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**Private sector partnership as an adaptive capacity change mechanism: a
coastal fishing community meets tourism in Cambodia**

A thesis
submitted in partial fulfilment
of the requirements for the Degree of
Master of Resource Studies

at
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by
Kelly Jean Governor

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Abstract of a thesis submitted in partial fulfilment of the requirements for the Degree of Master of Resource Studies.

Private sector partnership as an adaptive capacity change mechanism: a coastal fishing community meets tourism in Cambodia

by

Kelly Jean Governor

Adaptive capacity is a predominant feature of vulnerability, resilience, and adaptation. If adaptive capacity reduces vulnerability, improves resilience, and promotes adaptation, then it follows that its enhancement is beneficial. The changing global environment is fraught with risk and uncertainty, with issues such as climate change highlighting this very clearly. Coastal communities dependent on natural resources have been identified as being particularly susceptible to climate change threats. Coastal areas are also prime real estate for tourism development. Increasingly tourism operations in least developed countries are introducing community and conservation programs as tools for community development and capacity building. This thesis uses a qualitative research strategy to investigate whether partnerships between the private sector and coastal fishing communities can be used as mechanisms for enhancing adaptive capacity. A case study approach using ethnographic research methods, including participant observation and 46 semi-structured interviews, was employed. The case study was based in Prek Svay, an offshore island fishing village in coastal Cambodia. Adaptive capacity indicators were developed and used to describe the adaptive capacity of the community. Tourism development has been taking place in and around Prek Svay, with a recent arrival, the Song Saa Private Island Resort, having established a Conservation and Community Program to work with the local community. The relationship between these two parties is at the centre of this case study. The results of this thesis indicate that adaptive capacity can be influenced by community based partnerships with the private sector, although the direction of the change cannot be guaranteed.

Adaptive capacity, adaptation, vulnerability, resilience, climate change, uncertainty, capacity building, community development, decentralisation, partnership, coastal, community, marine fisheries, private sector, tourism, Cambodia, Koh Rong, Prek Svay

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Chapter 1

Introduction

The only way to make sense out of change is to plunge into it, move with it, and join the dance.
Alan Watts

We live in a world where ecological and social systems are interconnected and in a constant flux of change. In the field of climate change, the relationship between ecological and social systems has been extensively researched, yet predictions for the future remain shrouded in uncertainty. Climate change is a complex issue, one not completely understood. Scientific literature is dominated by predictions of changing temperatures, alterations to system dynamics, variations in precipitation patterns, increasing sea level rise, and more frequent and intense climatic events. The list of hazards associated with such changes is long and inconclusive. Despite the controversies that surround the cause and effect of climate change there is a certain level of consensus in regards to factors that make eco-systems, communities, and individuals vulnerable to its impacts. It is widely acknowledged that social, economic, political, and environmental aspects can all create variation in climate change vulnerability.

1.1 Understanding climate change

Touted as the greatest challenge for humanity and possibly the world as a whole (Dow & Downing, 2006; Karl & Trenberth, 2003), climate change has been described as a global natural disaster evolving in slow motion (Molnar, 2010). A global phenomenon with local consequences, climate change has become one of this century's most hotly debated topics with opponents on each side of the debate having been labelled 'alarmist' and 'sceptic' (Morgan & Crystal, 2009). The term alarmist has been used to describe those who support the theory of anthropogenic climate change. It is their calls for immediate and radical action, and mitigation at a global scale that has helped to earn them this title (Morgan & Crystal).

The term sceptic on the other hand is used to cover a broad range of opinions. Some sceptics represent those yet to be convinced of anthropogenic global warming, while others are those uninterested in the science or those who refute the arguments altogether (Morgan & Crystal, 2009). Climate change, like most natural phenomenon, can be understood in a multitude of ways. A simple

dichotomy, as put forward by Morgan and Crystal (2009) above, cannot adequately capture the myriad of perspectives on the topic. People's awareness and understanding of climate change is not uniform and may be based on personal experience, western science, or some other kind of traditional, religious, or philosophical belief.

1.1.1 The Four Noble Truths

Climate change is a crisis which is said (Hout Bay Theravada Buddhist Centre, 2006) to closely relate to the Buddhist understanding of the world. There is a saying in Buddhism "all is dukkha". Often translated as suffering, the difficulty in translating the significance of the term is well recognised (Littleton, 1996; Tarbox, 2002). Dukkha refers to the condition of universal impermanence that affects everything. It can be understood in three ways, ordinary suffering, dissatisfaction arising from change, and the interconnectedness of all actions and deeds (Littleton, 1996). Buddha himself said that he came to teach dukkha and the cessation of it (Littleton, 1996; Singh, 2011). At his first sermon following enlightenment, 'Setting in motion the wheels of Dharma', Buddha shared the Four Noble Truths (*Aryasatya*), proclaiming dukkha and its cessation.

One of the most basic teachings of Buddhism, the Four Noble Truths are said to be applicable to understanding the condition of humanity and the environment today. The first noble truth is the Truth of Dukkha (*Dukkha*). Buddha taught that everything is dukkha; birth, death, decay, sickness, ageing, unfulfilled desires, the constantly changing state of all experiences and emotion (Littleton, 1996). The second noble truth, the Truth of the Origin of Dukkha (*Samudaya*), tells us that dukkha has a cause. The cause of dukkha is said to arise from craving and greed. The third noble truth, Cessation of Dukkha (*Nirodha*), teaches us that it is not until the cause of suffering is recognised can we understand how to reduce or eliminate it. Finally the fourth noble truth, the Noble Truth of the Eightfold Path (*Magga*), shares that although the world is full of suffering it can be overcome.

1.1.2 Climate change and the Eightfold Noble Path

It was the Noble Eightfold Path that Buddha put forward as a means of overcoming suffering (Kornfield & Fronsdal, 1993; Littleton, 1996; Singh, 2011). The Noble Eightfold Path is commonly broken down into three main parts (Kornfield & Fronsdal, 1993), wisdom (*Prajna*), moral action (*Shila*), and meditative concentration (*Samadhi*) (see table 1.1 below). Wisdom is comprised of right understanding and right thought, while moral action is made up of right speech, right action, and right livelihood, and meditative concentration of right effort, right mindfulness, and right concentration (Kornfield & Fronsdal, 1993; Littleton, 1996). The Four Noble Truths therefore provide

a diagnosis (*Dukkha*) and cause (*Samudaya*) of the current condition of the world (Singh, 2011). Through the teaching of the Four Noble Truths Buddha expressed that recovery is possible (*Nirodha*) when the right remedy (*Magga*) is applied.

Table 1.1 Eightfold Noble Path

Wisdom	Right Understanding
	Right Thought
Moral Action	Right Speech
	Right Action
	Right Livelihood
Meditative concentration	Right Effort
	Right Mindfulness
	Right Concentration

Source: Kornfield & Fronsdal, 1993

It has been argued that the Four Noble Truths and the Eightfold Noble Path can be used to put climate change into perspective, and can be applied to guide a response to the situation (Hout Bay Theravada Buddhist Centre, 2006; Meyer, 2000). The Four Noble Truths frames climate change as a global problem that has come from over-consumption (greed), inequality, lack of compassion for the suffering of others, and human action without wisdom (Hout Bay Theravada Buddhist Centre, 2006; Meyer, 2000). Based on this framing it is believed (Hout Bay Theravada Buddhist Centre) that the problem of climate change can be overcome through wisdom, moral action, and meditative concentration as set out in the Eightfold Noble Path.

1.1.3 Climate change and empirical science

The Four Noble Truths may provide one way of understanding the concept of climate change; however it is certainly not the only way. The Intergovernmental Panel on Climate Change (IPCC) has assessed and reported comprehensively on the current state of knowledge in regards to climate change through four technical reports. Described as “the organisational backbone of the climate knowledge infrastructure” (Edwards, 2010, p. 398) the IPCC was established in 1988 by the World Meteorological Organisation and the United Nations Environment Programme (Parry, Osvaldo, Palutikof, van der Linden, & Hanson 2007). Run almost entirely by scientists, the IPCC has representation from most nations including government representatives from 193 different countries.

The goals of the IPCC (Edwards, 2010) are to fairly represent the full range of credible scientific opinion and to indicate likely future climate scenarios based on greenhouse gas emissions. The empirical science of the IPCC and other climatology scientists indicates that the growing human population is affecting the climate through three interrelated factors: greenhouse gas emissions, the discharge of high concentrations of aerosols, and changes in land use (Pilkey, Pilkey, & Fraser, 2011). These changes are projected (Parry et al., 2007) to have global social, economic, political, and ecological consequences.

The hazards of climate change

The IPCC report observed changes in air and ocean temperatures, precipitation patterns, sea level and the frequency of extreme climatic events (Pachauri & Reisinger, 2007; Parry et al., 2007). Hazards that are predicted to result from changes such as these include (Pachauri & Reisinger, 2007; Parry et al., 2007; Pilkey et al., 2011; Shearman & Smith, 2007) increased flooding and drought, increased storm frequency and intensity, melting of glaciers and contraction of snow cover, wildfires, changes in distribution and production of plant and animal species, increased risk of plant and animal extinctions, increases in infectious diseases, changes in marine and terrestrial eco-system structure and function, damage to eco-system services, habitat changes, changes in crop productivity, loss of soils, water and food insecurity, famine, desertification, and increasing conflict. As well as having numerous environmental and economic consequences, climate change poses a significant threat to human health and wellbeing, settlements, society, and livelihoods (Pachauri & Reisinger, 2007).

Future uncertainty

“Uncertainty – meaning that more than one plausible future can be asserted – is unavoidable” (Ensor & Berger, 2009, p.9). When it comes to climate change, the exact rate and magnitude of impacts and consequences remain uncertain (Abeygunawardena et al., 2003). Despite our best research efforts, the complexity of social and ecological systems makes predicting future climate change events and consequences, with certainty, impossible (Berkes, 2007). The IPCC projections are based on observational data, peer-reviewed literature, and mathematical modelling. While the IPCC have been labelled as alarmist by some (Morgan & Crystal, 2009), scholars such as Ensor and Berger (2009) argue that when relying on conclusions from the IPCC, it is important to keep in mind that their approach to knowledge gathering and sharing has the potential to be conservative. Whether the projections of the IPCC are an overstatement or conservative, for some of those deemed most vulnerable, action cannot wait until the science is conclusive.

1.2 Vulnerability to climate change

Vulnerability to climate change is not evenly distributed between or within societies. The IPCC explain that vulnerability to climate change is contextual in that it is dependent on specific social, geographic, and sectorial factors (Parry et al., 2007). Age, gender, ethnicity, education, health, and reliance on natural resources are all believed to affect vulnerability (Dow & Downing, 2006; Parry et al., 2007). In addition, the poor and people living in coastal areas are identified as being exceptionally at risk. The next part of this introductory chapter explores the link between poverty and vulnerability to climate change. It then goes on to discuss how vulnerability can be further intensified when those living in poverty are located in coastal areas.

1.2.1 Vulnerability of the poor

The poor, especially those living in areas considered high risk, are said to be extremely vulnerable to the effects of climate change (Dow & Downing, 2006; Parry et al., 2007; Shearman & Smith, 2007; United Nations Development Programme [UNDP], 2011). Fussel (2012) suggests that there are a number of factors that make the poor particularly vulnerable. These include: already living close to or below the poverty line, living in marginal areas or areas prone to extreme weather related events, a heavy dependence on natural resources, fewer financial assets, limited access to weather related information and early warning systems, and political marginalisation (Fussel, 2012). Others suggest that for the poor (Abeygunawardena et al., 2003; Magnan, 2010), access to food and water can already be problematic and their coping capacities are often already under strain.

It is predicted that in developing countries adapting to the effects of climate change will be more of a challenge than it will be in developed countries, largely due to differences in adaptive capacity and risk awareness (Nicholls et al., 2007; Parry et al., 2007; Shearman & Smith, 2007). This argument is based on the assumption that that low levels of development equal low levels of adaptive capacity. Limited access to information, technology, and other capital assets is understood to result in low adaptive capacity (Parry et al., 2007). At a national level the ability to adapt to climate change is said to be influenced by a country's wealth, resources, and governance (Dow & Downing, 2006), and therefore it is often postulated that adaptive capacity will remain low in countries with a high incidence of poverty (Parry et al., 2007). However, not everyone agrees with this sentiment.

Scholars such as Magnan (2010) argue that assuming that people living in poverty hold no adaptive capacity overlooks the importance of intangible assets such as local knowledge and social networks as worthy adaptation levers. Magnan explains that the assumption that the poor have limited adaptive capacity can be risky as it can lead to the belief that the wealthy have greater adaptive

capacity, thus suggesting they are less vulnerable, giving them a false sense of security in their own ability to adapt. Magnan's argument (2010) is not based on the belief that the poor are not vulnerable to climate change, rather it is considered that people living in poverty do hold some capacity to adapt, albeit if it differs from that of the wealthy.

Regardless of wealth, climate change will be overlaid onto existing vulnerabilities (Abeygunawardena et al., 2003; Yohe et al., 2007), whether in the most developed or least developed countries. In countries where there are other pressing issues - for example, domestic conflict, hunger, epidemics, resource degradation, and terrorism - attention is often diverted away from the threat of climate change (Parry et al., 2007). Long term sustainable development goals are thought to be less relatable for people and communities whose main focus is meeting their daily subsistence needs (Parry et al., 2007). The human development index (HDI) has been suggested as a broad measure of a country's capacity to adapt to the effects of climate change (Dow & Downing, 2006).

A country's HDI score is based on income, social equality, and health and education provisions. In 2012 Cambodia ranked 138th from 186 countries (UNDP, 2013), which indicates a medium level¹ of human development. Cambodia is a country with high levels of poverty and a largely rural population (discussed in more detail in Chapter 4). These factors are believed to leave Cambodian communities particularly vulnerable to the effects of climate change (UNDP, 2011). It is likely that in Cambodia the ability to adapt to, and recover from, potential climate change hazards will be inhibited by low levels of education, health, and information provision. This is not to say that communities in Cambodia hold no capacity for adaptation, because of course they do.

1.2.2 Vulnerability in coastal areas

In countries all over the world, human settlements have a long history of concentrating in coastal areas (Wong, Boon-Thong, & Leung 2006). It is estimated (Decroly, 2006) that more than a quarter of the world's population currently live within 50 km of a coast, almost half live within 200 km, and greater than two thirds live within 500 km. Coastal communities are expected to feel the full force of the predicted climatic changes, although some argue (Beatley, 2009) that very few coastal communities have given serious consideration to the possible long-term consequences of what this really means for themselves, their communities, and their livelihoods.

¹ Human Development rankings are categorised into very high, high, medium, and low human development (UNDP, 2013). Cambodia sits very close to the bottom of the medium human development category, edging dangerously close to low human development.

Action to implement strategies for mitigation and adaptation may have been slow but the IPCC (Nicholls et al., 2007) report that coasts are already beginning to experience the adverse effects of sea level rise and coastal hazards directly related to the effects of climate change. On top of the threat of sea level rise, there are warnings of warming sea surface temperatures, ocean acidification, increased tropical cyclone frequency and intensity, coastal erosion, saltwater intrusion, and larger extreme waves and storm surges. Changes in hydrology, energy regimes, and land use can threaten coastal wetland ecosystems such as saltmarshes and mangroves (Nicholls et al., 2007). The removal or loss of these natural buffers can leave communities at greater risk of falling victim to coastal hazards (Coastal Resilience, 2012; UNDP, 2008).

In Cambodia, where this case study was undertaken, the predicted impacts are variable across the country. In the coastal zone, which includes the location of this case study, climate change impacts will not take place in isolation. Instead the stressors of climate change will be felt in combination with impacts from other pressures such as increased tourism development, industrialisation, and urban expansion (UNDP, 2011). With increases in development, competition for resources such as freshwater will likely become fierce. In the coastal and small island communities which have limited freshwater availability this is predicted to be especially problematic. Many of the climate change impacts predicted for Cambodia are expected to be felt through changes in the availability, quality, and quantity of water resources (UNDP, 2011; Parry et al., 2007).

It is expected (Parry et al., 2007) that the availability of freshwater resources on small islands will be seriously compromised. The IPCC report with high confidence that small island communities are especially vulnerable to the effects of climate change, in particular sea-level rise and extreme weather events (Nicholls et al., 2007). Settlements, infrastructure, and facilities that support the livelihoods of small island communities are expected to be threatened (Parry et al., 2007) when sea-level rise is superimposed onto existing coastal problems, for example mangrove deforestation and coastal erosion. The degradation of coastal ecosystems is predicted to present serious socio-economic costs for hundreds of millions of people (Nicholls et al., 2007).

McClanahan and Cinner (2012) group the social and economic impacts of changes to marine systems into three broad categories. These are direct impacts from sea level rise, cyclones and coastal erosion, indirect impacts from economic sectors such as marine-orientated tourism, and impacts on fisheries. These social and economic impacts highlight the vulnerability of livelihoods in coastal areas. Furthermore, in tropical areas already prone to diseases such as malaria, dengue, filariasis, and food and waterborne diseases, coastal and small island communities may see increases in diarrhoeal diseases, heat stress, skin diseases, acute respiratory infections, and asthma (Parry et al., 2007). Health can also significantly impact upon a person's livelihood (UNDP, 2011).

It is probable that communities economically dependent on natural resources will face substantial livelihood and wellbeing challenges if the resources they rely on become subject to the effects of climate change (Wall & Marzall, 2006). Changes to a resource base can threaten incomes and food security as resources such as plants and aquatic organisms people utilise for their livelihoods become scarce or non-existent (Molnar, 2010). Island communities are often reliant on fishing for most of their dietary protein, thus exposing a vulnerability to malnutrition (Shearman & Smith, 2007). Parry et al. (2007) report that commercial and subsistence agriculture, fisheries, and other marine based resources are at high risk from climate change and it is likely that coastal and small island communities will be adversely affected by this.

1.2.3 Vulnerability of fisheries

In 2010, the FAO reported that more than 4.5 billion people use fish to provide at least 15 per cent of their average per capita intake of animal protein. The FAO (2010) suggests that the primary and secondary fishery sectors globally support the livelihoods of about 540 million people, around 8 per cent of the total human population. In 2007, the Khmer Fisheries Administration of Cambodia reported that 1.5 million people were employed fulltime in the fisheries sector. Furthermore, 6 million people were thought to be receiving some form of livelihood benefit from involvement in fishing related activities. In 2009 (FAO, 2011), Cambodia's fishery was estimated to have had a productivity of 515,000 tonnes, of this, 75,000 tonnes was produced by marine fisheries. Fishery statistics in Cambodia have never been well quantified (McKenney & Tola, 2002), and prior to 1980 only occasional descriptions of fish catches exist, making it difficult to estimate the true extent of change to the resource base.

Those who depend on fisheries for their livelihoods can experience the impacts of climate change through multiple pathways (Badjeck, Allison, Halls, & Dulvy 2010). Direct impacts, such as ecological and biological changes to marine ecosystems and resident fish populations, and extreme weather patterns that affect fishing operations and infrastructure, are coupled with indirect impacts such as adaptive management strategies from other sectors (Badjeck et al., 2010). Poorly planned adaptive strategies from other sectors, for example flood control, or drainage and irrigation schemes from the agricultural sector, are capable of further compounding the direct adverse effects already being experienced by fisheries. It is widely recognised that those heavily dependent on fisheries will be hardest hit by changes in fishery productivity (WorldFish Center, 2009). Poverty, marginalisation, and lack of alternative livelihood opportunities will leave many of the most vulnerable under-resourced and unable to recover from adverse changes.

Serious declines in fisheries would present severe consequences for Cambodia's rural people and national economy (UNDP, 2011). Research conducted in 2009 (Allison et al., 2009) that compared the vulnerability of 132 national economies to potential climate change impacts on capture fisheries, found Cambodia to be one of the most vulnerable. This finding was based on the predicted warming, the importance of the fishery to the national economy and diet, and society's limited capacity to adapt. Diversification of livelihoods and improved access to natural resources are deemed essential components in building capacity to adapt to immediate environmental change, including the effects of climate change (WorldFish Center, 2009). Regardless of climate change, concern for Cambodia's capture fisheries is mounting, with the Cambodia Human Development Report (UNDP, 2011) expressing concern that a crisis of governance over access to, and control over, fishery resources already exists in the country.

1.3 Climate change one of many threats

Climate change, while an urgent and potentially life threatening concern, is not the only environmental threat facing communities around the world. Other environmental changes are also occurring in conjunction with climate change. As already discussed, vulnerability to climate change will be further exacerbated when combined with other underlying stresses (Yohe et al., 2007), for example, poverty, conflict, unequal access to resources, food insecurity, environmental degradation, and risk from natural hazards. People and livelihoods vulnerable to the effects of climate change, may also be suffering negative consequences as a result of resource degradation, environmental pollution, poor resource management, damaged ecosystem services, losses in biodiversity, and over exploitation of natural resources (Lambin, 2007).

As climate change becomes more topical and natural disasters are reported on more and more frequently, it would be easy to assume that these really are humanity's greatest challenge. However violent political conflict was responsible for more deaths during 1990-1999 (Wisner, 2004) than all slow and rapid onset disasters (famines, floods, earthquakes, tsunamis, storms, volcanic eruptions, landslides, wildfires, and avalanches), epidemics, and road, rail, air and industrial accidents combined. Wisner (2004) reports that during this time 270.7 million people were killed in political conflict compared to 163.4 million in all the other incidents collectively. Violent conflict can interact with natural hazards and will often be the main cause of social vulnerability (Wisner).

In conflict situations many of the most vulnerable can be subject to marginalisation, exclusion and abuse, and displacement can lead to new risks and increased vulnerability (Wisner, 2004). During times of conflict funds can be diverted, infrastructure can be destroyed, natural resources can be

negatively impacted and participatory methods may be difficult or impossible to implement. Cambodia is a country with a history of war, where conflict and genocide have left a legacy of physical and emotional wounds. In April 1975 the Khmer Rouge came to power (Panh, 1999), with a regime yet to be fully overcome in Khmer society.

In relation to fishing, while climate change has the potential to impact productivity and fishery dependant livelihoods, there are numerous other challenges the industry is facing. Overfishing and illegal and destructive fishing methods pose a significant threat to the sustainability of fisheries (McKenney & Tola, 2002). In Cambodia, electro-fishing and poisoning, pumping water out of fishing grounds, using nets with extremely small mesh sizes, illegal gear, trawling and fishing outside of assigned seasons, are all common practice (McKenney & Tola). Authorities have limited capacity to respond and so the activities continue. Conflict is known to arise through resource competition, with access underlining equity issues. In coastal areas in Cambodia mangroves are cut and utilised for fuel wood and fishing equipment. The destruction of mangrove forests is understood to be having a negative impact on fish habitat and breeding areas (McKenney & Tola).

From the early stages of this research it was recognised that climate change is but one of a multitude of global environmental changes posing a risk to individuals and communities. Although this research holds the threat of climate change in the foreground, it does not neglect to recognise that there are other environmental and social changes taking place in unison. The challenge for communities, governments, and policy makers is how to plan for adaptation when the nature of change remains so uncertain and complex.

1.4 Adapting to change and uncertainty

A number of different theoretical disciplines have endeavoured to explain the process of climate change from a purely scientific perspective. Adaptation, vulnerability, and resilience are three interrelated social science theories used to frame the issue. Common to each of these three theories is the characteristic adaptive capacity. The definition of adaptive capacity adopted in this research is based on McClanahan and Cinner (2012):

Adaptive capacity refers to the conditions that enable institutions, systems, and people to anticipate and respond to change, to minimise and recover from the consequences of change, and to take advantage of new opportunities brought about through change.

Climate change is a multifaceted issue and being open to multiple perspectives allows for exploration into linkages and relationships. The centrality of adaptive capacity to each of the different theories identified makes its importance evident. Communities with less adaptive capacity are portrayed as

more vulnerable than communities with high levels of adaptive capacity, who are portrayed as being more resilient.

Research on climate change has traditionally focused on the need for mitigation but more recently there has been an increase in adaptation focused research. Mitigation involves anticipating a problem and changing behaviour in order to minimise or avoid it (Schoon, 2005 as cited in Maguire & Cartwright, 2008). Adaptation on the other hand is described as adaptive capacity plus action (Maguire & Cartwright, 2008), where adaptive capacity is the capacity to act, often for the purpose of reducing vulnerability and enhancing resilience. There is now a belief (Abeygunawardena et al., 2003; O'Brien, 2008) that adaptation is necessary if environmental, societal, and economic damage from the effects of climate change are to be avoided. At the same time there is recognition that adaptation to climate change is constrained by environmental, social and economic uncertainty (Castro, Taylor, & Brokensha, 2012).

With its roots in ecology, natural hazards, and risk management (Smit, Burton, Klein, & Street 1999), adaptation can refer to either the process of adapting or the condition of being adapted. Adaptation has a number of different variables, for example it can be autonomous or planned, reactive or proactive, consider technological or behavioural solutions, and can relate to adjustments in ecological, social or economic situations (Smit et al., 1999). Adaptation is said (O'Brien, 2008) to embed resilience when considered in terms of risk reduction to climatic change as it entails purposeful action intended to help communities cope with and withstand disturbance. Adaptive capacity has been described (Marshall, Marshall, Tamelander, Obura, Malleret-King, & Cinner, 2010) as the component of vulnerability that is most adjustable to influence social systems and it is therefore a sensible focus for adaptation research and planning.

Adaptive capacity is depicted as a positive attribute that can help to promote resilience, thus raising questions about how adaptive capacity might be enhanced. As has been discussed in this chapter, it is often suggested that people living in coastal areas, especially those steeped in poverty and dependent on natural resources in sustaining their livelihoods, are particularly vulnerable to climate change. Coastal areas are magnets for tourism investment and in a competitive market some tourism operations are working to implement more responsible and sustainable business practices. As a part of this, there are tourism operators who are endeavouring to partner with the local communities where they have established their businesses for conservation or community development purposes.

1.5 The research problem

Thus far we have established that although a certain degree of controversy continues to surround the topic of climate change, for some the need for adaptation is becoming increasingly urgent. Vulnerability to climate change is variable. For poor people living in coastal and small island communities whose livelihoods depend on natural resources, the risk of falling victim to the effects of climate change is regarded as being high. The literature suggests that it is possible to reduce vulnerability and enhance resilience to climate change through adaptation. An essential element of climate change adaptation is adaptive capacity. This poses the question, how can adaptive capacity be enhanced as to maximise the chance of effective adaptation?

In many coastal communities around the world, planning for climate change adaptation is yet to begin. While coasts have been identified by the IPCC as extremely vulnerable to the effects of climate change, they remain heavily populated and prime real estate for tourism development. For some, living in coastal areas comes from an inability to move to other places, while others see value in occupying these spaces. The ability to understand and implement climate change adaptation strategies have traditionally been seen as sitting within the realm of physical and social scientists, government officials and policy makers; however could it be that there are others that are also capable of influencing change? In this thesis I question what role the private sector can play in climate change adaptation. More specifically I draw on vulnerability, resilience, and adaptation theory to consider whether partnerships between coastal fishing communities and tourism operators can be used to enhance adaptive capacity.

1.6 Research strategy and objectives

In order to investigate this, a qualitative research strategy based on ethnographic research methods was drafted and implemented. A case study in the village of Prek Svay on Koh Rong Island in Cambodia was chosen. The Population Reference Bureau (PBR) (2011) estimates that 57 per cent of the Cambodian population continues to earn less than 2.00USD per day. The population in mid-2011 sat at around 14,702,000 people, with around 80 per cent living in rural areas (PBR, 2011). The coastline in Cambodia extends for 435 km along the Gulf of Thailand (Touch, 2004). In the coastal zone to the southwest of the country a number of small offshore islands can be found. Located on one of these islands, Koh Rong, is the fishing village of Prek Svay. In this small island village, people rely on resources from the sea to sustain their livelihoods.

The natural beauty of the island has also made it attractive for tourism investment. In recent years tourism on Koh Rong and the surrounding islands has increased. A new arrival visible from the

shores of Prek Svay is the luxury five-star Song Saa Private Island Resort, developed and owned by an Australian couple. This Resort exhibits a commitment to social and environmental responsibility through the development of a Conservation and Community Program. The relationship that has emerged between the local Prek Svay Basin community and the Song Saa Conservation and Community Program is at the centre of this case study. When reading this paper it is important to be mindful that when the fieldwork was conducted the Conservation and Community Program was in its early stages.

In addition to exploring whether partnerships such as those discussed above can enhance adaptive capacity, this research seeks to critically evaluate the concept of adaptive capacity and its utility in responding to change. There is a growing body of literature on adaptive capacity and although there is little difference in its conceptualisation (Smith, Carter, Daffara, & Keys, 2010), measurability remains problematic. Scholars describe factors, characteristics, and determinants of adaptive capacity; however there remains no direct measure (Brooks & Adger, 2005). Through the literature review process a set of general adaptive capacity indicators was generated. These indicators were used to form the basis of the data analysis. The indicators developed relate to four underlying determinants which are access to assets, diversity, good governance, and social learning.

Six objectives were developed to guide this research project. These were:

1. Assess the arguments concerning the socio-cultural and economic vulnerability of coastal fishing communities to the potential effects of climate change
2. Critically evaluate the concept of adaptive capacity and establish key indicators based on the literature
3. Document and describe both the socio-economic system of the Prek Svay fishing community and its existing adaptive capacity using the indicators identified
4. Understand the nature of the relationship between the Conservation and Community Program and the Prek Svay Basin community
5. Compare the adaptive capacity prior to and following the establishment of this relationship
6. Comment on the prospect that such initiatives will be successful in enhancing adaptive capacity

In order to achieve these objectives, I travelled to Prek Svay in June 2012 to spend six weeks in the field. During this time I used participant observation to gather data. This included observing daily life in the village, Conservation and Community Program activities and interactions, and the relationship between the Program's team and people from the local community. The participant observation was complemented with a series of semi-structured interviews. In total 46 interviews

were conducted, 40 from village respondents, five from the Conservation and Community Program team, and one with the staff village Doctor. Due to the nature of the research, prior to leaving for Cambodia ethics approval was sought and received from the Lincoln University Human Ethics Committee.

1.7 Thesis structure

Subsequent to this introductory chapter, this thesis is divided into another seven chapters. Chapter two includes a literature review that investigates the relationship between vulnerability, resilience, and adaptive capacity. As part of this literature review determinants of adaptive capacity are identified. These determinants were used to develop of a set of adaptive capacity indicators which later form the basis of the data analysis. In chapter three, the underlying assumptions and objectives of this research are set out and the methodology is described in detail. Following this, chapter four is a contextual chapter used to put the case study into perspective. It includes background information on the Cambodia, its people, and its government before introducing the village of Prek Svay and the relationship at the heart of the case study.

Chapter five is the first of two results chapters. The adaptive capacity indicators that were developed in chapter two are used as the underlying structure for this chapter. The second results chapter, chapter six, looks at the relationship between the Prek Svay community and the Song Saa Conservation and Community Program. Chapter seven is the discussion chapter where I return to my initial research assumptions and objectives, addressing each one individually. Finally chapter eight is where this thesis draws to a close. Here I answer the research question, summarise each of the main findings, and provide recommendations for the relationship in question and for future research.

1.8 Chapter summary

This chapter began by introducing the Four Noble Truths, a Buddhist teaching that can be used to put climate change into perspective (Hout Bay Theravada Buddhist Centre, 2006; Meyer, 2000). At the same time empirical science can be used to frame the issue from a somewhat different point of view. While perspectives may vary, the hazards remain the same. Hazards include among other things, flooding and drought, increased storm frequency and intensity, wildfires, increased risk of extinctions, and changes in ecosystem structure and function (Pilkey et al., 2011; Shearman & Smith, 2007). These hazards can have social, physical, ecological, and economic consequences. People living in poverty are often regarded as being particularly vulnerable to the effects of climate change

(Nicholls et al., 2008; Shearman & Smith, 2007), largely due to lack of adaptive capacity and risk awareness.

In coastal areas, it is predicted that climate change will significantly impact on resource availability (Nicholls et al., 2008), leaving coastal and island communities vulnerable. In coastal areas already prone to tropical and infectious diseases, increasing health issues are forecast (Parry et al., 2007). A reduction in health can have a negative effect on a person's livelihood and overall quality of life. Livelihood diversity may work to reduce a person's vulnerability but people heavily reliant on natural resources may find that they remain at nature's mercy. Coastal fisheries are also considered vulnerable to climate change (Badjeck et al., 2010). In Cambodia, there is little long-term fishery data (McKenney & Tola, 2002) making it difficult to be sure of the true extent of change currently taking place.

It is recognised that climate change impacts will be further compounded when combined with other underlying stressors (Yohe et al., 2007). Where there is underlying conflict, poverty, health issues, or resource dependency, the hazards of climate change will be exacerbated. Adaptation to climate change results when action is taken to reduce vulnerability and enhance resilience (Smit & Wandel, 2006, as cited in Maguire & Cartwright, 2008). Here adaptive capacity represents the ability to take action. Adaptive capacity will be the focus of this study as it is central to vulnerability, resilience, and adaptation theory and because it is a fundamental component in helping vulnerable communities and individuals become more resilient in a world full of uncertainty. In the next chapter the relationship between vulnerability, resilience, and adaptive capacity is explored.

Chapter 2

Theoretical underpinning

2.1 Introduction

The emergence of climate change research has highlighted a relationship between vulnerability, resilience, and adaptability. These three concepts may have been developed in isolation but they are now increasingly being brought together (Gallopín, 2006; Maguire & Cartwright, 2008). Vulnerability, resilience, and adaptive capacity are different yet related and contain a number of linkages and complementarities, representing opportunities for integration (Adger, 2006; Miller et al., 2010). Miller et al. (2010) argue that identifying convergence, seeking collaboration to advance knowledge, and building on strengths from the different fields not only recognises the importance of multiple perspectives but can also be used to address pressing global problems such as climate change. In this chapter the theories of vulnerability, resilience, and adaptive capacity are introduced and the relationship between them is explored. The previous introductory chapter highlighted factors that can contribute to vulnerability to climate change. This chapter begins with a closer examination of what is meant by the term vulnerability.

2.2 Vulnerability

Vulnerability is a term used across a number of different disciplines and theoretical traditions including hazard studies, the geophysical sciences, political economy, political ecology, constructivism, and geography (Adger, 2006; Miller et al., 2010). Although recently conceptualised in relation to climate change and adaptation, vulnerability has traditionally been studied in the fields of human geography and human ecology, sustainable livelihoods, natural hazards, and environmental change (Adger, 2006; Maguire & Cartwright, 2008). While numerous definitions exist, vulnerability generally refers to the possibility to suffer some degree of harm or loss from a hazardous event (Berkes, 2007). Usually portrayed in negative terms vulnerability is repeatedly described as *susceptibility* to harm, from *exposure* to stresses or shocks, combined with a lack of *capacity to adapt* (Adger, 2000; Allison et al., 2009; Marshall et al., 2010). Vulnerability has been categorised in a number of ways, for example, vulnerability to hazard, vulnerability as state, and vulnerabilities as components of community (Maguire & Cartwright, 2008).

Scholars have indicated that there are two widely accepted points in relation to vulnerability theory:

1. The multi-scale nature of the perturbations and the effects upon the system and
2. The fact that most socio-ecological systems are usually exposed to multiple, interacting perturbations.

(Van der Leeuw, 2001 & Turner, 2003, as cited in Gallopin, 2006, p.294)

This suggests that at any given time a system can be vulnerable to a variety of disturbances, or vulnerable to certain disturbances and not to others. Different natural hazards and political disruptions will likely affect different groups in society in different ways (Adger, 2006). In terms of natural hazards, human vulnerability is often based on where people live, their dependency on natural resources, and the availability of resources to help them cope (Adger, 2006).

In relation to environmental risk and human use of resources, Adger (2006) explains that vulnerability research often comes from one of two angles. The first angle considers vulnerability of livelihoods to poverty and the second the vulnerability of socio-ecological systems. The first - social vulnerability - is defined (Adger, 1999, p.249) as the “exposure of groups or individuals to stress as a result of social and environmental change, where stress refers to unexpected changes and disruption to livelihood.” In regards to vulnerability, social systems generally refer to (Adger, 2006) the institutions and rules that guide systems of knowledge and human use of resources, and natural systems to biophysical aspects and biological processes. Coupled or linked socio-ecological systems on the other hand, are based on the conception that human activity and social institutions are so embedded in nature, that the difference between them is arbitrary and artificial (Adger, 2006; Berkes, Colding, & Folke, 2003).

