreement (Cambodia was a single-party state previous to this agreement), Hun Sen, the PRK Prime Minister at the time, adopted a strategy of economic liberalization which took effect in 1989. This move opened more opportunities for exploitation and commodification of natural resources by military personnel and local authorities who shared their profits with the PRK in exchange for generous political concessions, forming the basis for a direct integral relationship between natural resource exploitation and political power (Milne et al. 2015).

The involvement of development and conservation International Non-Government Organizations (INGOs) in the enclosure of natural resources in Cambodia has been instrumental in some cases in securing these resources for exploitation and commodification. Foreign aid for the purposes of development and conservation flooded into Cambodia following the conflict, bringing along its ideological assumptions about how capitalist development and conservation should proceed and empowering government elites (Milne and Mahanty 2015a).

Additionally, by helping to fund Protected Areas (PAs),conservation INGOs unintentionally secured land for exploitation by Cambodia elites as PAs were (and are) often unsustainably used for hydropower development projects and land concessions for commodity production (e.g. rubber and sugar), mining exploration, and commercial tourism development (Paley 2015). In 2012, 20% of land allocated from land concessions were held by five tycoons and land-grabbing by elites has had a significant impact on the political landscape of Cambodia (MacInnes 2015).

In addition to the influence of international development and conservation agencies on Cambodia's post-conflict initiation into capitalism, Western influence in the form of foreign 'expertise' - sought by Cambodia after the Khmer Rouge extinguished many of the country's intellectuals, scientists, and other professionals - and tourism have helped to shape Cambodia's economic liberalization strategy (Winter 2007). Thus, through Western involvement on multiple fronts, Cambodia has been shifting toward a capitalist economy for close to three decades now.

Status of the Dolphin and Approaches of Conservation Projects

Myanmar

Collaborative research on the status of and threats to the Ayeyarwady River Irrawaddy dolphin began in 2002 (Smith, Shore, and Lopez 2007). In contrast to the apparent failure of conservation efforts in Cambodia as discussed below, Myanmar has apparently seen the Ayeyarwady River dolphin population nearly triple since the government took drastic measures in December 2005 and created the Irrawaddy Dolphin Protected Area (IDPA) in a 74 km stretch of the Ayeyarwady River from Kyauk Myaung to Mingun, although it is unclear whether these estimates are a reflection of actual population increase or improved sampling techniques (Smith and Tun 2007). Heeding the calls of conservation scientists - who pointed to electric fishing, the use of gillnets, and mercury poisoning from gold mining as the main threats to the Irrawaddy dolphins in Myanmar - the Burmese government took swift action, outlawing gold mining on the river and establishing the IDPA with a prohibition on electro-fishing and the use of gillnets 'more than 300 ft (91m) long,

or spaced less than 600 ft (180m) apart' (Smith et al. 2009:1043). This rapid response has been attributed to the Burmese government's recognition of the importance of dolphins in the dolphin-fisher cooperative (Smith et al. 2009).

The dolphin-fisher cooperative was first documented by European naturalists in the 19th century (Anderson 1878), has been practiced for many generations (Tun 2004), and there are currently more than 100 fisher families involved in the cooperative (Chit 2014). Fishers and dolphins use series of audio and visual signals to cooperate to catch fish where fishers use a cast-net, locally known as a *kun,* while dolphins are thought to catch the fish that are confused and/or stunned during the netting process. The uniqueness of this dolphin-fisher cooperative has encouraged a dolphin conservation approach geared toward preservation of local livelihoods, particularly of fishers in the cooperative. However, tourism has been booming in Myanmar since the demilitarization of the government, opening of its borders, and improvements in international relations following the 2010 election of Thein Sein (Saurine 2013). As a result, conservation biologists are concerned that tours to see this unique dolphin-fisher cooperative could have detrimental effects to the dolphins' recovery (Smith et al. 2009; Smith and Tun 2007).

Cambodia

As Cambodia's government has shifted economic policy to encourage open markets in a bid to improve its competitive edge in a global capitalist economy, the privatization of resources has become part of the country's agenda (Springer 2009). Simultaneously, local fishers in rural villages in Cambodia have seen a rapid decline in fisheries stocks in the past several years (Sneddon 2007). These declines have been attributed to environmental degradation, the development of extensive water infrastructure, and overfishing, but are widely regarded as a result of the privatization of fisheries resources as 'private fishing operators . . . encroach on community fishing grounds and use threats and violence to sustain their exploitative practices' (Sneddon 2007:167). The survival of the Irrawaddy dolphin in the Mekong River is directly linked to these practices as accidental capture in

gillnets, and mortalities due to electric and explosive fishing techniques, have been identified as the most significant threats to the Irrawaddy dolphin in Cambodia (Beasley et al. 2013).

Comprehensive research efforts of the Irrawaddy dolphin in Cambodia began in 2001 with the Mekong Dolphin Conservation Project (MDCP), a researcher-led project. As research confirmed the critical status of the Irrawaddy dolphin in the Mekong, the World Wide Fund for Nature (WWF) Cambodia Program formally took over responsibility for the conservation of the Irrawaddy dolphin in collaboration with the Cambodian government. The policies established through this collaboration have been numerous, but the most significant were developed by the Dolphins for Development Integrated Conservation Development Project, which

> aimed to provide tangible benefits to local communities in exchange for their cooperation with conservation efforts. Project components included (1) rural development and diversification of livelihoods; (2) management of the existing community-based ecotourism; (3) education and awareness raising; and (4) strengthening stakeholder relationships. (Beasley et al. 2009:378)

Currently, it appears that conservation measures in Cambodia are failing to achieve the proposed goal of recovery of the Irrawaddy dolphin and the most recent estimates indicate that the subpopulation in the Mekong is declining at a rate of roughly 7.3 % per year and biologists are predicting their impending extinction (Beasley et al. 2009).

Thus, Cambodian conservation policies have been more focused on relieving poverty through economic development and diversification of livelihoods in rural communities, while the Burmese conservation policies have been more focused on directly addressing the socio-economic conditions (e.g. privatization of resources) that led to the threats to the Irrawaddy dolphin, and the preservation of livelihoods in rural communities. Thus, these two cases make for an ideal comparison of the experiences and perceptions of people affected by different socio-economic approaches to conservation of a non-consumptive resource.

Chapter Layout

The general approach and structure of this dissertation is meant to be interdisciplinary, incorporating my situated knowledge and experience as a scholar of natural resource management, a natural scientist, and a social scientist.

In Chapter II, I explain the justification for the selection of study sites and subjects and elaborate on general issues and barriers inherent in a cross-cultural project, as well as those specific to this study. I also discuss how I attempted to deal with those issues and barriers to mitigate their effects on the data. Finally, I outline my methods for collecting and analyzing data.

In Chapter III, I attempt to represent as many participants' experiences and perceptions as possible to show how they align with conservation officials' perceptions of (1) **issues** that affect the conservation status of Irrawaddy dolphins, (2) **actions** that have been taken to address these issues, and (3) **recommendations** for future actions and research needs to continue to address these issues. I highlight areas where participant and official perceptions diverge in an effort to help address gaps in dolphin conservation policy in each country and to further illuminate potential proximate causes of the dolphin's endangered status. I also examine issues of corruption and livelihood struggles identified by participants as having emerged as a result of conservation initiatives in an effort to make these issues more visible.

In Chapter IV, I describe how hegemonic ideologies of nature and the capitalist approach to conservation have become reified through 'eco-governmentality' where this environmental strategy has become globally institutionalized. I then explain how INGO's, through NGO governmentality, act as a vector in disseminating this global environmental strategy to peripheral areas by virtue of their ability to circumvent state barriers. In order to demonstrate this process in the study areas, I examine the importance of the dolphin to participants and attempt to evaluate whether the importance of the dolphin has changed since the inception of the respective conservation projects. I incorporate my data to contrast the lack of NGO governmentality and apparent simultaneous lack of change in the historical importance of the dolphin in Myanmar with the INGO interference

in dolphin conservation in Cambodia. I use my data to argue that this INGO interference in Cambodia constitutes NGO governmentality, which has unintentionally catalyzed a change in the importance of the dolphin to participants in Cambodia from a value embedded in its relationality to humans, to one associated with its monetary potential as a commodity. I then situate the data in geographical space, in relation to the foci of the conservation project, to argue that this change in the importance of the dolphin in Cambodia can be correlated with the apparent general change in local values of participants - which have seemingly shifted toward capitalist values of individual monetary wealth and commercialization of relationships to foreigners. To support this argument, I show that this shift in values is less apparent in geographical areas located farther from the foci of the conservation project.

In Chapter V, I situate the data within the theoretical concept of 'uneven development' and expand on this concept to argue for a more holistic theory of 'lopsided development' where uneven distribution of costs and benefits is better conceived of as an uneven *reallocation* of *shared* costs and benefits, in which all members of society suffer the consequences of the reduced ability of portions of the community to contribute to their full potential and the breakdown of social cohesion that precipitates the escalation of social deviance - including violence and theft. I also use the data to compare the socialist approach to conservation in Myanmar - where fishers are compensated for their loss of access to fish and encouraged to fortify their relationship with dolphins, and benefits are communally distributed - to the capitalist approach to conservation in Cambodia where the dolphin has been commodified and fishers have been encouraged to diversify their livelihoods - which has included the nascent practice of carving and selling wooden dolphin sculptures to tourists. I argue that this use of a capitalist mechanism to fix a problem created by capitalist exploitation of resources has served only to shift the burden of capitalist exploitation from the rivers to the forests as local lumber is apparently often employed in the production of these sculptures and the income from the sale of these sculptures is used to build larger houses that are also apparently often sourced from local illegal timber practices. I further argue that such attempts to

address the proximate causes of environmental degradation in the absence of acknowledgement of the ultimate structural cause constitute 'Whack-A-Mole conservation,' where solutions serve to address symptomatic manifestations of systemic problems, which then later resurface elsewhere as the root cause continues to be neglected.

In Chapter VI, I revisit the proximate causes of the dolphin's endangered status as I interpret them based on participant perceptions and experiences in both countries, and make specific recommendations to address these issues while attempting to keep the root (ultimate) cause of the issues in mind. I also make general recommendations for approaches to conservation, based on my experience as a natural scientist, as well as my previous research on social movements and general methods of addressing capitalism and its inherent social and environmental consequences. I also caution that these recommendations should act as a supplement to the many specific and general recommendations made by experts and movements far more qualified than I am to make such recommendations.

Finally, in Chapter VII, I draw conclusions from the findings of this dissertation and encourage further discussion and research in collectively negotiating the social and environmental consequences of the global capitalist project. I end by arguing for an inclusive, equitable, diverse, and interdisciplinary - and therefore more holistic - approach to tackling the world's shared social and environmental crises.

CHAPTER II

DATA AND METHODS

The objective of this dissertation is to comparatively illuminate the socioeconomic and political dimensions of two different approaches to conservation in developing countries via assessment and characterization of perceptions and experiences of communities directly affected by these conservation projects. A further comparison is made to nearby communities presumably unaffected by these same conservation projects. This study was guided by the following general research questions (1) How are the policies implemented by these conservation projects *experienced* and *perceived* by people in local communities?; (2) Are there gender or age differences in how these policies are experienced and/or perceived by people in local communities?; (3) Are the policies actually implemented as intended, or do local practices differ from those expected or dictated by policies?; and (4) Are the experiences and perceptions of people in local communities where these projects have been implemented (a) different in Cambodia and Burma and/or (b) different than those of adjacent communities less affected by the policies implemented by these projects?

Additionally, special attention was given to recurring concepts that were revealed in the data, regardless of whether they helped to answer the research questions, in order to allow space for underrepresented voices to be heard. Thus, the major methodological approach for this study was ethnographic in nature, although an attempt was made to supplement ethnographic data with questionnaire assessments. Although the definition of ethnographic studies is still under some debate, most researchers recognize it as a 'practice (that) places researchers in the midst of whatever it is they study . . . (where they) can examine various phenomena as perceived by participants and represent these observations as accounts.' (Berg and Lune 2006:191). According to Reeves et al, '[t]he central aim of ethnography is to provide rich, holistic insights into people's views and actions, as well as the nature (that is, sights, sounds) of the location they inhabit, through the collection of detailed observations and interviews' (2008:512).

This research included a total of 288 participants, with 128 individual interviews, 25 focus groups, and 276 questionnaires. Participants were from 17 different villages in Myanmar and Cambodia, ranged in age from 13 to 89 years, and included 157 females and 130 males (the gender of 1 participant was not recorded). The justification for the selection of study subjects and study sites for this project follows. I then discuss issues and barriers unique to this project, followed by an explanation of how methods were implemented, and finally how data were analyzed.

Selection of Study Subjects and Study Sites

This project sought to answer the question of how specific current conservation measures in developing capitalist economies are perceived and experienced by local communities. It attempts to answer the proposed research questions by focusing on the communities that are most directly affected by specific conservation measures aimed at the Irrawaddy dolphin in Cambodia and Myanmar, with a comparison to adjacent communities and communities deemed far enough away (at least one hour by local transportation) to be unaffected by conservation measures. Below I outline the justification for this approach.

Selection of Study Subjects

Although there has been a recent and robust attempt to include the voices of marginalized people in conservation policy planning and implementation (Beasley et al. 2009; Berkes 2008; Moore and Russell 2009; Robbins and Berkes 2000), the voices of people, particularly women (Cornwall 2003) in small rural communities are often underrepresented in and/or left out of the conversations that assess the effectiveness of these programs (Beasley et al. 2009; Dietz, Ostrom, and Stern 2003; Moore and Russell 2009). This study attempts to address this issue by asking the people most directly affected by conservation policy about their experiences and perceptions of those policies.

Selection of Conservation Projects

The Irrawaddy dolphin (*Orcaella brevirostris*) inhabits rivers throughout southeast Asia and coastal waters in the Indian and Pacific Oceans from the Bay of Bengal to the Philippines (Stacey and Leatherwood 1997) and is listed as Threatened with five sub-populations listed as Critically Endangered (IUCN). Since these dolphins are not pursued directly for consumption, they are considered a non-consumptive resource and upstream industrial pollution, accidental catches by gillnet fisheries, and mortalities resulting from electro-fishing have been identified as the major threats to their survival (Baird and Beasley 2005; Smith et al. 2009; Smith and Hobbs 2002; Stacey and Leatherwood 1997).

Because the Irrawaddy dolphin is a non-consumptive resource, it's reasonable to assume that their Threatened and/or Critically Endangered status is due to other socioeconomic factors that indirectly affect the survival of the Irrawaddy dolphin (rather than direct consumption or kills). Thus, it is especially critical that conservation measures that seek to aid in the recovery of Irrawaddy dolphin populations address these socioeconomic factors directly; making Irrawaddy dolphin conservation projects an appropriate focus for this research project.

Conservation measures for the Irrawaddy dolphin vary by country and include mitigation of habitat degradation, restriction of fishing practices and gear that endanger the Irrawaddy dolphin, educational outreach, poverty alleviation through development, tourism development, and formation or reinforcement of fisher cooperatives (Baird and Beasley 2005; Smith et al. 2009; Smith and Hobbs 2002). Each country has had varying measures of success in conservation of the Irrawaddy dolphin and - because of its widespread distribution in multiple countries - the Irrawaddy dolphin seems an appropriate subject for a cross-country comparison on conservation projects.

Selection of Countries

As discussed in the Introduction, both Cambodia and Myanmar have been slowly making the shift to capitalist economies. For Cambodia, this shift began after

the end of the fall of the Khmer Rouge in the early 1980s (Sneddon 2007; Springer 2009), while this shift is more nascent in Myanmar, beginning in 1988 (Yuen 2011) and experiencing a boost with the successful election of Thein Sein in 2010 and the subsequent demilitarization of the government (Asian Development Bank). Simultaneous to this shift, both countries experienced a decline in their respective subpopulations of the Irrawaddy dolphin - and degradation of their habitats - and both countries have implemented conservation programs as a result. While the overall goals of these conservation projects are the same (to recuperate the Irrawaddy dolphin population and improve its habitat), they have differed in their approach and apparent levels of success. Because of these differences, these cases offer an excellent comparison of such approaches. Therefore, I focused on conservation measures taken on the Mekong River in Cambodia and the Ayeyarwady River in Myanmar for the purpose of this project.

Selection of Villages

Corruption is still a way of life in many areas of Myanmar and Cambodia (Amnesty International 2016) and, since I was endeavoring to mitigate harm to and be trusted by my interviewees, as well as encourage truthful assessments of the conservation projects, I chose to have minimal to no contact with the conservation projects when I first arrived in each country. Further, in the interest of protecting the identities of interviewees and interpreters in this project, (for reasons described in more detail below), I will not name the villages, but will instead refer to them as 'target' (or 'T' - villages specifically targeted by conservation projects), 'adjacent target' (or 'AT' - villages nearby those specifically targeted by conservation projects, but not targeted themselves), and 'non-target' (or 'NT' - villages not targeted by conservation projects and at least one hour by local transport from the nearest targeted village, but not necessarily outside of identified critical habitat for Irrawaddy dolphins). Thus, the villages will be referred to by the following formula:

'Country, T/AT/NT, #'

where 'Country' is either 'M' for Myanmar or 'C' for Cambodia and '#' is the number of the village, in chronological order according to when the first interview occurred

there, for that country. For example, a target village in Myanmar that was the 6th village visited in Myanmar overall will be designated 'MT6,' while an adjacent target village in Cambodia that was the 6th village visited in Cambodia overall will be designated 'CAT6.'

Myanmar

According to Wildlife Conservation's (WCS's) website, the Irrawaddy dolphin conservation area extends over a 74 km stretch of the Ayeyarwady River from Mingun to Kyauk Myaung and I began my interviews in villages designated in this area (see Figure 2.1). At first, it was easy to avoid contact with WCS. They didn't seem to have had contact with the villages I was conducting interviews in. In fact, I initially found that very few people were aware of the existence of a conservation project in the area, with the exception of some fishers. Then, about 5 weeks into my 3 month stay in Myanmar, I serendipitously ran into a local man who was working for the WCS. Through him, I learned that WCS had started an ecotourism program with the goal of training 5 'target' villages in dolphin conservation and foreigner hospitality. This led to somewhat of an 'Aha!' moment where it became clear that the 4 villages I had been conducting interviews in were actually non-target villages. With such a large area to cover and limited means of communication, this made sense. As a result of this interaction, I decided that a visit to some of these target villages was necessary. Thus, I considered the 4 villages where I had completed interviews as non-target and added 3 of the 5 WCS-designated target villages to the project, as well as 1 adjacent target village. This yielded a total of 8 villages in Myanmar including 4 non-target villages, 3 target villages, and 1 adjacent target village.

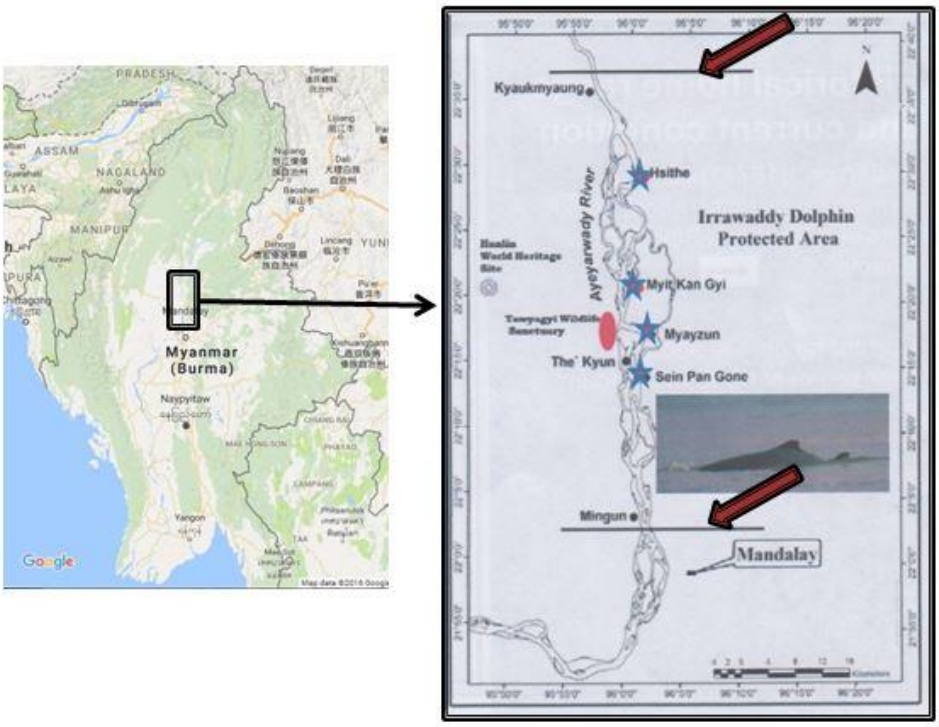

Figure 2.1. Study area on the Ayeyarwady River in Myanmar. The thick arrows demarcate the boundaries of the Irrawaddy Dolphin Protected Area (IDPA), while the stars and oval are the WCS-designated target villages for training in dolphin conservation and foreigner hospitality. WCS-designated target villages were also considered target villages for this study while those within one hour of travel by local transport were considered adjacent target and those beyond one hour of travel were considered non-target. Adapted from the Systematic Guiding and Preserving on Ayeyarwady Dolphin Training Course (Chit 2014).

Cambodia

The conservation project in Cambodia is somewhat more developed and, therefore, information on the project is more accessible. According to the Cambodian Mekong Dolphin Conservation Strategy, there are 9 core zones in the Mekong that have been designated as 'vital areas for Irrawaddy dolphin conservation'(Fisheries Administration 2005) (see Figure 2.2). Of these 9, 5 are located in Kratie province. Therefore, I chose to conduct interviews in a total of 9 villages in Cambodia including 2 non-target villages, 4 target villages, and 3 adjacent target villages.

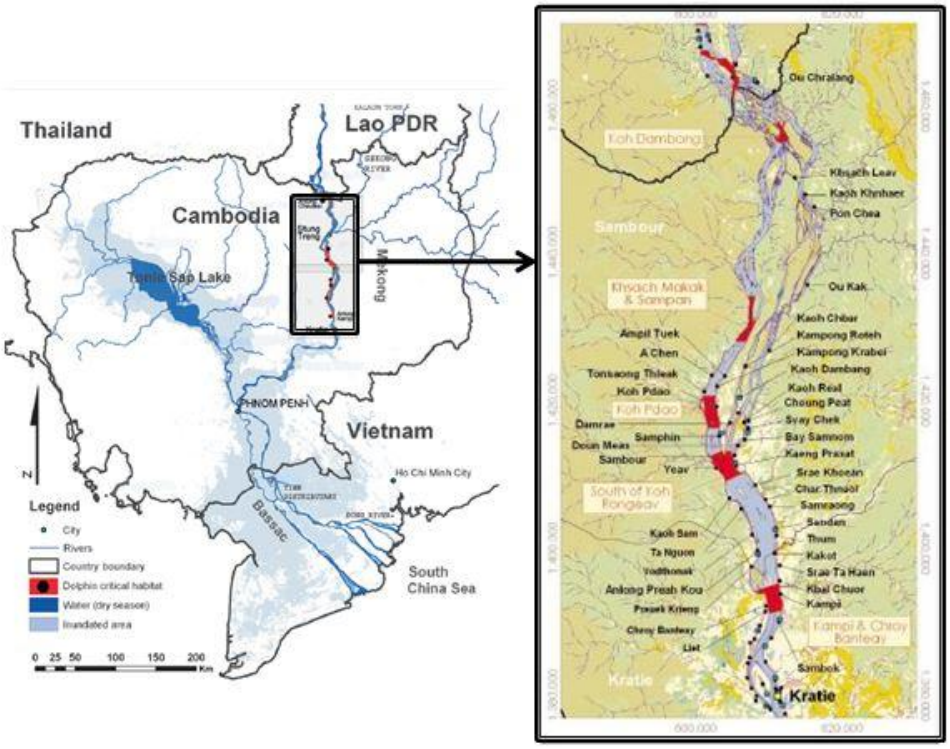

Figure 2.2. Study area on the Mekong River in Cambodia. The red sections of the river are core zones that have been designated as conservation areas. Villages that fall within these red areas were considered target villages while those within one hour of travel by local transport were considered adjacent target and those beyond one hour of travel were considered non-target. Adapted from Beasley et al. (2013:228) (left) and Ministry of Agriculture Forestry and Fisheries and Department of Fisheries (2005:20) (right).

Issues and Barriers and Their Solutions

Any research endeavor is prone to its unique issues and barriers and this project was no exception. Many, if not most, of the issues I encountered were due to the multicultural and multilingual nature of a cross-country comparison by an outsider. Interpreters and translators were an absolute necessity to the success of this project, so I refer to both often. In an attempt to avoid confusion, I use the word 'interpreter' to refer to those who helped me communicate with participants in the field and 'interpretation' to refer to in-field interactions with participants. I use the word 'translator' to refer to those who translated the transcripts of the audio recordings and 'translation' to refer to the hard copies of translated transcripts. The following is a description of the most significant issues and barriers in this project,

generally in the order that they presented themselves, and the solutions I used in an attempt to mitigate their influence on data and data collection.

Power and Privilege in Intercultural Research

The 'development' of countries through the globalization of a capitalist economy brings with it 'a geopolitics that universalizes European thought as scientific truths, while subalternizing and invisibilizing other epistemes' (Walsh 2007:224). Through this universalization, a discourse of development arises 'that sets the rules of the game: who can speak, from what point of view, with what authority, and according to what criteria of expertise' (Escobar 2002:83). These relations of power, then, are at play when a researcher borne of European thought and systems of knowledge enters a community undergoing 'development' through capitalist mechanisms. The very notion of objectivity becomes suspect. Regardless, many argue that to conduct truly objective research is entirely impossible, for as soon as we choose to do research in a specific area, as soon as we choose a question or problem worthy of study, we have already declared our biases (Collins 2013; Harding 1991; Solórzano and Yosso 2002). This is not to say that we should abandon all research entirely and admit defeat in the absence of clear objectivity (which many argue does not exist). Instead, acknowledging our lack of objectivity - through relativity or constant self-reflection - allows us to examine the role of our culturally-situated assumptions throughout the research process and, in doing so, our research ironically resembles more closely the objectivity that positivists aspire to (Burawoy 1998; Collins 2013; Harding 1991). Thus, instead of operating under the assumption that I was doing objective research, I endeavored to identify issues and areas where my subjectivity may have had more influence on methods and data and attempted to mitigate the effects of that subjectivity.

I strived to pay particular attention to the roles of power and privilege in this project and how they may affect the data and, most importantly, the participants. I fully acknowledge that the process of obtaining the data for this project, as well as my interpretations of these data, were and are affected by my perspectives, assumptions, and knowledge as determined by my social positioning - which in turn

is affected by my race, gender, class, age, nationality, and other anthropocentric classifications (Collins 2013; Harcourt and Nelson 2015; Harding 1991). Throughout this project I actively and constantly reflected on how my social positioning and cultural assumptions might be affecting the research (Naples 2003) and I discuss these issues where and when they seem necessary throughout this dissertation.

Gaining Access to Research Sites

By far the most significant hurdle encountered in this project was gaining access to research sites. This issue was twofold in that most research sites were both *logistically* difficult to access and, particularly in the case of Myanmar, *politically* difficult to access. I discuss political difficulties first below, since logistical access could not be considered until the former was addressed.

Political Access

Myanmar

For decades, access to Myanmar has been highly restricted to foreigners, with only certain designated areas open to tourists and foreign nationals (Richmond et al. 2014; U.S. Department of State - Bureau of Consular Affairs 2016). In the past few years, restrictions have been relaxed, but information on these new restrictions has been conflicting and, as a result, restrictions seem to have been inconsistently applied. For example, as I was preparing to leave Myanmar after the research period, I spent hours researching - via local contacts and the internet - whether foreigners were allowed to travel to the Indian border overland. The information I was finding was highly contradictory, with some sources stating that access continued to be completely restricted and others saying that access had recently opened up entirely. Even when I contacted the local US embassy, I was told that the information they had was also inconsistent. In fact, I ended up sharing a source of information with them (someone's firsthand account of travelling through a previously restricted area on their blog) that contained more information on travel restrictions than they previously had available. Thus, even Embassy officials are

obtaining their information through travelers, rather than through government channels.

Even when one is in an area that is open to foreigners, there are few options for visas for those wishing to stay longer than 30 days (extensions are very difficult to obtain). Fortunately, Myanmar has a 3-month 'meditation visa,' which serves as a sort of common, though lesser known, loophole to this 30-day restriction. The stated purpose of the visa is to allow foreigners to live in residence at a local monastery or monastic school, solely for the purpose of meditation and religious study, and requires a letter of sponsorship from a religious institution (Embassy of the Republic of the Union of Myanmar 2016). However, there seems to be an unspoken understanding that this visa can be used unofficially for other purposes as long as the holder of the visa does not interfere in government issues (which can be widely interpreted by the government). As evidenced by online blogs and travel forums, the meditation visa is most often used for foreigners wishing to visit and volunteer in Myanmar for extended periods of time. In fact, most people we met in the city (including police officers) immediately assumed that we were there as volunteer teachers as soon as we told them where we were staying. When I asked locals how it was possible that so many foreigners came on meditation visas when they were actually there as volunteer teachers, I was told that the government has a strict policy of not interfering with religious institutions, particularly Buddhist monasteries. Thus, as long as meditation visa holders caused no problems, the government didn't seem concerned with the contradiction.

I had no intention of causing problems while in Myanmar, especially given what little information I had to go on. As one might imagine, if it is difficult to obtain information on travel in Myanmar while in Myanmar, it is even more so outside of Myanmar, even with the one advantage of consistent and unrestricted internet access (internet was often too slow or unavailable during our stay). The little information I was able to get prior to leaving the US, by speaking with others who had done research in Myanmar, was extremely helpful - if not somewhat frightening. Stories proliferated about foreigners being watched surreptitiously by government spies while in Myanmar, a relic of the recently ended military dictatorship (pers.

comm.). Things were far better now, I was assured, but it would still be necessary to 'watch my back' and avoid any political conversations in public to mitigate harm to the other potential conversational parties involved - something I remained acutely aware of throughout my stay.

Cambodia

Because Cambodia has been open to foreigners for travel for decades following the end of civil war (Winter 2007), political access was far less complicated than for Myanmar. Information on visas and travel throughout Cambodia is more broadly available and less restricted, with visa extensions easily available. Additionally, I had travelled to and throughout Cambodia on two prior occasions as a tourist (while I had only spent one night in Myanmar prior to this project), so I was also more familiar and more comfortable with travel in Cambodia. Corruption is still prevalent throughout the country and stories thrive throughout the travel community on run-ins with local authorities that resulted in monetary losses, particularly at border crossings (Backpacker Lee 2016; Lockwood 2013; Morrison 2016) - including my own from a previous trip (Deutsch 2008). However, my prior experience in Cambodia made me feel more savvy to these potential issues and, therefore, more confident in my ability to both foresee and avoid them, as well as handle them should they arise.

Logistical Access

Myanmar

As mentioned above, foreigner travel throughout Myanmar is highly restricted. As part of these restrictions, foreigners can only stay in designated accommodations (usually monasteries or officially recognized guesthouses) that are often few and far between outside of the major cities. As a result, I had to travel out to research sites each day. Travel to non-target villages required catching a ride to the river port, riding a tourist ferry to a village to the north, and then contracting a private boat driver to take my interpreter and me to the designated village for the day. All of these modes of transportation required extensive price bargaining and

travel time averaged 2 hours one-way. Because target villages were too far up the river (6.5-7 hours travel time) to make day trips feasible, we had to locate a central place to stay (a process that took weeks) and do day trips from there. Each of these day trips averaged about an hour one-way. It is also important to note that the first of two trips to the target villages on the Ayeyarwady was taken as part of an organized WCS dolphin tourism trip with a member of WCS. As mentioned above, I attempted to maintain minimal contact with conservation projects and officials to avoid biased answers from participants. However, because of political and logistical barriers, it became necessary to have some contact with WCS. Still, while in the target villages, my interpreter and I split from the main tourist group to conduct research. In a few cases, the WCS official introduced us to people in some of the villages, but did not stay around while we conducted interviews and focus group discussions.

Cambodia

Although travel was not restricted in Cambodia, it was necessary to conduct research on day trips so that I could maintain access to the internet and so that my interpreter could work at her regular job when not assisting me in the field. Travel times to research sites in Cambodia averaged 45-min one-way by tuk-tuk (a sort of covered cart attached to a motorbike) on a dusty pothole-filled road. Additionally, it was sometimes necessary to hire boat drivers to take us to villages on the opposite side of the river. Finally, several of the villages were located several hours away by tuk-tuk and boat, so we stayed at a guesthouse in one of these villages. The intention was to stay two nights, but the heat was so unbearable that it became necessary to head back after the first night to avoid heatstroke - although we made up for this by conducting research late into the evening and then very early the next morning until we headed back in the evening of the next day.

Earning Trust of Participants

At the outset of this project, I anticipated that earning trust would pose a particularly difficult problem, given my obvious outsider status. In Myanmar, I

quickly found that being a foreigner worked in my favor as participants seemed eager to help as well as to speak to a foreigner. I soon came to discover, through my personal experiences as well as through conversations with other foreigners and locals, that hosting guests - particularly foreign ones - is often considered a great honor with great responsibility in Burmese culture (multiple pers. comm.) and that the people of Myanmar are exceedingly honest and place high value on honesty (multiple pers. comm.). While this meant that it generally seemed easier to engage participants (with the exception of women in one of the non-target villages as discussed below), it also meant that I had to be more aware of how my presence might entice participants to disclose information that may put them in danger (for example when discussing possible corruption in the conservation project). Thus, although I was already bound by US law, University protocol, and ethics to take every precaution to protect the identities of my participants, this served as a reminder to be extra attentive to each step of protecting participant confidentiality - from repeatedly asking my interpreter whether she had remembered to obtain informed consent (something I could tell she grew tired of me asking) to keeping identifying information solely in a notebook (and separate from audio recordings) using a system decipherable only by me.

Although my status as a foreigner didn't seem to hold quite the same weight in Cambodia as in Myanmar, I believe the issue of earning trust in both countries was at least partially alleviated by my extensive experience in intercultural communication, as well as my experience in earning trust in a marginalized community for my Masters Paper in sociology. Adler and Adler (2001) suggest that one of the ways to establish a rapport with a reluctant respondent is to earn their trust by disclosing personal information, even if it's not related to the subject at hand. Although Adler and Adler are referring to reluctant respondents during an interview, I often found it useful in earning the trust of prospective interviewees. Rubin and Rubin (2005) add that prospective interviewees are more likely to talk to you if they know you. Therefore, I endeavored to be honest and upfront with prospective interviewees and practiced full disclosure of my life and background whenever asked. Although possibly obvious to most ethnographic researchers, I

have also found it helpful to actively, consciously, and consistently practice respect and empathy toward participants and their culture.

The Gender Conundrum

Political, logistical, and general trust earning issues aside, I had been in Myanmar for just 2 weeks when I encountered my first major hurdle related to the participants. It seemed that no matter how hard my interpreter and I tried, we couldn't seem to get any women to participate. We asked several women, but the men that were present often interjected, saying that the women didn't know anything about dolphins. The women also declined, but I suspected this was because they were asked in the presence of men as these women often lingered and listened with intense interest - adding things themselves - as I conducted interviews with the men. I tried to explain that the study was also about changes in the community, but I still could not get women to participate. I talked to my interpreter to see if she had any ideas, but she was at a loss as well, saying simply that gender discrimination is extreme in the villages. Thus, it is likely that these women were reluctant to speak because their subordinate statuses put them at risk (Adler and Adler 2001).

After some discussion with my committee members via email and further brainstorming with my interpreter, we decided to come up with a 'different' interview script for women that helped establish a more personal connection among interviewees, the interpreter, and myself (Adler and Adler 2001). This consisted of asking women about their families and discussing cooking, issues perceived to be solely in the realm of women (Waring and Steinem 1988), at the beginning of the interview. We then changed the order of the other questions for female participants by posing the questions about changes in the village before the questions about dolphins. Nothing else was changed. We then tested this new interview script in the next (new) village. At first I thought this did the trick because we had no further issues getting women to participate (neither in Myanmar nor in Cambodia) with one exception. Weeks later my Burmese interpreter and I returned to the village where we had spent our first two full days of fieldwork (where we had initially encountered the issue) and we encountered the same barrier. We could only

conclude that the issue of getting women to participate was unique to this one village as no other variables offer sufficient explanation.

Language and Cultural Barriers

In both countries, as with any major cross-cultural, multilingual project, there were steep learning curves - mostly on my part - but on the part of my interpreters as well. In the first few weeks in each country there were often instances where the answers my interpreters were offering for questions I had asked didn't match those questions. For example, I might ask 'What changes have you seen in the village in the last ten years?' And the response might be something like, 'Yes.' So, much time in those first few weeks was spent clarifying questions until my interpreters and I got to know each other enough to anticipate the others' meaning. It is also for this reason that I decided to remain with the same interpreter in each country. Once we had established a rhythm, it seemed counterintuitive and inefficient to start over with a new interpreter.

In Myanmar, my interpreter and I quickly worked out the kinks in the language barriers. However, this took somewhat longer in Cambodia and, at the advice of my Committee Chair, I decided to hire a second interpreter for one field day. This proved helpful as it clarified where some of the language differences were occurring with the current interpreter. From that point onward, the original interpreter and I had few issues with language barriers.

The occasional cultural difference would also arise, at which point each interpreter would respond by giving me a brief and informative lesson in local culture, if they deemed it necessary. With at least one cultural difference that occurred on several occasions, I was unaware of the difference until I received translations back. Several interviewees throughout this project spoke about the loss of a loved one, with a few of them breaking into tears as they described their loss. In Western culture, I am accustomed to apologizing for bringing up painful memories, but I found through the translations that this was not standard practice in either country. In fact, my interpreters had to explain to participants why I was apologizing for their losses, something I was not aware of in the field.

Although cultural differences are important to acknowledge and be aware of as different cultures may have different ways of understanding their world (Asante, Miike, and Yin 2014; Rubin and Rubin 2005) , they didn't seem to pose significant barriers during the fieldwork portion of my research, although I attempt to take the potential of the effects of cultural differences into consideration in the interpretation of the data throughout this dissertation.

Question Leading/Prompting by Khmer Interpreter

While in the field, although I had little familiarity with either Burmese or Khmer languages, I was nonetheless able to pick up on potential issues. For example, I could tell when an interpreter offered optional answers to questions, rather than asking a fully open-ended question. I addressed this with both interpreters and the Burmese interpreter immediately stopped this practice except in instances where examples were necessary for clarification of a question (something I confirmed through the translations). However, although I had repeated conversations about the importance of not leading or prompting interviewees by giving them suggestions or offering answers, the Khmer interpreter seemed to occasionally continue to prompt and/or lead interviewees when she got frustrated with the amount of time they were taking to think of an answer. This was confirmed in the translations. Thus, I endeavored to separate these answers out in the coding process by coding them as 'prompted' or 'leading.' For example, she sometimes added 'Which kids are smarter? The ones today or the ones ten years ago?' to the question 'What are the changes for children in the village today compared to ten years ago?' Thus these answers would receive a code of something like 'children today smarter (prompted).' If she instead offered answers directly and participants simply repeated them, these answers were coded as 'leading.' For example, if she asked 'Why is it important that tourists come to the village? For money, right?' And they answered, 'Yes, for money,' this would be coded as something like 'importance of tourists = money (leading).' In this way, I attempted to mitigate biases arising from prompted and/or led answers.

