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Whitewater Ecotourism Development In Bhutan: Opportunities And Challenges for Local Communities

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WHITEWATER ECOTOURISM DEVELOPMENT IN BHUTAN:

OPPORTUNITIES AND CHALLENGES FOR LOCAL COMMUNITIES

By

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ABSTRACT

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Chairperson: Dr. Jennifer Thomsen

Whitewater raft and kayak ecotourism can provide environmental, social-cultural, and economic benefits and opportunities to local communities, but can also result in respective challenges. Globally, adventure ecotourism is seen as a potent win-win strategy for conservation and local community development; however, there is a significant proportion of adventure and whitewater tourism that do not meet ecotourism tenets, and there is a call for incorporating greater investment in local community involvement. Whitewater ecotourism is particularly significant because of the unique opportunities and challenges associated with rivers, the resource upon which the industry directly depends. Clean, free-flowing rivers provide a range of crucial ecosystem services, but are simultaneously experiencing rampant threats to existence, such as widespread large-scale hydropower development and increases in waste. Worldwide there is a call for growing local, national, and international efforts to address these threats. In Bhutan, a Himalayan Buddhist kingdom with a small but growing whitewater ecotourism industry, proposals for large-scale hydropower development and growing amounts of trash are changing Bhutan's rivers and communities, yet there has been little research conducted on impacts of whitewater ecotourism related to communities and rivers in Bhutan.Through a case study in Panbang, Bhutan with the community-based raft company River Guides of Panbang, this research applies a qualitative methods approach to explore whitewater ecotourism related opportunities and challenges for local communities. The findings offer unique aspects of whitewater ecotourism in Bhutan; perceived opportunities, constraints, and constraint negotiations to increase women's participation in whitewater ecotourism as river guides; and opportunities for the whitewater ecotourism industry in Panbang to engage in addressing Bhutan's river threats of hydropower development and waste management. These outcomes provide a foundational understanding for specific benefits and constraints associated with whitewater ecotourism in Panbang, Bhutan that can inform sustainable tourism planning for whitewater ecotourism and river conservation initiatives at the local and national scale.

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CHAPTER 1. Introduction

Tourism is one of the fastest growing sectors of the world economy (UNWTO, 2016). Within the tourism sector, adventure tourism is amongst the most rapidly expanding categories (McKay, 2013; UNWTO, 2014). Adventure tourism has a range of definitions. Some academic literature defines adventure tourism as, "a broad spectrum of outdoor touristic activities, often commercialized and involving an interaction with the natural environment away from the participants' home range and containing elements of risk." (Hall, 1992, p.143). Other literature and the United Nations World Tourism Organization (UNWTO) use the Adventure Travel Trade Association's (ATTA) definition of adventure tourism, which is tourism that includes at least two of the three elements: (1) physical activity; (2) interaction with the natural environment; and (3) a cultural exchange (ATTA, 2018; UNWTO, 2014). Examples of adventure tourism include whitewater rafting, whitewater kayaking, skiing, snowboarding, rock climbing, scuba diving, sky diving, and camping. In 2010, the first global size market study found that the value of adventure tourism was 89 billion USD (UNWTO, 2014). The study was repeated in 2013 and the value had increased to 263 billion USD, a 195% increase (UNWTO, 2014). Further, although a relatively new sector, adventure tourism is valued to have contributed one trillion USD in global production value, a figure that accounts for all of the people and activities involved in the production and distribution of related goods and services (ATTA, 2011; Buckley, 2015; McKay, 2013; William & Soutar, 2009).

Whitewater tourism is a popular form of adventure tourism (ATTA, 2011; Buckley, 2010). Whitewater tourism is a form of river recreation tourism, and includes whitewater rafting and kayaking (American Whitewater, 2018; Buckley, 2010). A definition for whitewater ecotourism is lacking in the literature. Thus, this research provides a definition for whitewater

ecotourism. Whitewater ecotourism is any commercial or private river recreation involving watercraft (including but not limited to: whitewater rafts, kayaks, canoes, stand-up paddle boards, river boards, and tubes) on sections of river with Class II to Class V rapids, and upholds tenets of ecotourism, most specifically engaging in industry planning, development, and action that maximizes economic, environmental, and social-cultural benefits and minimizes respective challenges for local communities and the natural systems. Whitewater ecotourism is similar to whitewater recreation and whitewater tourism; however, it is unique in that it specifically incorporates goals of ecotourism, which is defined by tenets of maximizing environmental, social-cultural, and economic benefits and minimizing respective challenges to local communities (Anup, 2015; Boley & Green, 2015; Koens et al., 2009; Regmi & Walter, 2016; Scheyvens, 2000; UNWTO, 2016; UNWTO, 2014; Ziffer, 1989). Whitewater recreation and whitewater tourism do not specifically take ecotourism tenets into account, and local communities may be marginalized or disconnected from the development and benefits of this sort of tourism (Farooquee et al, 2008; Regmi & Walter, 2016; Smith & Heshusius, 1985; Zurich, 1992).

Adventure and whitewater tourism depend upon the integrity of the natural environment and often operate in rural areas and communities; this connection can yield an association with ecotourism (ATTA, 2018; ATTA, 2011; Buckley, 2010; McKay, 2013). The goals of ecotourism are to minimize impact, build environmental awareness, provide direct financial benefits for conservation, provide financial benefit and empowerment for local people, respect local culture, and support human rights and democratic movements through nature-based tourism (Anup, 2015; Boley & Green, 2015; Koens et al., 2009; Regmi & Walter, 2016; Scheyvens, 2000; UNWTO, 2016; UNWTO, 2014; Ziffer, 1989). Ecotourism goals and benefits particularly

include: (1) opportunities for local women's participation in ecotourism jobs, planning, and management, and, (2) engagement in environmental conscious-raising, education, conservation, and advocacy for related natural-resources, especially those under threat (Anup, 2015; Boley & Green, 2015; Koens et al., 2009; Regmi & Walter, 2016; Scheyvens, 2000; UNWTO, 2016; UNWTO, 2014; Ziffer, 1989).

The Economic and Financial Committee of the United Nations General Assembly (UNGA) adopted the resolution on the "Promotion of ecotourism for poverty eradication and environment protection," specifically denoting ecotourism as a global priority for sustainable development and economic goals (UNWTO, 2016, p. 5). While recognized and acted upon globally as a potent tool for sustainable development and conservation, ecotourism in practice experiences a diverse range of social-cultural, environmental, and economic benefits and challenges. Similarly, while adventure and whitewater tourism can benefit and create positive impact in sustainable tourism by striving for these ecotourism goals, currently, there is a significant proportion of adventure and whitewater tourism that does not meet these tenets (Farooquee et al, 2008; Regmi & Walter, 2016). Existing literature suggests that incorporating greater investment in local community involvement, community-driven ecotourism, and women's involvement and participation in higher status ecotourism jobs are means of achieving global ecotourism goals to maximize the economic, social-cultural, and environmental benefits and minimize the respective challenges of ecotourism, adventure tourism, and whitewater tourism (Bosak, 2008; Nepal, 2004; Regmi & Walter, 2016; Revenga & Shetty, 2012; World Bank, 2011).

Taking a deeper dive into the social-cultural focus, particular attention to involvement of women in ecotourism can increase community benefits. Typically, men monopolize benefits and

planning of ecotourism within local communities (Scheyvens, 2000; Akama, 1996; Rudkin & Hall, 1996; Mansperger, 1995; Sindiga, 1999; Stonichetal., 1995). Particular attention to local women's participation in the higher status jobs of adventure and whitewater ecotourism can realize community benefits of increased household spending on children's food and education when women control more household income, increased family stability and self-sufficiency in the cases of widowing and divorce, and increased benefits of mental and physical health from recreation (Evans & Anderson, 2018; Archer & McDonald, 1990; Culp, 1998; Pipher, 1994; Revenga & Shetty, 2012; World Bank, 2011). Further, in many developing nations, women are directly involved with natural resources, food production, and gathering of firewood and water, and thus they are valuable resources of local ecosystem knowledge and important to involve in ecotourism development processes (James, 1995; Scheyvens, 2000). However, it is important to note that, depending upon traditional gender roles, participation of women as whitewater ecotourism and adventure guides would be a cultural change.

Taking a deeper dive into the environmental focus, whitewater ecotourism is particularly significant within adventure tourism, ecotourism, and conventional tourism because of the unique opportunities and challenges associated with rivers. Rivers provide a range of ecosystem services, some of which are crucial to human life. The Millennium Ecosystem Assessment defines ecosystem services as "the outputs of ecosystems from which people and society derive benefits" (Millennium Ecosystem Assessment, 2005; Potts et al, 2014). In the case of rivers, these include providing drinking water, irrigation water, food, habitat, and jobs such as tourism and fishing (Buckley, 2009; Kabir et al., 2013).

While whitewater ecotourism can provide unique benefits due to its association with rivers, it also faces unique challenges as a result of this connection. The most severe challenges

are the loss of runnable rivers due to the drastic increase in the number of hydropower projects, irrigation projects, and industrial waste water throughout the globe (Buckley, 2009; Chaiyasain et al, 2014; International Rivers, 2018; Magar, 2018; Yanqin, 2016). Hydropower development is the largest challenge whitewater ecotourism faces. It has resulted in the shutdown of various whitewater ecotourism industries worldwide due to repercussive flooding and de-watering of significant stretches of rivers (Buckley, 2009; Chaiyasain et al, 2014; International Rivers, 2018; Magar, 2018; Yanqin, 2016). Whitewater ecotourism is the only form of adventure tourism that faces such immediate and increasing threats as an industry (Buckley, 2009; Chaiyasain et al, 2014; International Rivers, 2018; Magar, 2018; Yanqin, 2016).

In the Himalayan kingdom of Bhutan, tourism is the country's second largest contributor to national revenue and operates on a high value, low volume/ low impact model in which visiting tourists pay a minimum individual daily visa fee of $250/ day, of which $65 is allocated to Bhutan's health and education systems and the remainder is used for the tour operator to provide 3-Star lodging, food, and transportation. In Bhutan, whitewater ecotourism is a relatively small industry, but an industry identified by the national government as having potential for growth as a means to achieve the country's Gross National Happiness (GNH) goals, and in need of planning and development (Tourism Council of Bhutan meeting, 2019). Currently, there are six whitewater tourism companies in Bhutan, five in Punakha (privately owned) and one in Panbang (community-based ecotourism development initiative). Potential opportunities for Bhutan's whitewater ecotourism industry include expansion of planning, development, and implementation of ecotourism tenets within the industry, particularly related to participation of women as river guides, and engagement in addressing hydropower development nationally and trash management locally. Potential challenges for Bhutan's whitewater ecotourism industry

include hydropower development, increased waste management issues, a small number of individuals benefiting, and lack of industry knowledge, gear, and marketing. (Allison, 2015; Dendup, 2008; Gyelmo, 2018; International Rivers, 2015; Rai, 2007; RGP, 2018; Walker, 2015; Wangchuk, 2017; Allison, 2015; Dendup, 2008; Gyelmo, 2018; Rai 2007).

Need for this Case Study

Whitewater ecotourism development has the potential to be a means of conservation and sustainable development; however, there is a large theoretical gap on how to maximize benefits and minimize challenges of whitewater ecotourism development to local communities. There are few case studies focused on this substantive issue in South Asia, and none focused in the country of Bhutan. Further, literature calls for community-based tourism as a means of addressing achievement of ecotourism goals; however, there is a need to further understand the best ways to plan and manage community-based tourism operations to maximize environmental, social-cultural, and economic benefits and minimize respective challenges. In consideration of maximizing benefits of development, women's involvement is also crucial due to women's knowledge base and typical investment choices. There is great potential for increasing economic, environmental, and social-cultural benefits of whitewater ecotourism by asserting the inclusion of women in whitewater ecotourism development (James, 1995; Revenga & Shetty, 2012; Scheyvens, 2000; World Bank, 2011). Further research is needed about perspectives of hydropower and practices of waste management in Bhutan for consideration of how whitewater ecotourism in the country can contribute to related education, conscious-raising, and action to protect clean, free-flowing river resources.

The implications of this research on how to maximize benefits and minimize challenges of whitewater ecotourism development to local communities further include contributions to the local Panbang community, contributions to the broader global whitewater tourism industry, and contributions to the larger conceptual understanding of whitewater ecotourism as a means of sustainable development and conservation.

As whitewater ecotourism has the potential to provide the benefits of ecotourism and also faces pressing global challenges of resource loss and degradation, the importance of learning more about how whitewater ecotourism can meet the UNGA's global promotion of ecotourism is crucial. Despite this importance and timeliness, the body of literature on whitewater ecotourism and its impacts on communities and rivers is severely lacking. This gap is crucial to address for two reasons: (1) the potential of whitewater ecotourism development to address local and global development and conservation goals and (2) the declining state of free-flowing, un-polluted rivers worldwide and the loss of their associated and valuable ecosystem services. To address these challenges, this study's objective is to understand how the development of whitewater ecotourism can maximize benefits and minimize challenges to local communities, particularly in the scope of women's participation and engagement in addressing the river threats of hydropower development and waste management. The study investigated the following research questions through a case study in Panbang, Bhutan:

1) What are the community and industry benefits and challenges of whitewater ecotourism development in Panbang, Bhutan?

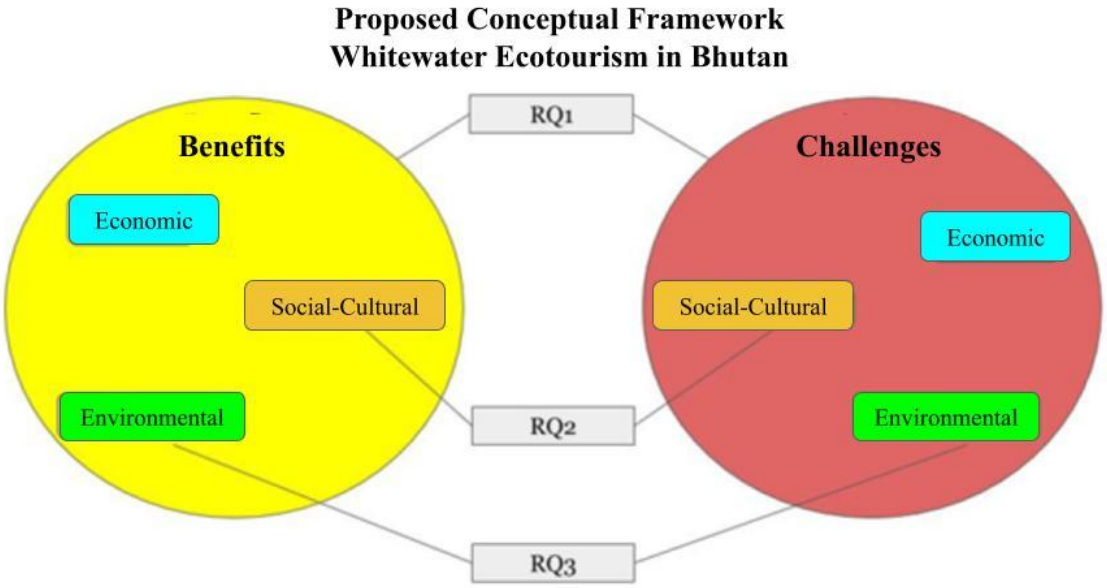
2) What are the opportunities, constraints, and constraint negotiations of increased women's participation in whitewater ecotourism as river guides?

3) How can whitewater ecotourism support engagement in addressing the river threats of hydropower development and waste management?

Proposed Conceptual Framework

Little is known about how development of whitewater ecotourism can maximize benefits and minimize challenges to local communities in Bhutan (Bhutan Tourism Council Meeting, 2018). Previous literature has identified a framework of establishing benefits and challenges of ecotourism within the categories of economic, environmental, and social-cultural. Research question one (RQ1) will address a brief review of this entire framework as applied to whitewater ecotourism in Panbang, Bhutan, while research question 2 (RQ2) and research question 3 (RQ3) will dive deeper into specificity in the social-cultural category by investigating opportunities, constraints, and constraint negotiations of women participating in whitewater ecotourism as river guides; and in the environmental category by investigating how whitewater ecotourism in Panbang, Bhutan can support engagement in addressing hydropower development and waste management. See Figure 1: Conceptual Framework on next page.

Figure 1: Conceptual Framework



RQ1: What are the direct and indirect benefits and costs of whitewater ecotourism development to the local community?

RQ2: What are the opportunities, constraints, and constraint negotiations of increased women's participation in whitewater ecotourism as river guides?

RQ3: How can whitewater ecotourism support engagement in addressing hydropower development and waste management?

Case Study: River Guides of Panbang in Panbang, Bhutan

Bhutan

Bhutan is a country located between India and China in the Eastern Himalaya, and is comprised almost completely of mountains. The national language of Bhutan is Dzongkha; however, twenty-two other primary languages are spoken regionally, and English is taught in most schools. Bhutan is a constitutional monarchy with its first democratic elections were held in 2007, and democratic elections for all levels of the National Assembly and government have been held since 2011. The country is known for its development strategy of Gross National Happiness (GNH), which uses indicators of psychological wellbeing; health; education; time use; cultural diversity and resilience; good governance; community vitality; ecological diversity and resilience; and living standards. Contextually, the constitutional monarchy of Bhutan has relatively low corruption (rated the 25th least corrupt nation out of 175 countries in 2018 by *Trading Economics*) and good governance; however, it is notable that the prime minister suggested that Bhutan's development strategy of Gross National Happiness is overused and masks issues of poverty and corruption that still exist in this "Shangri-la" (Transparency International, 2019).

Tourism in Bhutan

International tourism in Bhutan began in 1974. The Bhutanese government introduced the tourism industry with the primary objective of revenue generation, particularly through foreign exchange (2010, Dorji). Since its start, Bhutan's tourism industry has been regulated by Bhutan's "high value, low volume" (also known as ("high value, low impact") tourism model, which controls the type and quantity of tourism. The current daily tourism visa fee is $250 per

day (March-May and September-November) and $200 per day (December-February and June-August) and includes a minimum of 3 star accommodation (4 and 5 star may require an additional premium), all meals, a licensed Bhutanese tour guide for the extent of your stay, all domestic transport, camping equipment and gear haul for trekking tours, all internal taxes and charges, and sustainable tourism royalty of $65. The sustainable tourism royalty contributes towards Bhutan's free education, free healthcare, poverty alleviation, and infrastructure development (Bhutan Tourism Council, 2019; Dorji, 2010). Additional costs are incurred by tourists for upgrades in services. Tourism is the country's second largest means of revenue generation, second to hydropower. Citizens of India, Bangladesh, and the Maldives and diplomats and official service passport holders of Switzerland and Thailand do not require visas to visit Bhutan.

Tourism has grown in Bhutan from 287 foreign visitors in 1974 to over 2,850 in 1992, over 7,000 in 1999, and 274,097 in 2018 (an of increase of 7.61% over 2017) (Dorji, 2010; Tourism Council of Bhutan, 2019). According to Trading Economics, tourism revenues in Bhutan averaged 5.18 million USD monthly from 2008 to 2019, with an all-time high of 17.30 million USD in November 2018 and a record low of 0.50 million USD in January 2010 (Trading Economics, 2019). In 2018, Indian tourists continued to be the main market of Bhutan's tourism industry, and for those countries required to obtain visas, the United States of America, China, Singapore, Thailand, United Kingdom, and Germany continued to be primary markets (Tourism Council of Bhutan, 2019). By region, tourists visiting Bhutan are from Asia-Pacific (46.9%), Europe and America (22.3%), and Middle-East, South-Asia and Africa (less than one percent) (Tourism Council of Bhutan, 2019). Tourism continues to be a growing industry and significant source of revenue in Bhutan (Tourism Council of Bhutan, 2019).

Panbang, Bhutan

Panbang is a village of approximately 1500 inhabitants in southern Bhutan, located 13 kilometers from the border of India. The local dialect in Panbang is Khengkha; however, many residents also speak Dzongkha and some also speak English (mostly those of younger generations). Panbang is home to Bhutan's largest river basins, the Mangde Chhu and Drangme Chhu (Chhu means river in Dzongkha), and immediately adjacent to Bhutan's first national park, Royal Manas National Park, established in 1966 (River Guides of Panbang, 2017). Popular attractions in the area are whitewater rafting, nature-viewing (most well-known is the Twin waterfall), and wildlife (most well-known are golden langurs, Asian elephants, and Bengal tigers). The Panbang area (which includes Panbang and surrounding villages) has schools (up to Class 10), a hospital, monastery, and basic shops and restaurants.

Figure 2: Map of Bhutan (Source: Bhutan Map, MapsofWorld.com, 2019)

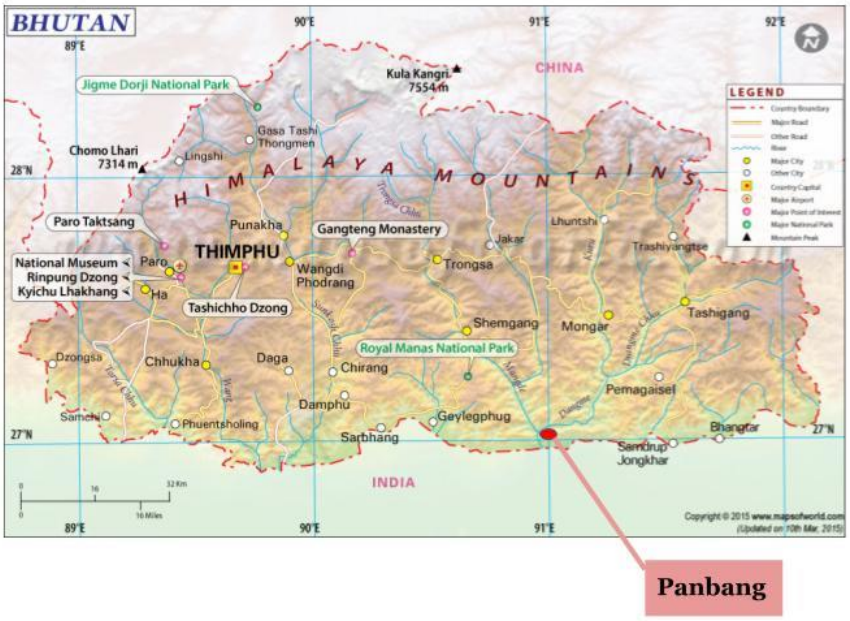


Figure 3: Map of Bhutan (Source: Googlemaps, 2018)

Whitewater Ecotourism in Bhutan

There are six whitewater ecotourism companies in Bhutan. River Guides of Panbang (RGP) is located in Panbang, and the remaining five companies (XPlore Bhutan, Lotus Rafting, Tall Pines, Kingdom Rafting, and Druk Rafting) are located in Punakha. Punakha is approximately seventy kilometers from Thimphu (the capital) on paved roads, and more developed and accessible than Panbang (average 15-hour drive from Thimphu on paved and unpaved/ under construction roads). River Guides of Panbang was founded in 2012, and operates as a community-based ecotourism company. Nine local Panbang community members own and operate the raft company and an ecolodge with varying degrees of financial support and mentorship from the Bhutan Foundation, Tourism Council of Bhutan, and other NGOs. RGP was founded specifically with ecotourism goals and goals of giving back to the local community in forming a business that contributed to addressing to youth unemployment, rural to urban migration, and waste management (particularly related to the river) (RGP, 2018). All Punakha companies are owned and operated as independent businesses by Bhutanese business men. Primary investment and profits of these companies come from, and go to the owners. The companies do not have outlined missions of fulfilling ecotourism; however, being under the umbrella of tourism in Bhutan, some tenets are implied.

River Guides of Panbang

River Guides of Panbang (RGP) was founded in 2012 by twenty-one local villagers in Panbang, Bhutan (now owned and operated by the nine remaining original members) as a community-based whitewater ecotourism company with the mission to provide high-quality and environmentally-responsible tourism, give back to the local community, and provide youth

employment opportunities. The company has been supported by donors and mentorship from partner nonprofit and government organizations, such as the Bhutan Foundation and Tourism Council of Bhutan. RGP members trained in whitewater rafting and started a whitewater ecotourism business that takes national (primarily), Indian (sometimes), and Western (rarely, primarily donors and members of international organizations such as UNDP) tourists river rafting. RGP also created, owns, and operates the Marangdutt Jungle Lodge, a safari-tent style ecolodge that offers full service food, beverage, and housekeeping along Marangdutt creek and adjacent Marangdutt village, which is approximately three kilometers from the town of Panbang.

The Bhutan Foundation initiated RGP as a community-based whitewater ecotourism development project in Panbang in order to grow socio-economic development, and to build local capacity to steward environmental resources. The project was also initiated to retain more youth in rural areas by creating attractive job opportunities in response to a trend of significant immigration of this demographic to urban areas and to reduce the national youth (16-25) unemployment rate, which is 12% versus the national average of unemployment across all applicable age categories, which is 2% (River Guides of Panbang, 2018; The Bhutan Foundation, 2018; Bhutan National Statistics Bureau, 2017).

RGP currently offers day trips on the Manas Chhu (River) and Mangde Chhu (River), and a two-night expedition on the lower Drangme Chhu. The vast majority of RGP's business is on the Class II Manas Chhu. RGP's clients are primarily Bhutanese, but also include Indian tourists and a few groups of Western tourists, who were connected with non-profit international donor organizations. In addition to the founding members, the company employed four safety kayaker trainees, one raft guide trainee, and two kitchen trainees during the time of this study.

Thesis Chapters

This thesis is presented in seven chapters. Chapter 1 provides a general introduction to this thesis and a need for this case study. Chapter 2provides context for the body of literature that influenced this study's research questions and guided the analysis. Chapter 3explains the methods and analysis used in the study. Chapter 4 provides results and discussion on the opportunities and challenges of whitewater ecotourism for local communities. Chapter 5 provides results and discussion on participation of Bhutanese women as river guides. Chapter 6 provides results and discussion onhydropower and waste management for rivers in Bhutan. The thesis concludes with Chapter 7which is followed by the appendices and bibliography.

CHAPTER 2. Literature Review

There are multiple bodies of literature that influence this study's research questions and guide the analysis. These influential bodies of literature are explored in the following sections: Tourism and Adventure Tourism; Ecotourism (Introduction and Definition; Benefits of Ecotourism (Economic; Social-Cultural; and Environmental); Challenges of Ecotourism (Economic; Social-Cultural; and Environmental); Whitewater Ecotourism (Introduction, Definition, Trends; Specific Challenges to Whitewater Ecotourism; Benefits and Challenges of Whitewater Ecotourism Development to Local Communities; Opportunities and Constraints of Women Participating in Whitewater Ecotourism (Constraints and Constraint Negotiation; and Role and Consideration of Participation of Women in Whitewater Ecotourism Development); Ecotourism and Pro-Environmental Behaviors (Pro-Environmental Behavior (PEB); Tourism and Recreation's Influence on Pro-Environmental Behavior; Influencers of Resource-Specific Pro-Environmental Behaviors).

Tourism and Adventure Tourism

According to the United Nations World Tourism Organization (UNWTO), tourism is defined as "a social, cultural, and economic phenomenon that entails the movement of people to countries or places outside their usual environment for personal or business/ professional purposes" (UNWTO, 2007). Being classified as tourism involves at least one overnight stay, but is limited to less than one year in a place outside of a person's usual environment (Liu et al, 2014; UNWTO, 2007; UNWTO, 2014; Zurick, 1992). The implications of tourism are effects on the natural environment, on the built environment, on the economy, and on the local population's society and culture at the tourism destination, as well as effects on the tourists

themselves (Koens et al, 2009; McKay, 2013; Nepal, 2002; Regmi & Walter, 2016; Scheyvens, 1999; UNWTO, 2007*).*

Tourism is one of the world's fastest growing industries (McKay, 2013; Namgyl et al, 2014; Regmi & Walter, 2016; UNWTO, 2017). In 2016, the number of international tourist overnight visitors grew by 46 million visitors, 3.9% compared to 2015, reaching a total of 1.235 billion worldwide (UNWTO, 2017). This is the seventh consecutive year of above average growth in international tourism. A comparable pattern of uninterrupted growth has not been recorded since the 1950s (UNWTO, 2017). In terms of economic gain from tourism, the UNWTO estimates that the total earnings of destinations worldwide was approximately $1.22 trillion USD in 2016 (UNWTO, 2017).

Adventure tourism is a rapidly growing sector of the tourism economy (ATTA, 2018; McKay, 2013). There is no consensus on an exact definition and boundary of adventure tourism (McKay, 2013). Hall defines adventure tourism as, "a broad spectrum of outdoor touristic activities, often commercialized and involving an interaction with the natural environment away from the participants' home range and containing elements of risk" (Hall, 1992, p.143). Buckley defines adventure tourism as involving commercial operators that take tourists on guided adventure tours, usually in an outdoor setting, where at least one physical activity and often specialized equipment is required (Buckley, 2006; McKay, 2013). The ATTA, UNWTO, and various academic literature define adventure tourism as tourism that involves physical activity, interaction with the natural environment, and a cultural exchange, specifically noting that many adventure tourism activities involve all three elements (ATTA, 2018; UNWTO, 2014).

Adventure tourism includes, but is not limited to the following activities: whitewater kayaking; whitewater rafting; backpacking; skiing; bird watching; camping; rock climbing; sky

diving; scuba diving; mountain biking; and participating in cultural, educational or environmentally sustainable activities (ATTA, 2018; UNWTO, 2014). Adventure tourists challenge their individual physical, cultural, and geographic comfort limits, and these limits are different for each individual person (UNWTO, 2014).

In 2010, the first global market study conducted on adventure tourism found that the value of adventure tourism worldwide was 89 billion USD (UNWTO, 2014). The study was repeated in 2013 and the value had increased to 263 billion USD, which is a 195% increase in three years (UNWTO, 2014). On average, adventure tourists travel for eight days and spend 3,000 USD per person; however, there is a broad range, as such trips as summiting Everest cost approximately 48,000 USD (UNWTO, 2014). These figures indicate that compared to other tourism sectors, adventure tourists are willing to pay a premium for an experiential-based and "authentic" tourism experience (UNWTO, 2014).

Commercial adventure tourism is a relatively new industry (UNWTO, 2014). Commercial adventure tourism is tourism in which the travelers hire a professional guide for a range of logistical, equipment, and technical support, cultural interpretation, and nature interpretation (UNWTO, 2014). While humans have been engaging in adventurous activities throughout their history, it wasn't until the mid-1900s that commercial guiding was established by such companies as Hatch River Explorations (1953), OARS (1969), Ker & Downey (1946), Abercrombie & Kent (1962), and Micato Safaris (1966) (UNWTO, 2014). Preceding the establishment of these adventure tourism companies were the notable adventure expeditions of the first descent of the Colorado River in 1869 and the first ascent of the Matterhorn in 1865, which were followed by the creation of the National Geographic Club and the Explorers Club,

organizations that promote and support adventure expeditions around the world (UNWTO, 2014).

Due to the specific characteristics of adventure tourism, it is distinguished as supporting local economies and encouraging sustainable practices (Boley & Green, 2016; Chaturvedi, 2004; McKay, 2013; UNWTO, 2014). Research shows that adventure tourism contributes more to local economies than forms of mass tourism (UNWTO, 2014). A report from ATTA cites that adventure tourism operators estimated that 65.6% of tourists' adventure package expenditures remain in the destination's local economy, while according to the United Nations Environment Programme (UNEP), in most all-inclusive mass-tourism package tours, less than 20% of tourists' expenditures go to local businesses and locals (in developing nations specifically, on average only 5 USD of every 100 USD spent by tourists is contributed to local economies) (UNWTO, 2014). Adventure tourism particularly encourages sustainable practices because of its direct connection to the environment and local populations (ATTA, 2018; Boley & Green, 2016; Koens et al, 2009; McKay, 2013; UNWTO, 2014). Adventure tourism operators, policymakers and practitioners recognize that it is "a pristine natural environment" and "meaningful cultural experiences" that attract tourists to their product, and thus are incentivized to take action and make choices that take into account sustainable practices (UNWTO, 2014).

When compared to other forms of tourism, adventure tourism is associated with being more resilient and attracting higher value customers (UNWTO, 2014). According to The AdventurePulse: USA Adventure Traveler Profiles, adventure travelers are passionate and risk-taking, and maintain interest in destinations that have experienced major setbacks in commercial tourism after political and natural disasters, in such destinations as Colombia, Rwanda, and Iran (UNWTO, 2014). This risk-taking characteristic of adventure tourists contributes to adventure

tourism's resilience after political and natural disasters. Finally, adventure tourism attracts high-value customers that are willing to pay excess for the experience, such as those willing to pay for an 11-day whitewater ecotourism adventure on the Futaleufu for $7,900 per person or an 11 day adventure cruise to Antarctica for $83,000 per person (Earth River Expeditions, 2018; Jacada Travel, 2018; UNWTO, 2014).

Compared to tourism and ecotourism academic literature, there is a significant gap in adventure tourism literature, particularly that pertaining to whitewater ecotourism. In the context of its growth, there is a call for adventure ecotourism research, particularly regarding its positive and negative impacts on local communities (Farooquee et al, 2008; McKay, 2013; Nepal, 2002; Zurick, 1992).

Ecotourism

Introduction and Definition

Ecotourism is a form of sustainable tourism. Sustainable tourism is defined as, "Tourism that meets the needs of present tourists and host regions while protecting and enhancing opportunity for the future" (Butler, 1999). Further definitions include: "Tourism that can sustain local economies without damaging the environment on which it depends," and "tourism that protects the resource base" (Butler, 1999; McCool, 1999). Sustainable development asserts that achieving a triple bottom line of the destination (taking into account environmental, social-cultural, and economic sustainability) is necessary for long-term existence and requires participation and involvement of the local community (Boley & McGehee, 2014; Choi and Sirakaya 2005; Dwyer, 2005; McCool & Lime, 2001). Ecotourism is one of the fastest growing

categories of the tourism industry (Anup et al, 2014; Akbulak & Cengiz, 2014; Das & Syiemlieh, 2009)

There are more than eighty-six definitions of ecotourism (Keith's comment- do I need a source?). The United Nations World Tourism Organization (UNWTO) defines ecotourism as, "All nature-based forms of tourism in which the main motivation of the tourists is the observation and appreciation of nature as well as the traditional cultures prevailing in natural areas" (UNWTO, 2017). The UNWTO further defines ecotourism as tourism that minimizes negative impacts upon the natural and social cultural environment of the destination, contains educational and interpretation features that increase awareness of locals and tourists of the conservation of natural and cultural assets, provides economic benefits and alternative employment opportunities for local communities, is generally organized by specialized tour operators for small groups, and has service provider partners that tend to be smaller, locally owned businesses (UNWTO, 2017). Scholars have studied ecotourism and have identified additional key components. Scheyvens (2000) adds that ecotourism has low visitor impact, and Honey distinguishes that ecotourism provides *direct* financial benefit for conservation and empowerment of local people, respects local culture, and supports human rights and democratic movements (Regmi & Walter, 2016; Honey, 2008). While there are various definitions, the common themes of the definitions of ecotourism define ecotourism as tourism that promotes conservation of environment and wellbeing of local people.