For social groups or communities who are reliant on natural and ecological resources for their livelihoods, a clear link between social and ecological vulnerability is thought to exist (Adger, 2000; Marshall et al., 2010). This idea is based on the premise that (McClanahan & Cinner, 2012) human activity and social structures, including economic and political institutions, can greatly impact on the environment, human population, and natural ecological dynamics, and vice versa. These linkages are believed (McClanahan & Cinner, 2012) to be important considerations for researchers because if neglected, important feedbacks capable of causing undesirable change could potentially be overlooked. For this reason Marshall et al. (2010) argue that to understand social vulnerability in resource dependant systems, there is a need to also understand ecological vulnerability. Similarly authors of resilience theory (Berkes, 2007; Folke et al., 2002) have put forward the need for researchers to understand the relationships between social and ecological systems rather than studying them in separation.

2.3 Resilience

Exposure, sensitivity, and adaptive capacity to hazards is not the only way in which vulnerability is recognised with Berkes (2007) suggesting that vulnerability can also be registered in the resilience of the system experiencing the hazard. The concept of resilience is often explained as the flipside or opposite of vulnerability (Beatley, 2009; Folke et al., 2002; McClanahan & Cinner, 2012; Walker & Salt, 2006), however some argue that although a resilient system will be less vulnerable than a non-resilient system this relationship is not necessarily symmetrical (Gallopín, 2006; Smith, 2013). Resilience has a multitude of different meanings (Carpenter, Walker, Anderies, & Abel, 2001) and the term is often used in interdisciplinary work where the relationship between nature and human activity is being explored. The resilience perspective recognises that communities are multidimensional (Maguire & Cartwright, 2008), that they are made up of complex and interconnected ecological and social components.

Resilience has been defined (Resilience Alliance, n.d., as cited in Longstaff, Armstrong, Perrin, & Parker, 2010, p.3) as “the capacity of a system to absorb disturbance, undergo change, and retain essentially the same function, structure, identity, and feedbacks”. This indicates common elements of interest between vulnerability and resilience thinking in that both reflect on the shock or stress being experienced by the system, the response of the system, and its capacity to adapt (Adger, 2006). With its roots in medical science and psychology (Lorenz, 2010), it was the ecological research of C.S. Holling in the 1970’s that first popularised the concept. While Holling developed his understanding focusing solely on ecological resilience (Holling, 1973; Lorenz, 2010), more recent resilience paradigms include social resilience (Adger, 2000; Bonanno, 2004; Britt, Carter, Conradson, Scott, Vargo, & Moss, 2012; Gallopín, 2006) and socio-ecological resilience (Berkes, 2007; Folke et al., 2002; Walker & Salt, 2006).

Social resilience has economic, political, spatial, and institutional dimensions (Adger, 2000) and refers to a community’s ability to manage disturbance and change, all the while sustaining adaptive behaviour. Tompkins and Adger (2004) argue that in order to be resilient societies must be able to buffer disturbance, self-organise, and possess a capacity to learn and adapt. In linked socio-ecological systems, Berkes (2007) suggests that a systems’ resilience will depend on how the social and ecological components of the system have coevolved in a two way feedback relationship over time. This relationship between the social and ecological components of a system will have aspects of complexity and uncertainty and it is believed (Adger, 2000; Berkes 2007) that crossing thresholds in either system can result in non-linear and unpredictable changes.

In socio-ecological systems resilience usually refers to the extent of disturbance a system can undergo before it changes into a radically different state (Adger, 2006). Resilience in socio-ecological

systems includes the capacity for self-organisation and the ability to adapt in emerging or novel situations (Berkes et al., 2003; Carpenter et al., 2001; Folke, 2006 as cited in Adger, 2006). In order to build resilience into socio-ecological systems Berkes (2007, p.287-288) offers four suggestions:

1. Learn to live with change and uncertainty
2. Nurture diversity in ecological, political, and social systems to increase options and reduce risk
3. Increase range of knowledge for learning and problem solving, and
4. Create opportunities for self-organisation, including strengthening local institutions, and building cross scale linkages and problem solving networks

If achieved, a socio-ecological system with a high level of resilience capable of buffering disturbance and change is said to be the same as economic, ecological, and social sustainability (Berkes et al., 2003). This suggests that systems with low levels of resilience are likely to be less sustainable in the long run than systems with high levels of resilience. Scholars Walker and Salt (2006) advise that resilience is in fact the key to sustainability. In systems with little resilience the capacity to manage change may not be sufficient and this can lead to the functionality of the system being put at risk as critical thresholds are approached (Berkes et al., 2003; Walker & Salt, 2006). If the system is not resilient crossing the threshold of a controlling variable (Berkes, 2007) may see the system 'flip' into another domain of attraction (Berkes, 2007; Walker & Salt, 2006). This change is also known as a regime or phase shift. Socio-ecological systems frequently experience change or disturbance and sometimes loss of resilience can go unnoticed until a threshold is reached and a phase shift occurs (McClanahan & Cinner, 2012).

There is a myriad of regime shift examples. In their book - Resilience Thinking - Walker and Salt (2006) offer a number of different illustrations. One example they provide comes from Easter Island. Located in the Pacific Ocean, Easter Island was settled around 800 A.D, with the population peaking at around 10,000 in the 15th Century (Montgomery, 2007; Walker & Salt, 2006). Lush tropical forest once covered the island and there were six land birds and 37 species of breeding seabirds. By 1600, irreversible change had occurred. By this time, the population had felled all the trees and hunted the birdlife almost to extinction. As the trees were cleared, the nitrogen content and fertility of the soil became depleted (Montgomery, 2007). Crop yields were reduced, erosion became widespread (Montgomery), and the rate of forest clearing exceeded that of regeneration (Walker & Salt, 2006). As the seabirds were removed, a key contributor to soil fertility disappeared (Montgomery), and this could have been a factor in the forests inability to regenerate.

Easter Island is famous for its large Moai statues. The Moai and their topknots were carved in quarries found on the island. How the statues were transported is not certain, although some

theorists suggest that tree trunks were used as rollers to move the Moai to their various locations (Montgomery, 2007). It is interesting to note that a number of the Moai statues remain unfinished and abandoned in the quarries. Montgomery (2007) suggests that this implies the sculptors disregarded the unfolding timber shortage. The motivation for erecting the statues is believed to have been driven by competition for status and prestige, and it is thought that 'cultural imperatives' surmounted the concern for deforestation (Montgomery, 2007, p.219). In this story the first regime, a tropical forest with an abundance of land and sea birds, is contrasted with the alternate regime of an eroded landscape and absence of trees and birdlife. This example illuminates how resilience can be a positive or a negative attribute, in that, a regime change to an undesirable state may be difficult or impossible to reverse. It also indicates how a population can be unaware of the consequences of its actions, until a new regime takes hold, and it becomes clear that returning to the previous regime may not be possible.

Resilience thinking recognises we are part of interconnected and changing systems (Walker & Salt, 2006). By understanding how systems are changing, we are in a better position to build capacity to work with change rather than falling victim to it (Walker & Salt). Resilience scholars (Britt et al., 2012; Folke, 2006; Maguire & Cartwright, 2008; Vallance, 2012) have noted three different interpretations of resilience. These are resilience as stability (buffer capacity), resilience as recovery (bouncing back), and resilience as transformation (creativity). While traditionally resilience research may have concentrated on resilience as stability or recovery, more contemporary research considers resilience as transformation (Britt et al., 2012; Folke, 2006; Maguire & Cartwright, 2008; Vallance, 2012). The key properties of transformation include renewal, regeneration, and reorganisation (Maguire & Cartwright, 2008). Here the focus on returning to a pre-existing state is replaced with a focus on adaptive change and harnessing new opportunities (Folke, 2006).

Resilience thinking reflects a systems approach to understanding how societies adapt to externally inflicted change (Berkes et al., 2003), for example global environmental change or climate change. Walker and Salt (2006) offer nine characteristics that would be considered valuable in a resilient world. These are: diversity, ecological variability, modularity, the acknowledgement of slow variables, tight feedbacks, social capital, innovation, overlap in governance, and ecosystem services (Walker & Salt, 2006). As will be seen in the discussion on adaptive capacity, qualities that promote resilience quite often cross over to support adaptive capacity.

2.4 Adaptive capacity

Resilience is said to be key to enhancing adaptive capacity (Folke et al., 2002) and adaptive capacity is said to be a central feature of resilience (Carpenter & Brock, 2008) thus suggesting a mutually

reinforcing relationship between the two concepts (Bohensky, Stone-Jovicich, Larson, & Marshall, 2010; Folke et al., 2002; Walker et al., 2002). Adaptive capacity has been described (Magnan, 2010, p.5) as “inversely proportional” to vulnerability, where high levels of adaptive capacity result in low levels of vulnerability and vice versa. The concept of adaptive capacity has been most extensively studied in relation to climate change, and although there is some variation in definition, a certain degree of consensus among authors exists in regards to its meaning (Maguire & Cartwright, 2008). Adaptive capacity refers to the conditions that enable institutions, systems, and people to anticipate and respond to change, to minimise and recover from the consequences of change, and to take advantage of new opportunities brought about through change (McClanahan & Cinner, 2012).

An online survey by the National Climate Change Adaptation Society (Smith et al., 2010) found that across a range of disciplines, conceptualisations of adaptive capacity showed little difference. The dominant conceptions were anthropogenic within most disciplines (Smith et al., 2010) focusing on addressing social vulnerability, although in the biological sciences a systems view, addressing various social and environmental dimensions of vulnerability, dominated. In social systems adaptive capacity refers to the ability of the actors in a system to manage or have influence over resources (Walker & Meyer, 2004, as cited in Berkes, 2007) whereas in ecological systems adaptive capacity refers to genetic and biological diversity (Folke et al., 2002). Folke et al. (2002) suggests that social adaptive capacity relates to institutions and networks that are capable of learning and storing knowledge and experience, creating flexibility in problem solving, and balancing power between different interest groups. In socio-ecological systems it is believed (Berkes, 2007) that human activity dominates and so adaptability is largely a function of the integrated system’s social component.

Together with exposure and sensitivity, adaptive capacity is widely accepted as a determinant of vulnerability to climate change (Adger, 2006; McClanahan & Cinner, 2012; Smith et al., 2010; UNDP, 2011). While exposure and sensitivity may represent the potential impact of climate induced changes, it is adaptive capacity that can have a greatest influence over what actually eventuates (Marshall et al., 2010). The resilience of a community’s institutions and the natural systems on which they depend, ultimately affects their adaptive capacity (Berkes et al., 2003). With a high level of resilience a community is better able to absorb shocks and disturbance and therefore they will be better equipped to adapt to change. However with a low level of resilience, a community’s institutions will likely be more vulnerable and therefore less able to cope with and adapt to change. In relation to climate change authors such as Smit et al. (2001) argue that people with a high level of adaptive capacity will be more able to adapt to the related shifts and hazards, whereas those with low levels of adaptive capacity will find themselves more vulnerable (Smit et al., 2001).

While it is widely believed that low levels of development equal low adaptive capacity, some argue this conclusion is flawed as adaptive capacity is not solely determined by economic and technological factors (Magnan, 2010). Adaptive capacity also includes a combination of social and political determinants (Adger et al., 2007; D'Agostino & Sovacool, 2011; Magnan, 2010; Mendis et al., 2003; Pachauri & Reisinger, 2007; Smit & Pilifosova, 2003) that allow a system to evolve in order to adapt to environmental hazards and change. Adaptive capacity can be general or specific (Walker et al., 2009) and it is regarded as being variable through both time and space (Adger et al., 2007; Folke et al., 2005). In Bohensky et al. (2010) it is expressed that the context, the scale, and the information and knowledge to support adaptive capacity are all important aspects of the concept. They argue that for adaptive capacity to have resonance and meaning in reality it is fundamental to consider how the concept is defined.

2.4.1 Determinants of adaptive capacity

After a review of the literature it would appear that there is one obvious question in regards to adaptive capacity, how can it be measured? While a number of factors (Brooks & Adger, 2005; Brown, 2008; Mendis et al., 2003; USAID, 2009), characteristics (Gupta et al., 2010; Jones et al., 2010; Marshall et al., 2010) and determinants (Mendis et al., 2003; Smit & Pilifosova, 2003; Yohe & Tol, 2002) have been put forward, there remains no direct measure of the concept (Brooks & Adger, 2005). With no predefined or universal indicators available it has been suggested (Brooks & Adger, 2005) that each specific case will need to develop its own set of tailored indicators. The use of indicators can be controversial (Vincent, 2007) as there is a risk that complex realities can easily be oversimplified and misrepresented. It is therefore essential (Vincent) that indicators have “construct validity” so that the variable in question is accurately captured. Although no direct measure of the concept exists, there are common factors present throughout the literature. The following section of this chapter will discuss four of these as access to assets, diversity, good governance, and social learning.

Access to assets

Traditional indicators of adaptive capacity largely focused on access to assets (Jones et al., 2010), but more specifically economic, financial, and technological assets (D'Agostino & Sovacool, 2011). While numerous other considerations are now included when attempting to measure adaptive capacity, access to assets remains a central feature of the concept (Brown, 2008; Gupta et al., 2010; Jones et al., 2010; McClanahan & Cinner, 2012; Mendis et al., 2003; Pasteur, 2011; Smit & Pilifosova, 2003;

USAID, 2009; Yohe & Tol, 2002). The sustainable livelihoods framework that emerged in the 1990s as a means of understanding livelihoods, particularly those of the poor (Carney et al., 1999; Chambers & Conway, 1991; Scoones, 1998), is also centred on the idea of assets. The sustainable livelihoods framework divides assets into five categories, physical capital, natural capital, financial capital, human capital and social capital.

The sustainable livelihoods framework is based on a set of underlying principles which are to be people-centric, responsive and participatory, holistic, multi-level, conducted in partnership, sustainable, and dynamic (Allison & Horemans, 2006). Adopting the meaning provided within the sustainable livelihoods framework (DfID, 1999) physical capital is said to comprise of the infrastructure, tools, and equipment people need in order to maximise productivity. When discussed in terms of adaptive capacity authors suggest there is a range of physical capital that can influence the ability to adapt. As well as the provision of basic infrastructure and technology, including information technology and communication systems (Mendis et al., 2003; Yohe & Tol, 2002), the type of housing, security of land tenure, material assets and living conditions are also deemed to be of importance (USAID, 2009).

As discussed earlier authors such as Folke et al. (2002) believe that human societies are a part of the biosphere and therefore they are embedded in ecological systems. Natural capital - which refers to the natural resource stocks available, including tangible and intangible resource flows and services (DfID, 1999) - is therefore of particular significance. This is especially true where communities are reliant on natural resources for their livelihoods and basic survival (USAID, 2009). A healthy environment that has not been subject to degradation and that continues to provide fundamental eco-system services will be a valuable asset when people and communities are faced with changing and novel circumstances.

In addition, financial capital, which relates to the financial resources that people have available to them to help them achieve their livelihood needs, will also contribute to adaptive capacity (Brooks & Adger, 2005; McClanahan & Cinner, 2012). The two main sources of financial capital as set out in the sustainable livelihoods framework (DfID, 1999) are *available stocks* which includes savings, liquid assets, and access to credit providing institutions, and *regular inflows of money* which excludes earned income but includes pensions, transfers from the state, and remittances. This indicates that it is not only economic wealth but also income diversity and financial security that can have an effect on adaptive capacity.

While technological and financial factors have long been recognised as determinants of adaptive capacity (D'Agostino & Sovacool, 2011), the importance of both social and human capital in the assessment of the concept is being increasingly being brought to the fore. Within the sustainable

livelihoods framework (DfID, 1999) social capital refers to social networks and connections, formalised group membership, and it includes elements of trust, reciprocity, and exchange. Adger (2003, p.392) argues that “Social capital is a necessary “glue” for adaptive capacity, particularly in dealing with unforeseen and periodic hazardous events, but the prevalence of different types of social capital is important at different times to different social groups.”

Social capital scholarship has been divided with Bourdieu, Coleman, and Putman each offering different perspectives (Pelling & High, 2005). Having researched the different social capital conceptualisations of Bourdieu, Coleman, and Putman, Ottebjør (2005, p.13) concludes “they all point to the importance of social networks of different types and sources that lead to corporation and beneficial outcomes”. This is not to say that the outcomes will necessarily be beneficial for all. Not all social capital will be positive or result in equitable outcomes. The term ‘perverse social capital’ is used to describe situations where collective action is used to work against social development (Rubio, 1997, as cited in Pelling & High, 2005). In client-patron societies this is arguably more evident, as those with the greatest influence leverage resources and power in order to maintain control within the hierarchy.

In relation to adaptation and disaster recovery, three types of interpersonal relationships (bonding, bridging, linking) are identified as being influential (Adger, 2003; Aldrich, 2012; Pelling & High, 2005). Pelling and High (2005, p. 310) describe these as:

Bonding ties are shared between co-identifying individuals typified by ethnic or religious groups. Bridging ties are used to describe social relationships of exchange, often of associations between people with shared interests or goals but contrasting social identity. A sub-category of bridging ties have been termed linking ties, these describe ties that cross group boundaries in a vertical direction.

These interpersonal relationships can be used as a basis for collective action. Adger (2003) argues that societies hold inherent capacities to adapt to climate change and these inherent capacities are often bound up in their ability to act collectively.

The last of the five capital assets described in the sustainable livelihoods framework is that of human capital. What makes human capital so important is that without it, it is difficult to make use of any of the other four assets (DfID, 1999). Human capital comprises of skills, education, health, personal security, knowledge and access to information (DfID, 1999; Mendis et al., 2003; Yohe & Tol, 2002). Values from the Human Development Index can be used to get an indication of human capital, for example health, education, and life expectancy statistics. In the assessment of adaptive capacity assets such as social and human capital do not sit in isolation; they interact with other factors such as the ability to participate in decision making processes.

Good governance

There has been a call to move away from solely asset-based approaches in adaptive capacity assessment (Jones et al., 2010), with a desire to shift focus from what a system has to adapt, to what a system does. Jones et al. (2010) argue that understanding adaptive capacity requires understanding intangible processes such as decision making and governance, the fostering of innovation, experimentation and opportunity exploitation, and the structure of institutions and entitlements. The rules and norms that surround decision making processes and civic participation will have influence on adaptive capacity and it is believed that management strategies that encourage community engagement and participation can help build capacity (Mendis et al., 2003). In addition, the provision of true and timely information, and access to effective and equitable institutions designed for the advancement and betterment of society, are beneficial. Conversely where communities are excluded from decision making processes and resource and information flows are unequal or inadequate, adaptive capacity will likely be restricted.

Recent scholarship on social resilience emphasises the need for three different types of capacities (Keck & Sakdapolrak, 2013; Lorenz, 2010; Voss, 2008). These are identified as coping, adaptive, and participative or transformative capacities. Coping and adaptive capacities are differentiated as being *reactive* in responding to immediate risk utilising resources readily available, and *proactive* in anticipating and responding to future threats, respectively (Keck & Sakdapolrak, 2013). In Lorenz (2010) participative capacity is described as the ability of a social system to self-organise and to make use of its adaptive and coping capacities. Keck and Sakdapolrak (2013, p.11) expand on this description explaining that participative capacities “encompass people’s ability to access assets and assistance from the wider socio-political arena (i.e. from governmental organisations and so-called civil society), to participate in decision making processes, and to craft institutions that both improve their individual welfare and foster societal robustness toward future crises.” Participative capacity is therefore central to discussions relating to power, institutional structures, and governance.

Vulnerable and marginalised groups are often excluded from decision making processes (Adger, 2003; Voss, 2008). In order to help in our understanding of participation, various frameworks including Arnstein’s ladder of citizen participation (1969) and the IAP2 spectrum of public participation (2007) (see table 2.1 on the next page), have been put forward. These frameworks describe varying degrees of participation from non-participation, to tokenism, to citizen power (Arnstein, 1969) and approaches ranging from inform, consult, and involve, to collaborate and empower (International Association for Public Participation, 2007). These frameworks consider inclusivity in decision making. They consider who has access to information and who actually holds the power to make decisions.

Table 2.1 IAP2's Public Participation Spectrum



Source: International Association for Public Participation, 2012

In addition to inclusivity in decision making, it has been postulated that deliberation and multi-level linkages are also important elements of participation in building adaptive capacity (Robinson & Berkes, 2011). This argument implies that the ability to build adaptive capacity not only comes from encouraging collective decision making, but also in people sharing their ideas, opinions, and knowledge, and connecting localised systems both horizontally and vertically.

Diversity

When considering the adaptive capacity of a system diversity and flexibility offer valuable insights. Diversity and flexibility relate to variety, multiplicity, and redundancy, and innovation and improvisation respectively (Gupta et al., 2010). Scholars have written of the benefit of nurturing diversity for the purpose of reducing vulnerability (Adger, 1999) and building resilience (Berkes, 2007; Walker & Salt, 2006). The discussion on diversity considers the presence of different types of ecological, social and political possibilities for reducing risk and increasing options (Berkes, 2007). Diversity will have a significant influence on the future options of a system as greater redundancy, modularity, and variability create different opportunities, and room for flexibility. Indicators of diversity in relation to adaptive capacity have tended to focus on technology and livelihood opportunities (Brown, 2008; McClanahan & Cinner, 2012). Moreover, the ability to improvise and

innovate should be taken into account as they are useful attributes when it comes to problem solving and adapting to change.

Social learning

How communities deal with uncertainty and change will be a reflection on their capacity to adapt. Adaptive capacity is regarded as (Folke et al., 2005 as cited in Berkes, 2007) the capacity of a social system to learn and adapt in the face of disturbance. An important aspect of this is said to be social learning (Reed et al., 2010), which has been framed as a process of social and political change (WeAdapt, 2011). This notion is based on the belief (Berkes, 2007) that organisations and institutions have the capacity to learn and adapt just as individuals do. Berkes (2007) suggests that how individuals and communities store knowledge and memory contributes to institutional and social learning. There has been some debate over what exactly constitutes social learning (Reed et al., 2010) with definitions often confusing the concept with the methods necessary to realise it (e.g. participation) or the outcomes of achieving it (e.g. improved management of social-ecological systems). In response to this confusion, Reed et al. (2010, p.2) argue that to be considered social learning a process must:

1. Demonstrate that a change in understanding has taken place in the individuals involved;
2. Demonstrate that this change goes beyond the individual and becomes situated within wider social units or communities of practice; and
3. Occur through social interactions and processes between actors within a social network.

For social learning to be possible communities will require continuous access to accurate information, they must understand that there is a need for adaptation, and they must be willing to make changes in order to adapt (Brown, 2008). Adaptive capacity will be promoted when communities are able to act collectively, to transfer information, to store knowledge and memory, and evaluate and adjust processes where appropriate (Brown, 2008). This reinforces the argument put forward by Pelling and High (2005) that the social attributes and interactions of individuals and communities are fundamental to building capacity and responding to climate change. This discussion on assets, participative capacity, diversity, and social learning has shown that there is considerable cross over between the different determinants. This highlights the importance of employing a multi-disciplinary perspective in capacity development, rather than defaulting to silo thinking.

2.4.2 Generic and specific

This case study adopts the definition of adaptive capacity put forward by McClanahan & Cinner (2012) where adaptive capacity refers to the conditions that enable institutions, systems, and people to anticipate and respond to change, to minimise and recover from the consequences of change, and to take advantage of new opportunities brought about through change. However, this definition does not provide any contextual information. When contemplating adaptive capacity or resilience authors suggest a need to address two essential questions: of what and to what (Bohensky et al., 2010; Carpenter et al., 2001; Smit et al., 2001; Walker & Salt, 2006)? These questions can be used to ascertain whether we are concerned with generic or specific adaptive capacity or resilience. In terms of resilience thinking, when the “of what” can be determined this constitutes specified resilience, but when the threat is unidentified, this is defined as general resilience (Walker et al., 2009, as cited in Bohensky et al., 2010). Similarly, in terms of adaptive capacity, specific adaptive capacity relates to the factors that allow systems to respond to particular stressors, and generic adaptive capacity refers to the conditions that allow different systems to respond to a variety of threats (Lemos et al., 2011).

In the discussion on generic and specific adaptive capacity and resilience the significance of scale is brought to the fore. This includes the importance of both spatial and temporal scales (Bohensky et al., 2010; Carpenter et al., 2001; Smit & Wandel, 2006). The scales of adaptive capacity are not independent, for example, the adaptive capacity of an individual is to some extent reflective of the adaptive capacity of their household, community, region, and so on (Smit & Wandel, 2006). It is important to note, that enhancing adaptive capacity at one scale can undermine it elsewhere (Bohensky et al., 2010; Carpenter et al., 2001). For example, a household could benefit at the expense of a community, or enhancement of adaptive capacity in one sector could lead to its depletion in another. Similarly, short-term and long-term adaptive capacity trade-offs may arise when coping strategies adopted in the present reduce opportunities for the future (Bohensky et al., 2010). This highlights the need for a holistic perspective that carefully considers all the possible consequences of actions taken or policies implemented.

Although biophysical and social factors have often been studied separately by different disciplines, there is now a growing awareness of the interrelated and dependant nature of the relationship that exists between them. While many definitions of adaptive capacity relate specifically to climate change (Brooks & Adger, 2005; Gallopin, 2006; Smit & Pilifosova, 2003; USAID, 2009) it is important to acknowledge that climate change is not occurring in isolation to other environmental, social, and development changes (Bunce et al., 2010; D'Agostino & Sovacool, 2011; Jones et al., 2010; Romieu, Welle, Schneiderbauer, Pelling, & Vinchon, 2010). This raises the question, is it sensible for

communities to focus solely on adaptive capacity to climate change, if this means ignoring other environmental, social, and development issues?

2.5 Community based partnership

Definitions of community are varied, although it is usually defined in spatial terms (Twigg, 2009). A review of the scientific literature in 1955 (Hillery, 1955, as cited in Kumar, 2005) revealed 94 different meanings of 'community', each referencing a mixture of social interaction, people, and space. While the spatial element of a community is important in identifying risk, focusing on this aspect alone overlooks other vital dimensions, such as common interests, values, activities, and structures. Communities are not always united and there is a complexity that springs from differences in wealth, social status, interests, and beliefs (Twigg, 2009). During the 1980s and 1990s, in line with the rise of participatory methods, community based natural resource management came to prominence (Kumar, 2005). Advocates of community based approaches to resource management regard resource users as holding valuable traditional and local knowledge that is worthy of consideration and respect (Kumar, 2005; Tyler, 2006).

In recent times natural resource governance paradigms have been moving towards "participatory, inclusive, decentralised, and collaborative approaches" (Ojha, Hall, & Sulaiman, 2013, p.4). In addition there has been increasing interest in the relationship between sectors – public, private, and community – in natural resource governance and service provision (Institute of Policy Studies, 1999). Partnership between different sectors of society is said to be directly linked to the notion of social capital (Institute of Policy Studies, 1999), and has been put forward as a means of capacity building. The positive aspects of partnerships mean they can be useful in addressing social and environmental issues (Institute of Policy Studies). Positive aspects include shared responsibility, creative multi-sector initiatives, multi-level linkages, provision of additional resources, holistic approaches, and innovative problem solving (Institute of Policy Studies).

As discussed in the previous chapter, coastal environments are vulnerable to climate change but also remain popular for tourism development. Tourism is increasingly being regarded as a valuable community development strategy (Fennell, 2008). In least developed countries tourism is known to have both beneficial and detrimental impacts, and the rise of tourism as a development tool has not been without its critics (Hall, 2007). In recent decades terms such as pro-poor tourism, sustainable tourism, eco-tourism, and community based tourism have emerged to describe new approaches in tourism planning. These approaches are arguably designed to bring a range of not only economic but also environmental, cultural, and social net benefits to communities in tourist destinations (Hall,

2007). In least developed countries these approaches have been widely welcomed by government and public agencies (Bramwell & Lane, 2000), again illuminating the interconnectedness between public, private, and civil society sectors.

Pro-poor tourism is used to describe situations where tourism is being used as an instrument for poverty alleviation (Hall, 2007). Strategies implemented to achieve this often include: introducing new livelihood and employment opportunities, improving access to healthcare, education and training, infrastructure enhancement, access to markets, sustainable environmental management, adaptive management, and community empowerment (Fennell, 2008). While pro-poor tourism strategies seem attractive, the reality is not all promises are delivered (Fennell). Where partnership is being introduced to benefit a community's poor, planning is pivotal (Miraftab, 2004). Partnerships that involve the private sector must be established on a number of fundamental underlying principles in order to be successful (Heymans, 2002). These include transparency, accountability, legitimacy, and equitable power sharing (Heymans, 2002; Miraftab, 2004). An effective partnership will be built on a clear mission statement which has been agreed upon by all the relevant stakeholders (SEED, 2008). The purpose of the relationship and the mutual expectations will be clear. Good communication and patience will be accompanied by flexibility, as to allow for social learning and adaptive management (SEED, 2008).

There are said to be many benefits in the tourism industry collaborating and partnering with local stakeholders in destination countries (Bramwell & Lane, 2000), for both the tourism industry and the local stakeholders. The literature suggests that partnerships can provide access to new and varied resources, enhance social capital, create diversity in livelihood and employment opportunities, foster innovation in problem solving, promote social learning, and empower local communities. This raises the question, could such partnerships play a role in climate change adaptation strategies?

2.6 Research question

In the face of climate change, can community based partnerships with the private sector assist in enhancing adaptive capacity in coastal fishing communities?

2.7 Chapter summary

In this chapter a literature review was used to outline the concepts of vulnerability, resilience, and adaptive capacity. It began by looking at some of the different conceptualisations of vulnerability. It was found that where communities are reliant on natural resources in providing for their livelihoods,

a relationship between social and ecological vulnerability exists. This idea is carried over into descriptions of socio-ecological resilience. Where a system includes social and ecological components, crossing a threshold in either system can result in non-linear and unpredictable changes in the other. Like vulnerability, resilience has been framed in a number of different ways. While traditional constructions of resilience considered a system's ability to buffer disturbance and maintain function "bouncing back" to some pre-disturbance state, more recent conceptions consider the ability to make the most of new opportunities brought about through change, "bouncing forward", as a more favourable outcome. Central to the discussion on both vulnerability and resilience is the notion of adaptive capacity.

Adaptive capacity refers to the conditions that enable institutions, systems, and people to anticipate and respond to change, to minimise and recover from the consequences of change, and to take advantage of new opportunities brought about through change (McClanahan & Cinner, 2012). There are a number of economic, technological, social, and political factors that are said to act as determinants of adaptive capacity. Following a review of adaptive capacity literature four main determinants of adaptive capacity were identified. These were access to assets, governance, diversity, and social learning. From these, a set of generic adaptive capacity indicators were created (see page 36). The set of indicators can be used to gain an understanding of the level of adaptive capacity present in a specific context, but they do not offer a means of enhancing adaptive capacity.

Coastal environments and communities have been identified as being particularly vulnerable to climate change (previously discussed in the introductory chapter). With these areas also popular for tourism investment, and with an increasing trend of tourism being used as a development tool in destination countries, I raise the question; can partnerships between the private sector and coastal communities be used to enhance adaptive capacity? In the next chapter, I will outline how I plan to answer this question.

Chapter 3

Methodology

3.1 Introduction

In undertaking this thesis I adopted a pragmatic approach that allowed for an emergent research design. This research is based on a set of underlying assumptions which are included in this chapter, as are the objectives of the study. It was decided that to answer my research question an ethnographic case study would be the most appropriate method. In order to get a rich data set, a qualitative strategy which included participant observation and a series of semi-structured interviews was decided on. A set of adaptive capacity indicators developed through the literature review were used to form the basis of the data analysis. Prior to data collection ethics approval was sought from the Lincoln University Human Ethics Committee. With only one year to complete the thesis, fieldwork would need to be conducted all in one stint. The fieldwork was undertaken over a six week period in the months of June and July 2012.

3.2 Underlying assumptions

The research question, can community based partnerships with the private sector assist in enhancing the adaptive capacity of coastal fishing communities in the face of climate change; was based on a three key assumptions.

It was assumed that if:

1. Coastal communities who depend on local fisheries are vulnerable to the effects of climate change, and
2. decentralisation reform allows for greater local participation in resource management and decision making, and
3. opportunities for community based partnership based on sustainable livelihood principles exist and are being initiated,

Then it follows that such partnerships can be shown to assist in enhancing adaptive capacity.

Once the research question and underlying assumptions were cemented, six objectives were developed in order to answer the research question. These are included below.

3.3 Objectives

1. Assess the arguments concerning the socio-cultural and economic vulnerability of coastal fishing communities to the potential effects of climate change
2. Critically evaluate the concept of adaptive capacity and establish key indicators based on the literature
3. Document and describe both the socio-economic system of the Prek Svay fishing community and its existing adaptive capacity using the indicators identified
4. Understand the nature of the relationship between the Conservation and Community Program and the Prek Svay Basin community
5. Compare the adaptive capacity prior to and following the establishment of this relationship
6. Comment on the prospect that such initiatives will be successful in enhancing adaptive capacity

3.4 Qualitative research strategy

This research was based on a qualitative design. Qualitative research is not concerned with measurement or standardising data (Flick, 2011) but with finding meaning from the point of view of participants (Bryman, 2004). Described as an interpretivist strategy (Bryman, 2004; Flick, 2011; Pickard, 2007), qualitative research assumes social constructions of reality as opposed to an objective reality of social facts (Pickard, 2007). Qualitative methods generate rich deep data that comes from an emphasis on words rather than quantification (Bryman, 2004). The research is carried out in a natural setting where the researcher acts as a human instrument for data collection (Pickard, 2007). This approach includes a subjective element, in that the researcher seeks to interpret the social setting from the perspective of the people being studied (Bryman, 2004).

Ethnographic methods are often built into qualitative research (Bryman, 2004), where researchers are immersed in social settings for extended periods of time. While description is an important part of qualitative research, exploration is another key element. Description that details who, what, where, when, and how, should also be complemented with the exploration of why (Bryman, 2004). To provide answers to these questions data was collected using a variety of methods including a literature review, participant observation, and semi-structured interviews. A key component of qualitative research is an emergent design (Pickard, 2007). A researcher will never know all they need to before entering into the field and allowing some flexibility in the research design will allow room to adapt to the given situation or circumstance.

By employing a qualitative research design I was afforded some flexibility in the research design and process. The first phase of this research was to develop a research proposal. The proposal included a literature review, from which the initial research question and objectives were developed. Following this, it was necessary to obtain human ethics approval before the fieldwork could be undertaken. As suggested in the literature, when undertaking ethnographic research the researcher will not have a complete picture of the social setting before they begin their fieldwork. While the methods for the research investigation were decided on in these early planning stages, pragmatism has been a key component of this study.

3.4.1 Case study approach

In order to answer the research question and to achieve each of the objectives an instrumental case study based in the village of Prek Svay, Cambodia (see figure 3.1), was used. A case study is a method that is used to investigate a particular phenomenon within a real-life context, often with a very specific purpose (Pickard, 2007). When using an instrumental case study to investigate a particular phenomenon or theory, Pickard (2007) explains that the importance of the case study is not actually the case itself but rather how the case can be used as a vehicle for investigation. A case study can use qualitative, quantitative, or triangulation data collection techniques. This case study employed the use of qualitative methods and triangulation.

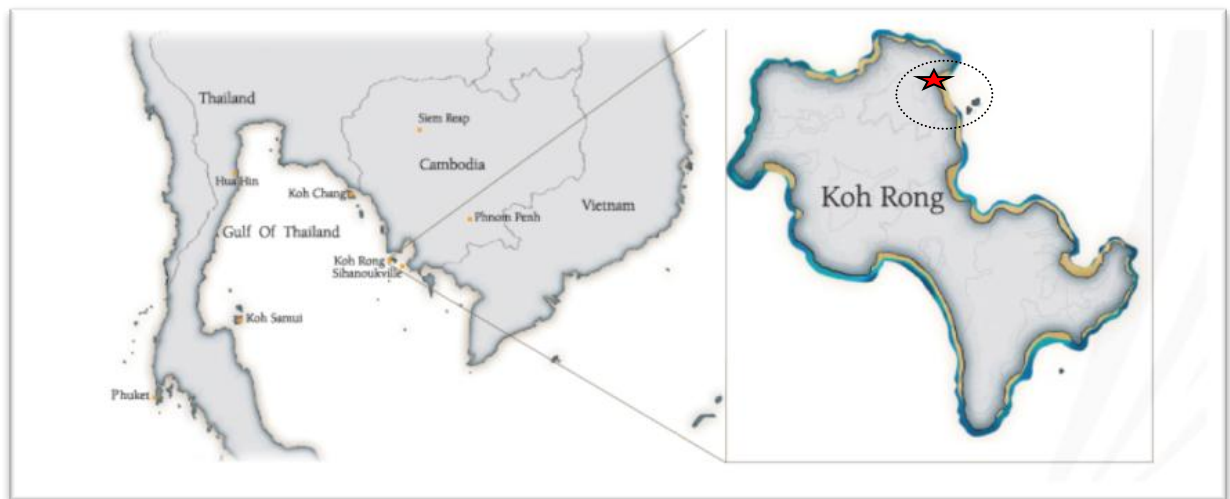


Figure 3.1 Map of Koh Rong

★ = Prek Svay with the two Song Saa Islands seen off the North-east coast
Source: The Royal Group, 2012

3.4.2 Data triangulation

Using more than one research method or data source is known as triangulation (Bryman, 2004; Pickard, 2007). Pickard (2007) explains that triangulation in qualitative research is implemented for two main purposes. The first is to collect data from multiple sources validating the same facts or phenomenon. The second is to make use of multiple sources with different biases and strengths so that they complement one another. This suggests that triangulation can be used as a validation strategy that can leave the researcher with a greater confidence in their research findings (Flick, 2011; Pickard, 2007). In this case study triangulation was achieved by employing different research methods and by collecting different types of data. The methods used in this case study were a literature review, participant observation, and a series of semi-structured interviews. These methods generated data in the form of written text, field notes, photographs, and voice recordings.