Issues with Transcriptions/Translations

Within the first few days in the field, it became obvious that simply transcribing the English portions of the interviews would be insufficient at best and irresponsible at worst because they would be strongly lacking in thoroughness and accuracy (Rubin and Rubin 2005). Participants often spoke for up to a minute before my interpreter was able to interpret the answer for me and, by that time, it was logistically impossible for her to give a full direct translation of the participant's words. So, within the first few weeks in the field, I had decided that it would be necessary to transcribe each interview in the original language and then have the transcripts translated into English to assure greatest accuracy and thoroughness (Firebaugh 2008; Rubin and Rubin 2005; Singleton and Straits 2010). In order to save money and time, I immediately sought out transcribers in each respective country and had all Burmese and Khmer portions of all audio files transcribed before leaving each country.

Unfortunately, because Burmese and Khmer characters are completely different from the Latin characters employed in English script, I had no way of verifying the accuracy and thoroughness of the transcripts before having them translated - something I was unable to do before leaving each field site. As a result, I eventually realized that many of the transcripts lacked in thoroughness and represented something close to the English summaries I was given by my interpreters in the field.

In order to determine the accuracy and thoroughness of each translation, I painstakingly listened to each audio file while reading through the translations. It was necessary to listen to both languages in each audio file (Burmese or Khmer and English) because each gave me different information about the transcripts/translations. Listening to the Burmese/Khmer portions allowed me to verify the thoroughness of the transcripts/translations, while listening to the English portions allowed me to verify their accuracy. For example, if a participant spoke for 30 sec and only a few words were written down, or if the interpreter and participant went back and forth several times for a particular question - but only one exchange was written down - it was obvious that the transcript was not done

thoroughly. Additionally, if the translation did not match the question and answer given in English, it was obvious that the transcript was not accurate.

Out of 70 Burmese transcripts, 50 met the high standards of thoroughness and accuracy that I adopted for this project. However, virtually none of the Khmer transcripts met these standards. So I spent the majority of the 18 months following my fieldwork seeking out transcribers and translators, as well as funding to pay them, until these standards were met and verified for each and every audio file.

Implementation

Through comparative case studies of the 17 villages mentioned above (6 non-target, 7 target, and 4 adjacent target), I investigate the socioeconomic and political dimensions of Irrawaddy dolphin conservation projects in Myanmar and Cambodia. In an effort to best represent local voices, these investigations are guided by the assessment of experiences and perceptions of local residents. Thus, these comparative case studies were conducted through the use of interviews, focus group discussions, questionnaires, and participant observation in each of the 17 villages.

One-on-one in-depth interviews (Appendices A & B) and focus group discussions (Appendix C) with community members in the selected villages were used with the intention to supplement and expand on the questionnaires (see below). Interview scripts for women (Appendix A) were slightly different than for men (Appendix B) to help encourage participation of women (see *The Gender Conundrum* above).

Most interviews and focus groups in this study were conducted directly after administering questionnaires. Initially, this was done simply for logistical reasons (i.e. it was easier to interview a participant who had already consented to participating in the study via questionnaire), but I also found that this technique was helpful as a 'primer' and seemed to reduce the number of reluctant respondents, possibly because interviewees had time to think about the issue and types of questions asked. All interviews were conducted in person with the help of a field interpreter and were audio-recorded. Interviewees were most often selected at random by walking through the villages and speaking with anyone we encountered.

Additionally, snowball sampling was used for many of the interviews since snowball sampling can help establish trust more quickly (i.e. interviewees were more likely to trust an interviewer referred by a friend or relative) (Berg and Lune 2006). The semi-structured interview strategy was used in individual interviews and focus group discussions so that a set schedule of interview questions could be used, with some flexibility to allow for concept discovery (Berg and Lune 2006). A notebook was used during the interviews and focus groups to jot down concepts to expand on or return to with probes or follow-up questions (Rubin and Rubin 2005). Immediately following each interview and focus group discussion, summaries were written of the interview as well as reflections on areas for interviewer improvement (Rubin and Rubin 2005).

The one-on-one in-depth interviews allowed me to more easily direct the conversation so that I could get answers to specific questions, while the focus group discussions allowed me to blend into the background, making it more likely for the conversation to lead to concepts that I may not have considered otherwise (Berg and Lune 2006; Morgan 2001).

With the aid of interpreters, cross-sectional questionnaires (Appendix D) were used to gather information on the occupation, economic status, age and gender of participants in the selected communities and to assess the general perceptions and experiences of the participants (Singleton and Straits 2010) and whether they believe local practices reflect current policies set forth by the conservation project. In communities most affected by the implementation of conservation projects, participants were asked to rate their experiences with the conservation policies and with any social or economic differences perceived after the implementation of those policies using a Likert-type scale (e.g. 1= Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree). In communities least affected by the implementation of conservation projects, participants were asked to rate their perception of any general social or economic changes that may have been experienced in the last ten years. An attempt was made to have each willing member of each community fill out a questionnaire.

All one-on-one in-depth interviews, focus group discussions, and questionnaires were supplemented by participant observation for triangulation purposes (Singleton and Straits 2010).

Analyses

Effort

I spent a total of 3 months (Oct 2014 - Jan 2015) in Myanmar and 5 weeks (March - April 2015) in Cambodia conducting research. Because I was volunteer teaching at a monastic school in Myanmar in exchange for accommodation and a 90-day visa sponsorship (see *Issues and Barriers* above), 2 days per week were spent in the field there while I spent 4 days per week in the field in Cambodia. There were a total of 288 participants in this project, which included 144 from Myanmar and 144 from Cambodia. Participants ranged in age from 13 to 89 years with a mean age of 43 and a median age of 41 and included a total of 157 females (74 Myanmar; 83 Cambodia) and 130 males (69 Myanmar; 61 Cambodia). The gender of 1 participant from Myanmar was not recorded. The majority of participants were agricultural workers (114) or fishers (65), while other occupations included sellers, homemakers, manufacturers, government officials and law enforcers, boat drivers, service industry workers, tourism workers, public service workers, students, retirees, and business owners.

A total of 128 individual interviews (59 Myanmar; 69 Cambodia) and 25 focus group discussions (11 Myanmar; 14 Cambodia) were conducted and a total of 276 questionnaires (134 Myanmar; 142 Cambodia) were collected. Table 2.1 shows how each of these data collection methods were distributed by village type and country.

Table 2.1. Distribution of participants by village type, country, and data collection method.

Village Type	Country	Individual Interviews	Focus Group Discussions	Questionnaires
Target	Myanmar	29	5	71
	Cambodia	40	6	79
	Total	**69**	**11**	**150**
Non-target	Myanmar	29	6	48
	Cambodia	8	2	16
	Total	**37**	**8**	**64**
Adjacent target	Myanmar	1	0	15
	Cambodia	21	6	47
	Total	**22**	**6**	**62**
Overall Totals		**128**	**25**	**276**

To facilitate administration, the Burmese interpreter decided to translate the questionnaires into Burmese writing in the hopes of making it easier for participants to fill out. However, we soon discovered that nearly all participants were functionally illiterate, necessitating assistance from interpreters and other helpers on all questionnaires. The Khmer interpreter, who was from one of the non-target villages in the area and was aware of the high illiteracy rates, chose not to translate the questionnaire and instead conducted the questionnaires by interpreting them on the spot. Thus, in order to ensure accuracy and consistency with all questionnaires, the Burmese questionnaires were retranslated back to English and compared to the originals and a random sample of 3 audio recordings were made of Khmer questionnaires as they were being administered (with participant permission). These recordings were transcribed and translated into English for comparison against the originals. I entered all questionnaire data into an MSExcel database by the end of each field day. I then rechecked each answer for

quality control and accuracy. Near the end of my residency in each country, I rechecked all data a second time and scanned all questionnaires, saved them as PDFs, and destroyed the originals.

For reasons described above in the *Issues and Barriers* section, only the Burmese and Khmer portions of all audio-recordings were transcribed verbatim. Each transcription was then translated into English.

Qualitative Analyses

Interviews and focus group discussions were analyzed using the grounded theory method in which themes are developed by examining interview data for recurring concepts (Charmaz 2006). Only the Khmer and Burmese portions of the audio recordings were transcribed (see *Issues and Barriers* section above) and concepts were coded line-by-line using Atlas.ti software (Microsoft 2012) to help reveal patterns in the data until saturation occurred (Glaser and Strauss 1967). Where I cite participants throughout this dissertation, I use the following formula: 'AgeSex Occupation, Village (see *Selection of Villages* above for village coding).' Thus, if I quote a 25 year old female farmer from MNT1, for example, her quote is followed by '(25F Farmer, MNT1).' In cases where I felt that certain parts of this code would reveal the identity of a participant (usually in the case of occupation), I use 'Confidential' in place of that part of the formula.

When transcribing focus group discussions, transcribers were often unable/did not attempt to differentiate voices of participants. Therefore, I cite participants in focus groups with as much information as available. For example, in a focus group of 2 male fishers aged 23 and 34 and 1 male farmer aged 28 from CT2, I cite a single participant in the group using '(23M & 34M Fishers, 28M Farmer, CT2).' If all 3 participants were fishers, I would use (23M, 28M, & 34M Fishers, CT2). Additionally, because voices of participants in focus groups were often not differentiated - and because it is possible that some answers may have been unintentionally missed for a particular code - when I state counts of participants whose responses agreed with a concept, I use the minimum number of counts (i.e. concepts coded in focus groups were counted once, regardless of how many times

that concept was mentioned in a particular focus group). Thus, I use 'at least,' 'around,' or 'approximately' to indicate that the number given is the minimum number of participants whose statements agreed with the concept being described.

To facilitate a comprehensive comparison of participants' perspectives and experiences of the conservation projects to the stated intent of those conservation projects, conservation documents (workshop reports, conservation plans, and conservation updates) were also coded to identify (1) issues that affect the conservation status of Irrawaddy dolphins, (2) actions that have been taken to address these issues, and (3) recommendations for future actions and research needs to continue to address these issues.

I used participant observation to supplement data gleaned from the coding of interviews and focus group discussions and to build a description of the perceptions and experiences of people in the selected study sites. As explained below, the results from coding and participant observation also led to the dismissal of the use of questionnaires for the purposes of this study. As part of my participant observation, I kept a research/travel blog that detailed my observations in the field, as well as issues that occurred as a result of logistics and/or cultural differences. I made every attempt to honor the confidentiality of my study sites, interpreters, and participants on the blog. I also made an effort to use the blog as an honest assessment of the role of power and privilege in my research, as well as in the study areas and region in general.

Statistical Testing

Having listened to each audio recording painstakingly and on multiple occasions due to transcription/translation accuracy issues (see *Issues and Barriers* above) over the course of the 1.5 years that followed my fieldwork, I felt exceptionally familiar with my data and confident in what I might expect to see on the questionnaires, given what I heard and saw in the interviews and focus groups. However, at the same time, it seemed to be a somewhat regular occurrence for an interview to pause because an answer given in the interview contradicted an answer given on the questionnaire prior to the commencement of the interview. So,

while I was hoping that the robustness of the questionnaire data would overcome these contradictions, I was a bit apprehensive about the results.

Once all questionnaire data were compiled and triple checked for quality and accuracy (see above), I ran ANOVAs and Student's t-tests for individual questions. The ANOVAs included those of (1) different age groups, (2) current fishers vs past fishers vs those who never fished, and (3) target vs non-target vs adjacent villages. Groups tested using Student's t-tests included (1) Myanmar vs Cambodia, (2) fishers vs those who never fished, (3) female vs male, and (4) target vs non-target villages. At first it seemed like many of the findings were what might be expected. For example, people living in target villages in Myanmar were more likely than those living in non-target villages to say that the dolphin is an important animal. However, closer examination of the results revealed several contradictions and inconsistencies. For example, during interviews, people in target villages in Cambodia seemed to mention good changes in their village often and emphatically, while people in non-target and adjacent target villages often said that the good changes were minimal and even qualified this by saying that the changes were nothing compared to the ones in Kampi, a major dolphin tourism site.

Upon further investigation using the translations of the questionnaires administered by my interpreters (using a paper transcript for Myanmar and audio transcript for Cambodia as mentioned above), it appears that some of the questions were asked slightly differently in Khmer than in Burmese, particularly the ones that yielded the most unexpected answers. Additionally, it seems likely that other forces were at play that led to the inaccuracy of the questionnaires.

First, and perhaps most importantly and as mentioned before, the majority of participants were functionally illiterate, necessitating the use of an interpreter to administer the questionnaires. As such, the social location of the interpreters as urban-educated and functionally literate women relative to the position of rural participants may have created power imbalances that influenced the answers of participants. Additionally, my presence during these questionnaire administrations was also likely to have influenced answers due to my relative social location as a functionally literate white woman Western researcher. Thus the inherent power

imbalances created through these differences in social location may have caused irregular reporting on the questionnaires due to a reluctance to respond (Adler and Adler 2001).

Further, differences in language and culture (see *Language and Cultural Barriers* above) likely complicated the translation and confounded the intended meaning of questions on the questionnaires. These irregularities due to power dynamics and language and cultural differences were likely to have resolved, at least somewhat, during interviews and focus group discussions as interviewees became more familiar with the interpreter and researcher (Adler and Adler 2001) - as well as the subject matter - and because the instrument that represented the imbalance of power (the questionnaire) had been removed.

Second, questionnaires were given on the spot, without allowing much time to process the material at hand (as is usually the case when questionnaires are administered, as respondents fill them out at their convenience). Thus respondents had little time to think about their answers to the questions before responding, relative to interviews and focus groups, possibly causing inconsistencies between the two. Because questionnaires were often given to participants in advance of interviews and focus group discussions, these seemed to serve as a primer to allow respondents more time to think about the subject matter. Additionally, questionnaires lasted an approximate average of 5-7 min, whereas interviews and focus group discussions lasted an average of 30-60 min, and participants were given the chance to add additional comments near the end of each interview and focus group discussion. Consequently, participants had more time to process the subject matter and think about their responses in interviews and focus groups than during questionnaires.

Thus, because questionnaire data seemed inconsistent with interview and focus group studies, and because it seemed more likely that interview and focus group studies were more accurate - as reasoned above and in my opinion based on participant observation - all questionnaires were discarded. It would have been preferable to run a test comparison after spending a few days in the field in each country, but this was logistically unfeasible for the purposes of this project.

Although methodological comparison was not one of the goals of this project, I feel it is important to acknowledge this finding as I believe it has implications for cross-cultural multilingual research. Many cross-cultural, cross-national scholars argue for the qualitative approach because it 'opens the door to meanings, concepts, definitions and characteristics that provide the basis for an insight of the different social processes and practices under analysis' (Gómez and Kuronen 2011:694). For these scholars, qualitative methods are viewed as 'the *reflexive* model of science - a model of science that embraces not detachment but engagement as the road to knowledge' (Burawoy 1998:5).

The use of questionnaires as a primary data collection method for research in underdeveloped countries has also been critiqued (Chambers 1983; Gill 1993). Chambers (1983) describes the many shortcomings of the use of questionnaires by researchers in relative positions of power for studies on poor rural populations including the influence of conceptual biases on the interpretation of social realities, the tendency of the gaps in knowledge of urban professionals regarding rural issues to distort the experiential realities of poor people, the lack of depth of inquiry in questionnaires, and the likelihood of such shortcomings of questionnaires to alienate poor people and encourage falsified or skewed answers. In her research on microfinance loans in Bangladesh, Karim (2011) discusses the inability of quantitative questionnaires to capture the subtleties of behavior governed by social norms. For example, women who lent money did not self-identify as moneylenders because of the Quranic prohibition of usury. Instead they viewed their lending practices as a form of help. As a result, questionnaires alone would have led to the erroneous assumption that the women in her study never lent money and it was the inclusion of ethnographic data that revealed this oversight. In Karim's case, she was able to mediate between quantitative and qualitative findings because she was able to examine and compare these findings while still in the field.

Although precognizant awareness of potential issues stemming from administering questionnaires in functionally illiterate communities and from translation differences in multilingual questionnaire assessments may have assisted in accuracy of questionnaires in this study, it was the qualitative methods that

brought these issues to light. Ideally, these issues would have been recognized and mitigated in the field, allowing for a dialectical analysis of the two forms of data. However, logistical difficulties - including language barriers and the fact that I often did not have a full understanding of what was being said in the interviews until the nuances were revealed in the translation text months after returning home - precluded these issues from mediation. I believe this warrants special care and further investigation when employing solely quantitative methods in cross-cultural multilingual research.

Conclusion

This dissertation attempts to examine the socioeconomic and political dimensions of Irrawaddy dolphin conservation projects through a cross-cultural, cross-national comparison of these projects. I use a combination of one-on-one in-depth interviews, focus group discussions, questionnaires, and participant observation to assess and characterize the perceptions and experiences of communities targeted by these projects - with a comparison to adjacent communities and communities at least one hour away by local transport from those targeted by these projects. I discuss issues and barriers unique to this project and how I approached each as it arose, with particular attention to issues of power and privilege. Results indicated that questionnaires yielded inconsistent findings to those found through other methods and I recommend further inquiry into the use of quantitative methods in cross-cultural, multilingual research. Further findings from the remaining methods are elucidated in the remainder of this dissertation.

CHAPTER III

COMPARISON OF DOLPHIN TOURISM/CONSERVATION PROJECT CLAIMS TO PARTICIPANT EXPERIENCES AND PERCEPTIONS

Introduction

In this chapter, I examine the respective Irrawaddy dolphin conservation projects' statements and goals in relation to research participants' experiences and perceptions of the accuracy of these statements and progress toward these goals. This type of examination helps answer, in part, the research questions (1) How are the policies implemented by these conservation projects *experienced* and *perceived* by people in local communities?; and (3) Are the policies actually implemented as intended, or do local practices differ from those expected or dictated by policies?

Several efforts have been made to collaborate and provide updates on Irrawaddy dolphin conservation in Myanmar and Cambodia in which managers and scientists clearly identify (1) **issues** that affect the conservation status of Irrawaddy dolphins, (2) **actions** that have been taken to address these issues, and (3) **recommendations** for future actions and research needs to continue to address these issues (Braulik 2014; Dolphin Commission, Fisheries Administration, and WWF 2012; Fisheries Administration 2005; Marsh, Reeves, and Read 2014; Reeves et al. 2009; Smith et al. 2007; Thuok, Ath, and Reeves 2014). Here I specifically compare the cumulative identified issues, actions, and recommendations of scientists and managers (i.e. officials) to those expressed by the research participants.

Conservationists acknowledge that 'Irrawaddy dolphins in both the Mekong and Ayeyarwady share similar conservation challenges . . .' which '. . . include low population size, a declining range, suspected high mortality from gill-net entanglement, illegal electro-fishing, and plans for constructing hydroelectric dams in the main stem and major tributaries' (Braulik 2014:2). However, research and conservation are much more advanced in Cambodia than in Myanmar. Thus, I examine each country separately, highlighting items where participants seemed to

feel particularly strongly, as well as items where I felt the addition of participants' experiences and perceptions may help clarify those items for conservation officials. I then elaborate on highlighted items below the respective tables, based on research participants' responses. Because precise counts of participants who spoke to a certain concept will not always be accurate (see Chapter III), I only include counts of participants when it seems necessary or where there was a clear number of participants speaking to a concept (e.g. answers to scheduled questions, which could be assumed to have always been coded similarly). Additionally, I include the number of participants from target (T), adjacent target (AT), and non-target (NT) villages in parentheses following these counts.

The main purposes of this chapter are to (1) include as many voices of participants as possible and (2) evaluate the extent to which individuals are aware of or understand environmental/conservation issues. To do so, I allow the voices of the participants to be heard and to relay as many of their concerns as possible in relation to dolphins, as well as to participants' own livelihoods. This chapter is *not* meant to be (nor do I claim it to be) a quantitative analysis of conservation policy and should not be interpreted as such. Thus, I draw almost solely on documents pertaining directly to the relative conservation plans and translated transcripts of interviews/focus group discussions as references for this chapter in an attempt to keep the focus on participant experiences and perceptions.

Myanmar

Collaborative research on the status of and threats to the Ayeyarwady River Irrawaddy dolphin began in 2002 and the first comprehensive conservation strategies aimed at Ayeyarwady dolphin conservation were announced in 2005 (Smith et al. 2007).The dolphin-fisher cooperative in Myanmar, a unique fishery where generations of dolphins and fishers have fished cooperatively using signals and teamwork, presents special challenges and advantages to the Ayeyarwady River dolphin population. While recognition of the rarity of human/non-human animal mutualism brings additional value to the dolphin and aids in public support for

conservation, the loss of this relationship amplifies the loss of the dolphin for the people culturally and economically invested in the fishery.

A thorough online search revealed sparse information on Irrawaddy dolphin conservation plans on the Ayeyarwady River. Documents that I was able to find on conservation efforts that specify issues, actions, and recommendations as discussed above include three works. The first is a working paper on the 'Status and conservation of freshwater populations of Irrawaddy dolphins' and includes a general assessment of Irrawaddy dolphins, as well as a close examination of each riverine subpopulation, including the Ayeyarwady subpopulation (Smith et al. 2007).

The second work is a 'Discussion on research and conservation of Irrawaddy dolphins in the Ayeyarwady River [following the workshop on Mekong River dolphins]' and is the product of an international conversation in April 2014 which summarized the status and conservation efforts on the Myanmar population of Irrawaddy dolphins and offered recommendations based on available data (Marsh et al. 2014).The third work is a webpage on the IUCN website published in July 2014 by the IUCN-SSC Cetacean Specialist Group and is an update on the conservation efforts for Myanmar and Cambodia populations of Irrawaddy dolphins (Braulik 2014).

In addition to the above three works, I was able to obtain a copy of presentations used for a training course in January 2014 on systematic guiding and preservation on the Ayeyarwady. The training course was given to local fishers with the goal of promoting responsible ecotourism in an attempt to assist the preservation of dolphins and the local cooperative fishery (Chit 2014).

Although all four works described above were made available before the research for this study commenced, it is important to note that while the first work was made available seven years prior, the latest three were only made available within 9 months prior. Currently, Irrawaddy dolphin conservation on the Ayeyarwady is a collaborative effort between the Myanmar Department of Fisheries and the Wildlife Conservation Society (WCS).

Tourism vs Conservation

Before I embark on a comparison of participants' experiences and perceptions of conservation policy to the intended purposes of those policies, I felt it was important to note an interesting finding: During this study, participants in all villages in Myanmar rarely seemed to differentiate between dolphin tourism and dolphin conservation. Instead, most participants seemed to view the two as inextricably related, if not one and the same[2]. This association seems to be due to the fact that the local knowledge of the dolphin-fisher cooperative is relied upon to locate the dolphins for conservationists and tourists alike. Participants often mentioned that the dolphin-fisher cooperative took visitors to see dolphins and take pictures, although it was unclear whether these visitors were tourists or conservation officials.

Issues

Conservationists have identified at least 12 issues that threaten the Ayeyarwady River population of the Irrawaddy dolphin. Table 3.1 lists these issues and shows whether participants in this study identified those same issues. The 12 issues identified by conservationists and those identified by participants clearly aligned on 5 and partially aligned ('some' in Table 3.1) on 2 issues. Participant and conservationist concerns disagreed on at least 5 issues where 3 of these issues were neither mentioned by participants nor referred to as part of the interview scripts. The other 2 issues (Collisions and harassment from motorized vessels; Resurgence of gold mines) were mentioned by participants, but not identified by them as threats. Of the 12 issues, I discuss 5 in more depth as these seemed to be particularly important to participants or I felt that elaboration could shed more light on the issue. Additionally, because a few participants mentioned corruption as it relates to the conservation project, I have added corruption to Table 3.1 and discuss it in more detail below.

[2] This apparent association could also be due to the fact that it seems the interpreter usually translated 'dolphin tourism' in English to 'foreigners/visitors who come to see the dolphins' in Burmese. Thus, in response to a question about whether they had heard of 'foreigners/visitors who come to see the dolphins,' participants often replied that they were aware of visitors that met with fishers from the cooperative and were taken to see the dolphins where they took photos.

Table 3.1. Issues that affect the conservation status of Irrawaddy dolphins in Myanmar as identified by conservation officials and research participants.

Identified by officials	Identified by participants
Collisions and harassment from motorized vessels	×
Dams	Some
Declining range	✓
Electrofishing	✓
Gillnet entanglement	Some
Habitat loss and degradation	×
Loss of prey	✓
Low population size	✓
Mortality due to nets	✓
No reliable population estimates	×
Pollution	×
Resurgence of gold mines	×
×	Corruption

Collisions and Harassment from Motorized Vessels

As motorized vessel traffic on the Ayeyarwady increases and dolphin tourism in Myanmar grows, conservationists have some concerns about the effects of these developments on dolphin behavior (Smith et al. 2007). I did not specifically ask participants about collisions with vessels and none of the research participants indicated any awareness of collisions with motorized vessels during questions about dolphin injuries and deaths. I used a different script for participants in focus group discussions than in individual interviews (see Appendix D) and did not include a question on harassment of dolphins. However, I did ask participants in individual interviews whether they had seen or heard of harassment by vessels and several participants from target and non-target villages mentioned that they believe dolphins are afraid of motors and avoid areas with high motorized traffic. Thus, participants seem more concerned that motorized vessels will alter the movements and distribution of dolphins than they did that dolphins would become victims of vessel collisions. There seemed to be an overall consensus that dolphins will disappear when vessel motors become too loud, which corresponds with vessel speed.

With respect to harassment of dolphins, only 6 of 95 (1T & 5NT) participants indicated that they had seen or heard of harassment of dolphins. One of these respondents was 13 years old and answered in confirmation when asked if she had witnessed people throwing rocks at dolphins or scaring them away (Student, MNT4). This statement was not elaborated on. Another participant explained that dolphins are only harassed in situations where they are in danger of accidentally getting caught in nets (47M Fisher, MNT3). A third participant qualified his statement that he had seen harassment by explaining that harassment was only committed by outsiders: 'Of course, since they are not from this area, they don't understand about the dolphins and that the dolphins are helping fishermen. So when the dolphins approach them, they are scared away. There are things like that' (65M Fisher, MNT3). The remaining three participants all related that they had seen or were concerned about harassment by outsiders (i.e. people who don't understand the importance of dolphins to people who live in the area).

These findings may point to implications not previously considered. First, the apparent tendency of Irrawaddy dolphins to disappear quickly with increased speed of approaching vessels may actually serve to assist in mitigation of the effects of tourism. If dolphins disappear easily and definitively at the sounds of motors and - since the goal of dolphin tourism is to find and observe dolphins for extended lengths of time - tourist boats will necessarily have to approach dolphins slowly and quietly. Second, the concern about harassment increasing with the development of tourism does not seem to be unfounded. However, it is clear from these six participants, as well as the majority of all other Burmese participants who often referred to dolphins as fishers' 'saviors' or 'parents,' that the value of the dolphin to local culture and survival is well understood. Thus, the main concerns with increased motor vessel traffic and tourism development might best be directed toward the effects on dolphin movements and distribution in the case of the former and the influence of outsiders/foreigners in the case of the latter.

Dams

While plans for one new dam project - the Myitsone Dam - were officially suspended by President Thein Sein in 2011 for the remainder of his term, a new president was elected in 2015. There have also been reports that 'one or more dams in the Taping River upstream of the Myanmar/China border were causing reduced flow during the dry season' in previous years (Smith et al. 2007:33). I did not ask participants directly about dams and dams were never mentioned by any of the Burmese participants in the context of potential effects on dolphins. However, landslides were mentioned by a majority of participants in all villages as having a major impact on their families and communities and controlling landslides was by far the highest priority of participants when asked what outside researchers could study in the future. Two participants (both NT) mentioned dams as causing these landslides via flooding. As one of these participants describes:

> It [the flooding] is because of the rain in the north. At first, when there is only a few amount of rain, they collected in the dam. When the rain is heavy, they just released the water out of the dam. It caused the water level to go up quickly and lead to flooding. (29F Agricultural Worker, MNT4)

Some participants also suggested that these landslides change the distribution of dolphins: 'There are dolphins just west from here. Now, there are landslides and dolphins don't enter that much. They enter in July, August' (62M Village Councilor, MT7). In addition to landslides, at least 14 (5T & 9NT) participants mentioned significant changes in the flow and topography of the river, including reduced flow in dry months. There is some indication that these changes have altered the distribution of dolphins as a participant in a group of four former cooperative fishers explains that 'now [because of the reduced flow] we cannot work with dolphins because they don't come when the water level goes down and also there are some sand banks'(Unknown Age M, MNT4).

Thus, upriver dams may be causing landslides along the Ayeyarwady, which severely impact local livelihoods. Dams also appear to be contributing to changes in the flow and topography of the river. However, it is unclear to what extent these landslides and changes in flow and topography impact dolphins in the Ayeyarwady,

but it is likely that impacts exist as they do on other freshwater populations of dolphins (Smith et al. 2007).

Electrofishing

Although conservation officials list electrofishing as a major threat to dolphins on the Ayeyarwady (Smith et al. 2007), little is known about the severity and extent of these effects. Electrofishing on the Ayeyarwady is illegal, but continues to be done extensively throughout the Dolphin Protected Area. Additionally, in Myanmar there is the added affect on the dolphin-fisher cooperative from interference by electrofishing (Marsh et al. 2014). Participants were asked whether they had heard of the ban on electrofishing and whether they had seen or heard of electrofishing on the river.

Many participants in all villages in this study described electrofishing as being widespread, done by armed men in large groups with fast boats, and most often done under the cover of darkness. With the exception of at least two participants (32F Homemaker, MNT4; 37F Farmer, MNT4), most were aware that electrofishing is illegal, but there was also an overall sense of helplessness to stop electrofishers as many participants expressed fear of the perpetrators. Some participants even expressed trepidation that their interview might reach the ears of the electrofishers. As one participant said when speaking about electrofishers: 'I am worried about talking about the bad things. But I already told you the truth. If they want to kill me, let them kill. Can't do anything for now' (53M Fisher, MNT4).

Several participants also mentioned that when electrofishers were caught they simply dropped their equipment and left it behind. As one participant in a focus group of fishers said: '. . . The person [electrofisher] runs away. The equipment worth 400,000 kyats [~40USD] to 800,000 kyats [~80USD]. They let the equipment be seized but they don't let themselves be caught' (41M, 47M, & 54M, MT7). Electrofishers were often described in ways that made them seem fearless and entitled. 'Inns' are privately leased sections of the river cordoned off by underwater fences and usually shared by residents of the adjacent village. According to one participant, there was an incident where 'electrofishers steer[ed] the boat into the

Inn. Around 50 villagers requested them not to conduct electrofishing because it is owned by the village. The electrofishers were not hesitant and seemed like they even dared to kill. Only when all the villagers chased them they fled' (70M Farmer, MT8).

In addition to affecting communities, participants also described the effects of electrofishing on dolphins, which seem to occur on at least two levels. First, many participants believe that electrofishing poses a direct threat to dolphins that may be shocked while in the area of the electrofishing when it occurs. Second, many participants felt that electrofishing is to blame for the scarcity of dolphins' food source - fish - because it indiscriminately kills everything within a certain vicinity, depending on voltage and type of equipment used. Electrofishers have apparently modified their equipment over the years to include electrified nets as described by a group of three cooperative fishers: 'In our era, *Gor* shocks [electrified paddles] appear first. After *Gor* shocks, next is the electrically charged nets. After electrically charged nets, they electrically charge the *kuns* [the type of cast net used by the cooperative] that are similar to the *kuns* that we have been using'(41M, 47M, & 54M, MT7).

The electrofishers also appear to be inflicting further damage on dolphins and communities by tricking dolphins into fishing cooperatively with them and harming them in the process. One fisher who is a member of the dolphin-fisher cooperative explains during a focus group:

> Those electrofishers imitate us when they persuade the dolphins. They use rods to call the dolphins. Then, the dolphins enter and then help to find fish. After that, these electrofishers conduct electrofishing to harvest fish. Of course, the dolphins get scared if they are hurt to certain extent. The dolphins think they are *kun* casters and they get close to them. When we use rods to call the dolphins, they don't come anymore. (40M & 55M, MT6)

This trickery is perhaps one of the reasons so many participants believe that electrofishing is the single greatest threat to dolphins. As one participant in another group of three fishers put it: 'If we seriously want to protect them [dolphins] from dying or to increase in number, we need to stop those fishermen who use

electroshocks for fishing. Then they won't die and can reproduce. Otherwise, the dolphins cannot grow' (25M, 27M & 30M, MT8).

Thus, like conservationists, participants also seem to feel that electrofishing is the greatest threat to the survival of dolphins in the Ayeyarwady River. This threat appears to manifest in several ways, including direct harm to dolphins, indirect harm to dolphins through prey elimination, and disruption of the dolphin-fisher cooperative - an important component in dolphin conservation. Additionally, the threat of electrofishing is confounded by issues with enforcement, which possibly include bribery and organized crime as discussed in the *Corruption* section below.

Gillnet Entanglement

While little information is available on entanglement of dolphins in gillnets on the Ayeyarwady, conservationists list it as one of the potential concerns for this population (Braulik 2014; Marsh et al. 2014). Participants were asked whether they had ever seen or heard of dolphins getting caught in nets or injured.

About 15 (8T & 7NT) participants in this study (~16%) described having seen or heard of dolphins getting caught in nets at some point in the respondents' lives, although this appears to happen very rarely according to participants. Further, generally when dolphins are caught in nets, it appears to be by accident and dolphins are cut loose from the net and often before they die. It also appears that when dolphins are found dead, locals often collect the carcass and extract the fat for medicinal and culinary use. At least 15 (4T & 11NT) participants described having heard of or seen this process on at least one occasion, although there seems to be a cultural myth that this practice causes landslides and floods -as discussed in Chapter IV- which may help mitigate the effects of such a practice.

With the exception of one, all participants seemed to think that dolphin deaths are never intentional and many participants expanded on this by citing the dolphin's importance to local fishers. In the one exceptional case, the participant described the purposeful killing and consumption of a dolphin after it was caught in a net although it was unclear whether it was intentionally caught: 'Seven years ago. I

have heard that the dolphin was caught and they killed and cooked and ate it. At Mandalay port. . . . They fermented it and put it into box and sold it. That's what I heard' (45M Fisher, MNT3).

So while it appears that gillnets still pose a threat to dolphins in the Ayeyarwady, the threat seems minimal compared to the threat of electrofishing according to participants.

Resurgence of Gold Mines

Dredging for gold in the Ayeyarwady has caused some concerns for the overall health of the ecosystem, as well as its potential effects on dolphins due to mercury toxicity and sedimentation (Marsh et al. 2014; Smith et al. 2007). Although it is difficult to find official confirmation, gold mining operations appear to have been banned in the Ayeyarwady since 2012 (Ministry of Environmental Conservation and Forestry of the Republic of the Union of Myanmar 2014; Phyu 2012) and possibly since 2006 (Wildlife Conservation Society 2006), but conservation officials worry that the ban is not being enforced and/or that it is reemerging (Marsh et al. 2014). Participants were asked whether they had heard of gold mining operations in the river and whether they thought it caused pollution if they answered in the affirmative.

Most participants in all villages in this study did not seem concerned about gold mining and many were not even aware of its current existence. The few participants who had heard of gold mining had not heard much beyond the fact that gold mining only occurred far away in the northern regions of the river and was, therefore, of no concern locally according to the participants. Several participants who had heard of gold mining also stated that it was no longer happening. As one participant in a group of four farmers describes: 'They don't have it anymore. It's getting less frequent. It has been 3 years. They do it less. 3 or 4 years ago, there were a lot. Seems like, the waterway was even blocked. Now, these are prohibited. It cannot be done anymore' (39F, 42F, 44F, & 46F, MNT2).

This apparent absence of concern of participants surrounding gold mining and lack of knowledge of current operations suggests that there is either a shortage

of information flow on the subject or that the operations have truly halted or been reduced so as to be of minimal concern. It seems that only further research can illuminate this evident discrepancy between conservationist and participant concerns.

Corruption

Participants in this study were asked whether they thought the dolphin tourism in the area was managed responsibly. Although I did not ask participants directly whether they thought the conservation program was managed responsibly, they often conflated the two as discussed above. While participants rarely mentioned corruption as an ongoing issue on the Ayeyarwady, there were a couple of notable instances where participants spoke of issues that may shed light on the difficulties of enforcing fishing regulations. At least two participants (both NT) mentioned that electrofishers need only to pay officials so they can electrofish. As one participant describes in answer to a question about whether the government tells people not to electrofish when caught: 'No, there are no such things like that. That's why there are many people using electrofishing. Far away in the west and between these areas. Nobody come and stop them. They give money and they use electrofishing' (49F Seller, MNT3). The other participant who mentioned bribery as a possible reason why electrofishing continues had also heard that electrofishers had threatened police:

> . . . The police were trying to capture electrofishers and I don't know if it is true or not but the electrofishers used electric rods to defend. Probably, the policemen are also corrupted and they take what the electrofishers give. They are like partners. Now, it's not like that. Probably, the police were given an order to apprehend them and they shot at the electrofishers. And people don't learn the lesson. The electrofishers raided the police station in the upper part and tried to shock the policemen. . . (65M Fisher, MNT3)

Participants also discussed how Inns, because they are privately leased, are used as sanctuaries for illegal fishing by people who pay Inn-Taings (people who lease the Inns) to electrofish and use prohibited nets within the boundaries of the respective Inns. As one participant describes:

> . . .those Inn-Taing themselves are corrupted. For ordinary fishing boats with nets, they will get around 10,000 kyats [~10 US$]. From them [electrofishers], they get approximately 100,000 kyats [~100 US$] in a year. They say that the Inn-Taings are not corrupted but of course, we know the reality that the Inn-Taings are corrupted. These Inn-Taings are regulated. They are under our watch. If the Inn-Taing is corrupted, that fishing pond will be seized, the permit will be withheld. They said that to us but they don't say that they are corrupted. They negotiate within each other. If we really want to apprehend them, we can do it any time. However, around this area, there are not much arms, so we can't capture them. This is because they [electrofishers] have large number of people. They have around 4, 5 to 10 boats. (73M Farmer and former Fisher, MNT2)

Another participant offers some insight on the issue: 'Originally, there are regulations on how fishing ponds should be maintained. However, the owners need to get profit so the restrictions are not enforced that well. The enforcers know it but they don't see it so it just happens' (34M Carpenter, MNT2).

These insights, along with others from other participants, suggest that privatization of sections of the river, where enforcement of regulations appears to be more restricted, may be inadvertently creating ideal conditions for illegal fishing to occur. While these data are inconclusive due to the small number of reported incidents in this study, they clearly warrant further investigation.