Ecotourism is often looked to as a "win- win" in conservation and development, especially in countries that are considered "developing" countries (Scheyvens, 2000). In 1989, Ziffer wrote that, "Ecotourism is currently a 'hot' topic. The fury is predictable. It is a movement that potentially involves billions of dollars, high-level politics, the survival of

threatened cultures, and the preservation of rapidly disappearing wildlands." (Ziffer, 1989, p. 1). Ziffer's statement continues to be relevant in 2018, as the recognition of ecotourism as an attractive "win-win" approach to sustainable development has grown (Goharipour & Hajiluie, 2016; McKay, 2013; UNWTO, 2017). However, lack of economic benefit retention to local communities, overrunning environmental resources to accommodate tourists, and negative social-cultural impacts are common in ecotourism and further research on how to better align the practice of "ecotourism" with its goals is called for in existing literature (Boley & Green, 2016; Bosak, 2008; Cater, 1994; Chaiyasain, 2014; Koens et al, 2009; Nepal, 2002; Nepal, 1997; Regmi & Walter, 2016).

The goals of ecotourism are extensive. In practice, ecotourism ultimately results in a range of benefits and challenges (Cater, 1994; Scheyvens, 2000; Thomlinsen & Getz, 1996; Koens et al, 2009). Upon review of ecotourism in practice, outlining and assessing benefits and challenges of ecotourism is necessary in order to address the question of how to maximize benefits and minimize challenges of the ecotourism industry to local communities. Ultimately, this assessment of existing and potential benefits and challenges will better align ecotourism and whitewater ecotourism with their goals.

Benefits of Ecotourism

Potential benefits of ecotourism development include economic impacts, specifically: foreign exchange, jobs, and economic diversification; social-cultural impacts, specifically: empowerment of women and marginalized groups, encouragement of community organization, promotion of local culture, improved education, and improved facilities; and environmental impacts, specifically: preservation of nature, and environmental education and conscious raising

(Boley & Green, 2016; Cater, 1994; Chaiyasain, 2014; Farooquee, 2008; Koens et al, 2009; McKay, 2013; Nepal, 2002; Nepal, 1997; Regmi & Walter, 2016; Scheyvens, 2000). The following sections will outline the key potential economic, social-cultural, and environmental benefits of ecotourism.

Economic Benefits

Ecotourism can provide benefits of positive economic impacts, particularly direct benefits of jobs and indirect benefits of financing protected areas, maintaining profits in local destination communities, and expanding economic diversification (Aiksoz et al, 2015; Boley & Green, 2016; Chayasain et al, 2014; Farooquee et al, 2008; Nambyl et al, 2014; Koens et al, 2009; UNWTO, 2014). Ecotourism-specific jobs typically include those relating to guiding, hotels, home-stays, restaurants, transportation, and sales of arts and crafts. In addition to the promotion of permanent jobs for local people, ecotourism can also finance the establishment and maintenance of protected areas, and support a large amount of profits staying in local destination communities (Kiper, 2008). Further, the development of the ecotourism industry provides diversification of jobs in destination areas. Diversity is a key pillar of economic and community resilience; however, transitioning to an economy that is fully dependent upon ecotourism would generate increased vulnerability (Seibert, 2018).

Farooquee et al. (2008) conducted a study on ecotourism impacts of river rafting and camping on the Ganga River in Uttarakhand Himalaya and found increased direct and indirect income generation from rafting tourism. Locals are hired for part-time employment, including jobs as cooks, drivers, raft guides, and daily-wage laborers. The study found the indirect economic benefits to the local communities to be increased sales at the small, roadside eating

establishments during the raft season and small periodic contract work and sale of local vegetables (Farooquee et al, 2008). Additionally, Koens et al. (2009) found that the ecotourism in Monteverde, Costa Rica tourism diversified the local economy, increased foreign exchange based upon money spent in hotels, restaurants, and souvenir shops, and that most of the money generated from ecotourism stayed within the region.

Social-Cultural Benefits

Ecotourism can provide benefits of positive social-cultural impacts, specifically the direct benefits of improved facilities and skill development, and the indirect benefits of empowerment of women and marginalized groups, promotion of local culture, encouragement of community organization, improved education, and the re-securing of greater control of natural resources by the local population (Boley & Green, 2016; Koens et al, 2009; Scheyvens, 2000). Ecotourism can yield direct benefits of improved facilities, such as hospitals and sewage treatment systems as a result of direct investment from the ecotourism industry and different levels of government investment as a result of catering to and wanting to promote the area as an ecotourism destination (Boley & Green, 2016; Koens et al, 2009).

The indirect social-cultural benefits of ecotourism include empowerment of women and marginalized groups by specifically including these demographics in planning and development of ecotourism. Promotion of local culture can be a large draw of ecotourism, and contribute to local economic, psychological and social empowerment (Scheyvens, 1999). Community-based ecotourism programs can encourage community organization in ecotourism development plans and organization for allocation of community funds generated through ecotourism in such types of developed programs, such as support for youth to have more education opportunities (Aiksoz

et al, 2015; Boley & Green, 2016; Nambyl et al, 2014; Koens et al, 2009; UNWTO, 2014). Ecotourism that involved and is driven by the local community has the potential to re-secure greater control of natural resources by the local population (Scheyvens, 2000).

Environmental Benefits

Ecotourism can provide benefits of positive environmental impacts, primarily the direct impact of preservation of nature and the indirect impact of environmental education and conscious raising (Koens et al, 2009). Ecotourism is directly linked to the wellbeing, preservation, and conservation of natural environments (Boley & Green, 2014). Research shows that ecotourism development can promote capacity and incentive to steward local protected areas and natural resources, and be an income-generating means for conservation under circumstances in which local communities' livelihoods and values of nature are taken into account, the development of ecotourism is participatory on a local scale, and regional governments are stable (Bosak, 2008; Chaiyasan, 2014; Namgyl et al, 2014; Regmi & Walter, 2016;). The relationship between ecotourism and natural resource conservation is often described as symbiotic (Boley & Green, 2014). This symbiotic relationship refers to the benefits ecotourism destinations receive as a result of the protection of quality natural resources; the conservation of quality natural resources makes the destination more competitive and the resources more valuable in the global tourism market (Boley & Green, 2014). Further, if programs, trainings, and ecotourism development itself is created, monitored and adjusted to promote pro-environmental behavior of the guides, tourists, and local communities, then this behavior can result in positive environmental impacts, such as litter reduction and advocacy of conservation efforts (Giddy, 2014; Koens et al, 2009).

Specific examples of environmental benefits of ecotourism include case studies in Botswana and Costa Rica. A study conducted within the Okavango Delta of Botswana reports that local ecotourism development resulted in increased conservation of endangered species. The study also noted that the ecotourism industry became influential in the development of tourism and conservation policy, youth environmental awareness, and conservation research (Spenceley & Snyman, 2017). Further, Koens et al. (2009) conducted a case study of four ecotourism destinations in Costa Rica and found that ecotourism gave conservation an economic value, prevented further deforestation, and supported local environmental education in the destination areas.

Challenges of Ecotourism

The potential challenges of ecotourism include economic impacts, specifically: economic leakage, inflation, and loss of resource bases; social-cultural impacts, specifically: loss of community coherence, loss of access to facilities for local people, degradation of local culture, and growing crime rates, prostitution, and drug and alcohol abuse; and environmental impacts, specifically: land clearance and erosion, disturbance and biodiversity losses, and increase in garbage, sewage, and air pollution (Apollo, 2017; Bernard & Cook, 2015; Koens et al, 2009; Namgyl et al, 2014; Nepal, 2002; McKay, 2013). The following sections will outline the key potential economic, social-cultural, and environmental challenges of ecotourism.

Economic Challenges

Ecotourism can result in associated economic challenges to local communities, including direct costs of economic leakage and loss of resource bases, and indirect costs of inflation (Boley & Green, 2016; Koens et al, 2009). Research shows that in many ecotourism ventures, little economic benefit stays in local communities, and rather outside international and national operators take a large portion of the economic benefits of ecotourism (Chaturvedi, 2004; Namgyl et al, 2014; Koens et al, 2009). Chaturvedi (2004) conducted a study in the Gangotri region of the Garhwal Himalaya and found that the development of ecotourism in the region had fostered monopolies of groups external to the local destination, and that ecotourism was contributing little to the income and the development of the area.

In many ecotourism industries, most economic benefits do not stay in the local communities but are rather kept or transferred to external tour operators and companies (Nepal, 2002). When community-based projects are established that minimize economic leakage, challenges of how to allocate the resources can arise (Namgyel et al, 2014). In a community-based ecotourism project in Bhutan along the Nabji trail, Namgyel et al. (2014) found that even with the specific intention to extend tourism to remote communities in need of socioeconomic growth and keep economic benefits within these communities, challenges arose with developing fair and consistent pricing for tourism activities, maintaining stable leadership in community tourism management committees, and following fair and democratic processes to allocate community development funds (Namgyel et al, 2014).

Ecotourism can also lead to a loss of resource base, such as land for subsistence agriculture and local traditional knowledge and practices (Boley & Green, 2016; Koens et al, 2009). This loss of resource bases is associated with dependency development of local

communities upon ecotourism, which makes these communities less resilient if the industry is affected by local events, such as natural disasters, political upheavals, or global events, such as market crashes, and global market fluctuations of food and other supplies (Boley & Green, 2016; Namgyl et al, 2014). Ecotourism can also result in inflation, and negatively affect members of the local community that are not directly or indirectly economically benefitting from ecotourism but are burdened by higher prices (Koens et al, 2009).

Maximizing environmental, social-cultural, and economic benefits and minimizing respective costs of ecotourism development faces many challenges (Apollo, 2017; Nepal, 1999; Nepal, 2002; Regmi & Walter, 2016). In developing nations, challenges include haphazard planning, lack of environmental standards and monitoring, price cutting (which results in high volume and low return), seasonality, and developed dependence (Nepal, 2002). The costs associated with ecotourism development are exacerbated when there is no strategic and intentional plan and focus on what type and intensity of activities are promoted, who benefits, and how to establish decisions and resources related to regulations, governance, and enforcement (Nepal, 2002). This is further intensified when ecotourism results in overcrowding, noise pollution, trash, sewage, introduction of non-native species, and firewood and rare plant depletion (Apollo, 2017; Koens et al, 2009; Nepal, 2002). Challenges also include marketing, connecting with, and training for a Western market in the case that attracting this market is the goal (McKay, 2013; Nepal, 2002).

Social-Cultural Challenges

Ecotourism has the potential to result in social-cultural challenges, including direct costs of loss of access to facilities for local people and indirect costs of loss of community coherence, degradation of local culture, and growing crime rates, prostitution, and drug and alcohol abuse (Koens et al, 2009; Nepal, 2002; Namgyl et al, 2014). Ecotourism in developing nations commonly brings with it Western influences of commodity goods, a capitalist market system, and focus on the individual verses the community, leading to break-down of community coherence (Namgyl et al, 2014; Nepal, 2002). Large discrepancies in who might benefit from ecotourism, and exposure to Western ways of life can be associated with a growth in local destination crime rates, prostitution, drug and alcohol abuse, especially as an increase in tourists may create demand for such mal-entities (Koens et al, 2009).

A study on rafting tourism in India has found that the nature-based adventure tourism resulted in an increased burden on women, as they had to walk a much longer distance to bathe, and were left with an increased work burden as a result of outmigration of children and men to work on the river (Farooque et al, 2008). The study further found the tourism to be associated with impacts of an introduction to commercialization, less preference for traditional foods, change in the mindset of the youth, increased dropouts from school, decline in traditional values and culture, less resect for village girls, women and elders, class consciousness and frustration, increased out-migration, and decline in traditional agriculture, husbandry and traditional crafts (Farooque et al, 2008).

Environmental Challenges

Ecotourism can propagate environmental challenges, such as the direct negative impacts of land clearance, erosion, garbage, sewage, and air pollution in addition to indirect negative impacts of disturbance and biodiversity loss (Koens et al, 2009). Building of hotels, restaurants and amenities for ecotourism development can result in land clearance, erosion, and even flooding (Bernard & Cook, 2015). Literature suggests that an increase in trash and sewage is an enormous issue in ecotourism and adventure tourism, as Western consumption is imported into remote regions without infrastructure or planning to handle the types (non-compostable trash) and volumes of garbage and sewage (Apollo, 2017; Nepal, 1999; Nepal, 2002). Further, development of ecotourism infrastructure and increase in tourist and local use and visitation of protected areas and/or natural resources can create indirect costs of ecosystem disturbance, and biodiversity loss due to disturbance to habitats and species (Farooquee, 2008; Koens et al, 2009; McKay, 2013).

Research supports extensive environmental challenges of ecotourism and a call for planning, monitoring, and further research on means of minimizing these impacts (Apollo, 2017; Buckley, 2009; Chaturvedi, 2004; Farooquee, 2008). For example, millions of mountaineers generate tons of feces and cubic hectometers of human waste annually in remote areas that lack waste management and result in pollution of water sources and spread of disease (Apollo, 2017). Further, negative environmental impacts of nature-based adventure tourism include disruption of breeding habits, changes in wildlife behavior, and noise pollution (Chaturvedi, 2004; Buckley, 2004; McKay, 2013).

In order to address these challenges, further research is called for investigating how to maximize benefits and minimize costs of ecotourism development (Farooquee et al, 2008; Nepal, 2002; Namgyel et al, 2014; Regmi & Walter, 2016). Recommendations based upon existing research include engaging local communities in a participatory planning process for ecotourism development; creating support for pro-environmental behaviors; slowing development so that it is intentional and manageable; investment in mechanisms that allow monitoring over time (specifically through the framework of maximizing social-cultural, environmental, and economic benefits); and advancing gender equality in considering equitable opportunities for women, youth, and men (Nepal, 2002; Scheyvens, 2000).

Further, literature recommends aiming to create "high-quality" (rather than low quality, high volume) and aims to attract tourists that will spend a longer time in one destination and put cash into the local system; increasing diversity and interconnectivity of ecotourism, both to spread benefits and reduce sole dependency on the industry once it is developed; incorporating a philosophy and approach that recognizes historical local land use and culture, especially in and around designated protected areas; providing access to funding for training in ecotourism tenets in addition to trainings for communications, guide training, and meal preparation; development of international certifications and standards; and reforming existing government and non-government institutions to implement policies and strategies that support sustainable ecotourism in community-based rural environments (Bosak, 2008; Nepal, 2002; Regmi & Walter, 2016).

Whitewater Ecotourism

Introduction, Definition, Trends

Whitewater ecotourism is any commercial or private river recreation involving watercraft (including but not limited to: whitewater rafts, kayaks, canoes, stand-up paddle boards, river boards, and tubes) on sections of river with Class II to Class V rapids, and upholds tenets of ecotourism, most specifically engaging in industry planning, development, and action that maximizes economic, environmental, and social-cultural benefits and minimizes respective challenges for local communities and natural systems. Whitewater tourism is a form of adventure tourism that consists of commercial and private rafting, kayaking, canoes, and other watercraft, and has even been extended to include looking at rapids from river banks and bridges (Buckley, 2009). In the context of this research, whitewater ecotourism will only include whitewater rafting and kayaking. Rivers are rated on an International Scale of River Difficulty scale that ranges from Class I to VI, with I referring to flowing flat water, and VI referring to rapids and river features such as waterfalls that are deemed un-runnable by whitewater ecotourism craft and operators (American Whitewater, 2018). While the International Scale of River Difficulty was created to compare rivers globally, it is noted that rapids and rivers are not easily set on the scale due to varying flows; run-off, environmental and human induced changes; and diverse characteristics from small creeks to massive rivers (American Whitewater, 2018). Whitewater rafting and kayaking are recreational activities that use inflatable rafts and inflatable or hard-shell kayaks to navigate down river.

Statistics and literature on whitewater ecotourism are scarce and have received relatively little attention in the academic literature (Buckley, 2009); however, rafting and whitewater kayaking are designated constituents of adventure tourism, which is experiencing rapid growth

and opportunity (Goharipour & Hajiluie, 2016; UNWTO, 2014; UNWTO, 2017; ATTA, 2014). Global hotspots for whitewater include the Grand Canyon of the Colorado in the United States, the Futaleufu river in Chile, the Zambezi river on the border of Zimbabawe and Zambia, the Nile River in Uganda, and the Karnali and Sun Kosi rivers in Nepal.

Whitewater ecotourism is a large contributor to the local economy in certain regions. For example, a 2014 Protect the Flows report stated that Colorado's river economy was worth over $9 billion and provides over 80,000 jobs in the state (Tory, 2014). In relative framing, if the Colorado River was a company, it would rank 155th on the Fortune 500 list (Tory, 2014). In 2016, the Colorado Outfitters Association reported that the industry hosted a record number of visitors, including 550,861 commercial guests on 29 stretches of rivers (Blevins, 2017). The report further states that those guests spent over $70 million on whitewater tourism directly in Colorado, and estimated an economic impact of approximately $180 million in the state's riverside communities (Blevins, 2017).

Notably, there is a gap in the academic literature on whitewater ecotourism development, and particularly on ways to maximize its economic, social-cultural, and environmental benefits and minimize respective challenges to local communities in order to create sustainable industries and communities in the context of development (Buckley, 2009; Farooquee, 2008). Whitewater ecotourism is inherently connected to the health and wellbeing of river systems, which are foundations of human and environmental health (Goharipour & Hajiluie, 2016).

Specific Challenges to Whitewater Ecotourism

The primary resource of whitewater ecotourism is a flowing river. Pollution, irrigation, increasingly occurring droughts, and hydropower development have the potential to pose challenges to the whitewater ecotourism industry and its development (Buckley, 2009; Tory, 2014). Increased pollution, particularly from mining waste, other industry waste, and sewage, poses a challenge to whitewater ecotourism in that it makes the resources in some areas un-fit and unsafe to recreate in. Irrigation for agricultural lands and the increased pressures on irrigation and city and down water demand, especially in the context of the increased number of droughts in recent years, are additional challenges to whitewater ecotourism. These pressures can result in negotiation of water out of rivers, which has impacted and potentially will impact both existing and potential industries (Tory, 2014).

Some of whitewater ecotourism's hot spots continue to experience growing economies, while others are highly threatened by hydropower development, increased drought, and expanding farm and city water use, and others have been completely shut down by hydropower development (Buckley, 2009; National Geographic, 2018; Tory, 2014; Walker, 2015; Wangchuck, 2017). Free-flowing, non-polluted rivers provide an immense number of ecosystem services for humans and the environment, such as drinking water and food, jobs, and enjoyment and leisure (Buckley, 2009; Goharipour & Hajiluie, 2016). Whitewater ecotourism development holds a unique potential to give healthy, free-flowing rivers immediate economic value, as well as create incentive for planning, actions, and monitoring of river stewardship (Buckley, 2009; Powell & Hamm, 2008; Waylin et al, 2009). Providing resources of water, food, and other vital services and inputs to human and ecosystem existence, rivers are unique in their nature of

realizing benefits and costs across scales, boundaries and borders (Buckley 2009; Goharipour & Hajiluie, 2016; National geographic, 2018; Walker, 2015; Wangchuck, 2017).

Hydropower is the electricity generated by harnessing and using the energy of moving water (National Geographic, 2018). In 2015, 16% of global energy production was hydropower-based. Hydropower development is rapidly increasing as a result of growing population and energy demand, as well as global goals to reach certain percentages of "renewable energy" sources, such as the European Union legislation requirement for 20% of energy production to be sourced from renewables by 2020 (Anderson et al, 2015). According to the World Energy Council, hydropower supplied 16.4% of the world's electricity in 2016, and accounts for 71% of the renewable energy (geothermal, solar, wind, biomass waste, biofuels, wood, and hydropower) produced throughout the globe (World Energy Council, 2016). China, Canada, Brazil, the United States, and Russia were the five largest hydropower producers, with China producing more than Brazil, Canada, and the United States combined (National Geographic, 2018; World Energy Council, 2016).

While advocates of hydropower state that it is cheap to generate, this assertion does not account for the economic, environmental and social-cultural costs of hydropower projects being built and maintained (Deemer et al, 2016; National Geographic, 2018; Pizzuto, 2002; VanCleef, 2016; World Energy Council, 2016). There are more than 300 mega-dams (at least 150 meters high), and 57,000 large dams (more than 15 meters high) in the world (International Rivers, 2018), many of which are built in regions of active fault lines (National Geographic, 2018). Costs of dams include grossly uncompensated displacement of communities, contaminated water, loss of fisheries, decreased amounts of water, reduction in fertility of farmlands and forests as a result of loss of natural irrigation and fertilizers of seasonal floods, spread of

waterborne diseases including malaria, schistosomiasis, and leishmaniasis, widespread death in the case of dam collapse, creation of low dissolved oxygen environments, and increased greenhouse gas emissions (International Rivers, 2018; National Geographic, 2018). While hydropower projects do create cheap energy once they are built, they are generally expensive; for example, the Itaipu dam on the border of Brazil and Paraguay cost $20 billion and took 18 years to build (International Rivers, 2018). Further, due to infrastructure, local populations immediately proximate and most impacted by hydropower projects (Stone, 2017; VanCleef, 2016)

Hydropower development arguably can have both negative and positive impacts on whitewater ecotourism development. The major draws of whitewater ecotourism (big waves, steep drops and stunning canyons) are also attractive characteristics for hydropower development (Kaunda et al, 2012; National Geographic News, 2003; World Energy Council, 2016). In most cases, hydropower immediately takes away the resource upon which the industry is based, usually through flooding sections of river in reservoirs above dams, but also through de-watering sections below dams. (Kaunda et al, 2012; National Geographic News, 2003; National Geographic, 2018). In some cases, such as the Green River in North Carolina, and the Ashlu River in British Columbia, dam releases for whitewater kayaking have been negotiated. However, in many cases, whitewater ecotourism industries have been shut down in the face of hydropower development. The Bio Bio River in Chile and the Nile River in Uganda are case studies demonstrating negative impacts of hydropower development on whitewater ecotourism, ultimately resulting in their closure (Brown, 2017; Gettleman, 2009; National Geographic News, 2003).

In contrast, the whitewater ecotourism industry in Nepal is experiencing a distinct decline in whitewater ecotourism economic, social-cultural, and environmental benefits due to rampant large-scale hydropower development (Magar, 2018). A 2018 article states that ten years ago, 25% of foreign tourists visiting Nepal would go on commercial raft trips, and now that figure has dropped to less than 10% (Magar, 2018). The Nepal Association of Rafting Agencies (NARA) attributes this to the failure of the government to separate hydropower development projects from established rafting sites, as well as lack of promotion of the industry by the national government (Magar, 2018). The article states that the industry is surviving based upon local tourists, but recounts pleas of industry stakeholders to consider the industry, its current value, and its potential in making hydropower development decisions (Magar, 2018).

Other whitewater ecotourism industries have experienced closure due to hydropower development. The Bio Bio River was a world-renowned whitewater rafting and kayaking destination in the 1980s and early 1990s (Bio Bio River Expeditions, 2018; National Geographic News, 2018). In 1994, Endesa completed the Pangue dam on the Bio Bio River, which displaced local indigenous Mapuche populations, impacted the river and land ecosystems, and ceased all whitewater ecotourism. The Nile River in Uganda was a world-renowned play-boating destination for whitewater kayakers. The Bujugali Falls dam was completed in 2012 and resulted in the loss of whitewater ecotourism jobs held by locals as it flooded a primary rafting attraction, as well as a sacred site (Save Adventure Uganda, 2013).

Based on the above case studies and others, there is an association between loss of whitewater ecotourism and potential of whitewater ecotourism development. The realization of negative impacts of hydropower, such as immense indigenous population relocation, flooding of unique and biodiverse ecosystems, and siltation and change of river ecosystems (sources from

above, plus other sources above). These inherent associations represent an increased importance and attention to the potential of whitewater ecotourism to bring awareness and value to clean, free-flowing rivers and their surrounding areas and communities.

Whitewater Ecotourism Challenges in Bhutan

Hydropower development and increases of solid waste are two threats to clean, free-flowing rivers in Bhutan. The Bhutanese government, previously adamant about protecting free-flowing rivers, has entered into agreements with India to rapidly expand hydropower development. India provides Bhutan hydropower project development planning, funding, and energy trade and demand (electricity sales to India compose approximately 25% of Bhutan's GDP and are expected to eventually compose 75% if development plans are carried out (International Rivers, 2015; RGP, 2018; Walker, 2015; Wangchuk, 2017). The most extensive long-term plan commissioned by India illustrates seventy-six dam proposals (effectively damming every river in the country), which, if carried out, will significantly impact the current and potential of future whitewater ecotourism development in Bhutan, as well as ecosystem services provided by free-flowing rivers (International Rivers, 2015; Walker 2015).

The increasing amount of solid waste is also a threat to Bhutan's river ecosystem health (Allison, 2015; Dendup, 2008; Gyelmo, 2018; RGOB 2007; Rai 2007). Disposal of solid waste in rivers and forests in Bhutan has traditionally been common practice; however, since the late 1990s, the availability of imported, non-biodegradable goods has greatly increased, especially with the growing trend of rural to urban migration (Allison, 2015; Dendup, 2008; Gyelmo, 2018; RGOB 2007; Rai 2007). From 2014 to 2017, the amount of waste produced is estimated to have doubled from 250 grams a day per person to almost half a kilogram per person (Gyelmo, 2018).

Type of trash is increasingly including plastics and hazardous materials, such as batteries, light bulbs, cell phones, and other electronics (Gyelmo, 2018). Tourists, important to Bhutan's economy, are noted to complain about the amount and spread of litter in this country that boasts pristine environment and a constitution that includes environment as a central pillar (Dendup 2008; RGOB 2007; Rai 2007). As Bhutan develops and becomes more prosperous, the challenge of solid waste is projected to grow, and since 2007, top-level officials have committed to improving the nation's waste challenge; however it continues to grow and call for action at the local and national level across scales (Dendup 2008; Gyelmo, 2018; RGOB 2007; Rai 2007).

Benefits and Challenges of Whitewater Ecotourism Development to Local Communities

Whitewater ecotourism development creates direct and indirect benefits and challenges to local communities. The direct and indirect benefits and challenges of whitewater ecotourism development include those cited for ecotourism in the *Ecotourism* section above in addition to those outlined below.

Benefits of Whitewater Ecotourism

Specific to whitewater ecotourism, economic, environmental, and social-cultural benefits are direct and indirect benefits of ecosystem services of rivers, and the potential development of pro-environmental behavior (PEB) specifically related to the recreation resource of rivers (Dresner et al, 2014; Lee et al, 2015; Packet et al, 2014; Tsung et al, 2013). Typical potential economic benefits of whitewater ecotourism include owning and operating whitewater ecotourism companies, industry jobs such as guiding, reservations, logistics, marketing, and food

and beverage (Goharipour & Hajiluie, 2016; Farooquee, 2008; McKay, 2013). Economic benefits of whitewater ecotourism can extend to businesses supported by an influx of tourists including hotels, homestays, restaurants, shops, other cultural and nature based activities and education, and sales of locally made handicrafts and goods (Goharipour & Hajiluie, 2016; Farooquee, 2008; McKay, 2013; Scheyvens, 2000). Ecosystem services maintained by healthy and free-flowing rivers can also be an indirect economic benefit to local communities (Buckley, 2009; Tory, 2014). Development of programs that target environmental education of tourists, industry stakeholders and the local community and/or build infrastructure encouraging PEB create environmental benefits. Further, whitewater ecotourism development specifically contributes to human health and wellbeing through investment in healthy and active outdoor lifestyles and recreation.

Challenges of Whitewater Ecotourism

Specific to whitewater ecotourism, economic, environmental and social-cultural potential community challenges include economic leakage, increased pollution related to whitewater tourism, forced changes to local river use, and breakdown of social structures (Apollo, 2017; Farooquee, 2008; Koens et al, 2009; Namgyl et al, 2014; Nepal, 2002). Cases of whitewater ecotourism present examples of models in which very few local community members benefit economically, and further, that these community members are usually men (Farooquee, 2008; Scheyvens, 2000). Overall, the international whitewater tourism industry falls subject to a mal-distribution of economic benefits being gender-discriminatory within communities and local-discriminatory in the context of developing nations (Farooquee, 2008; Scheyvens, 2000). The

latter is a result of opportunities for adventure tourism development usually being identified by outsiders, and requiring initial investment and import of gear, related skills and training, and knowhow of marketing and networking targeted to the demand of the international market (especially until a domestic demand develops with growing exposure to the activity) (Chaiyasian et al, 2014; Nepal, 2002).

Increased pollution related to whitewater tourism includes the potential improper disposal of human waste, and of food waste and trash dumped directly into the river (Farooquee, 2008; Goharipour & Hajiluie, 2016). Disposal of human waste sometimes is conducted below the high water line and "pit toilettes" dug on beaches and in campsites are washed out at high water (Farooquee, 2008). Ultimately, management, planning and monitoring is crucial to develop systems in which *Leave No Trace Practices* are employed and become part of the local river culture (Farooquee, 2008). The Grand Canyon of the Colorado is an exemplary example of this, as over 30,000 people kayak and raft through the canyon every year and as a result of LNT principles, systems and infrastructure for waste disposal and protocols, the canyon remains relatively pristine and devoid of human waste (NPS, 2018). However, sometimes LNT and other pro-environmental behaviors are ineffective or experience a lack of connection in varying cultural contexts. For example, a study conducted by Serenari et al. (2011) that explored environmentally significant behavior (particularly altering client behavior and minimizing environmentally destructive behavior such as not packing out trash, not burying human waste, and cutting living trees for firewood) found that possible impediments to guides engaging in pro-environmental behaviors were social pressure to change, abhorrence of contact with excreta, caste issues, and effort expended to dig disposal holes (Serenari et al., 2011).

Forced changes to local river use and the breakdown of social structures are potential social-cultural costs specific to whitewater ecotourism. These changes in local river use can include infringement upon areas used for bathing, and spiritual ceremonies such as cremations and funerals (Farooquee et al, 2008). Attraction to the relative higher pay of whitewater tourism jobs can result in increased school drop-out rates and out-migration from surrounding areas, resulting in a higher burden on local women and breakdown of family structure and support (Farooquee et al, 2008). Further, importation of Western adventure tourism culture can lead to disruption of cohesive social systems and increased desire for consumption-based goods and Western lifestyles (Nepal, 1999; Nepal, 2002; Namgyl et al, 2014).

Ecotourism and Pro-Environmental Behaviors

Pro-Environmental Behavior (PEB)

In order to achieve ecotourism goals, pro-environmental behaviors (PEB) can mitigate negative impacts on the environment and support conservation and management of these areas (Kollmuss & Agyeman, 2003; Lee et al, 2015; Nickerson, 2013; Packer et al, 2014; Thomsen et al, in draft; Tsung et al, 2013). Kollmuss & Agyeman (2002) define pro-environmental behavior (PEB) as, "behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built world" (Kollmuss & Agyeman, 2002; McCarty & Shrum, 2001; Thomsen et al, in draft). Examples of pro-environmental behavior include energy and water conservation, trash reduction and recycling, and stewardship and activism engagement and volunteering (Kollmuss & Agyeman, 2003; Lee et al, 2015; Nickerson, 2013; Packer et al, 2014; Thomsen et al, in draft; Tsung et al, 2013).

Understanding why people engage in pro-environmental behavior and what barriers exist to engagement in PEB is tremendously complex (Kollmuss & Agyeman, 2002; McCarty & Shrum, 2001; Thomsen et al, in draft). This complexity is compounded when the diversity within local and global culture is taken into account, as different cultures will be affected by culture-specific framing aimed at pro-environmental behavior (Lee et al, 2013; Cordano et al., 2010; Schultz et al., 2005). For example, Chinese culture tends to connect with natural settings through stories about historical literature and site-specific information about the local culture (Agrusa et al, 2011; Fountain et al, 2011; Packer et al, 2014). There is also an enormous emphasis in Chinese culture on investment in future generations (Packer et al, 2014). These aspects of Chinese culture should be taken into account when creating interpretive programs for PEBs for Chinese tourists in order to create the most impact (Agrusa et al, 2011; Fountain et al, 2011).

PEBs can be grouped into general and site-specific. General pro-environmental behavior is PEB that is transferable beyond a specific experience; examples include energy conservation, recycling, and Leave No Trace practices. Site-specific pro-environmental behavior is PEB specific to a certain location; examples include not visiting certain areas in light of restoration efforts and philanthropic donation to conservation efforts of a certain area. Site-specific pro-environmental behavior is usually transferable beyond the site to more general locations; for example, practices of monitoring visitor use for low impact and packing out human waste on a river trip transfers to other river trips and adventure and recreation ecotourism experiences (Diekmann & Preisendorfer, 2003; Skibins et al, 2013; Thomsen et al, in draft).

A study conducted by Thomsen et al. (in draft), groups the PEBs discussed in empirically constructed database of 407 peer-reviewed articles into the following categories: energy and water conservation (Aoyagi-Usui et al, 2003; Barr & Gilg, 2006; Bratt, 1999, Goldman et al,

2006), waste reduction (Aoyagi-Usui et al, 2003; Azeem et al, 2013), recycling (Azeem et al, 2013; Makina et al, 2014), nature conservation and activity (Boiral & Paille, 2012; Erdogan et al, 2012), responsible transport (Bratt, 1999; Diekmann & Preisendorfer, 2003), environmental activism (Aoyagi-Usui et al, 2003; Ballentyne et al, 2011), financial behavior (Aoyagi-Usui et al, 2003; Azeem et al, 2013), education (Ballentyne et al, 2011), stewardship (Greenspan et al, 2012), public/private (Balzekiene & Telesiene, 2012), broad/ specific (Ballentyne et al, 2011), individual/ collective (Casper & Pfahl, 2012), and indirect/ direct (Homburg & Stolberg, 2006).

The study's findings suggest that there is no single, prescriptive technique for selecting and categorizing behaviors, but that using these categories is useful in organizing and grouping PEB research so that further research can dive deeper and build upon the existing foundation (Thomsen et al, in draft). While complex and ranging in foci, terms, and results, PEB research continues to stand out as a key and crucial topic in need of further research because it is an inherently integral component of realizing sustainable conservation and development goals on local, regional, national, and global scales.