3.5 Data collection

Three main methods of data collection were utilised when undertaking this research. Secondary data was collected from books, scientific journals, reports, online sources, and newspaper articles to provide background information and a literature review detailing the area of interest. Primary data was collected with the use of participant observation and semi-structured interviewing. The purpose of collecting the primary data was to assess adaptive capacity in the village of Prek Svay, and to gain an understanding of the nature of the relationship between the local community and the Conservation and Community Program.

3.5.1 Literature review

Good research starts with reading (Flick, 2011) and that is exactly how this research began. Undertaking a literature review is about discovering what is already known about a topic (Pickard, 2007) and although it usually takes place early on, it is an activity that is continuous throughout the entire research process. Reviewing the literature presents an opportunity to gain an understanding on the research topic from a multiple of disciplinary perspectives (Pickard, 2007). Not only this, but a good literature review can be used to form the theoretical framework for the empirical investigation and contribute to the overall research design. In this research, literature was found using the Lincoln University library catalogue and database system, Google Scholar, and bibliographic references from selected literature. The literature identified was critically analysed, what Pickard (2007, p.29) describes as “reading with a purpose”.

When reading the selected literature I gave considerable thought to who was writing the piece of work, what their main argument was, what was their reasoning, and what evidence was there to support their claims. A theoretical literature review was first undertaken to investigate climate change and the theory of adaptation. This included literature on the relationship between vulnerability, resilience, and adaptive capacity. A methodological literature review was conducted on social science methodology. This led to a more specific review of qualitative and ethnographic methods. To bring it altogether into a structured piece of work a contextual literature review was carried out. The synthesis of these three literature reviews, the theoretical, the methodological, and the contextual, was used to form the theoretical framework and contribute to the overall research design just as Pickard (2007) suggested it would.

3.5.2 Indicators of adaptive capacity

The theoretical literature review, which included determinants of adaptive capacity, was used to develop a set of adaptive capacity indicators. These indicators were used to form the basis of the data analysis. The indicators developed are as follows:

Access to assets

- Basic infrastructure is provided
- The environment and the ecosystem services it provides are not degraded
- Access to natural resources is shared between community members
- Land tenure is secure
- There is a presence of formal and informal networks
- Community members have access to the wider institutions of society
- Individuals have the skills, knowledge, and good health necessary to make a living

Diversity

- Occupational multiplicity and mobility exist
- There is diversity in the technology and production equipment available to make a living
- Community members find innovative solutions to problems and are able to improvise

Good governance

- Leadership is visionary, competent, and committed to best practice
- Decision making authority is shared between different individuals and groups of society
- There are conflict resolution and mediation processes in place

- Multi-level linkages exist and are being utilised

Social learning

- Community members are able to recognise change
- The community has the ability to develop response strategies
- The community has the capacity to act collectively
- There is continuous access to timely and accurate information

3.5.3 Participant observation

Participant observation is said (Fife, 2005) to be the most basic ethnographic research method available. Participant observation is a method which involves the researcher taking part in the daily activities, rituals, interactions, and events of a group of people to learn about the explicit and tacit aspects of their routines and culture (Dewalt & Dewalt, 2002). This method allows the researcher to collect data in the form of field notes and the information gathered is later analysed. There are different levels of observation, ranging between complete observer, semi-participant, and non-participant (Pickard, 2007). For the purpose of this research the level chosen is that of semi-participant. This requires the researcher to establish a balance between being a participant and an observer while allowing a certain degree of flexibility by permitting the researcher to interact with the research subjects.

Participant observation data was collected over a six week period in June and July of 2012. The Conservation and Community team agreed that the researcher could "coat tail" them during this time. Participant observation was planned around scheduled activities and controlled situations such as organised meetings, workshops, events, and community initiatives. This created an entry point into the Prek Svay community that helped the researcher identify key informants for the semi-structured interviews. There are many different techniques and tools that are available when undertaking participant observation. Participant observation in this case was used to understand the nature of the relationship between the Prek Svay community and the Song Saa Conservation and Community Program. To achieve this, focused note taking and a daily log were recorded for the entire duration of the fieldwork.

Photography

Visual data, such as that generated from photography, is increasingly being used in qualitative research (Flick, 2011). To accompany the field notes generated from the participant observation, photographs of the natural environment, infrastructure, housing, community assets, and the overall

social setting were taken. In total around 900 such images were captured, many during the initial orientation in the first few days in the village. Photographs were also taken at the workshops held by the Conservation and Community Program during my time in the field. They provide a visual reminder of the environment and setting under investigation. When taking photographs of people or people's personal possessions, permission was sought beforehand. It is hoped that by including photographs in the final write up the reader will be afforded an opportunity to get a glimpse of the research setting.

3.5.4 Semi-structured interviews

The participant observation was complemented by a series of semi-structured interviews. These were undertaken to add depth and richness to the data collected. The researcher with the aid of a Khmer translator carried out all interviews with the Khmer village respondents. The purpose of these interviews was to gain an insight into the community's perception of change and awareness of climate change more specifically. It was also to gauge the importance of marine fisheries to local livelihoods. The interviews were used to investigate how the participants view the outputs of the Conservation and Community Program. Research interviews vary from very formal and structured to quite informal and unstructured (Pickard, 2007). This research adopted the use of semi-structured interviews as this allowed me some flexibility to pursue interesting and relevant information provided by participants. An interview schedule was drawn up (see Appendix B) based around the adaptive capacity indicators identified. Interviews were conducted with the Conservation and Community team members, the staff village Doctor, and key informants from Prek Svay Basin.

3.6 Sampling

In qualitative case studies purposive sampling is always used (Pickard, 2007). Purposive sampling is a strategic approach that endeavours to establish a correspondence between the research question and the sample (Bryman, 2004). Two approaches for purposive sampling are available, a priori and snowball sampling (Flick, 2011). I employed the use of snowball sampling in an attempt to maintain an emergent element in the research process. Flick (2011) describes this approach as asking your way from one participant to the next, while Pickard (2007) describes it as growing the sample as the research progresses. Before entering into the field I drew up an overview where I might find some of the key informants.

Key informants can be the gatekeepers who have allowed access to the field but they can also be those who can provide an insight into the norms, attitudes, constructions, processes, and culture that characterise the local setting under investigation (Lincoln & Guba, as cited in Pickard, 2007). To capture as much information rich data as possible I made a list of groups I believed would be able to provide this kind of information. The Conservation and Community Program team and the village leaders were obvious starting points. In addition to these groups village residents involved in the Conservation and Community Program initiatives or employed by Song Saa were identified. Finally it was believed that people directly or indirectly dependent on local fisheries would provide valuable information.

The units of analysis for this study were the Prek Svay Basin community and the Conservation and Community Program. Statistics from February 2010 (Sophat & Reasey, 2010) indicated the village population sat at around 677 people. In total 46 interviews were conducted. 40 people from the Prek Svay village, the five Conservation and Community team members and the Song Saa staff village Doctor.

3.7 Ethical considerations

Ethical considerations are a fundamental element of any social science research. In this project, human ethics approval was sought and granted following the approval of the research proposal. Research ethics addresses what impacts could arise as a result of the research investigation and what measures will be put in place to protect the participants (Schnell & Heinritz as cited in Flick, 2011). It is a Lincoln University policy that all non-exempt research projects that involve human participants receive ethics approval from the Lincoln University Human Ethics Committee before data collection commences. In the Lincoln University Human Ethics Committee Application Form Guidebook (2009) four primary principles in ethical research involving human participants are outlined. These are: informed consent, respect for rights if privacy and confidentiality, limitation of deception, and minimisation of risk.

Pickard (2007) argues that all ethnographic research should be overt, that is, the research is carried out openly, participants are made aware of the research being undertaken, and have a choice whether or not they wish to participate. There were no deceptive or covert methods employed in this research. As part of the ethics application I drafted Research Information Sheets (see Appendix A) detailing the purpose of my study and the methods I intended to apply. On arrival to Prek Svay I attended the Conservation and Community Program team meeting to formally seek their informed consent for the participant observation I had planned. I then, with the aid of a translator,

approached the Village Chief, Deputy Chief, and the Chief of the Community of Fisheries to seek their approval for the research generally and the participant observation more specifically.

Informed consent was an essential component of this research. Informed consent means participants are fully informed about the methods and purpose of the investigation (Pickard, 2007). If they agree to what is being asked of them, it is vital that they understand what they are agreeing to and they are comfortable with the purpose of the study and the intended use of the data (Pickard, 2007). In this research all participation was voluntary. In regards to the semi-structured interviews, once the research information was shared and participation was agreed to, consent was recorded onto my i-phone using dictamus. Although the preference would be for written consent, the low level of literacy in the village made this inappropriate. Participants were ensured that their identity would remain confidential. To maintain confidentiality but at the same time retain a personal element all participants were given Khmer pseudonyms.

3.8 Data analysis

The qualitative methods employed in this research generated a lot of textual data that needed to be described and summarised (Lacey & Luff, 2001). Qualitative data analysis is an interpretive and subjective process and there are numerous ways it can be done (Lacey & Luff, 2001). It has been suggested (Welsh, 2002) that in qualitative research the best results will come by combining both manual and computer assisted data analysis methods. Following this advice I decided to make use of Nvivo qualitative software. In the field, participant observation field notes were recorded on a daily basis. These were typed up and emailed to my student email address. The interviews were recorded onto an i-phone, and emailed home once complete.

Interview data was later transcribed and this allowed me an opportunity to become more familiar with the data collected. By listening to the interview recordings and typing up the transcriptions it was possible to get a better sense of what had been shared and to pick up nuances in the data. On my return to New Zealand the interview data and field notes were exported into the Nvivo software. A key process in qualitative data analysis is coding (Babbie, 2004) and one of the benefits in using Nvivo software came from its capacity to easily categorise data into nodes for later retrieval. The nodes created were based around the indicators developed through the literature review process. Once the data was coded it was possible to identify emerging themes.

While Nvivo is a useful piece of software for categorising and storing data it is often said that it does not do the thinking for you. Relevant themes were exported to word documents where time was spent reading through the thematic areas and associated quotes. During this time I went back and

listened once again to specific parts of interviews, making notes and refining the themes. Following this the data was structured around the adaptive capacity indicators in an attempt to develop a narrative of the main findings of the research.

3.9 Constraints and limitations

Time, language, and unfamiliarity were all constraints on this research project. Prior to leaving for Cambodia I struggled to find information about Prek Svay and the surrounding area. The FACT Report (Sophat & Reasey, 2010) offered the greatest detail but this alone did not provide a comprehensive overview of the Prek Svay Basin's history or its people. The Conservation and Community Program documents and publications also went some way to painting a picture of the village; however these documents are marketing instruments and needed to be read accordingly. Being unfamiliar with the geography, culture, and language was a limiting factor in the research design. The interviews undertaken in the village required the aid of a translator.

With any qualitative research there will be a subjective element in the presentation of the results. The use of a translator further complicated the data collection as questions were asked and clarified in Khmer and then the responses paraphrased into English. Throughout the interview process I was wologicallyary that respondents may answer questions as they thought I would like them to be answered rather than answering them honestly. When making notes in the interviews I noted down body language that suggested if the respondents looked uncomfortable or were cagey in providing answers to my questions. With one year to complete the Master's thesis it was realised early on that time was of the essence and that time constraints would be one of my greatest challenges.

3.10 Chapter summary

This chapter was included to provide an outline of the research strategy. It set out the case study and data collection methods as well as highlighting some of the limitations and constraints. The methodology for this research was based on a qualitative strategy that used a literature review, participant observation, photography, and semi-structured interviewing to achieve the six objectives. The next chapter of this thesis offers some background information on Cambodia, specifically on its culture, its people, and its politics. It is hoped that this background information will help to set the scene by putting the proceeding case study into context.

Chapter 4

Case study context

4.1 Introduction

This chapter, which includes background information on both Cambodia and the village of Prek Svay, is designed to outline the context in which this case study takes place. In any attempt at capacity development it is fundamental that there is some understanding of the culture, beliefs, and history of the community being studied. The best way to understand the present and to find solutions for the future is to look to the culture and the past for answers. Cambodia was once home to a vast empire extending out across modern day borders, it was rich in cultural heritage, and the people held religious beliefs that guided their interactions and behaviour. The internal war and genocide of the 1970s has since left long lasting and detrimental effects on the Khmer people and their society as a whole. For true capacity development to take place in Cambodia justice must be served and the need for collective recovery must be addressed.

4.2 Khmer culture

Cambodian society has not been exempt from dukkha (see page 2) with suffering and impermanence well intertwined in its history. Time tells a story of the rise and fall of an ancient civilisation (Mannikka, 1996; Winter in Moore & Whelan, 2007; Zhou, 2007), a period of colonisation and liberation (Blunt & Turner, 2005; Pearson, 2011), and times of abundance contrasted with times of famine and starvation (Zhou, 2007; Fawthrop & Jarvis, 2005). A history rich in culture and skilful ingenuity is diluted with accounts of war, genocide, and cultural and collective loss. A symbol of Khmer culture, the Angkorian period occurring between the 9th and early 15th centuries has been described as the golden age of Khmer cultural heritage (Edwards, 2007). For centuries Angkor was at the centre of the Khmer Kingdom (UNESCO, 2012) with a prosperous civilisation and an empire stretching out into modern day Thailand, Vietnam, and Laos. The temples of Angkor remain a great source of national pride and are filled with Khmer architecture and artistry rich in symbolic meaning (UNESCO, 2012). Cultural and religious values are said to be (UNESCO, 2012) contained in the sacred sites layout and structures.

Once considered a part of French Indochina it is believed (Mannikka, 1996) that both India and China have contributed to the Khmer culture. India especially is thought to have played a significant role in the “politico-religious infrastructure” of Cambodia (Mannikka, 1996, pg.1), and Theravada Buddhism

which has its roots in India is the state religion today after being reinstated in 1993 (Harris, 2008). It was not that long ago that traditional arts and performance flourished in Cambodia with traditions of cultural dancing (Shapiro, 2002) and hand weaving silk (United Nations Development Group, 2008) used in Khmer traditional and religious ceremonies. Now traditional arts and skills are on the brink of disappearing and it is believed (United Nations Development Group, 2008) that there is a dire need to revive the country's tangible and intangible cultural assets. It is thought (United Nations Development Group, 2008) that in doing so new opportunities for employment and poverty alleviation will arise, while at the same time promoting a sense of shared identity and social cohesion. However, the social structure of Khmer society means that while there might be an opportunity to develop social identity and cohesion, it is unlikely that this alone will lead to all people being considered equal.

In Cambodian society social structures are described as hierarchical (Ledgerwood, 2011), an approach carried over into the political arena (Nong & Marschke, 2006). No-one is considered equal, everyone is ranked but social status is not fixed and a person can rise or fall in hierarchy as a direct result of their actions (Ledgerwood, 2011; Littleton, 1996). This rise and fall is linked to the Buddhist notions of merit and karma. Patron-client relationships play an important role in affiliations between people and groups with different standing. These relationships are based on power and reciprocity and are described as being mutually beneficial (Ledgerwood, 2011). The patron, the most powerful and influential in the relationship, uses their position to assist the client and in return the client provides the patron with smaller services and loyalty over extended periods of time. There is a belief in Cambodia (Ledgerwood, 2011) that attaching yourself to a superior is the best way to achieve something that is deemed to be outside of your own personal capacity. A country once rich in cultural beliefs, traditions, and heritage, Cambodia is also a country rich in natural resources.

4.3 The Kingdom of Cambodia

Situated in Southeast Asia, Cambodia covers a total land mass of around 181,035 km², an area now recognised as being rich in oil, minerals and gas (Sovann, 2010). With the continental coastline stretching 435 km (FAO, 2011), the country has an exclusive economic zone (EEZ) of 55,600 km². Ethnic groups in Cambodia (Poole, 2009) are comprised of 90 per cent Khmer, 5 per cent Vietnamese, 2 per cent Cham, 1 per cent Chinese, and 1 per cent hill tribes. The Population Reference Bureau (PRB) (2011) puts the Cambodian population in mid-2011 at 14,702,000 people, with 80% living in rural areas. Life expectancy is improving but remains low with the World Bank (2012) putting it at 59 years in 2003 and up to 63 years in 2011 (see figure 4.1 below). The official poverty line in Cambodia is set at the extremely low level of around half a US dollar a day (UNDP, 2011). While Cambodia has

experienced rapid economic growth over the last decade, a third of the population continues to live below the poverty line and 57% of the population continue to earn less than 2.00USD per day (PRB, 2011). Indebtedness is common in Cambodia (Stansell, 2005) as people often borrow money in order to survive.

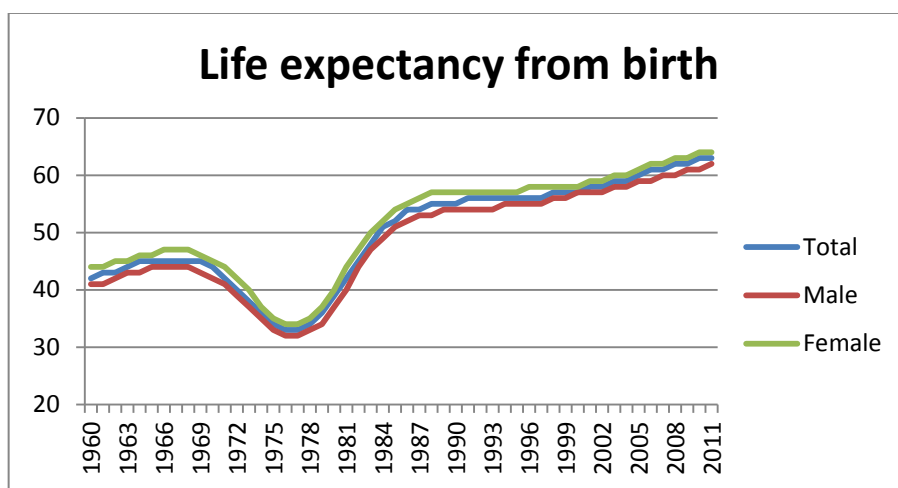


Figure 4.1 Cambodia life expectancy

Source: World Bank, 2012

4.3.1 The legacy of war

The war in the 1970s has had a severe and long lasting effect on Cambodian society. After coming to power on April 17 1975 (Panh, 1999) the Khmer Rouge embarked on an ideological journey that abolished private property, money, religion, personal possessions, leisure, marriage, and personal liberties, methodically deconstructing the state as a whole (Blunt & Turner, 2005; Panh, 1999; Stansell, 2005). The regime emptied hospitals and towns sending people en masse into the countryside to work in forced labour under violent and often fatal conditions. Strict food controls were used as a tool for compliance and the brutality, torture, and starvation under the Khmer Rouge are thought to have killed up to 2 million people, around a quarter of the population ("Khmer Rouge," 2012; Pearson, 2011). The rich and educated were subjected to the regime's extreme cruelty (Fawthrop & Jarvis, 2005; Pearson, 2011) and pagodas and schools, which were places of prayer, compassion, and knowledge (Panh, 1999), were systematically used as places of torture and detention.

The Vietnamese invaded in 1979 although this was not to be a sudden end to the war (Pearson, 2011) with factions of the Khmer Rouge remaining until the final surrender in 1998. During this time the Khmer Rouge laid hundreds of thousands of landmines in some of the country's most productive

agricultural land (Somasundaram & Renol, 1998). Not only did the political authoritarianism and cruelty of the Khmer Rouge result in widespread physical injury and deficiencies in human security and wellbeing but they were also responsible for extreme material deprivation, damaged infrastructure, destroyed institutions, and a legacy of human rights abuses and corruption (Poole, 2009; Sovann, 2010; White, 2006). The loss of traditional knowledge, skills, social capital, and institutional memory will continue to be felt in Cambodia for years to come. Panh (pp.30-31, 1999) a survivor of the Khmer Rouge who escaped the genocide when aged 15 shares:

The terrible thing about wars and about the Cambodian genocide is not only the millions of dead, the widows, the orphans, the amputees and the depressed, it's also our shattered identity, the ruins of our social cohesion...All roots of our culture and identity, the basic social relationships and symbolic links which attached Cambodians to their world were methodologically and deliberately attacked and destroyed...Angkar² was a machine for destroying identity and wiping out memory.

Context and culture must always be considered where capacity development interventions are planned (Pearson, 2011). The genocide has left physical as well as emotional wounds and both need to be addressed for societal healing to effectively take place. It is understood that the body holds memory and in times of extreme trauma this can eventuate as ill health (Pearson). “Biography is biology” is the metaphor used to describe the physical manifestations of somatization³ (Pearson, 2011, p27), often found in Khmer refugees and survivors. Symptoms include extreme fatigue, palpitations, recurrent headaches, sleep disturbance, and inexplicable pain (Pearson, 2011, p27). These are combined with the physiological results of trauma, including (Pearson, 2011, pp.32-33):

- a shared sense of shame, humiliation, dehumanisation, and guilt
- a shared inability to be assertive, a shared difficulty or inability to mourn
- patterns of emotional response, such as strong feelings of anger or revenge alternating with passivity and helplessness
- and unhealthy patterns and relationships, both between people and with the environment

It is important at this point to remember that Cambodian people have their own ideas about physical and mental illness, for example a belief in Buddhist karma and evil spirits (Pearson, 2011). Therefore to understand existing health issues in Cambodia requires knowledge of traditional as well as western beliefs (Pearson). The need for healing is also combined with a need for justice. There have

² Angkar was the Communist Party of Kampuchea also known as the Khmer Rouge (Pearson, 2011). In 1975 they overthrew the Lon Nol government seizing control of the capital, Phnom Penh. They ruled the country until the Vietnamese invasion in 1979.

³ Somatization is defined by the [Oxford Dictionary](#) as “the manifestation of psychological distress by the presentation of bodily symptoms”.

been advocates to bring those responsible for the genocide to trial with feelings (Panh, 1999, p.32) that Cambodia was forced into “a vicious circle of cultural loss”. It is argued (Panh, 1999) that a trial is needed not only to expose the truth about what happened but also to help restore identity. The Khmer Rouge trials are currently underway and it is hoped (Panh) that the basic ideas of law and justice, such as if you kill you will be punished, will here be given true meaning. For healing to take place it is felt that (Panh) moral and political responsibility for the genocide needs to be established.

It has been said that one way for Cambodia to move forward is to understand and remember its past (Pearson, 2011). In Cambodia time is broken up into three time periods, before the Khmer Rouge took power, during the regime, and after (Stansell, 2005). Cambodian society is made up of perpetrators, survivors, and their children (Stansell) and all live alongside each other suffering the same deprivations of a broken society. There is a general level of mistrust in Khmer society. This comes from a cultural need to suppress anything that could create new conflict (Pearson) combined with an uncertainty about the past of others living in the community. In Cambodia fear of things real and imagined, and a fear of revenge, guides behaviour (Pearson) and not knowing someone’s history can make people fearful of engaging beyond social niceties and superficial norms. The genocide has damaged social memory, cohesion, and trust. It is believed that the current government benefits from the country’s “psychological immobilisation” (Stansell, 2005, p.20) and that many of Cambodia’s political elite are not attracted to the idea of Cambodians remaking themselves as a united people. However, this is exactly what is needed for Cambodia to move on to a more prosperous future.

4.3.2 Cambodia today

The Khmer Rouge’s assault on the country’s intellects and schools was disastrous for education. A 30 year old male interviewed by Panh (1999, p. 32) is cited as saying:

The Khmer Rouge didn’t just kill people, they turned our generation into ignoramuses, animals, idiots, who don’t know where they are going. We didn’t study. All we know is how to use our physical strength so we can only get jobs as peasants or labourers.

While many children in Cambodia are now afforded the opportunity to get an education, numerous others have no choice but to spend their days wandering the streets looking for food, moving goods on bicycles, hustling as street vendors, begging, or increasingly selling their bodies to satisfy an ever increasing sex industry (Stansell, 2005). Human trafficking has become rife in Cambodia and it is thought (Academy for Educational Development, n.d) that poverty, inequality, a socio-economic imbalance between urban and rural areas, unemployment, increasing tourism, and a lack of education are further contributing to the problem. Often trafficked for sexual exploitation and

forced labour, children under 18 years are particularly vulnerable. Many victims and their families are led to believe that they will be working as domestic servants only to later find that they have been tricked into something much more sinister (Academy for Educational Development, n.d; Kristof & WuDunn, 2010). Poverty makes life in Cambodia a constant struggle and corruption and impunity (Human Rights Watch, 2012b; Panh, 1999; Pearson, 2011) often go hand in hand in a society where bribes are paid for action as well as inaction.

It could be argued that corruption in Cambodia has almost become a cultural norm, with many accepting the practise as a normal part of everyday life. The beliefs that surround client patronage and gift giving likely contribute to the sense that corruption is normal or okay. The Corruption Perception Index 2011 (Transparency International, 2012) scored Cambodia 2.1 with 0 being highly corrupt and 10 being very clean. Of the 183 countries included in the index Cambodia ranks 164 (Transparency International). While the method used is not without its shortcomings (Seiha & Frommer, 2006), it does indicate the degree of corruption occurring in the country. It has been said that corruption has become routine in Cambodia (Seiha & Frommer, 2006) and that it is taking place locally, regionally, and nationally. The incumbent Prime Minister Hun Sen came to power in 1993 after forming a coup when he came second in the country's first national elections following the Khmer Rouge. Since then his government has been accused (Brinkley, 2009, p. 111) of "looting Cambodia's natural resources, jailing political opponents, kicking thousands of the weakest out of their homes, and fostering an expansive system of corruption."

The most dishonest institutions in Cambodia are thought to include the police, courts, tax, and customs departments (Seiha & Frommer, 2006). Although it is well known that corruption and impunity are not unusual in Cambodia international donations and foreign aid continue to flow into the country with limited accountability or transparency (Brinkley, 2009; Pearson, 2011; St John, 2005). Under these circumstances there has thus far been little political will to pass anti-corruption legislation (Soto as cited in Brinkley, 2009) or any real interest in democratisation (Blunt & Turner, 2005). One area where the Cambodian government has been repeatedly criticised (LICADHO, 2012; Stansell, 2005) is over the practise of "land grabbing". The Khmer Rouge abolished private property rights and this has made it easier for the current government to seize large tracts of land for agricultural development under their Economic Land Concessions scheme (LICADHO, 2012; Seiff, 2012; Sochua & Wikstrom, 2012).

Large industrial companies are acquiring land through long term leases, often at the expense of local subsistence farmers who are forcibly evicted from their land with no form of compensation and few rights to protest (Amnesty International, 2012; LICADHO, 2011). Since 2003 it is estimated that as many as 420,000 people (Amnesty International, 2012) have been affected by forced evictions and

land disputes with LICADHO (2012) reporting that as many as 2.1 million hectares of land have been leased to private companies in the same timeframe. A SWOT analysis (UNDP, 2006) carried out in relation to the Cambodian economy reported on land ownership based on decile groups (page 17). They suggest that in 2003 those in the bottom 40 per cent of the decile groupings owned less than six per cent of the total land area and those in the top 20 per cent owned 70 per cent (UNDP, 2006).

Since 2003 land concessions and forced evictions have continued to increase in number and magnitude (LICADHO, 2012; Amnesty International, 2012) making those in the lower 40 per cent group much more vulnerable to losing not only access to their land and homes but also the resources they rely on for their livelihoods (Stansell, 2005). In recent years restrictive legislation has been introduced in Cambodia aimed at limiting freedom of expression, assembly, and peaceful association (LICADHO, 2011; Amnesty International, 2012). At the same time, newspapers reports of land activists shot dead or detained (Pilorge, 2012; Radio Free Asia, 2012a; Sochua & Wikstrom, 2012) are accompanied with reports of human rights abuses (Alpert, 2012; Bartlett, 2012; Phnom Penh Post, 2012) and a culture of impunity (Grudgings & Thul, 2012; Human Rights Watch, 2012a; Radio Free Asia, 2012b). With the situation as it is, one begins to question how it is that the government has been able to get away with such behaviour.

4.3.3 Governmental reform

When the Vietnamese intervened in 1979 they were confronted with no recognisable state, no army, no police, no legal system, no institutions, no private companies, no religious hierarchy, no schools and no hospitals (Blunt & Turner, 2005) and so every aspect needed to be redesigned and implemented. This was never going to be an easy process. A loss in national memory of how government worked had resulted after most of the country's civil servants had been killed (Gottesman in Blunt & Turner, 2005). Infrastructure at this time had collapsed and urban centres were no longer functioning. Millions of people were on the move looking for their loved ones, returning to where their homes had once been, or crossing the border into Thailand to seek refuge (Blunt & Turner, 2005; Brinkley, 2011). The Vietnamese did not leave following victory but stayed in Cambodia until 1989 (Blunt & Turner) when it was considered that although the country could not be regarded as a developmental state, it was relatively stable.

The first national elections following the genocide took place in 1993 (Pearson, 2011; Blunt & Turner, 2005; White, 2006). Since then Cambodia has embarked on radical social change (Ledgerwood, 2011) and sweeping political reform (Nong & Marschke, 2006; Poole, 2009; Sovann, 2010; Royal Government of Cambodia, 2005; White, 2006) and while on paper it may seem that the devolution of power has occurred, the reality is that Cambodia still remains very much under central control (Blunt

& Turner, 2005). In an attempt to strengthen and expand local democracy, to promote local development, and reduce poverty, the Royal Government of Cambodia (2005) has embarked on significant decentralisation and de-concentration reform. In 2002, decentralised government bodies, the Commune Councils, were re-elected for the first time in decades (Blunt & Turner, 2005; Ninh & Henke, 2005; Pact, 2004). Although the election represented a significant move towards democratic decentralisation, there were concerns (Ninh & Henke, 2005) about the capacity of these newly elected representatives and what role partisan politics would play in their performance.

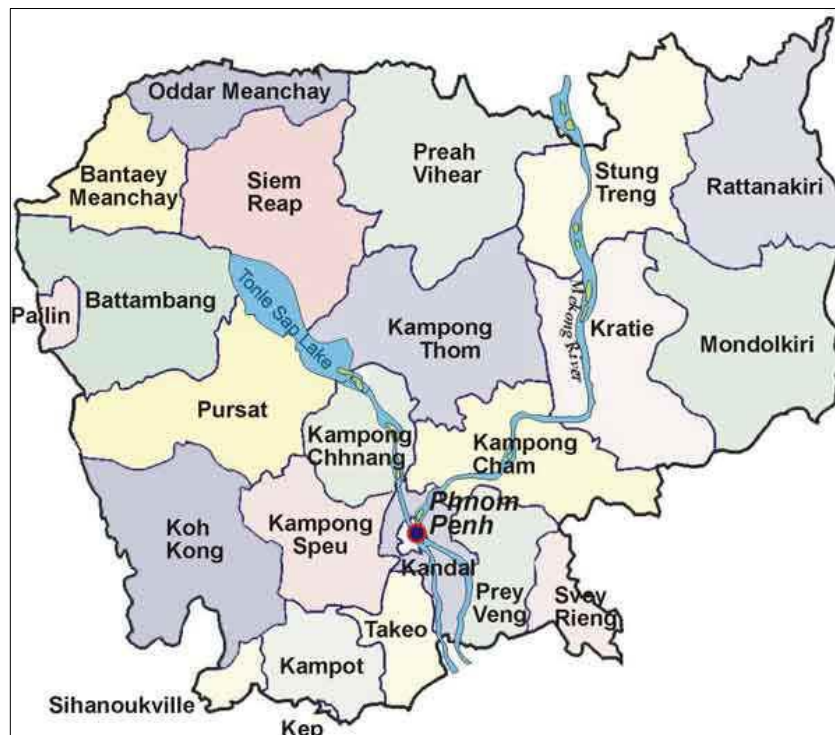


Figure 4.2 Map of Cambodia provinces

Source: Phnom Penh Tour website: <http://phnompenhtour.com/cambodia-provinces/2.html>

Cambodia is now organised into 20 provinces (see figure 4.2 above), four municipalities, and 1,621 communes and sangkats (Blunt & Turner, 2005; Ninh and Henke, 2005). There are more than 11,000 elected Commune Councillors (Blunt & Turner) and each commune consists of between five to 11 members (Ninh & Henke) depending on its size. The commune councils have a five year mandate (Ninh & Henke) and in 2012 the elections once again took place. The commune councils are designed to help address the problems of poverty and deprivation at a more localised level (Blunt & Turner) and to encourage democracy and accountability. Benefits thought possible through such decentralisation (Ninh & Henke) include greater transparency and accountability and decision making

processes that are closer to the people who will be most affected, which is believed to lead to more responsive and effective governance.

In Cambodia, recent decentralisation reform has created an opportunity for community based management of fishery and forestry resources (Nong & Marschke, 2006). Community of Fishery and Forestry committees have been established in many locations with the purpose of guiding local resource management activities. Traditionally, technical leadership from government, or informal regulations put in place by village and commune leaders, were used to manage resource use (Nong & Marschke). The move away from these traditional approaches is a chance for local Khmer communities to take a more active role in managing the resources they rely on for their livelihoods. However, although decentralisation has occurred, lack of experience, and inadequate technical and financial support (Sophat & Reasey, 2010), leave some communities ill equipped to make the most of the changes.

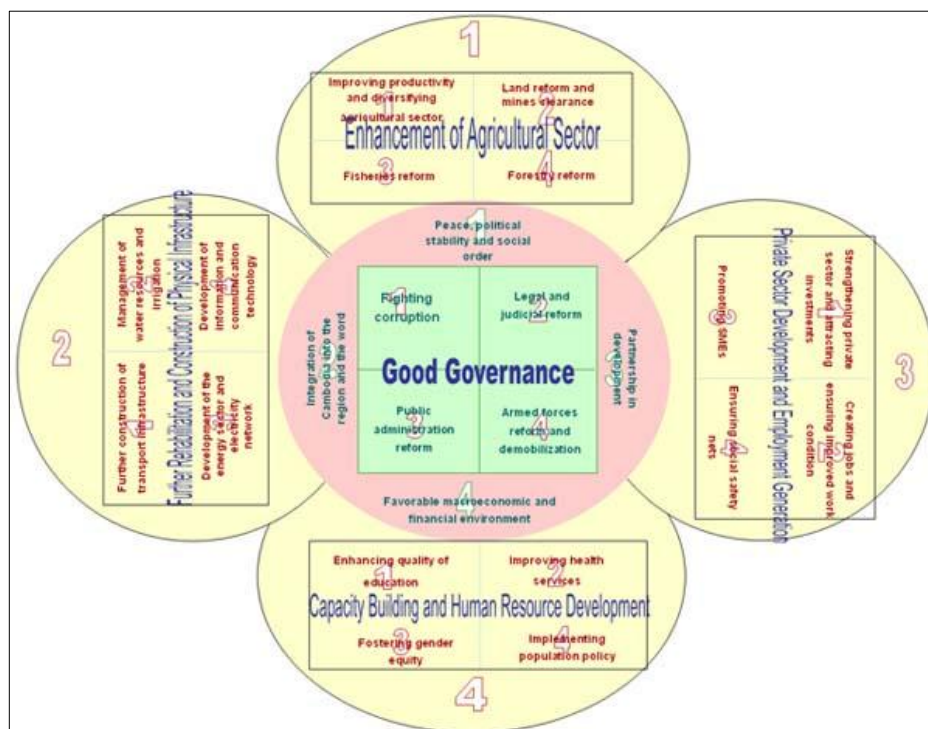


Figure 4.3 Rectangular Strategy diagram

Source: Council for the Development of Cambodia, 2008

In 2004, the Royal Government of Cambodia first released its strategy for growth, employment, equity and efficiency, known as the Rectangular Strategy. Updated in 2008, the Rectangular Strategy sets out Cambodia’s long-term development goals and vision (Sen, 2008). The Strategy is based on the diagram above of five interlocking rectangles (figure 4.3). The diagram has good governance at

the centre of the Strategy, surrounded by four growth components, agricultural development, infrastructure rehabilitation and development, private sector development and employment creation, and capacity building and human resource development. While the framework provides a vision for development, the first part of this chapter has attempted to show that good governance takes political will and commitment and in Cambodia there is still some way to go before rhetoric and policy are transformed into reality.