Actions

Currently, there does not seem to be a widely available comprehensive summary of conservation actions that have been taken thus far on the Ayeyarwady. Instead, in this section I list 19 actions that were stated as a part of the proposed conservation plan in 2007 (Smith et al. 2007) to be implemented at that time (Table 3.2). Participants mentioned that at least 9 of these 19 actions were indeed in place. Another 7 of these actions were mentioned by some participants, but not many and not in much detail ('some' in Table 3.2). Meetings/workshops were mentioned often by participants in target villages and the adjacent target village, but rarely in non-target villages. Participants did not mention support networks for dolphin tourism and only one participant mentioned diversification of livelihoods. It should also be noted that lack of mention by participants does not necessarily mean those

actions are not taking place. Of the approximately 19 actions conservationists intended to take, I elaborate on 9.

Table 3.2. Actions that have been taken to address the issues that affect the conservation status of Irrawaddy dolphins in Myanmar as identified by conservation officials.

Claimed to be taken by conservation officials	**Mentioned and believed to be addressed by participants**
Diversification of livelihoods	×
Education of fishers	Some (see *Fishing regulations)*
Education through media	Some
Establish dolphin-fisher cooperative tourism	✓
Establishment of protected area	Some
Fee structuring in fisheries	✓
Fishing regulations	Some
Gold mining eliminated	✓
Interviews/surveys of locals	Some
Involvement of locals through participatory approach	Some (see *Establish dolphin-fisher cooperative tourism*, and *Interviews/surveys of locals*)
Meetings/workshops	Mainly only in T & AT villages
Penalty for killing dolphins	✓
Regular patrols/Night patrols	Some
Strict regulation of tourism	✓
Research: Dolphin-fisher cooperative	✓
Research: General	✓
Research: Mortality (acknowledged insufficient)	✓
Research: Population status	✓
Support network for dolphin tourism	×

Diversification of Livelihoods

As part of the proposed management plan, it was recommended that '[p]ending the availability of funds and manpower, efforts will also be made to educate local fishermen on other options for diversifying their income (small-scale aquaculture, mushroom farming, etc.)' (Smith et al. 2007:36). However, it is unclear whether this was meant to be inclusive of all fishers, fishers who primarily use nets (since electrofishers were usually described as outsiders, rather than local by participants) or just of fishers who are not involved in the dolphin-fisher cooperative. Although I did not ask participants whether fishers in the area were

offered alternative means of income security, I did ask about any changes participants observed in their homes and villages over the last ten years. I also asked former fishers how long ago they had stopped fishing and why.

It doesn't seem that any participants are aware of efforts to diversify livelihoods with at least one exception in the case of electrofishers. One participant in a focus group of fishers shared the following:

> . . . The other day, I was at the meeting. The Region Commander of this area was giving this program. They were thinking what kind of livelihoods should be provided to the electrofishers so that they stop this type of profession. He wasn't saying that the electrofishers should be arrested. He was considering what kind of equipment can be provided so that the electrofishing would decrease. However, it'll not get better. It will just get worse. (41M, 47M, & 54M, MT7)

So, while there seems to be some discussion of diversifying livelihoods of fishers whose techniques are most harmful to the dolphins, efforts at this time appear to be minimal or absent.

Education through Media

Another part of the conservation plan was the intent to distribute '(c)olorfully illustrated printed materials and videos on the conservation value and needs of dolphins . . . to schools, teashops and cinemas in riverside communities' (Smith et al. 2007:35). I did not ask participants directly whether they had seen educational media, but it often came up in the context of general questions about the conservation program. Several participants in both target and non-target villages were aware of signs posted in the area that advised against harming dolphins and warned that electrofishing is illegal.

There don't appear to be many materials distributed in the non-target areas as no participants in the non-target villages mentioned such materials. However, several participants in target villages had knowledge of media such as illustrated books in local schools, pamphlets on dangers of electrofishing to dolphins given to village administrators for distribution, screening of films on dolphins and associated threats, and distribution of T-shirts with dolphin conservation project logos on them. I was also given a notebook by a conservation official with a dolphin and some

Burmese text on the cover and the official explained that they were distributing these in the target villages.

So the effort to distribute media has clearly begun, although there appears to be a lack of distribution in areas within the IDPA, but outside of the target villages.

Establish Dolphin-Fisher Cooperative Tourism

Another stated part of the conservation plan in Myanmar was to establish tourism of the dolphin-fisher cooperative to provide some income supplementation to fishers in the cooperative and to replace funds lost by the Ministry of Fisheries from gillnet permit fees as this method of fishing is phased out (Smith et al. 2007:36). All participants were asked whether they had heard of any dolphin tourism and encouraged to elaborate if they answered in the affirmative. Additionally, this project included at least 15 (12T & 3NT) current and former members of dolphin-fisher cooperatives.

In the non-target villages in this study, there appears to be only one cooperative fisher who guides tours, although this fisher mentioned that there are 5 groups in neighboring villages that have attempted tourist trips on occasion. His job appears to be two-fold as he is responsible for protecting the dolphins, as well as helping tourists and researchers locate the dolphins. According to him, he does this on a volunteer basis although a few of the other participants in the area seemed to think that he received a salary.

As mentioned in Chapter II, I serendipitously ran into a conservation official near the midpoint of my research in Myanmar. He was leading a tour to one of the target villages soon after we met and offered to allow me and my interpreter to join. We tagged along on the 2-day journey and took a large motored boat up to an area between several target villages. We then loaded onto smaller boats run by local fishers from the cooperative in two separate groups and each boat searched for dolphins for about 1.5 hours. We were unable to locate dolphins and returned to the large boat.

Although the conservation official was clearly making an effort to compensate local fishers, several fishers in later interviews described a desire to

have more reliable income from the tourism as they were having difficulty making ends meet since the cooperative was deteriorating because of the increased difficulty in finding dolphins that were willing to work with the fishers. Several fishers also expressed a desire to play a bigger role in the conservation of dolphins by being given more power to eliminate electrofishing, in addition to a regular salary. As one participant in a group of three fishers explains:

> We cannot do maintenance individually. The dolphins will be able to survive with the separate rules and regulations from the state government only. For us, we cannot restrict the electric shock ourselves. It has to be done tightly in order to keep the business and dolphins. Otherwise, the dolphins will be eliminated slowly. . . . We are neither granted to use power nor get salary from any person. We just do it not as duty but responsibility. If we got salary and authorized power, we can eliminate it. We have 50 people with 25 boats, 2 people per boat. (23M, 36M, & 42M, MT8)

There also seems to be some indication that some fishers in the area feel that more money is going to the government with each passing year and that these fishers are struggling to make a living as a result.

Tourism of the dolphin-fisher cooperative is still in an early stage, but it seems that many local fishers are willing to do the double duty of tourism and protection, and have the local knowledge to do so. At present, however, it appears that much of the income from current dolphin tourism is not staying in the local area and that many fishers feel that their current compensation is insufficient.

Establishment of Protected Area

As conservationists acknowledge, Myanmar created the Irrawaddy Dolphin Protected Area (IDPA) along a 74 km stretch of the Ayeyarwady River from Kyauk Myaung to Mingun in 2005 and have been working on a long-term program to conserve the Irrawaddy dolphin in this area (Smith et al. 2007). Participants were asked whether they had heard of the dolphin conservation project and asked follow-up questions on specific policies regardless of whether they answered in the affirmative or negative. However, as mentioned in the previous chapter, I initially found that very few people in the non-target villages were aware of the existence of a conservation project in the area or of the presence of a Protected Area, with the

exception of some fishers. It wasn't until I conducted interviews in 3 of the 5 target villages that I found that the majority of participants were aware of the existence of a dolphin conservation project on the Ayeyarwady.

Resources for Irrawaddy dolphin conservation are still developing and research is in its nascent stage, so it's not surprising that many participants had not yet heard of dolphin conservation efforts. Many participants who had not heard of a dolphin conservation project had heard of some of the fishing regulations enacted to protect dolphins (see *Fishing Regulations*), particularly fishers for obvious reasons, but many of these participants didn't seem to understand the connection between fishing regulations and conservation of dolphins.

Fee Structuring in Fisheries

In an effort to mitigate the effects of gillnet fishing on dolphins in the Ayeyarwady, conservationists have recommended a fee structuring of fisheries where cast-net fishers in the dolphin-fisher cooperative are given free access to fishing throughout the IDPA while gillnet fishers are charged a fee and this proposal has been adopted as part of the conservation plan (Smith et al. 2007). Participants were not asked directly about fee structuring in fisheries, but it often came up in interviews and focus group discussions with fishers and occasionally with non-fishers. None of the participants mentioned fees for gillnet fishing, but several participants from target villages mentioned fees or lack thereof associated with the dolphin-fisher cooperative, although this information was somewhat inconsistent.

One fisher mentioned that all fishers, including those in the cooperative, have to pay zone fees if they want to fish in certain zones, although the zones he refers to appear to be areas marked by Inns and payment is rendered to the Inn-Taings to fish within their private enclosures (60M, MT6). Another participant, who is not a fisher but a Village Councilor, also stated that all fishers had to pay a fee to fish in Inns (62M, MT7). A few participants, who are members of the fisher cooperative, mentioned receiving photo-ID cards that signified their membership in the cooperative. One participant in a group of three cooperative fishers explained that this card allows cooperative fishers to fish during the three month breeding season,

which is illegal for all other fishers (23M, 36M, & 42M, MT8). He also explains that the card allows the cooperative to move more freely along the river with less interference from authorities, although he didn't mention access to Inns. However, another participant, who is not a fisher but a net maker, told us that cooperative fishers can fish anywhere with the cards, including Inns, without fees or threats of arrest (57F, MT8).

Still, the assertion that Inn-Taings demand payment to fish in their Inns was corroborated by another cooperative fisher in another group that included two cooperative fishers. When we explained that we had heard that the ID-cards allowed cooperative fishers to fish anywhere without restrictions, he had this to say:

> . . . [T]here is one thing missing in your statement. The Inn Taings cornered us by saying that 'we will allow you to harvest fish beyond the marked areas but you cannot harvest if the dolphins don't drive fish for you. We will seize your equipment if you keep harvesting fish without the help from the dolphins.' When they discussed at the large meetings, there were conflicts like these. (40M & 55M, MT6)

Although it is not entirely clear, it seems likely that, although members of the dolphin-fisher cooperative do not seem to be required to pay fees to the Ministry of Fisheries to fish anywhere in the river, they must pay fees to Inn-Taings in most cases to access fishing within their private enclosures. Thus, while the fee free fishing of cooperative fishers seems to be helping these fishers in many areas of the river, restrictions are still present in the form of Inns. So the degree of the helpfulness of this conservation measure seems to rest solely on how much of the river is privately owned.

Fishing Regulations

Specific regulations aimed at mitigating threats to dolphins in the Ayeyarwady have included the aforementioned ban on gold mining and prohibition on electrofishing in the river, as well as the use of gillnets 'more than 300 ft [91m] long, or spaced less than 600 ft [180m] apart' (Smith et al. 2009:1043). Participants were asked whether they had heard of laws regulating nets and whether they had seen or heard of the use of illegal nets on the river.

As discussed above, those participants who were aware of the existence of gold mining were also aware of its ban and most participants were aware of the ban on electrofishing, although many felt electrofishing was still widespread and out of control. However, knowledge regarding regulations on fishing nets was less clear. When asked directly whether they had any knowledge of net regulations, at least 30 participants, including about 9 from target villages, said they had no awareness of net regulations. Only about 26 participants, including roughly 4 from non-target villages, had a working knowledge of at least some net regulations. The remaining participants were either unsure if there were net regulations (~10) or were not asked directly about net regulations (~5).

Many participants who were aware of fishing net regulations also reported having seen or heard of the use of illegal nets. At least one participant, a fisher, also reported fishing during a restricted season. Seasonal fishing restrictions are not part of the dolphin conservation program, but notable nonetheless because the reason the fisher gave for doing so was because he was having difficulties making ends meet (32M, MT6). His situation lends credence to careful consideration of socioeconomic effects of fishing restrictions. There also seems to be a need for more dissemination of information on net regulations in the entire IDPA.

Interviews/Surveys of Locals

Another stated goal of the conservation plan was that '[f]ishermen will be interviewed before and after an initial two-year period to test whether there was a change in their awareness about dolphin conservation and on how the project may have affected their livelihoods'(Smith et al. 2007:36). Although I did not ask participants whether they had been interviewed in the past, only a few participants mentioned being asked questions by conservation officials. This often took the form of group meetings where fishers were asked for their input on how to protect dolphins and help them reproduce. One cooperative fisher mentioned that he was asked to keep logs on his catches with dolphins, including how much he makes from each catch (60M, MT6). Only one participant, a fisher in a non-target village, told us

he had been interviewed and that he was 'asked about things related to dolphins, in which seasons they can see more fish and things like that' (65M, MNT3).

The training course mentions some local knowledge on the distribution of dolphins that was accessed through surveys and interviews (Chit 2014) and at least 8 (4T & 4 NT) fishers mentioned that they were responsible for locating dolphins for conservation officials when they visit.

Thus, it seems that local knowledge is heavily relied upon in Myanmar dolphin conservation and that much of this knowledge is accessed by conservation officials via surveys and interviews. It is clear from this study that some effort is being put into interviewing and surveying locals, but it is less clear how often this occurs, as well as how extensive the socioeconomic aspect of these efforts is.

Regular Patrols/Night Patrols

In order to ensure compliance with fishing regulations, conservation officials declared intent to conduct frequent patrols in the IDPA during day and night hours (Smith et al. 2007). Although I did not specifically ask participants how often patrols were done, many participants mentioned patrols as part of a general question on what they knew about the conservation project.

Some participants in the non-target villages said that there were no patrols that they were aware of. One participant said that patrols were done one season each year (61M Boat driver, MNT1) and one participant said they were done once or twice per month (46F Farmer, MNT2). Another participant said conservation officials visited the area once per month (48M Farmer, MNT4). Other than this, patrols were rarely mentioned in non-target villages, although electrofishing was often cited as a major issue affecting local fishers and dolphins in the area. Many participants in the target areas mentioned visits by conservation officials, but none of them mentioned patrols. However, as in the non-target villages, there was some frustration that electrofishing was occurring and seemed to be out of control and that the Ministry of Fisheries wasn't doing enough to stop it. One fisher in a group of three told us that:

> Just some days before, the minister himself came and said if they cannot be restricted they will use power and authority to catch them [electrofishers] . . . Now the government minister just said what he will do, it will be in the air and we will pass another year, but nothing else will happen. (23M, 36M, & 42M, MT8)

Many participants mentioned being asked to help report electrofishing, but they also said that despite reporting electrofishers, nothing could be done because the electrofishers were gone by the time they were reported and most participants felt electrofishers were too dangerous to engage on their own. As one participant in another focus group of three fishers describes: 'We used to help catch those people who were using electroshocks, but the authority was not serious about taking actions against them. In the end, we just got hated by those fishermen who got caught' (25M, 27M & 30M, MT8). As another participant says: 'To restrict the electric shock, we need our government level to take control because if we do this, they will shoot us and we will die. If we shoot them, then they are dead, and no one can say we will not be in prison' (35M Fisher, MT8).

The problem of electrofishing seems to be further compounded by the lack of regulation enforcement in Inns (See *Issues: Corruption*) and the fact that electrofishers often fish at night and in large groups of armed men with fast boats (See *Issues: Electrofishing*). Thus, while it is unclear whether frequent patrols are occurring, it is clear that electrofishing is considered by most participants to be an important and pressing issue that needs to be addressed immediately.

Research: Mortality (Acknowledged Insufficient)

While conservationists acknowledge that mortality research of dolphins on the Ayeyarwady is sparse, they cite that some information is available in the form of summary statistics and photographs (Marsh et al. 2014). I did not ask participants specifically what happened to carcasses. However, I did ask whether they had seen or heard of dead dolphins and followed up with questions about the timing and cause of each death if they answered in the affirmative. During these follow up questions, many participants confirmed that carcasses are taken by members of the conservation team and examined and photographed, although most participants

seemed unsure of what happened after the carcasses were examined. It also seemed clear that locals who are not directly involved in the conservation of the dolphins do not observe or participate in necropsies, in contrast to those in Cambodia (see Cambodia *Recommendations: Participation of Locals*).

Recommendations

Conservationists made at least 12 general recommendations after reviewing the latest conservation actions in the Ayeyarwady (Marsh et al. 2014). These recommendations are listed in Table 3.3, which also includes whether these recommendations were mentioned by participants and whether it appeared that participants who mentioned each item felt that issue had been addressed. Participants mentioned 8 of the 12 recommendations and seemed to feel that at least 1 of these led to addressing the issue that inspired the recommendation, while at least 2 of the issues seem to need more attention and the status of the remaining 9 is unknown. Because many of these recommendations overlap with issues and actions already discussed above, and because there does not appear to be sufficient data from this study to elaborate further on any of the other recommendations, I do not discuss any recommendations in detail.

Table 3.3. Recommendations for future actions and research needs to continue to address issues that affect the conservation status of Irrawaddy dolphins in Myanmar as identified by conservation officials.

Recommended by officials	Mentioned by participants	Participants believe the issue has been addressed
Address gold mining	×	✓ (see *Issues: Resurgence of gold mines*)
Collaboration	✓	Unknown
Demarcation of protected zones	Some	Unknown
Education through religious leaders	×	Unknown
Fishermen training in release of accidentally caught dolphins	Some	Unknown
Monitoring and research of population status	✓	Unknown
Monitoring of fisheries	Some	×
Regulate tourism to be equitable	✓	× (see *Actions: Establish dolphin-fisher cooperative tourism*)
Research: Continuation of in general	×	Unknown
Research: Dams	×	Unknown
Research: Mortality	✓	Unknown
Research: Photo-ID	✓	Unknown

Cambodia

Collaborative research on the status of and threats to the Mekong River Irrawaddy dolphin began in 2001 (Braulik 2014) and the 'Cambodian Mekong Dolphin Conservation Strategy' was published by the Ministry of Agriculture, Forest and Fisheries and the Department of Fisheries in 2005. In 2009, an international team of conservation scientists formed to provide advice and input on Mekong dolphin conservation (Reeves et al. 2009) and the 'Kratie Declaration on the Conservation of the Mekong River Irrawaddy Dolphins' was signed by conservation and government officials in 2012. For this section on Mekong conservation I use these two works, as well as the working paper on the 'Status and conservation of freshwater populations of Irrawaddy dolphins' mentioned in the Myanmar section above (Smith et al. 2007), and two collaborative workshop reports on the assessment of Mekong dolphin mortality and threats with recommendations based on those findings (Reeves et al. 2009; Thuok et al. 2014). The latest of these works was published 11 months before commencement of the Cambodian portion of

research for this dissertation. In some instances, I also use an unofficial report that was published on the IUCN website which summarizes recent outcomes (Dec 2015-March 2016) from increased fisheries law enforcement in the conservation area of the Mekong (IUCN 2016).

Currently, Irrawaddy dolphin conservation on the Mekong is a collaborative effort among the Fisheries Administration of the Ministry of Agriculture, Forestry and Fisheries (Fisheries Administration), the World Wildlife Fund for Nature - Cambodia (WWF) and the International Union for Conservation of Nature (IUCN). It is also important to note that, although the range of Irrawaddy dolphins in the Mekong extends over 190km of river, the research for this project was carried out in the lower area of this range.

Issues

Conservationists have identified at least 20 issues that threaten the Mekong River population of the Irrawaddy dolphin. Table 3.4 lists these issues and shows whether participants in this study identified those same issues. The issues identified by conservationists and those identified by participants clearly aligned on 5 and partially aligned ('some' in Table 3.4) on 7 issues. Participant and conservationist concerns disagreed on at least 9 issues where 6 of these issues were neither mentioned by participants nor referred to as part of the interview scripts. The other 3 issues (Calf mortality; Disturbance by tourist boats; Dynamite fishing) were mentioned by participants, but not identified by them as threats. Of the 20 issues, I discuss 9 in more depth as these seemed to be particularly important to participants or I felt that elaboration could shed more light on the issue. Additionally, because participants mentioned corruption as it relates to dolphin tourism and law enforcement, as well as harm to livelihoods due to overregulation, I have added these issues to Table 3.4 and discuss them in more detail below.

Table 3.4. Issues that affect the conservation status of Irrawaddy dolphins in Cambodia as identified by conservation officials and research participants.

Identified by officials	Identified by participants
Calf mortality	×
Collisions and harassment from motorized vessels	×
Dams	Some
Declining range	✓
Deliberate killing	Some
Disturbance by tourist boats	×
Dolphins biting each other	Some
Dynamite fishing	×
Electrofishing	✓
Entanglement in legally set longlines (hook lines)	✓
Habitat loss and degradation	Some
Live capture	×
Loss of prey due to overfishing	Some
Low awareness of dolphins and importance of reporting deaths	×
Mortality due to nets/illegal fishing	✓ and ×
Past: hunting by soldiers for fuel and target practice during War	✓(see *Deliberate killing*)
Pollution	×
Sharp decline in population	Some
Trash at tourist sites	Some
Use of dolphin parts for traditional medicine	×
×	Corruption in dolphin tourism
×	Corruption in law enforcement
×	Harm of livelihoods due to overregulation

Calf Mortality

Conservationists have indentified calf mortality as a significant threat to the Mekong dolphin population as there appears to have been a sharp increase in calf deaths beginning in 2001 and peaking in 2006-2007(Dolphin Commission et al. 2012; Smith et al. 2007; Thuok et al. 2014). Research on the causes of these deaths has been inconclusive, although some of the deaths appear to have been caused by entanglement in gillnets. Conservationists also speculate that electrofishing, and possibly environmental contaminants, may be factors. Participants in this study were not asked directly about calf mortality, but they were asked if they had seen or

heard of dead dolphins, dolphins caught in nets, or injured dolphins and were asked follow up questions if they answered in the affirmative.

Most participants in all villages had seen or heard of at least one dolphin death, although it was not always clear whether the dolphin was a calf. In some instances, participants spoke directly about calf deaths, but were unsure of the cause. However, a few participants in target villages mentioned that they used nets mostly in shallow areas because they believed it would not harm dolphins. A former fisher, who is a seller now, but fishes on occasion, explains:

> So, we put those nets outside of prohibited areas, no problems. If we put them in the prohibited areas, it is difficult. It will surely catch dolphins. So, they ban not to put the nets there. They can put the net at shallow areas because dolphins don't come to this area. They only sleep [stay] at the deep water areas, around their areas. (39M, CT6)

This is significant because scientists have stated that:

> One possibility to consider (given the high calf mortality rate) is that mother-calf pairs spend more time close to the river banks where the current is weaker. If fishermen place their nets in the same areas, this could help explain why calves appear to be so exceptionally vulnerable to entanglement. (Reeves et al. 2009:6)

So while participants did not seem to be sure of the causes of calf mortality, it is possible that some fishing practices are taking place that may be unintentionally contributing to calf deaths.

Dams

Conservationists have cited construction of dams on the Mekong, particularly the Don Sahong Dam Project, as a major concern for Mekong populations of Irrawaddy dolphins (Thuok et al. 2014). In September 2013, Laos PDR announced its intention to begin the project - which would construct a dam just 2 km north of the Laos-Cambodia border - on November 2013, but the project is currently being held up as the Mekong River Commission is reviewing it based on concerns brought by Cambodian, Thai, and Vietnamese authorities regarding the impacts of the dam on local fisheries (Mekong River Commission 2014). Conservationists believe the construction of the Don Sahong Dam could lead to the extinction of the entire

population of Mekong dolphins. As with Burmese participants, I did not directly ask Cambodian participants about dams.

Only one participant, a 16 year old student, mentioned dams. In response to the question on what outside researchers could study in the future, she said, 'I don't know what to say but I have heard that they plan to do hydroelectricity up there along Mekong rivers. If so, fish and dolphins will die. I heard it is a hydro dam but they should not construct the dam on the Mekong River' (CT6).

None of the Cambodian participants mentioned landslides. So, while it is possible that participants did not mention dams or associated issues because they were not prompted to, it is also possible that issues related to dams were not mentioned because participants were unaware of such issues.

Deliberate Killing

Although it is of lesser concern, conservationists list deliberate killing as a threat to dolphins in the Mekong, with at least one known case of deliberate killing 'over concerns for access to fishing rights' (Smith et al. 2007:74). If participants answered in the affirmative when asked whether they had seen or heard of dead dolphins, one of the follow up questions was whether they knew the cause of death.

Most deaths mentioned by participants in this study were believed to be accidental. Several participants in this study reported having eaten or witnessed others eating dolphin meat in the distant past. Some of the participants said these dolphins were found dead and some said they were intentionally killed, but all of these participants said this was during the Pol Pot regime and it no longer occurred. As one participant describes:

> During that time [the Pol Pot regime], there were no laws to protect that animal [dolphins]. When it got caught, they beat it and ate it . . . they beat it and marinated the meat. For some [dolphins], they buried their bones. They buried it and it would bring happiness/prosperity under the house. Put it under the cattle stable to bring happiness/prosperity and help prevent the calf from getting sick. . . (45M Fisher, CNT8)

Several participants also mentioned dolphins being used as target practice and for fuel during the Pol Pot regime. As one participant describes:

> . . . Back then, its body; a dolphin's skin is this thick and there were fat all over it [the skins]. The fat was 2, 3 barrels of fats in one dolphin. They boil down its fat and get 2-3 barrels of oil for burning like fish oil. For the meat, they dried it, but the meat smells fishy. Back then, there was no oil to burn. They used the oil from the dolphins. For one dolphin, it can light up the entire village for 2-3 months. It [dolphin] is full of fat. (55F Wood carver, CT2)

Thus - although it seems clear that dolphins were once killed intentionally for target practice, food, and fuel - most participants seemed to feel that intentional killing is a thing of the past.

Disturbance by Tourist Boats

Like Ayeyarwady conservationists, Mekong conservationists are also concerned about the impacts of the increase in motorized vessel traffic on dolphins. However, because dolphin tourism is far more advanced in Cambodia with 13 boats operating in the most developed tourism site on any given day (Thuok et al. 2014:14), Mekong conservationists are particularly concerned with any disturbances associated with this increased tourism (Smith et al. 2007). All participants in individual interviews were asked whether they had seen or heard of harassment of dolphins by vessels. I used a different script for participants in focus group discussions (see Appendix D) and did not include a question on harassment of dolphins.

Virtually all participants in all villages who were asked whether they had seen or heard of harassment of dolphins by vessels (63 - 37T, 19AT, & 7NT) said they had never seen or heard of such a thing. Many of these participants also said that people would not dare do so since the dolphin was such an important animal to the prosperity of local villages.

While in Cambodia in September 2014 to set up research accommodations, and before anyone in the area knew who I was or had any awareness of my purpose there, I decided to take a trip to Kampi - one of the major dolphin tourism sites and the most developed. This gave me an opportunity to observe the practice as a tourist with the experience of a cetacean biologist. As a cetacean biologist, I studied dusky dolphins off New Zealand (see Deutsch 2008; Deutsch, Pearson, and Würsig 2014;

and Weir, Deutsch, and Pearson 2010) and have experience navigating motorized vessels around delphinids. Our tourist vessel in Kampi was approximately 5m (15 ft) long with an outboard motor, which was quite loud. There were two tourists, including myself and my partner who is also an experienced cetacean observer, and one boat driver on our boat. We approached an area where two other similar boats, with a few tourists each, were beached at the bow with their engines off on a small (~1.5m^2 or 5 ft^2) mid-river island. Several such islands were in the area and as we approached, we could see the dolphins roughly 30m (~100 ft) away as our driver aimed the bow of our boat at the same island and shut off the engine. Like the other two vessels, we were now beached at the bow. We stayed and observed the dolphins from our position on the boat for approximately 30-40 min. before the boat driver pushed off, started the engine, and headed back to shore. At no point did we witness any vessels approaching the dolphins closer than 30m. However, I fully acknowledge that this single experience may not be representative of the average dolphin tour boat experience in Kampi. Although a cursory glance at travel forums suggests that my experience may be representative of the standard experience, a thorough investigation of dolphin tourist experiences was not part of this study.

Additionally, it was my observation that, compared to oceanic dusky dolphins, the movements of Irrawaddy river dolphins were much more sporadic. With dusky dolphins, and many other oceanic delphinids from my experience, it is relatively easy for an experienced cetologist to anticipate the movements of the species and adjust a vessel accordingly while following a group. However, I found it difficult to anticipate the movements and whereabouts of Irrawaddy dolphins. Many participants from both Myanmar and Cambodia also stated that Irrawaddy dolphins disappear quickly if approached by vessels in an aggressive way (e.g. head on or with acceleration of the vessel).

Thus, harassment of dolphins by tourism vessels was unheard of by participants and many also suggested that it would be socially unacceptable. It was also my experience, albeit on a solo tour, that proper protocol to avoid harassment was followed. Further, because Irrawaddy dolphins seem more difficult to approach without them disappearing, it is possible that harassment by vessels would lead to

short term disappearance (and thus unsuccessful tours) before long term effects would become an issue.

Dynamite Fishing

Dynamite fishing has been cited as a potential threat to Mekong dolphins in some areas (Fisheries Administration 2005; Smith et al. 2007; Thuok et al. 2014). Participants were asked whether they had seen or heard of fishing with dynamite or electricity as part of the same question in this study.

Several participants in all villages, including my field interpreter, mentioned that they had seen or heard of dynamite fishing in the past, but that it had been several years since they were aware of the method being used. Many participants also indicated that the cessation of dynamite fishing coincided with the arrival of the conservation project. None of the participants mentioned having any awareness of dynamite fishing occurring recently.

Thus, according to participants, the threat of dynamite fishing in the protected area of the Mekong River seems to have been eradicated.

Electrofishing

Although conservationists acknowledge that evidence for dolphin deaths due to electrofishing on the Mekong is sparse, they list it as a potential threat and cite it as a particular concern for its possible role in calf mortality - for which causes have not been identified (see *Calf Mortality*) (Dolphin Commission et al. 2012; Smith et al. 2007). Participants were asked whether they had heard of the ban on electrofishing and whether they had seen or heard of electrofishing on the river.

While most participants had heard of the ban on electrofishing, at least two stated that they hadn't (21F Homemaker, CT5; 44M Fisher, CNT8). Many participants in all villages described electrofishing as being widespread and done in the open 'all over the place every day' (54M Fisher, CAT3) in the past. Several participants in three of the target villages and one adjacent target village said that they had not seen or heard of electrofishing happening in the river since the conservation project began. A few other participants in these villages and an

additional adjacent target village said that it had decreased significantly in recent years. However, many participants, including some from these same villages and in all three areas (target, non-target, and adjacent target) described electrofishing on the Mekong as still being widespread and done stealthily in hidden areas of the river, most often under the cover of darkness.

Several participants in all areas also described electrofishers as bold and dangerous and expressed fear of them. A few participants also seemed to be aware of bribes that had occurred between electrofishers and local authorities (see *Corruption in Law Enforcement*) and stated this as the reason for the fearlessness of electrofishers. One fisher was clearly upset about electrofishing and told us:

> I have been waiting for a long time. Waiting for people to interview me about the electric shock. Now, you have come. I will say everything. I am not afraid because [fishing is] my job– my rice pot. I am not afraid of death. Even if I die, let me die because they are still doing it. It's my job – I am making a living from it, but if I do not have [fishing], I would collapse. I do not know what else to do. (45M, CNT8)

In addition to - and often as a result of - fear, many participants expressed a sense of helplessness to stop electrofishing. Another fisher said:

> Even if we know the names [of electrofishers], we do not dare to report them. We see it in person, but if we dare to report them to the higher officials and arrest them, they would say that nobody saw them other than us. So, our normal fishing boat, who would guard it at night. They might cut our boat loose. What can we do to them? (55M, CAT3)

When discussing dead dolphins in response to whether participants had seen or heard of dead dolphins, participants were asked whether they knew the cause of death. A few participants in all areas stated that the dolphin had died from electric shock and several others speculated that it might be electric shock.

Thus, according to some participants, electrofishing on the Mekong is declining, while others seem to think it has just become less visible as electrofishers have adapted to avoid apprehension. Several participants also believe electrofishing has caused some dolphin deaths and still represents a major threat to dolphins in the Mekong.

Low Awareness of Dolphins and Importance of Reporting Deaths

In 2005, conservationists stated that Mekong River area residents largely did not seem aware of the status of dolphins or the importance of reporting dolphin sightings and deaths on the Mekong (Fisheries Administration 2005). I did not ask participants directly whether they reported dolphin sightings or dolphin deaths, but reporting of dolphin deaths often came up when participants were asked whether they were aware of dolphin deaths.

Many participants, particularly in target villages and adjacent villages, seemed aware of the importance of dolphins and that their populations were low. No participants mentioned reporting live sightings of dolphins. However, many participants in all villages mentioned that authorities came to collect the carcasses of dead dolphins and several mentioned that they or someone else present reported carcasses to authorities. However, a few participants mentioned fear of repercussions for reporting deaths. One former fisher describes being blamed for a dolphin death he reported to authorities:

> It [the dolphin] was dead and was floating near the Vietnamese port. It got washed up there, and then, we went to see it. We saw drag net marks on its head. The dolphin was already swelling. Then, we called them [the authorities] to come and see. The fishery came and saw it, and they accused us of killing the dolphin. (33M Farmer, CAT1)

As a result of this interaction, he says of another carcass he saw: '. . . I even saw it floating in the river but I did not dare to catch it. If we catch it, they would convict us.'

So, most participants seemed to be aware of the status of the Irrawaddy dolphin population on the Mekong. Further, it is unclear whether participants understand the importance of reporting live dolphin sightings, while most participants seemed to understand the importance of reporting dolphin carcasses. However, it is possible that dolphin deaths often go unreported out of fear of being blamed for those deaths.

Mortality Due to Nets/Illegal Fishing

Entanglement in gillnets is listed by conservationists as the primary threat to dolphins in the Mekong and is supported by necropsy analyses. The use of gillnets in the dolphin pools and the segments of river in between has been prohibited since 2006. However, fisheries authorities acknowledge that gillnet use continues to be an issue in the areas between the pools (Dolphin Commission et al. 2012; Fisheries Administration 2005; Smith et al. 2007; Thuok et al. 2014). Participants were asked whether they knew the cause of dolphin mortalities when mentioned during a question about whether they had seen or heard of dead dolphins. They were also asked how long ago the death occurred. Participants never used the term 'gillnet' in interviews or it was not translated as 'gillnet.' Instead, the term 'dragnet' was often used in the translations, although these terms seem to refer to the same type of net.

At least 22 (4T, 2NT, & 16AT) participants said they were aware of at least one dolphin death caused by entanglement in nets, although they did not specify which type of net. Of those 22 participants, 20 (3T, 2NT, & 15AT) stated that it was within the last 4 years (well within the time the conservation project began). At least another 17 (8T, 8NT, & 1NT) participants stated that they were aware of dolphins being caught in nets, although they were unaware of whether - or didn't state that - the dolphin had died as a result. In both cases, several participants indicated that the net entanglements had happened recently and continue to occur with some frequency.

Still, at least two participants insisted that dolphins are never caught in nets as one participant explains:

> . . . People said that it was the dragnet, but in fact, it was not. I would like to say a little bit more. Before they came to protect the dolphins, I want to say it like this. . . But, before they came to protect dolphins, the villagers used dragnets and [I] had never seen any [dolphin] got caught. It got caught for example, in the last 4-5 years, it was a coincidence that it chased after fishes and it went too far; like in [CT2], [I] saw one got caught a few years ago; It got caught because it chased after fish and went too far [into the drag net]. . . (45M Fisher, CT2)

So, according to participants, with the exception of at least two, it seems that entanglement in nets may continue to pose a danger to dolphins in the Mekong.

Trash at Tourist Sites

Conservationists have stated that one of the tourist sites upriver from Kampi is reportedly producing large amounts of waste in the river (Thuok et al. 2014). Participants in this study were not asked directly about trash or waste in the river. However, I also witnessed large amounts of trash all along the Mekong and it was common to see people throwing waste on the ground throughout my stay in Cambodia.

At least 2 participants, both from AT villages, mentioned trash as an issue that needed to be addressed when asked if they had anything else to say about the conservation project. As one participant requested 'Just only [want them to] tell others not to throw wastes along the shore' (27F Seller, CAT1).

Thus, in my experience and according to at least two participants, trash along the Mekong is still an issue in need of being addressed. The fact that no other participants addressed trash at any point during my stay may indicate that trash and litter are an acceptable practice.

Corruption in Dolphin Tourism

According to conservationists, in one of the target villages where tourism is most developed, 40 percent of the income from tourism used to be given to boat owners and the community, while the remaining funds were given to provincial fisheries and tourism authorities. However, conservationists also acknowledge that the mechanism for benefit sharing was absolved when the Fisheries Administration took over the responsibilities of the Dolphin Commission, which appears to be April 2012 (Thuok et al. 2014). Participants were asked about corruption in the Fisheries Department and WWF, as well as whether they thought dolphin tourism in the area was managed responsibly.

Several participants mentioned that they thought the money from tourism was mishandled. As one participant describes:

> . . . The income from the ticket sale is a lot. . . Now, they have taken everything – the ticket money goes to the province. Back then, the community also has to pay to the province, but the community earns some. For example, in 100, 30 go to the province and 70 go to the village for the people to continue building the

> dolphin place in the future. And, used that money to help build school – back then, there wasn't any. They used that money to build a school; build school's wall. Bought a land to build a school . . . they also used that money. Then suddenly, they took it away. At first, we agreed to give 30% or 50%. Then later on, they took everything. Took everything from the people. So, they can only sell the boat ticket for the people and the souvenirs shop pay money to the community. Per shop, they pay 500 [KHR] to the community. It's like if we run a shop there, we pay 500 [KHR] to the community – it is for ourselves also. That's right. Then later on, they wanted to take away the boat ticket, but the people protested very hard. Before, the people protested very hard, but they were unsuccessful. (39F Confidential, CT2)

When asked how long ago the province took everything, the participant responded '4-5 years until now, the money… and the dolphin place is not improving much. It is not improving – they took all the money. They think of getting rich themselves – the people get nothing. . . '

Another participant referred to the corruption associated with tourism as 'the embezzlement of tourists' [money] . . . tourists' tickets' (36M Confidential, CT2). As the interpreter tries to clarify, the participant explains:

> yes, it is not once a week. In a week, they sell it [embezzled tickets] 2 times or 3 times – it's like they are doing based on the visitors. If there are more visitors, they embezzle more. Less visitors and they would not dare to. If there are average visitor, they are also average.

He goes on to say that boat drivers have verified this because '. . . they hand out the money once a week according to the number of boats. They look at the money like calculate it and the money does not match.'

A few participants also mentioned that they felt that the benefits that made it to the community were distributed unevenly. When one participant, who self-identifies as poor, was asked why she thought there was corruption at the tourism site, she said it was 'because they… they just get rich for themselves [and] for us, the poor, we do not know anything, do not know anything. There is always corruption – it is not like there is not any' (40F Homemaker, CT2).

Another participant felt there was favoritism that seemed to occur in the way space for souvenir shops was bid because those spaces went to people who could pay much more than others (28F Farmer, CT2).