Tourism and Recreation's Influence on Pro-Environmental Behavior

Research results vary in asserting association between involvement in nature-based tourism and outdoor recreation with impacting conservation values, and further having that impact transfer to measurable changes in attitude and behavior (Fang et al., 2017; Prince, 2016; Chen et al., 2009; Thapa, 2010). Individuals and communities that receive positive benefits of recreation and nature-based ecotourism have incentives to engage in pro-environmental behavior that protects and contributes to the integrity and health of the resource (Powell & Hamm, 2008; Waylin et al, 2009). Research supports that PEBs supporting conservation and nature-based

recreation increase human and environmental health. Some research indicates that nature-based education, tourism and recreation particularly influences development of pro-environmental behavior of youth (18 years and younger) (Chang & Monroe, 2012).

Further, individuals and communities involved in tourism can affect pro-environmental behavior of tourists (Packer et al, 2014; Tsung et al, 2013). The type of tourist experience and education provided by communities, companies, and guides affects the translation, adoption, and impact of related pro-environmental behavior of tourists (Ardoin et al, 2015; Ramkissoon and Mavando, 2017; Powell & Hamm, 2008; Waylin et al, 2009). Research shows that experiential education engagement, escapism of the experience, and aesthetics influence general and site-specific pro-environmental behavior (Ardoin et al, 2015; Ramkissoon and Mavando, 2017; Powell & Hamm, 2008; Waylin et al, 2009). Research also suggests that visitor satisfaction leads to repeat visitors who develop place attachment and are more likely to be involved in volunteer activities and site-specific and general pro-environmental behavior. Investment in development of programs and infrastructure that grow pro-environmental behavior has long-term individual, social and environmental benefits (Ardoin et al, 2015; Ramkissoon and Mavando, 2017).

An extensive literature review by Ardoin et al. (2015) found that the key elements of contributed to achieving positive visitor outcomes in that influences visitors' environmental attitudes, knowledge, and behavior in the long term. These were: high-quality interpretive experiences that incorporate conservation messaging specific content; promoting and offering viewing of wildlife in tourism experiences; and presenting tourists with opportunities to take environmentally-related action on-site (Ardoin et al, 2015). Literature extensively calls for more

research to look at longer term case studies to measure lasting effects and methods of promoting these effects of nature-based tourism experiences (Ardoin et al, 2015).

In the context of recreational and nature-based tourism, research encourages participatory approaches (Ramkissoon and Mavando, 2017). Engagement of the local community in recreation, tourism and nature reserves and parks increases local buy in, and can result in impactful and effective behavior change policies on the local level (Ramkissoon and Mavando, 2017). Regarding residents' pro-environmental behaviors in community-based ecotourism, research states that economic benefits of ecotourism have a direct impact on residents' PEBs (Liu et al, 2014). Further, a study by Liu et al (2014) indicates that high levels of social capital within communities encourage residents' PEBs, that cognitive social capital (values, attitudes, norms, beliefs) versus structural social capital (compositions, practices and scope of formal and informal local-level institutions) is more effective in encouragement of PEBs, and that a reciprocal relationship exists between communities as beneficiaries of ecotourism and the quality of ecotourism as defined by its tenets (Liu et al, 2014). In contrast to research that shows recreation and tourism's influence on pro-environmental behavior, some studies indicate that recreation and tourism experience do not influence pro-environmental behavior (Ardoin et al, 2015). These could be results of the context of the type of experience and education provided in the studies, or they could be results signifying that there is not a relationship between these experiences and pro-environmental behavior.

Influencers of Resource-Specific Pro-Environmental Behaviors

Building of place attachment through experiences, interpretive education programs, and volunteer opportunities are influencers of stewardship pro-environmental behaviors (Cheng &

Dwyer, 2017; Hashemnezhad et al, 2012; Powell & Ham, 2008). Research shows that recreation and tourism experiences in nature-based environments such as national parks develops place-attachment that can lead to stewardship pro-environmental behavior. Place attachment is a concept of environmental psychology that refers to the emotional and functional connections between a person and place (Hashemnezhad et al, 2012). It is associated with sense of place, in which a person deeply feels a connection to the place, associates it with identity, and imparts meaning upon it (Hashemnezhad et al, 2012). Research shows that place-attachment influences PEBs of not only visiting tourists, but also PEBs of local residents in tourism destinations, particularly the PEB of stewardship (Cheng & Dwyer, 2017). For example, a study by Cheng & Dwyer (2017) found that place attachment strongly influences word of mouth information spread about a tourism destination, ambassador behavior for resource conservation of a tourist destination, and increased tourism planning for a destination.

Interpretive education programs can also lead to stewardship pro-environmental behavior. In a study in the Galapagos Islands, Powell and Ham (2008) found that well-designed and delivered interpretation during the ecotourism experience influences increased knowledge of the host-protected area, supportive attitudes towards resource management issues facing the host-protected area, general pro-environmental behavioral intentions and philanthropic support of conservation. In order to have the greatest chance of impact, should be built with consideration of the culture and history of the audience (Packer et. al, 2014). For example, research shows that Chinese tourists have a cultural perspective that humans are an integral part of nature, and are more likely to develop place attachment through education that includes local human history and cultural myths (Packer et. al, 2014).

Research suggests that frequent stewardship volunteers are more likely to have a high degree of attention to environmental issues and environmental identity, feel personally attached to their local environment, believe their efforts are contributing to solutions of environmental problems, and take joy in being part of community efforts (Dresner et al., 2014; Ramkissoon and Mavando, 2017). Further, research supports that stewardship pro-environmental behavior activities not only provide environmental benefits and long term economic benefits through ecosystem services and maintenance of tourism attractions, but also opportunities to interact and grow relations with others leading to more resilient communities (Dresner et al., 2014; Ramkissoon and Mavando, 2017).

While literature exists on influencers of stewardship pro-environmental behavior, it remains a complicated field that consistently calls for further research. There is a significant gap in pro-environmental behavior literature about influencers of pro-environmental behaviors particularly pertaining to river stewardship. In the context of this research, river stewardship is considered the management and protection of rivers in their natural, non-polluted, free-flowing state, and most directly addresses citizen, business and government decisions and actions regarding human waste, industry waste, and hydropower development. Noted in the ecotourism section, whitewater ecotourism development can create positive and negative impacts to the natural environment, and so research on how whitewater tourism can support pro-environmental behaviors of local communities is crucial in order to attain tenets of ecotourism and global goals of conservation and development.

Opportunities and Constraints of Women Participating in Whitewater Ecotourism

When considering the benefits of ecotourism within local communities, it is important to consider who it is benefiting and empowering, as this can pointedly be biased based on gender, class, and other variables (Scheyvens, 2000). Studies indicate that in many cases of ecotourism development, men often dominate and monopolize tourism development and its benefits based on pre-existing gender roles and gender-privilege access to education for foreign language skills. Typically, men monopolize the benefits of ecotourism in local communities and higher-status ecotourism jobs (Scheyvens, 2000; Akama, 1996; Rudkin & Hall, 1996; Mansperger, 1995; Sindiga, 1999; Stonichetal., 1995). Scheyvens (2000) presents research supporting the notion that actively seeking out women in ecotourism development decisions is crucial. In many developing nations, women are directly involved with natural resources, food production, and gathering of firewood and water (James, 1995; Scheyvens, 2000. For example, if ecotourism is carried out in a way that affects where local women gather water or fuelwood, promotes soil erosion, or degrades resources, this directly affects their work and livelihoods; however, if women are participants in the development process, their knowledge of the area and sustainable and traditional practices is a valuable asset and increases integrity and sustainability (Scheyvens, 2000).

This reliance on and consistent interaction with the natural environment suggests that women have valuable knowledge of the local environment, and that their use of natural areas should be taken into account in ecotourism development and the establishment of protected areas (Scheyvens, 2000). Women's direct dependence and connection to the natural environment not only implies that they are specialists about their local areas, but also that they have an immediate vested interest in protecting them (Scheyvens, 2000). Further, studies suggest that the empowerment of women and increase in their control over household resources leads to more

sustainable investment of those resources, particularly in food and children's education (Revenga & Shetty, 2012; World Bank, 2011).

There are many opportunities for women to participate in whitewater ecotourism and gain resources through involvement in the industry. These include, but are not limited to working as guides, manufacturing and sales of handicrafts, and running homestay and restaurant businesses (Goharipour & Hajiluie, 2016; Farooquee, 2008; McKay, 2013). These opportunities have the potential to provide increased job benefit and direct economic gain for women from whitewater ecotourism development.

Within adventure tourism, guiding professions are considered higher status, and are often dominated by men (Evans & Anderson, 2018; Pohl et al., 2000; Scheyvens, 2000). Women's participation as guides yields the above-mentioned benefits in addition to those benefits of female involvement in sports, which include: higher levels of assertiveness, confidence, self-worth, self-esteem, and body image and increased skills and esteem for other achievements (Evans & Anderson, 2018; Pohl et al., 2000). Women's increased participation as whitewater ecotourism guides in Bhutan is associated with these benefits.

Constraints and Constraint Negotiation

Constraints is a theoretical framework for understanding and categorizing the factors that influence participation in outdoor recreation in order to address how and why some individuals do not participate (Metcalf et al., 2013; Jackson et al, 2009; Jackson et al, 1988). While the constraints theoretical framework was particularly developed to look at outdoor recreation, in the scope of this study, it will be generally applied to any constraints of women participating in

whitewater ecotourism, whether in the outdoor recreation component, or in the components of other opportunities within whitewater ecotourism, such as homestays and handicrafts.

Most constraints fall within three specific categories: intrapersonal (e.g., fear of or perceived inadequate skill level to participate in outdoor recreation), interpersonal (e.g., existing social relationships with family and friends are associated with preferences and habits of non-participation), and structural (e.g., lack of public transportation to an outdoor recreation area) (Metcalf et al., 2013). Intrapersonal and interpersonal constraints are perceived constraints that exist within individuals, while structural constraints are external factors (Metcalf et al., 2013; Stanis, 2009; Nyaupane et al, 2008; Jackson, 1993).

Constraint negotiation theory states that individuals who participate in outdoor recreation have navigated constraints through a hierarchical model, first through intrapersonal, next through interpersonal, and finally through structural constraints (Jackson et al., 2009; Metcalf et al., 2013). Contributing factors to the existence of constraints are demographics and background. Constraints negotiation theory assumes that constraints are not insurmountable objects, and that participation in outdoor recreation depends not only upon the absence of constraints, but upon the negotiation and overcoming of constraints (Jackson et al, 2009; Metcalf et al, 2013). Constraint negotiation strategies consist of cognitive and behavioral strategies. Behavioral strategies are broken into categories of time management, skill acquisition, changing interpersonal relations, improving finances, physical therapy, changing leisure aspirations, and a category consisting of miscellaneous strategies (Metcalf et al, 2013; Stanis, 2009; Nyaupane et al, 2008; Jackson et al, 2009; Jackson et al, 2013).

In the context of this study, gender dynamics, traditional gender roles, and time management within existing work are particularly relevant. Differences in history, culture,

perception of nature and outdoor recreation, perceived discrimination, and socio-economic marginalization are potential constraints to outdoor recreation (Metcalf et al, 2013). Researchers consistently call for more research on constraints and constraint navigation particularly of women's and minorities' involvement in outdoor recreation.

Constraints to women participating in whitewater ecotourism include both associated constraints to participating in tourism and constraints to participating in outdoor adventure recreation. Regarding outdoor adventure recreation, research shows that constraints to female elite athletes and amateur recreation participants both include gender relations, fear, and a lack of confidence (Evans, 2014). Constraint navigations of women in adventure recreation of both elite and amateur participants include reliance on social support, unshakable passion for the outdoors, and development and use of resilience strategies (Evans, 2014). Common constraints to women participating in ecotourism in developing nations such as Bhutan include gender relations, time constraints, and lack of knowledge related to the market (Scheyvens, 2000). In traditional gender roles of many developing nations, women primarily work subsistence farming and family management; therefore, adding more work such as making and selling handicrafts on top of existing responsibilities is sometimes infeasible due to time constraints (Scheyvens, 2000).

Participation of Women in Whitewater Ecotourism

Despite the crucial asset of women's involvement in ecotourism development, research shows that development initiatives, including ecotourism, have often ignored women's participation as development consultants despite women's critical role in long-term success (Scheyvens, 2000). Studies further suggest that increase in women's control over household income (either through their own earnings or cash transfers) leads to more sustainable investment

of that income from countries as varied as Brazil, India, China, South Africa, and the United Kingdom. This is particularly reflected in increased investment in spending on food and education for children (Revenga & Shetty, 2012; World Bank, 2011).

One of the outlined benefits of ecotourism as defined by the UNWTO is the empowerment of women, which can be achieved by participation in careers and income-generating jobs such as river guides (UNWTO, 2018). Further, gender equality and empowerment of all women and girls is a UN Sustainable Development Goal (UN, 2017). This goal is in response to research showing the more sustainable investment of resources by women, and issues of harmful practices against women, the issue of unpaid care and domestic work, unequal pay with men, general lack of women in leadership roles, lack of access to reproductive health choices, and relative lack of education for girls globally (UN, 2017). The International Ecotourism Society and the UNWTO state that women make up majority of the jobs of ecotourism worldwide, but they tend to work the lowest paid and sometimes unpaid jobs, and jobs that are considered the lowest status (UNWTO, 2010). In this context, specifically including women and targeting their inclusion in whitewater ecotourism development contributes towards both goals of sustainability, conservation, and community development (UN, 2017; UNWTO, 2018). However, it should also be noted that women participating in such jobs as whitewater river guides can cause a shift in culture, especially in regions in which this type of work is a change from women's traditional gender roles (Doran, 2016).

CHAPTER 3: Methodology

In Chapter 3: Methodology, I first present a background to this study, and then go on to explore the research design. The research design includes an outline of conducting short interviews, in-depth interviews, and focus groups. It includes descriptions of study participants, data collection, and analysis for each.

Background: This Study

In December 2017, a partnership was initiated between the Bhutan Foundation, RGP, and myself. From October 20, 2018 to December 9, 2018, I conducted qualitative research on whitewater ecotourism in Bhutan, primarily in Panbang, but also in Punakha. RGP and Bhutan Foundation generously coordinated all travel, itinerary, and research and any needed kayak, raft, and safety training logistics and we worked together to conduct whitewater kayaking and safety trainings for the RGP Guides for half days and a series of full days during the time of fieldwork and data collection. Tourism Council of Bhutan sponsored my visa upon the request of RGP to have me conduct whitewater kayak and safety professional development trainings for RGP. Tourism Council of Bhutan requested that I consult on the development of the Rules and Regulations of Commercial Rafting in Bhutan. I met with Tourism Council of Bhutan officials to discuss recommendations and they requested that I conduct company gear and guides' assessments of all of the river guides in Bhutan. Initially, they scheduled one morning for me to meet with representatives of all five of the Punakha river companies to assess gear, and I explained that more than one morning was needed to assess the guides' skills of the companies and that guide skills could not be determined by looking at rafting gear. Tourism Council of Bhutan then scheduled three days for guides' assessments on the Lower and Upper Mo Chhu

(due to the ambiguous closure of the Po Chhu due to black-necked crane habitat) in Punakha for December 6-8th, my final three days in Bhutan.

I have thus far provided reports and deliverables based on this data collection for project partners. I have completed three reports for Tourism Council of Bhutan: one on the recommendations for Rules and Regulations of commercial rafting in Bhutan, one on general recommendations after the preliminary meeting/ gear assessment with Punakha guides, and one final report after the RGP trainings and three days of guides' assessments in Punakha, which included summary of work, summary of guides' input, and summary of recommendations. I also provided initial and final reports for River Guides of Panbang and Bhutan Foundation in December and January 2019 with summary of work conducted and recommendations respective to RGP and Bhutan Foundation accordingly. Further, as deliverables of a National Geographic Early Career grant proposal, I completed a participatory research-informed action plan for RGP to engage in river stewardship and involve more women in whitewater ecotourism development and a mini-river guide curriculum for river stewardship (Appendix D and Appendix C).

The opportunities to conduct whitewater kayak and safety instruction and work with Tourism Council of Bhutan on national whitewater ecotourism assessments and recommendations contributed to developing rapport and local insight, observation, and context, which are significant in conducting qualitative research (Angelsen, 2011).

Research Design

This study was conducted using qualitative research methods through a case study approach. Researchers use qualitative research when they want to explore something complicated, something exploratory, and thick description in their research (Hesse-Biber, 2016; Namgyel et al, 2014). Qualitative research consists of the participants (interviewees), the data participants provide, and the researcher and/ or research team that collects and interprets the data (Hesse-Biber, 2016; Corbin & Strauss, 2015). Use of qualitative research methods allows for gathering and analyzing more extensive information, greater in-depth exploration of participants' responses, better understanding of the compilation of meanings and application, previously unknown variable for future research, and most importantly in the context of this study, concepts that have not yet been thoroughly researched (Hesse-Biber, 2016; Corbin & Strauss, 2015; Namgyel et al, 2014; Pope et al., 2000).

This qualitative research was conducted in two phases, with both Phase I and Phase II addressing RQ 1, 2, and 3. Phase I consisted of short interviews and in-depth interviews, and Phase II consisted of focus groups. For Phase I, short interviews were conducted with local community members and in-depth interviews were conducted with RGP members and key informants. Semi-structured interviews allow researchers to cover a consistency of concepts, while also providing the researcher the flexibility to ask the respondent for expansion or clarification on a topic (Corbin & Strauss, 2015). Short interviews were conducted with Interview Guide A (in appendix), which was reviewed by committee members and Tshewang Wangchuck of the Bhutan Foundation for cultural and contextual relevance before leaving for field work. Interview Guide A was revised twice (once after the first two short interviews, and once after the following 25 interviews) in order to better address the research questions, and in

order to shorten the time of interviews. In-depth interviews of RGP members were conducted using Interview Guide B. Main topic areas included in interviews were general background of the interviewee; perceived community assets and challenges; familiarity and experience with ecotourism; familiarity and experience with whitewater ecotourism; perceived environmental, social-cultural and economic benefits and challenges of whitewater ecotourism; perceived constraints and constraint negotiations for future whitewater ecotourism development; perceptions of advantages and disadvantages of hydropower development in Bhutan; future considerations and perceptions of alternatives to hydropower development perception; local waste management practices and waste management perceptions; and opportunities, constraints, and constraint negotiations to increasing women's involvement in whitewater ecotourism (particularly to work as guides). One-on-one interviews in Phase I contributed to establishing rapport, refining interview questions, and determining study participants for Phase II.

In Phase II, four focus groups were conducted: one pertaining to RQ2 (Focus Group A: women), one pertaining to RQ3 (Focus Group B: community members), one pertaining to RQ 1, 2, and 3 (Focus Group C: RGP members), and one pertaining to RQ1. Focus Group A was a focus group with women from the local community and the one female RGP member to discuss RQ2: How to support the involvement of women in whitewater ecotourism as guides (and also recreators)? Focus Group B was a focus group with local community members to discuss RQ3: How can whitewater ecotourism support pro-environmental behavior in the local community? Focus Group C was a focus group with RGP members to discuss findings from short and in-depth interviews, Focus Groups A and B, and action plan items for maximizing benefits of whitewater ecotourism development in Panbang, with particular focus on supporting the involvement of more women as guides and river stewardship pertaining to clean, free-flowing

rivers. Focus Group D was a focus group with one to four representatives from all six raft companies in Bhutan, and was organized by the Tourism Council of Bhutan to identify opportunities, constraints, and constraint negotiations of the whitewater ecotourism industry.

Focus groups are also known as group interviews (Babbie, 2004, p. 302). A focus group is usually between 4-15 people brought together for a guided group discussion (Babbie, 2004, p. 302). The purpose of focus groups is to explore rather than to describe or explain, which is relevant to the non-rigorous, non-probability sampling typically used to choose participants of focus groups (Babbie, 2004, p. 302). The pros of focus groups are that the group dynamic can create synergy and bring out ideas that otherwise would not realize in individual interviews (Yung, 2016). Focus groups can also help clarify differences, which is beneficial (Yung, 2016). The cons are that group members tend to put out different information and dialog that adjusts to group dynamics and norms when not in a setting of confidentiality (Yung, 2016). Focus groups are noted as being particularly relevant and appropriate in foreign cultural settings (Yung, 2016).

Focus groups A, B, and C were conducted by presenting a brief summary and goal of the group; followed by a series of prompts one at a time with approximately 10 minutes for group work and thought for each, and then presentation of group thought by a representative from each working group. Interview/ prompt guides were used for all focus groups and are included in the Appendix (Focus Group A: Interview guide C; Focus Group B: Interview Guide D; Focus Group C: Interview Guide E). Focus group D was conducted with a meeting agenda, after inquiries and observation on half day rafting trips with all Punakha raft companies.

Phase I

Study Participants and Data Collection

The study participants of Phase I short interviews were community members of Panbang be community members from Panbang (19), Marangdhutt (8), Panthang (3), Sonamthang (1), Thinleygang (1), and Yoeselcholing (1). The study participants of Phase I in-depth interviews were all RGP founding members (9), the new RGP kayak trainees (4), and key informants (3: Panbang Regional Head Forest Department Ranger; Executive Director of the Bhutan Foundation; and the Panbang town trash collector). The study population is made up of stakeholders and key informants in addition to local farmers, civil servants, restaurant owners, business owners, education professionals, health care professionals, and members of a local nunnery and monastery, which are the primary occupation demographics of the population of this region (Bhutan Statistics Bureau, 2017). Figure 4 shows the demographics of the study participants of short interviews.

Figure 4: Study Participants of Short Interviews (Numbers do not include short interviews with no response)

Gender	***Number of Participants***
Women	18
Men	15
Age	***Number of Participants***
21-30	17
31-40	7
41-50	4
51-60	5
Have Children	***Number of Participants***
Yes	18
No	14
Education (Highest Level Completed)	***Number of Participants***
Formal (Masters)	1
Formal (Bachelors)	9
Formal (3^{rd}-12^{th} grade)	6
Informal (Farming)	7
Monastic Body	1

Study participants were selected based upon purposive diversity sampling. Purposive sampling allows researchers to gather data quickly, but has inherent sampling bias (Russell & Harshbarger, 2003). Russell and Harshbarger note that, "In many circumstances, using non probability sampling is a way to work smartly" (Russell & Harshbarger, 2003, p. 159). Data from nonprobability sampling can be used to describe the interview respondents, but not the general population (Russell & Harshbarger, 2003).

The sampling unit was the individual. Individuals are often more appropriate units than households because households do not act uniformly and are hard to define with transient members and extended family (Russell & Harshbarger, 2003). Also, the household unit sometimes marginalizes women (Russell & Harshbarger, 2003). Note that sampling method will specifically included similar numbers of men and women for the sample of community members, as a goal of this study is to inform based upon the views of women and, historically on a global scale, their input is prone to being insignificant and peripheral (Scheyvens, 2003).

Data collection was conducted with a translator when the interviewee did not speak English. All interviews were recorded, and either real-time transcribed, or transcribed from recordings. While in the field, I conducted an initial data analysis identifying overarching themes that relate to the research objective and research questions. This informed the interview/ prompt guides for the three focus groups in Phase II.

Data Analysis

Data from short interviews of community members were organized into an Excel Spreadsheet and RQ-related quotes were put in a Word Document, with each quote attached to a survey number. This Word Document and in-depth interview transcripts were uploaded into NVivo, which is a software designed to help organize and analyze qualitative data. NVivo was used to identify codes, or thematic categories, of every interview (the entire data set). The codes were based upon recurring and overarching themes and insight that relate to the research objective and research questions. I used predetermined codes based upon my conceptual framework and the emerged Excel spreadsheet categories, and also allowed for the emergence of codes that were not predetermined, but rather were based upon additional recurring themes in the data. The primary review team consisted of me and my committee chair, Dr. Jennifer Thomsen. We discussed data themes at each step of data analysis, and went through phases of reorganization of data and themes in order to increase inter-coder reliability by assuring themes and concepts of analysis are similar and consistent (Babbie, 2016; Pope et al., 2000). Findings, relationships, and any shortcomings of overall themes and findings were grouped, analyzed and summarized (Babbie, 2016; Pope et al, 2000).

Phase II

Study Participants and Data Collection

In Phase II, four focus groups were conducted: one pertaining to RQ2 (Focus Group A: women), one pertaining to RQ3 (Focus Group B: community members), one pertaining to RQ 1, 2, and 3 (Focus Group C: RGP members), and one pertaining to RQ1 (Focus Group D: representatives from all raft companies in Bhutan, Tourism Council of Bhutan, and Bhutan Foundation). The interviews of Phase I informed focus group-invited individuals, but invitees were ultimately determined by RGP members who were aware of the goals of the study (primarily Dorji Wangchuk who also co-worked as a translator and facilitator of data collection for this study). The study invitees of Focus Group A were a purposive diversity of female community members. However, only two invitees attended the focus group and they were wives of RGP members; the third participant was the RGP female guide. The study invitees and participants (9) of Focus Group B was a purposive diversity sample of community members made up of stakeholders, local farmers, restaurant, hotel, and business owners and employees, education professionals, health care professionals, and civil servants. The study participants of Focus Group C were RGP founding members and the four kayak trainees.

Focus Groups A, B, and C were conducted with an interview/ prompt guide, with the Focus Group A interview guide tailored to concepts of RQ3, Focus Group B interview guide tailored to concepts of RQ3, and Focus Group C interview guide tailored to concepts of RQ1, 2, and 3. The focus groups began with an introduction in which the interviewees were introduced to the study, that it is optional to participate, and that each individual can decide to stop their participation in the focus group at any time. In order to best facilitate targeted, inclusive and respectful group discussion, I will presented some guidelines on format and group dynamics and

expectations for targeted, inclusive and respectful group discussion that is mindful to navigate away from "group think," which is the predisposition of the group conforming to the opinions of the most outspoken person in the group (Babbie, 2004, p. 303). All participants were familiar with whitewater ecotourism. The focus groups were conducted by presenting a brief summary and goal of the group; followed by a series of prompts one at a time with approximately 10 minutes for group work and thought for each, and then presentation of group thought by a representative from each working group. Interview/ prompt guides were used for all focus groups and are included in the Appendix (Focus Group A: Interview guide C; Focus Group B: Interview Guide D; Focus Group C: Interview Guide E). In order to be efficient with time, group think was carried out in the local language (Khengkha) and presentation of group thought was presented by an English-speaking member of each group. For any clarification and expanding questioning, I asked the questions in English, which was translated by a participant or an RGP translator (Tshering Choki or Dorji Wangchuck) to the group, discussed in Khengkha, English, or a combo, and responded to by a group representative in English. The conversations of Focus Groups A, B, and C were recorded and transcribed. If appropriate in group discussion, I incorporated such probes as, "can you tell me more about that," and used individuals' wording to ask for clarification of meaning if necessary. The focus group was planned to last one hour, as that is a respectful amount of time, and the focus group members were informed of this time estimate upon invitation. A location for the focus group was established to be the READ community center, as that was a good gathering location and private, but also less formal so that everyone felt welcome and comfortable. Food was provided and considerations of cultural respect and custom was incorporated.

For Focus Group D, a meeting agenda was created based upon the Tourism Council of Bhutan established goal to identify opportunities, constraints, and constraint negotiations of Bhutan's whitewater ecotourism industry, and observation and conversations with representatives from each company on half day raft trips on the Upper and Lower Mo Chhu in Punakha and observation, data collection, and focus groups in Panbang. The Tourism Council of Bhutan invited lead guides from each company to the meeting and food was provided by Druk rafting company. The focus group was conducted at the upper take out of the lower Mo Chhu. Notes of key take-aways were taken after the focus group.

Data Analysis

Similar to Phase One, NVivo software was used to identify codes, or thematic categories, of Focus Group A, B, and C transcripts and Focus Group D take-away notes. The codes were based upon recurring and overarching themes and insight that related to the research objective and research questions. I used predetermined codes based upon my conceptual framework, but also allowed for the emergence of codes that were not predetermined, but rather are based upon additional recurring themes in the data. Findings, relationships, and any shortcomings of overall themes and findings will be grouped, analyzed and summarized (Babbie, 2016; Pope et al, 2000).

CHAPTER 4. Whitewater Ecotourism: Opportunities and Challenges for Local Communities

In Chapter 4. Whitewater Ecotourism: Opportunities and Challenges for Local Communities, I first present Results, which includes sections on benefits of whitewater ecotourism in Panbang, Bhutan (with sub-sections on economic benefits, environmental benefits, and social-cultural benefits) and challenges of and constraints to whitewater ecotourism development (with sub-sections on challenges of whitewater ecotourism, and industry constraints to whitewater ecotourism development). I then present a Discussion, which includes sections on benefits of whitewater ecotourism development to local communities, and challenges and constraints to whitewater ecotourism development.

RESULTS

Benefits of Whitewater Ecotourism in Panbang, Bhutan

Economic Benefits

Respondents identified four primary economic benefits of whitewater ecotourism in Panbang (listed here beginning with item of most mentions): (1) provides indirect income and jobs to other individuals and businesses by attracting tourism to the area, (2) provides direct economic benefit through whitewater ecotourism industry jobs (such as guides and cooks), (3) contributes to general economic development, and (4) yields donations to the local community and local community members.

Interviewees mentioned indirect economic benefits to whitewater ecotourism in Panbang. There is economic benefit of indirect income and small growth in job opportunity within the local community provided by whitewater ecotourism. Some interviewees clarified that before RGP, there was no tourism in the area, and that the start of whitewater ecotourism began tourism locally and continued to attract tourists from which other businesses and individuals economically benefit. A community member described, "This facility of having rafting, this makes tourism flow in the Panbang area." One indirect form of income is when local villagers visit RGP's ecolodge, offer local food and alcohol to guests, and receive a customary compensation for the offering. Other mentioned opportunities for associated income and job opportunities included construction jobs, furniture sales, local crafts sales (e.g. woven bamboo crafts), convenience store goods, and sales of vegetables and food items that RGP uses to cook. Another interviewee described:

> There were no tourists visiting this place, but after the founding of RGP, we saw a lot of tourists coming here. That's always a benefit to the community. A benefit for community is only a money I think, so when we make a visit to the village, there is the offer of the

> local products and as a gratitude the tourists pay some moneys. Also, … RGP seeks help in communities nearby to work on construction.

Additionally, River Guides of Panbang was mentioned multiple times for providing economic benefit to the nearby Royal Manas National Park. RGP pays the park five percent of their sales annually, which one RGP member estimated to be around 17,000-18,000 Nu ($245-$260 USD). Describing this, an RGP member described, "[Because] we want[ed] to do rafting and have to go through [the] park, we came up with the idea to pay them." Whitewater ecotourism also provides economic benefit and compensation to Royal Manas National Park on the occasions RGP is able to book "elephant safaris" and tours in the park, which occurs when there are interested guests and these activities are available.

Direct economic benefits of job opportunity and income for work with River Guides of Panbang was another commonly cited benefit. Job opportunities was particularly important for unemployed youth (i.e. 16-25), especially those who did not pass the higher education qualifying exam in grade 10. Describing this direct benefits, one interviewee stated, "The economic benefit is pretty evident. They [River Guides of Panbang] make more by spending the same amount of time working with River Guides as they would working in wage labor, as day laborers, or farm laborers." Describing a perspective of direct economic benefit, one community member stated, "There is no other source of income in the tourism here and they [River Guides of Panbang] attract tourism. Most tourism comes here and goes for rafting... I support rafting." RGP guides are paid 500 Nu/ day for day trips and 2000Nu/ day for expedition trips; however, in the current structure, management does not get paid and meetings, community work, and other work is usually volunteer. During fieldwork, RGP management increased the cost of a raft trip on the Manas Chhu from 5000 Nu/ boat to 6000 Nu/ boat in order to facilitate employing and paying 2

of the kayak trainees on every trip so that the trainees could continue to build their kayak skills, and they could have job opportunity and financial benefit.

Community members, RGP guides, and key informants all noted RGP's potential and goal to employ unemployed youth. An RGP member noted, "We have a good opportunity for youth who do not qualify for high school or jobs; we are employing them with us." Beginning in October 2018, RGP took on four kayak trainees and two cooking trainees, all of whom were "unemployed" youth who did not pass their higher education qualifying exams and were working wage labor jobs when possible. One perspective of a community member discussed the broader economic benefit of the tourism industry providing youth employment, which further feeds the national economy, stating, "Mostly, graduates don't get jobs… Tourism is the vehicle that… creates more job opportunities and helps economic development of our country very much."

Multiple interviewees also mentioned general economic development as a community benefit of whitewater ecotourism in Panbang. Although there has been some local development of ecolodges in Panbang to promote economic development, due to the small scale of whitewater ecotourism at the time of interviews, references of general economic development mostly refer to the potential of future development that could be attracted by growing tourism in the area. In reference to the notion of building whitewater ecotourism as a means of not having the community "left behind" in development, which is locally referred to as "backwards", one RGP member described:

> With this change in time and period… if it's still backwards and if the community is still working as villagers, one fine day, when other places get developed, our place… [would] stay backwards so that we cannot compete with other places. So the plan is that if the RGP is to attract more tourism with rafting, birding, and sometimes biking so that more... tourism [is] attracted to our village. [This] helps our community to become a little more developed.

One local community member reflected on the small scale of tourism that currently exists in Panbang: “Right now, as such [in its small scale], it is a little odd to point out the benefit, but yes, tourism [in Panbang] should benefit in a much, much larger way, like we expect many commercial activities, and then because of this tourism, we are also expecting much construction in terms of development. We also see other contractors taking interest in Panbang.”

Some interviewees mentioned donations to the local community as a benefit of whitewater ecotourism. Mentions of donations included those from RGP’s primary nonprofit partners for identified community needs, such as a need for a new generator for the hospital in Panbang and a better water supply for Marangdhutt village. Mentions of donations also included donations given by tourists such as a gho (i.e. a traditional Bhutanese male dress and school uniform), school bags and supplies, small cash donations, and items such as flashlights to local villagers.

Environmental Benefits

Environmental benefits of whitewater ecotourism in Panbang included increased opportunities and action for (1) environmental education, (2) increased river stewardship and local societal value of healthy river environments, and (3) patrols for illegal activity for the forest department.

Throughout the interviews and focus groups, there were ninety-four mentions of environmental benefits of whitewater ecotourism; however, of the mentions, there were only five mentions from community members, the remainder were from RGP guides.

Environmental Education

Interviewees mentioned environmental education, realized and potential opportunities, for River Guides of Panbang to educate whitewater tourists, local students, and community members. RGP guides described their pre-trip safety talk to guests to include a talk about trash, encouraging guests to pick up trash if they saw any along the river or river banks. While never observed, some guides mentioned that they sometimes do a small trash pick-up of the area as part of this speech. Further, trash was noted as being collected on each day trip and packed out of the river. Referencing environmental education and its connection to being a river guide, one guide described:

> As a raft guide, we are not only rafting and guiding, we can even talk about the river and environmental issues. We always give more emphasis on the trash whenever we go on short trips. We never do let clients throw trash. These are simple things, but they will affect lots in coming days. We are worried about these things, but it's getting better now. The river is the source of our bloodline as a river guide.