4.3.4 Cambodia and climate change

A great deal of uncertainty surrounds how climate change will play out in different locations around the world. In Cambodia, temperature changes, variations in precipitation patterns, increasing incidence of pests and disease, and sea level rise are predicted (UNDP, 2011). While natural disasters are not new to Cambodia (see figure 4.4), with floods, droughts, storms, and epidemics experienced throughout history, it is believed (UNDP, 2011) that the frequency and intensity of such disasters will likely increase as a result of climate change. In recent years a number of events have occurred sparking public dialogue about changes taking place (Tischenko, 2011). These events include Typhoon Ketsana in 2009, the delayed rains of 2010, and the destructive floods of 2011. Typhoon Ketsana which hit Cambodia on the 29th of September 2009 was described as “highly unusual and devastating” (UNDP, p. iii, 2011). Elevated water levels affected a number of provinces and communities, destroying crops and causing incidences of death and injury.

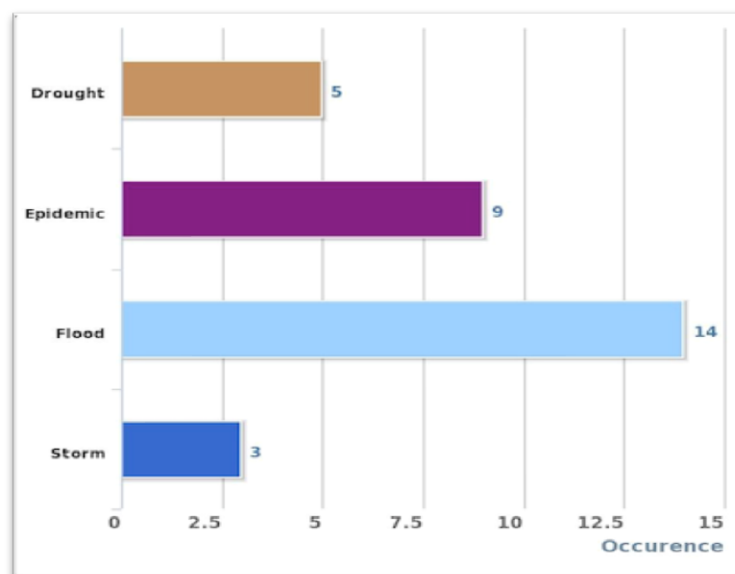


Figure 4.4 1980-2010 Cambodia Disaster Record
Source: Prevention Web, 2010

The following year, 2010, rains were delayed. Not only did this raise public concern about climate change but it also highlighted the dependency of rural Khmers on the regularity of the seasons in sustaining their livelihoods (UNDP, 2011; Tischenko, 2011). The delayed rains of 2010 resulted in record low water levels in both the Mekong River and the Tonle Sap Lake (UNDP, Tischenko). Families who had the year before suffered crop losses following Ketsana, now found themselves in a precarious situation. 2010 may have been a year of record lows, but 2011 was the opposite with flooding affecting 18 out of the country's 24 provinces (Reliefweb, 2011). Heavy rains in August overflowed the Mekong, once again destroying crops and infrastructure, this time affecting as many as 1.5 million people and killing 250 (Reliefweb, 2011; Tischenko, 2011). These three consecutive events stirred public dialogue (Tischenko) and in 2011 two reports relating to climate change in Cambodia were released.

The first was completed by the Ministry of Environment's Climate Change Department (BBC World Service Trust, 2011), Understanding public perceptions of climate change in Cambodia, and the second was a Human Development Report by the United Nations Development Programme (UNDP) Cambodia, Building resilience: The future for rural livelihoods in the face of climate change. These two reports indicate that although the concept of climate change is relatively new in Cambodia (UNDP), it has been recognised as a legitimate threat. The public perceptions report (BBC World Service Trust, 2011) found that there is a belief among Cambodians that the climate is changing and that most attribute this change to deforestation.

While most of those surveyed recognised at least one of the terms "climate change" or "global warming", for the majority awareness was experiential rather than based on a scientific understanding. In Cambodia (BBC World Service Trust, 2011), people are unsure whether the changes they are experiencing are a result of a long term trend, and most people tend to focus on impacts rather than causes. The findings of the report (2011) suggest that while many Cambodians have access to broadcast media, climate change continues to receive little media attention. Many of those interviewed said that they do not have access to information that would help them to respond to the issue and said that they look to the government, the Prime Minister, and local NGO's for response leadership.

The focus of the 2011 (UNDP) Cambodia Human Development Report was on the relationship between climate change and rural livelihoods. Most Cambodians are in some way dependent on the rural economy and/or natural resources for their livelihoods (UNDP, 2011). Agriculture, forestry and fisheries are key sectors for supporting Cambodian livelihoods and all are thought to be particularly susceptible to the effects of climate change. The UNDP Report (2011) suggests that resilience to climate change can be enhanced by prioritising localised "no-regrets" actions such as improving

health services and disease monitoring, establishing social safety nets, and raising awareness and disaster preparedness. Climate change is described (UNDP) as a development issue, and one that will need to be addressed at multiple levels. Within the report it is suggested that there are two important aspects in responding to climate change (UNDP, 2011). First is the need to address current vulnerabilities and short term shocks and crises, and second plans to create a long term development pathway must be established. The report argues that limited adaptive capacity is the main factor in Cambodia's vulnerability to climate change.

4.3.5 Coastal Cambodia

Cambodia's National Adaptation Programme of Action to Climate Change (NAPA) (Royal Government of Cambodia, 2006) identifies the coastal zone as one of the sectors most vulnerable to the effects of climate change, in addition to agriculture, forestry, and human health. The NAPA states (Royal Government of Cambodia, 2006, p.3):

Sea level rise may also affect the 435-km long coastline, which already suffers from storm surges, high tide, beach erosion and seawater intrusion. Low-lying areas, including settlements, beach resorts, seaports, coastal fisheries, and mangroves forests, may become submerged with rises in sea levels.

In Cambodia parts of four different provinces make up the coastal zone (UNDP, 2011). These provinces are: Koh Kong, Preah Sihanoukville, Kampot, and Kep (see map 4.2, p.47). In addition to sea level rise and salinisation, vulnerability in the coastal zone is also expected to be experienced through impacts to agriculture, fisheries, and access to safe drinking water (UNDP, 2011). Year round water shortages are a common occurrence in Cambodia (Royal Government of Cambodia, 2006). The NAPA suggests that the ability for people to adapt to changes in water supply, in many cases, will be restricted. On offshore islands where water availability is already limited, this may prove especially problematic. In Cambodia's coastal zone poverty levels are high (UNDP, 2011). With few livelihood opportunities, many coastal resources are already coming under pressure. This pressure is being further intensified by urban expansion, industrialisation, and tourism development (UNDP, 2011).

Described as a least developed country (Royal Government of Cambodia, 2006), Cambodia's vulnerability to climate change largely results from its social, political, and economic circumstances (UNDP, 2011). As previously discussed in this chapter access to education and health are not universal in Cambodia. When communities are located in isolated areas, such as offshore islands, the

opportunity to attend school or visit medical specialists may not be available. With the highest fatality rate from malaria in all of Asia (National Centre for Malaria Control, 2003, as cited in Royal Government of Cambodia, 2006), it is predicted that vector-borne diseases may become more wide spread in Cambodia as the climate changes. With limited access to healthcare facilities in small island communities, health and wellbeing may be seriously compromised if these predictions become reality.

4.4 Prek Svay Village, Koh Rong

Located in the coastal zone, the island of Koh Rong is found in the west of the Sihanuokville province and is one of five communes in the district of Meattapeap (Touch, 2004). 34 kilometres from the mainland the island is home to four largely fishery based villages, Sok San, Deum Thkor (also known as the Sangkat village), Koh Toch, and Prek Svay (see figure 4.5 below). Prek Svay is the largest of the four with a small rural community of around 148 households and a population of about 677 people (Sophat & Reasey, 2010). In Prek Svay most of the community are in some way dependant on the local marine fisheries for their livelihoods (Song Saa, 2012). Although specific statistics on dependence are currently unavailable, Touch (2004) estimates that 70 per cent of the total Koh Rong population make their living from fishing. The village has a primary school that provides for the local children until grade six; following this children need to travel to the mainland if they wish to pursue their education.

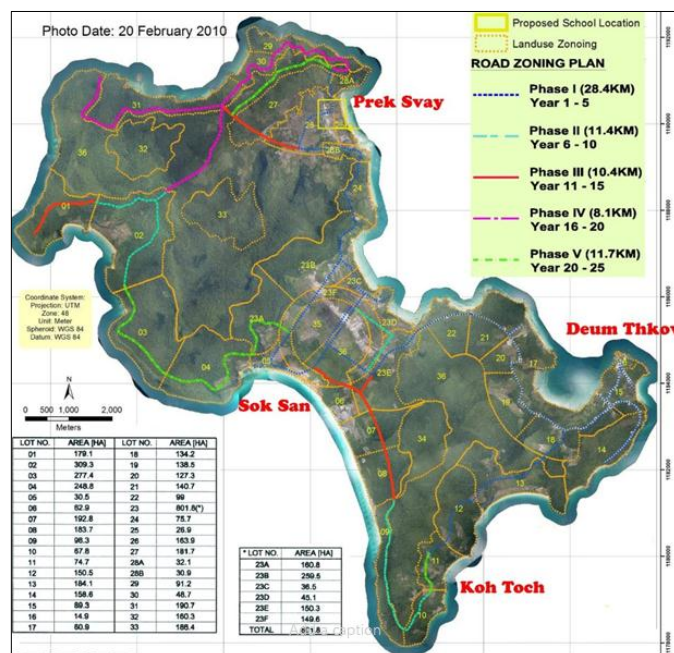


Figure 4.5 Map of Koh Rong villages
Source: Phnom Penh Geoinformatics, 2012

In 2010 the Fisheries Action Coalition Team (Sophat & Reasey, 2010) released a report that to my knowledge holds the most comprehensive information about the village. In this report they estimate that 25 per cent of the population in Prek Svay are aged 0-18, 15 per cent 19-30, 45 per cent 31-50, and 15 per cent are over the age of 50. Household sizes are not large, estimated at 4.8 persons (Sophat & Reasey) and are generally made up of spouse, children, and grandparents. The minimum household size encountered through their study was two people and a maximum of eight. The majority of the people are Khmer although one family identified themselves as being Cham and another as being Vietnamese, although they are now registered as Khmer nationals. It is thought (Sophat & Reasey) that 99 per cent of the population on the island follow Buddhism, with only one family in Prek Svay indicating that they were Muslim.

4.4.1 Village settlement

It is believed that the village was probably first established during the King Norodom Sihanouk regime between 1953 and 1970 (Sophat & Reasey, 2010). During the Khmer Rouge regime all inhabitants were evacuated from the island mostly to Botom Sakor district in Koh Kong province (Sophat & Reasey; Touch, 2004). Between 1975 and 1979 the village was used as a military base and later from 1979-1990 it was used as a naval base. During this time Thai smugglers are thought (Sophat & Reasey, 2010) to have used the island as a stop off point before bringing illegal commodities into Cambodia's main port town, Kampong Som, also known as Sihanoukville.

It was not until after 1990 that those families who had survived the Khmer Rouge regime began returning to Prek Svay. Approximately 40 families of original inhabitants are thought to have first returned to the village to settle on the land lots they, their parents, and their grandparents had left. Since then household numbers have significantly increased as families from the mainland have come in search of new livelihood opportunities (Sophat & Reasey, 2010). The FACT Report (2010) suggests that new immigrants to the village have come from the provinces of Kampot, Koh Kong, Kampong Speu, Takeo, Prey Veng, and Svay Rieng.

4.4.2 Community of Fisheries

Fishing has long been central to Cambodia's rural livelihoods and cultural practices. Fish and other aquatic resources provide an important source of food security and nutrition (UNDP, 2008), with fish reported (Baran et al., 2009) to make up to as much as 80 per cent of all animal protein in the Khmer diet. In 2000, the Prime Minister, Hun Sen, began fishery reform by releasing more than 56 per cent, 536,302 hectares, of fishing concession areas to local people to organise community fisheries (Thuok,

2007). The Director General of the Fisheries Administration, Mr Nao Thuok (2007) explains that the purpose of the reform is to promote local participation in fisheries management, and the sustainable, equitable, and efficient use of aquatic organisms.

Prek Svay, being a small island community heavily dependent on marine fisheries, with the help of the Fishery Cantonment in Sihanouk Province, registered as a community fishery under the legal title “Phumi Prek Svay Community Fishery” in 2003 (Sophat & Reasey, 2010, p.ii). Their community fishery covers a total area of 7,447 hectares. A lack of technical and financial support combined with insufficient capacity to tackle large scale illegal operations in the area (Sophat & Reasey, 2010), has meant that it has not always been smooth sailing for the community fishery.

4.4.3 Arrival of tourism

The natural beauty, remote yet accessible location, and size of Koh Rong have made the area attractive for tourism investment (Millennium Group, 2009). The Royal Government of Cambodia has granted the Millennium Group and their Cambodian partners, the Royal Group, a 99 year master-lease to develop the island (Millennium Group, 2009). Development is expected to be carried out over a 20 year period based on a Master Plan prepared by the group (see figure 4.6 below).

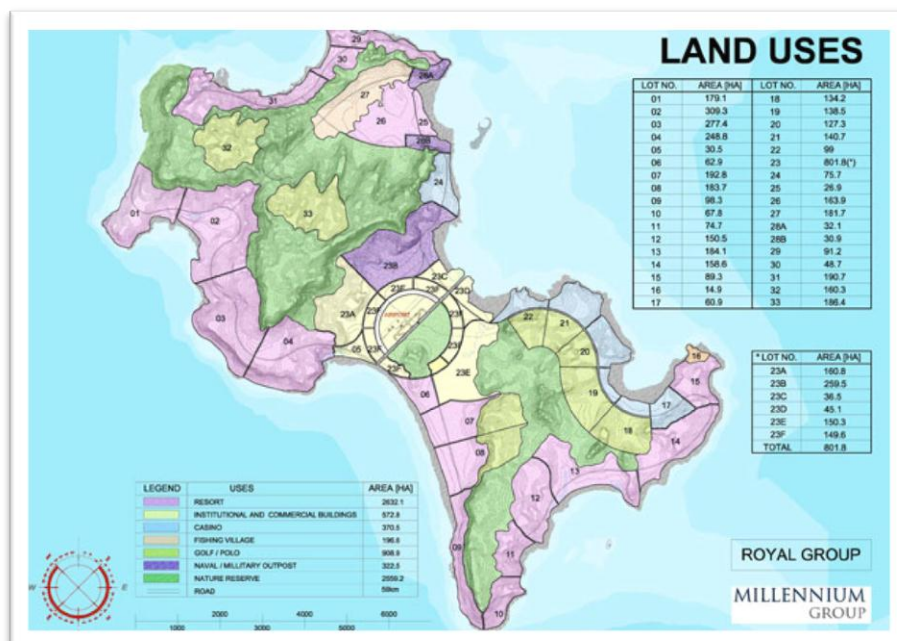


Figure 4.6 Millennium Group Master Plan
Source: Millennium Group, 2009

A new website dubbed Koh Rong Paradise Forever (The Royal Group, 2013) includes a marketing material outlining stage one of the Koh Rong development (see figure 4.7 below).



Figure 4.7 Master Plan marketing

Source: The Royal Group, 2013

The map key of stage one includes an airport, golf club, beach resorts, reservoirs, residential area, and marina. On the website (The Royal Group, 2013) Kith Meng, the Chairman of the Royal Group, shares his vision for the island:

*It is our shared vision that the Island be planned and developed in a manner that results in the establishment of sustainable, commercially viable development models whilst preserving and enhancing the natural environment. Koh Rong will become **the** destination on the South East Asian Riviera and a place for the enjoyment of both the Khmer People and Foreign visitors alike.*

Touted as eco-tourism, not all investment in the area is welcomed by locals as development can see people experience displacement and loss of livelihoods (Mekong Tourism Coordinating Office, 2011). Although not all investors will take the time to consult with local residents, there are those who see building relationships in the communities where they establish their businesses as fundamental to their success.

4.4.4 Song Saa Private Island Resort

Song Saa Private Island Resort, located on the islands of Koh Ouen and Koh Bong adjacent to Koh Rong Island and the village of Prek Svay, has also been granted a 99-year lease by the Royal Cambodian government (Tyler, 2012). Song Saa Private Island Resort has put in place the Song Saa Conservation and Community Program in an endeavour to help guide coastal development in a sustainable manner. The vision of the program is (Song Saa Private Island Resort, 2012, p.1):

For Song Saa to become an exemplar for development in Cambodia where the triple bottom lines of sustainability – ecological, social, and economic wellbeing – are achieved and integrated.

The Song Saa Conservation and Community team are based on the Song Saa islands but have a number of initiatives currently underway in the village of Prek Svay. These include a sustainable livelihoods program, solid waste management initiative, and an environmental education youth group. The Conservation and Community program includes a “research and learning incubator” scheme where researchers are invited to undertake physical and social science research in the area. It is through this scheme that this case study has come to life. With coastal island communities put forward as being highly vulnerable to climate change, the Conservation and Community team were interested in research that investigated resilience to climate change in Prek Svay.

Prek Svay was selected as a focus for this case study for a number of reasons. First, it is a small island community located in a country with significant human development issues, including poverty, limited access to health and education, and inequality. Second, the community are heavily dependent on marine resources for their livelihoods and the arrival of tourism presents new opportunities for livelihood diversification but also increasing demand for local resources. Finally, the recent reforms of the Cambodian government in terms of fishery decentralisation present an opportunity for greater local participation in resource management and planning. In addition to these three points, the presence of the Song Saa Conservation and Community Program allows an opportunity to research whether private sector partnerships can be used as a mechanism for enhancing adaptive capacity in the face of climate change.

4.5 Chapter summary

Cambodia may today be struggling with a culture of loss and poverty but it was once a vast empire rich in cultural heritage and tradition. It is essential that any attempt at capacity development is based on an understanding of the country’s past and culture. However understanding does not necessarily mean accepting and there will be some cultural norms, for example corruption, that

require an ethical stance. This chapter has set the scene for the proceeding case study by bringing to light some of the historical and contemporary issues that impact on Khmer society today. This included a discussion on climate change and the impacts expected to be most significant in the coastal zone. Located in the Province of Sihanoukville, on the island of Koh Rong, is the small fishing village of Prek Svay. Tourism has recently reached these shores and with it has come new approaches to community development. In the two chapters that follow the results of the fieldwork will be shared. In the first results chapter, chapter five, the adaptive capacity indicators developed will be used to structure a narrative of the data collected in the village.

Chapter 5

Indicators of adaptive capacity

5.1 Introduction

This thesis includes two results chapters, Chapter five and Chapter six. In these two chapters objectives three and four of this case study are addressed. The first of the results chapters is used to achieve objective three which was to document and describe both the socio-economic system of the Prek Svay fishing community and its existing adaptive capacity using the indicators identified. Following this, Chapter six is used to realise objective four which was to understand the nature of the relationship between the Conservation and Community Program and the Prek Svay Basin community. I have endeavoured to tackle these two objectives sequentially in the results chapters, in order that the findings are clear and uniform.

Using the data gathered in the field this chapter works to create a narrative that describes adaptive capacity in Prek Svay. Written text is complimented with photographs taken in the village, and quotes from the different participants. After giving a brief description of the respondents, the chapter gets underway by describing the Prek Svay asset base. This includes reference to physical, natural, financial, social, and human capital. Following this diversity in livelihood options and fishing related technology is explored. Good governance was found to be a determinant of adaptive capacity and in this chapter the current village leadership and decision making authority is discussed. Finally social learning and the community's ability to recognise and respond to change is examined.

5.2 The Respondents

In total 46 semi-structured interviews were conducted. This included 40 people from Prek Svay village, the five Conservation and Community team members, and the Song Saa staff village Doctor. The 40 interviews conducted in the village included 11 interviews with women and 29 with men. Seven village respondents were aged 18-30, 17 were aged 31-50, and 16 were 50+ (see figure 5.1). In regards to the Conservation and Community team, all were men aged 18-30, and the staff village doctor was a male aged 31-50. The Conservation and Community team was made up of two Khmer nationals and three expats originating from England, Spain, and New Zealand. The staff village Doctor was from the Philippines.

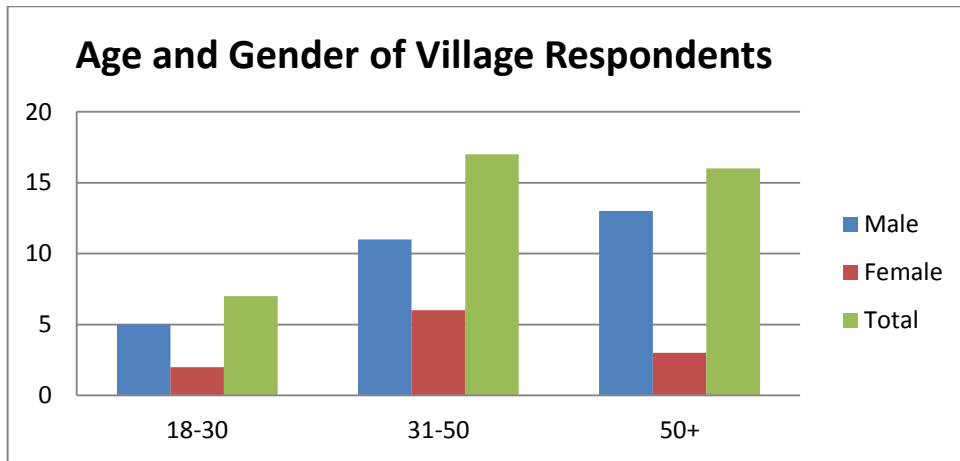


Figure 5.1 Age and gender of village respondents

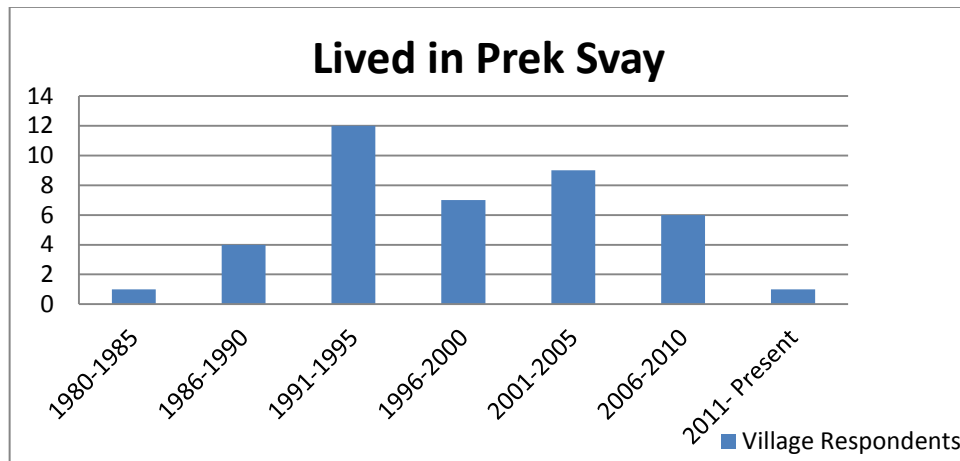


Figure 5.2 Prek Svay respondents' arrival to village

The respondents had lived in Prek Svay for varying amounts of time (figure 5.2 above). When asked how long they had lived in the village some respondents were specific about what year they arrived in the village while others were less specific giving an estimate of the number of years they had been settled there. Around half of the village respondents stated where they had lived prior to arriving in Prek Svay. These places included Koh Sangskrit, Sihanoukville (six), Phnom Penh, Koh Kong (four), Koh Ouen (two), Kampong Chunang Province, Steung Streng Province, Kampong Speu Province, Kep, Prey Veng Province, Sok San, and Kampot. The Conservation and Community team and staff Doctor had not spent as much time in the village with two respondents living in Prek Svay since 2010, two since 2011, and the remaining two having only arrived earlier in the year.

To help protect anonymity the respondents from the village have been grouped into five livelihood categories (table 5.1, over the page).

Table 5.1 Village respondents

Livelihood Category	Occupation	Age	Gender	Total
Fishing	Fisherman	Male	18-30	2
	Fisherman	Male	31-50	3
	Fisherman	Male	50+	2
	Fishing Families	Female	50+	3
	Trader	Male	18-30	2
	Fishing Related Business	Male	50+	1
Conservation and Community initiatives	Waste Management	Female	18-30	1
	Waste Management	Female	31-50	3
	Sala Gardener / Cleaner	Female	31-50	1
	Buffalo Driver	Male	50+	1
	Sustainable livelihoods	Female	31-50	1
	Sustainable livelihoods	Male	50+	1
Village leaders	Village Chief / Community of Fisheries Deputy	Male	50+	1
	Community of Fisheries Chief	Male	50+	1
	Fisheries Committee	Male	31-50	1
	Group Leader / Patrol team	Male	31-50	1
	Group Leader / Waste Management	Male	50+	1
	Fisheries committee / Patrol Team	Male	31-50	1
Other livelihoods	Teacher	Male	18-30	1
	Teacher	Female	18-30	1
	Medicine Shop	Male	50+	1
	Nurse	Male	31-50	1
	Carpenter	Male	31-50	1
	Agriculture	Male	50+	1
	Agriculture	Female	31-50	1
	Monk	Male	31-50	1
Song Saa employee	Nursery (Plants) Worker	Male	31-50	1
	Song Saa Transport	Male	31-50	1
	Staff Village Co-ordinator	Male	50+	1
	Contractor (IPS)	Male	50+	1

All who were directly or indirectly involved in fishing as their primary occupation have been cited as 'Fishing'. This group includes 13 respondents, ten men and three women. The three women came from families reliant on fishing and each explained that while their work was based in the village it was directly fishing related. Respondents who had a connection to the Song Saa Conservation and Community program or its initiatives have been cited as 'Conservation and Community initiative'. This group of eight is made up of two men and six women. 'Village leaders' included a group of six people, who were all men. 'Other livelihoods' had nine people in total and this was comprised of seven men and two women. The final category 'Song Saa employee' includes four men employed with Song Saa; all were formally fishermen and were continuing to reside in Prek Svay.

5.3 Asset base

The literature suggests that the ability to access assets, both tangible and intangible, will help to increase the adaptive capacity of a community. In Prek Svay basic infrastructure was provided. This included housing, water supply, electricity, and a small road network. Although there was some infrastructure provided respondents suggested improvements were needed, especially to the local bridge (see figure 5.3) and road network. The geographic characteristics of the village meant that most local livelihoods were in some way dependant on the natural environment. There was evidence to suggest that the environment was suffering degradation as a result of terrestrial and marine pollution, over-exploitation of resources, and destructive methods and behaviour in both forestry and fisheries. Access to natural resources was not deemed to be equal with claims that distribution was unfairly influenced by political alignment, power, and money.



Figure 5.3 A young Monk crosses over the Prek Svay River Bridge

There is no guarantee that land tenure in Prek Svay is secure. The island of Koh Rong, which includes Prek Svay village, is currently granted to the Royal Group under a 99-year land concession agreement with the Cambodian Government. This agreement has resulted in great uncertainty about future housing and land use in the village. Respondents were unsure if they would be allowed to remain in their homes as development on the island was beginning to get underway.

In the community both formal and informal networks were found. Access to markets is important in providing for livelihoods and the trader network was found to play a significant role in the village. This network not only offers access to markets but also to finance. However it does not provide any form of insurance. The community's greatest assets are found in its natural environment and in its people. In saying that, education and health were both found to be lacking in the village, thus limiting capacity to some extent.

5.3.1 Village infrastructure

In Prek Svay there were no cars, no computers, and no strict timeframes. Children played on the sandy streets, small groups congregated to talk, play cards, sing karaoke, and socialise, young men played volleyball, and no-one seemed rushed or in a hurry. People gathered sharing food and drink with one another, this generosity extending to both my translator and I during the undertaking of the fieldwork. Housing was centred along the Prek Svay River (see figure 5.4), spreading out between the rainforest and the coast. The majority of housing was made from timber and roofing materials included iron, thatch, and tiles. Houses were relatively open with open-air windows. During times of rain residents could be found securing trampolines to reduce water intake.



Figure 5.4 Overwater housing lines the Prek Svay River

Material possessions were minimal and numerous homes double as small shops selling supplies such as fruit, vegetables, rice, noodles, alcohol, cigarettes, toiletries, and coffee. The provision of fresh clean drinking water, electricity, education, and healthcare services were found to be a luxury rather than the norm. Government wells were dotted around the village (see figure 5.5B) but the water they contain was deemed “risky water” and not suitable for human consumption. Most households collected rainwater through the rainy season but the limited supply meant water needed to be purchased when the barrels ran dry. Potable water was available at a cost from the Village Chief (see figure 5.5A) or a local family who also has access to “sweet water” (see figure 5.5C).



Figure 5.5 Freshwater availability

This includes from the Village Chief (A), from government wells (B), or from a local family (C).

Electricity in the village was diesel generated. While some people own their own small generators, most of the electricity in the village was made available from two local families who have large generator systems providing a surplus supply of power (see figure 5.6, over page). Cooking was predominantly carried out with the use of charcoal, which was being produced and sold within the village. Communication technology included mobile phones, a walky talky system for local authorities, and a public landline available for hire at one of the local shops. Mobile phone antennas could be seen from the village on the surrounding hills, and mobile phone usage was common among village residents. There was no internet access in the village and information on weather and news was largely drawn from radio and television.



Figure 5.6 Generator that supplies around 30 Prek Svay families with electricity

In the village there was a small network of sandy roads. When the sand was dry the roads could be difficult for the few with motos (motorbikes) to navigate. After a little rain they would compact and become more manageable, but quickly become flooded following continuous precipitation. These roads did not form part of a larger network, connecting with the other three villages on the island. Travel to the other villages could either be done on foot or by boat. A road was being constructed at Daem Thkov village, also known as Sangkat village, with the Royal Group Master Plan indicating that this road will eventually reach Prek Svay. Facilities in the village were basic and included a Community of Fisheries office, a Buddhist pagoda, and a small primary school. The school was built by an Italian organisation, Centro Cooperazione Sviluppo (CCS Italia), in 2008 and provides education for children up to grade six. Following this children need to travel to the mainland if they are to further their studies.

5.3.2 Environment

Prek Svay is isolated and it is the natural environment that allows for human habitation in the area. Village respondents showed a great appreciation of the natural environment and recognised that both marine and terrestrial resources make living in Prek Svay possible.

“The marine fishery is very important for the livelihoods here and [so is] the rainforest; we can build a house very easily. This is a good place to do fishing and we have timber to build houses.” Montha, Male, 50+, Other Livelihoods

This understanding was accompanied with the sentiment that local livelihoods can have an effect on the quality of the environment.

“He said that the main job for the local people here is to cut the forest and sell, and to do fishing, so this is a threat to the environment.”

Sakngea, Male, 50+, Conservation and Community Initiative

The Prek Svay River is a central feature in the village and a fundamental resource. Sanitation is limited and the river and ocean are used as depositories for waste water and sewerage. In addition, it was common to see general rubbish, plastics, and discarded fishing equipment in and around the river and ocean. It is fair to say that degradation to the marine environment has taken place. Chain weighted trawling and other destructive fishing methods, such as cyanide fishing and dynamite fishing, are still carried out in the area. Although some respondents suggested that there had been some improvements, these practices still occur.

“We still have illegal fishing by the boom [dynamite], and people still come into the protection area to do fishing. We still have but not quite as much [as before], but we still have.”

Nimol, Male, 50+, Village Leader

On land it was a similar story. Village participants indicated that they held a great respect and admiration for the terrestrial environment. In particular, they appreciated the resources provided by the surrounding rainforest and the amenity value of the natural setting. Deforestation was known to be taking place around Prek Svay and this was frequently cited as a concern. Being a small island community, rubbish is problematic. Burning rubbish remains a common way to dispose of all forms of unwanted materials. In 2010 the Conservation and Community Program set up a waste management initiative to tackle waste management in the village. While each household has been given a rubbish bin and a system has been put in place for rubbish collection, rubbish remains an issue.

“Even though we have waste management our beach is not completely clean but [it is] better than from the past. Most of the problem that we have is because the people they live on the sea, they always throw the rubbish to the sea, like plastic.”

Heng, Male, 31-50, Village Leader

There was a feeling that while some people take care of the environment, there would always be those who do not act responsibly because they do not understand the importance of environmental care. Although rubbish and waste could be found throughout the Prek Svay Basin environment there was still a strong sentiment among participants that waste management was improving in the village. This improvement was largely attributed to the positive impact that the waste management team was having. What was not thought to be having such a positive effect on the local environment was sand dredging. Sand dredging was found to be taking place on different scales in the area (figure 5.7). Small scale dredging is taking place by tourism operators to transform less attractive beaches into what are deemed more desirable by the tourism market. A much larger operation was taking place just off the coast of the village, with an outside company with a contract to take sand for land reclamation in Singapore.



Figure 5.7 Sand dredges in Prek Svay

From the small scale (A) to the larger scale (B)

The sand dredging contract came with an agreement from the company that they would dredge the Prek Svay River to increase accessibility for local boat owners. According to interviewees the promise to dredge the Prek Svay River has never been fulfilled, and the conditions of the contract were not being adhered to.

“They take too much sand. What they promised in the contract is they will re-dig the stream because when the tide very low the boats cannot come in. So they told the people that they would re-dig their stream but when they come they take the sand from the site. They like cheat the community.”

Nimol, Male, 50+, Village Leader

The large scale sand dredging operation could be seen from shoreline loading sand onto shipping vessels for export. Respondents believed that taking so much sand was going to have severe adverse

effects not only on the marine environment but also on their housing located around the water's edge.

5.3.3 Access to natural resources

The most profitable natural resources in Prek Svay are marine produce and timber. In regards to marine resources, a local person does not need to be a member of the Community of Fisheries to go fishing. Fishing vessels from outside of the Community of Fisheries area do need to seek authorisation. In regard to rainforest resources, a person must receive permission from the Village Chief before taking any timber. Respondents claimed access to resources was unequal and largely dependent on power, money, and political alignment. With reference to individual use Ponleu states:

“When they cut [down] the trees they give money to the authorities, to the local authorities here. When we want to use something in the natural we have to pay money.”

Ponleu, Male, 31-50, Other Livelihoods

Politics plays an important role in village and it was argued that the need to give money to access natural resources was more likely if the person applying was from a different political party.

“He said the power group take care only of their party member. If the local people they want to use the natural resource then they need to be their party member or give some money.”

Chanvatey, Male, 50+, Other Livelihoods

The claims that access to natural resources was unequally distributed in the community were accompanied with the belief that those who were paying to make use of resource are then doing so in an unsustainable manner. In relation to marine fisheries Champei explains:

“In the past we have enough but right now because of overfishing from fishermen from the mainland she said the [local] people do not have enough, so they have difficulty with their living, some [people].”

Champey, Female, 31-50, Song Saa Initiative

In relation to rainforest resources, Phala states:

“He said that people over use it [forestry resources], the people they use it too much so it is not equal, they sell it to outside [of Prek Svay]. Like the timber, like that, they cut a lot and sell it to outside, to the mainland.”

Phala, Male, 18-30, Fishing

Those with money did not only benefit in terms of being able to pay for access, but they also have greater means of production such as machinery and equipment.

“She said that for the people that have the big boat that do fishing that they can get enough but for the smaller boat, sometimes they can get fish and sometimes they cannot get fish.”

Da, Female, 31-50, Conservation and Community Initiative

There was a belief that access to resources was not evenly distributed in the community. There was also the belief that the Royal Group land concession meant tighter controls would be put in place to control illegal use of resources, particularly rainforest resources. Some respondents claimed that the use of forest resources was already starting to be monitored by officials from the Royal Group.

5.3.4 Land tenure

A 99 year master lease has been granted to the Millennium Group, who together with the Royal Group of Cambodia has a plan to develop Koh Rong into a luxury tourist destination. They anticipate their master plan (see figure 4.6, p.56) will be carried out in stages over the next 20 years (Millennium Group, 2009) and that infrastructure developments on the island will occur in conjunction with resort and villa development. People in the village were aware of the Royal Group land concession and this was raising alarm for many of the respondents. Their main concern arose out of uncertainty about the future of their land tenure.