So, without a clear mechanism for sharing benefits from dolphin tourism, it seems that participants have seen more corruption occurring within the management of that tourism. Further, it seems that this corruption occurs in the forms of lack of transparency and equity in the management of money and may possibly include favoritism and embezzlement.

Corruption in Law Enforcement

Participants in this study were asked whether they liked the Ministry of Fisheries and the WWF and whether they thought there was any corruption in each, respectively. Corruption was not mentioned in the context of the WWF and participants often seemed unsure whether corruption existed in the WWF. However, participants identified and discussed corruption in fisheries law enforcement in at least six forms including bribery, favoritism, extortion, hypocrisy, resale of confiscated equipment, and negligence.

At least 13 (8T, 2AT, & 3NT) participants in all but 2 villages (both adjacent target) mentioned bribery when discussing corruption in the enforcement of fishing regulations. These participants believed that law enforcement officials were accepting payment in exchange for release or to look the other way when illegal fishers, particularly electrofishers, were caught in the act. As one participant describes: '… when you are arrested, you just pay the money and you are free. There is no crime' (46M Disabled, CAT3). Some participants believed that electrofishers and fisheries officials worked together to make profit. As one participant said when asked whether there was corruption in the fisheries department:

> It's quite difficult to say. If there is no corruption, why didn't they make any arrest? I say that there is corruption. They are definitely corrupted. Bribe them and they would not arrest. After bribing them, they would go back; because I want to say it like this. I fish one night and one day and I only caught 1 kilo or 2 kilos. But, when they came to shock for a little while, they caught 20-30 kilos. They dare to do it and they are earning from it. For us, we are still scared – doing legal things. . . No matter what happens, they would still do it. They earn money together. We do the right things and it's wrong – we cannot earn anything. (45M Fisher, CNT8)

According to at least two participants (1T & 1NT), bribery extended beyond chance encounters and was instead a coordinated and organized arrangement. One participant explains:

> They pay monthly. For example, I let these people use electric shock. I am a government official. . . These people go to shock; now, I [here the participant is referring to himself] say that the people here use electric shock tonight and tomorrow. So, I go to file a complaint and ask them to come and see… now, they are using electric shock [tonight]. Wait for 3-4 nights, but the people who use electric shock do not come [back]; it's like my example; wait tonight and tomorrow night, and the day after tomorrow; wait for 6-7 days and do not see [electrofishers] come [back].
> Interpreter: because [the fishery] has already told them about it.
> Participant: yes, they did that. . . I have reported to the province once, but the province came to arrest, but they could not make any arrest. Could not find them. They are at [another village]. (45M Fisher, CT2)

Favoritism was mentioned by at least 7 (5T & 2NT) participants in two target and two non-target villages in the context of corruption in enforcement of fishing regulations. These participants seem to believe that laws are selectively enforced and often mentioned bribery as a reason for that selective enforcement. One fisher, who uses small-grid gillnets (which are legal according to some sources; See *Harm of Livelihoods Due to Overregulation*), was particularly upset about this selective enforcement:

> yes, [fisheries officials] just only come to tell the people who use drag net and arrest them all over the place – prohibit the people who use drag net; afraid that the dolphins would die. But for electric shock, could not do anything. That's all I want to say. [They] could not do anything to people who use electric shock – they use it all over the river again and again. . . If they want to arrest, they would have made the arrest already . . . if they are planning to do something, believe me; if they are planning to do something, they would definitely complete it; but it is because they do not want to. We just say one line 'they do not want to.' I do not have anything to say… They are not able to arrest the people who use electric shock, so they express their anger on the drag net all the time. (36F Fisher, CT6)

At least 2 participants (1T & 1NT) mentioned extortion when asked about corruption in the fisheries department. As one participant explained when asked to describe corruption: 'It's that for the people who fish at the creek, unless they pay

them that they are not allowed to fish. If we do not pay them, they would not let us fish' (27F Farmer, CNT8).

Hypocrisy was also mentioned by at least 2 participants (1T & 1NT) in the context of corruption in the fisheries department. These participants believed that law enforcement was strictly enforcing fisheries regulations only to use the same tools they were arresting people for to fish themselves. The participant from the target village, a former fisher (39M Seller, CT6), also thought law enforcement officials were using confiscated tools to do so. Additionally, this participant, along with another participant from that same village (45M Fisher), believed that law enforcement often sold confiscated equipment for profit.

At least one participant mentioned negligence in combination with bribery when asked about corruption in the fisheries department, describing: '. . . They go to any area that they can make money, they go there. Any area that they cannot [make] money, they do something else just to waste petrol' (36M Wood carver, CT2).

Thus, according to participants, corruption exists in at least six forms within fisheries law enforcement. Bribery by illegal fishers was mentioned the most, while favoritism also seemed to be mentioned often. Corruption also took the forms of extortion, hypocrisy, resale of confiscated equipment, and negligence in a few instances - according to participants.

Harm of Livelihoods Due to Overregulation

Participants were asked whether they were aware of restrictions on fishing nets and whether they were aware of the use of restricted nets in the area. As mentioned above (see *Corruption in Law Enforcement*), some participants felt there was favoritism in the way fisheries regulations were enforced. According to the 2005 conservation plan, 'fishing with *large mesh size* gillnet is illegal in the upper reaches of the river' (emphasis added) (Fisheries Administration 2005:7). However, scientists state that all gillnets have been illegal in the nine pools where dolphins spend most of their time, as well as the segments of river in between those pools since 2006 (Reeves et al. 2009).

It was clear that the majority of participants in this study knew that all nets were prohibited in or near dolphin pools. However, most participants believe that small mesh size gillnets in areas outside of the pools are legal and many gave us a precise size of mesh that is allowed (see *Fishing Regulations* below). So it is unclear which laws are being enforced in which areas. It also appears that some fisheries officials are taking advantage of this misunderstanding in the form of bribery. When asked which nets are illegal, one participant responded: 'I want to say that they are all illegal because the fishery people, when they; normally, even when we just raise fishes, we also need to pay them' (42F Fisher, CT6).

At least 8 (6T, 1AT, & 1NT) participants told us that fisheries officials were confiscating all nets indiscriminately. As one participant describes:

> Do you know when they [fisheries officials] cuff here and there, and took them all away. They were told not to arrest small [pattern drag net]; they went to arrest large [pattern drag net]. The fishery is bad. But, the citizens do not dare to file a complaint about [the fishery] offense. (70M Fisher, CNT9)

When the interpreter asked another participant: 'Isn't the law only against nets with large holes but [they] allow nets with small holes?' when he said fisheries officials were confiscating all nets, he responded:

> That's what is in the laws. That's why it is a problem. I used to have argument with fishery officials too. Even nets with small holes are also not allowed. Even my voice is being recorded I still have to say what I have seen. Fishery officials have ill treatments on me that make me angry. If other important people or NGO staff do not come often fishery officials normally just go back and forth. However, when higher authority people come; the fishery officials perform their jobs too strictly. It is very hard for us to do fishing. (45M Fisher, CT6)

Additionally, as mentioned above (see *Corruption in Law Enforcement*), several participants believe that fisheries officials are confiscating all nets, while allowing electrofishing to continue. This led to one participant saying:

> I am not happy. Not happy; they cannot do anything and they only hurt the people who use drag net. They could not do anything. If they could arrest one electric shock like "Now, I have arrested a few electric shocks"; if that is so, I would… be less [angry]. But this, there is none. Oh! They just go out to arrest drag net and they catch a lot of that – when they see drag net, it is as if they see a thief (36F Fisher, CT6).

According to another participant in a focus group of four, when asked whether the conservation project was helping to protect dolphins, she responded that dolphins are '[p]rotected, protected, but couldn't protect them good enough, more ruining people than protecting' (30F Fisher, 32F Unknown, 40F & 50F Farmers, CAT1).

So, many participants who fish seem to feel that fishing restrictions are threatening their existence. Still, most of these participants also understand the importance of dolphins and find themselves in an unbearable position. One former fisher summed up the issues facing fishers best when he said:

> For the disadvantages, it makes it hard for us to go fishing. We want to protect them and to both protect it and at the same time, we want our living condition to be improved. If there is a ban on fishing, please consider ways that we can make incomes as we depend on the rivers, dolphins also depend on the rivers. They eat fish so do we. We go fishing for a living and daily food. They eat fish as food. Life is the same in that term. We love them because they are national resources and they are rare. We appreciate both the organization and fishery officials who collaboratively work to educate people on the importance of dolphins, to raise our awareness. With the presence of the organization, we now understand how important are dolphins, how they live, the details of their reproductive health, how to feed their offspring. They are just like human. When understand, we realize they are not just normal kinds of fish. They only produce an offspring at a time just like humans do. It is nothing like fish which produce several thousands of offspring at a time. Thus, dolphins are rare and they need to be protected. (39M Seller, CT6)

Actions

The most comprehensive (and most current) summary of actions that have been taken thus far on the Mekong as part of dolphin conservation occurs in the workshop report from 2014 (Thuok et al. 2014). Although the focus of the report seems to lean more heavily toward recommendations, these are made in light of current and past actions. In this section, I draw on 12 actions stated to have been taken from this report, as well as those found in all other works mentioned in the introduction of this Cambodia section (Table 3.5). Participants mentioned that at least 9 of these 12 actions were indeed in place. Participants did not mention regulations for dolphin tourism, education of tourists, or involvement of locals via contributions to dolphin distribution calendars. Again, it should also be noted that lack of mention by participants does not necessarily mean those actions are not

taking place. Of the approximately 12 actions conservationists claim to have taken, I elaborate on 3.

Table 3.5. Actions that have been taken to address the issues that affect the conservation status of Irrawaddy dolphins in Cambodia as identified by conservation officials.

Claimed to be taken by conservation officials	**Mentioned and believed to be addressed by Participants**
Capacity building	✓
Collaboration of provincial agencies	✓
Confiscation of gillnets	✓ (see *Issues: Harm of livelihoods due to overregulation)*
Development of conservation strategy	✓
Diversification of livelihoods	✓
Dolphin tourism regulations	×
Education	✓
Education of tourists	×
Electrofishing enforcement	✓ (see *Issues: Corruption in law enforcement)*
Fishing regulations	✓
Involvement of locals via contributions to dolphin distribution calendars	×
Regular patrols	✓
Research: Behavioral studies on calves	×
Research: Boat surveys	✓
Research: Impacts of tourist boats	×
Research: Mortality	✓
Research: Photo-ID	✓
Surveys/interviews of locals	×
Warnings/education on illegal nets	✓

Diversification of Livelihoods

Conservationists state that MDCP activities included 'initiating and encouraging community development and livelihood diversification projects in villages near critical dolphin habitats in partnership with the Cambodian Rural Development Team (CRDT)' (Smith et al. 2007:78). Participants were asked several questions that helped paint a broad picture of their livelihoods. This included questions about whether and what changes they had seen in their homes, their

villages, and for children in the village as a result of the conservation project and in the last ten years.

Many participants in target areas mentioned attempts to diversify and improve livelihoods, especially in the context of wood carving. Many participants either spoke of dolphin wood sculptures as a new and significant source of income for people in areas with dolphin tourism infrastructure or were sculptors themselves and declared their livelihoods to be much improved. However, many participants in non-tourism villages thought they had not seen changes in their own homes or villages because they or their village did not make and sell dolphin sculptures. Other participants in all areas said that there were more opportunities for work and that this had improved things in their communities and homes.

Several participants also mentioned the CRDT and NGOs in the context of discussing improvements in the villages. In at least one target village, many participants mentioned that organizations had helped residents set up latrines, tap water spigots, and build pens for farm animals, although many of these participants did not name those organizations. However, many participants in some of the adjacent and non-target villages who were asked about changes in their homes and villages responded that there were none because '[t]his is only for those who work over there [in a dolphin tourism village]. I do not receive anything (laughing)' (73M Farmer, CAT2).

Thus, it seems clear from participant responses that attempts at livelihood diversification have been made and seem most successful, in terms of increased income, in the case of wood carving. However, at present, these opportunities seem mainly focused in the target villages and may thus be causing some disproportionate distribution of benefits.

Fishing Regulations

Aside from the ban on electrofishing and dynamite fishing as discussed above (see *Issues* section), conservation authorities have also adopted regulations on fishing nets. According to the mortality report of 2009, the use of gillnets in the dolphin pools and the segments of river in between has been prohibited since 2006

(Reeves et al. 2009). The report also states that nets with mesh sizes between 5 and 15 cm are legal in other areas of the river and the Cambodian Mekong Conservation Strategy states that 'fishing with large mesh size gillnet is illegal in the upper reaches of the river' (Fisheries Administration 2005:7). Conservationists also state that cast nets do not pose a threat to dolphins. Participants were asked whether they were aware of restrictions on fishing nets and whether they were aware of the use of restricted nets in the area.

Most participants in all of the villages were aware of the existence of net regulations and aware that all fishing nets and tools were prohibited in or near the dolphin pools. A few participants mentioned that cast nets and fishing hooks were permitted outside of the dolphin pools. Additionally, as mentioned above (see *Issues: Harm of Livelihoods Due to Overregulation)*, most participants believe that small mesh size nets are permitted outside of the dolphin pools. When asked whether they were aware of restrictions on fishing nets, at least 24 (16T, 6AT, & 2NT) participants, which included participants from all 9 villages, specified that only large mesh size nets were illegal and at least 8 (3T, 4AT & 1NT) participants specified that small mesh size nets were legal.

Several participants also offered the size of legal and illegal nets. These sizes included 1-2.5 cm (39F Fisher, CNT9), 2-3 cm (35M Farmer, CAT1), and 9-10 cm (45M Fisher, CAT1) for legal nets and >1 cm (49M Farmer, CT7), >5 cm (39M Seller/Former Fisher, CT6), >10 cm (45M Fisher, CAT1 & 61M District Councilor, CT6), and >30 cm (32M Fisher, CT6 & 46F Fisher, CNT8) for illegal nets.

Still, at least 10 (9T & 1AT) participants said that dragnets in general were not permitted at all, although it is unclear whether they thought they were being asked about fishing gear in the dolphin pools or the river in general. Interestingly, 9 of these participants were from target villages, while the remaining 1 was from a non-target village. So it seems likely that these participants thought they were being asked about fishing gear restrictions in the dolphin areas.

Thus, while it appears that most participants are aware of fishing regulations, there seems to be some discrepancies in these regulations among the conservation plans, the enforcement of these regulations (see *Issues: Harm of Livelihoods Due to*

Overregulation), and the understanding of those regulations by participants in all areas of the river. The only fishing regulations that all participant responses agreed on was that electrofishing and dynamite fishing were fully banned and that all other forms of fishing in the dolphin pools were banned.

Regular Patrols

Conservationists recommended regular patrols, as well as night patrols, by fisheries law enforcement officials in several iterations of the conservation plan for dolphins on the Mekong (Dolphin Commission et al. 2012; Fisheries Administration 2005; Reeves et al. 2009). In the unofficial report on fisheries law enforcement from Dec 2015 - March 2014, officials report that '[f]our enforcement patrol monitoring trips were conducted during this four month period' (IUCN 2016:2) - roughly once per month. Although I did not specifically ask participants how often patrols were done, many participants mentioned patrols as part of a general question on what they knew about the conservation project.

According to at least 7 participants, all in target villages, fisheries officials conduct daily patrols in the river. At least 2 (1T & 1AT) other participants said that patrols were conducted about once per week. One of these participants, a former fisher, also added: 'sometimes, they came 2-3 nights in a row. They patrol at night. During day time, they go around collecting drag nets' (39M Wood carver, CT2). At least 4 (3T & 1AT) other participants indicated that patrols occur regularly, although they did not specify the exact frequency of patrols. I also interviewed a river patroller in one of the target villages and he told us that he patrols at least once every night, but that otherwise he does not patrol unless an offense has been reported in the area (35M, CT7).

Although most participants seemed happy with the conservation project, many participants expressed a desire to see more done. At least 3 participants, all from target villages, specifically requested more frequent patrols when asked if they had any other comments on the conservation project near the end of interviews and focus group discussions. In answer to the same question, at least 8 (5T & AT) participants expressed a general desire to see more done to protect the dolphins

and at least 6 more (3T & 3AT) expressed a general desire to see protection activities continue. Finally, when asked what future researchers could study in the area, at least 24 (17T, 5AT, & 2NT) participants stated that the continued and/or intensified protection of dolphins was their top priority.

Because participants weren't asked directly whether patrols occurred regularly and/or at night, it is unclear from this study how frequently patrols are occurring. As discussed in the *Harm of Livelihoods Due to Overregulation* section, at least 8 (6T, 1AT, & 1NT) participants are concerned about the effects of patrols and fishing regulations on their livelihoods and this should not be ignored. However, there also seems to be a clear desire among more than 1/3 of participants to see an increased and/or sustained effort to protect dolphins in the Mekong.

Recommendations

Conservationists made at least 42 specific recommendations after reviewing the latest conservation actions in the Mekong (Thuok et al. 2014). These recommendations are listed in Table 3.6, which also includes whether these recommendations were mentioned by participants and whether it appeared that participants who mentioned each item felt that issue had been addressed. Participants mentioned 32 of the 42 recommendations and seemed to feel that at least 3 of these led to addressing the issue that motivated the recommendation, while at least 15 of the issues seem to need more attention and the status of the remaining 14 is unknown. Because many of these recommendations overlap with issues and actions already discussed above, I discuss 5 recommendations in detail.

Table 3.6. Recommendations for future actions and research needs to continue to address issues that affect the conservation status of Irrawaddy dolphins in Cambodia as identified by conservation officials.

Recommended by officials	Mentioned by participants	Participants believe the issue has been addressed
Assessment of fishing gear use	✓	× (see *Issues: Harm of livelihoods due to overregulation*)
Collaboration	✓	Unknown
Community committees	Some	Unknown
Construction of fish ponds	Some	Unknown
Control of mortality due to nets	✓	×
Demarcation of protected zones	✓	Unknown
Diversification of livelihoods should continue	✓	× (more satisfaction in target villages than in adjacent target villages; see *Actions: Diversification of livelihoods*)
Education and awareness raising of locals	✓	Unknown
Education and awareness raising of tourists	×	Unknown
Education through religious leaders	×	Unknown
Empower communities to enforce regulations	✓	×
Establish tourism protocols and regulations	×	Unknown
Establishment of monitoring posts	✓	×
Expansion/development of dolphin tourism	✓	×
Extension of tourism to other areas	✓	×
Fee structuring in fisheries	×	Unknown
Fishermen training in release of accidentally caught dolphins	✓	✓
Fishing regulations	✓	×(see *Actions: Fishing regulations*)
Improve monitoring and reporting of illegal activities	✓	× (see *Issues: Corruption in law enforcement*)
Interventions (artificial insemination, calves/moms controlled env'ts, medical exams, vaccinations)	✓	Unknown
Meetings/workshops	✓	Unknown
Monitoring and research of population status	✓	✓ (participants want to see continue)
Monitoring of fisheries	✓	×
National legislation development	✓	Unknown
Participation of locals	✓	×
Reallocation of money from tourism to protection	✓	× (see *Issues: Corruption in dolphin tourism*)

Table 3.6 continued

Recommended by officials	Mentioned by participants	Participants believe the issue has been addressed
Regular patrols/Night patrols	✓	× (see *Actions: Regular patrols*)
Regulate tourism to be equitable	✓	× (see *Issues: Corruption in dolphin tourism*)
Research: Biopsy sampling	✓	Unknown
Research: Boat surveys	✓	Unknown
Research: Continuation of in general	✓	Unknown
Research: Dams	×	Unknown
Research: Dolphin tourism	×	Unknown
Research: General	✓	Unknown
Research: Mortality	✓	Unknown
Research: Neck marks on carcasses	×	Unknown
Research: Other fishing tools that are harmful	×	Unknown
Research: Photo-ID	✓	Unknown
Research: Pool count surveys	✓	✓
Stricter enforcement	✓	× (see *Issues: Electrofishing*; *Mortality due to nets/illegal fishing*; and *Harm of livelihoods due to overregulation*)
Surveys/interviews of locals	×	Unknown
Sustainable development	×	Unknown

Empower Communities to Enforce Regulations

Conservationists have recommended the empowerment of communities to enforce regulations as part of the dolphin conservation plan on the Mekong (Smith et al. 2007; Thuok et al. 2014). I did not ask participants specifically whether they felt they were, or desired to be, empowered to enforce regulations designed to protect dolphins. However, participants in focus group discussions were asked what more could be done to help protect the dolphin and individual interviewees were asked whether the WWF and the Department of Fisheries were doing a good job. All participants were also asked whether they had anything else to say about the conservation project near the end of each interview and focus group.

According to at least 2 participants in two target villages, villagers in at least one village (CT7) are currently hired to be patrollers. As one of these participants explains:

> . . . They kept patrolling the rivers constantly as villagers were hired to be patrollers with one manager from local authority level. It is like the dolphins site at [CT7], they assigned villagers at [CT7] and they have another officer from the local authority such as the police or soldier to work with them. This will empower the team because civil people have no power. It is not like the authority so they join with the civil people. . . (39M Seller, CT6)

The second participant, a river patroller in CT7 explains in more detail:

> They [referring to 2 others we saw with him earlier] were river patrollers previously, but now they are staff under fishery department. These days, the patrollers work under the supervision of fishery department. . . There are 3 community villagers, 1 police and 1 fishery staff, 5 in total working per station. (35M)

Although many participants in target and adjacent target villages stated that everyone helps protect dolphins, there are also those who wish to be more empowered, especially when it comes to stopping electrofishing as described in the *Issues: Electrofishing* section above.

So it seems that, according to participants, conservation officials have already begun to make steps toward empowering communities to enforce regulations. However, it appears that more is needed and that, because of the perceived risk involved with assisting in the electrofishing ban enforcement, special care is required when dealing with potential endangerment of the enforcers.

Establishment of Monitoring Posts

Conservationists have recommended the establishment of monitoring posts along the stretches of river designated as critical habitat for Irrawaddy dolphins in the Mekong (Fisheries Administration 2005). Participants were not asked specifically whether they knew of monitoring posts and/or whether they desired the installment of monitoring posts. However, focus group discussants were asked what more could be done to help protect the dolphin and participants in individual interviews were asked whether the WWF and the Department of Fisheries were

doing a good job. All participants were also asked whether they had anything else to say about the conservation project near the end of each interview and focus group.

Several participants in at least 2 target villages mentioned the existence of monitoring posts. As one participant describes:

> They [fisheries officials] also have patrolling locations as their base. If the location is where they are living, they would go back and forth, back and forth . . . The patrollers divided their stations and they have demarcation, for example, the station at Keng Phsar [corner market], they have their borders and this is only their area and protect around this area. This is applied to other stations too. (39M Seller, CT6)

Additionally, at least 1 participant in a focus group of 2 (26M Tourist boat driver & 37M Police officer, CT2) mentioned a desire to see more monitoring posts set up. And as described above (see *Actions: Regular Patrols*), many participants wish to see more done in the area of dolphin conservation. So it seems that conservation officials have begun to establish permanent monitoring posts along the Mekong as part of the dolphin conservation plan and that many participants would like to see more of these posts established in the future.

Extension of Tourism to Other Areas

Conservationists have recommended examining the possibility of extending successful dolphin tourism operations to other areas on the Mekong as part of the dolphin conservation strategy (Smith et al. 2007). To my knowledge, no attempts had been made to extend dolphin tourism to other villages beyond the 4 mentioned by conservationists at the time of this research. Many participants in adjacent target and non-target villages were asked whether they would like to see tourism expanded to their village.

Every participant (at least 14 [11T & 3NT]) except 1 who was asked whether they would like to see dolphin tourism introduced in their village answered in the affirmative. The one participant who did not desire to see tourism in his village said:

> For me, I don't want it because if there is one, there will be problems with fishing as we can't do fishing. If there is a dolphin tourist site, I am not so happy as I can't go fishing. If there is a dolphin tourist resort here, they will take our fishing tools when people go fishing. (45M Fisher, CT6)

Thus, at least according to participants who were asked, the majority would like to see dolphin tourism extended to their area at this time, although there still seems to be some concern about the indirect effects of tourism on fishers' livelihoods. It is also important to note that I mainly asked participants in target areas that lacked tourism whether they would like to see dolphin tourism in their village. Thus, these villages were likely experiencing the effects of intensified fisheries restrictions without the benefits they bore witness to in villages where dolphin tourism was well established.

Participation of Locals

Conservationists have recommended increasing the involvement of locals in the enforcement of conservation policies (see *Empower Communities to Enforce Regulations*), research on dolphins, and discussions on how to improve the conservation plan (Dolphin Commission et al. 2012; Fisheries Administration 2005; Reeves et al. 2009; Smith et al. 2007). Participants were not asked directly whether they would like to be involved in enforcement of conservation policies, dolphin research and/or conservation planning. However, participants in focus group discussions were asked what more could be done to help protect the dolphin and individual interviewees were asked whether the WWF and the Department of Fisheries were doing a good job. All participants were also asked whether they had anything else to say about the conservation project near the end of each interview and focus group.

Although many participants in target and adjacent target villages were aware of workshops held by WWF in their area, several stated that they hadn't attended because they weren't invited. Additionally, many participants expressed a desire to know more and/or be more involved in dolphin conservation.

A few participants mentioned that they had attended necropsies and these participants often spoke extensively about what they had seen and learned at these necropsies. As one participant describes:

> . . . I looked at it and it has breast like us, but it's just that its breasts is over here . . . at the tail, the breast is like a human. They even have beard. I examined everything. The dolphin was big. Its body was this big. This big and

> this long. When it died and it was brought here in front of my house. It had a little bit of beard like human. I tried to pull it. It's like human. That is like in the folktales that [a human] wore a cup and jumped into the river and the human became a dolphin – I looked at its organ/genital.
> Interpreter: it is really the same?
> Participant: it is very similar. The human breast is also the same as that animal. It is really the same like our breast. Its breast is right here at its tail. Its breast is right here under its belly. It is like the real thing because it feeds its children with its milk the same like human. That's right – it is born like us. It is not like an egg and hatch – it is born like us. And, it has babies like human. Every 2-3 years, it has one baby. It is not like fishes [giving birth to] the whole herd. (39F Wood carver, CT2)

Many participants spoke with similar enthusiasm when discussing their experiences with observing dead dolphins or dolphins being necropsied.

So conservationists appear to have been making huge strides toward encouraging participation of locals in the enforcement of conservation policies, research on dolphins, and discussions on how to improve the conservation plan. Further, several participants expressed enthusiasm for such involvement. However, there is still a clear desire among many participants to be more involved.

Conclusion

In this chapter I identify the following as stated in conservation documents: (1) **issues** that affect the conservation status of Irrawaddy dolphins; (2) **actions** that have been taken to address these issues; and (3) **recommendations** for future actions and research needs to continue to address these issues. Through including as many voices as possible, I then examine each of these in relation to participants' experiences and perceptions of the relative dolphin conservation project and elaborate on items that seemed most important to participants and/or where clarification may aid in the understanding of a given item for the purposes of conservation. With this type of analysis, we can begin to answer at least 2 of the 4 proposed research questions: (1) How are the policies implemented by these conservation projects *experienced* and *perceived* by people in local communities?; and (3) Are the policies actually implemented as intended, or do local practices differ from those expected or dictated by policies?

In Myanmar, participants' and conservationists' concerns disagreed on almost half of the issues identified. Still, both conservationists and participants seem to agree that electrofishing is the most critical threat to the survival of dolphins in the Ayeyarwady with gillnet fishing as a potentially distant second most critical threat. Many participants also identified electrofishing and landslides as having significant impacts on their livelihoods and several believe that landslides are caused by upriver dams. These dams and the associated landslides and changes in river flow and topography may also have potential impacts on dolphins, according to participants. Participants also discussed having issues with corruption and this has not been mentioned by conservationists.

Participants mentioned that the majority of actions intended to be taken by conservationists on the Ayeyarwady as of 2007 had been initiated, but that there is still some need for several of these actions to be developed and/or expanded upon. Participants seemed particularly concerned with lack of enforcement of electrofishing, which many say is still widespread, and with exploitation by illegal fishers of Inns. Members of the dolphin-fisher cooperative also expressed a desire to have a more reliable income from tourism of the cooperative fishery. Participants in Myanmar also mentioned many of the recommendations made by conservation officials and seemed to feel that some of the issues that inspired those recommendations had begun to be addressed, although there is clearly more progress and more information needed.

In Cambodia, participants' and conservationists' concerns again disagreed on almost half of the issues identified. However, both conservationists and participants seem to agree that entanglement in nets is the most critical source of mortality to dolphins on the Mekong and that electrofishing likely poses a direct threat to dolphins, as well as an indirect threat through exploitation of their food source. Many participants also felt that corruption in law enforcement and dolphin tourism, as well as overregulation and selective enforcement of laws, were harming their livelihoods. Because the corruption in law enforcement explained by participants necessitates the continuation of electrofishing - as it appears that fisheries officials are either taking bribes from electrofishers and/or using confiscated equipment

themselves - this type of corruption affects dolphins as well as participants. Additionally, because overregulation and selective enforcement appear to occur in part so that some fisheries officials can say that they are enforcing laws because they are seizing many nets - even as they lack in the seizure of electrified equipment - this overregulation may simply be serving as a veil, rather than as actually serving the interests of conservation.

Participants mentioned that the majority of actions claimed to be taken by conservationists on the Mekong have been initiated, but that there is still some need for several of these actions to be developed and/or expanded upon. Participants seemed particularly concerned with over-confiscation of nets and lack of enforcement of the electrofishing ban. Many participants who are fishers also expressed extreme concern for their livelihoods as fishing regulations expand, while many participants - including these fishers - expressed a desire to see more protection for dolphins. Many of the recommendations made by Mekong conservationists were also mentioned by participants and some seemed to feel that some of the issues that motivated those recommendations had begun to be addressed, although there is clearly a need for more progress and more information.

This chapter is not meant to be a theoretical analysis of data. Nor is this chapter a quantitative assessment of the Irrawaddy dolphin conservation projects in Myanmar and Cambodia. Instead this chapter attempts to describe issues, actions, and recommendations from the perspectives and experiences of participants and compare these to those identified by conservation projects. In doing so, this chapter also seeks to maximize the number of voices represented in this dissertation and includes issues relayed by participants that are directly related to dolphin survival, as well as issues of socioeconomic importance as they pertain to dolphin conservation.

CHAPTER IV

ECO-GOVERNMENTALITY, NGO GOVERNMENTALITY, AND THE CHANGING IMPORTANCE OF THE DOLPHIN

Introduction

> *In the end we will conserve only what we love, we will love only what we understand, and we will understand only what we are taught* - Baba Dioum, 1968

These were the words emblazoned on the wall of the stairwell in the building where I attended many classes at Texas A&M University while pursuing an MS in Wildlife and Fisheries Sciences. At first glance they seem to make sense, but the more one breaks the sentence down, the less sense it makes. What is meant by 'love' for example? And who gets to define it? Why can we love only what we understand? Doesn't the vast majority of the adult human population claim to love their deity/ies (Hackett et al. 2012)? Who among those can claim to understand their deity/ies? Finally, and perhaps most importantly, who gets to do the teaching? And how do we identify those who need to be 'taught?' Thus, these words appear to raise more questions than they answer. Yet this sentence, spoken at the General Assembly of the International Union for the Conservation of Nature and Natural Resources (IUCN) in 1968, has been eulogized in contemporary conservation of nature. But how, then, is 'nature' defined?

In mainstream Western thought, nature exists as the binary to society (Callicott and Ames 1989; Descola and Pálsson 1996; Kellert 1995; Ulloa 2013) where 'being is organized in a hierarchal manner, in which some parts of existence - notably, the divine and human - stand above other parts, with all the rights and privileges pertaining thereof' (Cook 1989:218). In contrast to mainstream Western thought, many indigenous and Eastern religions - such as the several forms of Buddhism - are grounded in relationality where individuals do not exist outside their interrelatedness to human and non-human entities of the cosmos and there is no conception of a hierarchy. Instead, humans - insofar as they can be considered

'individuals' - are defined by their relationships to each other, as well as to the cosmos (Brockington et al. 2008; Callicott and Ames 1989; Descola and Pálsson 1996; Kellert 1995; Nash 1989; Ulloa 2013). While these general descriptions of 'Western' and 'Eastern' conceptions of nature are rather simplistic, they nonetheless show that there are vastly different and contrary ways to conceive of 'nature.'

Thus, the word 'nature' evokes many different images and values depending on one's societal and historical context, which is also influenced by their race, gender, class, age, culture, and other relative positions in society (Ulloa 2013). According to Greider and Garkovich (1994), how we negotiate 'nature' and our relationship to it is determined by our 'landscape' or 'the symbolic environments created by human acts of conferring value to nature and the environment, of giving the environment definition and form from a particular angle of vision and through a special filter of values and beliefs' (1). Each culture then has its own stories, symbols, and idioms to collectively remember and perpetuate these landscapes and the historical knowledge held within them (Beban and Work 2014; Descola and Pálsson 1996; Parnell 2015; Ulloa 2013).

Although there are many more ways to conceive of 'nature' than described above, the mainstream Western concept of nature has come to dominate global political discourse of conservation through corporate, nongovernmental organization (NGO), and philanthropic alliances (Brockington and Duffy 2011; Brockington et al. 2008; Igoe and Brockington 2007; Ulloa 2013). Here, I follow Werker and Ahmed's adapted definition of NGOs from the World Bank's Operational Directive 14.70 as:

> private organizations "characterized primarily by humanitarian or cooperative, rather than commercial, objectives . . . that pursue activities to relieve suffering, promote the interests of the poor, protect the environment, provide basic social services, or undertake community development" in developing countries (Werker and Ahmed 2008).

The development and expansion of contemporary NGOs that pursue activities to protect the environment (aka conservation NGOs) began with the environmental movements of the 1960s and 1970s, triggered by the realization of the deleterious environmental effects of industrial development which first came to light through

Rachel Carson's book *Silent Spring* (1962) (Brockington et al. 2008; Ulloa 2013). This realization prompted a shift in the US mainstream in the concept of *nature* as something to provide consumables to the concept of *environment* as something that impacted the quality of human life (Luke 1997).

The NGOs of this environmental movement with the most funding - through courting government, corporations, and wealthy philanthropists with solutions to environmental crises that are compatible with capitalist goals (Brockington et al. 2008; Büscher and Arsel 2012) - have had the most influence on the political discourse of conservation (Corson 2010; Fisher 1997; Werker and Ahmed 2008). Following the Foucault idea of 'governmentality,' where the 'art of government' is to define the 'conduct of conduct' and '"subjects" [are] brought to internalize state control through self-regulation' (Bryant 2002:270), some scholars have used the term 'eco-governmentality' (or 'environmentality') to refer to the dominant environmental strategy that has become institutionalized through the dominance of neoliberal capitalist environmental discourse (Goldman 2001; Ulloa 2013).

Because many conservation concerns are global concerns, conservation measures moved internationally, bringing the conservation-capitalist nexus along through the extension of eco-governmentality globally (Goldman 2001; Milne and Mahanty 2015a; Ulloa 2013). However, because the environmental movement of the 1970s focused on designating enclosed protected areas as 'wilderness' from which all humans should be excluded, it began to draw criticism as this necessitated the removal of already impoverished and marginalized populations of local and indigenous peoples (Adams et al. 2004; Neumann 2002). At the same time, as global leaders turned their attention toward global 'development' at the end of the Cold War, it became clear that new forms of development with less deleterious effects were needed (Brockington et al. 2008; Honey 2008). The solution, then, was the pairing of conservation and development in what is sometimes referred to as 'sustainable development' although the term is highly debated (*see* Mowforth and Munt 2009). This in turn has led to what Sklair (2001:8) - following Gramsci - has referred to as the 'sustainable development historic bloc,' which 'offers solutions to the environmental crises that are inherent to global consumer capitalism, while all

the time maintaining and strengthening an accompanying "consumerist ideology"' (Brockington et al. 2008:5). International development funding is often predicated on this 'sustainable development bloc' and funding, particularly from the World Bank, is often withdrawn if resources aren't used in ways proscribed by this bloc and many recipient states are not in a position to negotiate the terms of funding and loans (Goldman 2001).

Thus, conservation opens a new frontier for capitalism even as its growth has begun to reach its limits (Büscher and Arsel 2012) with protected areas offering new enclosures for capitalist exploitation (Brockington et al. 2008). Through ventures such as ecotourism and disaster capitalism, global capitalism benefits from the problems it has created by increasing the monetary value of endangered wildlife at the same time it is employed to fix other environmental problems that it created (Brockington et al. 2008; Fletcher 2011; Fletcher and Neves 2012).

The extension of eco-governmentality has been accomplished through state-actors, but is often made especially possible through the actions of International NGOs (INGOs) in what has been referred to as NGO governmentality where existing social relations are manipulated to regulate behaviors of individuals (Karim 2011) and 'political rationalities of control and surveillance' of actors at the global capitalist core are extended to people at the periphery (Bryant 2002:275). The perception of NGOs as non-governmental entities whose main purpose is to 'do good' (Fisher 1997), has assisted in the illusory depolitization of conservation where the acts of NGOs are seen as management solutions to problems caused by neoliberal expansion (Bryant 2002; Ulloa 2013). Ironically, this perception of INGOs (as apolitical) has served to aid in the spread of neoliberal capitalist agendas as INGOs are able to gain access across state boundaries and 'local NGOs [become] a means through which impediments to development can be overcome, and international NGOs are useful insofar as they serve as intermediaries that can facilitate the work of local NGOs' (Fisher 1997). Further, while 'sustainable development' funding may come from government or private sources, it is often distributed by INGOs, whose officers are not elected by local recipients of goods and services and whose actions are not accountable in the way they would be in typical

market or political arenas. Thus, 'villagers may be hostage to the particular development scheme that happens to be funded by the designated local NGO' (Werker and Ahmed 2008).

While it is overly simplistic to assume that all INGOs act as agents of global capitalist change, it is nonetheless a documented unintentional consequence of some INGOs (Bryant 2002; Karim 2011; Ulloa 2013) and it seems that conservation INGOs are particularly likely to operate through NGO governmentality owing to the surreptitious role of conservation in sustaining global capitalism (Brockington and Duffy 2011). Thus, the projects of conservation INGOs 'involve significant reshaping of society as well as nature' (Brockington et al. 2008:150) as they seek to turn conservation sites into *in situ* commodities that can be sold on the market (Cater 2006; Fletcher and Neves 2012; Macdonald 2011). Simultaneously, hegemonic conservation promotes the philosophy that 'an environmental crisis is imminent unless current practices are replaced by more 'rational' (nontraditional, nonideological) uses of resources' (Ulloa 2013:81). Conservation INGOs, then, often assist political change where nature becomes commodified and natural resource value becomes monetized so as to incentivize local stakeholders to preserve them (Fletcher and Neves 2012). Viewed in this light, the words that opened this chapter perhaps makes more sense when *read from the perspective of neoliberal capitalist conservation* and replacing the word *love* with the word *value*.