The primary source of trash produced on RGP day trips was the bottled water RGP provided each of its guests. An RGP NGO mentor described encouraging RGP to change the practice of providing bottled water and use and maintain a system for people to have reusable water bottles; however, reusable water bottles were noted as being far less common for Bhutanese and Indian guests to have.

RGP members also mentioned providing informal environmental education to the Indian tourists who go to the Panbang bridge and picnic and are known for leaving trash. One RGP guide described, “When they come for swimming in this river, they bring so many momos, juice, and beer, thinking that when the river becomes big, it will wash all the trash away. When we are here, we can just write [have a sign and/ or say] please do not do these things now. You can take the trash yourself. Please do not litter around the river bank side.” While observing whitewater

ecotourism raft guides in Punakha (the first and only other whitewater ecotourism town in Bhutan as of the time of data collection), one RGP member described the need for the Punakha river guides to pick up trash on their river systems. The RGP member noted observation of some Punakha guides littering, and that there were large amounts of litter at the commercial rafting put-ins and take-outs around Punakha.

RGP members referenced multiple techniques they used for trash management environmental education. One technique was to compare the environment a community member or villager remembered during their childhood times versus present day. Describing a talk to a group of community members, one guide said:

> At first, we give a talk on the environment and on how the river is helpful for us, how it is going and existing now. To some of the people, we ask: how is the nature when we were small and you are at a young age? Before, in our young age, we saw [a] lot of fishes with our own naked eye breeding at the confluence, and nowadays we can't see [any fish] from there. [Then,] we go on to talk about how to take care [of the river and environment], and how species have become extinct.

Another technique for informal environmental education of nearby villagers and Panbang community members included asking people to compare their "comfort" and "liking" for a place with trash in it and without trash in it. An RGP member recounted the example, "There [a village of eight households at Camp 2 of RGP's Drangme Chhu Expedition Trip], we have a small community so we go up and we share about the disadvantage of trash. We share … [a] short example inside their home. We placed one plastic here, we said to them, "Right now, is your home comfortable seeing the plastic? You choose.' They said, 'No, not comfortable with the plastic,' then we just pick up the plastic and we ask the question, and they say 'yeah, it's clean!' We tell them never throw trash by the river, let the environment be… natural."

Another guide expanded on environmental education about the river with local villagers, particularly talking about the greater worth of the river and the environment. He mentioned local

agriculture struggles that were influenced by climate change and said that he sat down to have a conversation with people who were uneducated and did not know about climate change. He recounted, "I am sharing with them to give them some knowledge [about climate change] and also on the protection of the river source and the environment."

Multiple RGP members mentioned the idea and opportunity to connect with the local school's nature club to provide rafting, kayaking, and environmental education. One RGP member described, "While we are doing a group meeting, we came up with the ideas regarding the nature club students; they are in our high school and primary as well. We have planned to give them a rafting trip every year, so that we will organize one day trip for them, and we will convey the message regarding the trash and how to manage the trash."

One RGP guide discussed a need for shorter school days so that children and young adults would have time to play by the river and develop other skills or trades. The guide connected this concept to the broader issue of the nation's youth unemployment, noting that school days in Bhutan were so long that the youth did not have the time to develop a diversity of skills that could be utilized in employment after graduating to the very limited job market. He noted, "That system of 8am to 4pm education needs to be changed. If [the school day] was shortened to 2 pm… based on opportunities... from 3pm-5pm students could play in the river if we have the equipments… These two hours… [would] benefit both the [formal and informal] education and youth unemployment." This individual continued stating:

> In Bhutan, what I see is students [are] always finishing their degree with no other extra training. When they finish the degree, if they didn't get a job and didn't go for training, then it's too late to get educated… From the beginning, if students take both [formal] education and the technical part, then it will be easier when students complete their degrees, and the education side and the technical side will benefit more. For the river guides, if some [students] are lucky enough and good in athletics, like what XXX [female guide] is doing with kayaking, then who knows? By doing kayaking XXX [female guide] will earn more [than in other jobs and opportunities]. This is what we have to analyze.

While there had been discussions of RGP connecting with the Panbang Primary school's Nature Club and doing environmental education and rafting programming, at the time of field research, nothing had been executed regarding this idea. In March 2019, members of RGP met with school officials to discuss moving forward with the idea of leading a program in trash management, rafting, and kayaking with the school's Nature Club.

River Values and River Stewardship

The increased value of healthy river systems and increased river stewardship were identified as environmental benefits of whitewater ecotourism to the local community. One RGP member reflects on how Panbang's clean rivers and rich biodiversity attracts guests:

> It is very good and nice that we have the surrounding of the cleanliness of water. The cleanliness is good compared to others like the Thimphu Chhu, which has all trash in the river, so many trash… this river [in Panbang] is very good one. Even if you flip or drink this river, it is good; our river itself is good and also we have some nature and animals; they [whitewater raft tourists] are enjoying it here.

One RGP member recounted a whitewater expedition team from the United Kingdom complimenting the cleanliness of Bhutan's rivers and offering recommendations for plastic pollution: "When they [the UK whitewater expedition team] give us such recommendations, we feel much more encouraged and supported to work on this [plastic pollution reduction and river cleanliness] particularly."

There were multiple mentions of river stewardship, particularly of providing waste management infrastructure within the community, conducting multiple trash clean-ups, and of RGP "adopting" a section of river. RGP guides reported that they built trash management infrastructure in an effort to improve waste management in Panbang, and to reduce trash in and around the river, particularly by the Panbang bridge. RGP reported building trash cans and

distributing them throughout the community, and building a town pit for dumping prior to the government providing the tractor trash pick-up for households and town waste dumping pit. Describing facilitating the request for the tractor and better waste management infrastructure, one RGP member stated, "I… [requested]our local government leaders to require one waste collector in our area. Before people used to throw trash in the Drangme Chhu [river], so now we have completely stopped throwing trash all over."

RGP co-led multiple river trash clean-ups in the community. The two most mentioned were the Clean Bhutan RGP river clean up, in which Clean Bhutan provided gloves, tee shirts, and lunch to participants and the ICIMOD-sponsored River Awareness day in 2016. Notably, RGP members described these events as being a good idea and worth repeating, but thus far, a river clean-up has only occurred once. RGP also mentioned sporadic informal trash clean ups in the community. Describing Panbang's waste management and RGP's engagement in it, an RGP guide described:

> Before, we [the Panbang community] don't have waste management. We talked to the government and town shopkeepers. Waste is mostly generated through town. At first, a lot of people don't know where to take waste and sometimes they throw waste in the river, but now that is at a stop- it is really positively gone. Before, it was lucky that you never see a lot of waste… there were loads of papers and bottles in the river. [For example, in] Marangdhutt… many people come for washing, swimming and picnic practice. After we made jungle camp, we took a lot of responsibility for this river. We even have a plan to … make this river sustainable and clear.

RGP's Jungle Lodge is along Marangdhutt creek, which is a primary breeding ground for the golden masheer, an endangered fish species. Two United States' biologists have been repeat guests at RGP's Jungle Lodge and have undertaken field studies of golden masheer in Bhutan. Some RGP members noted learning about the importance of Marangdhutt creek from these guests/ experts and from a World Wildlife Fund conference held at RGP.

Patrols of Illegal Activity for the Forest Department

RGP's contribution to patrolling for illegal activity along the river, particularly illegal fishing, but also other illegal activities, such as overgrazing and illegal "cutting", or timber harvest is another environmental benefit of whitewater ecotourism in Panbang. River guides in both Panbang and Punakha were trained on removing any fishing snares they saw in the river. In Panbang, some RGP members reported that if they saw any illegal fishing, they collected names and reported the information to the forest officials. One RGP member described, "Before having rafting in this river, there were lots of fisherman, but now, if they see rafting people coming, they will leave all fishing gear in the river, and we collect it all and hand it over to the forest officials." The regional forest ranger of the Panbang area affirmed whitewater ecotourism's involvement, saying, "We have to thank RGP, they have been helping us in many, many ways. People, they fix snare traps by the riverside for various wildlife, fish, and wild game, so RGP has been helping us [to monitor and remove them]. In that context we are really grateful, as of now RGP has been very cooperative. We tell them if there are snares, destroy them and report back."

Bhutan's policy on fishing is multi-layered and inconsistent. Many of the local people used to depend upon fishing in the river for subsistence. When the national government declared fishing an illegal activity, there were mentions of absolution of illegal fishing fines by Panbang forest officials due to the understanding that local villagers in some regions depended upon fish as a primary food source. Rules now declare that some villagers are allowed to fish, but the distinction between who can fish and who can't was not overtly clear. One RGP member described one approach to addressing this issue by opening up conversation about the issue with local villagers, recounting:

> Being a river guide, I take it to be our responsibility to inform. With illegal fishings going on, instead of scolding, we are there to give information on how to adopt good things, not by chasing them. I let them talk and let them talk about why they go for fishings- 'I don't have curry, I want to go fishing.' The advantage[s] and disadvantage[s] of fishing are a lot and that's why we should sit and talk and share knowledge and information and talk about how to manage and be sustainable. This is the responsibility of the river guide.

Motivation for river conservation activism is an environmental benefit of whitewater ecotourism in Panbang, Bhutan. There were multiple mentions of a need and intention to speak out to the government, form a group, hold a conference, and lead a community meeting to educate and strategize for action against the proposed hydropower projects nationally and for action for better waste management in the local community. This will be expanded upon in Chapter 6: Supporting Pro-Environmental Behavior through Whitewater Ecotourism: Perspectives, Practices, and Actions for River Stewardship.

Social-Cultural Benefits

Social-cultural benefits associated with whitewater ecotourism development in Panbang included: volunteer search and rescue, community projects, and donations; sense of pride; knowledge and culture exchange; youth employment; cultural preservation; increased education opportunities and skill development; women's empowerment; and recreation.

Volunteer Search and Rescue, Community Projects, and Donations

Volunteer search and rescue, community projects, and donations were the most mentioned social-cultural benefit associated with the whitewater ecotourism in Panbang. Search and rescue was identified as a social-cultural benefit of whitewater ecotourism for the local and regional communities. The River Guides of Panbang are called to engage in search and rescue

efforts for river-related accidents. These accidents are mostly overturned ferries, but also include individuals slipping or jumping into the river. Thus far, the accidents have been body recovery efforts. Describing the search and rescue community benefit provided by the whitewater safety and river navigation skills inherent in whitewater ecotourism development, a community member described "I heard last time there was an accident near the bridge, they used a boat to search for people. I wasn't here, but that is beneficial... I think that is so helpful to the community." RGP has volunteered for all of the multi-day search and rescue efforts.

In addition to being available for search and rescue, RGP facilitates ongoing community projects. These community projects include building improved water supply for Marangdhutt village, distributing seeds and offering awareness about improved farming practices, and purchasing a generator for the Panbang hospital. Many respondents identified improved access to water as the greatest community need. The interviewees of this study consistently stated that their primary water source was a spring; the large rivers were not used as primary water sources due to their higher sediment content during the summer monsoon months. Describing the connection between community projects and whitewater ecotourism, an RGP guide stated, "We started providing them with water supply because there was no available drinking water. In return, we need organic vegetables from there [Marangdhutt]. Obviously, we are going to pay [to buy the vegetables]. That's a double benefit for them." Another guide described, "We encourage them to come up with organic vegetables and fruits, and in this way we encourage them to sell products to RGP and they can get benefit with small funds."

The water supply, seed donation, and improved farming techniques training project in Marangdutt is multi-dimensional. On a larger scale, these efforts promote sustainable and organic subsistence agriculture in rural regions to decrease the dependence upon India for food

imports, many imports of which are noted for being "unhealthy" due to chemical additions during growing and processing. On a local scale, the water project is providing a village with cleaner and more consistent water supply by improving basic infrastructure. The project is also an investment in improving local food security, as well as an opportunity for a greater number of individuals to benefit from whitewater ecotourism through sales of local food. If the villagers are able to use the trainings and seeds to successfully grow more food, then the outlined RGP plan is to buy as much local produce as possible to supply to local ecolodge.

Another primary RGP-facilitated project was the donation of a new generator to the local hospital in Panbang. RGP facilitated the purchase, transport from India, and installation of this generator after discussions with the local hospital established a generator as a primary need. Due to the summer monsoons, there are more frequent electricity outages during these months, which is also the time the hospital houses the most patients due to an increase in heat and pest-related disease admissions. Before the generator, upon a power outage, hospital machines would shut down, nurses would make rounds by flashlight, and most significantly according to hospital staff, medications that required refrigeration would go bad and not be able to be immediately replaced.

To both community members and to RGP guides, increases in Western tourists was sometimes associated with the social cultural benefit of increasing donations to the local community. One community member described:

> I haven't noticed any social-cultural benefits, but as long as I think it is in a good way- it would obviously benefit the public. I think usually if tourists can commit to the community, go for a school visit, situ visit, and ask for genuine problems, if they can donate anything for genuine problems, especially to school and BHU, it will benefit tourism and I think they will benefit the community as a whole. I think it [whitewater ecotourism/ RGP] is very beneficial to the community as a whole.

The relatively small number of foreign tourists to Panbang have contributed to donation projects.

Other nonprofits have identified and partnered with RGP in order to spread knowledge and institute community projects, such as a river clean-up day with Clean Bhutan, and a river awareness and clean-up day with ICIMOD. While these efforts were successful, they were only conducted once. There were also mentions of a 15,000 Nu donation from RGP to the construction of the local monastery in Marangdhutt.

Sense of Pride

The development of whitewater ecotourism in Panbang was associated with a sense of local pride for individuals and the community. This related to pride in supporting the country's first female kayaker, pride in ability to help the community with search and rescue efforts, pride in local rivers, and pride in being a whitewater ecotourism community. Describing this benefit as related to the RGP guides, one interviewee shared:

> Especially with the original members- there is the pride of ownership. They're not working for anyone else, they own their pride, and it improves their place in society. When there's an accident, anyone can look for and goes to the River Guides to help. That's important in society, your standing in society and your sense of contributing, there is a big benefit from that because they [RGP members] now see tangible benefits.

RGP's search and rescue efforts were noticed and acknowledged by the King of Bhutan, a great honor, and after one particular effort, the King donated one raft and 12 mountain bikes to RGP and the former prime minister and other members of parliament have visited and rafted with RGP. One RGP guide described, "The government is happy with us. The King graced us with one raft, and thanks us for helping the people." In an individual interview, an RGP guide offered a perspective of community support and river guides' community standing stating, "I can say [to] you the community people here supported us a lot. They talk more about river guides... so many people want to be part of it, even police officials." The interviewee went on to describe RGP

having their voices heard in the community in the face of any objection as, “They will say, ‘They are River Guides, please let them.’”

There is also associated pride for the community and RGP to be supporting Bhutan’s first female kayaker. One interviewee stated, “so proud to say, ‘Yeah, we are having women kayakers.’” In an interview, the female kayaker described a sense of pride about being a member of RGP and learning to kayak, stating, “I am excited to do kayaking before but now being first female kayaker in Bhutan I think I am very happy and I have no word to express.” Others noted that, in their perspective, due to her family situation, XXX [female guide] had very limited opportunities, and that RGP was an opportunity for her to grow her place in society and support her mother, sisters, and nieces and nephews who she lives with in one household.

Interviewees also mentioned a whitewater ecotourism sense of pride in the cleanliness and whitewater ecotourism quality of their local rivers. One interviewee described that the Mangde Chhu was recorded as being one of the top ten rafting rivers in the world. Hearing this from a whitewater raft and safety trainer in Punakha, the RGP guide described, “I feel very lucky.”

Knowledge and Culture Exchange

Knowledge and culture exchange was a mentioned social-cultural benefit of whitewater ecotourism in Panbang, Bhutan. Local community members and RGP guides noted knowledge and culture exchange from whitewater ecotourism to include: safety knowledge and associated local advocacy for river craft mandatory safety standards, whitewater ecotourism concept knowledge, information about sanitation, biological and conservation knowledge about the local river, and general cultural exchange.

As a result of whitewater ecotourism development, RGP guides developed and shared safety and community-based whitewater ecotourism knowledge with others. Due to involvement with search and rescue of river-related accidents, which were mostly overturned wooden ferries making a river crossing, RGP advocated to higher authorities that anyone on the river, and particularly those taking others on the river in any capacity should be required to wear and have all passengers wear PFDs (i.e. personal floatation devices, also known as life jackets). One guide described that he was sure there would have been zero fatalities in the accidents if there was a rule that required everyone to wear PFDs on the river, but no such rule has been mandated at this time and there remains issues of cost and access to such equipment. RGP guides have also shared information with others about community-based whitewater ecotourism and the benefits of developing such industries. One guide described, "I have a consultation meeting with NGOs in India... and I have shared opportunities of this river tourism in Panbang and they like it very much. They wanted us to visit their place and share on river tourism as an important thing."

Some interviewees noted the benefit of knowledge and culture exchange with foreigners. One community member noted that "the foreigners encourage us to keep sanitation, clean" as a benefit to the local community, and multiple RGP guides noted learning and gaining knowledge, particularly about the golden masheer, from interaction with biologists and conservationists while hosting WWF and Bhutan Foundation teams at their Jungle Lodge. Western foreign tourists have also left impressions on importance of trash management, a clean environment, and not using plastic bottles. One community member described, "One trip with a group of tourists… they have picked up trash here, the villagers people from roadside or other area have seen, and even I have seen the tourists have cleaned up nearly thirty minutes here." There was also noted observation by interviewees of local villagers simply enjoying meeting foreigners, visiting with

them, and learning more about foreign tourists. Finally, one community member noted that the inherent cultural exchange of tourism was a benefit for the area to move forward with development, describing, "Through tourism, and cultural exchange, slowly, slowly and gradually it [Panbang and the Lower Kheng region] will develop, but compared to all other… [districts], it is the most remotest [and undeveloped] area of our country."

Youth Employment

Providing employment for unemployed youth (classified as approximately ages 16 to 25) was identified as a social-cultural benefit of whitewater ecotourism development. From its start, River Guides of Panbang was set up as a community-based rafting company with the goal to particularly give employment opportunities to local, unemployed youth in the rural area of and around Panbang, Bhutan. Describing the circumstance of youth unemployment in Bhutan, one interviewee stated, "One of the causes for… [youth unemployment in Bhutan] is that the youth go to school and don't really finish. They have half an education and everyone wants to go to urban areas and get a job, but there aren't that many jobs." According to another interviewee, Bhutan "did too good of a job" educating its youth with a more formal, Western-model of education, but now the country, which has traditionally been a subsistence agriculture based society, does not have enough non-agricultural jobs to support those who want them.

Stating the importance of the role of addressing unemployed youth, one RGP guide described, "Youth must be involved to reduce drug abuses. In Bhutan, we are having this problem. Youth don't get jobs and there is migration of youth to Thimphu, and so many dirty things happening there… we don't want our youth roaming like a stray dog in cities… we want them in our villages and working. Directly or indirectly we [RGP] are supporting our

government by making some employment." Another RGP guide described hiring unemployed youth when the company has large groups, stating "We have a good opportunity for youth who do not qualify for high school or jobs; we are employing them with us and that's because of tourism here."

Cultural Preservation

Cultural preservation incentive was a mentioned social-cultural benefit of whitewater ecotourism development. Interviewees identified preservation and promotion of local culture (including local crafts, festivals, and traditions) as an important factor for tourism growth. Based on interactions with tourists, one interviewee described:

> They encourage us... to maintain our culture that is now day by day getting extinct and they teach how to preserve it. For the development of country or place, I think our culture and traditional should not be bent or get extinct… our cultures should always go parallel with the development of the country, so that it can attract more... tourism.

The Lower Kheng region is known for woven bamboo products, which are sometimes sold for triple or quadruple the price in the more-tourist developed region in and around the capital of Thimphu. One interviewee noted, "We need to promote our Kheng traditions and culture and even handicraft bamboo weaving... If we sell [local crafts here], obviously the community will make more money from the tourists."

One younger interviewee emphasized this benefit of cultural preservation incentive particularly in the new age of social media and its influences, describing:

> In olden days in our country, there is rare chance of seeing social media… [but] nowadays, due to development, our youth looks on mobile phone, tv, sometimes on laptops and computers… our youth are getting on a wrong track, they try to copy what … [they see] in the media… But, with the development of tourism, most of the tourists come to our country to see our traditions….We have a unique tradition and culture and tourists are attracted by this unique culture. If there is no opportunity of tourism in our localities, we cannot get the knowledge that we should keep our traditional [practices] alive still.

Increased Skill-Development and Education

Increased skill-development and education opportunities was a mentioned social-cultural benefit of whitewater ecotourism development in Panbang. These opportunities included whitewater raft, kayak, and safety skill development trainings; attendance of international and national conferences related to the environment and conservation; birding, flora and fauna, bike maintenance, housekeeping, and food and beverage training; and organic agriculture training and were a mix of opportunities that were specifically for RGP guides and for community members. At the conclusion of a one month whitewater kayak training, one RGP member stated, "When XXX [kayak instructor] is not here, I think I will practice my kayaking and I will always do kayaking, and… [when] I will I am feeling comfortable with kayaking then I am going to teach my youngers, I am going to teach them." Another RGP member described, "I got an opportunity to visit Nepal and attend an ICIMOD program that also related to the environment commerce and to the young, and how to link together and work for benefit of community. I got opportunity to go there." Describing supported skill-building opportunities through whitewater ecotourism, one RGP member mentioned, "XXX went for one month of food and beverage at Aman [luxury hotel chain, Thimphu location], and there has been a training for mainly repairing of cycles; we have sent one friend up and he has done twenty days training as bike mechanic, and last year three of us went to Aman through XXX [donor] support and we have done food and beverage and housekeeping training."

All skill-development and education opportunities had the potential to provide further self-learning opportunities, and pass along knowledge to others. The whitewater raft, kayak, and safety skill development training was particularly noted for being passed along and shared in

some capacity with other individuals in at least one training for interested community members, while the skill-development and education opportunities gained from other tourism-specific trainings (such as bike maintenance) and attendance of conferences was particularly noted for thus far, not extended beyond the individuals who immediately participated.

Women's Empowerment

Women's empowerment was a mentioned social-cultural benefit of whitewater ecotourism in Panbang. This benefit is recent and thus far, small in scale. While RGP noted encouragement and intentional recruitment of women for work and related professional development trainings, their first female river guide trainee began kayak and whitewater safety training in October 2018. Interviewees noted that this was significant the female river guide trainee's personal empowerment through employment, ability to contribute to support her family, and grow sense of esteem, pride, and place, and also on the larger scale of empowerment for women of Bhutan to recognize and grow equal opportunity and its benefits for women and society. Women's empowerment is discussed in more detail in Chapter Five: Women in Whitewater.

Recreation

Recreation (i.e. opportunities for fun, relaxation, quiet, exercise and seeing wildlife and nature) was mentioned by a smaller group of respondents as a social-cultural benefit of whitewater ecotourism in Panbang. Describing the opportunities and benefits of whitewater ecotourism, an interviewee stated, "Rafting is a good business venture. Usually the people like to go and... they enjoy… People like rafting. They like it because they can see many more new

things, like the wildlife area." Other interviewees described how fun and enjoyable rafting was both as a personal experience, and as an activity to enjoy with a group of friends. Another interviewee described a more peaceful aspect of whitewater ecotourism, saying, "By nature of the river, … [people] are attracted. When… they see the good sense of the river... they… go and enjoy the silence."

Challenges of and Constraints to Whitewater Ecotourism Development

Challenges of Whitewater Ecotourism

There were very few mentions of challenges created or associated with whitewater ecotourism development in Panbang. Most interviewees stated that there were no negative effects of whitewater ecotourism, and this may relate to the current relatively small scale of the local industry. One interviewee described, "I don't think there are many disadvantages to rafting tourism. So far, teams are very small, so [there have been] no problems," and another noted, "In our case, we haven't seen any bad things about tourism yet. It's not yet exploited… tourists respect the farmer and guide, and the community respects the tourist. We are a special country."

The most mentioned challenge of tourism in Panbang was litter from Indian tourists. One interviewee distinguished that tourists fall into the categories of foreign (Western), Indian, Asian, and Bhutanese. Describing the Indian tourists, the interviewee stated, "There are different classes of tourists. For example, Indian tourists are not good with cleanliness, waste management, and behavior. The Indians, some usually don't care about the waste; they throw it in other places." Another interviewee described, "There are no negative things about tourism. There are no problems with foreigners, but Indians never take their waste." Indian tourists were noted for consistently littering, particularly at the Panbang bridge, where, in an effort to address

the challenge, the community installed a signboard and waste bin, asking visitors to clean up litter, which some respondents noted resulted in some improvement to the ongoing challenge. Indian tourists were also noted for unsatisfied, rude, and inconsiderate behavior. One interviewee described, “I am not blaming Indian tourists. The mentality is different. They are very good at complaining.”

If the scale of whitewater ecotourism in Panbang grows, some respondents noted that influxes of tourism would cause challenges. Describing potential social-cultural and environmental challenges, one interviewee stated:

> There have been no negative effects seen yet, but a place like Panbang can get easily overwhelmed and overrun. The XXX festival is a perfect example. What is genuine and authentic can also easily be transformed into something they just put on for tourists. The volume of tourism increasing will be something they’ll have to deal with - the garbage and social disruptions that come with it; the community needs to plan and anticipate these things.

Recognition of a need for a community plan that addresses predicted environmental, social-cultural, and economic challenges is particularly relevant in the context that in January 2019, the government approved a plan to build and open long-term entry immigration stations for Indian tourists at checkpoints near Panbang.

Existing social-cultural and economic challenges related to whitewater ecotourism included few mentions of: communication challenges (a need for translators and/ or English-language education); cultural differences in hospitality exchange; extended time away from family due to the seasonal and intensive nature of whitewater ecotourism guiding work; benefits of whitewater ecotourism being limited to the small number of RGP individuals; reduced access to river use; disruptive behaviors of Indian tourists; and, economic leakage of mainstream tourism to the concentrated tour agents and operators in Thimphu. Additionally, mentions of hydroelectric development companies hiring RGP to guide them to a proposed dam site for

feasibility tests due to the better access, economy, and ease of rafting vs. helicopter (or trekking if geographically possible) infers a potential challenge of increased use of rafting for hydropower development, ironically, on the rivers the industry depends upon.

Industry Constraints to Whitewater Ecotourism Development

Tourism-Related Infrastructure

Lack of tourism-related infrastructure was identified as a constraint to sustainable whitewater ecotourism of whitewater ecotourism in Panbang. The mentioned tourism-related infrastructure included: improved road connectivity and quality; improved hospitality infrastructure (i.e. more hotels, restaurants, toilets and kitchens inside, street lights, signs, picnic areas); expanded tourism activities (i.e. hiking trails, festivals, biking, fishing, rafting, and homestays); promotion and sales of local bamboo crafts; whitewater ecotourism specific infrastructure improvement.

The most-mentioned tourism-related infrastructure constraint was improvement of road quality and connectivity to Panbang. Stretches of unpaved, narrow, and bumpy roads were noted as reasons international and domestic tour operators have not considered visiting the Panbang area in the past. One interviewee mentioned, “We need the route connected. This is the main problem- the route from Gelephu, there is some road construction and the road is very poor, there is a danger zone. Everyone complains about the bumpy route- the driver and the tourists.” Road quality and connectivity in the area is improving with current government initiatives; however, many of the roads experience washing out, blockage, and damage incurred as a result of the summer monsoons, steep terrain, and related landslides.

A lack of nearby immigration checkpoint was also mentioned by some respondents as needed infrastructure for growth of tourism in Panbang so that Indian tourists could more easily visit Panbang and stay multiple days. At the time of data collection, Indians were allowed to enter for only the day, and not allowed to go past the Panbang bridge. One interviewee described, "For tourism, here [in Panbang] we don't have an immigration check point. We are trying to focus more on Indian tourists to come here. If there is an entry point right here [and] …if government lets Indians stay for one night, that could be easier for them [to do tourist activities]. They could do rafting. Now, they can [only] do [rafting] if come very early in the morning, so it is not easy for them."

Lack of Whitewater Ecotourism Equipment Accessibility and Industry Knowledge

Identification, purchasing, and shipping of high-quality, international industry safety standard whitewater ecotourism equipment were identified as constraints of whitewater ecotourism in Panbang. In the context of this study, whitewater ecotourism equipment refers both to basic equipment necessary for rafting and kayaking, and to necessity equipment for upholding international safety standards. While some respondents acknowledged that RGP members were interested in expertise and knowledge of river equipment, other respondents identified the constraint of equipment costs and shipping costs of such equipment to Bhutan. One RGP guide described, "We do not have enough rafts and not enough rafting gears, this is the problem." RGP guides noted a distinct limitation in growing the business when they sometimes had to turn away interested guests due to having their three rafts booked or some rafts and other equipment in need of repair. Describing the gear-imposed limitation to skill growth and RGP owning only two kayaks, one RGP kayak trainee noted, "The six of us are going to have a

chance to build our knowledge about kayaking, but at the same time, we are lacking, because we are lacking in kayaking and rafting gear."

There were multiple mentions by River Guides of Panbang and river guides from other companies that there has been a distinct disconnection between whitewater raft, kayak, and safety courses and available equipment. For example, a Punakha river guide described a recent river safety training facilitated by Tourism Council of Bhutan in which the trainers specifically noted that "you should never carry a rope without a knife" and that no guides had river knives, nor any of the carabiners, pulleys, ropes, or other equipment that was used for the safety and rescue techniques taught in the training.

Safety Training and Certifications

A lack of whitewater safety training and a lack of national certification system were identified as constraints for positive growth of whitewater ecotourism in Panbang and in Bhutan. River Guides of Panbang and the five raft companies in Punakha all identified that increased opportunities for raft, kayak, and safety trainings within Bhutan are needed in order to grow the national whitewater ecotourism. Due to Bhutan's high-value, low-volume tourism model, there are additional costs for trainers associated with travel and time spent in Bhutan. It was noted by guides from every company, that XPlore Bhutan in Punakha had "the best" guides. Xplore Bhutan was also noted as having the most training opportunities facilitated by international trainers in Punakha, and as the one company hired by international river companies as a partner within the country. The owner had experience as a rafter and kayaker, understood the importance of training, and encouraged and facilitated river exploration. This company owner was also noted for having personal connections to the King, independent financial means, incentivized guides to

run rivers on their own with vehicle support and cash bonuses, and was amenable to facilitating extended visas for international guides. While XPlore Bhutan was noted for being "the best" by Bhutanese and international guides, multiple international company owners noted that they did not feel safe or comfortable bringing a trip to Bhutan without their own guides due to the limited training of the guides in Bhutan and tourists noting the "shyness" of some Bhutanese guides when interacting with Western clients. Interviewees consistently noted a need for more training opportunities and regular skill reviews which is typically done at the beginning of each raft season.

One widely noted constraint for Bhutanese guides interested in obtaining a certification in swiftwater rescue or as a Whitewater Rescue Technician, they needed to travel to Nepal. One RGP interviewee described, The Tourism Council of Bhutan, recently charged with monitoring the commercial raft industry, is asking whitewater ecotourism guides to have a relevant "certificate," but it was noted by guide interviewees that the costs of going to Nepal and obtaining a certificate were prohibitive.

Limited industry knowledge of RGP's primary donors and other company owners was noted as a contributing factor to this lack of quality training. One RGP member recounted being given a raft without any whitewater training:

> We were so excited and so happy to receive that gear from XXX. We have so many funny stories. That was in the year 2012, and at that time we received the raft they gave us for first time, a 12 foot one… and because of excitement, though we were untrained, we were so excited and did rafting in Jungle Lodge creek in monsoon. We have no worries because we were good swimmers, but if you ask me to go in this monsoon now, I cannot go.

Another guide described, "Now, we know we are lucky we did not die." Describing RGP's first raft and kayak training given by local Punakha guides, one RGP guide recounted, "In 2013, we got a fund from XXX for training in Punakha for basic rafting training course. To teach kayaking

to us, they just taught us how to bail out, then said, 'Get in, let's go,' and everyone flipped in middle and swam much of the big river. Some of our members are not very strong in swimming. Now I know that is not the way to do that with the way you are teaching."

Some river guides noted that their WRT courses in Nepal were very good and extensive, while others said their instructors did not do much, were late many days, and just wrote a certificate at the end. In Focus Group D with Bhutan River Guides, it was agreed that investing in training to develop Bhutanese certified WRT, raft, and kayak trainers would overcome some of these challenges. While it was identified by international raft company owners and international industry experts that it would be beneficial for professional development and positive growth of Bhutan's whitewater ecotourism for Bhutanese guides to work for companies abroad to gain experience, the difficulty for Bhutanese to obtain international work or tourist visas was identified as a constraint. Due to the absence of embassies in Bhutan, the only way to obtain a visa is to travel to Delhi and wait, oftentimes for weeks, to be reviewed by an administrator and there are no guarantees of visa approval. For example, while funds were raised for one Bhutanese guide from to travel to the USA for river guiding and training, the guide was unable to obtain a visa.

The river guides also discussed a need for a unified body for the whitewater ecotourism companies to have a collective voice and representation on a national level, particularly for communicating with the associated national regulatory bodies of Tourism Council of Bhutan and the Forest Department. It was noted that a national whitewater ecotourism association could also serve to coordinate and submit proposals for government or donor-sponsored training opportunities. There were also mentions that a national whitewater ecotourism company could serve as a way for the whitewater ecotourism companies to work together on established industry

efforts and goals, learn from each other, establish industry safety standards and self-regulate. Particular to Punakha, it was mentioned that a unified whitewater ecotourism industry association could work together to set a standard price. While not relevant in Panbang at this time due to their being the only company in the region, it was noted that in Punakha, the companies price undercut each other in competition for Indian tourists.

Policy Challenges

"Mismatched" and ill-informed government restrictions were identified as constraints of whitewater ecotourism in Panbang and in Bhutan. Government restrictions related to the rafting industry were noted as being irrelevant, ill-informed, poorly communicated, and "mis-matched" with the proclamations of government to support and grow tourism, particularly in the underdeveloped regions, such as in Lower Kheng (Panbang). Describing a new regulation, a Forest Ranger, reported, "I keep reminding them [RGP] several times, it's a new rule. We are not implementing at one time. They [RGP] need to obtain a permit whenever they go on water, they have to obtain permit. Out here, whenever they want to do rafting or training, they need a permit." When asked how much the permit cost, the interviewee noted that he didn't know but thought it was 50 rupees and when asked if the company could buy a permit for the year, the interviewee noted that they could not, it had to be obtained on a daily basis. When asked what the purpose of the permit was, the interviewee stated:

> The sheer objective of obtaining a permit. It is illegal activities such as fishing, and another big problem is trash, they [RGP] carry their water and cool drinks and they [motions throw them]. I don't know. If you're on the river- fishing and trash- there is regulation- no fires- if there are campfires, picnicking- they [any person] need to obtain permit.