“He is worried about the land concession. He is afraid that they will take their land...When he came to live here there was only a few families that lived here, only two or three families...He worries about the land, that the Royal Group will take their land...He has a garden around 3ha and he is worried that they will take his garden.”

Vannak, Male, 31-50, Fishing

Locals have good reason to worry with newspapers and local media indicating that the Cambodian Government is likely to favour corporate interests over that of local communities. The Royal Group has started developments on the island, with road construction at Daem Thkov village visible from

the waters surrounding Prek Svay. Respondents expressed that this was a positive development for the community. When asked about positive change in the village, Sothiya responds:

“His answer is based on the infrastructure of the road. If in the future they have like a road for the motorbike or something it will be very helpful for the community.”

Sothiya, Male, 50+, Conservation and Community Initiative

So although there was concern among participants about the land concession and what that might mean for the security of their land tenure, there was also excitement about the investment into the island’s infrastructure.

5.3.5 Local groups and networks

Social capital is reflected in interpersonal relationships and networks, among other things such as trust and reciprocity. The literature indicates that social capital is a valuable asset in helping communities adapt to change. When asked about group membership respondents only referred to the Community of Fisheries (which includes the patrol team), the Children’s Committee, and the Waste Management Group. Although most of the respondents involved in fishing were members of the Community of Fisheries, some were not. Those who were members had joined for various reasons, including access to information and the ability to vote at the next election. Those fisherfolk who were not members tended to be the younger participants and when asked why they had decided not to join they explained it was because they had never been invited.

Political positioning was seen as being a factor in Community of Fishery membership and participation. Atith, a member of another political party to that of the Community of Fisheries leadership, explains:

“Last time [political term] he was a Community of Fishery member here. He still is a Community of Fishery member, but they never involve him he just has the name.”

Atith, Male, 31-50, Fishing

This indicates that being a member of a group does not necessarily involve active participation. There was a presence of not only formal networks, such as the Community of Fisheries and Education Committee (initiated by the Government), but also a significant informal network found in the local traders. This research identified four traders operating out of Prek Svay.

“They have four traders that take the catch to sell to the mainland. So this means that all the fishermen they will take their product to sell to them and they will take to the mainland for sale.”

Nimol, Male, 50+, Village Leader

Not only do these traders purchase the catch to process and transport to the mainland, they also sell the catch and return with other goods required by the people living in the village.

“He buys the crab, squid, and fish from the fishermen here. This means he takes the fishing product to sell to the mainland and in return he buys groceries, vegetables, soft drink, or beer, to supply to the village, to sell to the people around here.” Sokha, Male, 18-30, Fishing

But what makes this network even more valuable to the local community is that these traders provide credit to people involved in fishing. The way it works is that if the fisherfolk want to make a fishing related purchase they can borrow money from the traders. Like any money lending system the amount available to be borrowed is dependent on the likelihood the loan can be repaid. As we will see below there is a large variation in what can be borrowed. Chankrisna is a business owner and well renowned in the community as being ‘rich’, Sros on the other hand is a small boat owner and he described himself as being very ‘poor’.

“When they lack money they can borrow from the trader. The trader can support them, so they go with them. So when the [fishing] product comes in they have to go back to them [the trader]...around \$1,000-2,000 for [each] boat [owned], to buy a crab net or something [related to] fishing.”

Chankrisna, Male, 50+, Fishing

“He can borrow but just small money and just for two or three days. About \$5, but the rainy season is long and he cannot borrow too much.”

Sros, Male, 50+, Fishing

Once money has been borrowed any catch caught must then be sold to that one trader who lent the money, until the debt has been repaid.

“With the trader, if we don’t get support from them, like we have everything, we can sell to any trader that gives the best prices. But when we borrow some money or take equipment from them, then we need to go only to him.”

Sovannarith, Male, 50+, Fishing

The trader network stood out as being an important part of the community fabric as it provides access to markets, brings goods into the community, and is a source of financial credit.

Although community group membership was limited in the village, it was found that there are a number of outside organisations working with the local community. Those cited by the respondents were: Development and Co-operation (CCS Italy), Dalida, Community Translation Organisation (CTO), Legado, and Brocon (Song Saa Private Island Resort). When asked if the respondents believed there was any group making a positive difference in the community an overwhelming majority said the waste management group. The visible effect their work has had in the community was well recognised and appreciated. Others noted improvements to education as a result of work carried out by CCS, the Children's Committee, and the English class being held on a daily basis by Mr Samay.

5.3.6 Education and health

Although there was a school present in the community there were concerns surrounding its use. Teachers were concerned that parents did not understand the value of education and therefore attendance was low. Conversely there was concern from parents that teachers were unreliable and did not always attend themselves.

"He is worried about the parents in Prek Svay, most of them do not understand about the importance of education to their children, so some families they do not allow their children to come to school and this is a problem also. In the future their children will have no knowledge...He is concerned about the human resources here. If the children will not come to the school in the future it will be a threat to this community."

Chann, Male, 18-30, Other Livelihoods

The Principal of the school did not live on the island and it was said that he very rarely came to visit. Some parents had made the choice to send their children to mainland to get an education, rather than use the village school.

"He said education should be strengthened. Education right now is very weak and should be strengthened a lot. Right now because he does not trust the education here, he sends all his children to the mainland."

Vannak, Male, 31-50, Fishing

There was a concern that children in the village were working rather than attending school and that youth who remained in Prek Svay had few employment prospects for the future. However this was not only true for youth, older respondents also made reference to the effect of having low education.

“He said that I am very helpful to understand [explain] the question because he did not have an education when he was a child. He said that because he was born in the Pol Pot regime, so he had to work over there and he didn't have a chance to study. So he just knows a little bit, [how] to write the Khmer language, just a little bit.”

Translator for male, 50+, Conservation and Community Initiative

Deficiencies in education were matched with deficiencies in health. Lack of adequate healthcare services was a concern frequently cited, with the closest hospital a boat ride away. The two nearest hospitals, one at the Sangkat village and the other the province hospital in Sihanoukville, were regarded as under resourced, untrustworthy, and very expensive. In the village there were a few options for healthcare. First, there is the village medicine shop. Respondents indicated this was used for simple ailments such as headaches, coughs, and colds. Second, there were local nurses who as soldiers had trained in medicine, some of whom continued to receive training on the mainland.

“He is the nurse here and also he always goes to have training, nurse training at the mainland...They [the villagers] always come if they feel sick because here is very far from the mainland and it is very difficult with the transport so the people, if they feel sick just a little bit [sick] then they come to see him.”

Pich, Male, 50+, Other Livelihoods

The third option available was to take a boat ride to a hospital. If the illness was considered serious and a fare could be afforded, respondents said they would travel to the mainland for treatment, and many had done so. It was widely acknowledged that this came at a price, a price outside the reach of some respondents. The fourth option was traditional medicine. From my first days in the village I noticed red scrapes on the bodies of some people (see figure 5.8).



Figure 5.8 Ruptured skin from 'coining'

Source: <http://blog.lib.umn.edu/iac/electives/partner-site-cambodia/>

It was explained that this was a traditional method known as “coining”. This involves rupturing the skin with a coin or sharp object before applying tiger balm. It is used for a multitude of illnesses from headaches to dengue fever. The staff village Doctor believed that coining had no medical benefits but he had told his patients he would not criticise them for doing it. He had also asked them to tell him when they had used this method, especially if they had dengue fever.

“There is nothing except for the fact that when they do it, it is the faith that they have in it. So it works for them psychologically because they always believe because they have been told from generation to generation that when you do this you will feel better and true enough, especially for complaints that will just go away, and then they do feel better and they thank coining for it. When in fact coining does not do anything and coining just gives them pain during the act...and for a few hours after because when they do coining they rub the skin and they put a little bit of pressure so that it ruptures the capillaries and actually this is injury. You are causing bruise to your body, I would even say that you are mutilating your body...Especially when the person has dengue, as I told you, you don't have a lot of platelets and when you make your capillaries bleed underneath you can have internal bleeding.”

Staff village Doctor, Male, 31-50

It is the Song Saa staff village Doctor that represents the latest healthcare option in Prek Svay. While no policies had been put in place about who could visit the Song Saa Doctor or about how much medicine could be distributed free of charge, the Doctor had come to the job with the understanding he would be treating local people. At the time I interviewed him he had been working in the staff village for five months. He has since left and a female Doctor from India has replaced him. During his time at Song Saa word had spread that there was a doctor available at the staff village. At the

time of the interview the Doctor reported he had been treating more villagers than staff, seeing up to eight villagers a day and around four or five staff.

The Doctor had seen a number of minor and major injuries, illnesses, and diseases in his time in the village. He said he had been surprised at the high level of diarrhoea when he first arrived. Sickness in children and elderly was common. He had visited patients in the village who could not walk, and had seen cases of anaemia, high blood pressure, and hyperthyroidism that had resulted in a very extreme case of excessive heart beating. The Doctor explained that some of these patients had been living with these ailments for many years and were in need of further medical treatment. The Doctor believed that there was some low hanging fruit in regards to educating the people in the village about health and hygiene. He explained that there was novelty in having a doctor people from the village could visit and that when people came they expected to leave with something.

“The children that I have seen here are really worrisome because they come here and they stink, their hair, it is obvious that they have not showered for three days or longer. The Mother comes here and complains that her child is so thin and does not like to eat and is weak and has a fever, but they don’t have a fever. I believe that Mothers really need some kind of education because this is a remote village, and mothers have to be given knowledge as to when is the time to see a doctor, when should they panic, what are the signs when they have to bring the child to the doctor. A lot of simple colds and coughs, colds and coughs come very often for children and these are not conditions that necessarily have to be seen by a doctor. In remote villages educating them about the danger signs and things like that, it will give them piece of mind and they don’t necessarily have to go to the doctor to get medications.”

Staff village Doctor, Male, 31-50

Nurses from the mainland were said to come to the village every six months. When they came they offered free vaccinations for children but the uptake was said to be low.

“Most of the people they go to work and they don't take their children to come [to get vaccinated], [they are]busy with their business or working, they don't care about that...Some people they ignore, they do not care about their children's health.”

Pich, Male, 50+, Other Livelihoods

The majority of pregnant women were said to stay in the village to give birth. There had been a 'traditional lady' who had recently left the village, but a new one had since replaced her. Some respondents said that they had had their children at the hospital on the mainland. The dangers of giving birth in a remote location without sanitary facilities were recognised by some respondents. This was known to have caused concern for some people in the village. A relationship between education and health was evident, both of which have room for improvement in Prek Svay.

5.4 Diversity

Diversity can promote adaptive capacity by creating a variety of future options and a range of coping and risk reduction strategies. Livelihood diversity and multiplicity was found to exist to some extent in the village. Many respondents reported having more than one job at a time, or changing jobs during different seasons. Some respondents shared that there were times that family members travelled outside of the village in search of work or to take up different employment opportunities. Although there was some diversity in livelihood options, the local fisheries were regarded as fundamentally important to the people of Prek Svay. They not only provide employment opportunities but they also contributed significantly to the local diet. Seasonal variation in fishery target species was identified as having an impact on those directly involved in the fishery industry and having a diversity of fishing equipment could potentially act as a safety net. In Prek Svay the people come across as resourceful, making the most of what they had. In carrying out their daily activities they display an ability to improvise.

5.4.1 Livelihoods

In Prek Svay the people are heavily dependent on the produce from the sea, especially crab, squid, and fish. Although there are other work opportunities in the village, for example being a shop owner, antenna guard, nurse, teacher, carpenter, food or service provider, thatch maker, boat builder, forestry worker, small-scale farmer, or being employed by Song Saa, the village remains reliant on the local fisheries in livelihood provision. The local fisheries are of great importance not only to the direct fisherfolk of the village but also a number of others indirectly involved in the industry (see figure 5.9). Participation includes preparing the bait, catching the produce, processing the catch, transportation to markets, trading the catch, and boat building, maintenance, and repair.



Figure 5.9 Participation in the fishing industry

Participation in the fishing industry is not restricted to fishing. It includes among other things, bait preparation (A), processing (B), and transportation to markets (C).

Local respondents described the dependence on marine resources as being a result of geography and limited livelihood options.

“Because most of the people here they are fishermen so...their livelihood depends on the species of the sea. Because here we cannot do farming much or we can’t grow something like vegetable much, so we can live by depending on the species from the sea.”

Nary, Male, 50+, Song Saa Employee

Fish provides a basic necessity in the village, sustenance. The isolated nature of the village and the sandy characteristics of the soil meant that there was not too much variety in terms of fresh produce. Fish and other marine organisms provide protein and nourishment and contribute significantly to the local diet.

“He said that for the livelihood and the economic, the domestic economy, he said the people they live along the beach and their living depends on the marine fishery...If he does not go to do fishing then he has no food.”

Sros, Male, 50+, Fishing

Furthermore, fishing has become ingrained in daily life with residents who do not fish for a living, still fishing for recreation or food.

“They always do fishing when they have free time for their food. For the local people they do fishing and it has become a habit for food. Some do for big business, they do for sale but for them just short net or line, fishing hook, just for their living.”

Sorpheny, Female, 50+, Fishing

5.4.2 Catch, equipment, and seasonality

Crab, squid, and fish make up the majority of the catch in Prek Svay and what people are targeting is dependent on what equipment they have at their disposal. Personal observation would suggest that there are three main scales of fishing taking place.



Figure 5.10 Variation in boat size and capacity in Prek Svay

Ranging from small polystyrene boats (A), to long tails (B), and to larger fishing vessels (C).

First there is the small scale, small polystyrene boats (see figure 5.10A) generally seen as being used by the poorer members of society. Squid and fish are usually targeted from these 'small boats'. Second is the medium scale, long-tail boats, with around 22 horsepower outboard engines, these boats have a greater capacity and can travel further. The long-tail boats (figure 5.10B) are conventionally targeting crab but also taking some fish as by-catch. Finally there is the larger scale, what are regarded in the village as 'big boats' (figure 5.10C). 'Big boat' ownership is limited in the village with only a few of the wealthier families being able to afford them. These boats are traditionally seen as being from 'outside', from the mainland, Thailand, and Vietnam. Often these boats have trawling equipment and are thought to cause great devastation with the use of destructive and indiscriminate fishing methods.

Local fishing equipment includes crab traps, nets, hook, line, and sinker, and squid lures (figure 5.11). Often fisherfolk only have access to select equipment meaning they are limited in what they can target. When talking about the equipment used by the local people Atith explains that traditional methods are commonly used.

“He always uses nets, traditional method. He said that the people that they live around here they do not have a lot.”

Atith, Male, 31-50, Fishing



Figure 5.11 Fishing equipment

In Prek Svay respondents explained that the fishing equipment used most regularly is nets (A), squid lures (B), and crab traps (C).

Fisherfolk explained that if everything was running smoothly they would go fishing everyday:

“If the water not have storm he will go every day, machine [engine] no problem then go every day. [If they] have a problem with the machine or problem with the weather then waiting.”

Vannak, Male, 31-50, Fishing

Seasonal variation in catch meant that there are times of the year that some families and fishing related businesses struggle. Some fisherfolk find the dry season a better time of the year for fishing, while the majority find the rainy season favourable. For the small boats that target squid, the dry season is better, as Sros explains:

“He does fishing in the dry season and for the big boat they do crab fishing and it is very good in the rainy season but for the small boat it is the dry season that is better...His job is based on the fishing... sometimes no food, he has no children or wife and so sometimes no food.”

Sros, Male, 50+, Fishing

Those fishing for crab explained that the best time for catching crab is following Khmer New Year. The rough water and ‘big swells’ of the rainy season make the crabs easier to catch.

“At the rainy season it is good for fishing crab. In the dry season we can catch [something] but not a lot. We can only catch a little...so they are very happy with the rainy season, they love the rain.”

Kaliyanei, Female, 50+, Fishing

Whether the fisherfolk found the rainy or dry season best was dependant on what equipment they had and what it was that they were targeting. While this varied, there was agreement that when the targeted species were less available, their families or businesses struggle.

“After Khmer New Year, after April is best. The rest of the year is just for their own food - they cannot catch much...they struggle. And if there is another place that needs workers, they send their sons to work.”

Nakry, Female, 50+, Fishing

With certain times of the year a struggle for fisherfolk and fishing related businesses, coping strategies differed. As Nakry explains above, some families send family members to the mainland or abroad (most commonly Thailand) to find alternative employment. Respondents reported travelling outside of the village to fish, work in construction, work as a mechanic, or to do odd jobs. Others have no choice but to keep fishing, trying their luck at as many locations as possible, while others move to other livelihood opportunities such as cashew farming.

The local traders also report struggling through seasonal variation. One local trader explained that in the rainy season he employs a group of five workers on his boats and every one or two days he does a trip to the mainland with around 400kg of crab. In the dry season he cuts down his staff and only takes around 200kg of crab to the mainland. The reality is that seasonal variation creates a time of the year when some of those reliant on the local fisheries struggle to make a living and/or find themselves and their families going hungry.

5.4.3 Innovation

Innovation and resourcefulness are characteristics that can help individuals and communities cope with novel situations. Although the people in the village did not have a lot of material wealth, the people of Prek Svay appeared resourceful and innovative, making the most of what they had. This was shown in their ability to make use of something that was meant for something else. Rainwater collection systems were one area where the ability to improvise was most evident. Rainwater collection ranged from the simple to the intricate (figure 5.12A&B). Water systems designed to transport water from government wells to houses (figure 5.12C) were another fine example of local innovation. Whether it was designing fishing equipment, building and transporting houses, or cooking on a wheel rim (figure 5.9B, p.77), the residents of Prek Svay were found to be practical people, well able to improvise.



Figure 5.12 Innovative examples of water collection and transportation

Coconut tree trunks (A) and recycled containers (B) are used in rainwater collection, and systems are in place to transport water from the local wells to residents' homes (C).

5.5 Governance

Governance structures and power sharing will have an effect on a community's adaptive capacity. Equitable and fair processes that allow people to contribute to the decisions that affect them help to promote participation. Decentralisation reform has allowed for greater local governance of natural resources, however in Prek Svay vision and best practice are hindered by lack of resources and capacity. In the village only a few key individuals hold decision making authority. Claims that decision makers could be paid for action as well as inaction were not uncommon among respondents. In the village conflict resolution processes were in place, although they were not necessarily seen as fair or effective. Respondents who had experienced inaction after voicing concerns about an issue or incident, appeared to have lost faith in local leadership. Village leadership did have some linkages to outside organisations and agencies; in particular relationships

had been established with the local authorities at the Sangkat village and the province Fisheries Administration in Sihanoukville.

5.5.1 Current leadership

In the days before I arrived in Prek Svay the commune elections were held. Commune elections were first held in 2002 and this election was the third of its type since decentralisation reform. The 2012 election resulted in the Cambodia's People Party winning 1,592 seats out of 1,633 (Hunt, 2012). There was a new Chief elected at the Sangkat village but in Prek Svay leadership roles remained unchanged. The current Chief of Prek Svay had been in his role for 14 years. What became evident quite early on in the fieldwork was that leadership roles were only held by a handful of men. The most influential groups in the community were identified as being the Community of Fisheries, the children's committee and the village group leaders. Those in the high-level leadership roles often occupied more than one role.

"He is the Village Chief and the Vice of the Community of Fishery. Yes he is the children committee member. Only three...For the children's committee, right now the government they choose the local people here to work as a team to work with the children. Also some families they have problem and cannot send children to a school or the teacher not come to the school, to work with them."

Male, 50+, Village Leader

5.5.2 Decision making authority

Local decision making authority was said to be held by the Sangkat Chief and Deputy, the Sangkat Police, the Navy (at the Sangkat village), the Royal Group, the Village Chief and Deputy, the village group leaders, and the Community of Fisheries Chief, Deputy, and the committee. As discussed in the literature review, Cambodian society is structured according to hierarchy and built on client-patron relationships. When discussing decision making authority a recognised hierarchical structure quickly became evident. At the bottom of this hierarchical structure (figure 5.13) of decision makers were the four village group leaders, above them the Village Chief and Community of Fisheries Chief, above them the Sangkat local authorities including the Sangkat Chief, and Police, and finally above them the Navy and the province administration. This is a similar structure across the rest of Cambodia.

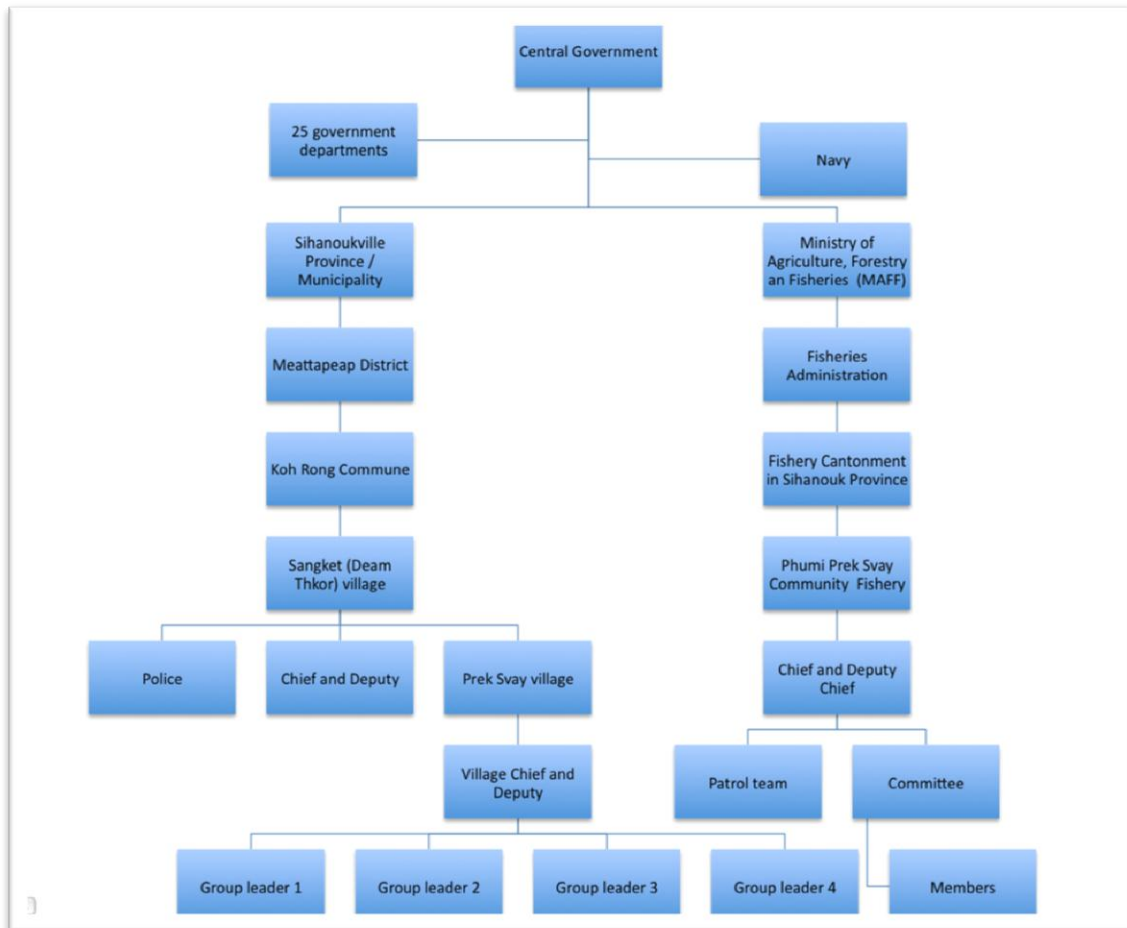


Figure 5.13 Prek Svay governance structure
As described to me throughout the interview process

There are no formal plans in Prek Svay and the Phumi Prek Svay Community Fishery had yet to put together a Community Fishing Area Management Plan. People in the village were aware of rules surrounding the use of natural resources, particularly in regards to forestry and fisheries. In addition, the Prek Svay rules could be found displayed on a sign in the centre of the village (see figure 5.14), though reports of domestic violence, youth fighting, alcohol abuse, and gambling suggested that these rules were not always being followed.



There are 5 main points for the safety of the village and the community.

These are:

- No stealing or robbery
- No producing, using, or selling drugs
- No prostitution with women or children and no domestic violence
- No gangster, teenage gangster, or gangs
- No gambling, use of weapons, or abusive action

Please involve together for the benefit of the village

If you have any problems with these five please inform to the phone number below

Thankyou / special thank you for the King and people in top positions / special thank you for the Monks: Signed the Government of the Kingdom of Cambodia

Figure 5.14 Prek Svay village rules

In addition to the village rules, the Community of Fisheries leadership also expressed that they had trouble upholding the Fishery’s rules and regulations due to lack of resources and training. When asked about the Community of Fishery laws some respondents believed that people in the village did not know about the rules.

“The fishermen don't understand about the law, the fishermen they don't know much about the law of fishing around here.”

Atith, Male, 31-50, Fishing

Others disagreed arguing that there was a general understanding by those involved in fishing about the rules and regulations. Montha, a retired fisherman explains:

“They understand about the rules, they understand about the law. He said that dynamite is illegal, electric fishing is illegal and they know about the hole [size] of the net...what they can use, like small, small not allowed to use. Also some place they are allowed to do fishing and some place they are not allowed to do fishing like that.”

Montha, Male, 50+, Other Livelihoods

It was acknowledged that although people know the rules they did not necessarily follow them. The general feeling among respondents was that it is the 'outsiders' with the 'big boats' that were the ones breaking the law, not the local community.

"They said that the people here, the local fishermen, they do not do illegal fishing. Most of them are from the mainland, from outside."

Heng, Male, 31-50, Village Leader

These outsiders were described as being powerful and difficult to stop.

"Abusers of fishing [law] are from the outside and they are powerful. They have like big boat, some they have weapons. His biggest concern is that we have big boats from another place and that they still refuse to recognise our area and that our Community of Fishery has control. They have very big boats and they are powerful and they take many things and destroy many things. He said his team [the patrol team] does not have the power to stop them yet. He has experience one time when he went with the small speedboat to stop the big boat fishing, and he tied his boat to the big boat and his boat go and go, far and far."

Sov, Male, 31-50, Village Leader

The Community Fishery patrol team was getting some support from the province Fishery Administration and the Song Saa Conservation and Community Program. Support was mainly in the form of fuel and patrolling equipment, including a walky talky communications system. Members of the patrol team suggested that there was still more equipment that would help to make them more effective. This included uniforms, binoculars, GPS, more walky talkys, and raincoats. Whether it was due to lack of resources or something else, such as lack of training, it was widely believed that fishery law enforcement was poor.

"It is not going well yet. He said even though some illegal fishing they [the authorities] go, but they go just for money not to arrest them [those breaking the law]. When the local people they have problem and they want some help from the authority or Community Fishery here, they will say no money for the action...then they are busy with a meeting. They don't solve the problem for the local people."

Chanvatey, Male, 50+, Other Livelihoods

Chanvatey suggests that law enforcement officers were more concerned with bribes than they were with community support. Similar to attitudes on the distribution of natural resources, it was feelings like these that frequently emerged suggesting a lack of trust in the local leadership's commitment to best practice. When I asked respondents who they would go to if they had concerns about the environment most people had some idea of who they would turn to, although there were some who

explained that they did not know. The local officials, who were cited as the decision makers above, were also the same people the community said they would approach if they had concerns about something happening in the environment. The Village Chief and the Community of Fisheries Chief were cited most frequently.

Even though most respondents provided an answer to the question, when asked if they had been to these people about such concerns in the past the majority explained that they had not. When questioned further it became clear that there was a feeling that approaching the local authorities about environmental issues was pointless as no action would be taken anyway.

“When they have problem with the environment he never informs to the Commune or to the Chief because he thought that they would never take action so he will never inform.”

Vannak, Male, 31-50, Fishing

Those who shared this perspective said that they would either do nothing or they would go to outside organisations, government departments, or the Navy rather than approach the local officials. For those who had approached local officials about environmental concerns there were three main issues that they had brought to the officials attention. These were rubbish pollution, illegal fishing, and breaches to Song Saa Private Islands marine protected area. In the village participation in decision making is limited to a select few with little bottom-up input. Respondents who were not in leadership roles appeared eager to have their rights recognised, their voices heard, and their opinions taken into account. It was suggested that there needed to be more civic participation in decision making than what was currently in place.

“All the leaders should listen to the people. To listen to the idea of the people when they do or make a decision to do something.”

Chanvatey, Male, 50+, Other Livelihoods

5.5.3 Conflict resolution

In terms of conflict resolution, it was the Sangkat Chief, the Prek Svay Village Chief, and the Community of Fisheries Chief who were considered to hold the power to mediate.

“He said that the fishermen, if the issue is with fishermen, then the Community of Fisheries will work to solve the problem. If the fishermen have issues with the local people, then the Village Chief will work to solve the problem.”

Sann, Male, 31-50, Village Leader

Respondents were aware of the village hierarchy. It was often suggested that the nature of the conflict dictated who it was that would be approached. Small disagreements might require the intervention of the localised group leaders but for more serious threats or disagreements the Village Chief may be required to intervene. The Village Chief explained that the power to mediate was a part of a wider legal framework:

“We have two specific laws. If it is conflict by the word he can solve the problem, but conflict with the violence involved then the police at Sangkat will solve the problem.”

Village Chief, Male, 50+

It was often expressed that conflict that could not be solved by the Village Chief or the Community of Fisheries Chief, would then be referred to the Sangkat village authorities.

“She would go to the Village Chief to resolve the problem, if the Village Chief cannot solve the problem he will send to the Sangkat Chief.”

Punthea, Female, 31-50, Conservation and Community Initiative

The respondents generally agreed upon who holds the power to mediate, but there was a division on whether or not they could expect a resolution when they were involved in conflict situations. Some respondents explained that they always get a result from either the village authorities or those at the Sangkat village, but others disagreed. They felt that there is injustice in the community that sees some people get results while others do not.

“Some problems can be resolved and some need to be sent to the court to be resolved...He said that the local people they are the victim because the power family or the authority family they always fright the people or scare the people, no, they always have no result. They use their power to force the local people and they [the local people] never get a result. Nobody can be there to solve the problem.”

Chanvatey, Male, 50+, Other Livelihoods

Talking with the people in the village it was explained that whether or not you could expect a result in conflict situations was largely dependent on your social position in the village hierarchy. If a person with lower social standing had a conflict with a person with higher social standing, it was unlikely they would get a favourable result. Where respondents had reported conflict or abuse and no action had been taken as a result, a loss of confidence in the mediators had occurred. It was also

expressed that there was a lack of understanding in the village about human rights and so it was easy for leaders to neglect residents' concerns.

"We have concern about human rights with the authority, like that the local people not understand, and the people with the power abuse or force."

Atith, Male, 31-50, Fishing

If individuals do not have an understanding of their basic human rights then they can easily be manipulated. During the interview process there were respondents that indicated that they would like to see basic human rights training provided in the village.

5.5.4 Multilevel linkages

Decentralisation reform has occurred but without adequate training and resourcing the capacity of leadership is constrained. Village leaders as well as other respondents expressed some understanding about local governance structures and frameworks, and conflict resolution processes. The strongest multi-level linkage appeared to be between the Prek Svay village and Sangkat authorities, and the Prek Svay Community Fishery and the province Fisheries Administration. The relationship that was being formed between the Prek Svay community and the Conservation and Community Program presented an opportunity to establish other multi-level linkages. The Conservation and Community Program team reported having established relationships with a number of government departments and non-government organisations including the Royal Group, many of which the Prek Svay community could benefit from linking to.

5.6 Social learning

The literature suggests that social learning is an important feature of adaptive capacity. Social learning represents the ability to recognise change, learn from it, and adapt accordingly. In Prek Svay, respondents were able to identify changes taking place in their community, recognising both positive and negative change. They were also able to envision changes that they thought would be beneficial for the village in the future. While the respondents had no experience with plan development, this was not to say that they would not have the capacity to develop response strategies. Investing into human and social capital could result in increased capacity for strategic planning and disaster preparedness. In addition, the provision of more information could spur the community to start planning for environmental change and disaster. The community displayed a willingness to act collectively, especially in initiatives surrounding fisheries and enforcement.

5.6.1 Recognition of change

Climate change was a largely an unknown concept among the community but although respondents were unfamiliar with the concept, they still recognised that change was occurring. Of the 40 respondents, four had heard about the idea of climate change, however their understanding was limited to deforestation and changes to seasons and rain patterns.

“He knows that with the climate change it becomes hot because of the cut down of the tree. He said that right now in Cambodia it very hot to them...Very hot, hotter [than before], and for the seasons right now [they are] changing. In the past he said that rainy season it always rain but right now it sometimes doesn’t. The season changes...the rainy season comes but sometime no rain for a period of time but sometimes [it] rains lots. So it's not [the same], usually in the past in the rainy season it always rain.”

Vithu, Male, 50+, Village Leader

There were 36 respondents who shared that they had never heard of climate change before and 13 of them left it at that and we moved on with the interview. Two respondents commented that there had been no changes to climate in the area and that it was the same now as it has always been. The remaining 21 respondents went on to explain that they felt there were changes taking place. The graph below (figure 5.15) indicates local perceptions about changes to climate. The graph shows the number of interviews where a village respondent mentioned the topics along the X-axis. Respondents may have referred to more than one of the topics and this is depicted in the graph.

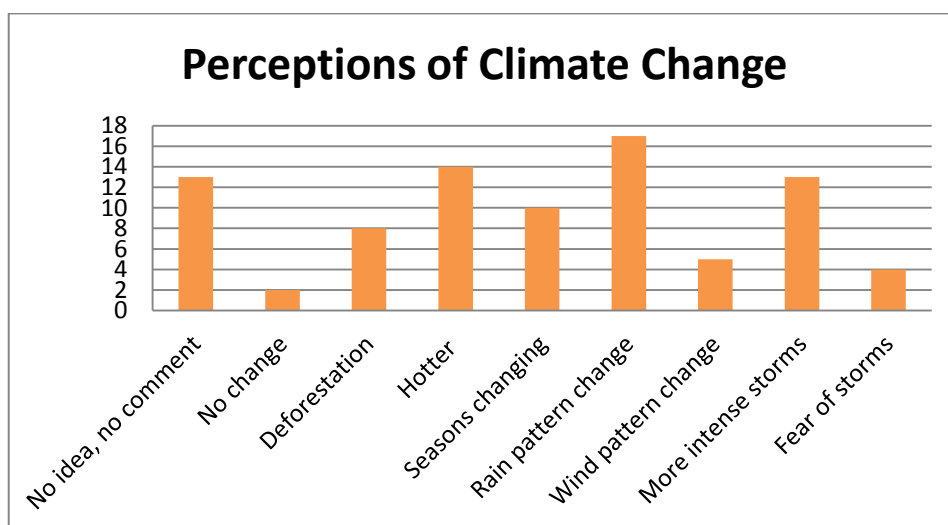


Figure 5.15 Perceptions on climate change among village respondents

Looking at the graph it is clear that there were feelings that air temperatures were rising and that there were changes to rain patterns occurring.

“She said that in the past that when the rainy season came there would be rain but right now when it is rainy season it will be hot and no rain. Right now it is very hot.”

Kaliyanei, Female, 50+, Fishing

In addition to air temperature changes, there were reports that the changes in rain and wind patterns were making weather difficult to predict. An increasing frequency and intensity of storm events was perceived and this was resulting in fear for some people living in the village.

“She knows that right now in the rainy season there is a stronger wind than before, like a storm, many storms. The seasons have changed, the time for rain there is no rain, in the wet [season] there is no rain, and the wind in the rainy season it is normally from the southwest...but right now it goes around. The weather in the sea here it changes very quickly. When [there are] no big swells, then in just a moment the wind picks up and so everyone they scared.”

Nakry, Female, 50+, Fishing

With very little prior knowledge of the concept of climate change, the respondents revealed a belief that changes in rain, wind, and seasonal patterns were occurring. They felt that this was largely due to deforestation. None of the village respondents mentioned greenhouse gas emissions or other land use changes. Prior to asking them if they had heard of climate change I asked respondents if there had been any changes that concerned them, to this, no-one responded changes to weather or climate. The greatest amount of concern in the village was coming from changes relating to sand dredging, land tenure, personal security, deforestation, and declining fish stocks. The respondents were concerned about these issues for justified reasons. They feared sand dredging off the coast could cause catastrophic changes to the marine environment, their housing, and their livelihoods. They recognised that the land concession granted to the Royal Group could see people losing the land where they had established their homes and their gardens. They believed that deforestation and over fishing were behaviours that would be unsustainable in the long run.