As discussed in the Chapter I, conservationists in Cambodia are employing a multi-pronged approach to dolphin conservation that includes diversification of livelihoods and rural development, with dolphin tourism as one of its central foci. This is in contrast to the current conservation approach in Myanmar, where conservationists are employing a primarily socio-ecological based approach and dolphin tourism is less developed. In the current chapter, I examine the overall change in the importance of the dolphin in the past compared to the present by country, in the context of favored conservation approaches. I then examine any recognizable changes in the dolphin's importance in the context of proximity to conservation initiatives to help visualize the correlation of geographic distance from conservation initiatives to changes in the dolphin's importance. I also examine the

ways in which participants describe general changes in their homes and villages. I further examine the correlation between the way these changes are described and proximity to conservation initiatives. As I have summarized above, global environmental policy has been established with hegemonic Western conceptions of nature that employ market-based fixes through eco-governmentality. I argue that the apparent change in the popular importance of the dolphin in Cambodia may be a result of NGO governmentality, where INGOs have influenced local conceptions of the importance of the dolphin, which unintentionally brings them in alignment with capitalist goals of development and catalyzes an overall shift toward a 'consumerist ideology'.

Because it is unlikely that all members of any group will agree on the importance of any one thing and that there will be some variability in importance, I examine the popular or primary importance of the dolphin (i.e. the most often mentioned). However, if a change in the popular importance of the dolphin is happening in Cambodia, we might also expect to see a difference in the popular importance of the dolphin depending on the proximity of participants to targeted conservation areas. As such, I will attempt to answer the following research questions:

> (1) (a) How has the popular importance of the dolphin changed for Myanmar participants compared to Cambodia participants since the introduction of the respective conservation programs?; and (b) Does the popular importance of the dolphin differ depending on relative proximity to the targeted conservation areas (Target [T], Adjacent target [AT], Non-target [NT]) within each country?
>
> (2) (a) How are socio-economic changes currently perceived by participants in each country and how do these perceptions align with the current popular importance of the dolphin?; and (b) Does this perception differ depending on relative proximity to the targeted conservation areas (T, AT, NT) within each country?

I also examine 2 of the 4 general dissertation research questions - (2) Are there gender or age differences in how these policies are experienced and/or perceived by people in local communities?; and (4) Are the experiences and perceptions of people in local communities where these projects have been

implemented (a) different in Cambodia and Burma and/or (b) different than those of adjacent communities less affected by the policies implemented by these projects? - to help inform these analyses.

NGO Governmentality in Myanmar and Cambodia

As mentioned above, INGOs receive much of their funding from government sources. In 2004, INGOs received nearly $2 billion in discretionary funding from high income countries and this does not include the several billion dollars more that are channeled through INGOs for targeted development projects by donor countries. INGOs are also increasingly involved in the majority of World Bank projects (Werker and Ahmed 2008). Additionally, conservation INGO's are increasingly funded by corporate interests (Corson 2010; Spierenburg and Wels 2010) and since INGOs are more apt to be held accountable by their donors than by their recipients (see above), they become more beholden to the desires of the former than to the needs of the latter (Werker and Ahmed 2008).

Myanmar

In Myanmar, the major players in Irrawaddy dolphin conservation include the Myanmar Department of Fisheries (MDoF) in collaboration with the Wildlife Conservation Society (WCS - an INGO) and the Whale and Dolphin Conservation Society (WDC - an INGO). In the introduction to this dissertation (Chapter I), I discuss the relative influence of capitalism and Western development policy on Myanmar and Cambodia. As described in the case of Myanmar, Western influence on national policy was highly restricted until the influx of international business interests following the dismantling of the military regime in 2011. These restrictions extended to INGOs and the military regime had strict guidelines in place to limit the power and influence of INGOs on national policy. 'To operate in Burma, INGOs must negotiate a Memorandum of Understanding (MoU) with any number of relevant ministries, along with the Ministry of National Planning and Economic Development' (Noam 2007:279).

Although the intent of these restrictions on INGO influence is highly problematic as it seemed to be to limit any challenges to the military regime, one of the effects was that INGOs such as WCS were limited in their influence on local socioeconomic relations. Many of these restrictions and limitations have been eased through new reforms since the new government took over in 2011. However, the progress of these reforms has been slow and the stability of these and other reforms remain to be tested in the years to come (Steinberg 2013). Consequently, conservation NGO-governmentality appears to have been highly restricted thus far in Myanmar and it is unlikely that significant effects will be detected in the current study.

Cambodia

In the Introduction to this dissertation, I also discuss how the exploitation and commodification of natural resources played an important role in the post-conflict national power struggle and race toward 'development' in Cambodia. The involvement of conservation INGOs in the enclosure of natural resources in Cambodia has been instrumental in some cases in securing these resources for exploitation and commodification, including through tourism development, though these effects appear to be an unintentional consequence (Milne and Mahanty 2015b; Paley 2015). However, as mentioned above, the use of protected areas in 'developing' countries as new enclosures for capitalist exploitation appears to be common practice. Nature-based tourism (tourism that focuses on experiences in and with 'nature') and ecotourism (nature-based tourism combined with elements of responsibility toward local ecological and social impacts) have also been criticized for their role in creating new opportunities for capitalist exploitation as they invent new ways to commodify nature (Brockington et al. 2008; Cater 2006; Fletcher and Neves 2012; Honey 2008). This commodification of nature, then, 'may alter local values and meanings ascribed to resources in ways that impact overarching social and cultural dynamics within communities' (Fletcher 2010:172).

In Cambodia, the current major players in Irrawaddy dolphin conservation include the Cambodian Fisheries Administration of the Ministry of Agriculture

Forestry and Fisheries with the assistance of World Wide Fund for Nature (WWF - an INGO), and IUCN (Thuok et al. 2014). However, dolphin conservation in Cambodia appears to have been started by Community Aid Abroad (CAA - an INGO that later became Oxfam Australia) in 1996 (Pandawutiyanon 2002) and CAA introduced dolphin tourism in one of the two original dolphin tourism sites in 1997(Beasley et al. 2009). Although the intention seems to have been to pair local rural development with conservation, it also appears to have introduced the association of the dolphin with monetary value. The original project excluded all villagers except 7 families who were part of the project's initiation. Once the monetary value of dolphin tourism began to be realized, it seems the Cambodian government took over dolphin tourism in 2002 when the Kratie Tourism Department became formally charged with its oversight and claimed 50% of the profits. The other 50% continued to go to the original 7 families. This, coupled with the loss of fishing rights in the area due to fishing regulations imposed unilaterally by the government, created conflict between these 7 families and the rest of the community (Beasley et al. 2009).

In 2001, a researcher on a WCS Fellowship from James Cook University formed the Mekong Dolphin Conservation Project (MDCP), which initially focused on research of Mekong dolphins and included members of the Cambodian Department of Fisheries (DoF) (Beasley et al. 2009). Recognizing the problematic social and ecological effects of the dolphin tourism in Cambodia, the researcher enlisted the help of the Cambodia Rural Development Team (CRDT - a local NGO) and formed the 'Dolphins for development' project in 2004, 'to facilitate conservation of dolphins and fisheries in Kampi Pool, while promoting diversification of livelihoods and equitable distribution of revenue generated from the dolphin-watching industry' (Beasley 2007:287). Under this project, dolphin tourism was expanded through new infrastructure and increased promotion to national and international tourists. The results were promising at first, with increased community involvement in the planning and management of local dolphin tourism and benefits becoming more equally distributed (Beasley et al. 2009).

However, once the infrastructure was in place, the Cambodian government again stepped in and resumed full control of dolphin tourism (Beasley et al. 2009). In 2004, the Kratie Department of Tourism signed a written agreement that a fixed entrance fee for dolphin tourism would be 'introduced and shared between the community (40% for development activities), Department of Tourism (30% to ensure maintenance of the tourism site), and Department of Fisheries (30% for dolphin conservation activities)' (Beasley et al. 2009:382). The WWF officially took over the management and research of dolphin conservation in Cambodia in 2005 and the newly formed Commission of Dolphin Conservation and Ecotourism Development (DC) was charged with conservation and tourism development. In 2007, the DC abandoned the agreement with the community and significantly reduced the amount of money going to the community (Beasley et al. 2009). In addition, the WWF - who is partnered with Coca-Cola and spent US$259.5 million on 'worldwide conservation activities' in 2016 (WWF 2016)- has also contributed to the sustained power of the government by providing the DoF with training and equipment for river guards to enforce fisheries regulations in critical dolphin habitat (WWF 2013), often at the expense of local livelihoods (see Chapter III).

Thus, it appears that the monetary value of the dolphin in Cambodia was unintentionally introduced by the efforts of an INGO (CAA), which resulted in the commodification of the dolphin. At this point the Cambodian government then stepped in and took control of exploitation of the dolphin via tourism. The efforts of a project composed of non-governmental and governmental actors (MDCP) then - although intending to ameliorate social and ecological ills - unintentionally expanded dolphin tourism for the government and helped the local community realize the monetary value of the dolphin. In addition, it appears that INGOs have assisted in extending 'political rationalities of control and surveillance' (Bryant 2002:275) of Cambodian government officials to local villages by assisting in their access to local dolphin tourism operations and equipping them with items to unilaterally regulate and enforce the protection of the commodified dolphin.

Findings and Discussion

(1) (a) How Has the Popular Importance of the Dolphin Changed for Myanmar Participants Compared to Cambodia Participants Since the Introduction of the Respective Conservation Programs?

Although Myanmar and Cambodia differ exceptionally in many ways as discussed in Chapter I, they comprise 2 of 7 countries in the world where the majority of population is Buddhist (80.1% and 96.9%, respectively), with Theravada Buddhism dominating in both countries, as well as the country that separates them (Thailand) (Hackett et al. 2012). According to my interpreters, all of the villages in this study were characterized by a majority Buddhist population. Thus, we might expect that nature historically would be conceived of in terms of relationality (Callicott and Ames 1989; Kellert 1995; Nash 1989), rather than in terms of monetary value among participants. However, if the market-oriented approach of Cambodian conservation projects has succeeded in changing socio-ecological relationships, then we should expect to detect this shift in the popular importance of the dolphin. Thus, I expect the popular *historical* importance of dolphins will be primarily represented by relationships in both countries and that the popular *contemporary* importance will not change in Myanmar, but will be represented by money/market value in Cambodia.

General Themes in the Importance of the Dolphin

There were several themes that emerged overall, regardless of participant nationality, age, gender, or proximity to conservation projects. Thus, before I begin to examine the differences in the popular importance of the dolphin between Burmese and Cambodian participants, I describe these overall themes. These themes included positive feelings for dolphins, declarations that dolphins should be protected because they are not dangerous, and the newfound importance of dolphins to tourists/foreigners.

Positive Feelings for Dolphins

Dolphins were often described by participants as 'beautiful,' 'graceful,' 'interesting,' 'fun to watch,' 'lovely,' and 'cute' and these descriptions were all included under the 'aesthetic appeal' category below. However, virtually every participant expressed positive feelings toward the dolphin in some manner, regardless of whether they ascribed an aesthetic importance (via the terms above) to the dolphin. For example, when participants were asked how they feel when they see dolphins, they almost always said that they feel happy. Many participants also said that they had 'love' for dolphins. However, there seem to be different reasons that dolphins produce this happiness or sense of love in participants. Thus, I focus on those reasons when categorizing importance as described below, rather than lumping feelings of happiness and love into a broader category. Regardless, it seems significant to mention that the general feelings for dolphins by participants in both countries were positive.

Dolphins Are Not Dangerous

An interesting theme that emerged from the data was the concept that dolphins should be protected because they are not dangerous to humans (although further reasons were often also given). This theme appeared to be more evident in data for Myanmar (~39 participants; 56%) than in Cambodia (~18 participants; 21%), but seemed important to participants in both countries. This theme most often occurred when participants described being afraid of dolphins when they first saw them, but were later told that they were not to be feared. This is perhaps most comically captured by a participant who explains that he initially thought a dolphin was a crocodile when he first saw it:

> I was scared and nearly pee and poop my pant. It jumped up like and its head was shiny. How could I not be surprised! I nearly pee and poop my pant. I was young and I did not know it was a dolphin – I thought it was crocodile. I saw its shiny head was like a cup. I was scared and nearly pee and poop on my boat! (45M Fisher, CNT8)

Later, the participant gives the reason that dolphins are 'nice' (i.e. not dangerous) as part of the reason it is important to protect them. Comedic stories aside, this

assessment that dolphins are not dangerous in the context of discussing their conservation, stands as a stark reminder that Western conservationists are often far removed from the resources they are seeking to conserve. This is compounded by the 'man/nature' divide where 'nature' is left alone unless 'man' decides to experience or interact with it, and then this interaction is usually carefully crafted and controlled - especially in regards to 'dangerous' nature (Brockington et al. 2008). For people who are living among nature however, the primary concern in the consequences of conserving a species must be weighed against the risk of encountering that species in their daily lives.

Importance of Dolphins to Tourists

Participants in both countries acknowledged the importance of dolphins in attracting tourists and foreigners (which seems to include tourists and researchers). However, this was mentioned far more often by Cambodian participants than Burmese ones. Beyond this fact, what was perhaps most interesting was when participants described the importance of tourists. Burmese participants seemed more interested in foreigners for the interactions they provided. They seemed to find foreigners interesting and exotic, as well as feeling an intense obligation for the care of foreigners. They also sometimes expressed trepidation for the sorts of changes they may bring. As one participant describes:

> . . . I'm glad to see foreigners visiting our country. There are visitors going around this country and that country. When they come, the state's income will increase. I want them to visit and see our natural resources. From their point of view, we are a poor country. Once they realized that, they start looking for rare and valuable resources. They will come support us if they know our country is in poverty, and I like it. At the same time, I wish they visit us with good intention. (62M Village Councilor, MT7)

Cambodian participants rarely used the word 'foreigner,' although this could be a translation anomaly, and instead seemed to prefer the word for 'tourist.' Additionally, when referencing the importance of tourists, Cambodian participants seemed more interested in what tourists offered as customers (i.e. tourist money).

Participant observation seems to support these perceived differences in the ways members of each country generally negotiate relationships with foreigners.

Throughout our (my partner and my) stay in Myanmar, we were regularly approached by locals, while out in public, wishing to 'practice English' with us. On many occasions, this resulted in us joining a group of Burmese locals and conversing over a meal and/or drinks. Without exception, our 'hosts' would then insist on paying. In fact, the only 'host' we were ever successful in paying for was a Burmese man we came to regard as a friend and would meet for dinner often and, even then, we were only able to pay by going to reception before they brought a bill. We were also often invited to people's homes while in Myanmar and we found that the expectation was that we should bring nothing except a very large appetite. Indeed, according to my interpreter and several other friends we made during our stay, the feeling of responsibility toward - and interest in interactions with - foreigners is often intense.

In contrast to our interactions in Myanmar, we were rarely approached by locals while in Cambodia unless the person was intent on selling us a good or service. The only event we were invited to was my interpreter's birthday party and that was only with the explicit expectation that we bring a present. In fact, it seemed that people took every opportunity to turn our interaction into a business agreement. For example, when my interpreter discovered that I was willing to pay for her water and food when in the field, she stocked up on water bottles each day to take home with her and enlisted her mother to make meals in exchange for my full daily budget for our meals. This could easily be attributed to individual behavior. However, my experiences travelling in Cambodia indicate that this is not an uncommon way to interact with tourists. This is in no way meant to be a criticism. In fact, having been raised in a core capitalist country, I often found myself recognizing my own behavior being mirrored back at me. Instead, this is meant to be a general observation as a participant observer.

Popular Importance of Dolphins before Conservation Projects/Tourism

I did not ask participants directly what the historical importance of the dolphin was. However, it sometimes came up during interviews, particularly in focus groups. Thus, I attempt to parse out the popular historical importance through

the ways in which several participants described the importance of the dolphin in relation to the past, as well as through cultural stories about the dolphin.

Myanmar

In Myanmar, the popular historical importance of the dolphin does not appear to have changed significantly, with few exceptions as discussed below. This historical importance appears to be grounded in relationality due to the reciprocal relationship of dolphins and fishers in the cooperative fishery. Most Burmese participants seemed aware of the cooperative fishery and in response to a question about why it was important to protect the dolphin, many respondents said that it was important to protect them for fishers. Thus dolphins appear to have a historic use value for fishers in Myanmar.

However, the ways in which participants described dolphins hinted more at the relationship of dolphins *to* fishers, rather than their use *by* fishers. Dolphins were often described as 'saviors,' 'parents,' or 'friends' of fishers by fishers and non-fishers alike. One former member of the cooperative said 'I love dolphins. I am grateful to them and they support us' (73M Farmer, MNT2) a full 26 years after leaving the cooperative. Another participant and current member of the cooperative explained that 'since we worked together and they are like our mothers and like our close friends, when I see them happy, I am also glad and happy' (35M, MT8). This project included at least 15 current and former members of dolphin-fisher cooperatives and at least 9 of these participants described feeling a responsibility toward helping dolphins, grounded in their relationship to them. As one cooperative fisher describes:

> We understand the gratitude of the dolphins. We just feel that dolphins are our friends and we pay respect and love them. In our days, they followed our boat and we were even able to touch them. We encounter the threats to dolphins first and tell them not to do any harm to them. . . (40M, MT6)

According to several participants, although most people understand the importance of the dolphin to fishers, women's relationality to dolphins is different than men's because women are rarely involved in fisheries. This relationship appears to direct the roles one takes in the protection of the dolphin, with men's

responsibilities focused on direct protection of the dolphin and women's focused on love and appreciation for the dolphin. As one participant in a group of four women explains when asked if men and women feel differently about the conservation of the dolphin:

> They should be protected. Both women and men believe they should be protected. However, men should take care of the dolphins. That is our women opinion. For Burmese women, these things are not that related to us. We only know about loving the dolphins. For protection, we might need to understand more. (39, 42, 44 & 46 Farmers, MNT2)

Thus, although the primary relationality of the dolphin can be recognized through its importance to fishers in Myanmar, the importance of the relationality of the dolphins exists in other forms as well.

Dolphins in Myanmar also appear to have been occasionally opportunistically harvested in the past when accidentally caught in nets or found dead. As discussed in Chapter III, this harvesting appears to have mainly focused on the extraction of fats/oils for their perceived medicinal value. However, there appear to be some cultural stories in Myanmar that make the deliberate consumption of dolphins taboo. One of the groups that I spoke with seemed to feel particularly strongly that the extraction of fat from dolphins was the reason for the landslides that area now regularly experienced:

> . . . Before, people who did not understand harmed (dolphins). Now, it can't be like that . . . Long long time ago, they did not understand and when they killed the dolphins, landslides happened . . . The carcass was hanged and the fat was extracted. The fat was cooked under the sun. The fat can be sold to the celebrities. It relaxes the muscles and tensions. People who didn't know killed the dolphins. People who understood didn't kill as they know that they are the saviors. There was a landslide. We don't like it. Before, there were landslides in their villages and they relocated to our village. When they relocated to us, we started to have landslides in our village. Then, they ended up in their own village. We didn't want to accept them as they brought landslides with them. So, they returned to their own village. (28F & 58F Agricultural Workers & 55F Seller, MNT4)

For a while, it seemed this group was unique in holding this belief until I interviewed a Village Councilor in another village. The following is an exchange between him and my interpreter with some facilitation from me:

Participant [P]: Since it was caught in the fishing net, it is brought to the bay side and used it [here, 'used it' can be 'brought the dead dolphin and take out fat'], they said. And they used it, the flood reaches to that place afterward. Even though it is not caught in the net intentionally by humans, it was just accidently caught when it went here and there. When there was a net.
Interpreter [I]: Was that dolphin dead in this village? Was the flood break in this village or in other village?
P: Yes, in this village. There were sometimes floated dead dolphins which they brought to the bay side and used it [like taking out oil], then the flood reaches to that point [from then on]
. . .
I: Uncle, do you remember when was the flood break and the dolphin was dead?
. . .
P: In my time, that I can witness the dead dolphin.
I: Aw, the dolphin is carried like that and the flood break moved on that day?
P: Yes, yes. I have seen it. (62M, MT7)

Thus, while dolphins in Myanmar have had some use value to fishers and dolphin fats/oils have had some use value to certain parts of the population, the overall historical importance of the dolphin seems to have been grounded in relationality and mediated by cultural stories that forbid posthumous use.

Cambodia

Beasley (2007) conducted social surveys on the Mekong in 2001-2003 (before the expansion of dolphin tourism infrastructure in 2004) and found that 66% of participants believed that dolphins were related to humans. She also found that the main reasons given for the importance of dolphin conservation were '(1) to conserve them as rare Cambodian natural heritage, and (2) to keep them for future generations' (105). Their ecological importance ('have dolphins, have fish') was the 3rd most selected reason and international tourism was 5th of 7.

Although it's difficult to sparse out the importance of the dolphin to Cambodia participants in the current study before the MDCP began, it was clear that the popular importance had changed. At least 5 participants spoke of 'before' and how the dolphin was not 'valuable' then. As one participant explains: 'It's just that it was not valuable back then – it was not the animal that was valuable. Only when we were old, when the war ended, that we know it is valuable' (60F Farmer, CAT1).

Thus, it appears at first that dolphins did not have 'value' before the conservation project for several participants. However, the ways in which participants spoke of the 'value' of dolphins 'before' seems to suggest that they were speaking of *monetary* value. For example, the participant quoted above continued to describe how she used to cut dolphins out of her net when accidentally caught and would then eat the meat. A few other participants also mentioned the use of dolphins for meat and at least one described burying their bones under the house for happiness/prosperity as described in Chapter III. This suggests that dolphins had some *use* value for these participants, although such uses were usually in the context of the war and there is some evidence that this practice was taboo due to the cultural myth of the dolphin and its relatedness to humans as described in more detail below.

The 60F participant quoted above also later described that the dolphin today 'is important because it can help to attract tourist to visit our country [and] it can generate a lot of income for us.' All of the other 5 participants who mentioned that the dolphin did not have any 'value' before brought up the monetary value of the dolphin at some point during their interview. Thus, it appears that, when Cambodian participants spoke of the 'value' of the dolphin 'before,' they were doing so *in reference to the current monetary value of the dolphin*. It also suggests that the current monetary value of the dolphin is a relatively new development.

Since most participants did not specifically vocalize the previous importance of the dolphin, perhaps a better way to locate the dolphin's historical importance to Cambodian participants for the purposes of this study is to examine the cultural myths surrounding the dolphin. Cultural myths or stories are imbued with the knowledge of a culture and are part of how cultures encode, communicate, and perpetuate this knowledge (Berkes 2008; Robbins 2012). 'For contemporary cultural studies critics, myths are not lies, legends, or fairy tales, but the layering of deeply symbolic cultural narratives in such a way that the resulting logic seems natural' (Sturgeon 2009:13). As such, they provide road maps on how to interact with the world and are part of the culture's 'landscape.' Thus, perhaps what is most telling about the importance of the dolphin to Cambodian participants before the

conservation project is a cultural story about the dolphin that most participants seemed to know. Throughout this project various participants told several iterations of the story. The following is a slightly modified (for clarity) version of this story as told by a group of three elders and former fishers:

> P1: [There was a] woman from a poor family and [she had] no husband . . . so [the mother] got a snake for her daughter to raise.
> P2: married as her husband
> P1: . . . and over time that snake grew big and it swallowed the daughter [in some versions this happens on the wedding night]. The daughter shouted to the mother for help. [the mother said] 'your husband is playing with.'
> P2: they married
> P1: the husband is playing [having sex]
> P2: we cannot say it directly [the word sex]
> P1: 'don't say anything, just stay quiet'. The woman was nearly dead because the snake swallowed her
> P2: when she choked, the mother went to see
> P1: when she choked, the mother came and helped. The mother was embarrassed. Other people's daughters also got a husband like that and they lived. And her daughter got a husband also, but [now she was] covered with snake slime. Covered with snake slime, she [the daughter] was embarrassed, so she took a cup and went to take a bath [at the river]. The mother told her to take a bath. She was embarrassed, so she put the cup [coconut shell] on her head and [jumped into the river and] died. When she died, she was born into a dolphin. Forgive me, [the dolphin's] reproductive organs are like a woman – with breast and stuffs. It has been known till today and they would not eat it. So until now, they have keep that origin until now. (63M Farmer, 82M & 89M Retired, CAT3)

One of the participants in this group also felt that women love dolphins more than men because of this connection.

Another participant who was excitedly explaining how she examined the anatomy of a dead dolphin (also quoted in Chapter III) also made the connection of the dolphin anatomy with this story. As she describes: 'It's like human. That is like in the folktales that [a human] wore a cup and jumped into the river and the human became a dolphin . . . it is very similar. The human breast is also the same as that animal. It is really the same like our breast' (39F Wood carver, CT2).

Interestingly, the full version of this story, as I later found out, includes a lesson in morality in which the selfish pursuit of wealth (in the form of 'treasure') is what led to the woman's family marrying her off to a snake and subsequently

committing suicide. Quoting, in part, one of my translators - who graciously provided a fuller version of the tale:

> There were couples of divines from the last life. The male divine (now a snake) came to female divine who now become human . . . and they become the partner. The snake would visit her every night and told her family a place to dig for treasure . . . This was heard throughout the area. Because of greedy parents of another girl in a nearby village caught a python and got it married with their daughter, believing the python would give them gold or the same fate. . .

Even more interesting was that none of the participants told this part of the story that seems to emphasize the moral lesson on the selfish pursuit of treasure/individual wealth.

Thus, this cultural story and the seemingly popular knowledge of the story are significant for at least four reasons. First, it provides evidence that there is some historical cultural knowledge of the mammalian nature of the dolphin. Second, it suggests that this knowledge was used as a cultural taboo on the intentional killing of dolphins. Third, the cultural story seemingly contains lessons on the morality of the selfish pursuit of monetary wealth that participants have either forgotten or knowingly left out when retelling the story. Finally, it provides evidence that the historical value of the dolphin was embedded in its *relatedness* to humans and particularly in its relatedness to women.

Popular Importance of Dolphins after Conservation/Tourism

Participants were asked if it was important to protect the dolphin and the majority answered in the affirmative. Participants often revealed the importance of the dolphin during the follow-up questions, although it sometimes came out at other points during the interview. For simplicity, I don't discriminate between the two means of discovery for the purposes of this study.

Because participants generally spoke about the *current* importance of dolphins, this generated a much longer list of categories of importance than when participants spoke of the importance of the dolphin in the past. I identified at least 11 non-mutually exclusive broad categories of importance in the data. Table 4.1 lists these categories of importance and describes them briefly. Since the intent of this

chapter is to elucidate the popular/primary importance of the dolphin to participants, I focus on this popular importance in the sections below rather than exhaustively describe each category of importance.

Table 4.1. Non-mutually exclusive categories of the importance of the dolphin in Cambodia and Myanmar.

Importance	Description
Ability to bring foreigners/tourists	Dolphins value derived from its importance in attracting tourists (local and foreign) or foreigners (e.g. researchers)
Ability to bring money/income	Dolphins value derived from its importance in generating money described as 'profit,' 'money,' or 'income'
Aesthetic appeal	Dolphins value derived from its aesthetic value (i.e. dolphin was described as being fun to watch, interesting, beautiful, cute, lovely, or graceful)
Ecological	Dolphins value derived from the role it plays in the ecosystem or as an indicator species (e.g. the existence of the dolphin is assurance that the ecosystem is healthy)
Endangered status	Dolphins value derived from its status as an endangered species
Importance to/relationship with fishers	Dolphins value derived from its importance to fishers or its relationship to fishers
Intrinsic right to life	Dolphins value is intrinsic (i.e. it has a right to live because it is a living being)
Medicinal	Dolphins value derived from its use as medicine
Natural resource	Dolphins value derived from its status as a natural resource, where participants specifically used the words 'natural resource'
Physical ability to rescue people	Dolphins value derived from the role it has played in rescuing people from drowning in the water
Rarity	Dolphins value derived from its exceptionalism or rarity in the world

Myanmar

Myanmar participants expressed the importance of the dolphin in at least 9 of the 11 ways mentioned in Table 4.1. The three most mentioned reasons for the

importance of the dolphin by participants in Myanmar were (1) its importance/relationship to fishers, (2) its endangered status, and (3) its aesthetic appeal. Table 4.2 lists these reasons for importance in order from most mentioned by participants to least mentioned. 'Rank' is determined by the percent of interviews/focus groups where the reason for the dolphin's importance was mentioned. Reasons for importance were only counted once for each interview or focus group regardless of how many times that reason was mentioned over the course of each and percentages represent the lowest possible estimate (see Chapter II) out of a combined 70 interviews and focus group discussions. For comparison, where Cambodian participants mentioned the same import, I list the relative 'rank' by Cambodian participants.

Table 4.2. The importance of the dolphin to Myanmar participants with a comparison to ranking by Cambodian participant mentions.

Myanmar Rank	**Importance (% Myanmar participants)**	**Cambodia Rank (% participants)**
1	Importance to/relationship with fishers (60)	9 (1)
2	Endangered status (29)	6 (7)
3	Aesthetic appeal (24)	8 (6)
4	Rarity (14) Intrinsic right to life (14)	2 (29) 5 (13)
5	Physical ability to rescue people (4) Ecological (4)	N/A 9 (1)
6	Ability to bring foreigners/tourists (1) Ability to bring money/income (1) Status as a natural resource (1)	1 (46) 3 (26) 4 (14)

As indicated by Table 4.2, it appears that the current popular importance of the dolphin to Burmese participants is derived from their importance for, and relationship to, fishers. Additionally, when speaking about this importance, Burmese participants never used words like 'money' or 'income' to describe the relationship between fishers and dolphins. The closest a participant came to mentioning the direct monetary value of a dolphin in the context of the dolphin-fisher relationship was when a cooperative fisher in a group of four mentioned that '. . . [w]e can earn more because of them. . .' (Age unknown M, MNT4). However, he finishes this

statement with an indication that the relationship is reciprocal: ' . . . We have to thank them. And we care and feed them since we were young. . .' Thus, even the monetary importance of the dolphin is grounded in relationality. This appears even more likely when taking into account that at least 20 of the 42 (60% in Table 4.2) participants that mentioned the dolphins' importance to fishers used the word 'savior,' 'parent,' or 'family' to describe the relationship of the dolphin to fishers. And at least one other participant described dolphins' importance, saying 'They prolong the peoples' lives and they rescue us' (13F Student, MNT4).

Additionally, although only one participant mentioned the importance of the dolphin in drawing tourists, when asked later what he thought of dolphin tourism, he replied 'For that, we are happier than them. Because we have this rare things. Visitors from foreign countries, from other locations, come and see rare things from us. I am so glad' (53M Fisher, MNT4). Although no other participants directly linked the importance of dolphins to bringing foreigners, several mentioned the importance of the dolphin to foreigners when asked what they thought of the dolphin tourism in the area and a few participants seemed to think that foreigners don't understand the value of the dolphin. As one participant explained when asked whether he had seen or heard of people harassing dolphins: 'Of course, since they are not from this area, they don't understand about the dolphins and the dolphins are helping fishermen. So when the dolphins approach them, they [the dolphins] are scared away. There are things like that' (65M Fisher, MNT3). Another participant in a focus group of four seems to explain how Burmese people and foreigners are combining their values of the dolphin, resulting in an overall greater appreciation for the dolphin:

> Let me say this. Since we were young, we were happy when the dolphins came. Now, we also know that the dolphins are the saviors of the fishermen. However, the foreigners still haven't come and do like this. The foreigners have been only coming in these 4, 5 years. We regard the dolphins as the saviors of the fishermen and value them. They are now more valued. We all know that Ayeyarwady dolphins are the saviors of the fishermen since we were young. They [foreigners] also know that now too. The value of the dolphin. Now, everyone knows it. Also, we now know that the foreign countries also value the dolphins now. We don't know this before. (29F, 31F, 53F, & 55F Farmers, MT7)

Several Burmese participants seemed indifferent to foreigners coming to the area for tourism. However, at least 5 participants mentioned that dolphin tourism brings foreign aid, although this was always mentioned in terms of alleviating poverty, rather than in terms of bringing money. For example, as one participant said:

> I have seen dolphins since I was young. I knew that fishermen value them but the visitors didn't visit here like they do now. Now, I'm happy when the visitors come. When I was young, I was happy when the dolphins came. When the visitors come, they hold donations ceremonies and everyone is happy. They donate toilets to the schools and also buildings for the school. (45F Farmer, MT7)

Again, the importance of the dolphin was not directly linked to tourism or foreign aid. While at least 8 participants mentioned that foreigners provide income for fishers when they come to see dolphins, my overall sense was that participants enjoyed foreigner visits mostly for the interaction. At least 2 participants stated that they liked to see foreigners happy and another participant, when asked what he thought of foreigners stated:

> It's good. The foreigners visiting here are exotic. We have not seen them before. They come here to see the properties of our nation. They take videos and photos. Dolphins are rare in their countries and of course, they like the dolphins. We are glad that they come because we have never seen them and they are exotic. Even the children, they would follow the visitors around. (45M Fisher, MNT3)

Therefore, the popular current importance of the dolphin does not seem to have changed much from the popular historical importance of the dolphin in Myanmar, with the possible exception of their importance as derived from their endangered status and rarity. It also seems that the current value of tourists to participants may be more embedded in their novelty and the opportunity to see and learn something new, rather than in the monetary value that they provide as tourists. Thus, not only does it appear that the popular importance of the dolphin in Myanmar is grounded in relationality, but the current popular importance of foreigners also seems to be - as these data indicate and in my experience as a participant observer.

Cambodia

Cambodia participants expressed the importance of the dolphin in at least 10 of the 11 categories mentioned above. The three most mentioned reasons for the importance of the dolphin by participants in Cambodia were (1) its ability to bring foreigners/tourists, (2) its rarity, and (3) its ability to bring money/income. Table 4.3 lists these reasons for importance in order from most mentioned by participants to least mentioned. Reasons for importance were only counted once for each interview or focus group regardless of how many times that value was mentioned over the course of each and percentages represent the lowest possible estimate (see Chapter II) out of a combined 87 interviews and focus group discussions. For comparison, where Myanmar participants mentioned the same import, I list the relative 'rank' by Myanmar participants.

Table 4.3. The importance of the dolphin to Cambodia participants with a comparison to ranking by Myanmar participant mentions.

Cambodia Rank	**Importance (% Cambodia participants)**	**Myanmar Rank (% participants)**
1	Ability to bring foreigners/tourists (46)	6 (1)
2	Rarity (29)	4 (14)
3	Ability to bring money/income (26)	6 (1)
4	Status as a natural resource (14)	6 (1)
5	Intrinsic right to life (13)	4 (14)
6	Endangered status (7)	2 (29)
7	Support for village livelihoods (8)	N/A
8	Aesthetic appeal (6)	3 (24)
9	Importance to/relationship with fishers (1) Ecological (1) Medicinal (1)	1 (60) 5 (4) N/A

As can be seen in Table 4.3, it appears that the current popular importance of the dolphin to Cambodian participants is derived from their importance in attracting tourists and foreigners. Cambodian participants, unlike Myanmar participants, seemed to prefer the word 'tourist' or 'tourism' to describe this importance. Additionally, of the approximately 23 (26% in Table 4.3) participants

that mentioned money or income as a value of dolphins, at least 15 also mentioned the dolphin's importance for tourism and directly related money to dolphin tourism. Further, of the remaining approximately 25 participants who mentioned that the dolphin's value was derived from tourism (without *directly* relating the dolphin's importance to money), at least 6 unambiguously stated that dolphin tourism was important because it brought money, 5 related it to local prosperity, and another 5 agreed that tourism was important because it brought money when directly asked (led) by the interpreter (although the monetary importance associated with the dolphin by these participants was excluded from the money/income category above, since they were 'led' to list this importance). The remaining 9 participants never directly stated an importance for tourism. However, it seems clear that the primary importance of dolphin tourism for participants lies in its ability to bring money/income to the area.

Although rarity was the second most identified importance of the dolphin, it nearly tied with money/income. In what some scholars and journalists have termed 'extinction tourism' (Fletcher and Neves 2012; Leahy 2008), capitalism benefits through tourism based on the increased monetary value of rare natural resources and the desire to encounter that resource before its imminent loss (Brockington et al. 2008; Cater 2006; Fletcher 2011; Mowforth and Munt 2009). At least 8 of the 25 participants who mentioned the exceptionalism of the dolphin, also mentioned its monetary value at some point during the interview with 4 participants directly tying the dolphin's monetary value to its rarity. The recognition of the relationship between the dolphin's rarity and its monetary value was perhaps most stark in the following exchange among my interpreter and 1 of 4 farmers when asked why the dolphin is important:

> P: to be exact, dolphin is very important. If we think about it, a dolphin is more *valuable* than a human's life.
> I: she [the researcher] asks why do you think a dolphin is more *important* than a human?
> P: because dolphins are minority and it… no, don't say that. It is not more *important* than a human's life. A dolphin's life is more *valuable* than a human.
> I: why do you think so?
> P: because dolphins are rare. . . (emphasis added) (21F, 36F, 39F, & 63F, CT5)

Thus, there is strong evidence that the current popular importance of the dolphin in Cambodia is related to its exchange or monetary value. There is also some evidence that the relationality value described in the above section may be fading as participants described the 'value' of the dolphin 'before,' only in reference to the current monetary value of the dolphin (see above). Additionally, although most participants had heard of the snake-woman origin story of the dolphin, many of the younger participants could not describe the details of the story as the following exchange among the interpreter, a 53 year old male soldier (P1), and a 31 year old female beautician (P2) from CNT9 demonstrates:

> I: so, do you know any story related to the dolphins? I want to say that any folktales or good stories about the dolphins at the dolphins area?
> P1: I used to remember it, but now, I forgot. It's like the folktales that elders passed down.
> I: what about sister?
> P2: yes, the same. I only heard the elders passed it down.
> I: so, it means that where were the dolphins born from? . . .
> P2: I heard elders said that it was a human wearing a cup jumping into the river.

The fullest and most comprehensive accounts of the story came from participants over 60 years of age. Through this examination of the relative accounts of the origin story by age, it seems that simultaneous to the apparent adoption of the monetary value of the dolphin, the historical story of the dolphin's human origin is fading. As one 25 year old fisher put it when asked if he had heard of the story: 'that is just a folktale' (M, CT2). The tendency to describe the historical value of the dolphin in terms of the current monetary association, as well as the fading significance of the cultural story of the dolphin, indicate that the historical relational importance of the dolphin is being replaced with a new monetary value.

(1)(b) Does the Popular Importance of the Dolphin Differ Depending on Relative Proximity to the Targeted Conservation Areas (T, AT, NT) Within Each Country?

Data suggest that there is not much variation in the popular importance of the dolphin relative to proximity to targeted conservation areas in Myanmar, while

there does seem to me more variation in Cambodia (Table 4.4 and Table 4.5, respectively).

Table 4.4. The popular importance of the dolphin relative to proximity to the targeted conservation areas in Myanmar. T = Target, AT = Adjacent Target, and NT = Non-Target villages.