The official clarified that the rule was made largely in order to reduce the litter and campfires from people picnicking along riversides. RGP guides noted that they helped spread education

about trash management, and conducted river clean ups, helping with the efforts the forest department was aiming to improve; however, RGP also noted that it was impossible for them to obtain a permit every time they went on the water due to the forest department's weekday-only office hours and last minute bookings. One respondent noted that this was "typical", to have a regulation that made it hard for the industry to grow, while having the government say they wanted to grow the industry. Similarly, an interviewee described, "They [politicians] are not helping us. Without consent, we cannot do anything."

The "mismatch" and inconsistency in government policies was also noted in Royal Manas National Park's visitor policy. One interviewee noted this as a primary constraint to tourism growth in Bhutan, but particularly in Panbang, stating:

> The policies: park policies, tourism policies, and other policies in all- often they come in conflict with what's trying to be done there. For example, there is so much talk of developing tourism in the south and then [for RGP to gain] entry into [Royal Manas National] Park, they have to get a permit, and it can be difficult. Sometimes you can go, sometimes you cannot, sometimes one group can do an elephant ride, and sometimes another cannot.

The interviewee continued:

> I often feel there should be a better dialog between policy makers and people on the ground. The policy should be there to protect, but also to enhance productive activities. Although Manas is such a beautiful park, and there's such beautiful biodiversity that sits right next to them [RGP], because of a lack of clarity and transparency of policies to… [RGP], the ambiguity and lack of local clarity in policy remain as blocks.

Marketing, Itinerary Development, and Business Training

A need for specific and ongoing marketing, itinerary development, and business training for River Guides of Panbang were identified as a strategy for the positive growth of whitewater

ecotourism in Panbang. Connecting with national tour operators (in Thimphu, Paro, and Punakha), and relevant international tour operators were noted as strategies to overcome constraints. One interviewee described:

> More Bhutanese travel agents need to be aware of what…[RGP has] to offer. This is already happening… [tour operators] are coming to see what… [RGP has] and once… [the tour operators] feel comfortable from experiencing it [themselves], they will be comfortable selling it… This whole area [Lower Kheng] is interesting because people are just beginning to see... that there are tourism products that are interesting for guests.

Another interviewee described another potential for increased marketing by drawing upon an example seen in Nepal, stating, "We need to promote... by advertising and we have to at least broadcast in our local area. In Nepal, to get clients, they have set up their own rafting market where they can show fun in whitewater, this idea [put into action] in Bhutan will get more… [rafting tourists] in coming days."

Developing multiple itineraries that connect interesting activities en route to Panbang was identified as a strategy for growing the number of RGP tourists/guests . This itinerary development would address creating experiences in which the travel distance to Panbang was broken up with interesting activities and attractions and to develop itineraries that incorporate interdisciplinary activities to complement rafting, and draw a wider-range of tourists for multiple days. There was also mention of creating a specific package for Indian tourists because of the high potential to grow business from Indian tourists due to Panbang's close proximity to India and Indian citizens being exempt from Bhutan's daily tourist fee, so more easily being able to travel to Bhutan. Further, there were mentions of needs for business training in terms of company protocol development specific to the whitewater industry, planning and management, and basic skills such as email communication.

Additional Challenges

Other mentioned constraints to whitewater ecotourism development in Panbang were high alcohol use and quarreling of RGP members, donor dependence and mismanagement of funds by former RGP management, cultural perception of time, perceived regional work ethic, and lack of time and profit.

There were mentions of the need for a reduction in alcohol use in order for guide teams to better work together. One interviewee described, "when there is work, they come as a group, but sometimes they quarrel, and I hate those times. I think if they are not having any alcohol drinking... they will do good. When they are fresh they do [well], but when they are drunk, they come down to lodge and quarrel, and I think this is not good for RGP and society." Another member of RGP noted his personal need to reduce his alcohol consumption and the relationship between his performance and alcohol consumption.

RGP continued to be dependent upon NGOs and the Bhutanese government for donations of funds for infrastructure development, equipment, and safety training. RGP members still described the need and expectation for donations, noting that the company is a community-based company working to grow ecotourism and provide jobs for the youth. A previous RGP general manager mismanaged funds of NGOs and government donors for personal benefit and was eventually voted out of the group. Some members mentioned having concern that there would be money conflicts when the business did actually make a profit.

Cultural perception of time, and perceived lack of work ethic were also noted as constraints for the growth of whitewater ecotourism in Panbang. Bhutanese refer to the term "BST", which means "Bhutanese Stretchable Time" and implies that time in Bhutan is stretchable and flexible. The concept of prompt and rigid meeting times, a norm for Western

tourists, is different, and it was noted that if RGP wanted to cater to Western guests, this shift in the perception of time was necessary. One interviewee described a perceived difference in work ethic of the rural populations around Panbang, as compared to the more "urban" populations of Thimphu stating:

> The main thing that I have noticed after four month of living in Panbang is that the people out here, I think they are lazy and they work less… Most are uneducated. They are not interested in agriculture, and they work and just spend their money and stay at home idly... The way they think is narrow-minded and then most of the students or their children, their notion is that they don't have to study further after class 10. If they don't study, the families are happy because they want children to stay home and look after them… I think there has to be a more broad level of thinking. Here, it is very narrow.

Regarding participation in and management of RGP's community projects, some RGP members noted that personal time to volunteer on such projects was a limitation. All RGP founding members have other jobs and occupations, which is necessary due to RGP's low volume of revenue at this time, and equipment and training limitations to growing business. For example, the company cannot book more rafting without more rafts, and due to the cost of rafts and complicated shipping, this is an economic as well as a logistical constraint. As such, RGP members and employees cannot count on the business of RGP to be a primary source of income to support themselves and their families, and as the community-projects of RGP are not paid work, they were noted as being given less priority.

Additional Strategies

Promotion of local culture; growing of organic and local produce; and RGP's diverse economic background were also mentioned as strategies positive growth of whitewater ecotourism in the future. Interviewees identified promotion of local culture as a means and important factor in attracting and increasing tourism in the area. Growing organic and local produce was also identified as important, both as a means of self-sufficiency (lessening dependence on India and potential health related issues related to additives as in imported food (particularly fruits, vegetables, and fish products)) and as an attraction for tourists. A key informant identified the benefit of the diverse economic background of RGP as a community-based company. The interviewee described:

> I cannot stress this enough that I like that it's a mix of people from different economic backgrounds. It's idealistic to say give to all to the poor, but sometimes a good mix creates respect for a variety of economic backgrounds as equal partners. The ones that are better off have the courage and means to take it to any level that some, without the means, cannot dare to imagine, it pulls everyone along in a nice way.

DISCUSSION

Benefits of Whitewater Ecotourism Development to Local Communities

Tourism is one of the world's fastest growing sectors of the world's economy, and within the tourism sector, adventure tourism is amongst the most rapidly expanding categories (McKay, 2013; UNWTO, 2014). This implies both opportunities and challenges for maximizing short-term and long-term tourism-related benefits and minimizing those tourism-related challenges for local communities within international conservation and development initiatives (McKay, 2013; Namgyl et al, 2014; Regmi & Walter, 2016; UNWTO, 2017). Ecotourism is considered a means of sustainable tourism, which is defined as "Tourism that can sustain local economies without damaging the environment on which they depend," and is often looked to as a means of maximizing tourism-related benefits and minimizing tourism-related challenges for local communities and environments. Ecotourism is often deemed a "win-win" strategy in international conservation and sustainable development initiatives, particularly when compared to large-scale economic development strategies with relatively high negative environmental and social cultural challenges, such as extractive industries and large-scale hydropower development (Butler, 1999; McCool, 1999; Scheyvens, 2000; Silva, 2016). Ecotourism aims to provide economic, environmental, and social-cultural benefits to local communities; however, it is also significant to assess economic, environmental, and social-cultural challenges of ecotourism, which will be further discussed in the next section.

This study explored the existing benefits and challenges (challenges are expanded in the subsequent section) of whitewater ecotourism development in Panbang, Bhutan. This study contributes findings to inform the planning, realization, and monitoring of sustainable whitewater, adventure, and general ecotourism locally in Panbang, nationally in Bhutan, and

globally worldwide. The results of this study indicate that whitewater ecotourism development in Panbang, Bhutan has yielded economic, environmental, and social-cultural benefits to the local communities.

Ecotourism literature outlines primary potential economic benefits of ecotourism development to include direct and indirect jobs/ income to local community members, financing of local protected areas, and expansion of economic diversification and foreign exchange (Aiksoz et al, 2015; Boley & Green, 2016; Chayasain et al, 2014; Farooquee et al, 2008; Nambyl et al, 2014; Koens et al, 2009; UNWTO, 2014). Ecotourism-specific direct jobs/ income typically include those relating to ecotourism businesses (ownership, marketing, management, and guiding) and indirect jobs/ income typically include those related to construction, hotels, restaurants, shops, transportation, homestays, and sales of food, arts, and crafts. In addition to the promotion of permanent (although usually seasonal) jobs for local people, ecotourism can also finance the establishment and maintenance of protected areas, and can support a large amount of profits staying in local destination communities (Kiper, 2008). Further, the development of the ecotourism industry provides diversification of jobs in destination areas. Diversity is a key pillar of economic and community resilience, and while adding ecotourism development to existing sustainable economies and subsistence practices is beneficial, transitioning to an economy that is fully dependent upon ecotourism would generate increased vulnerability (Seibert, 2018).

In this study, primary economic benefits of whitewater ecotourism in Panbang were (1) providing direct economic benefit through whitewater ecotourism industry jobs, (2) providing indirect income and jobs to other individuals and businesses by attracting tourism to the area, (3) contributing to general economic development, and (4) yielding donations to the local

community and local community members. Providing direct economic benefit through whitewater ecotourism jobs included RGP members' work as river guides, river operation managers, cooks, servers, camp managers, and housekeepers and this work extended to other Panbang community members during times of large groups staying at RGP's Jungle Lodge; however, it is notable that at the time of study, the ongoing work of such RGP positions as the general manager and marketing manager were unpaid, and a portion of RGP work for all members is volunteer-based. Indirect income and jobs to other individuals and businesses included that for local builders, furniture makers, hotels, restaurants, shops, village visits, sales of local fruits and vegetables and other food items (for RGP's Jungle Lodge), arts, and crafts, and financial support and revenue for Royal Manas National Park. Additionally, the study found that whitewater ecotourism indirectly contributed to general economic development in Panbang through potentially associated outside investment in ecolodges, roads, a community center, waste management infrastructure, and health facilities. The mentioned whitewater ecotourism benefit of general economic development was primarily seen as a benefit in the near future (rather than a present benefit) that accompanied general tourism development in the area, which was often deemed as particularly attractive due to the existing whitewater ecotourism.

Further, this study found that the coupled economic benefit of donations and social-cultural benefit of volunteering to conduct community projects was a significant benefit of whitewater ecotourism development in Panbang. While other studies have cited donations and investments in societally-beneficial facilities such as hospitals, River Guides of Panbang's primary sponsor foundation (Bhutan Foundation) has fostered a partnership with the company as an on-the-ground connection for the foundation to donate and implement other development projects and donations. Through this partnership, RGP has received donations from the nonprofit

for ecotourism business infrastructure development, such as large contributions for the construction of RGP's Jungle Lodge, and professional development training opportunities, such as housekeeping, chef, and whitewater safety trainings; but, due to the established relationship and investment of Bhutan Foundation in RGP, RGP also implements community projects initiated and sponsored by this nonprofit partner, making them not a stand-alone beneficiary, but active volunteers in community work. For example, in Panbang, when the local hospital identified a significant need for a new generator, the Bhutan Foundation supplied the funding for a new generator, but asked that RGP manage the purchase and transportation of the generator from India, and the installment in the Panbang hospital. A second example is when Marangdhutt, the neighboring village to RGP's Jungle Lodge identified a need for improved water supply and the Bhutan Foundation provided the finances for the materials of the project, and asked RGP to organize and install the new piping and other related infrastructure.

Further partnerships between RGP with nonprofits such as Clean Bhutan and ICIMOD serve as examples of nonprofit support of social and environmental initiatives in local communities through partnership with ecotourism operators. This model is replicable for community-based whitewater, adventure, and general ecotourism development projects. In ideal circumstances, this model for community-based ecotourism uses local knowledge and capacity to execute community projects with outside resources while simultaneously building rapport between local tourism businesses and their local communities.

Literature supports that there is opportunity in diverse types of partnerships and roles of nonprofits to collaborate with tourism operators to achieve community projects and goals, and to empower local communities to receive a more equitable distribution of tourism-related benefits and challenges (Franzidis et al, 2012). A common criticism of tourism is the marginalization of

local communities; however, case study examples show that third party nonprofits can be an avenue to support community participation in tourism initiatives, resulting in increased community benefits of tourism (Franzidis et al, 2012; Jewkes & Murcott, 1998; Tosun, 2006). For example, a study conducted by Franzidis et al. (2012) showed that through NGO-supported initiatives such as team meetings, institution of community members in managerial positions, and a strategic use of volunteer interns, local community members were able to play a more significant role in the tourism initiative of multiple case studies. Furthermore, the case studies indicated that each NGO also dedicated significant resources towards education facilities, employee skills development programs, and a variety of community projects in the local communities, all of which contributed towards more equitable distribution of benefits from the tourism initiatives (Franzidis et al, 2012).

Ecotourism literature outlines primary potential environmental benefits of ecotourism to include the benefits of well-being, preservation, and conservation of natural environments, and environmental education and conscious raising (Boley & Green, 2014; Koens et al, 2009). Research shows that ecotourism development can promote capacity and incentive to steward local protected areas and natural resources, and be an income-generating means for conservation under circumstances in which local communities' livelihoods and values of nature are taken into account, the development of ecotourism is participatory on a local scale, and regional governments are stable (Bosak, 2008; Chaiyasan, 2014; Namgyl et al, 2014; Regmi & Walter, 2016;). The relationship between ecotourism and natural resource conservation is often described as symbiotic (Boley & Green, 2014). This symbiotic relationship refers to the benefits ecotourism destinations receive as a result of the protection of quality natural resources; the conservation of quality natural resources makes the destination more competitive and the

resources more valuable in the global tourism market (Boley & Green, 2014). Further, if programs, trainings, and ecotourism development itself is created, monitored and adjusted to promote pro-environmental behavior of the guides, tourists, and local communities, then this behavior can result in positive environmental impacts, such as litter reduction and advocacy of conservation efforts (Giddy, 2014; Koens et al, 2009).

In this study, primary environmental benefits of whitewater ecotourism in Panbang were increased opportunities and action for (1) environmental education, (2) increased river stewardship and local societal value of healthy river environments, and (3) patrols for illegal activity for the forest department. Examples of and opportunities for RGP and RGP-led environmental education were identified, particularly for RGP-led environmental education of local school students, tourists, and local communities and nearby villages. Tourism guides have a unique opportunity to engage in both guest and local environmental education and conscious raising; and adventure tourism industries have a unique opportunity to connect recreation with conservation values related to the recreation resource. This study found that whitewater ecotourism increased river stewardship and local societal value of healthy river environments, particularly among RGP members, but also among community members, some of whom connected local tourism development with river tourism and healthy river systems.

This study further found that whitewater ecotourism development in Panbang yielded the environmental benefit of river patrols for the Forest Department for illegal activity along river corridors, due to whitewater navigation and safety skill development specific to river guides. Knowledge and skills for safe river navigation provide opportunities to access remote and less visited regions, which can be subject to unmonitored illegal activity, such as illegal logging, fishing, mining, and poaching, particularly in designated conservation areas. In Bhutan, river

guides were particularly noted for contributing to efforts of the forest department to monitor and remove illegal fishing snares and areas in which fishing was deemed illegal. In Panbang, the Forest Department ranger expressed interest in his team gaining technical whitewater skills in order to patrol for illegal activity, but further mentioned the help and contributions of RGP in their taking out illegal fishing equipment and reporting any illegal activities to the forest department that they saw during commercial or training trips on the river.

Existing literature provides examples of tourism-operators working with governments and NGOs in order to aid in monitoring and enforcement against illegal activities, such as illegal fishing, poaching, mining, and logging. A study conducted by Steenbergen (2013) of a tourism dive operator in Indonesia demonstrated that the dive operator successfully employed conventional enforcement methods such as patrolling and capture of illegal fishers, in combination with approaches to address the root causes of illegal fishing. Research further indicates an importance of partnership between government agencies (who often do not have the capacity or resources to monitor and enforce conservation-related laws) and conservation-based NGOs with private-sector stakeholders in order to increase effectiveness of conservation efforts (Holthus, 1999; Steenbergen, 2013). Private tourism operators that operate in and depend upon healthy ecosystems have "high stakes in promoting biodiversity conservation initiatives" and are increasingly orienting engagement to assume roles as stewards of conservation movements, and engagement with conservation-based NGOs and government agencies (Holthus, 1999; Steenbergen, 2013).

Increased technical skills for patrol of illegal activities in river corridors has implications for the broader whitewater ecotourism industry. Partnerships between forest departments, conservation groups, and whitewater ecotourism companies has immense potential for more

efficient patrolling and monitoring of key conservation areas along river corridors. For example, an interdisciplinary project in Bolivia in 2018 and 2019 included the training of five Madidi National Park guards in raft navigation and swiftwater rescue. The guards noted that having these skills would reduce one of their patrols from nineteen days to six, without changing its effectiveness (Tenney, 2018). Further, after introduction of a basic raft and safety training, the guards independently applied for funding from the Wilderness Institute to get further training with whitewater raft, kayak, and safety specialist in Chile. More efficient patrols for illegal activity is significant due to the consistently cited limited resources and manpower to allocate to these efforts, particularly in conservation areas in developing nations, and so there is particular opportunity in partnerships between whitewater ecotourism and other tourism industries to contribute to these efforts (Steenbergen, 2013).

Ecotourism literature outlines primary potential social-cultural benefits of ecotourism to include improved facilities, empowerment of women and marginalized groups, encouragement of community organization, promotion of local culture, and improved education (Boley & Green, 2016; Cater, 1994; Chaiyasain, 2014; Farooquee, 2008; Koens et al, 2009; McKay, 2013; Nepal, 2002; Nepal, 1997; Regmi & Walter, 2016; Scheyvens, 2000). Ecotourism can yield direct benefits of improved facilities, such as hospitals and sewage treatment systems as a result of direct investment from the ecotourism industry and different levels of government investment as a result of catering to and wanting to promote the area as an ecotourism destination (Boley & Green, 2016; Koens et al, 2009). Empowerment of women and marginalized groups can be achieved by specifically including these demographics in planning and development of ecotourism. Promotion of local culture can be a large draw of ecotourism, and contribute to local economic, psychological, and social empowerment (Scheyvens, 1999). Community-based

ecotourism programs can encourage community organization in ecotourism development plans and organization for allocation of community funds generated through ecotourism in such types of developed programs, such as support for youth to have more education opportunities (Aiksoz et al, 2015; Boley & Green, 2016; Nambyl et al, 2014; Koens et al, 2009; UNWTO, 2014). Ecotourism that involved and is driven by the local community has the potential to re-secure greater control of natural resources by the local population in areas in which local communities have lost control of previously local-accessed and managed natural resources (Scheyvens, 2000).

Primary *social-cultural* benefits of whitewater ecotourism to the local community in Panbang, Bhutan were (1) volunteer search and rescue, (2) community projects and donations, (3) sense of pride, (4) knowledge and culture exchange, (5) youth employment, (6) cultural preservation, (7) increased education opportunities and skill development, (8) women's empowerment, and (9) recreation.

A finding that is unique to this study is the social-cultural benefit of river-related volunteer search and rescue services to the community, which is specific to whitewater ecotourism, but can be further expanded to the broader field of international adventure tourism development due to the technical skill development of navigation, risk management, logistics, and leadership of adventure tourism guides (such as mountain trekking guides) that are transferrable to emergency situations. Within whitewater ecotourism, river guides develop technical river navigation, swift water rescue, whitewater safety, wilderness medical, risk management, and emergency procedure development skills. In Bhutan, there is a range of river guide experience and overall, limited opportunities for the mentioned technical skill-development trainings; however, due to the nature of the profession, all river guides possess and grow skills in these fields, and the most basic skills can be used for volunteer search and rescue

and emergency relief within their respective local communities. Whitewater ecotourism development thus offers the unique benefit of increased search, rescue, and emergency relief skills and services within local communities. Within the broader field of international adventure tourism development, the adventure tourism industry can serve as a key player in search, rescue, and emergency relief skills and services, and there is currently a call to unite networks of adventure tourism companies in order to improve efficiency and effectiveness in their substantial potential aid in disaster relief. One primary example is the significant role a spontaneously united network of mountain trekking and river guides played in planning and executing disaster relief efforts after the devastating 2015 earthquake in Nepal (citation). Guides were noted to efficiently and effectively plan disaster relief efforts and navigate to remote and non-remote areas to provide tarps and other relief materials.

Community projects and donations of whitewater ecotourism in Panbang were combined and discussed in the economic benefits section. Further social-cultural benefits of whitewater ecotourism in Panbang were an increased sense of pride in self and community, which is notably significant in times of transition and development due to some trends of inferiority development in the influx of Western media and ways of life. Knowledge and culture exchange in which community members and tourists learned from each other was identified to be a social-cultural benefit of whitewater ecotourism in Panbang about such topics as sanitation and traditional cultural practices. The benefit and goal of RGP to provide youth employment is particularly relevant in the context of Bhutan's challenge of youth unemployment and rural to urban migration, an issue that is trending worldwide and realizes inherent economic, environmental, and social-cultural challenges, particularly in traditionally subsistence agricultural societies. The identification of adventure tourism development, particularly whitewater ecotourism

development in Panbang, as a means of providing job opportunities that are attractive to younger demographics is significant to larger implications of providing enticing job opportunities for youth in rural areas.

The social-cultural benefit of cultural preservation was noted to be an important means of attracting tourism, and as something tourists admired that created pride and education about the importance of cultural preservation, particularly for younger generations, who increasingly have access and engage in social media and international, often Western dominant trends, particularly of clothing and aims of lifestyle. Increased education opportunities and skill development related to whitewater ecotourism development in Panbang included opportunities to participate in international conservation conferences, and individual targeted trainings in whitewater safety, rafting and kayaking; hospitality; and food and beverage. The social-cultural benefit of women's empowerment will be further addressed in Chapter Five: Women in Whitewater Ecotourism.

This study also indicated the whitewater ecotourism social-cultural benefit of recreation. While the associated benefit of recreation was primarily related to fun and enjoyment, mental and physical health aspects of recreation of guides, tourists, and community members are other inherent benefits of whitewater ecotourism. Research shows that regular exercise and spending time in nature boost mental and physical health (including increased levels of physical activity, improved self-esteem, and reduction in perceived stress) (Franks & McCarthy, 2016; O'Neill et al., 2016; Thomsen et al., 2018). The physical and mental health benefits of recreation may be particularly relevant to societies in developed nations or transitions, due to ailments such as diabetes, cancer, and obesity, that often accompany development as a result of change in diet and acquiring a more sedentary lifestyle (Franks & McCarthy, 2016; O'Neill et al., 2016).In the context of Panbang, the town doctor noted high rates of diabetes, gout, and alcoholism.

Increasing recreation involvement, particularly at a young age could be beneficial in reducing rates of these health risks. In the global context of whitewater and adventure ecotourism development, there are associated benefits of recreation.

Existing literature calls for larger participation and benefit of local communities in order to realize ecotourism tenets and maximize associated benefits for local communities and natural systems (Anup, 2015; Boley & Green, 2015; Koens et al., 2009; Regmi & Walter, 2016; Scheyvens, 2000; UNWTO, 2016; UNWTO, 2014; Ziffer, 1989). This study indicates opportunities and realized benefits of whitewater ecotourism in practice, and insight into shifting the whitewater tourism industry to integrate, plan, and implement based upon ecotourism tenets. Related economic, social-cultural, and environmental benefits of ecotourism in theory, are symbiotic with tourism's sustainability in a destination location.

Challenges and Constraints to Whitewater Ecotourism Development

While there are opportunities for economic, environmental, and social-cultural benefits of ecotourism, there are also always associated challenges to local communities, and industry constraints (discussed later in this section) (Apollo, 2017; Bernard & Cook, 2015; Koens et al, 2009; Namgyl et al, 2014; Nepal, 2002; McKay, 2013). Further research on how to better align the practice of "ecotourism" with its goals is called for in existing literature due to the associated economic, environmental, and social- cultural challenges (Boley & Green, 2016; Bosak, 2008; Cater, 1994; Chaiyasain, 2014; Koens et al, 2009; Nepal, 2002; Nepal, 1997; Regmi & Walter, 2016). Ecotourism literature cites the most common economic challenges to be economic leakage, loss of resource bases, and inflation (Boley & Green, 2016; Koens et al, 2009). Research shows that in many ecotourism ventures, little economic benefit stays in local

communities, and rather outside international and national operators take a large portion of the economic benefits of ecotourism (Chaturvedi, 2004; Namgyl et al, 2014; Koens et al, 2009). Literature suggests that when community-based projects are established that minimize economic leakage, challenges of how to allocate the resources can arise (Namgyel et al, 2014). In the scope of this study, it was noted that in the larger scale of ecotourism in Bhutan, it is primarily the tour operators in Thimphu that benefit. RGP was not a licensed Tour Operator until January 2019, which meant that previously in order to accommodate any foreign tourists (except Indian), they needed to work with an official tour operator.

Commonly cited social-cultural challenges of ecotourism are negative impacts of loss of access to facilities for local people and indirect costs of loss of community coherence, degradation of local culture, and growing crime rates, prostitution, and drug and alcohol abuse (Koens et al, 2009; Nepal, 2002; Namgyl et al, 2014). Ecotourism in developing nations commonly brings with it Western influences of commodity goods, a capitalist market system, and focus on the individual verses the community, leading to break-down of community coherence (Namgyl et al, 2014; Nepal, 2002). Large discrepancies in who might benefit from ecotourism, and exposure to Western ways of life can be associated with a growth in local destination crime rates, prostitution, drug and alcohol abuse, especially as an increase in tourists may create demand for such mal-entities (Koens et al, 2009).

Common environmental challenges of ecotourism are negative impacts of land clearance, erosion, garbage, sewage, air pollution, ecosystem disturbance, and biodiversity loss (Koens et al, 2009). Building of hotels, restaurants and amenities for ecotourism development can result in land clearance, erosion, and even flooding (Bernard & Cook, 2015). Literature suggests that an increase in trash and sewage is an enormous issue in ecotourism and adventure tourism, as

Western consumption is imported into remote regions without infrastructure or planning to handle the types (non-compostable trash) and volumes of garbage and sewage (Apollo, 2017; Nepal, 1999; Nepal, 2002). Further, development of ecotourism infrastructure and increase in tourist and local use and visitation of protected areas and/or natural resources can create indirect costs of ecosystem disturbance, and biodiversity loss due to disturbance to habitats and species (Farooquee, 2008; Koens et al, 2009; McKay, 2013).

Due to the small scale of whitewater ecotourism in Panbang, thus far, the community has not experienced or faced a large degree of ecotourism-related challenges. However, in recognition of projected and aspired growth of adventure and nature-based tourism in the area, it is crucial to consider the above-mentioned ecotourism-related challenges in future planning. The foremost noted challenge of ecotourism development in Panbang to the local community was the increased amount of litter from Indian tourists; however, it is notable that the majority of Indian tourists at the time of research were not whitewater ecotourists, but rather day-visiting tourists, who picnicked riverside at the Panbang bridge. The challenge of increased litter from tourism development is similar to other case studies and literature. Improved waste management infrastructure and tourist-targeted education was identified by this study as a means to improve litter and trash-related challenges.

Literature on constraints to international whitewater ecotourism and adventure ecotourism industry development in remote, international settings is lacking. This study found that tourism-related infrastructure, industry-standard whitewater ecotourism equipment, safety training and certifications, and policy challenges were the primary constraints to whitewater ecotourism development in Panbang, Bhutan. A lack of whitewater-industry knowledge and expertise in Bhutan and relative agencies, organizations, and companies is an inherent

contributor to all of the noted primary constraints. Cross-collaboration and associations that involve representatives from whitewater ecotourism in Bhutan, government agencies (most particularly Tourism Council Bhutan and the Forest Department of Bhutan), and independent industry experts to assess, plan, and monitor whitewater ecotourism development and capacity building is a strategy for enabling action on related constraint negotiations.

Regarding certification, rapid adventure tourism growth has led to a debate on how to certify adequate standards of safety and risk management, program quality, and professional conduct and behavior (Gass & Williamson, 2013). The Adventure Travel Trade Association, International Raft Association, and Rescue 3 International are examples of organizations that have created options for international certification; however, application of standards and monitoring is deemed ultimately the responsibility of government, but it is also noted that responsibility and leadership of standards should fall within the industry (ATTA, 2019). Further, there are a number of international agencies and associations who provide national and international whitewater safety, raft, and kayak certifications; however, accreditation standards and experience of training varies between entity and instructor. Research supports that in order to provide maximum capacity building within a skills-based industry in a certification system, it is necessary to invest and incorporate a training of trainers education model (CDC, 2019). It is notable that while there are benefits to the high value, low volume model of tourism in Bhutan (International Trade Centre, 2011), in some circumstances, it limits opportunity for capacity development of adventure tourism and other tourism industries.

The implications of these findings and related literature are applicable to whitewater ecotourism globally, and to other adventure tourism industries. For example, limitations in gear, training, and certification have been identified as constraints to skiing tourism in Kazakhstan

(citation). Further, a lack of local capacity development in adventure tourism industries can create situations of high economic leakage in which foreign guides work, and locals are hired for jobs considered to be lower status and less skill based (citation). Economic leakage is not a challenge for RGP, as the company is community owned and all employees are local residents of Panbang.

Negotiating constraints to development the whitewater ecotourism development industry in Bhutan with particular attention to maximizing benefits and minimizing challenges to local communities is significant for consideration of governments, private and public investors, stakeholders, and community members. In the context of this study, River Guides of Panbang are meeting economic, environmental, and social-cultural tenets of ecotourism, which is, in the context of ecotourism literature, unique. Particular attention to participation and benefit of local community members and leadership, management, and ownership by local community members of ecotourism operations is a call from the literature to improve fulfillment of ecotourism tenets and this is fulfilled in the context of River Guides of Panbang. However, RGP is unique within whitewater ecotourism (all other companies are owned by Bhutanese individuals, but not community based-ecotourism companies), and one of the few (if not, the only) community-based whitewater ecotourism company in the world. The findings of this study suggest that due to the smaller scale of River Guides of Bhutan, the local community has experienced few to no challenges related to ecotourism. While this is related to RGP's mission, which aligns with fulfillment of ecotourism tenets, RGP's fulfillment of ecotourism tenets can also be related to Bhutan's high value, low volume tourism model, in which most tourists are charged a minimum daily fee of $250 (Allocations: $65 to Bhutan's health and education systems; $185 for the tourism operator to provide three-star accommodation, guide, transportation, and three basic

meals). Due to the projected growth of RGP and tourism in Panbang, it is crucial for RGP and Panbang to plan to maximize benefits and minimize challenges of ecotourism for increases in volume. This is most particular to Indian tourists, who are exempt from the daily visa fee to Bhutan and noted for bringing their own food and transportation, littering, and having "rude" and "demanding" demeanors. RGP and Panbang have an opportunity to plan and manage for increases of Indian tourists and Western tourists according to ecotourism tenets now in order to best align with them and avoid larger challenges associated with ecotourism in the future.

CHAPTER 5. Participation of Bhutanese Women as River Guides

In Chapter 5. Participation of Bhutanese Women as River Guides, I first provide a brief section on the context of Bhutanese women in the scope of participation as river guides in whitewater ecotourism in Bhutan. Next, I go into Results, with sections on benefits and opportunities of women working as river guides, and constraints and constraint negotiations to increasing women's involvement in whitewater ecotourism. Then, I present the chapter's Discussion with sections on benefits of women's participation, importance of female-specific opportunities, and importance of female mentorship.

Context

In the context of this study "increasing women's participation in whitewater ecotourism" specifically refers to the increased involvement of women as whitewater ecotourism river raft and kayak guides; however, the results can be extended to increasing female participation in whitewater ecotourism activities as recreationists. As of December 2018, the total number of raft guides in Bhutan was approximately sixty, with approximately forty-seven guides working for the five companies in Punakha (Xplore Bhutan, Lotus, Kingdom, Tall Pines, and Druk Rafting) and thirteen guides working for River Guides of Panbang (RGP) in Panbang (nine founding members and four new kayak trainees). As of December 2018, there were no women working for any of the five whitewater ecotourism companies in Punakha; however, one woman had previously worked as a raft guide for one of the Punakha companies, but it was reported that she had not worked since she became pregnant. In October 2019, the first local Bhutanese woman began training in whitewater kayaking in Panbang with RGP. She also trained in whitewater safety and began basic raft guide training. Previous to this female trainee, there were no female river trainees or river guides working for RGP and no female Bhutanese kayakers in Bhutan.

RESULTS

Benefits and Opportunities of Women Working as River Guides

The perceived benefits and opportunities of women working as river guides in Bhutan include the fulfillment of equal opportunity; an increase in tourism and associated benefits of increases in tourism; pride for having local women as river guides; the potential to become famous; and a potential increase in donations to River Guides of Panbang and community projects in the Panbang area.

When asked if it was important to have women work as river guides, 100% of interviewees and focus group participants said yes. One community member stated, "I am appreciating when girls do more like boys- I am much appreciating. Before there were no women river guides, when girls come, I am happy." Another explained, "Not only boys, but even girls can become raft and kayak guides. If they are trained, it does not matter if you are a boy or girl, it matters if you have the skill to run the river. Before, we have less women, but with education nowadays, women have more education and are joining in different categories of jobs." Another respondent stated, "That's a very good thing to raise participation of women in rafting. Until now, only guys have been doing this and it would be great if the women would do the rafting."

"Equal opportunity" was the most mentioned response to the question of why respondents stated that women working as river guides was important. One member of RGP described, "Now we love to have more women river guides, but the thing in Bhutan now it's only becoming [a reality]. To men, if there is more women river guides, there is advantage to us also, we are sharing equal opportunity because in this place, there is no difference between man and woman, it is equal opportunity for them [women] also." One interviewee mentioned that

this would benefit women and society in providing women with more job opportunities and income.