The village participants also had the capacity to identify positive change. While there were a few of the respondents who stated that there had been no positive change in the village, most felt that there had been something. The arrival of tourism was seen as a positive change. Tourism, in particular the arrival of Song Saa, was viewed as positive largely due to the increase in employment opportunities. Growth and development in the village was seen as a positive change and it was not

solely attributed to tourism. There was one community initiative set up and run by the Community of Fisheries that respondents felt was having a positive impact in the community, the local crab bank.

“The crab bank is the place for the crab to lay their egg to grow the baby, so every fisherman, one boat needs to release the crab that has the egg, one every day. But we have a problem a little bit for this year; it has been established three years already but this year our jetty broke so the management of this program is not going very well for this year.” Rithy, Male, 50+, Village Leader

The crab bank had reportedly been operating for three years, although as Rithy above explains, it had not been operating to its full potential in 2012.

5.6.2 Looking ahead

On the topic of positive change, I asked the respondents what it was that they thought was important to the future success of their community. Responses varied, some respondents saw improvements to health and education as being most important.

“The local people they have low education, they cannot speak and cannot write Khmer or speak English like that, so they still have no chance. Just a few that can. So he would like strong education so that more people can work with Song Saa also. He said that he is very happy with the English class and he suggests that we should have a program of Khmer language also. In the future maybe we can teach Khmer more and also for the culture maybe we could teach the cultural dancing.”
Ponleu, Male, 31-50, Other Livelihoods

Some respondents felt that a good market or improvements to infrastructure, such as the roads or local bridge, was what were most important to the future success of the community. Yet others believed in the need for less tangible elements such as equitable decision making. The call for greater participation in decision making processes was coupled with the sentiment that people in the village would benefit from some form of training to teach them about their basic human rights.

“He has three main points that should be developed. One is about the security in the village should be improved, and one is about the hospital here, the service of healthy and number three is all the leaders should listen to the people, to listen to the idea of the people when they do or make decision to do something. His idea is that he wants to get help from organisation, from government organisations like that, to come to train about human rights, to train about the importance of environment, and to help the local people here to understand.”
Chanvatey, Male, 50+, Other Livelihoods

Also in relation to village leadership and authority, the strengthening of the fishery law enforcement was identified as being a key component of community strength in the future.

“She said that it is the work of the Community of Fisheries [that] will be the main thing. If we still have illegal [fishing] or something like this the people will still be struggling, [they] cannot catch many fish. If [the Community of Fisheries] continue to allow the boats from the mainland to come and fish here, then the people around here they [will be] very upset [because] they cannot get enough fish.”

Chanthavy, Female, 31-50, Conservation and Community Initiative

In addition to these ideas some respondents expressed a belief that the future success of the community lies in tourism.

“He said it is tourism and the fishing product. So if they have more tourists then they can sell the product to the tourists, [and we] get more money. He said that in the past they did not have tourists come and so right now we have so we will get the benefit from each other.”

Nimol, Male, 50+, Village Leader

Support from Song Saa Private Island Resort was seen as having a part to play in the future development of the community, and it was said that working together could potentially benefit not only the community but also the Resort. The village could benefit from livelihood diversification and the introduction of new conservation initiatives, while at the same time the relationship adds value to the Resort. Working together was discussed in terms of education, conservation, and employment.

“He said that the company team [Conservation and Community Program team] should work close with the local people, with the community as partner, like we help each other. He mentioned that we have class like to help their children so it would be good, it will be a way to give value to the company also.”

Puthyrih, Male, 50+, Song Saa Employee

There were some respondents who stated that the future is not something that they give much thought to, and they chose not to answer the question as they explained it was just something they had never thought about before. However most of the interviewees did share their ideas about what they thought was important to the future success of the community whether it be improvements in health, education, infrastructure, more equitable decision making, better law enforcement, increased tourism and investment, or conservation. This section of the chapter shows that the

community of Prek Svay are very aware of changes happening in their area, both negative and positive, and that they are well able to define their own vision for their community.

5.6.3 Access to information

Some of the respondents were not aware of the Community of Fisheries rules and regulations, climate change was a largely unknown concept, and claims were made that people did not understand their basic human rights, thus suggesting access to accurate and timely information was limited in the village. While there was a linkage between local and provincial administration, information did not appear to filter down from local leadership to the people at the grassroots.

“Human rights between locals and authorities should be equal, and also they, the authorities, should get the ideas from the people like that, and the local authorities should share knowledge not just with their family but also with the community. Cut down the corruption here. The authority here they benefit their family and it should be the community, it should be changed.”

Atith, Male, 31-50, Fishing

Access to information is not only important at the political level but it is also extremely important for risk management in fishing related livelihoods. In terms of access to news and weather information this was found to be mainly taken from television and radio.

“They listen about the weather news from Thailand. She says that for the weather news prediction from the Thai news is much clearer than Cambodian news. They talk about the wind speed; they talk about the height of the swells and the storms like that, very clearly. They are very clear about the direction of the wind also.”

Narky, Female, 50+ Fishing

Not everyone in the village had access to television or radio and in the evenings people would gather together and watch TV collectively. In relation to the Conservation and Community Program the underlying structure and purpose was not well understood in the community. Those involved in initiatives were not always aware of the other initiatives and very few had an understanding of the wider program. While the marine protected area surrounding the Song Saa islands had been in operation for more than two years, some fisherfolk had still not heard about it. Others complained that they knew that there was a protection area but that with no sign or marker on the boundary, they never knew where the protected area ended.

“They say that there is the protection area, but they [Song Saa] have not put the sign [there] yet...he went fishing and the crab net and everything, the team took it...they warned him, but they don't have a sign.”

Rathanak, Male, 31-50, Fishing

The provision of information about a range of issues could be strengthened in the village. With a population such as that of Prek Svay, with limited education and literacy, information provision needs to be tailored to ensure that everyone not only receives the information but that they also understand it.

5.6.4 Collective action

The ability to act collectively was shown in the crab bank and trader network. For the crab bank to be a success fisherfolk need to voluntarily contribute some of their catch. It was recognised that working together in this way was already yielding community benefits.

“Right now the population of the crab has increased because of the crab bank. Since we have crab bank the crabs increase a lot.”

Sovannarith, Male, 50+, Fishing

Similarly the trader network was found to be an example of collective action working in favour of the community. Working together meant fisherfolk had someone to purchase and process their catch before taking it to the markets on the mainland. The traders then used their profits to bring basic necessities back to Prek Svay, as well as providing finance options to the people utilising their services.

In the village many hours are spent with young men playing volleyball. Volleyball courts are found throughout the village in various conditions and sizes. Volleyball is a game that requires teamwork. Often it is the team that communicates best that wins. During my time in the village I kept an eye out for people acting collectively. It was on the sandy volleyball courts that this was most evident. Players call out to one another, offer advice and assistance, and physically lift their team mates in order to take the game. The love of volleyball offers more than just an enjoyable pass time, it teaches people the importance of working together and shows what can be achieved when this is done well.

5.7 Indication of adaptive capacity

The indicators used as the foundation of this chapter provide an insight into village life as seen from my perspective. They are a snap shot in time of a community constantly in flux. Over the page is a table (5.2) that summarises the indicators used and the main findings relating to adaptive capacity in the village.

5.8 Chapter summary

This chapter has worked through each of the adaptive capacity indicators that were developed through the initial literature review prior to the fieldwork. In the village basic infrastructure is provided and residents are resourceful, making the most of what they have. Health and education in the village exhibited considerable room for improvement, as did resource management. Being a population heavily dependent on natural resources, the natural environment has suffered some degradation. Group membership among respondents was restricted to three groups and a significant network was found in the local traders. With a seasonally variable fishery, the local traders not only offer access to markets but also finance. Local governance structures were in place but local leadership was hindered by lack of resources, funding, and capacity. Decision making in the village is only held by a select group of individuals and division based on social hierarchy and political alignment was evident.

In Prek Svay there was little awareness of climate change, however, village respondents suggested that climate related changes were taking place even if they had not previously heard of the concept. While climate change was not a concern stated by the village respondents, they did express other changes that were causing them to worry. These included sand dredging, security of land tenure, and the degradation of forestry and fishery resources. Furthermore, village respondents were able to articulate changes that they considered would be beneficial to the community in the future. These included improvements to infrastructure, more equitable decision making, improvements to health and education, and more tourism investment.

But what does this all say for adaptive capacity in Prek Svay? The results in this chapter suggest that adaptive capacity in Prek Svay is limited. Although the community has basic infrastructure and livelihood opportunities, lack of accurate and timely information restricts the ability of people to anticipate and plan for change, and deficiencies in health and education constrains their ability to respond. Many village respondents expressed a loss of trust or faith in local leadership and were disengaged from local processes and decision making, thus preventing collaborative approaches to problem solving.

Table 5.2 Summary of Prek Svay adaptive capacity indicators

Adaptive capacity determinants	Positive indicators of adaptive capacity	Prek Svay main findings
Access to assets	<p>Basic infrastructure is provided</p> <p>The environment and the ecosystem services it provides are not degraded</p> <p>Access to natural resources is shared between community members</p> <p>Land tenure is secure</p> <p>There is a presence of formal and informal networks</p> <p>Community members have access to the wider institutions of society</p> <p>Individuals have the skills, knowledge, and good health necessary to make a living</p>	<p>Very basic infrastructure is provided but respondents have suggestions for improvements</p> <p>Degradation of the environment resulting from terrestrial and marine pollution, over-exploitation of resources, and destructive methods and behavior</p> <p>Access to natural resources is not equal but influenced by political alignment, power, and money</p> <p>There is no guarantee that land tenure is secure in Prek Svay</p> <p>There is a presence of formal and informal networks</p> <p>Through the trader network there is access to markets and finance, but not insurance</p> <p>Fishing skills help provide a living but improvements in education and health would be beneficial</p>
Diversity	<p>Occupational multiplicity and mobility exist</p> <p>There is diversity in the technology and production equipment available to make a living</p> <p>Community members find innovative solutions to problems and are able to improvise</p>	<p>Occupational diversity and multiplicity does exist to some extent</p> <p>Scale of fisheries is variable and equipment available dictates target species, this creates seasonal hardship for some fisherfolk</p> <p>Community members are innovative and can improvise</p>
Good governance	<p>Leadership is visionary, competent, and committed to best practice</p> <p>Decision making authority is shared between different individuals and groups of society</p> <p>There are conflict resolution and mediation processes in place</p> <p>Multi-level linkages exist and are being utilised</p>	<p>Vision and best practice are hindered by lack of resources and capacity</p> <p>Decision making authority in the village is held by only a few</p> <p>Conflict resolution processes are in place but not necessarily effective</p> <p>Multi-level linkages were found in village governance structure and the Community of Fisheries framework</p>
Social learning	<p>Community members are able to recognise change</p> <p>The community has the ability to develop response strategies</p> <p>The community has the capacity to act collectively</p> <p>There is continuous access to timely and accurate information</p>	<p>Community members are able to recognise both positive and negative change, and can envision community changes that would be beneficial to their future</p> <p>The community has no experience in plan development but this is not to say that they are not able to develop response strategies</p> <p>The community displayed an ability and willingness to act collectively</p> <p>Access to information could be improved</p>

Chapter 6

The nature of the relationship

6.1 Introduction

This chapter is the second of the results chapters and it is included to achieve objective four. This objective was to understand the nature of the relationship between the Conservation and Community Program and the Prek Svay Basin community. The relationship between the Conservation and Community Program and the Prek Svay Basin community was initially assumed to be a partnership, but this assumption proved incorrect. While initiatives to benefit the people of Prek Svay have been initiated, there was no actual agreement between the two parties to work together. That said respondents from the village and from the Conservation and Community Program expressed an interest in collaborating together in the future. Although the relationship between the Conservation and Community Program could not be described as a partnership, it could be used to form the foundation of one.

In order to understand the relationship, the four Conservation and Community Program initiatives that were found to directly involve the community were explored, as were the methods for community participation and engagement. Of the four initiatives identified, the waste management initiative was the most distinctive, not only in terms of people's awareness of the program but also in its overall popularity in the village. Just as well known but not quite so popular was the marine protected area that surrounds the Song Saa islands, Koh Ouen and Koh Bong (these two islands are visible from Prek Svay, see figure 6.1 below). Although not all respondents were aware of these two initiatives, they were better known than the other the other two.



Figure 6.1 Song Saa Private Island Resort as seen from Prek Svay

6.2 The Conservation and Community Program initiatives

The Conservation and Community Program included four initiatives that directly involved the community of Prek Svay. These were:

1. The Song Saa Sea Turtles: a youth environmental education program run through the local government school
2. A sustainable livelihoods program run in collaboration with a local NGO, Community Translation Organisation (CTO)
3. A waste management program, and
4. A 5.5 hectare no take marine protected area (MPA) around the two Song Saa Islands, Koh Ouen and Koh Bong.

Not yet operational but being planned for was an extension to the marine protected area (now in place) and the implementation of a Blue Carbon scheme. All of the Conservation and Community initiatives were well publicised on the internet through the Resort's online publications and documentation. Reading up on the Program prior to my arrival in the village I had high expectations about the work being undertaken. While some of the initiatives were found to be doing well, others were found to be operational but not yielding the positive benefits suggested through the online material, and some initiatives described online were not yet underway.

Some village respondents indicated that they were very happy with the recent tourism investment in the area. For those who were pleased about the arrival of Song Saa, it was not only the employment diversification that Song Saa represented that was seen as a positive change for the community, their contribution to conservation was also cited. The waste management initiative in particular was looked upon with great appreciation.

"He said that the arrival of Song Saa Resort is one thing to help the community to grow. They provide the job for the local people. It is really quite different from the past because in the past [there were] no guests. The local people only [did] fishing and [so there was] only one job based on fishing. The good thing he said, the Conservation Program of cleaning the village with the rubbish...[We] never had a clean the village in the past...People [now] have jobs. In the past people local people lacked many thing. They did not have enough food to eat. But right now it's okay for the people."

Sothiya, Male, 50+, Conservation and Community Initiatives

Awareness of the program among village respondents was not universal. Under half of the respondents said that they had heard of the Program. The greatest awareness came from the village leaders. Others said they had either never heard anything about the program or explained that they

knew of only one or two of the initiatives. The waste management and marine protected area initiatives were relatively well known.

“Yes she knows about the protection place, the marine protection area, and the waste management team. The rest she didn't know.”

Kaliyanei, Female, 50+, Fishing

The sustainable livelihoods and environmental education programs were less well known and largely recognised only by those with some connection or involvement, for example those engaged in the agriculture/aquaculture program. It was found that participation in one initiative did not necessarily equate to an understanding of the underlying structure of the program or awareness that other initiatives were also taking place. Below is a brief summary of the observations made in regards to the four community programs.

6.2.1 Song Saa Sea Turtles youth group

This initiative took place sporadically with teachers from the school given little notice that a workshop was to take place. During my fieldwork a workshop on mangrove restoration was held, this involved some class work before a fieldtrip to the river to plant mangrove seedlings. Once in attendance the children were attentive and had a good time out planting the mangroves. This session provided a positive learning environment for the students. The use of a laptop to project a short marine video and a power point presentation had the children captivated.

6.2.2 Sustainable livelihoods

This program includes an aquaculture and agriculture initiative run in collaboration with Community Translation Organisation (a local NGO). This program was not yet performing as well as expected. The fish brought the previous year by Brocon had not reproduced and there were discussions taking place about whether to try a different fish species or to make a change from fish farming to pig farming. Some local small scale agriculture/gardening was taking place under this program yet a respondent involved in the initiative shared that the produce was more for personal use than for sale or local distribution. As part of the sustainable livelihoods program there was said to be a self-help group, similar to a microfinance program. Respondents reported having once been a part of this group but indicated it no longer existed.

6.2.3 Waste management

As already discussed, the work being done by the waste management team was regarded as positive throughout the community. The waste management centre constructed in the village was not used during the time I spent in the village. Rather the waste was collected and taken straight to the bridge where it was left ready to be loaded onto the boats. Those involved in the initiatives were found to be managing the waste by hand, with only one individual out of five having two gloves. Suggestions were made by members of the waste management team on how the program could be improved. The suggestions included the provision of gloves and a cart so they did not have to handle the waste with their bare hands or carry it so far on their shoulders.

6.2.4 Marine protection

The marine protected area was the initiative causing the greatest tension in the community. While respondents recognised the benefits of conservation, there remained those who were angry either because they could no longer fish around the Song Saa islands, they had had their gear confiscated, or that in the times of high swells they no longer had anywhere to park their boats when they needed to protect them from the storms. Respondents expressed a belief that marine protection had led to an increase in marine species around Song Saa. They felt that enforcement in the marine protection area was strong.

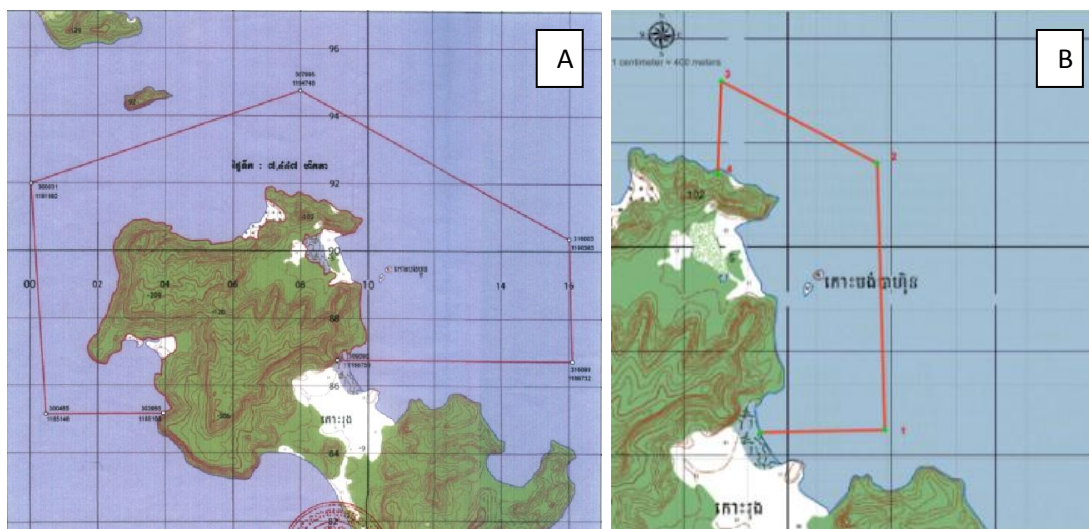


Figure 6.2 Community of Fisheries and Marine Management areas
The Prek Svay Community of Fisheries area (A) and the new marine management area (B).

A marine management area has since been implemented that increases the original 5.5 hectare reserve to a total area of 219 hectares (refer to figure 6.2 above). In an interview with one of the

village leaders it was expressed that this was too big. There was confusion as to the rules of the new management area, whether it was a no take area like that MPA surrounding Song Saa or something different. When conducting my fieldwork most of the fisherfolk in the village were yet to be made aware of the new management area, it was only the leaders who had been privy to this information.

6.3 Participation

Many of the village respondents who had some awareness of the program or particular initiatives attributed the work being done to one person, the Conservation and Community Program's Community Engagement Officer. With the team made up of three foreigners and two Khmer nationals, it quickly became obvious that the community engagement was mainly being carried out by the Khmer nationals in the team. When asked if this had been a strategic decision Jackson replies:

"Yea of course, it is easier to build the trust, it is easier to go to the community, they understand the culture, they know about the language. It is easier for everyone; it is more effective as well with the communication thing. I think that as long as we can trust Nisay and Samay as those mediators with the initiatives and everything then I think it is the best approach to have always have locals be the ones who are with the locals, by locals I mean nationals...Sometimes when they are doing a workshop or an educational activity and you have the foreigner speak then they will be more interested because they are supposed to have larger knowledge or something like that...For the knowledge of the foreigners keep that for a strategy thing and for the everyday just use locals."

Jackson, Male, 18-30, Conservation and Community Program

How the team is choosing to interact with the community is fundamental to the relationship that is forming between the two groups. In my time in the village opportunities for interaction with the local community were not taken up by the expats in the Conservation and Community Program team. Six days of the week my translator held a free English class, often with over 50 children in attendance. Parents and onlookers would stop by each day, and a few teenagers and adults were regulars to the class. This presented a perfect chance to meet people in the village, build relationships, and trust. There was a constant call for native English speakers to participate as it this was viewed as being beneficial to the class. These calls fell on deaf ears among members of the Conservation and Community team.

It is not only how the Conservation and Community team are engaging with the local community that was of interest, but also how the local community are being invited to participate in initiatives. In relation to community participation I asked respondents in the village if they had ever been involved

in any of the initiatives from the Conservation and Community Program. There was a definite variation in responses.



Figure 6.3 Local level engagement

Members of the Conservation and Community discuss the new marine management area with Community of Fisheries leadership.

The Village Leaders who had been most aware of the program viewed the relationship between the two groups as positive and explained they were often involved in meetings and workshops (see figure 6.3 above).

“They [members of the Conservation and Community Program] come very often, like they always come and sometimes we need free time, they come too much. Yes they have like project and they come to ask for the Community [of Fisheries] ideas. They say that they work like partners and because our community is Community of Fishery it comes first. It is recognised from the province and from the King like that.”

Heng, Male, 31-50, Village Leader

However it was not solely the village authorities that had been invited to participate and there were others in the community who had been asked to share their ideas.

“He said about the idea of the village cleaning, waste management he was involved to give the ideas. Last time...he worked with Mr Nisay so he shared the idea. Before they did not have the rubbish bin yet just the bag around every house but because the animal they like to grab it and eat it out, it was still messy so right now they update so they have rubbish bin.”

Puthyrih, Male, 50+, Song Saa Employee

Lack of awareness about the program meant some respondents had no idea that workshops or anything similar ever took place. Others explained that they had been invited to participate in ceremonies or workshops, even if they had never actually attended. It was suggested that people in the village were invited to participate in initiative blessings, but not asked to share their ideas about community development.

“So normally the people they just come for the ceremony blessing or something, something like that, but for the idea for how to develop the community they never come.”

Ponleu, Male, 31-50, Other Livelihoods

There was a sentiment in the village that the Conservation and Community Program engagement was mainly taking place with the local authorities rather than at the grassroots.

“They ask the ideas from the Community of Fisheries but from him never. They ask ideas from the Community of Fisheries but from the local people not really.”

Sokha, Male, 18-30, Fishing

During my time in the village there was a workshop held with the Community of Fisheries. Mr Nisay, from the Conservation and Community team, had visited Pulau Weh in Indonesia earlier in the year and was sharing what he had learned about their locally managed marine areas (LMMAs). From the village, 13 men, two women, and two children attended. Following a power point presentation a series of questions were put to those attending to spark discussion. The discussion revealed the attendees interest in working with other Community Fisheries in the area as well as with the Navy. They were explicit in wanting to become more involved in local decision making. While they recognised the challenges of having limited access to funding they also contributed ideas about what they would like to see in their community fishery area in the future. This workshop clearly indicated that there were Community of Fisheries members, both men and women, who had a strong desire to be actively involved in their local fishery’s planning, management, and decision making.

6.4 Engagement

Effective community engagement should include two way information and communication flows. When I asked the Conservation and Community Program team about community engagement it became clear that there were no set policies or engagement strategy in place. The first community initiative introduced in Prek Svay by the Conservation and Community Program was the waste management initiative. This emerged following consultation in the community about what they

would like to see implemented. It is not then surprising that it is this initiative that has the greatest community support. However, going to the community for their ideas about initiatives seems to have been an approach with limited scope. Often the initiatives are developed and then introduced to the community.

“For some of them it has been a case of we have sat down with them from the very start to be able to talk to them about what they would like, so that is how the waste management scheme came about. When we first started the community work we first sat down with the community and asked them what they would like first and that they then said they wanted the waste management scheme. Others it is more a case of interviews with key sort of members of the community, understanding what they have knowledge of or of what has maybe been done in the past, and also of what they may like. I would say that that is how the freshwater aquaculture came about, we found out that certain families had done it on the past on a smaller scale, that had done it before they moved out to Prek Svay and therefore we knew that it would have a better chance of success having had that base of knowledge already. And we also did it because we obviously saw that it would help with food security and limit or reduce the impact on the marine fisheries. So once we have then decided on a scheme we work with the community, we hold lots of different workshops and then cover as many different parts of the community to actually tell them about the scheme that we wish to be running and how we will be running it and advising them on how to get involved.”
Jordon, Male, 18-30, Conservation and Community Program

Members of the Conservation and Community Program recognised that community engagement was not as effective as it could be. The current approach was to show the local people what could be achieved through conservation, with the hope that in the future they could play a greater role.

“I think that there is a lack of understanding on both sides. On the community side about what we are trying to achieve and what we could achieve, and on the Conservation side about how we should be interacting. I think there is just a lack of understanding of the culture from the Conservation team that shows through every now and then. I think that there is frustration on both sides, every now and then. Overall positive though, as with every relationship you have to learn about the people you are working with...I think that we are at the stage now where we are showing the community what can be done and how things can be done differently...Right now it is inviting people to join and in the future I think once they get a better idea of the scope of how things can be done then you can look towards asking the community what they think can be done.”
Luke, Male, 31-50, Conservation and Community Program

It could be argued that frustration stems from lack of adequate communication. One frustration that the community expressed was in relation to boat parking, as mentioned earlier. This was a problem for boat owners between November and January, coinciding with the tourism high season. Members

of the Conservation and Community Program told me that this is not a problem for people in the village as they do not have big boats, however there were respondents who expressed that boat parking was an issue for them.

“About the boat parking because when it is rainy season they have no place to park, they always [used to] park between the Song Saa Islands and the Koh Rong Island...so they are upset that they cannot park the boat over there...Most of the people they are angry with the marine protection, only a few that are happy with it. He say that for the protection area because he have many boats to park, for when there is a big swell, the Song Saa island it protects [the boats from] the big swell, so over there is a good place to park...They are not allowed within 200 meters, they are no allowed to park there.”

Phala, Male, 18-30, Fishing

Boats are an important asset for the fisherfolk as they are fundamental to their livelihoods. Fisherfolk did not want to break the rules but they did not want to risk damage to their boats either. It was commented during the interviews with the Conservation and Community team members that the issue of boat parking related more to hotel operations than it did to conservation.

“The issue of boat parking is, well the problem is the boat parking would need to be quite near to the islands and the problem then is that you are almost intruding. The islands are meant to have only a few villas compared to other resorts, so it is supposed to be quite a lot about personal space and intimacy. So if you have a lot of boats parked around the island of just random people then it is intruding quite a lot on that, so yea colliding with that concept.”

Jackson, Male, 18-30, Conservation and Community Program

While there were ideas for how this conflict could be resolved, there was no solution in sight. This issue provides an example of poor communication between the team and the community. This was a very real problem for some of the interview respondents, although nothing was being done to recognise or address it.

6.5 Presence in the community

On the outskirts of the Prek Svay village Song Saa has constructed a “staff village”. The staff village had electricity, air conditioning, internet connection, flushing toilets and a few other mod cons not found elsewhere in Prek Svay. It is home to the majority of the Resort staff, including most of the Conservation and Community team. In the village a house is being rented from a local family (shown in figure 6.4 below). This house has been given the name Sala Song Saa, with sala meaning school in

Khmer. Mr Nisay from the Conservation and Community Program lives at Sala permanently, and this is also where interns stay when undertaking their fieldwork. Sala has been set up as an educational facility and is used for workshops and community activities. Sala is centrally located and provides an excellent facility from which to base community initiatives.



Figure 6.4 Sala Song Saa

Sala Song Saa is rented from a local family and is used as a Conservation and Community Program base in the village.

6.6 Working together in the future

When I first arrived in Prek Svay the Conservation and Community Program team were preparing their 2013 work plans. The continuation of initiatives already running as well as the addition of a few new ideas was being put forward as a way to proceed. Through the interview process I asked each of the Conservation and Community team what they would like to see included in the future. Some of the ideas put forward clearly aligned with what the community said they thought was important to the future of their community, for example, strengthening education.

“For the future, education is one of my dreams, to have it be strengthened. And for women, the human resource of women, to train the ladies skills so they can have jobs. Teenager also, to train skills for them to have jobs in the future...it is because I love the education, I love the future of the children. It is really from my heart because when I grow I know about the situation like that. When I was a kid it was very difficult for me to study so I know. I start to have compassion and I have a vision for them to help them to grow.”

Samay, Male, 18-30, Conservation and Community Program

Education initiatives were predominantly focused on conservation and there was a plan to expand the education program to include adult education and new topics.

“This year I have one more education, adult education workshop, where I will also include climate change, wildlife conservation, forest degradation, waste management, sustainable fishing and marine resource management in there. Not focused only on children but on all people. Also I would like to see animal husbandry like pig raising and chicken raising in there, and also look for some opportunity to set up marine aquaculture.”

Nisay, Male, 18-30, Conservation and Community Program

Alignment was also found in the desire to strengthen law enforcement in the community fishery area. The Conservation and Community team saw this as being achievable through the marine management area extension. As stated above, this new marine management area has since been implemented.

“That is taking a small 5ha no take marine reserve and adding a much larger area which is going to be a fisheries managed area, so that is the aim of the project at the moment. I am working very closely with Nisay, our Community Engagement Officer, to coordinate with the local community so that this extension is not just a Song Saa initiative, it is working with the local community so they are signing it off, so they’ll agree with the rules, they are enforcing it. We are just trying to assist with building capacity, building capacity in the community about how fisheries areas can be managed. The local community has a lot of knowledge about the local fishery and the fishing area, where we have the management skills, so it is about teaching them the management process as we go through it with them so hopefully in the future they will understand how things can be done.”

Luke, Male, 18-30, Conservation and Community Program

The Conservation and Community team were already supporting the local patrol team with financial and physical resources, and plans were in place to increase this when the marine management extension came into play.

“At the moment we give this gesture of 60 litres of fuel a month and we are going to increase that to 180, we are going to pay five guys 50 US dollars a month each, and then \$50 to the community of fisheries as well for their own things...In return we are asking for them to patrol the area, they have said about three hours a day, patrolling. Enforcing the rules that we have worked on together and working with the local community, educational workshops. Just patrolling the area and enforcing the rules.”

Luke, Male, 18-30, Conservation and Community Initiative

This first quote from Luke above touches on the mutual benefits that working together can provide. He recognises that the community holds a lot of knowledge in regards to the local fisheries and surrounding area, and that the Conservation and Community team have management skills that they could impart to the local community. The sharing of information, skills, and resources could

potentially be beneficial to both parties. It was expressed throughout the interview process that there could be great benefits in different parties working together.

“One way to stop this big boat is to involve everyone, the Navy, the Administration of Fishery from the mainland, we need to work together, and then we will have power.”

Sov, Male 31-50, Village Leader

This sentiment was shared by Jordon of the Conservation and Community Program who recognised that a more co-ordinated approach to marine law enforcement was needed in the community fishery area.

“Cambodians do have a healthy respect, although some may say fear of authority. So if you did actually get either the Police or the Navy or a combination of the Police and the Navy and the Fisheries Administration and the locals any kind of combination of those people to do any kind of patrols then I think that you would have a very big and positive impact and be able to catch a few people and the word would then spread that people are actually caring and starting to enforce the laws and people would be very reluctant again through the dislike of confrontation, other people would then stop breaking the laws as well as they would not want to get caught so. I think that there needs to be some co-ordination and some good management incentives for the people doing the enforcement to actually do the enforcement, I think that that is what is missing at the moment.”

Jordon, Male, 18-30, Conservation and Community Program

Not only could collaboration be useful in law enforcement it, it could also prove advantageous in promoting multi-level linkages and network building. The Conservation and Community team had already been working with a large number of outside organisations, including international universities, for profit and not for profit organisations both in Cambodia and abroad, government departments and the Royal Group. This network, if the community can tap into it, could prove extremely valuable in the future, not only for the flow of resources, but also for the flow of information.

6.7 Chapter summary

This chapter has discussed how very few village respondents had any knowledge of the Conservation and Community Program but rather associated the work being carried out in the village with one key individual. When discussing community engagement with the members of the Conservation and Community Program it quickly became evident that participation sat at the informing level of IAP2 public participation spectrum (see table 2.1, page 25). There was a belief among the Conservation

and Community team that in the early stages of the Program, this had been the best approach. It was evident that the relationship between the Conservation and Community team and the local people would be instrumental in the overall effectiveness of the Program and that this would require commitment from both sides.

The community exhibited an appreciation for the arrival of Song Saa and they understood the benefits of implementing conservation initiatives. In a workshop held by Mr Nisay, members of the Community of Fisheries expressed that they would like to start working with a number of other stakeholders in the area. They expressed the belief that by doing so they could strengthen law enforcement and marine protection in their fishing grounds. Members of the Conservation and Community Program also felt that marine protection and greater enforcement was necessary if the local fisheries are to be sustained. The opportunity for partnership springs from common ground such as this. As the results chapters come to a close, it is evident that for the relationship between the Conservation and Community Program to be useful in enhancing adaptive capacity in Prek Svay, a strategic approach is required. This includes a need for dialogue and deliberation between the two parties that establishes clear objectives and targets.

Chapter 7

Discussion

7.1 Introduction

This discussion chapter revisits the initial assumptions and objectives as described in the methodology chapter. The assumptions made prior to the fieldwork did not prove to be as clear-cut as anticipated. While the Prek Svay community may be regarded as vulnerable to climate change, the concept was not well known among respondents. In addition, the partnership I had gone to research was not in fact a partnership but more a relationship in its early stages. The chapter uses the research objectives as the foundation of the discussion. It begins by assessing the arguments concerning the vulnerability of coastal fishing communities to climate change. Following this the utility of adaptive capacity is discussed and gaps in the concept are identified. Having used the indicators to analyse the data collected, it is evident that the indicators are useful in description but that they do not provide a definitive measure of adaptive capacity. Although no decisive measure of the concept is provided, it is still possible to reflect on changes in adaptive capacity since the initiation of the relationship.

7.2 Revisiting the assumptions

Before going to Prek Svay to undertake the fieldwork a number of underlying assumptions were made. These were discussed earlier in the methodology chapter.

It was assumed that if:

1. Coastal communities who depend on local fisheries are vulnerable to the effects of climate change, and
2. Decentralisation reform allows for greater local participation in resource management and decision making, and
3. Opportunities for community based partnership based on sustainable livelihood principles exist and are being initiated,

Then it follows that such partnerships can be shown to assist in enhancing adaptive capacity.

Unfortunately things were not so straightforward. The literature review suggested that people in coastal and island communities are highly vulnerable to the potential effects of climate change. For

people in these areas who are living in poverty or who are heavily dependent on fisheries in sustaining their livelihoods, their vulnerability increases. While this may be true, climate change was not yet on the Prek Svay radar. The community identified other issues of concern that occupied their thinking. Climate change has become one of the greatest buzzwords of the 21st Century but in Prek Svay awareness of the concept remained very limited. The village respondents were more focused on daily survival than they were on intangible theories from the western world.

The second assumption was flawed in that although decentralisation reform had taken place, the majority of respondents were not afforded an opportunity to contribute to local resource management or decision making. A client-patron society with a culture of corruption had resulted in factions based on power, wealth, and political standpoint. This had led to dissatisfaction and loss of trust in local leadership. Corruption is deeply ingrained in Cambodia and there were claims that this had filtered down into local resource management. With only a few actors at decision making tables, claims were made that local decision makers worked for personal gain rather than collective benefit. Decentralisation may have allowed for the creation of the Community Fishery but without adequate training and support there was still some way to go before local people were empowered participate and leadership had the capacity to be truly be effective.

The community was made up of people with a history of civil war, genocide, impunity, and cultural and collective loss. This has had a lasting effect on the people in Prek Svay, especially in terms of social and human capital. While there were community development initiatives being introduced into the community, they were not necessarily based on sustainable livelihoods principles, which are to be people-centric, responsive and participatory, holistic, multi-level, conducted in partnership, sustainable, and dynamic (Allison & Horemans, 2006). Initiatives introduced through the Conservation and Community Program tended to be conservation-centric and participation was yet to move beyond informing.

Based on the documentation available online I had assumed that the relationship between the Conservation and Community Program and the Prek Svay Basin community was some form of partnership. This assumption was flawed, as there was no actual agreement between the Program and the community to work together. There was no action plan or mutual expectations agreement that set out the vision or purpose of the relationship, the mutual goals, or the objectives. While some respondents from the village were aware of some of the individual initiatives the majority was not aware of the wider program or how they could get involved. Although workshops had taken place in the village no channels of communication had been formalised that allowed people in the community to share their ideas, or voice their concerns.