Myanmar		**Rank**			**% Participants**			
Rank	**Importance**	T	AT	NT	T	AT	NT	All areas
1	Importance to/relationship with fishers	1	N/A	1	79	0	43	60
2	Endangered status	2	N/A	2	24	0	34	29
3	Aesthetic appeal	3	N/A	3	18	0	31	24
4	Intrinsic right to life	4	1*	5	12	100*	14	14
	Rarity	5	N/A	4	6	0	23	14
5	Ecological	N/A	N/A	6	0	0	9	4
	Physical ability to rescue people	N/A	N/A	6	0	0	9	4
6	Ability to bring foreigners/tourists	N/A	N/A	7	0	0	3	1
	Ability to bring money/income	N/A	N/A	7	0	0	3	1
	Status as a natural resource	6	N/A	N/A	3	0	0	1

*only one interview was conducted in adjacent target villages

In Myanmar, although the dolphin's intrinsic right to life was mentioned slightly more than its rarity by participants in T villages than in NT villages (and vice versa), the three most mentioned reasons for the dolphin's importance were consistent with those most mentioned overall in Myanmar. Because I was only able to conduct one interview in an AT village in Myanmar, it is difficult to determine the popular importance of the dolphin in AT villages.

In Cambodia, there seemed to be more variation than in Myanmar in the frequency of reasons given for the dolphin's importance relative to participants' proximity to conservation projects as seen in Table 4.5.

Table 4.5. The popular importance of the dolphin relative to proximity to the targeted conservation areas in Cambodia. Gray shading highlights major differences in top three most mentioned values. T = Target, AT = Adjacent Target, and NT = Non-Target villages.

Cambodia		**Rank**			**% Participants**			
Rank	**Importance**	T	AT	NT	T	AT	NT	All areas
1	Ability to bring foreigners/tourists	1	1	1	38	56	60	46
2	Rarity	2	3	4	32	30	10	29
3	Ability to bring money/income	3	2	4	26	33	10	26
4	Status as a natural resource	4	5	2	14	7	30	14
5	Intrinsic right to life	5	4	3	12	11	20	13
6	Endangered status	5	6	4	12	4	10	7
7	Support for village livelihoods	6	5	4	8	7	10	8
8	Aesthetic	7	6	3	4	4	20	6
9	Ecological	8	N/A	N/A	2	0	0	1
	Importance to/relationship with fishers	N/A	6	N/A	0	4	0	1
	Medicinal value	N/A	N/A	4	0	0	10	1

Although it seems, as shown in Table 4.5, that more Cambodian participants in AT villages mentioned the monetary importance of the dolphin than those in T villages, this may be due to at least two reasons. First, many participants in one of the AT villages also describe benefitting from dolphin tourism through the carving and sale of wood sculptures in the neighboring T village. Second, the benefits of dolphin tourism seem to be distributed unevenly according to many participants. Several participants mentioned that their livelihoods had not changed significantly over the last ten years because they didn't have dolphin tourism in their village as I will discuss in more detail in Chapter V. For example, in response to a question on changes since the dolphin conservation project began in an AT village that did not participate in making wooden sculptures, 2 former fishers in a group of 3 replied:

> P1: I don’t see any changes
> P2: nothing. I see only people making dolphins [sculpture] over there. Here, there is nothing. We just do farming. (63M Farmer & 82M & 89M Retired, CAT3)

So the monetary value of the dolphin is perhaps more stark to participants in AT villages who look at the relative monetary wealth of their neighbors in T villages and can only attribute it to the dolphin tourism in these areas.

Also of particular note in Table 4.5 is the difference in the three most mentioned reasons for importance between T/AT and NT villages. More participants in NT villages mentioned the dolphin's status as a natural resource, intrinsic right to life, and aesthetic appeal than either their rarity or ability to bring income/money. Although the sample size for NT villages was much smaller than those for T and AT villages, this finding is consistent with participant observation and other themes in interview and focus group data from NT villages. For example, one NT group responded 'yes' to a question about whether they would like tourists to come see the dolphins in their village. When I asked why, they did not mention money, but responded:

> P1: so that our village would have fun.
> I: and what else?
> P2: what else. Want the village to be happy
> P1: if they come, it would be fun (laughing)
> P2: the children would be happy and I would also go to see. My children love seeing it. (46F & 52M Fishers & 38F Homemaker, CNT8)

Although the percentages in Table 4.5 represent the total number of interviews and focus groups where each importance was mentioned at least once (due to the fact that the transcribers often could not decipher between participants in a group), only one participant in an individual interview out of 14 total participants in NT villages directly associated the dolphin's importance with money. Thus, it seems that, while participants in NT villages in Cambodia associate the dolphin's importance with tourism, few of these participants associated the dolphin's importance directly with money.

Summary

The data seem to suggest that the popular importance of the dolphin in Myanmar has changed very little insofar as it seems to continue to be primarily represented by relationality. It also appears that the conservation project in

Myanmar has not yet had any major impact in how participants value the dolphin as there was very little variation in popular importance of the dolphin relative to proximity to targeted conservation projects. In contrast, the popular importance of the dolphin in Cambodia seems to have shifted from being informed by its relationality to being primarily predicated on the dolphin's monetary value. It also appears that there is some variation in this shift with the monetary value of the dolphin being more often mentioned in villages that lie in closer proximity to targeted conservation efforts, suggesting that these conservation efforts may be influencing or catalyzing this shift in the primary importance of the dolphin.

(2) (a) How are Socioeconomic Changes Currently Perceived by Participants in Each Country and How Do These Perceptions Align With the Current Popular Importance of the Dolphin?

Aside from the ways in which participants described the importance of dolphins, there also seemed to be general patterns in overall values for each country. These values were most apparent in the ways in which participants described socioeconomic change. Participants in both countries were asked about the changes they had seen in their homes and villages over the last ten years or since the conservation program began, as well as what future foreign researchers should study when coming to visit (i.e. desired changes).

Myanmar

The top three most mentioned changes by Myanmar participants were related to (1) school/education, (2) landslides, and (3) health - while the top three requests were related to (1) school/education, (2) stabilizing the shore to prevent landslides, and (3) health. Table 4.6 lists the top ten changes described by Myanmar participants in the last ten years/since the conservation project began, as well as the top ten requests for future research with a comparison to the 'rank' of those changes and requests by Cambodian participants.

Table 4.6. Ten most mentioned changes and most requested changes for the future by Myanmar participants with a comparison to rank of these changes by Cambodian participants.

Rank	Changes noted by Myanmar participants (% participants)	Rank Cam part		Requests made by Myanmar (% participants)	Rank Cam part
1	School/education (57)	2		School/education (33)	6
2	Landslides (51)	N/A		Stabilizing shore (31)	N/A
3	Health (31)	10		Health (23)	7
4	Better roads (23)	6		Electricity (17)	11
5	Pagoda/monastery (21)	N/A		Agriculture (13)	12
6	More opportunities for work (19)	2		Pagoda/monastery (8)	N/A
7	Agriculture (14) Electricity (14)	4 10		Better roads (6) Fishing improvements (6)	2 12
8	More income/money (13)	2		Being able to do good deeds/donate (4) More money/income (4)	N/A 6
9	Shore stabilized (11)	N/A			

As seen in the Table 4.6, change (past and future) was most often described in terms of things that generally benefit the community as a whole. Thus, the overall theme in the way Burmese participants described changes in their homes and villages and the requests they made for future changes indicates that Burmese participants place high importance on community enrichment. This in turn suggests that there is some understanding of, and importance assigned to, their interconnectedness with the community. Thus, the popular importance of the dolphin to Myanmar participants appears to align with their descriptions of change, in the sense that both are embedded in relationality.

Cambodia

The ways in which Cambodia participants described change seems to be in contrast to the way Myanmar participants did so. The top four most mentioned changes by Cambodia participants (there was a tie for #2) were related to (1) bigger houses, (2) more income/money, (2) more opportunities for work, and (2) school/education - while the top three requests were related to (1) more protection for dolphins, (2) better roads, and (3) fisheries. Table 4.7 lists the top ten changes

described by Cambodia participants in the last ten years/since the conservation project began, as well as the top ten requests for future research with a comparison to the 'rank' of those changes and requests by Myanmar participants.

Table 4.7. Ten most mentioned changes and most requested changes for the future noted by Cambodia participants with a comparison to rank of these changes by Cambodian participants.

Rank	Changes noted by Cambodia participants (% participants)	Rank Mya part		Requests made by Cambodia (% participants)	Rank Mya part
1	Bigger houses (34)	12		More protection for dolphins (28)	10
2	More income/money (30)	8		Better roads (20)	7
	More opportunities for work (30)	6			
	School/education (30)	1			
3	Motorbikes (20)	14		Fisheries (16)	N/A
4	Agriculture (16)	7		Forestry studies (13)	N/A
5	Material items (jewelry/"modern" things) (15)	15		More tourism (9)	N/A
6	Better roads (14)	4		More money/income (8)	8
				School/education (8)	1
7	Violence/drugs & alcohol (13)	N/A		Health (7)	3
				More researchers (7)	N/A
8	Cars (11)	N/A		"Everything" (6)	10
	More rich people (11)	N/A			

As seen in Table 4.7, change (past and future) was often - especially in the case of past change - described in terms of things that benefit individuals and/or require capital (i.e. excess money). While many participants requested research on local forests and fisheries, these requests came largely from AT villages and seem to be related to living adjacent to dolphin tourism, which I explain in more detail below and in the next chapter.

Several of the items on the past change list - such as bigger houses, motorcycles, and cars - are signifiers of wealth in Western society and social status is bound in this perceived wealth in Western culture. Although the most mentioned request for future research by Cambodia participants was for more protection for dolphins, 16 of those 24 (28% in Table 4.7) participants also mentioned the importance of the dolphin in drawing tourists (7), providing money (5), or both (4).

Thus, the current popular importance of the dolphin seems to align somewhat with the ways in which Cambodia participants described change, in the sense that both are mediated through money and align with the 'consumerist ideology.'

(2) (b) Does the Perception of Socioeconomic Changes Differ Depending on Relative Proximity to the Targeted Conservation Areas (T, AT, NT) Within Each Country?

Since the popular importance of the dolphin did not seem to vary much depending on relative proximity to the targeted conservation areas in Myanmar, and the perception by Myanmar participants of socioeconomic changes seem to align with historical and current popular importance of the dolphin, I instead focus on Cambodia participant responses here.

The top three changes (there was a 3-way tie for 2nd) mentioned by Cambodia participants in T and AT villages included (1) bigger houses, (2) more income/money, (2) more opportunities for work, and (2) school/education. While more opportunities for work and school/education were among the top three mentioned changes by participants in NT villages, bigger houses and more income/money were not. Table 4.8 shows the top ten most mentioned changes over the last ten years noted by Cambodia participants by proximity to conservation area.

While participants in NT villages may not have mentioned bigger houses or more income/money as often as those in T and AT villages because there simply aren't more bigger houses or income to notice, it still seems significant that the most mentioned changes by NT participants (better roads, more opportunities for work, and school/education) are more indicative of communal enrichment than of individual monetary wealth. This also seems to align better with their popular importance of the dolphin in which dolphins serve to bring tourists to the area to have fun and make the village happy, and the dolphin's further popular importance is derived from their intrinsic right to life and aesthetic appeal. Thus, it seems that the dolphin's popular importance in T and AT villages align well with the ways in which those participants described socioeconomic change, which is often in terms of

Table 4.8. Ten most mentioned changes by Cambodia participants with a comparison by proximity to targeted conservation areas. Gray shading highlights major differences in top three most mentioned changes. T = Target, AT = Adjacent Target, and NT = Non-Target villages.

Cambodia		Rank			% Participants			
Overall Rank	**Changes noted by participants**	T	AT	NT	T	AT	NT	All areas
1	Bigger houses	1	1	5	40	33	10	34
2	More income/money	2	1	5	32	33	10	30
	More opportunities for work	3	2	2	28	30	40	30
	School/education	2	3	3	32	26	30	30
3	Motorbikes	4	4	4	20	19	20	20
4	Agriculture	5	4	N/A	18	19	0	16
5	Material items (jewelry/'modern' things)	6	4	5	14	19	10	15
6	Better roads	8	7	1	10	7	50	14
7	Violence/drugs & alcohol	8	6	3	10	11	30	13
8	Cars	9	4	5	8	19	10	11
	More rich people	8	6	4	10	11	20	11

monetary value and signs of monetary wealth. It also seems that the unclear importance of monetary value and wealth in NT villages aligns with a similar lack of a clear connection of the popular importance of the dolphin to its monetary value.

The top three requests for future research mentioned by participants in T, AT, and NT villages were all slightly different. Table 4.9 shows the top ten most mentioned requests for future research by Cambodia participants by proximity to conservation area.

Of particular note among the top three mentioned requests for future research in the T villages is that these included more protection for dolphins, more tourism, and more money/income, suggesting a more uniform alignment of values with the monetary importance these participants attach to the dolphin and the ways in which they describe socioeconomic change in terms of monetary wealth.

Table 4.9. Ten most requested changes for the future by Cambodia participants with a comparison by proximity to targeted conservation areas. Gray shading highlights major differences in top three most mentioned changes. T = Target, AT = Adjacent Target, and NT = Non-Target villages.

Cambodia		**Rank**			**% Participants**			
Rank	**Requests made by participants**	T	AT	NT	T	AT	NT	All areas
1	More protection for dolphins	1	3	1	34	19	20	28
2	Better roads	2	2	N/A	20	26	0	20
3	Fisheries studies	4	2	2	12	26	10	16
4	Forestry studies	8	1	N/A	2	37	0	13
5	More tourism	3	N/A	2	14	0	10	9
6	More money/income	3	N/A	N/A	14	0	0	8
	School/education	4	5	N/A	12	4	0	8
7	Health	5	4	N/A	8	7	0	7
	More researchers	5	4	N/A	8	7	0	7
8	"Everything"	7	4	2	4	7	10	6

In AT villages, participants mentioned fisheries and forestry studies most often (as well as better roads). This is possibly because, as mentioned above (see *NGO governmentality-Cambodia*) and in Chapter III, fisheries restrictions impact those who are adjacent to dolphin tourism the most because they simultaneously lose rights to fishing while being excluded from the benefits of dolphin tourism. In addition, data from interviews suggests that the wooden sculptures which are sold at the tourist site come from local forests, which I discuss in more detail in the following chapter. Thus, it is possible that this practice has contributed to loss of local forests, which was already an issue in the area before dolphin tourism (Milne and Mahanty 2015a). As with fisheries restrictions, it's possible that participants in AT villages are witnessing the increase in monetary wealth of their neighbors as the situation of surrounding forests becomes more severe. Finally, although participants in NT villages requested more tourism the second most often, this seems to be related to the joy and fun they relate in their experiences with tourism as described above, rather than to the potential monetary benefits of tourism.

Summary

In Myanmar, the current popular importance of the dolphin does not seem to have changed much from the historical importance and the ways in which Myanmar participants describe socioeconomic change suggests that the value of the dolphin closely aligns with what appears to be an overall 'communal ideology,' where the importance of a thing is derived from its 'relationality value.' Meanwhile, in Cambodia it seems clear that there has been a shift in the importance of the dolphin from its relational value to its monetary value, and general overall values appear to lean toward a 'consumerist ideology.' It also appears that this shift in the importance of the dolphin has coincided with the adoption of this ideology in the sense that both seem most pronounced in villages closest to targeted dolphin conservation areas. Thus, it seems likely that the introduction of the monetary value of the dolphin has assisted in catalyzing an overall shift from a 'communal ideology' to a 'consumerist ideology' in Cambodia.

Conclusion

In this chapter I describe the historical and current popular importance of the dolphin for participants in the context of approaches to conservation strategies in Myanmar and Cambodia and examine how changes in the popular importance of the dolphin align with participants' descriptions of general socioeconomic change. I utilize 2 of the 4 general research questions - (2) Are there gender or age differences in how these policies are experienced and/or perceived by people in local communities?; and (4) Are the experiences and perceptions of people in local communities where these projects have been implemented (a) different in Cambodia and Burma and/or (b) different than those of adjacent communities less affected by the policies implemented by these projects? - to help guide this examination.

In Cambodia, the historical importance of the dolphin was less clear than in Myanmar, but I argue that Beasley's (2007) previous research and the snake-woman story of the dolphin's origins help elucidate that importance. Due to the reciprocal relationship of dolphins and fishers in the cooperative fishery, dolphins

appear to have a different historical popular importance for participants in Myanmar than in Cambodia, although this importance is still grounded in relationality. Thus, although participants in this study didn't specifically voice a historical importance of the dolphin, their words and stories indicate that the popular historical importance of the dolphin was embedded in relatedness in both countries. While this popular importance appears unchanged in Myanmar, it seems to have shifted in Cambodia, where the dolphin has come to be described in terms of its monetary worth. I argue that conservation INGOs, empowered by eco-governmentality, may have unintentionally catalyzed this change in the dolphin's importance for Cambodia participants.

I also argue that the current popular importance of the dolphin appears to align with participant perceptions of change where Myanmar participants' 'communal ideology' seems to continue to be embedded in relationality, while a 'consumerist ideology' seems to have been adopted by Cambodian participants, particularly by those closest to targeted conservation areas. Through NGO governmentality, the apparently unintentional influence of INGOs thus seems to have shifted the value of the dolphin and local ideology to bring them in alignment with the Cambodian government's capitalist goals of development, as well as assisted in extending 'political rationalities of control and surveillance' (Bryant 2002:275) of Cambodian government officials to local villages.

The role of INGOs in Cambodian dolphin conservation is complex and, as far as I can tell, the social and ecological costs of the change in the importance of the dolphin were entirely unintentional and there seems to have been clear effort to avoid such effects. In the next chapter, I discuss some of these effects and will examine the pitfalls of employing capitalist mechanisms to fix problems caused by capitalism, including what I call 'Whack-A-Mole' conservation - where the attempt to fix one ecological rift (Foster et al. 2010) results in the creation of others -and the uneven development that results from the privatization and commodification of nature.

CHAPTER V

LOPSIDED LIFE RAFTS AND WHACK-A-MOLE CONSERVATION

Introduction

The social costs of capitalism have been predicted and documented by eminent scholars all over the world since its inception (*see for example:* Harvey 1990; Marx and Fowkes 1977; Mészáros 2010; Polanyi 1957; Sweezy 1972). As Marx and Engels contend, these costs include the alienation of humans from the social and ecological processes and materials that craft goods for consumption on the capitalist market (Marx, Engels, and Arthur 1970), as well as the division of humanity- through uneven development - into the eventual binary of the 'haves' and 'have nots' (Marx 1977). As capitalism expanded, then, so did the scale of these social costs. As Harvey (2006) explains, 'capital accumulation is not only about the production and circulation of surpluses as surplus values. It is also about the appropriation of the assets of others' (95). Sweezy (1972) contends that 'the underdevelopment of the Third World is the product of the very same historical process which resulted in the development of the advanced capitalist world. The two, development here and underdevelopment there, are opposite sides of the very same coin' (18). Thus, the capital gains by some are directly predicated on the losses of others and uneven development is not only an unfortunate side effect of capitalism, but a necessary corollary.

As discussed in the previous chapter, the environmental costs of capitalism have also been documented and realized by eminent scholars around the world *(see for example:* Brockington, Duffy, and Igoe 2008; Foster 1999; Foster, Clark, and York 2010; Speth 2008). Foster et al (2010) discuss the 'nine "planetary boundaries" that are crucial to maintaining an earth-system environment in which humanity can exist safely' (14) outlined by scientists. Of the nine planetary boundaries, three (climate change, the nitrogen cycle, and biodiversity loss) have already been surpassed, each with clear causal links to capitalism. It is also widely recognized that the environmental costs of capitalism are disproportionately borne by the most

marginalized segments of society and countries of the world (Adams 2009; Park 2011; Taylor 2009).

Yet, instead of recognizing uneven development and global environmental degradation as necessary byproducts of capitalism, the 'underdeveloped world' becomes a new project for capitalist 'development' with eco-governmentality assisting in the global spread of Western capitalist hegemony (Adams 2009; Brockington et al. 2008) as discussed in the previous chapter. As capitalism expands globally through 'development' projects, it thus brings along its host of social and environmental costs. Expanding on Marx's concept of 'metabolic rift' - whereby nutrients and goods were removed from rural areas and brought to the cities where any unused portions were discarded as waste, thus resulting in a rift in the soil metabolism that affects and is perpetuated by the current social structure - Foster et al (2010) identify a 'global ecological rift' which refers 'to the overall break in the human relation to nature arising from an alienated system of capital accumulation without end' (18). They argue that this ecological rift is the primary driving force behind ecological crises as capitalism shifts to new areas once it has made a large enough rift where it has been collecting natural capital, usually at the expense of the disempowered.

According to Ecological Modernization Theory (EMT) (i.e. green capitalism), these deleterious environmental effects of capitalism can be mitigated through technological advances and institutional adjustments within the current capitalist structure (Foster et al. 2010; Langhelle 2000; Mol and Sonnenfeld 2000). Proponents of EMT often point to the theory of the Environmental Kuznets Curve (EKC) (Stern 2004), which argues that as societies develop, environmental degradation is exacerbated, but that all modern societies reach a certain point of economic development where environmental degradation halts and then reverses (Schor 2010; Stern 2004). This hypothetical upside-down U-shaped curve relies on the assumptions that (1) the market will self-regulate to prevent ecological scarcities (e.g. through increased prices of scarce resources) and (2) technological advances will provide ecologically sustainable alternatives to limited resources

(Ansuategi, Barbier, and Perrings 1998; Schor 2010). These assumptions have been repeatedly critiqued and evidence suggests the contrary to be true.

While ecological scarcity does increase the price of scarce resources, this effect often results in increased capitalist interest as the resource becomes more profitable (Brockington et al. 2008; Fletcher 2011). Indeed efforts to accelerate the scarcity of resources in order to bolster profits can be seen in the privatization of water, fuel, and food (Foster et al. 2010). The other assumption of EMT - that technology will provide a panacea to ecological crises - has been so consistently refuted that there is a name for one form of evidence to the contrary. The Jevon's Paradox (Foster et al. 2010; Giampietro and Mayumi 1998) is based on the observation by William Stanley Jevons that the 'improved efficiency in the use of coal made it more cost effective as an energy source and therefore more desirable to consumers,' (Foster et al. 2010:141) thus resulting in increased use of coal overall (Jevons 1906). Similarly, York (2006) found that paper use as books and articles moved to electronic forms may actually increase as these electronic forms result in increased access for printing (York terms this 'The Paperless Office Paradox'). In another investigation into the assumption that non-fossil fuel generated energy would displace the use of fossil fuels, York found that non-fossil fuels only displaced a small portion (less than 1/10 in the case of electricity) of fossil fuel use (2012).

Similar to these technological solutions to environmental crises, approaches to conservation of endangered nature continue to focus on symptomatic fixes within the capitalist structure (i.e. through the use of capitalist mechanisms) without addressing the core causes of environmental degradation (Brockington and Duffy 2011; Brockington et al. 2008). In the previous chapter, I discussed how conservation has opened a new frontier for capitalism as it is employed to fix the problems it has created, while simultaneously benefitting from new projects such as disaster capitalism and the commodification of nature via exploits such as ecotourism. This capitalist-conservation nexus is then consolidated globally as Western hegemonic conceptions of nature become institutionalized through eco-governmentality. Once institutionalized at the global level, INGOs then become non-state vectors through which this capitalist-conservation nexus is transferred

internationally via NGO governmentality, particularly to underdeveloped peripheral nations.

In this chapter, I discuss the problem of the exacerbation of uneven development as a consequence of capitalist approaches to nature conservation, as well as the attempts to mitigate this uneven development through capitalist mechanisms. I first argue for a reconceptualization of the idea of 'uneven development.' To better encapsulate the holistic character of the structural re-shifting that occurs during uneven development, I propose the alternative term of 'lopsided development.' I then argue that the lopsided development in the Cambodian study area appears to be a direct result of conservation efforts in the area and that attempts to alleviate this effect - and thus ensure the successful conservation of the dolphin - have employed capitalist fixes which simply serve to shift the metabolic rift from the rivers to the forests. As such, I will attempt to answer the following research questions:

> (1) How do participants describe benefits and costs due to conservation projects/tourism in their homes and villages, relative to surrounding homes and villages in Myanmar compared to in Cambodia?
>
> (2) Based on participants' experiences, do there appear to be any environmental consequences of dolphin tourism and conservation in Myanmar and Cambodia?

I use 3 of the 4 general dissertation research questions - (1) How are the policies implemented by these conservation projects *experienced* and *perceived* by people in local communities?; (3) Are the policies actually implemented as intended, or do local practices differ from those expected or dictated by policies?; and (4) Are the experiences and perceptions of people in local communities where these projects have been implemented (a) different in Cambodia and Burma and/or (b) different than those of adjacent communities less affected by the policies implemented by these projects? - to inform these analyses.

Conservation and Lopsided Development

Polanyi (1957) argues that the attempt to reorganize society around an economic system (rather than reorganizing an economic system around society) has

advanced in what he refers to as a 'double movement' where the deleterious effects of policies based on one movement - the project of economic liberalization - have been simultaneously met by a second movement - '. . . social protection aiming at the conservation of man and nature as well as productive organization. . .' through ' . . . protective legislation, restrictive associations, and other instruments of intervention . . .(138),' though the latter movement still functions within the hegemonic institutions of the former.

Thus, as the post-Cold War development project has shifted the capitalist gaze toward the underdeveloped world with neoliberal conservation as its vector catalyst, the shared root cause of uneven development and environmental degradation continues to be disregarded as 'an astonishing array of "partnerships" among and between governments, corporations, academic institutions, development agencies, NGOs and others [attempt] to deal with the consequences of environmental problems and world poverty' (Büscher and Arsel 2012:129) through the advancement of capitalist fixes to problems created through capitalist policy (Brockington et al. 2008; Fletcher and Neves 2012). Thus, as capitalist ideology moves globally through conservation, the problem of uneven development continues to plague these capitalist fixes. Through disproportionate participation in industries such as nature tourism and through enclosures of communal spaces for private extraction for profit, power relations are created and/or reinforced (Brockington and Duffy 2011; Büscher and Arsel 2012; Cater 2006). Indeed, in post-conflict Cambodia, the enclosure of natural resources for exploitation played a crucial role in the rise in power of the Cambodian People's Party (CPP) (Milne et al. 2015) 'and those tied to the regime through familial, patrimonial or business relationships (Global Witness 2009)' (*as cited in:* Milne and Mahanty 2015:9) at the expense of those who locally rely on those resources (Springer 2009).

Here, I argue that this 'uneven development' is usually characterized in the context of individuals as members of one of two groups: the rich who are getting richer and the poor who are getting poorer. This polarization of individuals as members of groups based solely on their economic wealth obfuscates the holistic reliance of each individual on others. Certainly, there has been much scholarship on

the dependence of the rich on the poor - through labor exploitation - to become richer. Although the ways in which members of society, regardless of economic status, rely on each other is also often part of the conversation (*see for example*: Escobar 2002; Foster et al. 2010; Harvey and Braun 1996; Schor 2010; Shiva 2016), I argue that the term 'uneven development' does not fully encapsulate this interrelatedness. Rather, 'uneven development' conjures up images of spaces where monetary wealth is concentrated vs *other* spaces where monetary wealth is lacking. The indirect relationship of the two is evident in the ways in which they are both mediated by the same market forces, but the direct relationship (i.e. monetary wealth is a direct result of moving money from 'impoverished' areas to be ever more concentrated in 'wealthy' areas) - and therefore the full effects of uneven development in an interdependent system - is hidden amongst capitalist conceptions of individualism.

Humans rely on each other in direct and indirect ways - not just for the material necessities of life - but for their contributions to knowledge, ideas, meaning, cultural richness, and the overall progress of humans and their relationships to society, non-human animals, the environment, and the cosmos (*see for example*: Escobar 2002; Foster et al. 2010; Hawthorne 2009; Schor 2010; Shiva 2016). Each of us benefits from the contributions of each individual that has been part of society in the past, as well as today (e.g. as academics, each of our disciplines are entirely predicated on the knowledge of those that came before us, as well as those that contribute today, including non-academic thinkers), and each of us suffers a loss whenever other humans are restricted from being able to realize their full potential and thus contribute to society (Marx 1978).

In scientific terms, all humans are composed of the same atoms which have been in existence since the Big Bang (Schrijver and Schrijver 2015). According to Dalton's atomic theory, atoms can neither be created nor destroyed (Rogers 1967). Thus, the carbon atoms that compose all life forms today are the same atoms that were found in dinosaurs and the oxygen that each of us depends on for survival is constantly being recycled and reused through metabolic processes of other

organisms. Essentially, humans do not exist as individuals, but as nodes in a system with infinite nodes through which energy and matter are constantly flowing.

By way of metaphor, we are all living on the same 'life raft' that keeps us afloat as a society and the strength of that life raft is directly correlated to the strength of each of its components. As one segment of society hacks away at another part of that life raft to reinforce the part where they reside, they are simultaneously weakening a part of the life raft that - although may be out of view - is still necessary for their own survival and strength. Thus, I propose a replacement of the word 'uneven' in 'uneven development' with the word 'lopsided' where society as a whole can then be conceptualized as a life raft, shifting on a fulcrum of interrelatedness as resources are reallocated from one area of the raft to another. The overall integrity of this life raft, then, is influenced by - and influences - all individuals within that society. Thus, when one part of the raft is compromised in order to reinforce another part, the entire life raft becomes compromised through its 'lopsidedness.' This in turn affects all inhabitants of the life raft, often in ways that inhabitants may never fully realize.

> Social cohesion refers to two broader, intertwined features of society, which may be described as: (1) the absence of latent social conflict - whether in the form of *income/wealth inequality;* racial/ethnic tensions; disparities in political participation; or *other forms of polarization*; and (2) the presence of strong social bonds - measured by levels of trust and norms of reciprocity (i.e. social capital); the abundance of associations that bridge social divisions ("civil society"); and the presence of institutions of conflict management (e.g., a responsive democracy, an independent judiciary, and so forth). (Kawachi and Berkman 2000:175 - emphasis added)

As many scholars have noted, the loss of social cohesion leads to additional social costs including increased violence, social deviance, and substance abuse (Alfred 2005; Duncan, Duncan, and Strycker 2002; Kawachi and Berkman 2000; Shaw and McKay 1942; Wilkinson and Marmot 2003). Thus, if the conclusions I have drawn about lack of lopsided development in Myanmar and the presence of lopsided development in Cambodia are correct, then we should expect that these additional social costs would rarely be mentioned by Myanmar participants and mentioned often by Cambodia participants. This finding would also support the

conceptualization of lopsided development as a holistic problem facing society with multifaceted and widespread implications beyond the simple creation of a binary of the 'haves' and 'have nots.'

Capitalist Fixes for Capitalist Problems in Conservation

As discussed in the introduction, there have been several attempts in conservation to offset the deleterious environmental effects of capitalism. Such attempts include technological solutions, privatization or enclosure of resources, and *in situ* commodification. Each approach has played its role in advancing capitalist modes of accumulation, while simultaneously exacerbating its deleterious effects on the environment.

Technology

Where technology has been employed to offset the effects of the use of fossil fuels on the global climate crisis, those technologies often come with a new set of environmental costs that exacerbate the problem that they were intended to fix. The use of biofuels, once thought to be an environmentally-friendly alternative to fossil fuels, only resulted in contributing to deforestation and displacement of food crops as room had to be made for the production of these biofuels (Foster et al. 2010; Langhelle 2000; Mugyenyi and Engler 2011; Searchinger et al. 2008). Electric and hybrid cars also appeared to be promising in helping to offset the effects of fossil fuels on the climate crisis. However, the effectiveness of electric/hybrid cars is bound and determined by a myriad of factors including the source of the electricity (e.g. coal) (Mugyenyi and Engler 2011), the likelihood that car owners would drive more given the decreased costs and rationalization that they have reduced their carbon footprint (and can thus drive more with a cleaner conscience) (Foster et al. 2010) and the composition and manufacturing process of toxic lead and nickel batteries (Lave, Hendrickson, and McMichael 1995).

Aside from attempts to mitigate the effects of the climate crisis, technological solutions have also been used in attempts to offset other ecological crises. In the case of fisheries, managers have tried to offset the worldwide collapse in fisheries

stocks through technological solutions such as privatized aquaculture (Clausen and Clark 2005). While this approach may sometimes help in meeting global demand for fisheries products, aquaculture has introduced a host of new ecological and social problems, including the accumulation of aquaculture waste; bioaccumulation of pollutants in farmed fish, shellfish, and mollusks; alteration of food webs and ecosystems; and the introduction of farmed and GMO fish into the natural environment (Eng, Paw, and Guarin 1989; Gowen et al. 1990; Myhr and Dalmo 2005; Naylor et al. 2000; Tovar et al. 2000).

Thus, technological solutions to problems of environmental degradation from capital accumulation tend to seek out new ways of harnessing capital which may initially seem to alleviate environmental pressures, while in actuality costs are often hidden and/or unanticipated.

Privatization and Enclosure

Hardin's theory of the 'Tragedy of the Commons' asserts that when a resource is open to all, overpopulation drives the overuse of that resource as each individual pursues their own self-interests in an attempt to maximize their gain through use of the commons (Hardin 1968). This 'Tragedy of the Commons' is often used as justification for privatizing resources and is cited *ad libitum* in conservation and natural resource literature as though it were natural law (Cox 2008; Feeny et al. 1990). Yet, multiple critiques have emerged and evidence abounds that true commons can be, and usually are, managed responsibly by local communities and without environmental consequences (Dietz et al. 2003; McCabe 1990; McCay and Acheson 1990; Ostrom et al. 1999) and that top-down management and especially privatization of these resources may even lead to more exploitation and environmental degradation (Cox 2008; Sinden 2007).

Building on (or perhaps returning to) Marx's theory of primitive accumulation, Harvey describes 'accumulation by dispossession' as 'the continuous role and persistence of the predatory practices of "primitive" or "original" accumulation within the long historical geography of capital accumulation' which accompanies 'spatio-temporal fix's' to crises of capitalist overaccumulation (Harvey

2004). This 'accumulation by dispossession' is embedded in neoliberal conservation and often manifests in the form of parks or protected areas where enclosures of natural resources secure those resources for private exploitation at the expense of smaller local resource users (Castree 2008b; Heynen and Robbins 2005; Mansfield 2004). In Cambodia, the creation of Protected Areas has served to enclose natural resources to make them available for private resource exploitation through hydropower development projects and land concessions for commodity production (e.g. rubber and sugar), mining exploration, and commercial tourism development (Paley 2015). This unsustainable use of resources and unrestrained development of infrastructure have plagued Cambodian PAs since their establishment by Royal Decree in 1993 (Lacerda et al. 2004).

In Situ Commodification

Capitalism has systematically failed to include the value of nature in its manufacturing of goods and its transactions (Foster et al. 2010). Thus, as natural resources grow scarce, another approach used in capitalist conservation is to attempt to capture the monetary value of that resource by commodifying it sans extraction in order to preserve it. This approach thus allows capitalism to delay environmental crises, while simultaneously benefitting from those crises (Fletcher 2011). For example, new technologies increase the visibility of endangered nature through media, ecotourism, and nature-centered entertainment. While these technologies may aid in the preservation of nature, they are often associated with what Brockington at al (2008) refer to as 'spectacular accumulation' which 'revolves centrally around [nature as] spectacle as both a commodity and a means of selling other commodities' (195).

Perhaps the most salient and pervasive form of *in situ* commodification of nature is found in ecotourism. According to Fletcher and Neves (2012) ecotourism functions

> in employing capitalist mechanisms to address problems of capitalist development itself by attempting to resolve a series of contradictions intrinsic to the accumulation process, including: economic stagnation due to overaccumulation (time/space fix); growing inequality and social unrest

> (social fix); limitations on capital accumulation resulting from ecological degradation (environmental fix); a widespread sense of alienation between humans and nonhuman natures; and a loss of "enchantment" due to capitalist rationalization. (60)

Ecotourism in the underdeveloped world is often marketed to the developed world as a means by which to participate in the preservation of nature, while partaking in an enriching reciprocal cultural experience (Munt 1994). However, as local participation in ecotourism is often restricted to those who are able to gain access, it often reinforces pre-existing power dynamics and serves to widen the gaps between those who are able to participate and those who are not (Brockington and Duffy 2011; Cater 2006). Additionally, it fails to capture other environmental costs associated with international travel and consumption of other commodities, including souvenirs, at the *in situ* site (Brockington et al. 2008; Fletcher 2011; Gössling and Peeters 2007).

Whack-A-Mole Conservation

As consequences such as those discussed above continue to multiply with each ecological problem that is addressed without addressing the socioeconomic policies that precipitate and/or exacerbate the problem, the natural resource managers of the world are caught in a virtual 'Whack-A-Mole' conservation game. That is, instead of diagnosing and addressing the underlying system from whence these 'moles' emerge, conservationists instead seem intent on waiting for each mole to emerge and then attempting to 'whack' it into submission without recognizing that this technique simply serves to scare the mole off until it emerges - through some unknown and unforeseen system of burrows - from another hole.

Findings and Discussion

(1) How Do Participants Describe Benefits and Costs Due to Conservation Projects/Tourism in Their Homes and Villages, Relative to Surrounding Homes and Villages in Myanmar Compared to in Cambodia?

Participants in target and adjacent target villages were asked if there were any changes in their homes and villages as a result of the conservation project and

asked to elaborate if they answered in the affirmative. All participants were also asked what changes they had seen in the last ten years and changes due to tourism and/or the conservation project sometimes came up at this point. Although participants were not asked directly to relate the changes they observed to others' homes and villages, they sometimes did so when discussing changes in their own homes and villages. Below, I use these descriptions to try to elucidate how benefits and costs, if any, of the dolphin conservation projects are distributed. Responses were mostly from participants in target and adjacent target villages, although I include responses from a few participants in non-target villages in Cambodia because they spoke specifically about the benefits (or lack thereof) received and costs incurred from the conservation project.

Myanmar

Distribution of Benefits

All benefits of the conservation project mentioned by Myanmar participants came from interviews and focus groups in target villages. Myanmar participants discussed at least six benefits in relation to the conservation project which included (1) material donations [~12], (2) income for cooperative fishers [~10], (3) creation of foreign interest [~3], (4) easier access to fishing grounds for cooperative fishers [~2], (5) the benefit of conserving the dolphin to help fishers catch more fish [~2], and (6) income for the entire village (~1). At least 6 participants mentioned that dolphin conservation mostly benefits fishers or only mentioned the benefits to fishers. However, 3 of these participants still mentioned benefits to the community at some point during the interview. For example, in response to a question about whether the conservation project had any effects on the village, one participant in a group of four responded: 'For that, the fishermen are able to enjoy the benefits. Farmers are not included. It's only beneficial for that group. The fishermen are supported to certain extent. Stationeries are also given to the children [presumably all children in the village according to other responses]. Nothing has been done to fulfill the wish of the villages though (29F, 31F, 53F & 55F, Farmers, MT7).

Additionally, 2 of the other 6 participants associated the benefits to fishers with work that only fishers were qualified to do. As one of these participants says, 'They [the conservation group] come here quite frequently, and work together with fishermen from our village. As they come here often, our fishermen are getting paid/opportunities what they should gain for working with them' (57M Village Councilor, MT7).