Regarding benefits of more women working as river guides for RGP, some respondents mentioned a perceived increase in the number of RGP and Panbang tourists due to people's interest in seeing Bhutan's first female kayaker. One interviewee described, "I have received couple calls from some of my friends asking is she guiding? ...They are eager to have a woman guide, and they wanted to try going with a woman in what once was man's." One of RGP's new kayak trainees described, "I think rafting or kayaking, the people are excited to see how the woman is doing [these things], how the woman is taking the responsibility, and then the guests will come to see." Another interviewee described women's involvement as not only beneficial in increasing tourism, but also, in providing guests who are nervous to raft with more comfort, describing, "If there is woman guide in one company, I think the client will be more comfortable because they know that girls are having chicken heart, so [they will think] when the girls can do, why not us? They might think this and… more tourism will come and do the rafting. They [RGP] should give more importance to inviting girls in their company so that if there are more girls who are kayaking, then I think the tourism will come [to Panbang]."

Members of RGP and community members also noted that having women working as kayakers and river guides was a source of pride for them and the community. One RGP guide noted that RGP now had the first female kayaker in Bhutan, and "Not even the senior company in the country has a girl." Another RGP guide described, "Now, she is the first woman river guide kayaker [from Bhutan]. He is proud to say:

> Yeah, we are having women kayakers, and we share that information to our friends also, and that these days, there is no difference between women and man- that's equal opportunity and if women come [to become guides] it's much more happy to us also. We

> are feeling happy and we will try to encourage a lot of women. They should run the raft also- there are some in Nepal who do, and in US - we love to have women river guide also.

Many community member interviewees, including teachers, shopkeepers, and the region's forest ranger expressed their being proud of XXX [female guide], and expressed pride in having the country's first female kayaker be from the community.

Interviewees also mentioned benefits and opportunities for women to become famous and for RGP and the local communities to receive more donations. Women who learned and worked as safety kayakers and raft guides would become famous for being the first in the country to enter this profession and achieve the associated skill sets. XXX [female guide] had new report and magazine inquiries since beginning training as Bhutan's first female kayaker. Some RGP guides noted in interviews that having more women as raft guides and safety kayakers was important to donors. One stated, "Also, women's participation is most important nowadays for the donors… [having] not only men, but women like XXX [female guide]. What XXX [female guide] is doing is more important."

Constraints and Constraint Negotiations to Increasing Women's Involvement in Whitewater Ecotourism

Lack of Swimming Knowledge and Overcoming Fear

Fear of the river was noted as a constraint for both women and men participating in whitewater ecotourism, and this fear was usually linked to a lack of swimming knowledge. During the women's focus group, the participants discussed women being "chicken-hearted" and one personally described, "We are not getting courage about the rafting, we are getting afraid of water… I have no courage to go rafting because I am afraid." One female community member described, "The RGP team told me to join with them for rafting. I didn't go because I was afraid.

I don't know how to swim, so maybe the river will wash me away." A male community member stated, "Most women, first of all they fear [the] river. Most of the life is taken by river out here." As a specific example, RGP's first female guide lost her brother to the river while he was fishing a couple of months before she ultimately started the kayak and whitewater safety training with RGP.

Women recounted personal experiences of overcoming their fears and going rafting or kayaking. Describing her experience in the initial stages of learning how to kayak, one woman noted, "At first when I go in the water, I was afraid of doing kayaking because I am not perfect in swimming, so I was thinking, 'What if? What can I do if I fall from the kayak or if I hit to the rock then definitely,' I thought, 'I will die.' After going in the river, then I found it is a little bit great (thumbs up) for me, so I can do better than that." One female community member remembered rafting and said, "I went afraid of it and ended up excited!" All respondents who had participated in or worked in the rafting or kayaking field, recounted a positive experience and perspective of whitewater ecotourism, including those that mentioned initially being fearful of it.

Interviewees and focus group participants supported opportunities for women's swimming lessons as a constraint negotiation that would address the lack of swimming knowledge. Describing her perception of female community members in Panbang, one woman noted, "They can do all the housework, but they don't know how to swim." Other female respondents described how they were afraid of the river, but that if they had swimming lessons and knowledge, they would be less afraid. One described, "I don't usually go to riverside, I never go near. I am worried. I don't like river because I don't know how to swim… [but] yes, if I knew how to swim, I would be less afraid," and another, "I don't use the big river because I am along

the road. I am not going near river because I am afraid because I don't know how to swim… If I knew how to swim, I might always be visiting the river." During the women's focus group, one participant stated, "They have to give the swimming training to all womens, so that… [they] can do the rafting too." Another followed up that, "If the girls were doing the swimming better than boys, then I think there will be more girls [than boys] to do kayaking and rafting… so, [with swimming knowledge], the girls can give their best." Panbang residents that did have at least some swimming knowledge recounted going to the pools in Marangdhutt Creek and learning with their friends.

Women-Specific Opportunities and Training

Interviewees identified a lack of training for women as a constraint that could be negotiated by providing more women-specific opportunities for women to train and work as guides in whitewater ecotourism. Some respondents noted a general lack of opportunities for women to participate in whitewater ecotourism. In a focus group, one community member described, "I think they have not given the opportunity [to women] to participate… in rafting." Similarly, another added, "They are not giving the opportunity to the girls. They are advertising only [to the] boys." In a short interview, one community member noted, "There is a lack of avenues [for participation and involvement], [and] a lack of rafting. Plus, they may feel shy." A wife of an RGP guide recounted spending all day making lunch for a raft trip with the local government that she was invited to go on, and then being left behind. She recounted, "I was excited! Again, I [still] want to go, but [I am] not getting [the] chance. Last year, I thought I have to go with them, but I… [didn't] get [the] chance [because they left me]. I was planning to go with them, but plan

cancelled." In the seven years of RGP's existence very few of the guides' wives have been rafting.

Respondents also mentioned a need for more whitewater safety training opportunities, and some followed up that having female trainers and a portion as women's-only training opportunities would be a way to increase women's involvement in whitewater ecotourism. A general need for more training was expressed by one respondent who said, "More like XXX [female safety kayaker trainee] should come forward. The only thing needed is expertise to give hands-on training. Having this background [of participating in professional, experiential training] is an advantage, and so [are]…the future prospects from having such things. If provided this expertise that gives hands-on training, more women may come forward." Another interviewee noted the importance of expert trainers in making women feel more comfortable in overcoming their fear. The community member stated, "I think we need expert trainers. We, the women, we have lack of courage, no? So, I think that expert trainers like XXX [female kayak, raft, and whitewater safety trainer] can come and give the trainings to the women so that… [they] can build their courage and they can do it." When asked if instructors and trainers being women was an important factor in increasing involvement of women in whitewater ecotourism, the same respondent followed up by stating that female trainers were important in supporting growing numbers of women working in whitewater ecotourism in Bhutan.

Some members of RGP mentioned structuring and creating opportunities for the one current female RGP river guide to continue her involvement in river guide and kayak training, which they considered would also incentivize and support more women to join. The General Manager of RGP considered:

> What is important for more women to join? Maybe that is very good question… What I am thinking... [is that] I am going to give more opportunity to XXX

> [female guide trainee] so that more women can join to become river guides. I am planning to send her to [the United] States for rafting, kayaking, and other tourism activities, so if we do in that way, I am 100% sure that Bhutanese women will join in River Guides. If we give more opportunity to women, it is good because for men, joining is no problem. I am thinking to give more opportunities to XXX than [the] other… [male RGP members and new trainees], so later if she [female guide] happens to go away from RGP, she can come up with some company and we have to give more opportunity to her.

Another member of RGP discussed the approved proposal amongst all members to invite the current female guide to become one of the "founding members", which would mean she would not only be an employee, but also be a part-owner in the company.

Female Mentorship

Interviewees identified a lack of female mentorship for women in whitewater ecotourism as a constraint to women's involvement in whitewater that could be negotiated by increasing opportunities for female leadership and guidance. Respondents largely referenced how Bhutan's first female kayaker provides strong potential for new and significant female mentorship that would contribute to growth and support of increased women's involvement in whitewater ecotourism. Further, there were mentions that having a first woman come forward was an important factor in breaking an initial barrier. This initial barrier break was noted not only as newly developing female mentorship within the whitewater ecotourism industry, but also for increasing women's mentorship, opportunities, empowerment, and equal opportunity across disciplines. A community member noted his perception as, "XXX [female guide] is kayaking and is the only lady; she will be an example for Bhutan and more ladies will come forward to participate in river navigation." A member of RGP shared a similar sentiment of, "XXX [female guide] should be a women's role model in our community and nationwide so more women will

be joining our company." When speaking to the first female guide, she described, "The women will think 'Why not I can do it? I will do it,' and they will come and join with us." She continued describing overhearing a conversation of girls saying, "'When XXX [is] doing this, why not me?...' I heard some of them were telling this."

A highlighted aspect of female mentorship was the relatability that comes from sharing stories of experiences with other women. Describing this sharing of stories, a female health professional stated, "With XXX trained, this will encourage more females to come forward. They will think, 'she can do that also… [rafting and kayaking] is not just [for] boys,' and XXX can share how interesting it is, what are the problems she faces, what are the good sides of it, and how to come forward… Women will be motivated and obviously they will come forward." When asked how she would encourage more girls to kayak if giving a school presentation, XXX [female guide] responded:

> At first, I will share all my experience: what I have… [done] in water, and I will also share my experience of how I felt in river at the first time when I was so afraid that I lost my heartbeat. And then I will tell… [the school-age girls], 'There is nothing to fear. Why not when boys can do, girls can also -I think girls can also- we can also do, we girls should come forward and we can do it.' I think I will tell this.

Some respondents mentioned the importance of a female trainer to be a motivating factor for XXX [female guide] to agree to participate in RGP's whitewater kayak and safety training. The general manager of RGP described:

> To get XXX [female guide] to be in River Guides, I had [a] very tough time. Almost all the river guides… proposed that she join [us] on the water, and I even told her I would give [her] more daily allowance, one and a half times the standard. Since we are not having a single lady in River Guides, I tried many times to influence XXX [female guide] and I was thinking a lot about how to be able to convince her… when I told her that we had a *woman* coming to teach kayaking from USA, that day, she accepted becoming a river guide.

Another respondent further discussed:

> As you have seen, many people look at something like rafting as something boys would do or men would do because that's how it has been. We were not getting any… [women] to come forward in the beginning. The general tendency is that rafting is considered [a] men's or a male thing- it was good that… [the kayak and whitewater safety instructor/ trainer was] a woman.

The initial barrier breaking of Bhutanese women into participation in whitewater kayaking was referenced to increase women's opportunities and empowerment beyond whitewater ecotourism. One respondent noted, "If they have a chance, girls are going off to school or college, but if some can't make it, to see XXX [female guide] actively… [safety kayaking and river guiding] successfully, and [to connect] that they could somehow be [a] part of… [whitewater ecotourism] is significant. Even if they [these girls and women] do not join RGP, maybe they take up a sport, or maybe [they] start their own business." The respondent continued, "It means something to know that the initial barrier has been broken." The same respondent later explained, "It's important for the girls to see [females participating in whitewater ecotourism]. They need role models; they need… [females] to get over that initial barrier. It's why having someone like XXX [female guide] is nice. It's nice [because]… [other girls and women] can relate to someone like them, to see 'oh she can do it'. That's true across the board, not just with rafting and kayaking, even in politics, government service, and many other professions."

Encouragement and Support for Women

Interviewees identified a lack of encouragement and support for women in whitewater ecotourism as a constraint to women's involvement in whitewater that could be negotiated by giving women encouragement and support to become involved and participate. Respondents identified a general need for increased encouragement and support, in such comments as, "First,

we should encourage them [women and girls] to do kayaking and encourage them to do their own work and we should give them the support," and "I think for a rafting company or any ecotourism company, we should encourage more ladies because in our country, we have got an equal number of women and men as part of operations and census to get equally employed."

Some respondents mentioned a particular need for females to specifically have encouragement and support to participate in whitewater ecotourism from family. One respondent noted, "Firstly, we need the support from our parents. If there is no support then we can't go anywhere and we can't do anything." Another described, "There will be some women who are interested to do kayaking and rafting but their husband[s] and families are not letting them… do [it], so that could be one [constraint]. If they are willing, and if their husband is supporting them, then I think there will be more women." Every member of RGP demonstrated and noted the importance of encouraging and supporting women in whitewater ecotourism, particularly starting with XXX [female guide]. One of the new RGP trainees noted:

> When we give a chance for… [women] and when they say, "I can't and I am not going to do," in those times, I am getting sad because when a man does, why can't a woman? Because we are born from a same mother womb, we have got same capabilities to do, it is not necessary that they have to carry what a man does... they don't need strength, they need a brain, which is same like a man's. They can come forward with "I can do" because every work or anything we want to do, we should come up with in our mind, not with our strength. So it is good to encourage our ladies for kayaking or rafting or ecotourism. Like that, every day, we have got only one lady friend XXX [female guide], every day, we encourage, sometimes she used to beat us, sometimes she used to punch us, sometimes she used to get angry, but every day we used to encourage as much as we can because we want our daughters and sisters and mothers to be same like us because women are a source of children, and every man and every child is born from a women, so we have respect for a woman. Until now, we have only got one woman [in whitewater ecotourism]. In the future, I am going to encourage more women to do it.

RGP guides mentioned providing encouragement and support for XXX [female guide] and other women to become involved in the company and whitewater ecotourism.

Gender-Related Constraints and Female-Targeted Awareness and Education

Interviewees identified gender-related barriers as a constraint to women's involvement in whitewater ecotourism and interviewees also identified female-targeted whitewater ecotourism awareness and education as constraint negotiations. Many respondents referenced the norm in Bhutan for women to get married and have children as soon as they complete class 10 or class 12 (ages 17-19), depending on if they pass the "Class 10 Exam," an exam that determines if they are allowed to continue through Class 12 in state-sponsored public education or forced to "drop out" or pay for private education. Interviewees mentioned that this earlier age for marriage and motherhood is a constraint to women's involvement as guides in whitewater ecotourism. If a young woman does not pass her higher education qualifying exam in grade 10, some respondents noted that her choices in Bhutan were to live with the household or to get married, marriage being the most common option. A local doctor described, "Most of the girls out here get married at 18 or 19 and then deliver. When they study until class 10 max or class 12 and then marry, they don't have any job and in the future, they suffer [in] a lot of ways. I think there has to be a more broad level of thinking: here [in Panbang], the thinking is very narrow." One respondent expanded on this concept, saying, "Most of the girls are depending on boys, they are not thinking about what- after getting married- what will come," and then went on to describe situations in which husbands leave wives for other women, and the wives are left with children who they suddenly have to learn how to support on their own.

Once married with children, respondents also noted that, compared to men, women are more concerned about their families and also may be expected to fulfill traditional gender roles. One respondent described:

> Compared to men, women think about their family and... have more concern about their family… Because of that, women very much lag behind. These are constraints why women don't get involved in rafting. This, and especially in terms of out here, I think there are family restrictions, husband restrictions, in which the husband won't allow [his wife to be a river guide]… [they] want their wives to stay home and cook for them and look after the children.

Another respondent summarized, "Once you are married, barriers become greater for women as opposed to men." One respondent referenced the notion that women who were mothers would be less interested in work that involved risk (such as rafting), saying, "They have family at home, and have to think about their family, and have to think about their child, and so don't want to risk their life."

Introducing awareness, education, and opportunities for experience, learning, and work in whitewater rafting and kayaking at an early age was mentioned as a negotiation to some of these gender constraints. Exposure, opportunities, and female mentorship that facilitate early involvement of women was perceived as possibly empowering women with skills to support themselves and have increased job opportunity. Women establishing employment and job-related skills and experience before getting married and having children was mentioned to potentially postpone the age of marriage and bearing children for women, and increase women's financial security.

Some community members and RGP guides further noted that women who were married and/or had children could still work as whitewater guides. However, the distinction some interviewees made was that it would be easier to get into the profession and stay involved if initial involvement and skill-development happened before being married and having children. Comparing cultures and noting future intentions, one RGP trainee described:

> In our Bhutan, not in this short time, but in the cultural and traditional, we used to say the women are early married. There is no way of understanding from the husband, for that if

> XXX [female whitewater safety instructor from U.S.A.], and if XXX [female guide] is the example, if she [female guide] wants friends and women to be doing it, she has to be go to search in the schools because women students may have interest in these activities. If [Bhutanese women] finish college, … [they] are late in having children. This is some problem in the Bhutan; there is no one in Bhutan that does not have two to three children when they are thirty-two like XXX [female kayak and whitewater safety instructor from U.S.A.]. With no children, XXX [female kayak and whitewater safety instructor from U.S.A] is a very good example from good culture, and in future, if I have [a] daughter, I want to let her work first and then marry.

Some respondents noted that perceptions of what women were capable of doing was a constraint to women's involvement as river guides in whitewater ecotourism. One respondent described, "Because the girls' parents or the boys, they think that girls are having chicken heart, so they can't do same like boys. That's the problem," and went on to say, "Some parents, they are not letting [girls] go, and... [a] few boys, they think that girls can't do like them… They are thinking when the boys lift the big stone, then girls are not able to pick it up so they think that girls are not able to do this, so that's why the boys neglect the girls." The only respondent that indicated women would be less fit than men to work as river guides was a female heath care professional, who had moved to Panbang from Thimphu, the more-developed country's capital. She stated, "In our country, I think we are focusing more on gender equality. In my opinion, we cannot predict consequences or outcomes if things go well...There would be few women who would be equal in terms of strength, courage, skill, and everything. I think men would be more better than women. In terms of rafting, I would encourage more men than women." The same respondent also commented that she had the sense that women, "lack in terms of courage and strength" and saw women in Panbang, "as introverts, and very much weak. They cannot handle a problem, and the way they tackle their problems, they don't go forward, and very are much dependent on others."

Members of RGP referenced potential social dynamics for women entering a (formerly) all-male group as a constraint to growth of women's involvement in river guiding. Describing

teasing and assumption a women entering an all-male group may be subject to, an RGP member described, “Girls are discriminated against that work for us- by our friends’ lack of knowledge they are teasing us- they are teasing if we are going on expedition, the woman will have to sleep with us if there is no extra tent.” Other RGP members noted that some husbands did not want their wives to work with all men, and that one woman they sent for housekeeping training at the Aman Kora in Thimphu got sick but was immediately better when she returned to her husband, after which the team decided not to advertise and recruit married women any longer.

Another constraint to women’s involvement in whitewater ecotourism may be a preconceived notion that RGP is just for men because only men have worked for RGP in the past. One RGP member noted, “We aim to have three to four women like XXX [female guide] to work with us in RGP, so it is not only boys and men as a group. In others' eyes they see a gang... they will mention us like a gang without having any women in the company.” Respondents within the community and RGP noted that more women joining, would make it easier to get additional women to join RGP and be river guides both due to the comfort of women and changed perceptions and social dynamics of an initially all-male group.

A lack of awareness and education about whitewater ecotourism, particularly for women (and particularly women in higher secondary school), and the negotiation of growing related awareness and education for women was mentioned as a factor to address to increase women’s involvement in whitewater ecotourism in Bhutan. Respondents noted the need to “advertise” more to young women (compared to some respondent’s perception that there was more “advertising” to young men), and almost all respondents who commented on the need for more female-targeted whitewater opportunity awareness and education noted that XXX [female guide]

should be the one to lead this through such means as the morning assembly at school, talking with her friends, going door to door, and presenting at the community gatherings about rafting.

Finally, some respondents mentioned that there were very few female "drop-outs" in Panbang, and that it was rarer for young women not to pass their Class 10 Exam as compared to young men, implying that the "pool" of unemployed women in the 17-19 age range was less in number than the "pool" of men.

Lack of Full-time employment, and Need for Continued Hard Work and Interest

Other mentions of constraints and constraint negotiations for increased female involvement as river guides in whitewater ecotourism included lack of full-time employment, and need for continued hard work and interest. Multiple respondents noted that due to current work with RGP being seasonal and part-time, women may not be interested in pursuing work with them. One RGP member described, "There was one girl here that was very active like XXX [female guide]. We sent her to have bread [baking] training in Bhumthang and even though she had successfully done [the bakery training], I think in her perspective, in the future, RGP can't pay and give cash, so that's why she joined other vocational training in plumbing."

Multiple members of RGP noted that while they can encourage, support, and provide opportunities to women such as XXX [female guide], she and other women need to show continued interest and work hard to take advantage of opportunities and grow their own skills. One member of RGP described, "She needs to work hard to be more like XXX [kayak and whitewater safety instructor from U.S.A.]. Even if we demanded her to be a role model in the community, I am expecting her to come up with much more talents and guiding abilities [than she has right now in these beginning stages] so that she can influence women. In my first and

second year rafting, I am not that much in rafting and no one trusted me much. It depends on experience, and XXX [female guide] has to learn and struggle through our same experiences [of learning river guide skills]. I urge her to become a strong female kayaker in our community, nation, and RGP."

DISCUSSION

Benefits of Women's Participation

This study found that participation of more women in whitewater ecotourism was associated with equal opportunity, community pride, individual esteem, opportunities for other women, and general benefits to society. Similarly, literature indicates that investment in job opportunities for women provides a wide range of benefits to society, particularly benefits associated with women's increased control over household income through job opportunities and participation in sport (Evans et al, 2018; Revenga & Shetty, 2012; World Bank, 2011). Studies suggest that women's empowerment and women's increased control over household income leads to more sustainable investment of that income, which is particularly reflected in increased investment in spending on food and education for children (Revenga & Shetty, 2012; World Bank, 2011). While this study did not do a deep dive into empowerment of women and spending, it does support findings that women's empowerment contributes to increased opportunities and benefits for the individual and the family from a gain in financial income.

Further, this study's findings are significant in the context that support women and gender equality as a tenet of ecotourism defined by the UNWTO and is also a UN Sustainable Development Goal (UNWTO, 2018; UN, 2017). This goal is in response to research showing the more sustainable investment of resources by women, and issues of harmful practices against women, the issue of unpaid care and domestic work, unequal pay with men, general lack of women in leadership roles, lack of access to reproductive health choices, and relative lack of education for girls globally (UN, 2017). The International Ecotourism Society and the UNWTO state that women make up majority of the jobs of ecotourism worldwide, but they tend to work the lowest paid and sometimes unpaid jobs, and jobs that are considered the lowest status

(UNWTO, 2010). This study suggests that training women as raft and kayak guides puts them in higher paying and "higher status" jobs in the ecotourism industry in Bhutan. Further, within proposed and existing international ecotourism development initiatives, women are often less represented in decision-making, and RGP's invitation to XXX female guide to join the group as a "founding member" with decision making power is significant in increasing women's representation in decision-making in whitewater ecotourism. However, it is notable that studies indicate that when there is one or few women in an otherwise all-male decision-making group, the minority individual(s) will be less likely to assert their/ her opinion. In a global context, specifically including women and targeting their inclusion as river guides in whitewater ecotourism development contributes towards goals of international sustainability, conservation, and community development (UN, 2017; UNWTO, 2018).

Significant findings of this study include that in the potential circumstances of divorce, abandonment, or widowing, having job-related skills and experience prior to getting married and having children was noted as critically important. Women working as river guides was considered a source of empowerment of women across professional fields, particularly those that are traditionally male-dominant. Involving more women as river guides is creating skills for female river guides to excel within whitewater ecotourism, and these skills are transferring to work and leadership in other fields, both directly for female river guides (noted as perceived future outcome) and indirectly for inspiration for other women to overcome gender perceptions and norms (current outcome). Further, work as river guides was noted to provide and empower women with the skills to financially support themselves and their families.

Exposure of whitewater ecotourism opportunities and related female mentorship of women in secondary and higher secondary school was perceived to be a significant factor to

increase the number of female river guides in Bhutan and expand the benefits to more women. Further, involvement and work in whitewater ecotourism was thought to potentially postpone the age of marriage and childbearing, in addition to increasing women's financial security. Some community members and RGP guides further noted that women who were married and/or had children could still work as whitewater guides. However, the distinction some interviewees made was that it would be easier to enter into the profession and stay involved, if initial entry, skill-development, and involvement happened before women were married and had children.

In the case of increasing job opportunities for women as river guides in whitewater ecotourism, there are further benefits of empowerment of women through sport, which includes building of esteem and skills for other achievements (Evans et al., 2018). Research and case studies further support that engaging in sport and recreation is a source of empowerment that contributes skills and esteem for other achievements (Evans et al., 2018). Further, research indicates that females who participate in outdoor recreation are more empowered and have higher levels of assertiveness, confidence, self-worth, self-esteem, and body image and thus, it is important to encourage and empower females to take part in outdoor recreation (Evans et al., 2018; Pohl et al., 2018). Research also suggests that female participation in the outdoors may have more far-reaching effects by breaking down the gender norms held more broadly in society. These findings are similar to the findings of this study in which interviewees referenced the significance of XXX female guide in becoming the first female kayaker in Bhutan (Evans et al., 2018; Pohl et al., 2018).

This study's findings demonstrate that investment in the involvement of more women in whitewater ecotourism in Bhutan would yield increased societal benefits. While existing women's involvement in whitewater ecotourism in Bhutan in the context of working as guides is

low, this study indicates that expanding opportunities for increased involvement of women is significant in order to achieve national goals of equal opportunity and international goals of ecotourism and sustainable development. Allocating resources to training women as river guides contributes to empowerment of women and related societal benefits, creates opportunity for women to financially support themselves and contribute to their families, creates transferrable skills for women, and inspires "breaking of barriers" for women to excel in previously all-male or male-dominant professions.

Importance of Female-Specific Opportunities

Offering female-specific opportunities for whitewater ecotourism training and education about these opportunities can support increased involvement of more women as river guides in Bhutan. Particularly targeting opportunities for females in higher secondary school and incorporating female trainers, female mentors, and training options of both all-female and co-ed opportunities are constraint negotiations to noted barriers for women's involvement in whitewater ecotourism. Further, offering swimming lessons/ training and program development opportunities to women at a younger age can support increased involvement of women in whitewater ecotourism, both as river guides and as recreationists.

These findings are supported by previous studies in the literature (Evans & Anderson, 2018; Archer & McDonald, 1990; Culp, 1998; Pipher, 1994). Female-specific training, programming, and related activity awareness-building opportunities are constraint navigations to growing women's involvement in male dominated fields, and particularly adventure-based sports activities and professions (Evans & Anderson, 2018; Archer & McDonald, 1990; Culp, 1998; Pipher, 1994). Culp (1998) found that both all-female and co-ed outdoor program opportunities

with structures to support and encourage female involvement were beneficial in overcoming constraints to female involvement in outdoor activities. Studies also suggest that while pre-adolescent girls are often active and confident in outdoor environments, but that their activity frequently declines as they reach mid-teenage year. Thus, targeting outdoor opportunities and programming for this age group is significant (Archer & McDonald, 1990; Culp, 1998; Pipher, 1994). Research further suggests that including leadership training for women in technical skills development will help to overcome constraints to learning technical skills in adventure professions and increase confidence in abilities to execute learned skills.

Ongoing programs and trainings are more impactful than one-time opportunities, and incorporating local capacity development for leadership training is crucial for sustainability. Conservation and development initiatives can be subject to short-term verses long-term investment timelines; however, studies show that projects carried out with on-going trainings, mentorship, monitoring, and local leadership capacity building are more successful than projects with one-time investments, short-term planning, and that do not include "hard skills" related to the investment such as equipment maintenance or "soft skills" of developing local leadership to maintain a project or initiative. Particular to whitewater and adventure ecotourism, continuing education in technical skills, risk management assessment and procedures, and wilderness first aide are routine in the international industry on an annual basis, regardless of experience.

In this study, identified whitewater ecotourism constraints for females of gender relations, fear, and lack of confidence are similar to those constraints to women participating in adventure tourism guiding and outdoor recreation identified in the literature. Regarding outdoor recreation, research shows that constraints to both elite female athletes and amateur recreation participants include gender relations, fear, and a lack of confidence (Evans, 2014). Unique to

this study, fear was connected to a lack of swimming knowledge, and increased opportunities to learn to swim were identified as negotiations to this constraint. In the literature, constraint negotiations to increase female participation in outdoor professions and recreation include reliance on social support, unshakable passion for the outdoors, and development and use of resilience strategies (Evans, 2014). While existing research overlaps with findings of this study in terms of encouragement and support, and continued hard work and interest, this study found that female mentorship, female-specific opportunities, and female-targeted awareness and education about opportunities were particularly significant constraint negotiations. Common constraints to women participating in ecotourism in developing nations such as Bhutan between this study and the literature include gender relations, time constraints, and lack of knowledge related to the market (Scheyvens, 2000). In traditional gender roles of many developing nations, women primarily work subsistence farming and family management; therefore, adding more work such as river guiding or making and selling handicrafts on top of existing responsibilities is sometimes infeasible due to time constraints (Scheyvens, 2000).

Providing female-specific opportunities, specifically including some targeted for mid-teenage age girls is significant in increasing involvement in whitewater ecotourism and adventure tourism and recreation related industries. Female-trainers and all female trainings are important in addition to co-ed trainings that facilitate female supported learning and inclusion. Awareness and education about these career opportunities for females in whitewater ecotourism and other adventure tourism work is important, as these activities have been typically introduced to males. As currently, there is only one female river guide in Bhutan (in a national field of approximately seventy guides) and trekking and cultural guiding is Bhutan are also male dominant fields, increasing awareness about opportunities is significant in gaining participants

and ultimately long-term involvement in this profession and field of recreation. Further, there are business opportunities in female-led and all female guided experiences, as supported by the success of Three Sisters Trekking in Nepal, and the multiple tourist female-specific packages for tours of Bhutan offered by such companies as Wild Women Expeditions (Wild Women Expeditions, 2018).

Importance of Female Mentorship

Increased female mentorship for leadership and guidance were identified as constraint negotiations to increase female participation in whitewater ecotourism in Bhutan. The study found widespread perceptions that the recent training of Bhutan's first female kayaker provided strong potential for new and significant female mentorship in the industry. This local female mentorship was thought to be a significant factor to contribute to growth and support of increased women's involvement in whitewater ecotourism moving forward. Further, having a first woman was an important factor in breaking an initial gender barrier. This was significant in increasing women's empowerment and equal opportunity across professions and sports. The relatability that comes from sharing stories with other women of experiences of overcoming fear and realizing benefits from participation was highlighted as a key aspect of female mentorship. Female-trainers were noted to encourage more female participation in whitewater ecotourism trainings and opportunities. Female mentorship and female trainers were mentioned as being particularly important in male-dominant professions and activities for transitioning perceived gender stereotypes and expanding opportunities for women to also participate in earning from these livelihoods.

Similar to other studies, this study supports that creating opportunities for female mentorship and practice contributes to increased female-participation in outdoor adventure sports and activities. In a study investigating constraints of professional female mountain guides, female guides successfully navigated their way to an elite level of participation and performance in mountaineering despite a general lack of opportunities to connect with female mentors in the industry (Evans, 2014). Further, other studies have deciphered the importance of female mentorship and support within other male-dominant professions in such fields as pilots and biotechnology, and that formal female mentorship programs are beneficial in connecting mentors and proteges and providing consistent structure and resources for the advancement and support for the professional development of women (Anderson, 2005). A study conducted by Anderson (2005) noted that formal and structured female mentorship programs within biotech companies was impactful in women's upward mobility. A lack of formal program and a lack of women in upper level roles were found to be barriers to women's advancement within the company. The implications of this study's findings and related literature and studies are that development of formal female mentorship programs, professional networks, and leadership opportunities are significant in building the benefits of female's involvement in traditionally male-dominant professions.

CHAPTER 6. Community Engagement in Addressing Hydropower and Waste Management for Rivers

In Chapter 6. Engagement Addressing River Threats: Hydropower and Waste Management, I first present Results, which begins with sections on local perceptions of hydropower development (with sub-sections on perceived advantages of hydropower development in Bhutan; perceived disadvantages of hydropower in Bhutan; considerations for future hydropower development and alternatives, and education and advocacy), and then presents sections on waste management (with sub-sections on benefits of a clean environment; concern for waste management; perceived changes in waste over time; and factors for improved waste management). I then present a Discussion, which includes sections on opportunities for environmental education, opportunities for engagement, and importance of infrastructure and coordination across scales.

RESULTS

In researching the question, "How can whitewater ecotourism support pro-environmental behavior in the local community?" two foci were determined based upon the most relevant threats to clean, free-flowing rivers in Panbang, which were hydropower development and waste management. Questions regarding perspectives, practices, and action for river stewardship specifically regarding hydropower development and waste management were the focus of this study. The results were used to inform an action plan and mini-guide curriculum for River Guides of Panbang, which are included in the Appendix. Research shows that gaining local perspective, information, and involvement through using participatory approaches to development of community or group action plans is more impactful than non-participatory approaches (source). Identifying local perceptions and sources of information of development initiatives and extractive industries is crucial in order to identify plans and actions to create collective action.

Local Perceptions of Hydropower Development

Perceived Advantages of Hydropower Development in Bhutan

In this study, respondents identified diverse sources of information regarding hydropower and waste management related to rivers. These sources included: media, government, school, first-hand experience, community meeting, and family/friends. For hydropower, multiple interviews indicated and some respondents mentioned that individuals that primarily received information about hydropower from school, and/or government were more aware of the advantages of hydropower development, and less aware of the disadvantages.

Perceived advantages of hydropower development in Bhutan included: national revenue generation, job opportunity creation and economic growth, electricity generation, "clean energy",

and development. Respondents identified national revenue as a primary advantage of hydropower development in Bhutan. One respondent stated, "I feel hydropower is very important to make money for people and the country." Similarly, another respondent described hydropower in the context of the country, stating, "Since our country of Bhutan is small, we are mountainous and rich in nature… We don't have that much industry, so we need hydropower. It's also very important because hydropower [makes] money." Describing the relationship between Bhutan and India in the context of hydropower development, one respondent noted, "We generate income from hydropower. We sell to India; our revenue income we are getting from India." One respondent expressed the perspective that not building hydropower was like Bhutan "giving away" money to India. Hydropower development was noted as being the top course of revenue for the country of Bhutan through Bhutan Power Corporation (BPC), and there were some mentions that this revenue is used to pay the country's civil servants. One respondent described, "In Bhutan we say the civil servant is paid from the hydropower project. That is why they're in favor because … the salary for civil servant is paid by hydropower projects. They say the taxes we are paying to government is not enough… [and] that is why they are more targeting hydropower project [development]."

Respondents also identified job opportunities and economic growth as perceived advantages of hydropower. One respondent described, "A positive of hydropower is that it is the number one that brings economic growth to our country and it makes jobs for the youth and some works for the contractors." Similarly, other respondents noted, "Advantages [of hydropower development] are for government economic growth, plus providing and creating job opportunities," and "If Bhutan people construct more dams, Bhutan will have better economy and more jobs." Describing particular job opportunities, one respondent stated, "[Hydropower

development is] creating more jobs, especially engineers and workers. There are also more job opportunities in hydropower… [for] students and the graduates… who don't… [pass] assessments or exams." Referencing an opportunity for individuals to gain experience in certain job fields, one respondent discussed, "What I have learned from my friends working in hydropower and government service is that those working in hydropower get more hands-on skills, … [much] more experience than theory. The government is much lacking behind in the… [industry expertise of] hydropower. After [a] hydropower [project is] closed, then [a worker's] level [of] experience... [is greater] and there will be more opportunity to get in government service. Everyone would like to invite them for their company."