7.3 Remembering the objectives

When developing the research strategy for this project, six objectives were set. The discussion that follows is largely based around these six objectives, which were to:

1. Assess the arguments concerning the socio-cultural and economic vulnerability of coastal fishing communities to the potential effects of climate change
2. Critically evaluate the concept of adaptive capacity and establish key indicators based on the literature
3. Document and describe both the socio-economic system of the Prek Svay fishing community and its existing adaptive capacity using the indicators identified
4. Understand the nature of the relationship between the Conservation and Community Program and the Prek Svay Basin community
5. Compare the adaptive capacity prior to and following the establishment of this relationship
6. Comment on the prospect that such initiatives will be successful in enhancing adaptive capacity

7.3.1 Assessment of vulnerability factors

The first objective was achieved through the literature review. It was found that there are a number of social, environmental, and political aspects that all create variation in vulnerability to climate change. Demographics, geography, and resource dependency are all relevant factors. In communities such as Prek Svay where there is poverty and other pressing issues, attention is often detracted away from climate change, if in fact there was any awareness of the risk in the first place. The predictions for more intense and frequent storm events, sea-level rise, changes in precipitation patterns, warming air and ocean temperatures, and changes to ocean dynamics make coastal areas particularly vulnerable. In areas where natural buffers such as mangrove forests have been reduced, the effects of climate change will likely be further compounded. In Prek Svay, deforestation, destructive fishing methods, poverty, and a lack of planning are all issues capable of further exacerbating the effects of climate change.

Small island communities reliant on marine fisheries will be especially hard hit if the predictions of the IPCC become reality. Not only will resource availability, in particular freshwater and fish, become compromised, so too will health. Changes in resource availability can impact on individual livelihoods, just as environmental health can impact on human health. This relationship between natural and social systems is repeatedly put forward in the literature. People who are heavily

dependent on natural resources in sustaining their livelihoods are extremely vulnerable to environmental uncertainty and change. In communities reliant on marine resources a change in the marine environment, such as a change to fishery productivity, can have disastrous social effects.

It is important to remember at this point that the vast majority of respondents from the village had never heard of the concept of climate change. Instead they brought other changes of concern to the fore. These included sand dredging, land tenure, personal security, deforestation of mangroves and rainforest, and declining fish stocks. Over time environmental hazard paradigms have changed (Smith, 2013). The more recent complexity paradigm considers humans not only as the victims of natural hazards, but also as contributors to their own vulnerability. Over-exploitation and degradation of resources, deforestation, and other hazardous processes can amplify risk to natural hazards (Smith, 2013). The interconnectedness of complex systems makes it difficult to differentiate between hazards resulting from climate change and other environmental changes. Smith states (2013) that in the past disaster response has been characterised by short-term emergency actions, while climate change is seen as more of a slow onset, multigenerational issue.

Smith goes on to argue (p.21, 2013) that “Disaster Risk Reduction and Climate Change Adaptation share mutual goals that can often be achieved by similar means”. This raises the question, is there any benefit in separating the hazards of climate change from other environmental hazards, or even anthropogenic or technological hazards for that matter? It could easily be argued that central to all of these is capitalism and an ever increasing divide between rich and poor. Industrialisation, globalisation, and mass consumerism are intensifying risk and accelerating the decline of natural resources (Moran, 2009; Smith, 2013). While this is true, scholars such as Smith (2013) and Green (2010) are calling for a move away from vulnerability and deficit based community development, to a focus on fostering local capacities and making the most of existing resources. This is based on the belief that it is more fruitful to focus on what a community has to offer rather than what it needs, and more productive to concentrate on capacity over vulnerability.

7.3.2 Utility of adaptive capacity

Through the literature review the theories of adaptation, vulnerability, resilience, and adaptive capacity were explored. From this a set of adaptive capacity indicators was developed. Vulnerability, resilience, and adaptive capacity are all related theories and climate change adaptation research requires a multi-disciplinary perspective that considers them all. The initial approach of this research was to investigate what role community based partnerships could play in enhancing adaptive capacity to climate change. Through the course of the study it has become apparent that this

neglects deeper cultural and cognitive aspects. Adaptive capacity, which when enhanced can lead to increases in resilience, is one way of understanding how well equipped communities are for coping with environmental change. But this is only one way of looking at the situation and there is also a need to gain an understanding from a cultural perspective.

The Buddhist teaching of the Four Noble Truths reminds us that Khmer people hold their own worldviews and means of understanding. Not to say all Khmers adopt Buddhist belief or shy away from positivist science, it is just a gentle reminder that there are other ways of framing global issues such as climate change. When researching adaptive capacity to climate change greater depth can be realised by exploring both traditional and western ways of thinking. Different cultures, religions, and individuals have their own ways of understanding the relationship between people and the environment, and this understanding guides their behaviour and interaction. Western thought and religions have traditionally viewed the relationship between people and the environment as a dichotomy (Moran, 2006). This is very different to some of the Eastern cultures and religions which see human existence as deeply embedded in nature through cycles of incarnation and reincarnation (Moran). Buddhist teachings such as the Four Noble Truths suggest that change must begin with us before it permeates to our families, our communities, our regions, and upwards (Moran).

To really get to the heart of a communities ability to adapt, worldview and socio-cognitive factors need to be considered. Although the adaptive capacity indicators developed considered a number of intangibles such as governance and social learning, they omitted socio-cognitive factors. The indicators developed did prove useful in describing the adaptive capacity of the Prek Svay Basin community. However, the interpretation of the results and the overall account of the indicators are extremely subjective. This research took a general rather than specified approach to investigating adaptive capacity, although climate change was held in the fore throughout the research project. What emerged is that focusing on adaptive capacity to climate change in isolation overlooks many of the interrelationships and interdependencies that exist between social and natural systems. Concentrating on specified adaptive capacity (e.g. adaptive capacity to climate change) could actually work against general adaptive capacity. Coming from a more holistic and multidisciplinary perspective is therefore favourable.

7.3.3 Adaptive capacity in Prek Svay Basin

In the literature it is not uncommon to see Khmer people or society described as resilient. This is often based on their ability to rebuild their lives following the Khmer Rouge regime. This raises questions about the difference between adaptive capacity and reactive or coping capacity. In Cambodian society one of the legacies of the civil war is loss of traditional and institutional

knowledge. While people have resettled and gone on about their lives, authors such as Brinkley (2011) describe the long lasting effects on people's mental health and capacity following this event. Social and human capital has taken a great knock in Cambodia with the country one of the first in the world to exhibit post-traumatic stress syndrome being passed from one generation to the next (Brinkley, 2011). In Prek Svay the Khmer Rouge regime was mentioned on occasion, but its detrimental effects in terms of education and social memory were evident throughout the duration of the fieldwork. The negative impact the regime has had on social memory restricts the community's capacity for social learning, and therefore its adaptive capacity.

When discussing change with the village respondents, any reference to change was limited to the last 30 years. While people in Prek Svay had set up housing and were taking advantage of livelihood opportunities, they described living as day to day rather than as being future focused. This suggests reactive rather than anticipatory adaptation. In the village there are times of the year that people struggle to make a living. Incidents of gambling, domestic violence, youth fighting, and alcohol abuse were observed during the fieldwork and quality of life was variable among village residents. Information provision in terms of risk was limited in the village. There were no local level plans in place for community development, resource management, or disaster preparation and planning. Although education and literacy rates in the village were low, the people of Prek Svay were capable of determining their own vision for their community. Improvements in social and human capital would help enable them to achieve this vision.

Adaptive capacity comes not only from the availability of assets but also from the ability to act collectively and to participate in civic processes. Recent decentralisation reform in Cambodia has allowed for the creation of the Prek Svay Community of Fisheries. This has provided an opportunity for people in the village to collectively manage the local marine resources found in their fishing grounds. While accusations of a political divide and corruption among leaders were made, the framework encourages those closest to the resource to take an active role in resource management. Under the Community of Fisheries leadership a crab bank had been set up and for this initiative to be successful fisherfolk must work together. Marine resources are processed, transported, and sold through the trader network, another example of collective action. However in the village decision making authority was held by only a handful of men. Making room for more people at decision making tables and encouraging greater participation in community initiatives would help to strengthen adaptive capacity.

7.3.4 The relationship in question

There can be no denying that Song Saa Private Island Resort is a tourism operation with a conscience. The Conservation and Community Program exhibits their commitment to both local conservation and the community. When the fieldwork was undertaken the Conservation and Community Program had only been running for two years. At this time the relationship between the two parties was in its early stages and could not have been described as a partnership. While conservation initiatives were underway in the village, awareness of the Program was not widespread. Although some people from the community were involved in the Conservation and Community Program initiatives, they held no decision making authority. As the results indicate, community engagement in relation to the Conservation and Community Program was limited.

Critics could argue that the Conservation and Community Program has been established as a means for attaining greater control over local resources. The luxury resort visible from Prek Svay is in stark contrast to daily life in the village. It could be said that initiatives such as the marine protected area that affect the livelihood activities of local people are an intrusion on customary rights and traditional practices. However many of the respondents from the community expressed an appreciation for the arrival of tourism in the area and for the new conservation initiatives being implemented. That said the relationship between the Conservation and Community Program and the local community had significant room for improvement. A lack of understanding was evident on occasion from both sides. The community did not have a clear understanding of the Program, its structure, or its purpose, and the Conservation and Community team were struggling with engagement.

It is not uncommon for community based conservation efforts to not perform as well as hoped for (Berkes, 2004). Allowing for local participation beyond token gestures and initiating, and strengthening existing multi-level linkages could lead to improved performance. Establishing clear processes around communication and information dissemination would benefit both parties. Community participation was encouraged through workshops but there was some way to go before power sharing was such that people in the community could contribute in decision making processes. Respondents from Prek Svay shared that they had their own ideas for community development but also stated that they had rarely been asked to contribute in the development of the Conservation and Community Program initiatives. The initiatives being introduced into the community are designed to benefit the local environment and its people, it is therefore essential that the local community be actively engaged. The Conservation and Community Program may be filled with good intentions but it needs to ensure that they do things with the community, not just for them, or to them.

7.3.5 Changes in adaptive capacity

It was objective five, which was to compare the adaptive capacity prior to and following the establishment of the relationship, which proved most difficult. This research has shown that measuring adaptive capacity is no easy feat. In the early stages of this research it was decided that the focus of the case study was adaptive capacity to climate change in the Prek Svay Basin community. The initial research question pondered whether or not adaptive capacity could be enhanced through partnership with the private sector, more specifically the Conservation and Community Program at Song Saa. It was not until I was in the field that I realised that the relationship I was looking at was not in fact a partnership. That said a relationship between the two parties was forming. Although the relationship was not yet a true partnership, it did not mean that changes in adaptive capacity were not taking place.

The adaptive capacity indicators developed out of the literature review were used to form the basis of the data analysis. However, the subjective nature of the data interpretation meant that the indicators did not provide a reliable and definitive measure of adaptive capacity that could be used for comparison. It is therefore not possible to state with conviction the level of change that has taken place since the relationship was initiated. With no measure that allows for accurate quantification of adaptive capacity, one can only speculate about where changes have occurred. During the fieldwork it was difficult to separate the Resort from the Program, largely because respondents from the village were not aware of the Program.

The arrival of Song Saa Private Island Resort had brought new livelihood opportunities to the area. While many of the staff originated from outside of the village, there were a number of local people who had taken up employment with the company. The livelihood diversification offered by Song Saa Private Island Resort has brought hope to the local community, especially in terms of future employment opportunities for the community's youth. However the establishment of the Resort also increases the demand for local resources such as freshwater and increases the waste generated in the area. Furthermore, the Koh Rong land concessions granted by the Cambodian Government to private sector actors blurs the lines of responsibility in terms of future development and local management of natural resources.

Throughout the interview process the work being done by the waste management team was repeatedly praised. Not only did respondents believe that the village was cleaner but some also felt that the village was healthier as a result. Healthcare options were found to be limited in Prek Svay and often the very ill could not afford to travel to the mainland to seek appropriate medical treatment. The ability to seek treatment with the staff village Doctor was novel and being taken up more regularly. The staff village Doctor indicated that some of the patients he was seeing in Prek

Svay were still in need of treatment he could not provide on the island. He felt that providing education and training on hygiene, health, and first aid, particularly with Mothers, would be extremely beneficial. The Conservation and Community Program team were providing environmental education workshops and Mr Samay was holding daily English classes. These English classes were well regarded among respondents, with some people sharing that they would also like to see Khmer culture, including dance and literature, included.

There was a strong emphasis on conservation in the work done by the Conservation and Community team. The marine protected area was found to be the Conservation and Community Program's most controversial initiative. While respondents generally accepted that there were benefits in conservation the tension came from the inability to fish where they had done previously, gear confiscation, a lack of signage, and restrictions on boat parking. In summing up, it could be said that livelihood diversification, better waste management, increased healthcare and education options, environmental protection, and the opportunity to tap into new networks and strengthen multi-level linkages have enhanced adaptive capacity in the village. The flipside is that adaptive capacity could have been degraded through increased demand for resources, restrictions resulting in the loss of property rights, and changes to local resource management decision making.

7.3.6 Building adaptive capacity through partnership

Community based partnerships with the private sector are becoming increasingly popular, particularly in the tourism sector. Not only can such partnerships be beneficial to the host communities but they can also add credibility to the private sector actors, although the reverse can also be true. Good relationships are built on clear communication and universal understanding. This research has shown that partnership is not necessarily achieved when one party decides to work with another. To be a true partnership both parties need to be on the same page about what is happening. A shared vision with a clear set of objectives should be drafted in collaboration through dialogue and deliberation. The establishment of a shared vision and objectives can be used to guide action and promote success. Although the relationship studied was not a true partnership, I do believe that when the private sector partners with coastal fishing communities, adaptive capacity can be affected. Whether or not such partnerships are successful in enhancing adaptive capacity will largely depend on the nature of the relationship.

The relationship at the centre of this case study had a number of strengths and weaknesses. The first strength was that the community mostly supported the work being done through the Program but a weakness was that they were not aware of the Program itself and most attributed the initiatives to

one key individual. That key individual was one of the Programs greatest assets but if he was to leave for any reason, the relationship with the community would be seriously compromised. Another of the Programs key strengths was the knowledge and experience held by the five men in the team. University educated and coming from different corners of the globe, the team had extended networks that could be utilised. A weakness was that the expats in the team shied away from community engagement. While they did attend the occasional workshop, opportunities to interact with local people were often neglected. Language was an obvious barrier, and it could be that the team would benefit from on-going Khmer lessons.

In this case study opportunities to enhance the adaptive capacity of the Prek Svay fishing community through the relationship in question did exist. The greatest prospects come from investment into intangibles such as social and human capital, and participative capacity. In terms of social capital, the relationship provides a chance to build bridging and linking capital. Bringing actors with different backgrounds and skills together can strengthen social capital, as can introducing them into new networks and forums. Strong social capital not only enhances adaptive capacity but it is also known to facilitate recovery following disaster (Aldrich, 2012). In terms of human capital, adaptive capacity could be enhanced through improvements in education, health, and access to information. Although the staff village Doctor did not come under the Conservation and Community Program umbrella, the extension of healthcare and medical advice to the community is beneficial in promoting adaptive capacity through improvements to human capital.

Social and human capital works to enhance not only adaptive capacity but also participative capacity and social learning. In Prek Svay participative capacity is weak. For the community to be resilient, whether to climate change or hazards and disaster more generally, the ability to participate in civic processes will influence the ability to adapt. If partnerships between the private sector and local communities are to be successful in enhancing adaptive capacity there needs to be a commitment to community empowerment. This means involving the community in initiatives from conception, through to implementation, continuing on into monitoring. It means sharing decision making power, or at the very least ensuring that community contributions will have influence on the decisions being made. It is not doing things for the community that they can do for themselves but rather working together to achieve shared goals and objectives.

7.4 Chapter summary

This case study has shown that working together does not necessarily equate to partnership. A partnership requires an agreement from both parties to work together and should be based on

shared goals and understanding. This case study has also shown that adaptive capacity is not easily measurable. The indicators developed can be used as a tool for description but they do not provide a decisive measure of the concept. That said it is possible to propose where changes in adaptive capacity have occurred or could likely occur in the future. The arrival of Song Saa Private Island Resort has brought livelihood diversification, new healthcare options, and investment into the area. The Conservation and Community Program have worked to improve environmental health, explore sustainable livelihood options, and encourage youth education. In the future a more formal agreement between the two parties, based on a commitment to community empowerment and participation, could further contribute to enhancing adaptive capacity.

Climate change creates uncertainty and poses a significant threat to the Prek Svay Basin community and environment. However it is only one of many threats and should not be read in isolation. Rather climate change should contribute to an all-hazards holistic approach to disaster preparedness and planning. The effects of climate change cannot easily be differentiated from that of other environmental changes. The interconnected and complex nature of social and natural systems makes separating climate change out from other environmental change futile. In the assessment of adaptive capacity access to assets, diversity, governance, and social learning were considered, thus neglecting cultural and socio-cognitive aspects. In Cambodia war and genocide have impacted on culture, trust, and mental health. Factors such as these should not be omitted when analysing capacity for adaptation. Worldview and social constructions are used to frame environmental issues. While we can use science to explain global issues such as climate change, it is important to be mindful of other ways of knowing. Community development must be applicable to the community at the heart of the development.

Chapter 8

Conclusion

8.1 Introduction

In this concluding chapter the research question is answered and five key findings are summarised. Following this, I offer five recommendations for anyone interested in using partnership as a means of capacity building. These recommendations include formalising the relationship with the local community in a Mutual Expectations Agreement. Commit to strengthening participation by adopting a framework that can help move community engagement from inform to empower. It is recommended general rather than specified resilience is pursued, this means not limiting the scope of adaptive capacity to climate change. It is important that community development comes from within the community. I therefore recommend assessing strengths and assets already present in the community, by doing so it will be possible to start making greater use of them in capacity building initiatives. Finally, the last recommendation offered in this chapter is to foster multi-level linkages so as to build strong relationships and networks, as well as promoting accountability, transparency, legitimacy, and power sharing.

8.2 Answering the research question

The purpose of this Master's Thesis was to explore whether in the face of climate change, private sector partnerships can assist in enhancing adaptive capacity in coastal fishing communities? Having now completed this investigation I believe that such a result is possible but not necessarily guaranteed. How the private sector chooses to engage with local communities will significantly impact on the end outcome. When entering into a partnership for the purpose of community development, it is essential that both parties are aware of what is taking place. Each side needs to be given the chance to voice their concerns and accept or reject what is being proposed. It is then only through dialogue and deliberation that a shared vision and mutual objectives can be formed. For partnership to be an effective community development tool, the parties involved need to be genuine and honest in their motivations.

This case study specifically focused on coastal fishing communities as geography and resource dependency heightens their susceptibility to climate change. The private sector actor in this case was grounded in the tourism industry. What became evident through the results was that the ideals of the tourism industry might not always gel with those of the host fishing community. The issue of

boat parking highlights this point most clearly. The marine protection reserve surrounding the Song Saa islands was established for conservation purposes. However, when investigating the issue of boat parking it became clear that the ability to keep fishing boats 200 meters offshore of the islands was also being used as a hotel operations mechanism. Examples such as this show how actors from the private sector are able to inflict management rules that in essence control local behaviour. In conclusion, while partnership could be used to enhance adaptive capacity, partnerships with hidden agendas or those that create perverse incentives could just as easily deplete it.

The example in this case study offers five noteworthy conclusions. One, if successful the Conservation and Community Program implemented through the Song Saa Private Island Resort stood to benefit both parties. The work being done had the potential to not only bring positive change to the local people and the environment, but it could also be used to generate marketing material that promotes the Resort as a socially responsible business. The competitive advantage gained through such promotion cannot be discounted when assessing partnership benefits. However, in order to be mutually beneficial, there is a need for each party to make their objectives explicit from the outset.

Two, in partnership, participation from both parties is essential. This case study shows the need for careful planning and forethought in the creation of a partnership, and the importance of cultural understanding in relationship building and community development. Song Saa is foreign owned and the Conservation and Community Program had more foreigners on the team than Khmers. If a partnership does form then in order to be successful the partners need to spend time together, to get to know each other, and to learn about how best to overcome cultural differences. Planning and decision making must be inclusive and involve both parties. Local people must be empowered and encouraged to participate.

Three, climate change was a largely unknown concept in the village. This indicates that although the issue has been well researched, becoming a prominent topic in international arenas, there remain communities unaware of the potential risk. It is worth pondering why this is the case in this particular village. Is it due to inadequate information or that other pressing issues are taking precedence? If it is because of other pressing issues, these may need to be addressed before the issue of climate change can be tackled. Four, it was found that although the community of Prek Svay had a number of deficiencies in terms of education and health, it also held numerous strengths that would be useful in adapting to change, for example resourcefulness and innovation.

Finally five, the deficiencies identified in the community cannot be attributed to the private sector. It is hoped that the conclusions of this research are not looked upon as a criticism of the work being carried out by the Conservation and Community Program. Song Saa is a business, and their efforts to

bring about positive change in Prek Svay deserve recognition. However this research does raise questions about the nature of agreements between the public and private sector. Introducing the private sector as a key player in community development does not replace the role of government. There is a need for checks and balances that continuously monitor the accountability, transparency, legitimacy, and power sharing of the different actors.

8.3 Key findings and recommendations

The five key findings of this research are as follows:

1. Partnership does not just happen. Universal understanding and a concerted effort from all involved is required.
2. In order to be resilient a community needs adaptive capacity as well as participative capacity.
3. Climate change is one of many threats and should be considered in the context of environmental change more generally.
4. Community development should come from within the community and be built on the community's key strengths and assets.
5. Private sector partnership does not remove the responsibility of the public sector and cannot be used as justification for government inaction.

These key findings contribute to my recommendations for the Conservation and Community Program and others hoping to use private sector partnership to promote community resilience. These recommendations are detailed below.

8.3.1 Formalise the relationship

The first recommendation I would make to formalise the commitment to work with a community in a Mutual Expectations Agreement (MEA) or Partnership Charter. Doing so would help ensure that both parties are aware of what is happening and it can highlight what each side hopes to get out of the relationship. There is said to be a number of advantages in establishing a MEA. Not only can it make clear what the parties intend to do together but it can also provide a structure for addressing issues and conflicts capable of affecting the relationship (Gage, 2008). Developing a MEA creates a written document that captures the intentions, expectations, and agreements of both parties (Gage,

2008). The MEA is a living document that can serve as a guide moving forward. It can set out a shared vision, goals, and objectives, and can be used to build mutual trust and understanding.

8.3.2 Adopt a community engagement strategy

At the time of the field work the relationship between the Conservation and Community Program and the local community was with the higher levels of the village hierarchy rather than at the grassroots. Members of the community expressed that they had rarely been invited to share their ideas about community development or the initiatives being implemented. In addition it was found that the methods of community engagement being utilised did not allow for the community to participate in decision making processes. Respondents from the community exhibited a desire to be active in decision making, especially in regards to decisions affecting their local fisheries. It is my recommendation that anyone working with community adopt a framework for community engagement, such as the IAP2. This should come with a goal of working towards empowerment of the local community through increased participation. In order to enhance adaptive capacity it is essential to remember the importance of not only working on the things that can be seen, but also in strengthening intangibles such as human and social capital, and participative capacity.

8.3.3 Pursue general rather than specified resilience

The third recommendation emerging from this case study is to take a holistic all-hazards approach to capacity building and disaster preparedness. Climate change does pose a significant threat to coastal fishing communities, however it is not the only threat and it is not taking place in isolation to other environmental changes. I recommend building climate change into wider education and health initiatives in an attempt to raise awareness but not alarm. Through the interview process, respondents from the village voiced their own concerns about changes happening in the area. The majority had never heard of climate change and not one person cited changes in weather or climate as something that concerned them. This raises two important points. First, a partnership designed to aid in community development should listen to the concerns of the host community, and secondly, accessible and reliable information is vital for risk awareness and planning.

8.3.4 Build on community assets

The first objective of this research was to assess the vulnerability of coastal fishing communities to climate change. This approach quickly draws attention to the characteristics that make a community weak. In contrast, the concept of resilience has positive connotations. Scholars such as Smith argue (2013, p.59) “resilience stresses the strengths of communities rather than their weaknesses”. The last recommendation I will make following this piece of work is to build on the assets and capacities already present in the community instead of focusing on its vulnerabilities or deficiencies. Before starting any community initiatives I suggest that the asset mapping is undertaken. Asset based community development (Kretzmann and McKnight, 1993) starts by looking at what skills, knowledge and gifts are held by individuals in the community. It then investigates what citizen associations and local institutions are present in the community, identifying linkages to wider institutions. Creating an asset map will help the team to identify community strengths that can be utilised in community development.

8.3.5 Foster multi-level linkage

Decentralisation in Cambodia had created opportunities for new approaches in resource management and community development. As previously discussed, this allows the chance for parties from different sectors to work together in order to address issues like vulnerability to climate change. However authors such as MirafTab (2004) have argued that the community are often overcome by the private sector firms, largely due to differences in power and influence. It is argued (MirafTab, 2004) that governments need to take an active role in regulating the relationship between the parties, as to ensure that partnerships do not lead to a form of privatisation which advances the interests of the private sector at the expense of the community. Fostering multi-level linkages, horizontally and vertically, can be used to build relationships and networks that are beneficial in adapting to change. Additionally, a collaborative multi-level approach could be useful in helping to ensure accountability, transparency, legitimacy, and power sharing.

8.4 Future Research

This case study makes a contribution to the literature on adaptive capacity. One of the main findings of this research was that as it is the concept of adaptive capacity, in its current form, has a limited utility. There are two elements of the concept that lead to this conclusion. The first is that the concept of adaptive capacity fails to consider socio-cognitive factors and worldview. How

communities perceive the environment will likely affect how they act within it. This case study has shown how individuals, cultures, and religions can frame issues such as climate change differently. It is not sufficient to assume a Western thought pattern in any context. It is therefore necessary that more research be conducted into how adaptive capacity is influenced by socio-cognitive processes and worldview. Secondly, the utility of adaptive capacity is limited by its inability to be accurately measured. For the notion of adaptive capacity to be truly useful, more research into measurability is required.

The arrival of tourism to the Koh Rong archipelago is based on an initial agreement between the developers and the Cambodian government. The Koh Rong land concessions indicate that the Cambodian government recognised the potential benefits of tourism development in the area. Going back to the successful partnership principles identified in Chapter three (page 30) - transparency, accountability, legitimacy, and equitable power sharing - more exploration into who takes up the responsibility of overseeing and appraising these factors in partnerships involving public, private, and community sectors of society is advisable. Research that investigates the role of government before and after the establishment of such partnerships would be advantageous. This would offer an insight into whether neo-liberal market forces are being used to assume some of the responsibilities of government in community development and capacity building in the developing world.

8.5 Chapter summary

There is any number of adaptive measures that could have been suggested in the conclusion of this research. While other scholars may have advocated for the planned retreat of overwater housing or investment into new technologies, I would argue that investment into physical infrastructure is less likely to be as effective in building adaptive capacity as investments into human capital, social capital, and participative capacity. Furthermore I would argue that intangibles such as socio-cognitive aspects and worldview should also be considerations in the assessment of adaptive capacity. This case study began with the Buddhist teaching the Four Noble Truths. It would have been easy to assume only Western thought and include only Western science in the framing of the concept. However greater depth is gained when different ways of knowing are read alongside one another. This is important in the assessment of adaptive capacity, as individual and collective social constructions of environmental change are fundamental to how people understand and act within the environment. This research shows a multi-disciplinary, holistic approach to planning for environmental change is favourable over silo thinking that singles out climate change. It also

highlights that in order for communities to be resilient they need to have both adaptive capacity and participative capacity.

Participation in social, political, and local processes can be used as a tool for community empowerment. Conversely where communities are isolated from decision making processes they can become disempowered and detached. For a partnership to be successful, partners need to be universally aware of the purpose and desired outcomes of the relationship. Community based partnerships with the private sector do have the ability to affect adaptive capacity of coastal fishing communities, although there is no guarantee that the effects will be positive. Where partners have hidden agendas or implement poorly planned policies, adaptive capacity can be depleted. Where partners are committed to equality and policies are developed in collaboration, adaptive capacity can be enhanced. What comes out of the partnership will ultimately be determined by what is put into it. Private sector partnership is not a panacea for the many challenges faced by coastal communities. While it could prove a useful tool for community development and capacity building, the role of government should not diminish as a result.

Appendix A

Research Information Sheets

Lincoln University: Faculty of Environment, Society and Design
Department of Environmental Management
Research Information Sheet

Participant Observation

Research Title and Aim

You are invited to participate in a project titled: *Using Community Based Partnerships to Enhance the Adaptive Capacity of Coastal Fishing Communities: A Cambodian Case-study*

The aim of this project is: *to assess whether partnerships at the local level can be used to enhance the adaptive capacity* of coastal fishing communities.*

* Adaptive capacity relates to a community's ability to adapt to change.

Methods

To achieve this aim participant observation and semi-structured interviews will be the main methods used.

Participant observation: is a method which involves the researcher taking part in the daily activities, interactions, and events of a group of people to learn about their routines and culture. Data is collected in the form of field notes.

Semi-structured interviews: allow for flexible interviewing. The questions asked will relate to the topics of interest but will not be limited to a set of predetermined questions. These interviews are designed to be more like a conversation rather than a formal interview.

Participant Observation

The focus of the participant observation is threefold. The first purpose of the participant observation is to observe the Song Saa Conservation and Community Program's daily activities, initiatives, and interactions with the local community. The second purpose is to make observations of the daily activities, technologies, and interactions of the local fishing community. Finally, observations will be made about the community's adaptive capacity based on indicators identified, for example, infrastructure, housing, access to freshwater, and sanitation.

Participation in this research project is completely voluntary. By agreeing to participate in this research you are agreeing to allow the participant observation to take place. If you do not agree to participate in the research project any action carried out by you will not be subject to observation.

If you agree to participate and then you change your mind, you have until July 7th 2012 to withdraw the participant observation field notes of relevance to you.

Publishing Results

The results of the project may be published, but you may be assured of your anonymity in this investigation: the identity of any participant will not be made public, or made known to any person other than the researcher, her supervisors and the Human Ethics Committee, without the participant's consent.

To ensure anonymity all names will be replaced by pseudonyms and this information will be stored in an excel spread sheet, which will be stored securely in the Lincoln University computer network under password protection.

Researcher and Supervisor

This research project is being carried out by Kelly Fisher. Kelly is a Master of Resource Studies student at Lincoln University in Christchurch, New Zealand.

The main supervisor for this research project is Roy Montgomery. Roy is a senior lecturer in the Faculty of Environment, Society and Design's Department of Environmental Management at Lincoln University.

If you have any questions or concerns about your participation in the research project please feel free to contact either Kelly or Roy.

Contact Details:

Kelly Fisher

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Roy Montgomery

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Phone: + 64 3 325 3838 ext. 8715

The project has been reviewed and approved by the Lincoln University Human Ethics Committee.

Interviews

Research Title and Aim

You are invited to participate in a project titled: *Using Community Based Partnerships to Enhance the Adaptive Capacity of Coastal Fishing Communities: A Cambodian Case-study*

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Semi-structured interviews: allow for flexible interviewing. The questions asked will relate to the topics of interest but will not be limited to a set of predetermined questions. These interviews are designed to be more like a conversation rather than a formal interview.

Interviews

Your participation in the research interviews will involve you answering a series of questions. The interview should take no longer than one hour.

Any participation in this research project is completely voluntary and you are not required to answer all questions. If at any time you would like the interview to stop please say so and the interview will end immediately.

The interviews will be recorded, however if you do not wish for this to happen notes can be taken by hand. There will be no follow up activities once the interview is complete. You have the right to withdraw the information you have shared before July 7th2012.

Publishing Results

The results of the project may be published, but you may be assured of your anonymity in this investigation: the identity of any participant will not be made public, or made known to any person other than the researcher, her supervisors and the Human Ethics Committee, without the participant's consent.

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Appendix B

Interview schedule

Village respondents

Role in Community

How long have you lived in Prek Svay? If recently arrived, where did you originate from?
What roles or responsibilities do you have in the community?
Are you a member of any groups (examples: community fisheries, religious group, fishery trade group, self-help group, saving group, NGO, private company, tour network)?

Networks

Are there any community groups which make a positive difference in Prek Svay? Can you tell me a bit about what they do and what benefits they provide the community?
How do people in Prek Svay communicate with people or organisations outside of the village?
Where or who would you go to if you had concerns about the Prek Svay environment?
Where or who would you go to if you had concerns about social issues in the community?
Where would you go if you had health concerns?
Have you ever gone to any of these people or places? If yes: was it worthwhile? If not: why not?

Environment

What are the physical aspects (natural or human) you like most about Prek Svay?
Do you think enough care is taken of the Prek Svay environment? Could this be improved?
Do you think people in the village know about environmental issues and conservation? If so, where does this information come from?
Do you believe that access to natural resources in the village is fair? What makes you feel this way?

Change

Have there been changes in Prek Svay that make you happy?
What things do you think is important to the future success of the Prek Svay community?
Have there been any changes in Prek Svay that concern you?
Have you heard of climate change and if so, what does it mean to you?
If the interviewee has heard of climate change: How well understood do you think climate change is in the village?

Fisheries

How important are marine fisheries to the Prek Svay community?

What is the main catch? What do you do with your catch?

Over time have you noticed changes in the catch (species, quantities) in the waters around Prek Svay?

Are you a member of the Phumi Prek Svay Community Fishery?

Do you think that people in Prek Svay understand the rules about fishing in the Community Fishery area?

Do you think that the enforcement of community fisheries rules is effective?

How do you feel about the MPA established by Song Saa? Do you think it has been beneficial to the local fishing community?

Are traditional practices such as small festivals for Neak Ta and Yeay Mao still practiced in Prek Svay?

Partnership

Are you familiar with the Song Saa Conservation and Community Program?

Do you believe the community supports this program? Can you give examples that show this?

Have you ever participated in any of their initiatives or workshops? If yes, can you please tell me about this? If no, is there a reason for this?

Have you ever been asked to share your ideas or opinions in regards to any of their initiatives?

Has the establishment of this program changed the way you think about the future of Prek Svay? If so, in what way?

Conservation and Community Program team

Roles and Responsibilities

Where are you originally from and what is your relevant background to your current position?

What is your role in the Conservation and Community Program and what does it entail?

What initiatives are you currently overseeing? Can you tell me about these?

Your team is currently working on plans for future initiatives, what would you like to see implemented and why?

Community

How do you think the local community of Prek Svay can benefit from the initiatives already in place?

What community engagement processes are in place for when new initiatives are initiated?

Are there any examples of these processes in practice?

How often do you visit the Prek Svay village? When you visit do you engage with the local people? If so, in what way?

Fisheries

How important do you think marine fisheries are to the local community of Prek Svay?
Without a serious conservation effort do you think there is a viable future in marine fisheries in the area? Are there any reasons for why you feel this way?
In your opinion, is enforcement of fisheries rules and regulations effective in the Phumi Prek Svay Community Fishery area? If not, do you think there is any particular reason for this?
Have you witnessed any unlawful or destructive fishing efforts since you arrived? If so, can you please provide examples?
Do you believe that the local fishing community understands the benefits of marine conservation?
Are they willing participants?
Is there any evidence that the MPA is having a positive effect on the local marine environment?

Climate Change and Future Uncertainty

What does climate change mean to you? Is it something you are concerned about?
Do you think that raising awareness about the projected effects of climate change is important in Prek Svay? For what reasons?
To your knowledge has there been any information provided to the local community about climate change? If so, when and how was this implemented?
Are there other changes happening in and around Prek Svay that you think the local community should be aware of/educated about?

Partnership

How would you describe the relationship between the Conservation and Community Program and the Prek Svay community? Do you think that this is how the community view the relationship?
In your time with the Conservation and Community Program have you collaborated or engaged with any other private sector actors, non-governmental organisations, or governmental organisations? If so, which ones and for what purposes?