Material donations given by the conservation group and associated foreign visitors included stationary, books, pens/pencils, maps, cell phones, shirts, hats, a motorboat, fishing nets, mosquito nets, blankets, umbrellas, medicine, support for students, and latrines for schools. Although some of these donations appear to only go to fishers (such as the motorboat and fishing nets), most seem to be distributed throughout the community. As one participant, a Village Councilor, says when asked about the effects of the conservation project on the village: 'It's good. For example, when the dolphin conservation group comes, the fishermen are able to earn extra income which is good for them. Also, the dolphin conservation group sometimes organizes donations for the village which is also good' (35M, MT7). Another participant, also a Village Councilor, explains some of the donations brought to his village by the conservation project when confirming his previous statement that the project provides income for fishers:

> Yes, they do. They also give books. Also, the other day, they gave us a mobile phone. They gave shirts with the slogan saying to protect the dolphins. They also gave to the elders. They gave to every village. They give about 30 shirts to each village. Also, there are prize pools. Prizes are 1 motorboat, 3 nets. Before, the prize pools include mosquito nets, blankets and umbrellas. (62M, MT7)

Although at least 10 participants mentioned that fishers earn income when conservation officials visit, 3 of these participants were cooperative fishers, 6 Village Councilors, and 1 a net maker - suggesting they were mentioning income as a benefit because they had firsthand knowledge of the income - rather than it being viewed as a disproportionate benefit. It also appears that this income is meant to balance income lost by cooperative fishers as a result of the decline in dolphins willing to work with them (see Chapter III) in order to encourage them to stay in the fishery. Furthermore, 6 of the 10 participants mentioned benefits to the community

(e.g. donations) in addition to mentioning the income earned by fishers. At least 3 participants also mentioned that the conservation project generates foreign interest, which in turn brings more material donations and interactions with the outside world.

The benefits of easier access to fishing grounds and conserving the dolphin to help fishers catch more fish are benefits that can only be realized by fishers, given the nature of these benefits. However, these benefits are perhaps more accurately described as restoration benefits or the mitigation of costs that result from the effects of illegal fishing, particularly electrofishing, on the river. Thus, they are not new benefits introduced by the conservation project.

Although most participants spoke of conservation as benefitting cooperative fishers through increased income and the community through donations, at least one participant, another village councilor, seems to view the dolphin tourism component as potential for increasing revenue for the entire village. When asked how he thought other people in the village felt about dolphins, he replied:

> Rather than guessing how they feel, I can tell you my personal experiences. The villagers show the dolphins to visitors. Frankly speaking, when the villagers guide the visitors to dolphins, they earn deservingly. They earn income. If they are able to find the dolphin that they want to see, the villagers are even supported more. So, the whole village can earn extra income. The numbers of visitors increase and it is one of the business that can attract more visitors. (60M, MT6)

Thus, while some benefits of the conservation project in Myanmar seem to be enjoyed more by cooperative fishers, this seems to be mainly in the form of restorative benefits to encourage fishers to remain in the cooperative. It also appears that many of the benefits are distributed fairly evenly among communities through material donations.

Distribution of Costs

Few losses were mentioned in relation to the conservation project by participants in Myanmar. Approximately 2 participants, who are fishers in target villages, mentioned that fishing restrictions due to the conservation project made it more difficult to catch fish. Although both of these fishers go fishing with dolphins at

times, they also use other methods of fishing and this appears to be what they're discussing when pointing to fishing restrictions as causing difficulties. One of these participants also appears to be referring to fishing restrictions set by the owners of Inns, where private owners of fishing enclosures require payment to fish in their enclosures, something that is not directly related to dolphin conservation. The second participant appears to be referring to restrictions on fishing during breeding season, which are also not directly related to dolphin conservation. As he explains:

> They defined that time not to do fishing. We called it 'In Tha Bat' which the government set. But we do fishing at those places when we have problem with living. When they caught us, they took the fishes away and warned us not to do that again. To keep the NgaYit, Nga Than fishes abundant. But as we have difficulties for living, we go fishing again. (32M, MT6)

Thus, it seems that participants in Myanmar have not yet realized any costs associated with the conservation project as the one cost identified seems to be unrelated to the conservation project.

Cambodia

Distribution of Benefits

Participants in Cambodia discussed at least five benefits of the conservation project including (1) improved livelihoods/increased income [~29 - 19T; 10AT], (2) fishing restrictions [~15 - 9T; 5AT; 1NT], (3) it's easier to find fish [~7 - 3T; 4AT], (4) dolphins are protected [~2T], and (5) material donations [~1T].

At least 12 participants (1T; 10 AT; 1 NT), including 3 (AT) who mentioned the benefit of improved livelihoods/increased income, also said there was no change in their own livelihoods or income because they lived too far away from the nearest dolphin tourism area. Thus, while at least 26 participants[3] said their livelihood *personally* improved or *personal* income had increased, nearly half that number said that their livelihoods/income had not improved. As one participant in a group of 3 describes: 'for [the tourist village], they are making dolphins [sculpture]. Here, we just only do farming and sell cattle. [The tourist village's] people were really poor in

[3] 29 minus the 3 AT who said their lives had not personally improved

the past. Now, ever since they started making dolphins [sculpture], they are wealthier than this place here' (62M Farmer, 82M & 89M Retired, CAT3). Another participant in a group of 3 also appeared to wonder why we were interviewing her since she had not financially benefitted personally from the conservation project:

> . . . For us, we are poor and we are used to being poor with no food, but they are prospering – they are richer than us! They have businesses. You came to interview me, a poor person, so that's all I can answer. For wealthier people, they are even [wealthier] than me. (36F Farmer, 40F & 43F Fishers, CAT4)

As mentioned in Chapter IV, the monetary benefits of dolphin tourism were initially realized by a small segment of the community in the main dolphin tourism village, while many others were bearing the costs of conservation through the loss of fishing rights. While NGOs worked with the Cambodian government to sign an agreement to distribute the benefits of dolphin tourism more equally in 2004, the government later nullified that agreement in 2007, ensuring that distribution of benefits mainly went to those families directly involved in dolphin tourism (i.e. boat drivers and ticket sellers) with the rest going to the government. However, part of the initiative to diversify livelihoods included teaching locals how to carve and sell sculptures, particularly of dolphins, to tourists. According to one participant in the main tourist village, 'around 70… in this village, around 70 percent' of villagers make their living by carving and selling dolphin sculptures (39M Wood carver, CT2). While this seems to have helped to distribute the monetary benefits of conservation via tourism, at least 2 participants, who live in the main dolphin tourism area, said there was no change in their livelihoods because they did not make dolphin sculptures to sell to tourists. According to another participant in a group of three in a village adjacent to the main dolphin tourism area, 'it is only around 70 percent [of the villagers]' who have become rich through the sale of dolphin sculptures (21M Fisher, 23M & 56F Farmer, CAT3). Additionally, although the burgeoning business of dolphin sculptures has significantly bolstered the income of many participants in the short term, it may have severe long term effects as discussed in the next section.

When participants mentioned that one of the changes since the conservation project began was increased fishing restrictions, it was not always clear whether

this was seen as a benefit. Thus, while at least 15 participants spoke of the benefits of fishing restrictions, another approximately 9 (5T; 3AT; 1NT) participants mentioned fishing restrictions as a change, without offering an opinion on the change. For example, when one participant was asked what changes she had seen as a result of the conservation project, she replied: 'change like there are less large pattern drag net and there are less electric shock' (25F Homemaker, CT2). Additionally, at least 6 (4T; 1AT; 1NT) of the 15 participants who referred to the benefits of fishing restrictions due to the conservation project also discussed costs of this change, although they didn't always identify them as costs. As one participant explains: 'The impact is that [we cannot] go fishing but [we] are able to fish on land [she is referring to the businesses with the tourist on land]. There is no impact and the fishing on land is better than the fishing in water' (60F Farmer, CAT1). Several other participants mentioned fishing restrictions strictly in terms of its costs which I discuss below in *Distribution of Costs*.

While at least 7 participants mentioned that they were more easily able to find fish since the conservation project began, none of these participants were full time fishers. At least 2 (AT) of the 7 stated that they no longer fished at all, 1 (T) said he seldom fished, and 3 (1T; 2AT) said they fished only in the dry season when they weren't working in agriculture. Additionally, many other participants said that fishing had become harder since the conservation project began, which I discuss below.

Thus, it appears that the benefits of the conservation project are distributed unevenly and benefit realization seems to be mostly determined by whether participants are directly involved in dolphin tourism or indirectly through the sale of wooden dolphin sculptures.

Distribution of Costs

Participants in Cambodia mentioned at least two costs associated with the conservation project including (1) deteriorating livelihoods due to fishing restrictions [~20 - 15T; 4AT; 1NT]; and (2) eviction from homes (~1T). Many of the Cambodian fishers who participated in this study, including at least 4 from the main

tourist village, described personal hardship because they were no longer able to fish or were no longer able to make a living from fishing due to loss of fishing rights. For example, as one former fisher describes: 'To be exact, there are still fishes, but it's like it is difficult to fish because the places that we were able to catch, they do not allow us to fish there anymore. They are afraid that dolphins would get caught' (51M Seller, CAT4). According to another fisher, 'I want to say that there are only impacts for the fishermen like me. They prohibit us from using drag net. Prohibit; if you set it up, they would come to confiscate our drag net and burn it – they told us that. They prohibit us from using it' (36F, CT6).

Some fishers seem to have been able to successfully shift to other forms of income as described by this participant: 'Some people are happy as they depend on fish but they couldn't catch more fish. Now, they change to grow vegetables or create new businesses which provide them better profits. So they are happy' (49M Farmer, CT7). While some of the fishers affected by fishing restrictions are recovering income by growing vegetables for sale, others are doing so by participating in tourism. For example, as one former fisher says, ' there are changes like they do not fish anymore. When they do not fish, [they] make dolphin [sculpture] and things like that. So, you can sell it or customers come to buy – they can earn a lot of profit' (59M Tourist boat driver, CT2). Although this shift in income generation appears to be seen in a positive light by many participants, the long term effects of wooden sculptures are problematic as I discuss below.

Lopsided Development and Other Social Costs

As discussed above, the loss of social cohesion, which operates through many mechanisms - including 'income/wealth inequality' and 'other forms of polarization' - leads to other social costs such as increased violence, social deviance, and substance abuse. These forces also appear to be operating in the study area.

When discussing good and bad changes in their homes and communities, none of the Myanmar participants mentioned violence, alcohol, or gangsters except in the context of electrofishers - who seem to be viewed as outsiders. As one participant explains: '[Electrofishers are] not from this village, maybe from the other

district. There is no one here working with it as I said before. We are afraid of them' (53M Fisher, MNT4). When asked where electrofishers came from, we were consistently told that they were not from the area. None of the participants believed electrofishers to be residing nearby.

In contrast to Myanmar participants, when discussing good and bad changes in their homes and communities, Cambodia participants often mentioned alcohol (~3), gangsters (~6), drugs (~3), thieves (~4), and violence (~2). These changes also appear to have arisen in recent years as this exchange between the interpreter and a participant during a recorded questionnaire indicates:

> I: and, what about the bad things in the village? Are there any bad changes happening? The bad things in the village?
> P: there are delinquents and stuffs.
> I: and what about now?
> P: now, there still are. It is not gone yet. Delinquent, drugs and stuffs.
> I: I want to say that it exists for a long time now or… before, it existed and now, it still exists or what?
> P: delinquents?
> I: yes
> P: it just suddenly bursts out in the last few years. (33F Farmer, CT2)

Thus, it appears that the lopsided development in Cambodia has also been accompanied by an increase in other social costs.

Summary

Although some participants in Myanmar stated that dolphin conservation only benefits fishers, they either attributed this disproportional benefit to the fishers' own efforts or later revealed communal benefits. Several fishers and Village Councilors also pointed to the increased income for fishers owing to the conservation project, but this benefit seems to mainly serve to (1) replace the loss of fish by fishers who are currently struggling and (2) encourage fishers to stay in the cooperative fishery. Participants also discussed communal benefits that arose from donations from, and foreign interests generated by, the conservation project. Losses incurred by the conservation project appear to be minimal and the only losses mentioned do not appear to be directly related to the conservation project.

Although many participants in Cambodia have been able to realize improved livelihoods through income generated by dolphin tourism, many other participants have not been able to partake in this benefit. The conservation project has sought to distribute income from dolphin tourism more evenly, but government interference continues to deflect these efforts. The costs of the conservation project also appear to be disproportionately borne by local fishers, as many said they were struggling to survive. Other strategies by the conservation project to distribute benefits more evenly, such as diversification of livelihoods toward vegetable gardening and carving wooden sculptures to sell to tourists, have helped to mitigate these costs - although fishing restrictions continue to significantly impact the lives of fishers (also see Chapter III).

Finally, social costs associated with loss of social cohesion were rarely mentioned in Myanmar, except in discussions of people seen as outsiders (i.e. people who do not live or participate in the community). However, as the distribution of benefits and costs in Cambodia become more uneven within and among communities, other social costs are manifesting in the form of increased substance abuse and violence - thus contributing to the overall instability of the lopsided communal life raft.

(2) Based on Participants' Experiences, Do There Appear to be Any Environmental Consequences of Dolphin Tourism and Conservation in Myanmar and Cambodia?

Participants in this study were not directly asked to identify environmental consequences of dolphin tourism or conservation. However, they often spoke of environmental impacts that they did not directly link to the conservation projects or tourism, but that appear to be relevant to the long term success of such ventures.

Myanmar

In Myanmar, I could not identify any environmental consequences of the dolphin tourism or conservation based on participant responses. However, there was one notable consequence of the fisheries management practice of 'Inn' leases.

Throughout this dissertation, I have discussed Inns - privately owned (for the duration of leases) fenced off areas of the river and/or floodplains. This practice dates back to the mid-1800s and has historically been associated with wealth and positions of influence on society (Soe 2008). According to the Food and Agriculture Organization of the United Nations (FAO), this private enclosure of fisheries resources has protected them from being exploited by 'local business interests' and FAO is concerned that transformation of these Inns to 'open fisheries' leads to exploitation (FAO 2003). However, this assertion appears to be based on an unquestioning acceptance of the idea of the 'Tragedy of the Commons' and the current study seems to indicate that it is the private enclosure of fisheries that allow for their exploitation, rather than the opening of fisheries to shared use and governance.

As discussed in Chapter III, because Inns are privately owned, fisheries officials do not appear to regulate fisheries conducted inside these Inns. As a result, these Inns often serve as sanctuaries for illegal exploitation of resources, where Inn-Taings (Inn owners) profit by charging users of illegal fishing tools (usually electrofishers) up to 10x the price that they charge fishers who use legal tools to fish in their Inns. Electrofishers are thus able to avoid arrest in most cases, while maximizing profit. As one former fisher describes:

> . . . even the authorities in the villages cannot stop them [illegal fishers]. These fishermen are rude. The main thing is there. It's the owner of the lake [Inns]. The owners of the lake who do fishing. They sell the permission [lease] to the people in the price who pay the most [auction]. Then they gave money to these owners and they are not caught. (50M Farmer, MNT2)

At least 5 participants, including 2 current and 2 former fishers described the practice of Inn-Taings accepting and/or demanding high payment for illegal fishing within their Inns. Additionally, at least another 4 participants - including 2 fishers and the spouse of a fisher - had knowledge of Inn-Taings using illegal fishing tools themselves within their Inns.

Thus it appears that, while there do not seem to be any environmental consequences as a result of the dolphin conservation project in Myanmar, there are such consequences as a result of privatization of fisheries - where fisheries

enclosures provide refuges for private exploitation of fish for profit - which in turn affects fishers and dolphins alike. This 'tragedy of the enclosure of the commons' has been documented in other areas of the world and is one of the main critiques of Hardy's 'Tragedy of the Commons' where the tragedy actually occurs when true commons, which are managed communally, are enclosed for private gain (Arvanitakis 2006; Hildyard, Nicholas, Larry Lohmann 1994) .

Cambodia

As discussed above, part of the effort to more evenly distribute the benefits of dolphin conservation has involved the introduction of local villagers to the handicraft of carving wooden sculptures, particularly of dolphins, for sale to tourists. As one participant explains: 'It is different. Before, we did not have dolphin sculpture, but when the organization came to protect the dolphin, we made that dolphin sculpture [and] can sell it overseas [to foreigner]' (25F Homemaker, CT2).

At least 13 (11T; 2AT) participants in this study engage in the dolphin sculpture business personally, and at least another 2 (T) have relatives who engage in it. One participant even mentioned that she leases rooms to at least 7 people who come to help her make sculptures, as she describes when asked to tell us about her typical day:

> In the morning, I cook food for the worker. And, when they go to work, I also work with them. When it is around 9:30, I cook food again. When it's 11, we all have lunch again. We rest until 1 pm and I also go to work with them. The men do the hard work and we just do the polishing [sculptures]. (55F Wood carver, CT2)

Later, when asked where these workers come from, she tells us 'They are from [a village 3km away]. Cannot hire the villagers here. They are also making their [sculptures].'

At least another 18 (9T; 9AT) participants, who are not personally involved in the dolphin sculpture business, also spoke of the value of dolphin sculptures in bringing monetary wealth to the area. As one of these participants describes:

> The villagers, everyone loves them [dolphins] in this village, they [villagers] stay alive because they [tourists] come to see dolphins like that. They can produce some tools - make some souvenir, something like fish, dolphins. The

> tourists come in and buy them! So, give more income to the people. Who doesn't like dolphins!? Everyone love them right. (35M Farmer, CAT1)

Another participant in a group of four elaborates on the benefits to the community as a result of dolphin sculptures:

> It's different in our village and community... who's making dolphins, wooden dolphins for sale. They are getting richer. Everyone so successful - make fish, dolphins. They have motorbikes, cars. Before people live in [the dolphin tourism area] were poorer than people [here], now people in [the dolphin tourism area] they are more richer than people [here]. Because they live closer to the tourist center, they're making these dolphins. They're making fish, these dolphins. All of them are getting richer. (30F, 40F, & 50F Farmers & 32F Unknown, CAT1)

It also seems, at least according to one participant, that the dolphin sculpture business has given many villagers more autonomy. As this participant describes in a conversation with the interpreter:

> P: I want to say that; let's talk about the tourist area. I want to talk about the tourist area. In the last 10 years, the people did not have any business to do. They just worked as laborers and did farming a little bit. They were lacking this and that – even me. But now, the people have ideas. Let's say in the last 4-5 years, they have ideas to make sculptures of fish, dolphin and all kind of animals.
> I: they can earn money from it?
> P: yes, they earn money. Their livelihood is better. And another thing, I want to say that the villagers here do no work as laborer anymore. Like before, we worked for a day and got 15,000-20,000 KHR [US$3.70 - 4.90]. Earned a day and spent it all – it was up to 80% [of people who worked as laborer]. Now, there are only about 20% or 30% who work as laborers. And, the 70% they
> I: work at the village?
> P: all of them work in their village. (45M Fisher, CT2)

The business of making and selling dolphin sculptures also appears to be booming and expanding. As one participant describes when asked what changes she has seen since the conservation project came to the area: 'It is good. There are only people crafting dolphin and put it on sale. They promote… if we have a lot of capital, we can do it. I see everyone is doing it [and] they all earn profit. That is all' (27F Farmer, CAT1). As another participant describes: 'The order [of sculptures] is regular. It is daily and monthly. I always have customers. I have customers at every place/shop. How much my customers order, I send it to them, and then, I send

[goods] to the next customer. I am busy every day – 24 hours a day' (29F Wood Carver, CT2). She later adds that '[i]n the past, the people did not have regular customers, but now there are many regular customers. It's like their sale is better and better, so everyone starts expanding their businesses. They keep making orders and there are more customers. Each maker has their own regular customers.' Entire families are also often involved in the production of sculptures. As another participant describes: '. . . Now, the teenagers in a family, if there are a few teenagers in their family! They can help their parents. During their free time from school, they can help sculpt the dolphin' (25F Homemaker, CT2). The business also seems to be expanding nationally and many wood carvers in the area 'provide wholesale to their customers in Phnom Penh [the capital city of Cambodia] and also sell locally, but most of the time, it is the wholesale to their customers . . .' (27M Carpenter/Wood carver, 53M & 55M Farmers, CT2).

While wooden dolphin sculptures have provided significant income for many in the dolphin tourism area, the basic materials for this craft also appear to be sourced locally, sometimes through illegal timber trade. This lumber trade also appears to be growing and at least 4 (2T; 2AT) participants in this study work in the lumber trade, 1 (T) participant's spouse works in the trade, and another participant (T) gave up the lumber trade to pursue sculpture carving. The participant whose spouse works in the trade admitted that he worked illegally and another participant (AT) appears to be doing so, based on the description of his work as only occurring at night - sometimes until dawn (darkness provides cover for illegal activity). As another participant describes during a follow-up question on why he thinks more people in the village have money: 'Now, [they] have jobs. It is like before we just only did farming and did not have anything else – just enough for living, but now, [people] have ideas [and] they buy car and work as a taxi. Other people, they transport lumbers' (38M Fisher, CT2). When asked where this lumber is sold, he replied:

> It is in our village. Other people, they sell it from one person to the next. Some businessman they export it to other countries. But, for the villagers, they do not sell it to other countries –[they] just sell it in the village. They sculpt [the lumber] into souvenirs, something like that.

The income from dolphin sculptures also appears to be a primary source of the income used to construct bigger houses, which add to the stress on local timber resources. The same participant above, who mentioned that local lumber was used for sculptures, also mentioned that it was used to build houses. Again, in answer to the question about what is done with locally harvested lumber, he also answers: 'They sell it to us for building houses!' (38M Fisher, CT2). The participant above who mentioned the wholesale of dolphin sculptures to customers in the capital city serendipitously completes his statement by adding '. . . So, [we] see that over the last few years, people have built bigger houses which are a lot different from the past' (27M Carpenter/Wood carver, 53M & 55M Farmers, CT2). Another participant also seems to insinuate that the money from the sculptures is used to build bigger houses when he says '. . . Before, that area was poor with small houses. After the organization came, they started making dolphin and fish sculpture and then, they become really rich' (21M Fisher & 23M Farmer, CAT3).

As discussed in Chapter IV, at least 13% (11 - 1T; 10AT) of Cambodia participants requested that future research focus on forestry studies. Several of these participants seemed unsure of this request since they weren't certain that anything could be done to save the forests. As one participant answers in response to being asked what future researchers should study: 'Forests. The most important thing [I] would like to request is the forest but the forest is all gone so how can they…?' (73M Farmer, CAT1). As another participant explains ' . . . there was much forest previously, but now it has been lost' (18F Homemaker CT7). When we asked one group of participants why they wanted research done on the forest, they answered:

> P1: because it's the trees
> P2: they clear too much [forest]!
> P3: illegal logging
> P1: logging… overtime, all the value trees are gone. (45M Fisher, 56F, 61F & 62M Farmers, CAT1)

Still, several other participants specifically did *not* request forestry studies because there was no forest left to protect, as this exchange between the interpreter and a participant demonstrates:

> I: . . . She [the researcher] wants to ask that if another researcher like her comes in the future, what do you want them to research about? For example, other than dolphin, for example, like related to forestry, environment, road, school, and pagoda, something like that. So, which one do you want them to research about?
> P: the… related to school is good.
> I: school, right?
> P: yes, for forestry, the forest is all gone.
> I: the forest is all gone, so no need to talk about that.
> P: yes, no need to talk about that (59M Tour boat driver, CT2)

As seen in Figure 5.1, which shows the rate of deforestation in Cambodia and the study area from 2000-2014, these participants' accounts of forest loss appear to align with the deforestation mapped by scientists.

Figure 5.1. Forest loss (red) in Cambodia 2000-2014. The black box encompasses the study area. Source: Global Forest Change interactive tool, developed by Hansen et al (2013), available at http://earthenginepartners.appspot.com/science-2013-global-forest.

The booming lumber business, which appears to at least be partly related to dolphin conservation through the manufacture and sale of dolphin sculptures and the resultant construction of larger (timber) houses, may also have some social costs. One participant in a group of four was asked what the rich people in the area do to get richer as a follow up:

> [They work in the] lumber business, [or as] loan sharks; they take money from the poor because the poor cannot do lumber business - only the rich can do it. We can only work as their laborer/slave. . . If they don't want to give, they would not give [salary]. They use our labor and if they want to cheat us, they would cheat us and nobody would say anything. (22F, 25F, & 37F Sellers, 52F Restaurant owner, CT5)

Summary

Although there do not seem to be any environmental consequences of the dolphin conservation project in Myanmar, participants spoke of the environmental consequence of overfishing that appears to be related to the fisheries management practice of enclosure of communal resources for private exploitation. While this can't be said to be due to dolphin conservation, it is nonetheless a notable

consequence of capitalist wildlife management practices in general. In this case, this practice also appears to have negative impacts on fisheries and, thus, on local fishers and dolphins who share the same source of sustenance.

In Cambodia, there appears to be a severe consequence of dolphin conservation as it relates to the dolphin tourism initiative of the program. The sale of wooden dolphin sculptures to tourists has no doubt provided a significant source of income for local villagers and impacted local livelihoods in mostly positive ways, according to participants. However, since deforestation has become a crucial issue in Cambodia, particularly in areas surrounding the study area, such a practice only seems to exacerbate this problem. It appears that the wood for these carvings, as well as for the bigger houses being built from the income made from these carvings, is sourced locally. Thus, while the sale of dolphin wood carvings may be helping in the conservation of dolphins, it seems to be contributing significantly to the problem of deforestation. It also appears that the support for the lumber trade in order to provide the necessary wood for a business that supports the majority of the community surrounding dolphin tourism, may have some significant social impacts as those in the lumber trade become empowered to exploit local labor in the procurement of lumber.

Thus, dolphin conservation in Cambodia - it seems - is becoming contingent on the continued development of the dolphin sculpture industry, and therefore, the continued exploitation of local timber. As one participant notes, 'If it is like now, it will go forward little by little. It's like what I have said. If there is no dolphin to see and no wood to make [sculpture], it would not... [it would] go down' (55F Wood carver, CT2). Thus, where one 'mole' is 'whacked' (i.e. where one environmental stress is alleviated) several others appear in ways and numbers that are unpredictable. These manifestations of environmental consequences will likely inspire a whole new host of capitalist fixes, each with their own unpredictable numbers and manifestations of consequences. On and on it goes, until the game is over.

Conclusion

In this chapter, I argue for the reconceptualization of 'uneven development' to the concept of 'lopsided development,' which I believe more fully encompasses the holistic realities of this 'hallmark of the geography of capitalism' (Smith 2010). I also use 3 of the 4 general dissertation research questions - (1) How are the policies implemented by these conservation projects *experienced* and *perceived* by people in local communities?; (3) Are the policies actually implemented as intended, or do local practices differ from those expected or dictated by policies?; and (4) Are the experiences and perceptions of people in local communities where these projects have been implemented (a) different in Cambodia and Burma and/or (b) different than those of adjacent communities less affected by the policies implemented by these projects? - to compare the distribution of costs and benefits of the conservation projects and to assess whether there are environmental consequences of dolphin tourism and conservation in Myanmar and Cambodia.

Through this comparison, it seems clear that the capitalist approach to conservation in Cambodia has served to amplify lopsided development and its associated effects. In Myanmar, there do not appear to be any social costs associated with the conservation project in the study area. Further, the social benefits of the conservation project seem to be distributed evenly in the sense that those who are most affected by the status of the dolphin are being compensated, while further benefits are being realized by the entire community through material donations. Additionally, the typical social costs associated with lack of social cohesion do not seem to be present within communities in the study area.

In contrast to the Myanmar study area, lopsided development appears to be a significant side effect of dolphin conservation in Cambodia. An attempt was made to capture the monetary value of the dolphin (i.e. commodify it) in order to preserve it. However, the benefits of this capitalist fix appear to have been significantly unevenly distributed. Conservationists in Cambodia have also attempted to alleviate the threats to dolphin survival by restricting local fishing rights, which further exacerbated this lopsided development. Thus, an attempt was made to alleviate lopsided development through the introduction of alternative livelihoods, including

the carving and sale of wooden dolphin sculptures. This alleviated some of the lopsided development, but only in the communities nearest to the main dolphin tourism area and it seems that roughly one third of these communities are also still unable to realize the benefits of dolphin conservation through the burgeoning dolphin tourism industry. Additionally, many local fishers continue to struggle to make ends meet as a result of the continued loss of fishing rights. Further, this break in social cohesion caused by uneven polarization of benefits and costs seems to have led to other social costs in the Cambodia study area with the overall effect of increasing lopsidedness and the destabilization of the communal life raft.

A further comparison of the study sites suggests that when capitalist mechanisms are deployed to fix problems, especially those created by capitalism, the result is often the creation of new problems and/or compounding of those same problems. In Myanmar, the dolphin conservation project has focused more on restoring local fishing rights and reinvigorating the fisher-dolphin relationship. While this doesn't seem to have created other environmental problems, there was a notable unrelated environmental issue discussed by participants. It appears that the fisheries management tool of private enclosure of fisheries resources in Inns has exposed those resources to exploitation by private interests for profit, while simultaneously providing a safe harbor from fisheries regulations in which to unlawfully extract resources. This 'tragedy of enclosure of the commons,' then, appears to be accomplishing the exact opposite of its intended purpose of protecting fisheries from overexploitation and is negatively impacting fishers and dolphins along the Ayeyarwady River. In Cambodia, the capitalist fix of introducing the monetary value of the dolphin to the study site, via dolphin tourism and the carving and sale of wooden dolphin sculptures, seems to have contributed to further environmental degradation through deforestation to provide wood for carvings and for the larger houses being built with the income from the sale of sculptures. Thus, in addition to polarization of costs and benefits of dolphin conservation and the associated social costs as a result of the rift in social cohesion, the capitalist fix in Cambodia seems to have also shifted the environmental rift from the rivers to the

forest in the style of 'Whack-A-Mole conservation' - which in turn contributes further to the destabilization of the lopsided life raft of the community.

CHAPTER VI

POLICY RECOMMENDATIONS

Introduction

It seems clear from the findings of this dissertation that market-based capitalist approaches to conservation, while providing short term benefits, can also significantly negatively impact conservation goals and the surrounding communities in which these approaches are utilized in the long term. While tourism is not the stated sole focus in the dolphin conservation plans in either Myanmar or Cambodia, it appears to have had the most notable influence on local communities through the commodification of the dolphin and the commercialization of human-human relationships. Doxey developed a framework for examining the impact of tourism on local communities over three decades ago that continues to be relevant today in the ways in which it explains the experiences of local people as tourism develops over time. He describes four stages in the evolution of the feelings of local communities toward tourists over time:

1 *Euphoria* - As tourism develops, investors and visitors are embraced with minimal planning or control.

2 *Apathy* - The relationships between locals and outsiders become more formalized and tourists are taken for granted. Marketing becomes the main focus of planning.

3 *Annoyance* - As the tourism industry approaches a saturation point, locals begin to express misgivings about the industry. Rather than limiting growth, planners tend to seek solutions through increased infrastructure.

4 *Antagonism* - Mutual politeness between residents and outsiders is replaced by mutual antagonism as overt verbal and physical expressions of irritation emerge. Planning becomes corrective and focuses on attempts to counteract the deteriorating reputation of the area through increased promotion. (Doxey 1975:195–96)

Given the data presented in this dissertation and based on participant observation, tourism of the dolphin-fisher cooperative fisheries in Myanmar appears to be at the very beginning of Stage 1 - although careful planning appears to

be compulsory due to the remote locations of the fisher-cooperatives and extensive restrictions on foreign travel. In Cambodia, however, dolphin tourism appears to be solidly in Stage 2. Although many of the participants seemed very pleased with the development of dolphin tourism and seemed hopeful that it would continue to grow, Doxey's framework focuses more on the feelings of residents toward tourists. As discussed in Chapter IV, many Cambodia participants appear to view foreigners as potential customers and their relationship to outsiders seems to be embedded in monetary interests.

The intent of this chapter is to use the findings discussed in previous chapters to offer specific recommendations for conservation officials involved in the Myanmar and Cambodia Irrawaddy dolphin conservation projects. I also use the lessons learned from this cross-national case study comparison to offer general recommendations for approaches to conservation.

Project-Specific Recommendations

In Chapter III, I outlined 3 components of conservation documents - (1) **issues** that affect the conservation status of Irrawaddy dolphins, (2) **actions** that have been taken to address these issues, and (3) **recommendations** for future actions and research needs to continue to address these issues - as stated by conservation officials, and compared these to participant experiences and perceptions. Here, I focus on issues identified by participants that appear to continue to pose significant problems for the dolphin, as well as for the participants' communities as related to dolphin conservation, and offer specific recommendations for each problem discussed. I do not include issues identified by conservation officials that were either not mentioned by participants or did not seem to be a significant issue to participants. This does not mean that these issues do not exist or are not important and readers should refer to conservation documents disseminated by conservation officials for these issues. The focus of this dissertation is on the participants and this section should therefore be viewed as a supplemental guide to dolphin conservation that specifically aims to highlight local knowledge and concerns.

1. Myanmar

Since the dolphin conservation project in Myanmar does not seem to have significantly altered local values or human-nature and human-human relationships, here I make specific recommendations to attempt to avoid future changes to these values and relationships.

Corruption

Problem

In Myanmar, the corruption that participants spoke of seemed to be directly related to illegal fishing in Inns. Fishing restrictions don't appear to be enforced in Inns and illegal fishing in Inns provides profit for Inn-Taings. Additionally, in at least some instances, it appears that electrofishers use fear and intimidation to fish illegally in Inns.

Recommendations

1.1 Improve enforcement of fishing regulations in Inns. This should include empowering locals to enforce regulations by offering training and providing resources as requested by many of the cooperative fisher participants. Authorities should work cooperatively with locals to ensure that locals are able to contribute to regulation enforcement according to their desires and confidence levels.

1.2 Find ways to make illegal fishing cost more than legal fishing (i.e. remove the profit incentive). This could include loss of Inn leases for those that allow illegal fishing to occur within their Inns. Since local resource users theoretically have more incentive to ensure long term sustainability of local resources, methods should be used to encourage local resource use and discourage resource use from outsiders. For example, this could include enforced fee structuring in Inns where those who live in the village adjacent to the Inn would continue to fish for free, while those who live X number of km from the Inn's outer boundaries would pay X amount of money per season where both X's increase simultaneously. Members of the fisher

cooperative should be allowed to fish with legal equipment in Inns for free or for a minimal charge.

Electrofishing

Problem

Although illegal, electrofishing seems to continue to be widespread, done by armed men in large groups with fast boats, and most often done under the cover of darkness on the Ayeyarwady. While the extent of the effects of electrofishing on dolphins on the Ayeyarwady is unclear, it seems prudent to assume that the effects are severe, especially when taking indirect effects on prey availability into consideration. It also seems clear that electrofishing is one of the major contributors to the breakdown and disruption of the dolphin-fisher cooperative fishery, as participants seem to believe that dolphins have become wary of fishers due to electrofishers use of dolphins to unknowingly herd fish into electrified nets.

Recommendations

1.3 Strengthen regulation and enforcement of the electrofishing ban. Again, this should include training and empowering locals to enforce regulations as discussed above. Monitoring posts should be established along the IDPA and regular patrols and night patrols along the river should be conducted.

1.4 Prioritize the strengthening of the dolphin-fisher cooperative and the empowerment of its members to assist in protection of dolphins. Rather than diversification of livelihoods for fishers in the cooperative, incentives should be provided for fishers to remain in the cooperative. This could include training and hiring cooperative members in the enforcement of laws that protect dolphins. This approach could have the double benefit of reinforcing the human-dolphin relationship, as well as halting and reversing the growth of other forms of fishing that endanger dolphins.

1.5 Strengthen and enforce the fee structuring of fisheries where cast-net fishers in the dolphin-fisher cooperative are given free access to fishing throughout the IDPA while gillnet fishers are charged a fee.

1.6 Focus on electrofishing in education through media initiatives and provide steps to take when electrofishers are seen (e.g. who to report to, when, and how).

1.7 Examine other cases of success with similar issues for possible insight on how to approach the issue. For example, conservation officials may discover useful techniques in enforcing the electrofishing ban by examining how gold mining was apparently successfully curtailed on the Ayeyarwady - or by examining how dynamite fishing was eliminated on the Mekong.

Involvement of Locals

Problem

Many participants expressed a desire to be more involved in dolphin conservation. Fishers in the cooperative seemed to be the most vocal about their desire to be involved, but several other participants also said they would like to know more and/or do more for dolphin conservation.

Recommendations

1.8 Employ locals to form local conservation committees and form ways to have constant reciprocation, networking, and collaboration at all levels of dolphin conservation (e.g. local, river-wide, national, etc.).

1.9 Encourage the involvement of women in dolphin conservation. Currently, dolphin conservation in Myanmar appears to be male-dominated. Several women in this study expressed a desire to know more about dolphin conservation and to be more involved. Women may have a different perspective to offer and their inclusion may yield new insights on the dissemination of information and the protection of dolphins.

1.10 Encourage participation of locals in necropsies in Myanmar as seen in Cambodia. This may enhance overall involvement of the community in

dolphin conservation by helping to generate interest. It would also help to fill the gaps in mortality research on Ayeyarwady dolphins.

1.11 Take heed from lessons in Cambodia and other 'developing' nations on dolphin tourism. Instead of introducing or reinforcing a monetary value of the dolphin, Myanmar conservation officials should promote the relationality of the dolphin. Culture in dolphins has provided motivation for conservation in other areas of the world (Convention on Migratory Species 2014; Whitehead et al. 2004). More research should be done, preferably by or alongside locals, on the potential trans-generational social learning of dolphins in the dolphin-cooperative. If tourism must continue, emphasis should continue to be placed on communal benefits as payment (i.e. material donations to the entire village).

Lack of Awareness of Conservation Project

Problem

Outside of the target villages, there seems to be a general lack of awareness of the dolphin conservation project and the IDPA on the Ayeyarwady River.

Recommendations

1.12 Expand conservation efforts in Myanmar from target villages to other villages located in the IDPA. Continue dissemination of educational materials and encouragement of local involvement as discussed above.

Landslides

Problem

Landslides not only have a significant impact on communities, but they're likely to have a significant impact on dolphins as well due to sedimentation and changes in river topography.

Recommendations

1.13 Conduct research on the causes and effects of landslides and take these into consideration in any further dolphin conservation initiatives.

2. Cambodia

Because the capitalist approach to conservation in Cambodia seems to have significantly altered local values and relationships, it is difficult to recommend a way forward. Here, I attempt to make specific recommendations to mitigate the damage done through well-intentioned capitalist approaches to conservation. However, many of these recommendations are contingent upon responsible, transparent, and equitable democratic governance - something that is clearly lacking in Cambodia. Thus, I also make specific recommendations on the role of INGO's - particularly WWF - in keeping local governance accountable.