Describing multiple advantages of hydropower development and perceived acceptable trade-offs, another community member noted:

> According to me, actually… [hydropower] has benefited Bhutan. We have plenty of rivers, so we should make use of it if it is useful. Yeah, we are losing forests, [we] but have to sacrifice something to get good things. Whatever is happening is for good; when clearing [trees for hydropower development, people are] planting trees other places. [Hydropower is] helping [the] country come out of debt and [after] completing projects coming, … one day will be free and [out of debt]. It is giving job opportunities to the youth and again developing places. [There is] not much negativity [about hydropower development], everything is positive right now.

Further, there was one mention of a perceived advantage in income from hydropower development if the government acquired your land. Describing this perceived advantage, one interviewee stated, "It is said people who own land will be subsidized. If you own 100 decimal of land that falls under the hydropower project, [the government] say[s] [they] will pay 50,000 Nu per year forever. That is what people think and why they think, 'Yeah, I want the hydro-plant because I get 50,000 Nu public charged to give clearance.'"

Respondents also identified electricity as a primary benefit of hydropower development. Describing its benefits, one interviewee stated, “Sometimes hydropower is helpful; you can get light and cook food. You can do anything with electricity.” While many respondents noted both advantages and disadvantages of hydropower, such as, “Regarding advantages of hydropower, every advantage has a disadvantage; although with electricity, it is useful for all the people,” some only saw only benefits of hydropower development, such as, “With hydropower projects, if [the] house is hot, we can put on fan. If we need hot water, we can get it from the boiler. There is no disadvantage. It’s the high value.” Other respondents expanded that they were able to work and do activities at night with electricity, and that electricity from hydropower was more consistent in the monsoon season than solar.

Respondents identified reduced need for fuelwood as a benefit to the increased electricity availability of hydropower development. One interviewee described:

> Regarding advantages of hydropower, every advantage has a disadvantage although with electricity it is useful for all the people and it is decreasing the cutting of the forest. In the olden day, we used to use firewood for making food, but now, we are doing it with electricity. Before electricity come, we are using so many firewoods and have to cut a line in forest in order to get [fuelwood]. Every advantage has a disadvantage.

Another interviewee noted, “I think hydropower is good. Because if there is electricity, we [have] no need to search for firewood. It ...help[s] us... to not burn... the fire and ...I don’t think [hydropower is] bad.” Some respondents mentioned the perception of hydropower as “clean energy” as an advantage (while others mentioned it as a misconception). Describing the perception of hydropower development as a source of pride and “clean energy,” one respondent stated, “Even our late prime minister... was invited to a TED show in USA and has said that Bhutan is a carbon neutral country. Just by damming, we can escape from generator and we escape smoke.”

Respondents identified general national development to be an advantage of hydropower development. One respondent stated, “What I think about hydropower is...in Bhutan, we are not developed or we are under developed and in developing stage. To develop our country, there is a lot of hydro coming up.” Describing how the interviewee felt when they saw a hydropower project in Bhutan, another community member stated, “I thought that the government is becoming developed, when so many... constructions are going on. I think that in the next phase the government will construct more and more. I definitely think it’s good for the government to construct more dams.” Noting a perceived trade-off with environmental degradation and benefits of hydropower development, another respondent described, “If hydropower comes, of course it is very detrimental to environment, but of course for community there will be a lot of construction and a lot of road connectivity and infrastructure. Of course, it will add to economy and people will definitely benefit, but environmentally it is bad.” Another respondent also recognized this perceived association of development with hydropower and environmental trade-off, stating, “We are going to lose many of our forests. Big chunks of forest are required but as of now we require infrastructure development and so we sacrifice a little bit of environment.”

Perceived Disadvantages of Hydropower Development in Bhutan

Perceived disadvantages of hydropower development included environmental degradation and damage, negative impacts on whitewater ecotourism, increased national debt and dependence on India, displacement and increased flooding risks, losses and disruptions to local communities, and loss of beautiful scenery and opportunities for future generations.

Environmental Degradation and Damage

Environmental degradation and damage were the most mentioned disadvantage of hydropower development in Bhutan. One respondent described generally, "These hydropower projects, they are harming to the environment." Multiple respondents described an associated loss of biodiversity related to hydropower development. In the community river stewardship focus group, the presenter noted "Affecting our biodiversity" as a primary disadvantage of hydropower development in Bhutan, continuing, "It [hydropower development] will affect so... [much of] our present biodiversity. It will destroy our rich ecosystem. In order to construct a dam… we have to clear our forests. We have to clear our rich ecosystem, mountain, forest, and clean water, and I think this we need to bring up." Describing the loss of species and habitat from hydropower development, an interviewee stated, "They are going to build 10,000 megawatts in our country. That… [is] huge. That means they are going to destroy every place that are… a great home for the animal; they are going to destroy animal, plant, so many species, they are going to destroy our beautiful natures and mother earth." Another respondent noted a similar sentiment saying, "If hydropower starts, all of the forest has to be cut down, and animals will start to shift from this place, then where they will go? It is very difficult." Noting environmental effects of hydropower, another respondent stated, "This hydropower impacts and hurts the

biodiversity and environment, because if we build a hydropower, naturally we have to cut down trees, we have to dig holes and dig underground, and even the river features get changed."

Some respondents noted a particular disadvantage to be to aquatic species, and potential extinction and threats to endangered species and the river's migrating species. Describing the Drangme Chhu river during the construction of the upstream Currichu dam and the assumed impacts on aquatic life, an RGP guide described, "Maybe ten to fifteen years ago, we have noticed that our Drangme Chhu shrunk- it became very small. We thought 'Why is this happening? Maybe, water is blocked.' There is some eagerness [to know] why our river gets that much smaller… [when we hadn't] experience[d] [it] before. We could see some boulder or rocks which have been hidden for thousands of years. During the damming... it is forcing us to watch, [the river is] not in good health when damming is going on. It really disturbs the aquatic life in the Drangme Chhu." Another RGP guide mentioned the effects of dams on aquatic migratory species, stating, "I have been working with WWF on the conservation of golden mahseer… If there is such damming going on, surely it will affect the flow of aquatic life. It will be much tough[er] time for aquatic life to go to higher altitudes. If there are dams, this will be quite hampered I think."

Respondents also frequently identified this disadvantage of hydropower development to include a loss of forest cover, which was noted would eventually go against GNH (Gross National Happiness) mandates for a national minimum of forest cover (mandated never to fall below 60% in the constitution (established/ declared: Year). One respondent described, "Bhutan is covered by seventy percent forest, and [the country] need[s] to [maintain the forest cover]. If we go on constructing hydropower in Bhutan, in one day or another day, [there] might be so many destructions." Another respondent connected a loss of forest cover on river banks with

increases in water pollution and trash, describing, “I think hydropower projects are very destructive to [the] environment. In Bhutan, we have a good forest cover and as river guides we should protect [this]. In other countries, you cannot see the forest with beautiful river going down. If you go there, [you] only see development. Most of the riverside is polluted, and for this reason we should protect our environment and the river.” Another respondent perceived a hydropower development to increase people moving to the country to work and associated environmental disadvantages, and stated, “Hydropower development brings people into the country, which yields more trash, and affected ecosystems and fish. The already finished hydro, it is good, but if doing, [it is] very difficult for people. If there are more dams, more people [are] entering [the] country, and too many people affect[s] ecosystem and fish. Too many people also means more trash; some don’t use a dust bin, and in twenty to thirty years, the river will be full of bottles and plastic, and fish will eat the bottles.”

Some respondents mentioned the de-watering that occurs during hydropower construction and development negatively affects opportunities for farming and irrigation. One respondent described, “[Farmers] complain that their water has not been sufficient in field. By constructing hydropower, it will affect a lot of land degradation.” The community focus group identified “less opportunities for farming for farmers” as a primary disadvantage of hydropower and a representative explained, “If there is no water, the farmers will not farm as per their wish due to irrigation channel problems so many as with the problem.”

Disadvantages of dams were also noted to be sediment or “waste” build-up, and realizing a misconception of “clean energy”. The community focus group identified “waste storage” as a disadvantage of hydropower, explaining, “Waste storage means that when we have a dam in our area... all kind of sediments [and] all kinds of waste will be stored in that dam, so it will pollute

that area [and] our clean water." One respondent described a perceived hole in the reasoning and "clean energy" labeling, stating:

> The larger implication in terms of the hydropower we export is that it's a lot of 'clean energy', but for the same amount of money it generates, we import dirty fuel and petroleum products for gasoline to build, and I'm told it's pretty comparable- import dirty for export clean. It's a double wammy- one as construction of hydropower projects causes environmental damage here, we sell the "clean fuel" to India, buy dirty fuel, and again that pollution stays in Bhutan.

Negative Impacts on Whitewater Ecotourism

Respondents identified negative impacts on whitewater ecotourism and related job and income opportunities to be disadvantages of hydropower development. These included: "hampering" of Panbang's river rafting culture, loss of opportunities for whitewater ecotourism and associated income and jobs, and loss of current and future potential to expand whitewater ecotourism's expedition trips in Bhutan.

In the community focus group, "hampering our river rafting culture" and "impacts to our economic income due to less visit of tourists" were identified as disadvantages to hydropower development. A representative of the focus group described, "It will hamper our river rafting culture because… for river rafting we need a continuous flow of water, so when you construct dam, I think water will get storage there and… the river won't be suitable for rafting." In the RGP focus group, river guides identified a disadvantage of hydropower to be a loss of jobs and less tourists visiting. One guide stated, "From my point of view,... [the number of current dams in Bhutan] is sufficient. If they... construct a dam from Panthang, we do not have our work, we don't have our rafting company, we… [would lose] our jobs, our plates, our daily food… [and] the lovers of rivers tourists, they may not come to have river rafting in Bhutan." Noting whitewater ecotourism's youth employment opportunities in an individual interview, one

respondent described, “I think the government also need to think... if there… [are] more dam[s], there won’t be any rafting and there won’t be any opportunity for youths to employ themselves… through rafting, youth are... employed.”

Describing some benefit of whitewater ecotourism as a means of development, one respondent noted, “Now, [we] have [to have] more advocacy [and] information on how [hydropower construction] affects… development activities. Some people rely on river tourism; it is a good basis for community… [and a] good business running rivers.” Another guide discussed this disadvantage of the country receiving less tourists due to hydropower development and the need for Bhutan to diversify their development investments with a more long-term vision, stating, “[Beyond] hydropower dam[s], Bhutan also needs to look for other industries like ecotourism... [for the] long term. Who knows after having so many dams in Bhutan that other countries will not buy [the electricity]. If we have only dams, it will destruct and foreigners will not visit.”

Respondents also identified loss of multi-day river trips and loss of associated benefits of whitewater ecotourism to be a disadvantage of hydropower development in Bhutan. One stated, “If [Bhutan] go[es] on building a dam, people [may] not come to realize [it is] going to disturb [the] ecological and [the] environment. Being a river guide, I do experience that.” The guide continues, “If [Bhutan] build[s] one big dam [on the] Kuri Chhu, for us… [it would] disturb [a] good expedition [for the] outside world... [and an] expedition route. If... [the government doesn’t] care about all those things, tourism will go down because of nature that has already been destroyed...Some people rely on river tourism; it is a good basis for community… [and a] good business running rivers.” Another interviewee described, “As [a] river guide, I don’t want hydropower. We will miss so many stretches [that] they are trying to build, [and] I wish [that]

doesn't happen here because we are having good stretches… We don't want these… [hydropower projects] happening in our community."

Increased National Debt and Dependence Upon India

Increased national debt and dependence upon India were identified by respondents as a disadvantage of hydropower development in Bhutan. Describing the context of hydropower development and the relationship with India, an interviewee stated, "India is giving loans and the power will be supplied to India", and another noted, "Our government is actually a little bit reluctant, to let… [India] use all expertise and benefit out of it. In the projects, Bhutan isn't getting much benefit." A community member explained a change in dynamics and scale of hydropower development and growing dependence upon India, stating, "Hydropower is different than in the past, because now it is fully funded by India… If [Bhutan] hang[s] onto India['s] investment, I am quite worried [that] the impact for Bhutan will be too much dependence upon India."

A key informant summarized this connected and complicated disadvantage, explaining, "There have been two governments [of Bhutan since the constitutional monarchy began]. The first two politically democratically elected governments, hinged onto the vision of developing 10,000 megawatts by 2020. It was a little bit of a mad rush for that, thinking that hydropower is the simplest means to sustainability and development." The interviewee continued:

> The two projects have been mired in corruption, cost overruns, and time delays in many orders of magnitude. They don't know the cost overrun, and also because the economic arrangements and model are a bit different, Bhutan is taking on more loans, borrowing more with costs overrun, and planning to do future loans. Every year, it's putting the country into more debt and the project is not completed. One argument hydropower proponents always say is that the loans are self-liquidating, but often it's always towards the end of the lifetime of a project that… [dams] even come close to paying off.

Discussing similar concepts, a community member stated, “Bhutan is investing a huge amount in hydropower, and the … contract[s] [are] very much getting delayed. This is a disadvantage.”

Respondents also noted a concern for the uncertainty of India and other countries to buy this energy in the future, and the question of how, if the market and demand shifts, Bhutan will recover from the incurred debt. One respondent explained, “One day or another day, another country may not buy the electricity from our country.” Another interviewee expanded, stating, “Another disadvantage is nowadays we are selling more than seventy-five percent of our generated electricity to India and Bangladesh. We use only twenty-five percent in our country so that in [the] future, if our two neighbors get another source of energy, and if they are not willing to take our source [and] our electricity, is there any advantages for building more sources of electricity in our country? That is a great question. Where shall we use that much source of energy?” A participant of the RGP focus group connected these ideas with the disadvantages of hydropower development to the rafting industry, describing, “Who knows, after having so many dam in Bhutan,... [if] other countr[ies] may not buy at [a] certain rate, or [if] the dam may not last for some decades. So, if… [other countries] are not buying [Bhutan’s hydropower energy], it will [still] destroy the features of... [Bhutan] and one day or another day… [for] the [whitewater] tourism, the tourists will not visit.”

Displacement and Increased Flooding Risks

Displacement and increased flood risk were identified by respondents as disadvantages of hydropower development in Bhutan. These risks include relocation, flooding in the case of dam failure or uncommunicated and abrupt fluctuations of water level from dam activities. Describing the risk of displacement, one respondent noted, "[They] said if [they] build that dam, you will wash away and have to move to another area." Other respondents linked displacement to a loss of culture and tradition for relocated communities, stating, "People by the dams do to not have secure feeling; they have to evacuate [the] original place where they came from and their traditions may be lost. A loss of traditions and culture and happiness counts in GNH [Gross National Happiness] and it is wrong. I think … if [the government] keep[s] on damming, there is no secure feeling if there are dams."

There were also perceived risks of flooding due to dam failure of hydropower development, particularly in the case of an earthquake. The community focus group identified "risks from earthquake" as a primary l disadvantages of hydropower development and described, "If the earthquake arise in our country where there is [a] dam… [the] dam will break easily and it floods the water and the disaster [and] problem increase automatically." In an interview, one respondent further described the risks of hydropower development related to earthquakes and flooding, stating:

> There is another likely chance of getting flood by making a dam, because when we make a dam we … need to… [make] a tunnel inside... mountains so... if the earthquake magnitude is more than four... it is going to collapse so that it is riskier for the people in [the] near future… There is [a] likely chance of an earthquake striking in our place… [and] so… before we get into a problem, we should think for the future, not for the present, so that in [the] future, if… [an earthquake] happen[s], what are we going to do?

Other respondents noted both local risks and risks to downstream communities of dam failure and flooding. Describing perceived danger, one interviewee stated, "For fellow villagers, [with]

any burst of [a] dam, we can find lots of negative impact[s]. Until now our country hasn't recorded [a] burst of dam. [But] who knows? such instances don't know what will happen tomorrow." Some respondents referenced other examples of these risks playing out in Laos and China, and one noted, "So many people are dead because of flood… [from] dam." Another interviewee explained, "We haven't had this type of situation, but honestly one day I think it's going to happen like [it did] China... the bursting of the dam and obviously, the people staying nearby the river, they are going to wash out… Until now, we… [haven't had] such type of situation [in Bhutan], but obviously the disadvantage is there for people like us [who live along the river]." Multiple respondents also mentioned that this disadvantage of hydropower development also would affect downstream communities. Describing this, one respondent stated, "It is also very risky for people who are living by the river valleys and downstream… [The risk] includes not only [the] nearby community, but also those downstream in India. There are lots of affected by building dams."

Increased risks of flooding from abrupt fluctuations of water levels were identified as disadvantages of hydropower development. One interviewee described the current situation in Panbang in the summers, in which, since one upstream dam was built, the water level of the Drangme Chhu rises drastically without warning. The respondent recounted, "[When] the dam is … full and they send river water through, and then it is dangerous for everyone. At any time the water flow may come fast and it will wash us away. So that's the problem, and that's why the kids and cattle are not allowed to go near the river." Another interviewee noted the increased dangers of flooding from heavy precipitation events, which are common in the summer, stating, "When it is heavy raining, the dam is so dangerous because it can flood."

Multiple respondents further mentioned climate change as a factor that compounds disadvantages of hydropower and flood-related risks. One interviewee described, “The dangers and insecurities of damming and global warming are going on... Lots of engineers and decision makers should dam very properly because with global warming going up, with just a small mistake, … there will be leakage... Maybe some contractors [have] gone for the money and if [the government goes on] damming, surely it will lead us to feel insecure about the dams in summer times. Rivers are usually glacial snow, and also we have the highest rainfall in our country.” The high precipitation and changing weather patterns due to global climate change were connected to increased risks to flooding downstream communities from both dam failure and unannounced dam “flushing”.

Losses and Disruptions to Local Communities

Losses and disruptions to local communities were mentioned as disadvantages to hydropower development in Bhutan. These disadvantages included: death and injury; noise disruptions to local communities from construction; increased numbers of mosquitos and related mosquito-borne diseases; loss of personal property and wealth; lack of information for local communities; and unsustainable hydropower-associated promises and developments.

Describing hydropower development related deaths and injuries, one interviewee stated, “I will compare... [hydropower] to tourism like river rafting. I haven’t seen death in rafting... but in the construction of dam, so may people [have] drowned.” The same respondent went on to describe local beliefs and stories rooted in losses of villagers who were working on government infrastructure development construction projects. The interviewee recounted:

> Before having any dams in our village, we are very afraid of hydropower projects and big bridges because our grandfathers used to mention that when there is construction of a

> hydropower project in Bhutan, they are putting our heads into the dam and people are losing their heads in construction… We have to be careful with the dam, there will be losing of our heads," and later continued, "If there is dam construction, all the villagers will have to be scared because there are high chance we will lose our children or innocent people...When they construct a the bridge or dam with unknown people, in Khengkha, we call … [those projects] head cutters.

The local community identified noise and construction-related disruptions as a disadvantage to hydropower development and also increases in number of mosquitoes and mosquito-borne diseases. One respondent noted "These hydropower projects, they are harming to the environment, and [they]make noise pollution for all nearby localities." The community focus group further identified "mosquito breeding" as a disadvantage to hydropower development, explaining, "So [with] this dam, you also create a home for mosquitos."

Another noted disadvantage to hydropower development was a loss of personal property and wealth from forced government acquisition and purchasing of land necessary for hydropower project construction. Describing this, one interviewee stated, "[There are] so many people losing wealth [from] turning [private property] into government property. Indirectly, they are losing and there is disadvantage in this", and the community focus group listed a disadvantage of hydropower development to be, "Private land… [is being] convert[ed] to government land at their wishes (i.e. very less price government rate)". One participant explained, "For constructing the dam, [the] governments are capturing our private land as their in their government land, as per their government rate, and the government rate is very less so that will affect the village's people and… [the] area where that dam… [is] construct[ed]."

Local community members mentioned a lack of information about hydropower development projects and a lack of communication about the drastic fluctuations in river level of the Drangme Chhu from the upstream dam in the summer. While some community members

mentioned being involved in the feasibility test of a dam upstream of Panbang, most members were unaware of the proposed project. During the community focus group, one participant mentioned hydropower developers recently staying at a hotel in town, while another member had stated he was unaware of anything going on since a feasibility test a couple of months prior. In addition to a noted lack of communication with local communities and villages of Panbang and the surrounding area about proximate proposed hydropower projects, multiple interviewees noted the drastic fluctuations in river level and "flooding" from "flushing" of the dam upstream that posed increased risks to community members during summer months and during the construction. Describing this, one interviewee stated, "We could see a big change and [had] no information."

Unsustainable hydropower-associated promises and developments were noted as disadvantages of hydropower development. Perceived associations between hydropower development with infrastructure development in Bhutan was noted as misleading by one key informant interviewee. The interviewee explained:

> Politicians now somehow associate hydropower with economic development, so much so [and] to the extent [that] big schools and large hospitals are associated with coming with hydropower projects. But [in Bhutan,] we have seen that [in] many areas where hydropower was built, there is an economic buzz. A lot of people are milling about and there seems to be an economic boom, but once the project is completed… [those areas] literally become ghost towns. There's not a whole lot to do after construction. It doesn't take many people to run a dam and maintain it. [After construction completed,] the first two Phunsaling housing projects became empty.

From this perspective, there was a disconnect between infrastructure development, such as hospitals and schools being built, in existing towns in need verses in the short-lived "boom and bust" pop-up hydropower construction settlements.

Loss of Beautiful Scenery and Opportunities for Future Generations

Other mentioned disadvantages to hydropower development included a loss of beautiful scenery and opportunities for future generations. Other interviewees mentioned losses to future generations. One described, "Sometimes when I think about… [hydropower development in Bhutan], I am getting sad because I think, to think about our children, our future generation, if we keep on... building dam[s], [and] keep on building more factories, is there any chance [for] our children to enjoy like us? They [would] have to suffer more than enjoy, so to not let our children suffer in [the] future, I think they should enjoy [the rivers and environment the same as] how much our parents enjoy[ed] [them]."

Considerations for Future Hydropower Development and Alternatives

Completing current construction of hydropower projects, assessing national needs and opportunities, and taking action were identified by respondents as considerations for future hydropower development in Bhutan. One interviewee noted, "It is enough that dam has already supplied to India. I cannot say that Bhutan needs to build more dams because it is enough." Discussing this idea further, one community member described:

> Bhutan needs to let the projects [that are] being built be completed, and see how they bring economic return to the nation. Solar is [also] quite feasible, and can generate power. It is good if can manage [hydropower development] properly. There are always advantages if you manage properly, professionally, and bring revenue back to the communities themselves.

Also discussing the future and "big picture", one of the river guides mentioned:

Bhutan is a small country and we need hydropower, ok, but it's not about making money and putting a dam in every corner. We should think about sufficiency and the future, not about selling to our neighbor countries and putting dams in every corner. The government should have interact[ed] on such type of issues with agencies.

Identifying a need to be more calculated in hydropower development, another interviewee stated, "[The government] should measure now how much power is used in Bhutan and how much is sold to India. [They] should find out calculations of what is needed before building more dams." One respondent noted that Bhutan had enough hydropower to provide for the entire country of Bhutan and also export to India, and that in this context, "We have enough, now [Bhutan] must conserve forests and mountains."

The importance of moderation and diversification in future hydropower development is discussed by one interviewee:

> [Hydropower is] an important aspect of the economy of the country… These hydropower projects are very important. Sometimes people are idealistic and say, 'Oh, we should not dam these rivers', but other things like what one tourism project would generate, is not going to bring in revenue like one hydropower [project]. It's the largest revenue for the country, but the pace of... [hydropower development] in the last 10 years or so is worrisome because maybe we don't need that many? Maybe we just need a few good ones and diversification elsewhere [with] what to do on rivers and other things to do [for energy and revenue]. Like everything has been for Bhutan for so long is: everything in moderation. Carefully planned moderation would be a good approach [to hydropower development in Bhutan], to have some [it] well-managed, so that economic risks and environmental risks are somehow diluted a bit.

Some respondents generally noted the opinion that Bhutan should be more calculated in hydropower development planning and diversify its development investments.

Increased investment in tourism as an alternative to hydropower development and as a means of diversification and sustainability of revenue generation also emerged as a consideration for future hydropower development. Discussing the opportunities of growth of river tourism and the connection to government, one interviewee described, "[You can have] river guides, fly fishing… [there are] lots of opportunities, [but it] depends on government policy and strategy." Another interviewee described the need for Bhutan to diversify; the community member stated:

> I think hydropower is also important out here. The government should focus planning to diversify hydropower and… focus on other things like tourism. As far as I know, the

> government focuses on hydropower, tourism, and biogas. From my perspective, I think they have to focus more on tourism. I think they're a bit lacking and behind [in] tourism. They can focus on… [tourism], biogas, [and] solar... so they can generate more income from all the things and create more job opportunities to the general public. Also, in that way, it will benefit the country as a whole.

Respondents mentioned tourism as the primary alternative to hydropower for government investment and means of providing development and job opportunities in Bhutan.

Investment in solar, wind, biogas, and micro-hydro were identified as alternatives to hydropower for electricity development in Bhutan, and there was particular mention of increased attention on local power sources. One interviewee described the concept of RGP leading by example and specifically asking the government for further support of local alternative energy development, stating, "If RGP wants to do changes, they have to use local energy, we want electricity, but they will trust the RGP members. They have to submit a proposal that we want this type of money from the government to do such things." Discussing solar, some respondents noted that the current solar systems had limited capacity in terms of battery storage ("could only charge a cell phone, not a computer"), and did not work during periods of consistent rain; however, others noted that there was a need for investment in more advanced solar electricity systems.

For wind energy, multiple respondents noted that the two windmills near Punakha were a pilot test that had a lot of potential to be expanded. Regarding biogas, some respondents noted that it worked, while others noted that the government gave it to villagers without training on how to work it, without follow up to check maintenance and success of allocation of biogas units, and in areas of insufficient cow dung supply, others noted that is was being used and worked. Regarding micro-hydro development, one particular successful project was noted multiple times in XXX. One of the primary benefits of smaller, localized energy sources is the

reduction of outages that result from transmission lines being taken out during the monsoon seasons, in which heavy rains commonly result in landslides, tree fall, and road closures and damage.

Education and Advocacy

RGP and community members identified targeted education about hydropower development and waste management as a needed action to increase local support for the rivers. Discussing river-related education and advocacy, one guide stated, "We should also educate our community and nationwide regarding the effect of hydropower dams," and then mentioned a benefit to increased conservation and stewardship education of river guides, continuing, "We should also learn good things about preserving our nature and natural resources." Another guide referenced the potential role of river guides to be educators and leaders of an advocacy program, noting, "The literacy rate quite low, so people don't understand the importance of rivers and nature [and that's] why [some] don't care much about these things. Advocacy is important, and better being a river guide, we would like to communicate and be an advocacy program."
One river guide discussed the potential government impact of education of community and family members about hydropower development and its disadvantages, stating, "Again, the government is planning to build up yet another dam… [Right now], I think that we have to try to discuss with our nearby community and our family… If they know the disadvantage of dam[s], the government will try to stop coming out with new dam." Considering the responsibilities of being river guides and having information about the disadvantages of hydropower, another guide noted, "We are the locals there and we should let… [the community] know and tell … about the dangers."

RGP members further discussed planning groups, meetings, and conferences to educate and advocate for clean and free-flowing rivers. In an individual interview, one RGP guide stated, "We should form a group I think. Being in a group with max number ten to twenty and lots of educated [participants]… [The group would] sort out all positivity and negativity of damming, and after forming this group, we should actively participate in [a] conference." Another RGP guide mentioned the need for a conference, contributing to advocacy, and affecting policy and government decision-making, stating:

> I think we have to actively participate in [a] conference, a national conference on damming [with government people]. For damming rivers, we are the only town residing just near to the biggest rivers, so obviously we could be the first person to… [address the] national damming of river[s] and to approach higher government. But for people like us on the riverside, we need to actively raise our point about damming. If there is damming near us and we are not in secure conditions, just by raising our hand, it might help them to subtract damming of rivers. It is people's right I think, and our country is democratic. Our people are in small populations and never used to protest. While people are doing like this, while there are no protests, the government should think about us. They have to know the situations and… [what] would be the consequences if there is more damming. They being highly educated and learning man, they have to have some regulations and norms where people can be happy. We are a democratic governing body and they should know these conditions.

Another interviewee stated, "We should conduct more meetings, meetings to our schools, community and our localities so that everyone in our country should know more of disadvantages with buildings of dams than with advantages, because now we have already have enough [dams built]. The… [people] should know [that] we already have enough electricity for our country." RGP members further mentioned the need for meetings and conferences both at local community and at national levels to discuss the disadvantages and considerations of sustainability in hydropower planning.

As a means of advocacy, some respondents mentioned a need to use media in order to contribute to river stewardship education and advocacy and also a need to collect more

information about local perspectives on these topics. Discussing the need to incorporate media into river stewardship education and advocacy, one respondent stated:

> To spread this information and to let our government know, we should always be forward on speaking these things on media on social media. We have one page called forums, Bhutan forums, we should put forward to this forum to talk to everyone in our country, whether … [increased hydropower development is] advantage or disadvantage. We should talk and put these points forward in the middle of everybody else… If more people have good points about the hydropower, then they are sure… [advocates of increased hydropower development] are going to win, but if more people think about the disadvantages of building dams in our countries, at that time, the governments will get a little bit [of an] idea that our people don't want more [dam] building.

Another respondent noted the value of information collection, stating, "After being asked about the dams, if we collect more and more information, that will help government to stop the damming."

Respondents also identified the need to connect with organizations and groups with existing efforts or similar interests and goals, such as Clean Bhutan, World Wildlife Fund (WWF), International Center for Integrated Mountain Development (ICIMOD), and Manas National Park. The identified organizations had previously partnered with RGP for short-term, initial initiatives, such as a River Clean-up day event. Further, in the River Guides of Bhutan Focus Group, discussion and action item development included the formation of a national raft and kayak association in order to improve advocacy, education, and training, and related resources, opportunities, and partnerships.

Waste Management

Community members were asked how they managed their waste. The majority of the community gathers trash in household and work place bins and sacks for a weekly tractor pickup, while a smaller number of respondents burn their trash. For personal household/ workplace

recyclables (plastic bottles, glass bottles, aluminum, and tin), about half of the community members mentioned they sold it or gave it to a scrap dealer; while a third of the community members mentioned they gathered it in a bin for the weekly tractor pick up. Regarding biodegradable waste, part of the community mentioned collecting it along with other waste for tractor pick up and the other part of the community mentioned separating it and giving it to animals or throwing it in the garden or a compost pit.

Community members indicated that some individuals and groups still burned trash in the Panbang area, despite the institution of free/ government-sponsored trash pick-up with the tractor. Further, Panbang Primary School noted that it burned its paper items, and the Panbang hospital buried its medical waste in an on-site designated disposal pit and burned its other waste. When prompted on the negative aspects of burning trash, RGP members identified that the negative effects of burning trash are: air pollution, production of pungent smells, affecting global climate change, and affecting melting of glaciers in Bhutan, which was noted to be negative because melting glaciers implied a reduced source of rivers, dry rivers, and reduced drinking and agriculture water. RGP members identified that the reasons that people were continuing to burn trash in the tractor pick-up area of Panbang are: community members burn trash in the winter to keep warm and "have noticed that [burning] plastic is good for making a good fire", burning plastic reduces expenses on such items as kerosene, a lack of education about the disadvantages of burning trash, and not having proper waste disposal infrastructure such as sacks and containers. In short interviews with community members, individuals mentioned burning trash because it did not look beautiful, because the tractor didn't come sometimes, and because dogs and wind would spread the trash when it filled their pit or container. RGP members and community members noted that outside of the Panbang area [and in many areas of Bhutan], there

was not a town disposal pit or tractor and so the "only option" was to burn the trash. One interviewee described, "In remote place, there is no option, they have to burn because [there is] no tractor and that is the only solution." Being from a more rural village around Panbang without tractor pick-up, the interviewee continued, "We burn it."

The community focus group specifically outlined the following actions for reducing trash burning:

- Educate people for their self-sanitation around and surroundings
- Maintain two kind of personal or room dustbin, i.e. for wet and dry waste
- Educate people to recycle the dry waste and to dump in pit the wet wastages, or to manufacture as fertilizer in the garden
- Educate people to maintain the pit for degradable and for non-degradable substance; and
- Provide the waste pit nearby the roadside and river bank as well as where there is picnic spot.

Benefits of a Clean Environment

Respondents identified the benefits of a clean environment to be improved health, environment, tourism, and spirit. Health was the most mentioned benefit of a clean environment, and was sometimes connected to government campaigns through the health department about the importance of waste and litter management in relation to better human health and reduction in disease. One respondent described, "If it's clean, there are low health issues. Then everything is good and you can do anything. Health is the first priority." Another stated, "It's important to take

care of the trash in order to keep health for ourselves" and multiple interviewees mentioned the importance of a clean environment in order to "avoid disease."

Some respondents further mentioned the benefits of trash management to be a clean and healthy environment. One interviewee described, "To keep the environment clean is important from my own opinion, so that when the environment is clean, we will receive good, fresh air so… there [is] not much climate change… If we grow more trees, it is helpful in climate change, and if there is trash in all the forest, the plants and trees will [die]." Another respondent noted the long-term benefits of this for future generations, stating, "If the trash is taken care of by the people of Bhutan, they will not worry about the past and future... It is in the hands of the Bhutanese to keep it clean or not. If the Bhutanese people are taking care of the trash, it will look clean." One interviewee described trash and environmental health, noting a comparison between Panbang and Thimphu, "[In Panbang], the surrounding cleanliness of water is good compared to other places like the Thimphu Chhu, [which has] all trash in [the] river." The respondent goes on to describe the benefits of animals in cleaner environments.

Multiple respondents mentioned a benefit of a cleaner environment and effective trash management to be greater attraction for tourism. One interviewee stated, "From my personal view, we are benefitting lots from our nature and I feel that we [need to] take good care of our mother nature... [and] within our community if we take care of trash and all, more and more tourists will like to visit our place because it looks so clean so people love to stay so our community as a whole will benefit. I think it is very very important to take care of our trash." One RGP interviewee described the direct incentive for RGP to engage in growth of improved trash management in Panbang, noting, "I think RGP has to connect with the trash [management]. They should keep the river clean to attract the tourism."

One respondent mentioned a benefit of a cleaner environment and effective trash management to be related to greater holiness and spirit. Describing this, one interviewee stated, "It should look clean because our home is our only place to heaven."