References

- Abeygunawardena, P., Vyas, Y., Knill P., Foy, T., Harrold, M., Steele, P... Sperling, F. (2003). *Poverty and Climate Change: Reducing the Vulnerability of the Poor through Adaptation*. Retrieved from: <http://www.oecd.org/env/cc/2502872.pdf>
- Academy for Educational Development. (n.d). *Structure of Cambodian Task Force on Human Trafficking*. Retrieved from: <http://www.humantrafficking.org/countries/cambodia>
- Adger, W. N. (1999). Social vulnerability to climate change and extremes in coastal Vietnam. *World Development*, *27*(2), 249-269.
- Adger, W. N. (2000). Social and ecological resilience: are they related? *Progress in Human Geography*, *24*(3), 347-364. doi:10.1191/030913200701540465
- Adger, W. N. (2003). Social Capital, Collective Action, and Adaptation to Climate Change. *Economic Geography*, *79*(4), 387-404.
- Adger, W. N. (2006). Vulnerability. *Global Environmental Change*, *16*(3), 268-281.
- Adger, W. N., Agrawala, S., Mirza, M. M. Q., Conde, C., O'Brien, K., Pulhin, J., . . . Takahashi, K. (2007). Assessment of adaptation practices, options, constraints and capacity. In M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. van der Linden & C. E. Hanson (Eds.), *Climate Change 2007: Impacts, Adaptation and Vulnerability*. (pp. 717-743). Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, United Kingdom: Cambridge University Press.
- Aldrich, D. P. (2012). *Building Resilience: Social Capital in Post-Disaster Recovery*. Chicago, United States of America: University of Chicago Press.
- Allison, E. H., & Horemans, B. (2006). Putting the principles of the Sustainable Livelihoods Approach into fisheries development policy and practice. *Marine Policy*, *30*(6), 757-766.
- Allison, E. H., Perry, A. L., Badjeck, M.C., Adger, W. N., Brown, K., Conway, D., . . . Dulvy, N. K. (2009). Vulnerability of national economies to the impacts of climate change on fisheries. *Fish and Fisheries*, *10*, 173-196.
- Alpert, E. (2012). Before Obama visit, Cambodians clear streets -- or take to them. *Los Angeles Times*. Retrieved from: <http://www.latimes.com/news/world/worldnow/la-fg-wn-obama-visit-cambodia-protest-human-rights-20121113,0,7377351.story>
- Amnesty International. (2012). *Annual Report 2012: State of the World's Human Rights: Cambodia*. Retrieved from: <http://www.amnesty.org/en/region/cambodia/report-2012>
- Arnstein, S. R. (1969). A Ladder Of Citizen Participation. *Journal of the American Institute of Planners*, *35*(4), 216-224. doi:10.1080/01944366908977225
- Babbie, E. (2004). *The practice of social research*. Wadsworth, United States of America: Thomson/Wadsworth.
- Badjeck, M.C., Allison, E. H., Halls, A. S., & Dulvy, N. K. (2010). Impacts of climate variability and change on fishery-based livelihoods. *Marine Policy*, *34*(3), 375-383.
- Baran, E., Schwartz, N., & Kura, Y. (2009). *Climate change and Fisheries: vulnerability and adaptation in Cambodia*. Penang, Malaysia: WorldFish Center.
- Bartlett, K. (2012). Report Details 20 Years of Impunity, Killings. *The Cambodian Daily*. Retrieved from: <http://www.cambodiadaily.com/news/report-details-20-years-of-impunity-killings-5599/>
- BBC World Service Trust. (2011). Understanding Public Perceptions of Climate Change in Cambodia. Retrieved from: <http://www.un.org.kh/undp/knowledge/publications/understanding-public-perceptions-of-climate-change-in-cambodia-eng>
- Beatley, T. (2009). *Planning for Coastal Resilience: Best Practices for Calamitous Times*. United States of America, Washington DC: Island Press.
- Berkes, F. (2004). Rethinking Community-Based Conservation - Repensando la Conservación Basada en Comunidades. *Conservation Biology*, *18*(3), 621-630. doi:10.1111/j.1523-1739.2004.00077.x
- Berkes, F. (2007). Understanding uncertainty and reducing vulnerability: lessons from resilience thinking. *Natural Hazards*, *41*(2), 283-295. doi:10.1007/s11069-006-9036-7

- Berkes, F., Colding, J., & Folke, C. (2003). Introduction. In F. Berkes, J. Colding, & C. Folke (2003) *Navigating Social-Ecological Systems: Building Resilience for Complexity and Change* (pp.1-32). New York, United States of America: Cambridge University Press.
- Blunt, P., & Turner, M. (2005). Decentralisation, democracy and development in a post-conflict society: commune councils in Cambodia. *Public Administration & Development*, *25*(1), 75-75.
- Bohensky, E., Stone-Jovicich, S., Larson, S., & Marshall, N. (2010). In D. Armitage & R. Plummer (Eds.), *Adaptive Capacity and Environmental Governance* (pp. 23-41), Ontario, Canada: Springer Series on Environmental Management.
- Bonanno, G. (2004). Loss, trauma, and human resilience - have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, *59*(1), 20-28. doi:10.1037/0003-066X.59.1.20
- Bramwell, B., & Lane, B. (2000). *Tourism collaboration and partnerships: politics, practice and sustainability*. Clevedon, United Kingdom: Channel View Publications.
- Brinkley, J. (2009). Cambodia's curse: struggling to shed the Khmer Rouge's legacy. *Foreign Affairs*, *88*(2), 111.
- Brinkley, J. (2011). *Cambodia's Curse: The Modern History of a Troubled Land*. Collingwood, Australia: Schwartz Publishing Pty, Limited.
- Britt, E., Carter, J., Conradson, D., Scott, A., Vargo, J., & Moss, H. (2012). *Resilience Framework and Guidelines for Practice: Report for Ministry of Social Development*: University of Canterbury.
- Brooks, N., & Adger, W. N., &. (2005). *Assessing and enhancing adaptive capacity*. In B. Lim and E. Spanger-Siegfried (Eds.), *Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies and Measures*. Cambridge University Press: UNDP-GEF.
- Brown, K. (2008). *Vulnerability, adaptive capacity, and resilience in marine and coastal social-ecological systems*. University of East Anglia. Retrieved from: http://www.globec.org/structure/fwg/focus4/symposium/Keynotes/K3_Brown_K.pdf
- Bryman, A. (2004). *Social Research Methods* (2nd ed.). Oxford, England: Oxford University Press.
- Bunce, M., Brown, K., & Rosendo, S. (2010). Policy misfits, climate change and cross-scale vulnerability in coastal Africa: how development projects undermine resilience. *Environmental Science & Policy*, *13*(6), 485-497. doi:10.1016/j.envsci.2010.06.003
- Carney, D., Drinkwater, M., Rusinow, T., Neefjes, K., Wanmali, S., & Singh, N. (1999) *Livelihoods Approaches Compared: A brief comparison of the livelihoods approaches of the UK Department for International Development (DFID), CARE, Oxfam and United Nations Development Programme (UNDP)*. Retrieved from: http://www.start.org/Program/advanced_institute3_web/p3_documents_folder/Carney_etal.pdf
- Carpenter, S., Walker, B., Anderies, J. M., & Abel, N. (2001). From Metaphor to Measurement: Resilience of What to What? *Ecosystems*, *4*(8), 765-781. doi:10.2307/3659056
- Carpenter, S. R., & Brock, W. A. (2008). Adaptive Capacity and Traps. *Ecology and Society*, *13*(2), 40.
- Castro, A. P., Taylor, D., & Brokensha, D. W. (2012). *Climate Change and Threatened Communities: Vulnerability, Capacity, and Action*. Warwickshire, United Kingdom: Practical Action Publishing.
- Chambers, R., & Conway, G. R. (1991). Sustainable Rural Livelihoods: Practical Concepts for the 21st Century. *IDS Discussion paper 296*.
- Coastal Resilience. (2012). *The Risk*. Retrieved from: <http://coastalresilience.org/risk>
- D'Agostino, A. L., & Sovacool, B. K. (2011). Sewing climate-resilient seeds: implementing climate change adaptation best practices in rural Cambodia. *Mitigation and Adaptation Strategies for Global Change*, *16*(6), 699-720. doi:10.1007/s11027-011-9289-7
- Decroly, J. (2006). Distribution of the World's Population. In G. Caselli., J. Vallin., & G. Wunsch (Eds.), *Demography: Analysis and Synthesis, Four Volume Set: A Treatise in Population* (pp. 101-121). Amsterdam, Netherlands: Elsevier.
- Dewalt, K. M., & Dewalt, B. R. (2002). *Participant Observation: A Guide for Fieldworkers*. Oxford, England: AltaMira Press.
- Department for International Development. (1999). Sustainable Livelihoods Guidance Sheets, sections 1-4. Retrieved from:

- http://www.livelihoodscentre.org/livelihoods/portal.portal? nfpb=true& pageLabel=pages_documentDetail_page§ion=Publications&nodeId=/Livelihoods/122035#wlp_pages_documentDetail_page
- Dow, K., & Downing, T. E. (2006). *The atlas of climate change: Mapping the World's Greatest Challenge*. Berkley, United States of America: University of California Press.
- Edwards, P. (2007). *Cambodge : The Cultivation of a Nation, 1860-1945*. Honolulu, United States of America: University of Hawaii Press.
- Edwards, P. N. (2010). *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming*. United States of America: Massachusetts Institute of Technology.
- Ensor, J., & Berger, R. (2009). *Understanding Climate Change Adaptation: Lessons from Community-based Approaches*. Warwickshire, United Kingdom: Practical Action Publishing.
- FAO. (2010). *Collaborative Change: A Communication Framework for Climate Change Adaption and Food Security*. Rome, Italy: Author.
- FAO. (2011). *National Fishery Sector Overview Cambodia*. Retrieved from: http://www.fao.org/fishery/countrysector/FI-CP_KH/en
- Fawthrop, T., & Jarvis, H. (2005). *Getting Away with Genocide: Elusive Justice and the Khmer Rouge Tribunal*. Sydney, NSW, Australia: University of New South Wales Press Ltd.
- Fennel, D. (2008). *Eco-tourism* (3rd ed.). Abingdon, United Kingdom: Routledge.
- Fife, W. (2005). *Doing Fieldwork: Ethnographic Methods for Research in Developing Countries and Beyond*. New York, United States of America: Palgrave Macmillan.
- Fisheries Administration. (2007). *The Goals*. Retrieved from: <http://www.fia.maff.gov.kh/english/index.php?page=home>
- Flick, U. (2011). *Introducing Research Methodology: A Beginner's Guide to Doing a Research Project*. London, England: SAGE Publications.
- Folke, C. (2006). Resilience: The emergence of a perspective for social–ecological systems analyses. *Global Environmental Change*, *16*(3), 253-267.
- Folke, C., Carpenter, S. R., Elmqvist, T., Gunderson, L., Holling, C. S., Walker, B., . . . Svedin, U. (2002). Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations. *Ambio*, *31*(5), 437-440.
- Folke, C., Hahn, T., Olsson, P., & Norberg, J. (2005). Adaptive governance of social-ecological systems. *Annual Review of Environment and Resources*, *30*, 441-473.
- Fussel, H. (2012). Vulnerability to Climate Change and Poverty. In O. Edenhofer, J. Wallacher, H. Campen, M. Reder, B. Knopt, & Muller, J (Eds.), *Climate Change, Justice and Sustainability: Linking Climate and Development Policy* (pp. 9-17). London, England: Springer Dordrecht Heidelberg.
- Gage, D. (2008). *The Partnership Charter: How to Start Out Right with Your New Business Partnership (Or Fix the One You're In)*. Cambridge, United Kingdom: Basic Books.
- Gallop, G. C. (2006). Linkages between Vulnerability, Resilience, and Adaptive Capacity. *Global Environmental Change*, *16*, 293-303.
- Green, G. P. (2010). Community assets: Building the capacity for development. In G. Green., & A. Goetting (Eds.), *Mobilizing Communities : Asset Building As a Community Development Strategy* (pp. 1-13). Philadelphia, PA, United States of America: Temple University Press.
- Grudgings, S., & Thul, P. (2012). Land conflict and impunity dim awakening of Cambodia. *The China Post*. Retrieved from: www.chinapost.com.tw/commentary/reuters/2012/11/14/360927/Land-conflict.htm
- Gupta, J., Termeer, C., Klostermann, J., Meijerink, S., van den Brink, M., Jong, P., . . . Bergsma, E. (2010). The Adaptive Capacity Wheel: a method to assess the inherent characteristics of institutions to enable the adaptive capacity of society. *Environmental Science & Policy*, *13*(6), 459-471.
- Hall, C. M. (2007). *Pro-poor tourism: who benefits?: Perspectives on tourism and poverty reduction*. Clevedon, England: Channel View Publications.
- Harris, I. (2008). *Cambodian Buddhism : History and Practice*. Honolulu, United States of America: University of Hawaii Press.

- Heymans, C. (2002). *Focusing Partnerships : A Sourcebook for Municipal Capacity Building in Public-Private Partnerships*. London, England: Earthscan.
- Holling, C. S. (1973). Resilience and Stability of Ecological Systems. *Annual Review of Ecology and Systematics*, *4*, 1-23. doi:10.2307/2096802
- Hout Bay Theravada Buddhist Centre. (2006). *Environment*. Retrieved from: <http://www.theravada.org.za/environment.asp>
- Human Rights Watch. (2012a). *Cambodia: Hun Sen Promoting, Rewarding Killers*. Retrieved from: <http://www.hrw.org/news/2012/11/13/cambodia-hun-sen-promoting-rewarding-killers>
- Human Rights Watch. (2012b). *Tell them I want to Kil them: Two Decades of Impunity in Hun Sen's Cambodia*. Retrieved from: <http://www.hrw.org/node/111248>
- Hunt, L. (2012). *Good Week for Hun Sen*. Retrieved from: <http://thediomat.com/asean-beat/2012/06/08/good-week-for-hun-sen/>
- Institute of Policy Studies. (1999). *Partnership – From Practice to Theory*. IPS Policy Paper, Number Two. Wellington, New Zealand: Victoria University of Wellington.
- International Association for Public Participation. (2007). *IAP2 Spectrum of Public Participation*. Retrieved from: http://www.iap2.org/associations/4748/files/IAP2%20Spectrum_vertical.pdf
- Jones, L., Ludi, E., & Levine, S. (2010). Towards a characterisation of adaptive capacity: a framework for analysing adaptive capacity at the local level. *Overseas Development Institute Background Notes*. Retrieved from: <http://www.odi.org.uk/resources/details.asp?id=5177&title=adaptive-capacity-framework-local-level-climate>
- Karl, T. R., & Trenberth, K. E. (2003). Modern global climate change. *Science*, *302*(5651), 1719-1723.
- Keck, M., & Sakdapolrak, P. (2013). What is social resilience? Lessons learned and ways forward. *Erdkunde*, *67*(1), 5-19.
- Khmer Rouge. (2012). In *In Encyclopædia Britannica*. Retrieved from: <http://www.britannica.com/EBchecked/topic/316738/Khmer-Rouge>
- Kornfield, J., & Fronsdal, G. (Eds.). (1993). *Teachings of the Buddha: Revised and Expanded Edition*. Boston, United States of America: Shambhala Publications, Inc.
- Kretzmann, J. P., & McKnight, J. L. (1993). Building communities from the inside out: a path toward finding and mobilizing a community's assets: Center for Urban Affairs and Policy Research, North-western University.
- Kristof, N. D., & WuDunn, S. (2010). *Half the Sky: How to Change the World*. London, England: Little, Brown Book Group.
- Kumar, C. (2005). Revisiting 'community' in community-based natural resource management. *Community Development Journal*, *40*(3), 275-285. doi:10.1093/cdj/bsi036
- Lacey, A., & Luff, D. (2001). *Qualitative data analysis*. Trent Focus.
- Lambin, E. F. (2007). *The middle path: avoiding environmental catastrophe*. Chicago, United States of America: University of Chicago Press.
- Ledgerwood, J. (2011). *Understanding Cambodia: Social Hierarchy, Patron-Client Relationships and Power*. Retrieved from: <http://www.seasite.niu.edu/khmer/ledgerwood/patrons.htm>
- Lemos, M., Agrawal, A., Johns, O., Eakin, H., Nelson, D., & Engle, N. (2011). *Building Adaptive Capacity to Climate Change in Less Developed Countries*. Retrieved from: http://library.wmo.int/pmb_ged/wcrp_2011-lemos.pdf
- LICADHO. (2011). *The Delusion of Progress: Cambodia's Legislative Assault on Freedom of Expression*. Retrieved from: <http://www.licadho-cambodia.org/reports/files/162LICADHOReport-LegislativeAssaultFreedomExpression2011-English.pdf>
- LICADHO. (2012). *The Great Cambodian Giveaway: Visualizing Land Concessions over Time*. Retrieved from: http://www.licadho-cambodia.org/concession_timelapse/
- Lincoln University Human Ethics Committee. (2009). *Lincoln University Human Ethics Committee Application Form Guidebook*. Lincoln, Canterbury: Lincoln University.
- Littleton, C. S. (Ed.). (1996). *The Sacred East*. London, England: Duncan Baird Publishers Ltd.
- Longstaff, P. H., Armstrong, N. J., Perrin, K., Parker, W. M., & Hidek, M. A. (2010). Building Resilient Communities: A Preliminary Framework for Assessment. *Homeland Security Affairs*, *6*(3).
- Lorenz, D. (2010). The diversity of resilience: contributions from a social science perspective. *Natural Hazards*, *67*(1), 7-24.

- Magnan, A. (2010). For a better understanding of adaptive capacity to climate change: a research framework. *IDDRI-Sciences Po*. Retrieved from: http://www.iddri.org/Publications/Collections/Analyses/AN_1002_Magnan_framework%20adaptive%20capacity.pdf
- Maguire, B., & Cartwright, S. (2008). Assessing a community's capacity to manage change: A resilience approach to social assessment. Retrieved from: http://files.uniteddiversity.com/Transition_Relocalisation_Resilience/community_capacity_to_manage_change-a_resilience_approach.pdf
- Mannikka, E. (1996). *Angkor Wat : Time, Space and Kingship*. Honolulu, United States of America: University of Hawaii Press. Retrieved from the Lincoln University database: <http://site.ebrary.com/lib/lincoln/docDetail.action?docID=5001738>
- Marshall, N. A., Marshall, P. A., Tamelander, D., Obura, D., Malleret-King, D., & Cinner, J. E. (2010). A Framework for Social Adaptation to Climate Change: Sustaining Tropical Coastal Communities and Industries. Retrieved from: <http://data.iucn.org/dbtw-wpd/edocs/2010-022.pdf>
- McClanahan, T. R., & Cinner, J. E. (2012). *Adapting to a Changing Environment: Confronting the Consequences of Climate Change*. New York, United States of America: Oxford University Press.
- McKenney, B., & Tola, P. (2002). *Natural Resources and Rural Livelihoods in Cambodia: A Baseline Assessment*. Phnom Penh, Cambodia.
- Mekong Tourism Coordinating Office. (2011, April 23). Ecotourism faces challenges in Koh Kong. Retrieved from: <http://mekongtourism.org/website/2011/04/ecotourism-koh-kong/>
- Mendis, S., Mills, S., & Yantz, J. (2003). Building Community Capacity to Adapt to Climate Change in Resource-Based Communities. Retrieved from: http://www.climateaccess.org/sites/default/files/Mendis_Building%20Community%20Capacity.pdf
- Meyer, A. (2000). *Contraction and Convergence: The Global Solution to Climate Change*. Bristol, United Kingdom: Green Books Ltd.
- Millennium Group. (2009). *Koh Rong Island*. Retrieved from: http://www.millenniumgroup.net/?page_id=96
- Miller, F., Osbahr, H., Boyd, E., Thomalla, F., Bharwani, S., Ziervogel, G., . . . Nelson, D. (2010). Resilience and Vulnerability: Complementary or Conflicting Concepts? *Ecology and Society*, *15*(3), 444.
- Miraftab, F. (2004). Public-Private Partnerships: The Trojan Horse of Neoliberal Development? *Journal of Planning Education and Research*, *24*, 89. Doi: 10.1177/0739456X04267173
- Molnar, J. J. (2010). Climate Change and Societal Response: Livelihoods, Communities, and the Environment. *Rural Sociology*, *75*(1), 1.
- Montgomery, D. R. (2007). Islands in Time. In D.R. Montgomery (2007), *Dirt: The Erosion of Civilizations*. Berkeley, CA, United States of America: University of California Press.
- Moore, N., & Whelan, Y. (Eds.). (2007). *Heritage, Memory and the Politics of Identity : New Perspectives on the Cultural Landscape*. Abingdon, Oxon, Great Britain: Ashgate Publishing Group. Retrieved from the Lincoln University database: <http://site.ebrary.com/lib/lincoln/docDetail.action?docID=10211456>
- Moran, E. F. (2009). *People and Nature: An Introduction to Human Ecological Relations*. Carlton, Australia: Blackwell Publishing.
- Morgan, G., & McCrystal, J. (2009). *Poles Apart: Beyond the Shouting, Who's Right about Climate Change*. Auckland, New Zealand: Random House New Zealand.
- Nicholls, R.J., Wong, P.P., Burkett, V.R., Codignotto, J.O., Hay, J.E., McLean, R.F., Ragoonaden, S., & Woodroffe, C.D. (2007). In *Coastal systems and low-lying areas. Climate Change 2007: Impacts, Adaptation, and Vulnerability*. In M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. van der Linden & C. E. Hanson (Eds.), *Climate Change 2007: Impacts, Adaptation and Vulnerability*. (pp. 315-356). Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, United Kingdom: Cambridge University Press.

- Nicholls, R. J., Wong, P. P., Burkett, V., Woodroffe, C. D., & Hay, J. (2008). Climate change and coastal vulnerability assessment: scenarios for integrated assessment. *Sustainability Science*, *3*(1), 89-102. doi:10.1007/s11625-008-0050-4
- Ninh, K., & Henke, R. (2005). *Commune Councils in Cambodia: A National Survey on their Functions and Performance, with Special Focus on Conflict Resolution*: The Asia Foundation.
- Nong, K., & Marschke, M. (2006). Building networks of support for community-based coastal resource management in Cambodia. In S. Tyler (2006), *Communities, Livelihoods and Natural Resources: Action Research and Policy Change in Asia*. Warwickshire, United Kingdom: Intermediate Technology Publications Ltd.
- O'Brien, G. (2008). UK emergency preparedness: A holistic response? *Disaster Prevention and Management*, *17*(2), 232-243. doi: 10.1108/09653560810872532
- Ojha, H., Hall, A., & Sulaiman, R. (2013). *Adaptive Collaborative Approaches in Natural Resource Governance: Rethinking Participation, Learning and Innovation*. Abingdon, United Kingdom: Routledge.
- Ottebjer, L. (2005). *Bourdieu, Coleman and Putnam on Social Capital: Applications in literature and implications for public health policy and practice*. Report series of Master theses in Public Health, Board of Education in Public Health Sciences at Karolinska Institutet.
- Pachauri, R. K., & Reisinger, A. (Eds.). (2007). *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva, Switzerland: IPCC.
- Pact. (2004). *Commune Councils Overview. Partnership Handbook*. (1st ed.). Phnom Penh, Cambodia: Pact Cambodia.
- Panh, R. (1999). Cambodia: a wound that will not heal. *The Unesco Courier*, *52*(12), 30-32.
- Parry, M. L., Osvaldo, C., Palutikof, J. P., van der Linden, P. J., & Hanson, C. E. (Eds.). (2007). *Climate change 2007: Impacts, adaptation and vulnerability: Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007*. Cambridge, United Kingdom: Cambridge University Press.
- Pasteur, K. (2011). *From Vulnerability to Resilience: A Framework for Analysis and Action to Build Community Resilience*. Warwickshire, United Kingdom: Practical Action Publishing Ltd.
- Pearson, J. (2011). *Creative Capacity Development: Learning to Adapt in Development Practice*. Sterling, VA, United States of America: Stylus Publishing.
- Pelling, M., & High, C. (2005). Understanding adaptation: What can social capital offer assessments of adaptive capacity? *Global Environmental Change*, *15*(4), 308-319.
- Phnom Penh Geoinformatics. (2012). *Ortho-photo zoning map Koh Rong*. Retrieved from: https://r1ifqw.dm1.livefilestore.com/y2pwUj6kwQr46aiDWg90YhYvDHNr-G_3-wrvmVSe8H-l8UXt5WJ8guzNlwmzlcnsIcDBXL-xs2qIWo_NQtI9AnCI84WP065As2iIJUJqQZsAvrbXcHVc0Rzc8DI0QpXWYs/2012-06-28T21-04-41.jpg
- Phnom Penh Post. (2012). *Protected forest reclassified as private land*. Retrieved from: <http://www.eco-business.com/news/protected-forest-reclassified-as-private-land/>
- Pickard, A. J. (2007). *Research Methods in Information*. London, England: Facet Publishing.
- Pilkey, O. H., Pilkey, K. C., & Fraser, M. E. (2011). *Global Climate Change: A Primer*. London, England: Duke University Press.
- Pilorge, N. (2012). Conflict over land in Cambodia is taking a dangerous turn. *The Guardian*. Retrieved from: <http://www.guardian.co.uk/global-development/poverty-matters/2012/sep/25/conflict-over-land-cambodia>
- Poole, P. (2009). *Politics and Society in Southeast Asia*. Jefferson, North Carolina: McFarland & Company Inc Publishers.
- Population Reference Bureau. (2011). *2011 PRB World Population Datasheet*. Retrieved from: www.prb.org/Publications/Datasheets/2011/world-population-data-sheet.aspx
- Prevention Web. (2012). *Cambodia – Disaster Statistics*. Retrieved from: <http://www.preventionweb.net/english/countries/statistics/?cid=29>
- Radio Free Asia. (2012a). *Activist Monk Defends Struggle*. Retrieved from: <http://www.rfa.org/english/news/cambodia/footsteps-11082012174914.html>

- Radio Free Asia. (2012b). No Progress on Impunity. Retrieved from: <http://www.rfa.org/english/news/cambodia/hrw-11122012191040.html>
- Reed, M., Raymond, C., Stringer, L., Evely, A., Cundill, G., Fazey, I., . . . Prell, C. (2010). What is social learning? *Ecology and Society*, *15*(4), 542-r1.
- Reliefweb. (2011). *Cambodia Floods - September 2011*. Retrieved from: <http://reliefweb.int/disaster/fl-2011-000148-khm>
- Robinson, L. W., & Berkes, F. (2011). Multi-level participation for building adaptive capacity: Formal agency-community interactions in northern Kenya. *Global Environmental Change*, *21*(4), 1185-1194.
- Romieu, E., Welle, T., Schneiderbauer, S., Pelling, M., & Vinchon, C. (2010). Vulnerability assessment within climate change and natural hazard contexts: revealing gaps and synergies through coastal applications. *Sustainability Science*, *5*(2), 159-170. doi:10.1007/s11625-010-0112-2
- Royal Government of Cambodia Strategic Framework for Decentralization and De-concentration Reforms 2005. Phnom Penh, Cambodia: Author.
- Royal Government of Cambodia. (2006). National Adaptation Programme of Action to Climate Change (NAPA). Retrieved from: <http://unfccc.int/resource/docs/napa/khm01.pdf>
- Schoon, M. (2005). A short historical overview of the concepts of resilience, vulnerability and adaptation (Working Paper W05-4). Workshop in Political Theory and Policy Analysis, Indiana University.
- Scoones, I. (1998). *Sustainable rural livelihoods: a framework for analysis*. IDS Working Paper, Volume 72. Brighton, United Kingdom: Institute of Development Studies Brighton.
- SEED. (2008). *Tips for developing successful partnerships*. Retrieved from: <http://www.seedinit.org/>
- Seiff, A. (2012). UN report slams Cambodia's land abuses. *Phnom Penh Post*. Retrieved from: <http://www.phnompenhpost.com/plans/form>
- Seiha, N., & Frommer, J. (2006). *Assessment of Corruption in Cambodia's Private Sector*. Retrieved from: www.pactcambodia.org/Publications/Anti_Corruption/CAPS_Report_English.pdf
- Sen, H. (2008). Address by Prime Minister of the Kingdom of Cambodia on "Rectangular Strategy" for Growth, Employment, Equity and Efficiency Phase II. First Cabinet meeting of the Fourth Legislature of National Assembly at the Office of the Council of Ministers. Phnom Penh, 26 September 2008.
- Shapiro, S. (2002). *Pol Pot's Shadow: The Dancer*. Retrieved from: http://www.pbs.org/frontlineworld/stories/cambodia/shapiro_interview.html
- Shearman, D. J. C., & Smith, J. W. (2007). *The Climate Change Challenge and the Failure of Democracy*. Westport, CT, United States of America: Praeger.
- Singh, I. N. (2011). *Environment and Buddhism*. Delhi, India: Offset Press.
- Smit, B., Burton, I., Klein, R., & Street, R. (1999). The Science of Adaptation: A Framework for Assessment. *Mitigation and Adaptation Strategies for Global Change*, *4*(3-4), 199-213. doi:10.1023/a:1009652531101
- Smit, B., & Pilifosova, O. (2003). Adaptation to climate change in the context of sustainable development and equity. *Sustainable Development*, *8*(9), 9.
- Smit, B., Pilifosova, O., McCarthy, J. J., Canziani, O., Leary, N. A., Dokken, D. J., & White, K. S. (2001). Adaptation to climate change in the context of sustainable development and equity. In *Climate Change 2001: Impacts, Adaptation and Vulnerability. IPCC Working Group II* (pp. 877-912). Cambridge, England: Cambridge University Press.
- Smit, B. and Wandel, J. (2006). Adaptation, adaptive capacity and vulnerability. *Global Environmental Change*, *16*, 282-292.
- Smith, K. (2013). *Environmental Hazards: Assessing Risk and Reducing Disaster* (6th ed.). London, England: Taylor & Francis.
- Smith, T. F., Carter, R., Daffara, P., & Keys, N. (2010). *The nature and utility of adaptive capacity research: Report for the National Climate Change Adaptation Research*. Gold Coast, Australia: Facility National Climate Change Adaptation Research Facility (NCCARF).
- Sochua, M., & Wikstrom, C. (2012). Land Grabs in Cambodia. *New York Times*. Retrieved from: http://www.nytimes.com/2012/07/19/opinion/land-grabs-in-cambodia.html?_r=1&

- Somasundaram, D. J., & Renol, K. (1998). The psychosocial effects of landmines in Cambodia. *Medicine, Conflict and Survival*, *14*(3), 219-236.
- Song Saa Private Island Resort. (2012). *Song Saa Conservation and Community Program: Introduction and description*. Retrieved from: <http://songsaa.com/wp-content/uploads/CC-Program-Final-Version.pdf>
- Sophat, S., & Reasey, H. S. (2010). *Socio-economic Monitoring of Coral Reef in Koh Rong Island, Preah Sihanouk Province, Cambodia*. Phnom Penh, Cambodia: Fisheries Action Coalition Team.
- Sovann, S. (2010). Land Reform in Cambodia. Retrieved from: http://www.fig.net/pub/fig2010/papers/ts07j%5Cts07j_sovann_4633.pdf
- St John, R. B. (2005). Democracy in Cambodia - One Decade, US\$5 Billion Later: What Went Wrong? *Contemporary Southeast Asia*, *27*(3), 406-428.
- Stansell, C. (2005). Torment and Justice in Cambodia. *Dissent*, *52*(4), 18-22.
- Tarbox, E. (2002). All is Dukkha. In M. L. Beard (Ed.), *Listening for Our Song* (pp. 4-6). Boston, United States of America: Skinner House Books.
- The Royal Group. (2010). *The Plan*. Retrieved from: http://www.kohrong.com.kh/the_plan.php
- Thuok, N. (2007). Opening Speech of H.E. Mr Nao Thuok Director General of the Fisheries Administration, Ministry of Agriculture, Forestry and Fisheries, kingdom of Cambodia at the Symposium on "Asserting Rights, Defining Responsibilities: Perspectives from Small-Scale Fishing Communities on Coastal and Fisheries Management in Asia". May 2007, Siem Reap Province.
- Tischenko, E. (2011). Country Director Elena Tischenko's remarks on mainstreaming climate change adaptation in local planning Symposium conducted at the meeting of the Workshop on mainstreaming community based adaptation into sub-national level planning 22 December 2011.
- Tompkins, E. L., & Adger, W. N. (2004). Does adaptive management of natural resources enhance resilience to climate change? *Ecology and Society*, *9*(2): 10.
- Touch, C. (2004). *Assessing the Existing Information, Legislation, Management Practices and Needs for Improvement at the Koh Rong Site, Cambodia*. Retrieved from: <http://icran.org/pdf/Assessing%20Legislation%20and%20Management%20Koh%20Rong.pdf>
- Transparency International. (2012). *2011 Corruption Perceptions Index (2011 CPI)*. Retrieved from: www.ticambodia.org/2011%20corruption%20perceptions%20index.php
- Twigg, J. (2009). *Characteristics of a disaster-resilient community: a guidance note*. Retrieved from: <http://practicalaction.org/reducing-vulnerability/docs/ia1/community-characteristics-en-lowres.pdf>
- Tyler, L. (2012). *Cambodia's Sweethearts*. Retrieved from: <http://www.brocongroup.com/about/articles/AGTMAY2012.pdf>
- UNESCO. (2012). *Angkor*. Retrieved from: <http://whc.unesco.org/en/list/668>
- United Nations Development Group. (2008). Creative Industries Support Programme: Programme Document. Retrieved from: www.mdtf.undp.org/document/download/1345
- United Nations Development Programme. (2006). *Insights for Action: A SWOT Analysis of the Cambodian Economy*. Retrieved from: http://www.un.org.kh/undp/media/files/DP01_SWOTanalysis_Eng.pdf
- United Nations Development Programme. (2008). *Human Development Report 2007/2008: Fighting Climate Change: Human Solidarity in a Divided World*. Retrieved from: <http://hdr.undp.org/en/reports/global/hdr2007-2008/>
- United Nations Development Programme. (2011). *Human Development Report 2011: Building Resilience: The Future of Rural Livelihoods in the Face of Climate Change*. Retrieved from the Human Development Report website: http://hdr.undp.org/en/reports/national/asiathepacific/cambodia/Cambodia_2011_NHDR.pdf
- United Nations Development Programme. (2013). *Indices and data: Human Development Index – 2012 rankings*. Retrieved from: <http://hdr.undp.org/en/statistics/>
- USAID. (2009). *Adapting to Coastal Climate Change: A Guidebook for Development Planners*. Retrieved from: <http://www.crc.uri.edu/download/CoastalAdaptationGuide.pdf>

- Vallance, S. (2012). Urban resilience: Bouncing back, coping, thriving. *Symposium conducted at the meeting of the Earth: Fire and Rain - Australian & New Zealand Disaster and Emergency Management Conference*. Brisbane, Australia.
- Vincent, K. (2007). Uncertainty in adaptive capacity and the importance of scale. *Global Environmental Change*, *17*(1), 12-24.
- Voss, M. (2008). The vulnerable can't speak. An integrative vulnerability approach to disaster and climate change research. *Behemoth*, *1*(3), 39-56.
- Walker, B., Carpenter, S., Anderies, J., Abel, N., Cumming, G., Janssen, M., . . . Pritchard, R. (2002). Resilience Management in Social-ecological Systems: a Working Hypothesis for a Participatory Approach. *Conservation Ecology*, *6*(1), 14.
- Walker, B., & Salt, D. (2006). *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*. Washington DC, United States of America: Island Press.
- Walker, B. H., Abel, N., Anderies, J. M., & Ryan, P. (2009). Resilience, adaptability, and transformability in the Goulburn-Broken Catchment, Australia. *Ecology and Society*, *14*(1), 12.
- Wall, E., & Marzall, K. (2006). Adaptive Capacity for Climate Change in Canadian Rural Communities. *Local Environment*, *11*(4), 373-397.
- WeAdapt. (2011). *What is Social Capital?* Retrieved from: <http://weadapt.org/knowledge-base/social-learning/what-is-social-learning>
- Welsh, E. (2002). Dealing with Data: Using NVivo in the Qualitative Data Analysis Process. *Forum : Qualitative Social Research*, *3*(2).
- White, A. (2006). Decentralization, Governance and Capacity building in Cambodia. *Local Economy*, *21*(4), 423-428.
- Wisner, B. (2004). *At Risk: Natural Hazards, People's Vulnerability, and Disasters*. London, England: Taylor & Francis Group.
- Wong, P., Lee, B., & Leung, M. (2006). Hot Spots of Population Growth and Urbanisation in the Asia-Pacific Coastal Region. In N. Harvey (2006), *Coastal Systems and Continental Margins: Global Change and integrated Coastal Management – The Asia-Pacific Region* (163-195). Dordrecht, The Netherlands: Springer.
- World Bank. (2012). *Data: Cambodia*. Retrieved from: <http://data.worldbank.org/country/cambodia>
- WorldFish Center. (2009). *Climate change and fisheries: Vulnerability and adaptation in Cambodia*. Retrieved from: http://www.worldfishcenter.org/resource_centre/WF_2492.pdf
- Yohe, G., & Tol, R. S. J. (2002). Indicators for social and economic coping capacity—moving toward a working definition of adaptive capacity. *Global Environmental Change*, *12*(1), 25-40.
- Yohe, G. W., Lasco, R. D., Ahmad, Q. K., Arnell, N. W., Cohen, S. J., Hope, C., . . . Perez, R. T. (Eds.). (2007). *Perspectives on climate change and sustainability. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, England: Cambridge University Press.
- Zhou, D., & Harris, P. (2007). *A record of Cambodia: The land and its people*. Chiang Mai, Thailand: Silkworm Books.