Corruption in Dolphin Tourism

Problem

While NGOs worked with the Cambodian government to sign an agreement to distribute the benefits of dolphin tourism more equally in 2004, the government later nullified that agreement in 2007, ensuring that distribution of benefits mainly went to those families directly involved in dolphin tourism (i.e. boat drivers and ticket sellers) with the rest going to the government.

Recommendations

2.1 Reexamine and reinstate the aforementioned agreement on equitable distribution of benefits from dolphin tourism. Pressure to do so should specifically come from WWF, the current INGO co-managing dolphin conservation in Cambodia. Where possible, pressure from tourists should also be encouraged.

2.2 Restore the power to regulate dolphin tourism and its benefits to local communities. Specifically, a committee formed of locally elected officials - which are more likely to be held locally accountable - should be formed to

manage dolphin tourism and ensure more equitable distribution of its benefits.

Corruption in Law Enforcement

Problem

Corruption in law enforcement of fisheries regulations appears to exist in at least six forms including bribery, favoritism, extortion, hypocrisy, resale of confiscated equipment, and negligence. Bribery (i.e. law enforcement accepts payment to ignore infractions) and favoritism (i.e. selective enforcement of laws) appear to be the biggest concerns of participants.

Recommendations

2.3 Establish a system of anonymous reporting of instances of known or suspected acts of corruption in fisheries law enforcement. WWF should be responsible for implementing and managing this system to help avoid conflicts of interest. Areas and officers with repeated offenses should be independently investigated with oversight by WWF and replacement of corrupt officers should be prioritized.

Electrofishing

Problem

As in Myanmar, although electrofishing is illegal in Cambodia, it appears to continue to be an ongoing, widespread issue that is done stealthily and often under the cover of darkness.

Recommendations

2.4 Strengthen the regulation and enforcement of the electrofishing ban. This should include empowering locals to enforce regulations by offering training and providing resources as requested. Authorities should work cooperatively with locals to ensure that locals are able to contribute to regulation enforcement according to their desires and confidence levels.

2.5 Monitoring posts should continue to be established along the Mekong and regular patrols and night patrols along the river should be conducted. Night patrols would have the added benefit of reducing theft, which several participants said occurs at night.

2.6 Focus on electrofishing in education through media initiatives and provide steps to take when electrofishers are seen (e.g. who to report to, when, and how).

2.7 Examine other cases of success with similar issues for possible insight on how to approach the issue. For example, conservation officials may discover useful techniques in enforcing the electrofishing by examining how dynamite fishing was eliminated on the Mekong.

Harm of Livelihoods Due to Overregulation

Problem

Although conservation scientists have stated that all gillnets have been illegal in the nine pools where dolphins spend most of their time, as well as the segments of river in between those pools since 2006, many participants stated that small mesh size gillnets are legal in areas outside of the pools. Thus, it is unclear which laws are being enforced in which areas and fisheries officials appear to be taking advantage of this misunderstanding in the forms of selective enforcement and bribery. Overregulation in some areas, through restriction of all nets - including those attended by fishers (rather than left and later returned to) - also seems to be having a significant negative impact on fisher livelihoods as many struggle to make ends meet.

Recommendations

2.8 Restore fishing rights where possible and provide fishers with equipment/tools that do not harm dolphins.

2.9 Uniformly clarify fishing regulations. Identify and reconcile any deviations from written policy and enforcement with special consideration for the effects on local fishers.

2.10 Implement and enforce fee structuring where harmful nets continue to be used to help faze them out by requiring higher fees for their use. This should be done in consort with provisioning fishers with equipment/tools that do not harm dolphins as recommended above.

Involvement of Locals

Problem

Conservationists have recommended increasing the involvement of locals in the enforcement of conservation policies, research on dolphins, and discussions on how to improve the conservation plan. Although many participants were aware of workshops held by WWF in their area, several stated that they hadn't attended because they weren't invited. Additionally, many participants expressed a desire to know more and/or be more involved in dolphin conservation.

Recommendations

2.11 Employ more locals to form local conservation committees and form ways to have constant reciprocation, networking, and collaboration at all levels of dolphin conservation (e.g. local, river-wide, national, etc.).

2.12 Expand and improve methods of dissemination of information about dolphin conservation meetings/workshops with the goal of reaching all members of the respective communities. Clarify that all members of the village are welcome, regardless of occupation or expertise.

Lopsided Development

Problem

The costs and benefits of dolphin conservation are currently being distributed unevenly, such that some (mainly fishers) bear the brunt of the costs, while others (mainly those involved in the tourist industry) receive the bulk of the benefits.

Recommendations

2.13 Place more emphasis on vegetable gardening and other non-commercialized alternative livelihoods (rather than wood carving/sale) as a substitute for fishing and/or provide fishers with equipment/tools that are not harmful to dolphins.

2.14 Regulate tourism so that it provides more communal benefits, rather than individual benefits, which only a portion of the population is able to realize. This necessitates first implementing recommendations 2.1 and 2.2. Conservation officials may also look toward models of dolphin tourism such as the one seen in Myanmar, where fishers are compensated for loss of fishing rights/ability first, and additional benefits are distributed through material donations based on communal needs.

Mortality Due to Nets/Illegal Fishing

Problem

Many participants either witnessed at least one dolphin death due to entanglement in a net or had heard of incidents within the last few years. Several participants also expressed trepidation in the reporting of dolphin entanglements for fear that they would be blamed. Thus, entanglement in nets appears to continue to be a major cause of mortality in the Mekong and may go unreported until it is too late.

Recommendations

See recommendations **2.8** and **2.9**

2.15 Train fishers to release dolphins from nets and offer replacement nets as remuneration. Nets that are not harmful to dolphins may be a good replacement option, but further research should be conducted on the acceptability of this option to fishers.

2.16 Create an anonymous hotline for people to report dolphin entanglements.

2.17 Focus on net entanglement in education through media initiatives and provide steps to take when entangled dolphins are seen (e.g. who to report to, when, and how).

Shifting Environmental Rifts

Problem

Diversification of livelihoods, while helpful in some areas, has contributed to a booming wooden dolphin sculpture industry apparently at the expense of local forests. Additionally, the income from this and other dolphin tourism-related businesses appears to be the foundation for the growth in bigger houses, many of which are sourced from local timber, further contributing to deforestation.

Recommendations

See recommendations **2.12** and **2.13**

2.18 Do not expand/extend tourism at this time. Instead, put limits on its growth.

2.19 Since ending the wooden sculpture businesses does not seem to be socially feasible at this time due to the local income it is generating, encourage the sustainable and responsible use of wood for the sculptures and new housing structures.

2.20 Find an ecologically friendly alternative to dolphin sculptures. For example, dolphin sculptures could be crafted from bamboo, a more renewable and readily accessible resource than wood.

Trash at Tourist Sites

Problem

Litter along the Mekong, particularly from recreational tourist sites, contributes to pollution in the river. While only 2 participants in this study mentioned trash as a problem, I personally observed large amounts of trash along the Mekong and witnessed people littering on a daily basis. The facts that littering

occurs regularly and that no other participants addressed trash at any point during my stay may indicate that littering is an acceptable practice.

Recommendations

2.21 Continue and expand the trash control programs already in place.

2.22 Conduct interviews or surveys to find out why people litter. I was once told, through hearsay, that people in some areas litter because it's a sign of wealth (i.e. it shows that they are consuming the products of their wealth). Through understanding why littering occurs, conservationists may be able to find more socially acceptable and efficient ways of eliminating litter.

3. General Conservation Recommendations

Problem

What I hope is clearly demonstrated in this dissertation is that the social and environmental consequences that arise from neoliberal approaches to conservation are merely symptoms of a systemic structural epidemic that threatens to irrevocably destabilize the global communal life raft. Thus, symptomatic approaches to environmental (as well as social) ills do little more than to spread and prolong this epidemic. Further, while treating the symptoms of capitalism may be beneficial in the short term, such a tactic is futile as the symptoms are bound to reemerge as long as the system exists. Yet, such approaches continue, perhaps because a new system - a new economy that is subject to society, rather than the other way around - is hard for many to imagine as many subscribe to the belief that 'There Is No Alternative' (TINA) to capitalism.

Although a thorough review of alternatives to the current global economic system is beyond the scope of this dissertation (indeed, such a review could comprise an entire dissertation on its own), alternatives do exist. For example, the worldwide anti-globalization movement has often highlighted such alternatives which endure in pockets of resistance especially at the periphery (Podobnik 2005) and particularly in indigenous rights movements (Fenelon and Hall 2008). Because the conception of land by many indigenous peoples as inseparable from their

identity and existence (Anderson 2005; Blaser et al. 2010; Hall and Fenelon 2008; Houghton and Bell 2004) stands in direct opposition to the capitalist logic of private property, the very existence of indigenous cultures is a challenge to capitalism (Blaser et al. 2010; Hall and Fenelon 2008; Houghton and Bell 2004). Further, in addition to their relationship to land and nature, 'indigenous groups draw strength from kinship and community solidarities that are distinctly non-capitalist in nature' (Hall and Fenelon 2005:101) as these powerful communal ties and solidarity go beyond sharing economic interests (Hall and Fenelon 2009; Houghton and Bell 2004). Thus, whereas the neoliberal policies and logic of capitalism rely on concepts of private property, hierarchy, individualism, and self interest; indigenous systems generally rely on concepts of relationality, solidarity, cooperation, and community and these concepts are deeply embedded in many indigenous cultures and societies (Alfred 2005; Hall and Fenelon 2008; Hormel and Norgaard 2009; Ramírez 2008).

Caution should be taken in romanticizing indigenous values, as well as indigenous resistance movements. Still, because of the unique qualities of indigenous resistance to capitalism described above, Hall and Fenelon argue that these struggles offer special insight into alternatives, as such struggles have been taking place for millennia (Hall and Fenelon 2008). Thus, those who seek to re-conceptualize the neoliberal global economic system (and thus mainstream approaches to conservation) need only to look toward examples such as these - with the goal of listening, learning, and often *following* rather than leading. Therefore, I must stress here that because my knowledge and experience are a product of my upbringing in the core of the capitalist project, I am necessarily limited in my ability to offer concrete recommendations in approaches to conservation and reconfiguration of the global economic system in general. I do my best to use the lessons learned from the cross-national comparison in this study, as well as my prior knowledge of social movements - including indigenous resistance to capitalism - to make recommendations for alternative approaches to conservation. However, I also recognize that a much more thorough analysis of alternatives is needed and caution that my recommendations should be used as a starting point

and that the most reliable recommendations will likely come from those who are already living those alternatives.

Recommendations

3.1 Examine alternatives that exist outside the neoliberal conception of conservation. Such alternatives would focus on strengthening relationality to resources rather than introduction of commodification of those resources, as well as shared communal benefits to conserving that resource, rather than individual monetary gains. Such approaches would also help avoid the unintended consequences of lopsided development and Whack-A-Mole conservation. Be ready and willing to listen, learn, and follow rather than lead where alternatives are offered.

3.2 Improve diversity, equity, and inclusion in conservation planning. Local voices should guide policy rather than be subsumed by it.

3.3 Reexamine and be able to recognize assumptions based on normalization of Western neoliberal worldviews. This includes the dismissal of alternative worldviews as 'idealistic,' 'unscientific,' or 'unrealistic.'

3.4 Incorporate interdisciplinary assessments of conservation problems and solutions. Social sciences, particularly those that focus on power dynamics and structural causes of environmental and social issues, should be an integral part of problem assessment and proposed solutions.

3.5 Address the responsible party in conservation policy language (e.g. 'participation' vs. 'involvement'). This is an important distinction. Often people *want* to get involved, but their access is restricted or their voices are ignored. The emphasis should be on policy-makers and others in power to make space for those voices, not the other way around.

Conclusion

In this chapter, I have used the findings of previous chapters to make specific recommendations for Irrawaddy dolphin conservation projects in Myanmar and Cambodia to the best of my ability. I then attempted to address the problems

inherent in capitalist approaches to conservation, including lopsided development and Whack-A-Mole conservation, by making recommendations that emphasize alternative approaches to conservation.

Conservation and capitalism are inextricably tied in the sense that the former is often necessitated by the inherent consequences of the latter. As Speth contends, '[a]t the core of the economy is a mechanism that does not recognize the most fundamental thing of all, the living, evolving, sustaining natural world in which the economy is operating' (2008:54). Thus, treating the symptoms of capitalism (e.g. ecological rifts) without addressing the system that causes these symptoms is as ineffective as treating the symptoms of a medical illness without addressing the pathogen that causes it. Like many systemic illnesses, the cure for capitalism remains elusive, but identifying the pathogen as the cause for multiple symptoms is the first step to treating an epidemic. The next step is to look toward communities of resistance, which have managed to keep capitalism at bay. I argue that it is here, in these areas of relative immunity, where the 'cure' for capitalism can be found.

CHAPTER VII

CONCLUSION

In this dissertation, I use the comparative case-study method on an international scale to investigate contrasting conservation approaches to the preservation of the Irrawaddy dolphin in the Ayeyarwady River of Myanmar and the Mekong River of Cambodia. Through analyses of the perceptions and experiences of people living along these rivers, I attempt to elaborate on current proximate threats to the subpopulations of dolphins in each country, as well as describe socioeconomic, political, and ecological effects of the respective conservation projects.

In Chapter I, I discuss the evolution of mainstream conservation and point to the paucity in critiques of conservation attempts that employ capitalist mechanisms to tackle ecological problems without addressing the shared structural cause of environmental (and social) degradation. I then identify my main objective as the comparative illumination of the socioeconomic and political dimensions of two different approaches to conservation via assessment and characterization of perceptions and experiences of participants. I lay out the four general research questions that guided this dissertation, including: (1) How are the policies implemented by these conservation projects *experienced* and *perceived* by people in local communities?; (2) Are there gender or age differences in how these policies are experienced and/or perceived by people in local communities?; (3) Are the policies actually implemented as intended, or do local practices differ from those expected or dictated by policies?; and (4) Are the experiences and perceptions of people in local communities where these projects have been implemented (a) different in Cambodia and Burma and/or (b) different than those of adjacent communities less affected by the policies implemented by these projects?

I then explain the four accompanying goals to: (1) honor and recognize the diverse voices that contributed to this project; (2) assess the impacts of the conservation projects on local livelihoods; (3) illuminate proximate causes of the dolphin's endangered status; and (4) more fully develop a theoretical understanding

of how conservation done with capitalist conceptions of 'nature' and relationships can actually contribute to the detrimental environmental and social symptoms of capitalism.

Next, I define 'capitalism' as a system of privatization of natural resources and modes of production for profit (Zimbalist and Sherman 2014) and 'neoliberalism' as the current management ideology of the capitalist system (McCarthy and Prudham 2004), which seeks to minimize government interference of markets and instead relies on private sector control of the economy (Brockington et al. 2008). Drawing on these definitions, I then briefly describe and compare the influence of capitalism and Western ideology in post-colonial Myanmar and Cambodia. I explain how these influences were mostly restricted in both countries until 2010 in Myanmar and the 1980s in Cambodia. I then describe the overall conservation approach in each country where preservation of livelihoods has been emphasized in Myanmar (Smith and Tun 2007), while diversification of livelihoods and economic development of rural communities have been the main foci of the Cambodian dolphin conservation approach (Beasley et al. 2009).

In Chapter II, I explain in depth how and why I selected the study sites and subjects. Because the Irrawaddy dolphin has not historically been directly targeted for consumption, with few exceptions, I argue that its demise must be assumed to be a result of indirect socioeconomic influences, which make the projects based on the recovery of the dolphin ideal for socioeconomic analyses. Additionally, dolphins in both countries have similar population estimates, are facing similar threats, and under similar conditions (degradation of habitat, reduced prey availability, and incidental bycatch as a result of resource exploitation). Thus, I chose to focus on participants most closely located to these conservation projects, while including participants far enough away from the projects to be mostly unaffected by them, as an *intra*-national comparison in addition to the *inter*national comparison.

Next, I discuss issues and barriers inherent in cross-cultural research, as well as those unique to this project and explain how I attempt to mitigate each in turn. While there were many unique logistical and political issues and barriers in this project, owing to the locations of the research sites, the most persistent and

significant issues and barriers were grounded in power imbalances and linguistic and cultural differences. Thus, this research necessitated a constant internal dialogue, often expressed in a blog I kept mainly for this purpose, to help identify and deconstruct power and privilege - and immense patience and understanding by all parties when negotiating cultural and linguistic difficulties.

Finally, I describe how I collected my data through one-on-one-interviews, focus group discussions, and participant observation, as well as through the use of questionnaires. I explain how I analyzed qualitative data via coding for recurring concepts and quantitative data (questionnaires) via statistical hypothesis testing. I report that the qualitative data misaligned with the quantitative data and argue that the qualitative data provided a more rich and deeper understanding of each of the cases and, therefore, led to the dismissal of quantitative data in favor of the qualitative data in this particular study. I use the findings of this misalignment in data techniques to argue for the prioritization of in-depth qualitative data in cross-cultural studies - although I acknowledge the potential usefulness of quantitative data with proper attention, detail, and consideration for cross-cultural misinterpretations - which were beyond the limits of this dissertation.

In Chapter III, I compare participant responses to each of the following as identified by conservation officials: (1) **issues** that affect the conservation status of Irrawaddy dolphins, (2) **actions** that have been taken to address these issues, and (3) **recommendations** for future actions and research needs to continue to address these issues. I use this comparison to illuminate misalignment of participant's experiences and perceptions with the perceptions and goals of conservation officials.

In Myanmar, both participants and conservation officials identify electrofishing as the main threat to Irrawaddy dolphins, with entanglement in nets a distant second. Yet, according to participants, electrofishing is still widespread and law enforcement is lacking. The most significant issues mentioned by participants that don't appear to have been identified by conservation officials include landslides and illegal fishing in privately leased Inns. Participants often mentioned landslides, which may be related to upriver dams, as potentially affecting dolphins as they

change the flow and topography of the river. Many participants also mentioned that privately leased Inns served as havens for illegal fishers, especially elecrofishers.

In Cambodia, both participants and conservation officials identify entanglement in nets as the main threat to dolphins on the Mekong, while also identifying the potential threat of electrofishing in direct injury to dolphins and indirect harm via depletion of fish stocks (i.e. dolphin prey). As in Myanmar though, electrofishing appears to still be widespread in Cambodia and enforcement is lacking. In Cambodia, this lack of enforcement appears to be mainly due to corruption, as law enforcement accepts bribes to ignore infractions and/or seize equipment to use for themselves.

In Myanmar, in addition to effects on dolphins, electrofishing and landslides also seem to have significant impacts on local livelihoods. Electrofishing significantly affects all fishers in Myanmar as this method efficiently and expediently depletes fish stocks. It also has an added effect on fishers in the dolphin-fisher cooperative since electrofishers seem to have tricked the dolphin members of the cooperative into herding fish for them, directly into their electrified nets. While this technique may not often result in the death of dolphins, it appears to be frightening the dolphins sufficiently to become unwilling to work with fishers. Many of the fishers in the dolphin-fisher cooperative also expressed interest in participating more fully in dolphin conservation and, owing to their local knowledge and relationship with dolphins, they are uniquely positioned to do so. Additionally, the illegal fishing that continues in Inns depletes fish stocks further, making life for local fishers more of a struggle.

In both Myanmar and Cambodia, conservation officials do not seem to have acknowledged or addressed corruption and the effects of this corruption on local livelihoods, as well as on the projects' abilities to meet their own goals. As mentioned above, this corruption in Myanmar seems to be most salient in the Inns, where use of illegal fishing tools seems to be unrestricted and some Inn-Taings appear to be profiting off this oversight at the expense of other local resource users, including dolphins. In Cambodia, corruption manifests in overregulation of fishing net use by local fishers, while simultaneously allowing the use of electrofishing tools

for personal gain. Thus, local law enforcement can claim to be doing their jobs effectively by presenting swaths of nets that have been seized and these piles of nets act as a distraction from the electrofishing that continues to happen under their watch. Such corruption appears to not only have extreme negative effects on the livelihoods of local fishers, but threatens dolphins' safety and survival as well.

In Chapter IV, I describe the theory and practice of eco-governmentality, where the dichotomous conception of 'humans' and 'nature' - and the idea that 'nature' must be assigned a monetary value in order to save it - have become part of the dominant environmental strategy and this strategy has become institutionalized through the dominance of neoliberal capitalist environmental discourse (Goldman 2001; Ulloa 2013). I then describe how 'NGO-governmentality' - because of INGO's innate ability (since they are often viewed as apolitical) to circumvent state boundaries - acts as a delivery system for eco-governmentality as it assists in the manipulation of social relations to regulate behaviors of individuals (Karim 2011) and in the installment of control and surveillance from the global capitalist core to peripheral areas (Bryant 2002).

I argue that the introduction of a capitalist value of the dolphin by INGOs through its commodification has served to both change the local importance of the dolphin and to catalyze the general adoption of a capitalist ideology in the Cambodia study sites to align them with the Cambodia government's capitalist goals of development. I do this by first showing how the importance of the dolphin in both countries was historically embedded in its relationality. In Myanmar, this relationality manifests in the historical importance of the dolphin as a 'savior' or 'parent' of local fishers. In Cambodia this relationality manifests in the origin story of the dolphin as a woman who commits suicide after her parents' greed results in her marriage to an unsavory python. This python then shames her by covering her in his snake slime when attempting to eat her on their wedding night and she, unable to wash away the slime, jumps into the river and reincarnates as a dolphin. I also examine how remnants of this story persist in the gendered difference in appreciation for the dolphin, where women and men mention women's comparative

relatedness to the dolphin in recounting dolphins' reproductive anatomy and natural history.

I then explain how the relationality of the dolphin in Myanmar has remained relatively stable, evidently because Western influence - including that of INGO's - has been relatively highly restricted until recent years. I then contrast this stability of the importance of the dolphin in Myanmar to the evident change in the importance of the dolphin in Cambodia. I explain how INGO activity in Cambodia introduced and subsequently reinforced the monetary value of the dolphin through its commodification for tourism. I argue that this new importance of the dolphin has replaced its historical importance by examining the age difference in the memory of the origin story in an attempt to show how the loss of knowledge of the story by younger participants, as well as the apparent forgetfulness of its moral lesson that greed leads to despair, coincide with the nascent adoption of the monetary importance of the dolphin.

Finally, I examine how participants describe changes in the last ten years and desires for change in the future to show how these descriptions and desires correlate with proximity to locales of dolphin commodification. In Myanmar, these changes and desires seem to reflect values of communal enrichment and I show how proximity to dolphin conservation target areas does not seem to correlate with changes in general values (assessed through descriptions of past change and desires for future change). I attribute this lack of disparity in descriptions of change and desire to the lack of commodification, thus far, of the dolphin in Myanmar. I contrast this to the findings in Cambodia where closer proximity to dolphin conservation target areas appears to correlate to an adoption of values associated with individual monetary wealth, while participants in areas farther from the conservation project appear to express change and desires in terms of communal enrichment.

In Chapter V, I examine the ecological and social effects of this shift toward capitalist ideology and the commodification of the dolphin, as well as of private ownership of river resources (Inns). Among the social effects evident in Cambodia is the effect of 'uneven development.' However, I argue that the term 'lopsided development' more fully encompasses the effects of unequal reallocation of

resources and its accompanying ecological rifts and societal ruptures as the communal 'life raft' shifts on a fulcrum of interrelatedness. To bolster this argument, I compare the generally socialist approach to conservation in Myanmar to the generally capitalist approach in Cambodia to illuminate the relatively uneven allocation of costs and benefits in Cambodia. I then examine the breakdown of social cohesion in Cambodia as realized through more reported (by participants) incidences of crime and violence than in Myanmar and attempt to link this breakdown to the uneven allocation of costs and benefits of dolphin conservation.

Next, I examine the deployment of capitalist fixes for ecological problems caused by capitalism. I argue that such fixes in the study areas have only served to exacerbate social and ecological problems and, in the case of Cambodia, shift the ecological rift from the rivers to the forests. I support this argument by examining how Inns in Myanmar, which have historically been used to help manage fisheries resources, now serve to shelter reckless exploitation of resources for private profit from the reach of local law enforcement. I then examine the attempt by conservation officials in Cambodia to address lopsided development by diversifying the livelihoods of local fishers, who have lost fishing rights as a result of the conservation project. I focus on the most impactful (in generation of income and in ecological devastation) of these alternative livelihoods - the carving of wooden dolphin sculptures for sale to tourists. I show that a large percentage of the population is now engaging in this practice and that it is quickly growing and expanding. I then explain how, according to participants, much of the wood used for these sculptures is sourced locally and apparently often illegally.

Additionally, it appears that the surplus income generated from the sale of dolphin sculptures is often used to build bigger houses, something that - along with ownership of material items - seems to have come to symbolize wealth in the area. According to some participants, the timber for these bigger houses is also sourced locally, and often illegally. I then examine how participants refer to local forests as 'gone' or not worth saving because there is no forest left. To strengthen this assessment by participants, I pull in scientific data mapping local forest loss and point to the significant loss of forest near the study area from 2000-2014, years that

encompass the development of dolphin conservation. I also continue to build on the theory of lopsided development by explaining how the booming timber industry - which can partly be attributed to the sourcing of wood for dolphin sculptures and the construction of bigger houses using surplus income from these sculptures - has empowered lumber trade bosses to exploit local laborers. I argue that the dependence on local lumber to supply the booming dolphin sculpture industry and construction of bigger houses in an effort to conserve dolphins, has only shifted the ecological burden of capitalist consumption from the rivers to the forests. I refer to this perpetual shifting of rifts as 'Whack-A-Mole Conservation,' where the surface symptoms of a deeply embedded structural disorder are treated without addressing the underlying cause.

In Chapter VI, I use Doxey's framework for examining the impact of tourism on local communities (1975) to assess which of four stages each of the two country's current level of tourism fits. I argue that Myanmar's dolphin tourism is at the very beginning of Stage 1: Euphoria, which is characterized by local embracement of investors and visitors with minimal planning or control. However, I also observe that careful planning appears to be compulsory in Myanmar due to the remote locations of the dolphin-fisher cooperatives and extensive restrictions on foreign travel. I then argue that Cambodia's dolphin tourism is solidly in Stage 2: Apathy, which is characterized by the formalization of the relationships between locals and outsiders where tourists are taken for granted and marketing becomes the main focus of planning. I then use the findings of previous chapters to make specific recommendations for each respective conservation project, as well as general approaches to conservation.

To make specific recommendations for each project, I recap noted concerns of participants and attempt to directly address these concerns. These recommendations generally focus on more fully incorporating local voices to make these projects more equitable and inclusive, as well as to help mitigate the effects of the projects on local livelihoods and spotlight potential solutions to the specific threats to dolphins.

To make general recommendations for approaches to global conservation, I first argue that addressing the symptoms of capitalism with capitalist fixes only serve as short term deferments of an inevitable systemic breakdown. Instead, I argue that the systemic structural cause of ecological destruction should be assessed and addressed. I explain that such a project is beyond the scope of this dissertation, but briefly point to indigenous resistance to capitalism for possible insights. Along with other scholars, I argue that - because of the inseparability of many indigenous cultures from their ancestral lands - the very existence of these cultures stands in direct opposition to the fundamental capitalist ideology of private land (and resource) ownership (Blaser et al. 2010; Hall and Fenelon 2008; Houghton and Bell 2004). Many indigenous cultures also have deeply embedded values of relationality, solidarity, cooperation, and community (Alfred 2005; Hall and Fenelon 2008; Hormel and Norgaard 2009; Ramírez 2008), which stand in contrast to capitalist ideals of hierarchy, individualism, and self interest. It is for these reasons that I suggest that alternatives to capitalism, which do indeed exist, may come from the periphery and not from the core of capitalism.

With this in mind, my general recommendations focus on examining alternative approaches to neoliberal conservation; improving diversity, equity, and inclusion in conservation planning; reflecting on assumptions of how conservation should be done, including what should be valued and how; incorporating truly interdisciplinary assessments of conservation problems and solutions; and acknowledging and addressing relative positions of power and privilege in conservation planning.

In the coming years, as humanity faces what may be some of the most monumental ecological and social challenges to its existence in its relatively short residency on Earth, new tools of restoration will be vital and new imaginings of alternative ways of being will be essential. Challenging what we know as 'normal,' questioning those assumptions, and working toward understanding unfamiliar worldviews will be an instrumental part of assessing and addressing structural causes of the instability of our global 'life raft.'

APPENDIX A

INTERVIEW SCRIPT FOR WOMEN

Demographics

- What is your first name?
- How old are you?
- How many people live in your home?
- Where were you born? Where did you grow up?
- How long have you been in this village?
- What do you do for work?
- Can you describe a typical day in your life?
- What is your favorite thing to cook and why?
- What does your husband do for work?
- Can you describe a typical day in his life?

Changes in the community/home

- What changes have you seen in your village in the last ten years?
- What changes have you seen in your home now from ten years ago?
- How are things different for children in the village than they were ten years ago?

Values and beliefs surrounding the Irrawaddy dolphin

- Have you ever seen a dolphin?
- If yes, follow up with:
    - How old were you when you saw your first dolphin? How did it make you feel?
    - How many times have you seen dolphins?
    - When was the last time you saw a dolphin?
    - Have you ever seen a dolphin injured or caught in a net? If so, can you tell me about it?
    - How do you feel now when you see a dolphin?
- If no, follow up with:
    - How do you feel about the Irrawaddy dolphin?
- How do you think others in your community feel about dolphins?
- Do you think it's important to protect the Irrawaddy dolphin and the river where it lives? Why or why not?
- (Cambodian participants only) How do you feel about the WWF?
- (Cambodian participants only) Do you think there is corruption in the WWF?
- (Cambodian participants only) How do you feel about the Ministry of Fisheries?
- (Cambodian participants only) Do you think there is corruption in the Ministry of Fisheries?

Effectiveness of the conservation project on dolphin population and habitat

- Can you tell me a little about the project to protect the dolphins and the river where they live?
- If not:
    - Have you heard about the law that prohibits electrofishing?
    - Have you heard about the regulations on fishing nets?
    - Have you heard about the dolphin workshops?
- If yes to any of above:
    - How has the conservation project affected you, your home, or your village?
    - If respondent indicates that there has been an effect, follow up with: How long do you think this will last? Why?

Deviation from policies

- Have you seen or heard of anyone using illegal nets in the river? If so, can you tell me why you think they're doing it without revealing the identity of any individuals?
- Have you seen or heard of anyone using electricity or dynamite to catch fish in the river? If so, can you tell me why you think they're doing it without revealing the identity of any individuals?
- What do you think about the dolphin tourism in the area? Is it managed responsibly?
- Have you seen or heard of anyone chasing or upsetting the dolphins? If so, can you tell me why you think they're doing it without revealing the identity of any individuals?
- (Burmese participants only) Have you seen or heard about people polluting the river upstream from gold mining? If so, can you tell me why you think they're doing it without revealing the identity of any individuals?

New/different perspectives?

- Do you have any other feelings about the Irrawaddy dolphin conservation project you'd like to share?
- Do you have any other feelings about how the conservation project has changed things?
- If I were to ask you what is the most important thing researchers like me can do for you and your community (whether it has to do with the dolphins or not), what would you say?

APPENDIX B

INTERVIEW SCRIPT FOR MEN

Demographics

- What is your first name?
- How old are you?
- Where were you born? Where did you grow up?
- How long have you been in this village?
- What do you do for work?
- Can you describe a typical day in your life?
- Can you describe a typical day in your wife's life?

Values and beliefs surrounding the Irrawaddy dolphin

- Have you ever seen a dolphin?
- If yes, follow up with:
    - How old were you when you saw your first dolphin? How did it make you feel?
    - How many times have you seen dolphins?
    - When was the last time you saw a dolphin?
    - Have you ever seen a dolphin injured or caught in a net? If so, can you tell me about it?
    - How do you feel now when you see a dolphin?
- If no, follow up with:
    - How do you feel about the Irrawaddy dolphin?
- How do you think others in your community feel about dolphins?
- Do you think it's important to protect the Irrawaddy dolphin and the river where it lives? Why or why not?
- (Cambodian participants only) How do you feel about the WWF?
- (Cambodian participants only) Do you think there is corruption in the WWF?
- (Cambodian participants only) How do you feel about the Ministry of Fisheries?
- (Cambodian participants only) Do you think there is corruption in the Ministry of Fisheries?

Effectiveness of the conservation project on dolphin population and habitat

- Can you tell me a little about the project to protect the dolphins and the river where they live?
- If not:
    - Have you heard about the law that prohibits electrofishing?
    - Have you heard about the regulations on fishing nets?
    - Have you heard about the dolphin workshops?
- If yes to any of above:

- How has the conservation project affected you, your home, or your village?
- If respondent indicates that there has been an effect, follow up with: How long do you think this will last? Why?

Changes in the community/home

- What changes have you seen in your village in the last ten years?
- What changes have you seen in your home now from ten years ago?
- How are things different for children in the village than they were ten years ago?

Deviation from policies

- Have you seen or heard of anyone using illegal nets in the river? If so, can you tell me why you think they're doing it without revealing the identity of any individuals?
- Have you seen or heard of anyone using electricity or dynamite to catch fish in the river? If so, can you tell me why you think they're doing it without revealing the identity of any individuals?
- What do you think about the dolphin tourism in the area? Is it managed responsibly?
- Have you seen or heard of anyone chasing or upsetting the dolphins? If so, can you tell me why you think they're doing it without revealing the identity of any individuals?
- (Burmese participants only) Have you seen or heard about people polluting the river upstream from gold mining? If so, can you tell me why you think they're doing it without revealing the identity of any individuals?

New/different perspectives?

- Do you have any other feelings about the Irrawaddy dolphin conservation project you'd like to share?
- Do you have any other feelings about how the conservation project has changed things?
- If I were to ask you what is the most important thing researchers like me can do for you and your community (whether it has to do with the dolphins or not), what would you say?

APPENDIX C

FOCUS GROUP SCRIPT

Ice-breakers

- How long have you known each other?
- How long have you been in this village?

Values and beliefs surrounding the Irrawaddy dolphin

- Do you think there is a difference in how men and women feel about the Irrawaddy dolphin?
- Do you think there is a difference in how men and women feel about the effort to protect the dolphin and its habitat?
- Do you think a person's age affects how they feel about the Irrawaddy dolphin?
- Do you think a person's age affects how they feel about the effort to protect the dolphin and its habitat?

Effectiveness of the conservation project on dolphin population and habitat

- Do you think there are other ways to protect Irrawaddy dolphins and their habitat that the government hasn't considered?

Effects of the conservation project on the community

- Have you noticed any changes in your community since the conservation project started? If so, what are they? If respondents answer in the affirmative, follow up with: How long do you think this will last? Why?

Deviation from policies

- Do you feel like people know about and understand the policies that protect the Irrawaddy dolphin and its habitat?
- Do you think the Irrawaddy dolphin conservation project is working?
- (Cambodian participants only) How do you feel about the WWF?
- (Cambodian participants only) Do you think there is corruption in the WWF?
- (Cambodian participants only) How do you feel about the Ministry of Fisheries?
- (Cambodian participants only) Do you think there is corruption in the Ministry of Fisheries?

New/different perspectives?

- If I were to ask you what is the most important thing researchers like me can do for you and your community (whether it has to do with the dolphins or not), what would you say?
- Is there anything else you'd like to share?

APPENDIX D

GENERALIZED QUESTIONNAIRE

1) What is your sex (circle one)? **Male** **Female** **Other**
2) Please indicate your **age**: _____
3) (on survey for non-fishers) What is your occupation? _____
3) (on survey for fishers) Are you currently a fisher (circle one)? **Yes** **No**
If you answered yes above, go to question 4. If you answered no, please answer 3a and 3b:

3a) What is your current job? _____
3b) What year did you change jobs? _____

Please circle how strongly you agree with each of the following statements:
4) The Irrawaddy dolphin is an important animal.
Strongly Disagree Disagree Neutral Agree Strongly Agree

5) I have good feelings for the Irrawaddy dolphin.
Strongly Disagree Disagree Neutral Agree Strongly Agree

6) The Irrawaddy dolphin conservation project has helped save the Irrawaddy dolphin.
(Actual question asked by Khmer interpreter: 'Do you think that they strongly protect and save the dolphins or its pit?')
Strongly Disagree Disagree Neutral Agree Strongly Agree Don't Know

6.1) *Only* if you circled "Agree" or "Strongly Agree" above, please tell me how you feel about the following statement: I believe these changes will last far into the future.
Strongly Disagree Disagree Neutral Agree Strongly Agree

7) The Irrawaddy dolphin conservation project has helped save the Irrawaddy dolphin's habitat.
Strongly Disagree Disagree Neutral Agree Strongly Agree Don't Know

7.1) *Only* if you circled "Agree" or "Strongly Agree" above, please tell me how you feel about the following statement: I believe these changes will last far into the future.
Strongly Disagree Disagree Neutral Agree Strongly Agree

8) (on survey for non-fishers) I have noticed **good** changes in my home in the last ten years.
Strongly Disagree Disagree Neutral Agree Strongly Agree
8) (on survey for fishers) Before the Irrawaddy dolphin conservation project started, my family was able to meet all of its basic needs.
Strongly Disagree Disagree Neutral Agree Strongly Agree

9) (on survey for non-fishers) I have noticed **bad** changes in my home in the last ten years.
Strongly Disagree Disagree Neutral Agree Strongly Agree
9) (on survey for fishers) The Irrawaddy dolphin conservation project has made it easier for my family to meet all of its basic needs.
Strongly Disagree Disagree Neutral Agree Strongly Agree

10) I have noticed **good** changes in my community (non-fishers) in the last ten years./ (fishers) as a result of the Irrawaddy dolphin conservation project.
Strongly Disagree Disagree Neutral Agree Strongly Agree

10a) *Only* if you circled "Agree" or "Strongly Agree" above, please tell me how you feel about the following statement: I believe these changes will last far into the future.
Strongly Disagree Disagree Neutral Agree Strongly Agree

11) I have noticed **bad** changes in my community (non-fishers) in the last ten years./ (fishers) as a result of the Irrawaddy dolphin conservation project.
Strongly Disagree Disagree Neutral Agree Strongly Agree

12) I am aware of the laws that help protect the Irrawaddy dolphin.
(Actual question asked by Khmer Interpreter: 'Do you think that the laws or the government participation is strong or average?')
Strongly Disagree Disagree Neutral Agree Strongly Agree

13) I think dolphin tourism in the area is managed responsibly.
Strongly Disagree Disagree Neutral Agree Strongly Agree Don't Know

<u>Please circle how often the following statements are true:</u>
14) I have seen or heard about people using illegal nets (non-fishers) in the area./(fishers) in the protected area for the dolphins.
Never Rarely Occasionally Frequently Regularly

15) I have seen or heard about people using electricity or dynamite to catch fish in the (non-fishers) in the area./(fishers) in the protected area for the dolphins.
Never Rarely Occasionally Frequently Regularly

16) I have seen or heard about people chasing or upsetting the dolphins.
Never Rarely Occasionally Frequently Regularly

17) (Burmese participants only) I have seen or heard about people polluting the river from gold mining in villages in the north.
Never Rarely Occasionally Frequently Regularly

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