Concern for Waste Management

Respondents described concern for trash due to the increase of packaged goods; increasing population; perceived challenges with trash in other countries; personal sentiments about seeing trash; a lack of education; and some clean-up efforts were one-time verses on-going initiatives. Respondents mentioned both the effectiveness and lack of effectiveness of government trash management campaigns and trash management infrastructure development.

General concern for trash was expressed in relation to environmental and human health. One respondent noted, "The bad things about trash are one: it's going to make the environment dirty. Second, when people throw a lot of trash, it's going to pollute the air. Last thing, it's going to destroy the peaceful oxygen, and mother earth might be getting dirty if [people are] continuously throw the trash." The respondent continues on to explain the potential threat of plastic pollution in the rivers. Other respondents strongly connected trash and litter with a threat to human health.

Multiple respondents identified a concern for trash in relation to the increased amount of packaged goods in the locality. One community member noted, "Waste is becoming a problem here because of the imports and the [changing] type of lifestyle... [that is being adopted]. So many commercial goods are coming here in packaged form. If [we are] not concerned today [about trash], one day, it will become a very, very serious problem for our environment. Even the mindset of our people should be starting now while there is still time, while it is not late."

Another community member recounted the direct correlation between an increase in trash and the development of road connectivity to Panbang in 2012, noting that this immediately increased the amount of trash from the more easily imported packaged goods.

Some respondents mentioned having a concern about trash in relation to population growth. One respondent described, “More people, more waste, more trash...it’s like that.” Another respondent noted, “With increases in the population and increases in trash, now… [people have] come to realize that when someone throw[s] a bucket of trash nearby house, these are challenges for us to stay [having a] healthy life I think. The environment must be good and clean.” Multiple respondents noted the connection between a clean environment and good health.

Some respondents’ concern about trash in Bhutan was related to awareness of challenges of trash in other countries. One interviewee described, “Yes, I am concerned about the trash. If we are not concerned about the trash, it might become like India and become dirty, the environment looks so dirty [in India].” Another interviewee noted, “This is very necessary to keep our country clean because if [trash management is ignored] in our country, one day or another day… [our country] will be polluted, or our river will become full of trash. Who knows? The environment could get damaged like in other countries. I have seen one of the countries where ocean fish eat bottles and it affects the people.” The interviewee continued, noting RGP and the government giving the Panbang community a place to dump trash and stating, “Each and every individual… [has] the responsibilities of [taking care of] the trash.”

Respondents noted a concern to trash related to personal sentiments about seeing trash and litter. One community member described, “The government told… [people] about cleanliness, but some people are not aware. When I see trash and the environment is dirty, I get angry.” Another respondent noted a sense of discomfort from seeing trash, stating “I am feeling

something uncomfortable when I see trash. Sometimes I pick it up, and bring it to the house to keep the environment clean. I… [have even seen] children clean up trash."

There were mentions of more or less concern of trash related to trash management education. One respondent from a more rural village near Panbang mentioned, "I think… [with] more people there is so many trash, and if they clean up, it is better. But the people are not thinking like that, they are just using, and throwing trash." Another respondent noted the effectiveness of trash management education in Panbang, stating, "Yes, I have concerns about trash. Every month they have a mass cleaning in the village. The high authority had a [town] meeting… [where they declared that] you have to dump in pit, and I am still keeping these words in my mind." Noting lessened concern about trash after improved infrastructure development and education, another respondent stated, "Yes, I have some worries [about trash]. Before, [I had] so many worries, whether [to] send [trash] in [the] river or burn [it]. Now, the government provided [an] area to dump [trash]. Now, we are advised to keep it in a sack and [put it out for] pick up. Now we have no worries about trash."

There were multiple concerns related to short timeframe of clean-up efforts. Describing this, an interviewee noted, "Until now, people are not well-educated out here, and they don't know much about the effect of the trash. It's very important [for them to learn] about the trash because they don't know what is bad. Our Bhutanese government has done a lot of work, tried, [and has] very good rules and regulations. In his celebration, the Fourth King, said, 'I don't want a celebration. If you all want to celebrate me, pick up all this trash around you, this is my celebration.' People are on an uneducated level out here, to change the Bhutanese, you know the Bhutanese is a very hard to pick it up- it's like our saliva. They are not concerning, they have lack of educations. Their government has tried, not listening means, they will listen, they will say

and do some trash picking around highway, they will say ok and do once, they will forget and not do more, they don't know the importance."

Perceived Changes in Waste Over Time

Respondents noted that there is a larger amount of waste since their childhood which may be attributed to an increasing population and growth in packaged goods. One respondent described, "Trash is increasing more day by day" and another similarly noted, "[The] amount of trash is going up literally every day." Another respondent who had recently moved from Thimphu to Panbang attributed trash growth to growth in population and plastics, describing, "I think… [the amount of trash] is growing. Obviously, it's growing because of people. There has been an increase in the number of people as countries development. Out here [in Panbang], I don't know. In Thimphu… the trash pit is overthrown; it's very… far from [any] road area, but when you cross the [closest] road, you [still] get a very bad smell. The government is also very concerned regarding overflowing of trash in that area. They are concerned where our next place is to dump the trash because that area is already over-filled in Thimphu."

Connecting the overall growth in amount of trash to increased package goods, one respondent mentioned, "The population increasing, and most of time students eat packaged items and they are littering along the roadside… People are consuming more junk food." Another interviewee noted the seasonality of increases of population and trash in Panbang during the winter, when students are on school break and there are higher numbers of tourists. The interviewee stated:

> Day by day, the trash is getting higher and higher and usually, it is much higher [in winter] than [in] summer. In winter, all the students get their holidays at Thimphu and come here and meet parents and the population rises up. If population is there, surely the trash will be more. Panbang can produce [a] larger amount of trash… [also during] peak season for

> tourists [in] winter. This small amount keeps on adding [up]... Even Indian locals tourists only come in winter… [They] never come in summer time and obviously winter is the best season to produce the larger amount of trash.

Respondents also mentioned a decrease in the amount of litter in Panbang and the surrounding villages since childhood times. One respondent described, "[While the… [overall amount] of trash is increasing, because of awareness, people are taking responsibility... collecting waste in a proper way, and in a way, waste is decreasing because people are dumping [it] in the proper place." Another respondent stated, "The amount [of litter] is decreasing. Whenever we buy goods from the shop, after… [we] will dump in the dust bin." Describing the change in trash management practices since childhood and a reduction in the amount of litter, one interviewee described, "When I was a kid... we used to dump everywhere in the forest. Now we collect and keep it in proper place. When we throw it in forest, it's affecting the environment and microorganism[s]." Multiple respondents mentioned that the decrease in the amount of litter was related to increased education and infrastructure development. An interviewee described:

> Because of the government itself, I don't have much knowledge. I too used to throw everywhere. During my childhood day, the teacher taught us to clean or sweep every day the classroom and house. We have a group: one captain who is making us to work 15 minutes and these things. At that time that teacher is making us to burn in one pit, I too threw so many trash along the road and in this stage and this year although the number of shops and people is increased, I think the number of trash around the surrounding has decreased. I can mention this about literate and illiterate- there were more number of illiterate at that time. [We didn't have] knowledge... about trash in olden time. The [amount of litter during my childhood years] ...was higher than now, now it has decreased... because seventy-five or sixty percent of people are literate.

Factors for Improvement of Trash Management

Increased Trash Management Infrastructure and Labor Force

Respondents identified increased trash management infrastructure and increased labor force as contributing factors to and needs for improving trash management in Panbang.

Infrastructure for trash management improvement included: improved trash bins, tractor(s), trash collection sacks, containers for biodegradable waste, a crushing machine, an improved town trash pit, and a trash segregation house for school. Existing trash bins in Panbang were noted to be too few in number. They were also noted to pool water, which was associated with increased mosquitoes and mosquito-related diseases in the summer monsoon season, and to be open for dogs and wind to take and spread waste. One interviewee recommended building trash cans with covers to address these issues, and another mentioned building waste bins out of woven tin to specifically address the issue of water pooling and mosquitos. Describing the need for most waste bins, one interviewee noted, "If there is good dustbin everywhere... [it] could be better." Another respondent mentioned the "need" to burn some waste items, despite the available trash pick up due to limited capacity of space and the structure allowing wind to take them, stating, "If we do not burn paper and plastics the bin and the pit will get full and the wind is taking them." A need for larger, closed waste disposal bins (dumpsters), where community members could drop trash when the tractor did not pick up, was established by both the environmental stewardship community focus group and RGP action plan focus group. Describing personal recommendations for improved trash management, one interviewee stated, "This would also reduce burning, larger bins available in short distance. Our waste bin has to be available within [an] easy distance for people traveling, two dustbins should not be too far [from each other]." Increased waste bin infrastructure was noted as particularly important in areas of high tourism, such as under the Panbang bridge, an area that Indian tourists commonly visit. One interviewee mentioned:

> [It would be good] if we can provide a pit near the roadside and as well where there is picnic spot… In Panbang area, so many tourists are coming, especially from India and they are just lying down there on the beach and they are just throwing the waste, here

> and there, and they are eating something, so I haven't seen any dustbin for picnic nearby the river, and that's why I mentioned this.

At the time of fieldwork, there was one dustbin and sign board by the Panbang bridge, requesting that visitors do not litter.

Respondents mentioned a need for improvements to the existing trash collecting tractor, and some respondents mentioned a need for more tractors in order for the town to have effective waste management. An interviewee described the improvement in local waste management as a result of the government issued tractor, stating, “The government provided one tractor to collect trash. Now I collect it in a sack and when the tractor comes, it takes it to a big pit. Before, when there was no tractor, I would burn the trash. These days, there is no burning. These days are more comfortable because the tractor is coming to collect the trash.” Other respondents noted that the tractor frequently misses pick-ups due to mechanical issues and that when it does not come, they burn their trash; some clarified that this was because of limited space in a pit or dust bin, while others noted that they did not like the appearance of trash. One respondent stated, “Sometimes on Saturday, the tractor will come to collect the waste, but sometimes they don’t. When the tractor doesn’t come, we dump in a pit and burn. Most of the time, they don’t come.”

The town trash collector, noted that there were holes in the tractor bed, where trash could fall through, and these holes needed to be replaced. There was also mention of a need for improved sacks for trash pick-up. In an interview with the town trash collector, he noted, “They are not bringing in good sacks; some throw in bad sacks. The tractor itself has so many holes, so it dumps trash on the way if [the waste is] not in good sacks.” “Good sacks” were described and shown to be tarp-like material. Some respondents mentioned a need for “good containers” in order to fulfill the potential for biodegradable waste from Panbang town to be given to farmers and piggeries in the proximate area and villages, rather than sent to the town’s trash/ waste pit.

In the RGP action plan focus group, one RGP member stated, “It is one solution… if we connect those that have fisheries and piggeries and farming like chicken, it’s very good because the wet [biodegradable] waste we will collect it, but one thing is a lack of container.” Another member followed, “If supplied with container,... [farmers] will come and collect the many wastes from the restaurant.”

Some respondents mentioned the benefits of a “crushing machine” for making waste management more efficient in the Panbang area. A crushing machine compacts waste and recycling for more efficient transport, and was mentioned as a means of reducing time and labor needs. It was also noted that the first town pit was full and now waste is simply being piled in the designated area.

Some interviewees mentioned the need for a waste storage house at the school, which would be an enclosed area, where the school could store recyclables. The school currently has a program that incentivizes students to bring recycling to school, where their recycling is recorded and when the recycling is sold, the students get a relevant portion of the money. Describing the need for a larger and improved segregation house, one interviewee stated:

> At school, we have discussed a house to store waste. We’re making a house so we can store and sell 1500 kilo. We are in process of having effort in future; if get enough support in future, we are looking for better support from the community. If [we] make [the waste storage house] concrete, the water pools up in the summer and breeds mosquitos and malaria, so we want the house so that water can soak out easily and lifted segregation in households also; we should make it so it’s not a place where mosquitoes multiply, something like wire or mesh trash bins. In Panbang, people and children should know what type of income to generate from waste and what they can make from it. We need proper use and management in order to make use of waste products. The school is getting help from different people, it was initiated and purely constructed by our staff, there are positive impacts that go into different areas, so the children get well equipped for waste management.

This combination of infrastructure development and education was mentioned as a factor of improved waste management in the Panbang area.

Interviewees mentioned a need for an increased waste management labor force. Currently, there is one individual employed in waste management by the government, who drives the waste pick-up tractor, and manages the town waste pit and recycling. Describing a need for more support from the government for waste management employees, an individual discussed, “There is a lack of labor force [for waste management]... and when there [is a lot of] waste [and the dustbins] are full, the waste spreads out in the wind… It is important to increase the waste collector here.”

Increased Waste Management Education

Interviewees identified increased education about waste management, particularly of youth and “uneducated” as a way to improve trash management in the Panbang area. Mentioning a monthly community gathering and speaking and creating community events to inspire a heightened sense of responsibility, one interviewee stated, “What [is the] best first step? Every month, we tell… [the community to get] together and then they come. The sense of responsibility [about waste reduction and improved waste management] needs to be heightened.” Describing the perceived importance of instilling education at a young age due to habit formation, one interviewee described, “As for the improvement, if we teach the youth… [because] there is a habit [building time] with the youth… it may work.” Another interviewee mentioned a different perspective, noting that “uneducated” parents needed to be educated so that they could teach their children about waste management. The interviewee noted:

> [We need waste-management education] for the uneducated people. To give... more lesson[s]... they should tell uneducated parents to not let their children [litter], … [and] encourage their children [not] to throw trash everywhere so that what... the [children] take… [to] eat, [like the] edibles from the shop [that] they get in plastic wrappers. If parents encouraged [their children] to bring trash or plastics [or] whatever [the children]

take during school days... to bring trash home, it will help more to keep our surrounding neat and clean.

Interviewees also mentioned a need for education about waste separation. Waste separation refers to separation of recycling (i.e. plastic, glass, tin), compost (e.g. called "wet waste" and degradable waste), and trash. One interviewee described, "The waste problem is a great problem that we are seeing in the school and community right now. I think that waste does not have proper waste segregation. One thing I think is that we need to identify where to dump trash, and make the best use of waste, having degradable and non-degradable, plastic bottle separation especially- having segregation."

The town trash collector noted the benefits of increased education and infrastructure for waste segregation, noting that this would result in a reduced need for extra waste management labor and stating, "There is no rule for the public and I am not giving any awareness to the public that the rotten one should be in one sack, or plastic [should be in] [an]other container. [I bring it] all together [in the sacks and tractor and] if… [recyclables, compost, and trash] were separate, less manpower is needed."

RGP guides particularly mentioned to lead by example in waste management as an action item for improving waste management in the Panbang area both as a means of education, and as a means of community leadership. One RGP guide described, "We have to give advice to… [the community]. First, we should to show them how to do, and only they can do. Why not? If we show them, then kids will do behind us, first we should show them… what we are doing, and I think naturally they can do this." Another RGP guide noted, "We have to show the evidence, then people will know what are works I have done, and what are the benefits. We have to firstly show the example, and secondly show the evidence, then they will… copy."

Within RGP, there was specific mention of involvement and river stewardship program development for the Nature Club at the local school. Referencing this opportunity, one guide noted, "One activity is [to work with the] nature club… [in order] to deal with how important nature, environment, rivers, and trash are." In interviews and focus groups, there were mentions of RGP's current and potential in expanding their opportunities to conduct waste management and river stewardship opportunities for the local school, community, and tourists based upon their unique position as river guides.

Reduce, Reuse, and Recycle

Focus groups and interviews addressed reduction of waste generation as an action item including concepts of reduce, reuse, and recycle to improve waste management in Panbang. The community focus group identified, "use of degradable paper; using one's own basket while shopping; minimal use and consumption of packed [packaged] goods from the shop; and use of bamboo products instead of plastic plates and cups" as ways the community and community members could reduce. At the celebration of the Fourth King's birthday, which was a combined celebration for 50 years of friendship with India during fieldwork fall 2018, the Panbang community constructed an entire celebration venue out of woven banana leaves, bamboo, and other jungle items and used banana leaves, bamboo, and non-disposable cups, bowls, and plates for the celebration.

One interviewee noted:

> If we revert back to traditional ways of using things, there's a lot more environmentally-friendly ways to do things. Plates made out of banana leaves and thomba, containers out of bamboo. [We have] always… [used] a lot of local national products. There are a lot of specific examples- using banana leaves, wooden bowls, bamboo baskets- all of these things already exist and were used for a very long time. For a lot of these things, we don't have to look outside for solutions, things already exist traditionally [in Bhutan].

Another interviewee mentioned less reusable bag use in the communities, stating, “At our time, while going to school, we used to carry a zero-waste bag. Now the students are not doing that.” Another interviewee mentioned community education about reducing trash generation at a monthly community meeting, contemplating, “Another thing is to reduce waste, telling them not to produce waste; that is very important. And [telling] not to buy [goods in] packaging and plastic packages, I feel myself.” Further discussing a need to address plastic pollution and government’s concern, one interviewee stated, “The government is making up ways of how to reduce trash. In every case, ... [and particularly with] plastic things, we need to think about how to reduce the trash, not just about where to throw it. To reduce plastics as far as possible. The government is also very concerned regarding overflowing of trash in [designated town trash pits].” One respondent noted working with local shopkeepers to reduce plastic bags and another described creating an opportunity for Panbang community members to visit a village/ town that had taken on a “zero waste” initiative.

Respondents also addressed reusing items as an action item to improve waste management. The community focus group identified, “make paper basket with help of plastic” and “use plastic bottles as flower pots and other decorative items at one's home” as ways to reuse items. Interviewees described reusing plastic bottles, using reusable cups at events and gathering, and weaving bags out of plastic. At RGP, guides mentioned the need to stop serving bottled water and offer filtered water to fill bottles and cups; however, there was hesitation on this due to not wanting to cause water-related sicknesses of their guests and the perceived status and necessity of bottled water.

Lastly, recycling emerged as an action item to improve waste management. The community focus group identified, “You can hand over scrap to the dealer and use money for our

own purpose." In the RGP action plan focus group, one guide mentioned that the Panbang community should not charge scrap dealers to incentivize their coming to Panbang frequently for recycling pick up. One RGP guide, who also works as a scrap collector, recounted his experience of first requesting to pick up bottles from individual households, and now having people in town request him to come by to pick up their recycling due to the ease and improved cleanliness of the environment.

Shifting Attitudes and Behaviors

While some respondents noted existing cleaning campaigns that improve waste management, others noted a need for more frequent cleaning campaigns and some were unaware of existing cleaning campaigns. In Panbang, and the surrounding villages, community members meet the first Saturday of every month to do a town clean-up. It was mentioned that if you do not attend, your household is fined; however, shopkeepers are not held to this fine because they were noted to clean frequently. One interviewee described, "They are working with the fine in Panbang, [but with] lack of educated, [a fine system for litter] won't work, in… the [larger more developed towns such as Thimphu and Paro, a fine] will work." One interviewee who had moved to Panbang from Thimphu was unaware of the monthly town clean-ups, stating:

> I have very much concern about trash. It would be better if we can have it like they have in Thimphu. They have the cleaning campaign team, where they create awareness. If we can have a team create awareness where keeping clean environ cleanliness can organize cleaning campaign monthly if possible weekly too, if create awareness of people re: trash, if can do those things then definitely, the environment will be clean. Otherwise I have seen papers everywhere and people eating and throwing them everywhere.

Some community members thought the current clean-ups were sufficient, while others mentioned that it would be better to do them more frequently and have more education about

waste management. The RGP Focus group mentioned that town clean-ups were less frequent in the summer due to the high heat and monsoons.

One interviewee mentioned a need to move beyond the national campaigns for regular community clean-ups, stating:

> Like every other place, … [the issue of trash is] something we all deal with [in Bhutan]. They use school children to do clean-up campaigns. I think that's not enough, overall a change in attitude and behavior is needed. Growing better behavior and outreach would involve doing something with trash, recycling, and composting, and having proper education about what to do with these things, but also how not to be wasteful. We can all play our little parts in it. It has to be a combined effort from shopkeepers, businesses, homes… so many things come in so much packaging and now with this normalized in the consumption patterns of the people, it will take a really concerted effort of everyone in the community to come together.

The interviewee continued by describing that more action was needed than the town clean-up campaigns, which are prevalent throughout Bhutan, stating that:

> First [people need] to acknowledge it [waste] is a problem. Before acknowledging it is a problem, nothing is going to be as impactful. As the volume of tourists and visitors go up, this is an inevitable problem they will have to deal with. Having behavioral changes and attitude right from the beginning... this acknowledgement of the problem is what is necessary in order to be able to best move forward. I think it has to be beyond cleanup campaigns. Those are after the fact. It's a nice, social thing to do, but behavior change is what we should really be aiming for- for mindful and thoughtful and long-term solutions- it's right from the beginning. To be careful from the beginning and put into place something that is not just a short-term band-aid solution.

There was a frequently mentioned sense of responsibility to do river clean-ups from RGP members; however, actual clean-ups were sporadic and had happened with years in between. One RGP guide described the sentiment, "In river side, I think the RGP will clean this because we have to show the respect to the river because we are working in river, we have to pick up trash from river." In the RGP Action Focus Group, one guide noted, "To initiate [river clean-ups], we need to have some fun!" Members then discussed that incentives such as the T-Shirts and Lunch provided by Clean Bhutan for a river clean-up in (year) would create further buy-in

and enthusiasm for clean-ups and river clean-ups. RGP guides also mentioned "stream adoption" which had multiple definitions, but all included picking up trash along a certain section of river with a varying degree of mentioned time intervals. One interviewee mentioned the necessity of involvement of the community in town clean-ups and river clean ups, stating, "Everybody has to get engaged. Maybe some engage in town, some river, some on national highways, and even at the bridge point." Respondents also mentioned "stream adoption" as an action item for increased waste management and river stewardship. Note this was loosely defined term and thought to apply to individual, RGP, and Panbang town and changed time. One respondent noted, "to keep river safe, community must adopt our river, adopt by Panbang village, clean one year or twice a year."

Some respondents mentioned the need for waste management forums, such as the community focus group conducted, and of exhibitions that were engaging and focused on waste management education and involvement. In the community focus group, a participant stated, "I think in order to [improve waste management in the Panbang area], [things like] this forum… [in which we are learning] how to take care of our place- these very forums we should encourage in near futures." In discussion about "reduce, reuse, recycle," another participant mentioned the development of an exhibition in order to address further education, stating:

> In terms of how to educate on Reduce, Reuse, Recycle, I think on this area, we should focus more. I think because in past years we have never encountered such a program, in Panbang especially, I have been here since 2014, so far I have never encountered concerned organizations, concerned respective stakeholders organizing to such type of problem, so from my opinion, I think that we should have a type of exhibition program in Panbang. A waste exhibition program in Panbang, with concerned stakeholders… [and] also hire up expert people from other areas, that [can teach about] how to use those waste productively. I think in many schools in Bhutan… host exhibitions, whereby students make many things out of waste, out of bottle they make a clocktower, and out of bottles they stretch the carpet, and all of these things... [students and community members] see. [I think we need] these kind of ideas here in Panbang, and I think people will learn the things,

> otherwise, they don't have the idea to do these things. Some people don't have internet facilities.

Build Connections with Existing Efforts

Interviewees mentioned identifying and connecting with existing efforts and partners who are already involved in waste management efforts. In the RGP focus group, guides brainstormed on groups to connect with, noting: schools, shop keepers, local leaders, health facilities, armed forces, male monks, female monks, and a group in Panbang one guide knew of that was described as, “We do have a group in the town, they collect every Saturday, they are doing hard work around the mountain and roadside, segregation of trash and 2-3 types of pails where you can have the type of collection.” One guide recommended having a monthly action meeting in town for waste management with different representatives from the community. It was also noted that for RGP, it was important to establish and designate a waste management leader and job role to drive projects forward and minimize loss of action due to loss of cohesive leadership and organization.

DISCUSSION

Opportunities for Environmental Education

Environmental education is a primary means of pro-environmental behavior development and ecotourism environmental benefit. Whitewater ecotourism and adventure ecotourism businesses and guides have unique opportunities to be educators in their local communities and extended places of operation, both in terms of education facilitation of tourists during their trip and activities, and in local community engagement. Related to this study, waste management and hydropower development are international environmental (and social-cultural) challenges and environmental education and awareness pertaining to these environmental challenges can be critical to promoting pro-environmental behavior locally, nationally, and globally (citations).

The literature includes diverse findings on the relationship between nature-based tourism/outdoor recreation and changes in conservation values, attitude, and behavior (Fang et al., 2017; Prince, 2016; Chen et al., 2009; Thapa, 2010). Some research indicates that nature-based education, tourism and recreation particularly influences development of pro-environmental behavior of youth (18 years and younger) (Chang & Monroe, 2012). This supports potential impact of RGP's development of river stewardship education programs and presentations in local schools.

The type of tourist experience and education provided by communities and tour operators affects tourists' adoption of related pro-environmental behavior (Ardoin et al, 2015; Ramkissoon and Mavando, 2017; Powell & Hamm, 2008; Waylin et al, 2009). Research shows that experiential education engagement and place-based attachment influence general and site-specific pro-environmental behavior (Ardoin et al, 2015; Ramkissoon and Mavando, 2017; Powell & Hamm, 2008; Waylin et al, 2009). There is unique opportunity, particularly for local

youth in addition to tourists, in crossing technical skills-based education with river stewardship education, due to the attractiveness and excitement of the river experience. Research suggests that high-quality interpretive experiences that incorporate conservation messaging specific content and present tourists with opportunities to take environmentally-related action on-site to achieve positive visitor outcomes influences visitors' environmental attitudes, knowledge, and behavior in the long term (Ardoin et al, 2015). This can also be applied to education of guides (to become educators), youth, and community. These considerations can help the design of the RGP's river stewardship environmental education.

In the scope of this study in Panbang, Bhutan, opportunities for development and expansion of RGP environmental education for the local community and whitewater tourists, particularly pertained to knowledge about hydropower and waste management. RGP and community members identified targeted education for river stewardship as a needed action to increase local support for the clean, free-flowing rivers. Environmental education development and programming was identified for the local school (e.g. the school's "Nature Club"), community meetings, community groups, national conferences, and online media platforms (e.g. social media forums and groups). It was noted that the literacy rate was low in riverside villages close to Panbang, and that meetings, versus formal education programs, would be the most impactful in educating the non-literate population. Further, the findings suggest that combining education related to hydropower development, waste management, and the benefits of clean, free flowing rivers with opportunities to go rafting and kayaking in connection with river cleanup events can be an effective means of engagement. Making an education event fun and interactive is notable for gaining short-term and long-term participation and influence in pro-environmental behavior values, attitudes, and behavior (Kozlowski & Ilgen, 2006). Further, informal

experiential learning about both hydropower development and waste management practices were noted as being impactful in forming opinion, changing practices, and inspiring further action and engagement.

Identifying individuals' sources of information about hydropower development and waste management is important in order to develop effective environmental education that reaches and engages target audiences. This study's findings suggest that the community's sources of information for learning about hydropower development and waste management included media (social media, google/ internet, TV (particular mentions of National Geographic channel), newspaper, and radio), government (though political campaigns, speeches, and government-led community meetings), school, first-hand experience, community meeting, and family/friends. For understanding the advantages of hydropower development, individuals noted their sources of information to be school and/ or government; yet, these individuals noted few or no disadvantages of hydropower development compared to other respondents that utilized alternative sources of information.

The larger implications for river stewardship environmental education are significant to global whitewater ecotourism and adventure tourism in facilitating river stewardship and conservation locally, nationally, and internationally. Free-flowing, non-polluted rivers provide an immense number of ecosystem services for humans and the environment, such as drinking water and food, jobs and business opportunities, enjoyment and leisure, and spiritual significance (Buckley, 2009; Goharipour & Hajiluie, 2016; WWF, 2019). Yet, clean, free-flowing rivers are being compromised worldwide by primary threats of hydropower development, increased pollution (mining, industry, waste), and irrigation. Due to the small scale of mining and industry in Bhutan, traditional practices of pit toilettes away from water sources, and the small, local scale

of agriculture, the two largest threats to clean, free-flowing rivers in Bhutan are hydropower development and waste. Research suggests that hydropower development has become associated with economic development and improvement of social facilities, but that often times, the benefits of hydropower development are not received by local communities and further that hydropower construction projects are frequently mired in corruption (Brown, 2018; Casey &Krauss, 2018). In the case of Bhutan, the Central Electricity Authority, a technical agency that oversees the development of the power sector in India, identified approximately seventy-six locations in Bhutan for construction of hydropower projects, totaling a potential capacity of 23,760 MW of generation, and a plan to dam every single river in Bhutan (International Rivers, 2019). According to International Rivers, there are "concerns about the lack of information in the public domain regarding existing and proposed projects, and their cumulative impacts, including downstream in India" and neither the Governments of Bhutan nor India have put the Environment Impact Assessment reports of commissioned or under construction hydropower projects on public websites (International Rivers, 2019). Currently, there are five hydropower plants in Bhutan, and two under construction (International Hydropower Association, 2019). Current electricity generation supports current demand in Bhutan and export to India; however, India has a standing proposal to further finance hydropower development in Bhutan through loans, and offset the loans through purchase of the generated energy from Bhutan (International Hydropower Association, 2019; International Rivers, 2019). Proposed hydropower projects in Bhutan are switching from "run of the river" to reservoir dams and there are concerns by international experts about the impacts of existing and proposed dams on downstream communities, the flow of water in different seasons (particularly in the context of climate change), associated earthquake risks in the prone Himalayan range, sediment and biota flows,

and the overall health of river ecosystem and its role in interconnected social and ecological systems.

Waste management in Bhutan is a relatively recent issue, as the majority of traditional practices and ways of living in Bhutan yielded biodegradable waste. Amount of waste in Bhutan has grown in relation to increased foreign imports (particularly packaged goods), and road construction and improvement to previously remote areas. Waste, and particularly plastic pollution is a global challenge. A common practice for improving waste management is the "Reduce, Re-use, Recycle" model; however, research suggests that striving for zero waste systems in developed nations involves infrastructure development, consumer demand, and business initiative. Bhutan has a unique opportunity to harness recent and still existing traditional practices of using local, natural, and unpackaged materials and goods and to intentionally plan for continued systems that reduce trash in the face of increased imports and development. Growing trash is particularly relevant to river stewardship in Bhutan because while there are increasing numbers of town pits, communities with limited resources and related education continue to burn trash and put it in the river as a disposal method. In the context of Bhutan and this study, emphasis on closed-loop systems, such as those presented in William and McDonough's Cradle to Cradle model in which materials are contained within or returned to a cycle in similar or improved quality, and biodegradable items are composted and the waste hierarchy (3Rs reduce, reuse, recycle) are particularly relevant (Blomsma, 2018; Braungart and McDonough, 2002; Kemp and Van Lente, 2011).

Efforts and action for river stewardship from within the industry are extremely relevant in whitewater ecotourism because it can be significantly impacted by hydropower development and poor waste management. Taking into account the success of experiential education models, on-

site interpretation and opportunities for action for tourists and school-age programs are significant in impacting values, attitudes, and behavior for river stewardship. Bhutan is particularly unique because it is a country that operates in relatively good governance, and political will of citizens is influential in public policy.

Opportunities for Engagement

Adventure tourism and recreation provide opportunities for engagement in addressing the river threats of hydropower development and waste management in Bhutan. This study found the primary opportunities for engagement in Bhutan with the foci of hydropower development and waste management to include community meetings; community working groups; national conferences; connecting with existing river stewardship efforts or programs; sharing information via social media; and having strong leadership within these efforts to support consistency, growth, and impact. Community meetings were identified as relevant to both hydropower development awareness and waste management. RGP guides particularly noted a need for a national conference with diverse stakeholders to discuss the negative impacts of hydropower development on rivers and gain a unified voice on considerations of future hydropower development and its effect on whitewater ecotourism, the environment, the economy and foreign relations.

Research indicates that community meetings, community working groups, and conferences can be effective in conservation efforts, and further that here is a need for actions that involve short-term, attainable goals; frequently re-visited long-term goals; consistent and strong leadership; accountability; shared availability of educational resources; and continued network development and sustenance. Studies also suggest that there are limitations to the

effectiveness of these methods alone for informing action at the local and national level. Studies indicate that frames and "framing" are cognitive devises for interpreting situations and significant in steering perception and guiding action (Blomsma, 2018). Research suggests that frames based upon guided logic inform institutional and individual logic and that frames influence the way environmental problems are conceptualized and responsibilities are allocated. Collective action frames are ones that address one or more challenges/ problematized issues within society and are presented by a group or groups of individuals with the goal of inspiring action to address and improve the problem.

Research suggests that with the widespread growth of extractive industries, marginalized, rural, poor, ethnic and racial subaltern social groups, and their allies often stand that greatest losses to these projects and often stand, "in the front lines of resistance" against these projects. Using the case study of the successful resistance movement against large-scale hydropower development in Patagonia, Chile, research indicates that building of associational and collective power of resistance movements, forming coalitions joining rural and urban groups to overcome government divide and rule tactics, and advancing alternative policy agendas are important to achieving positive outcomes from protest to aggressive extractive projects. In the case of hydropower development in Patagonia, an eight-year Patagonia Sin Represas (Patagonia Without Dams) driven by local people (who lived far from political power centers), ultimately won a fight against powerful national and international business conglomerates and "underdog" environmental groups. In June 2014, the Chilean government decided not to permit the construction of a series of mega-dams for hydropower in Aysén region of Patagonia, for power that was largely intended to serve the mining industries of northern Chile (Silva, 2016). These strategies of motivating and uniting local people and urban support in combination with driving

alternative political agendas are relevant to realize collective action against future large-scale hydropower development in Bhutan. Community benefits of whitewater ecotourism contribute to local motivation to lead and join collective action efforts for river stewardship.

Due to its connection with free-flowing rivers and sections of steeper rapids, which commonly have features attractive for hydropower development, whitewater ecotourism particularly has a role in community engagement in addressing hydropower development (International Rivers, 2015; American Whitewater, 2018; Stuart, 2017). Globally, there are extensive examples of whitewater tourism companies and recreationists both starting and engaging in efforts that bring greater awareness to the disadvantages of proposed hydropower projects that would directly impact their businesses or their recreation (Brown, 2018; Bio Bio, 2018; Idaho Rivers United, 2019). In the case of the Bujugali dam on the Nile River in Uganda, Nile River Explorers (a whitewater kayak coaching company) and the Hairy Lemon (an ecotourism camping lodge) led efforts against proposed hydropower projects that would directly impact their businesses and were joined by SEND, a group of whitewater enthusiasts and race organizers to increase awareness and campaigns against the projects; however, the projects were carried out (Brown, 2018). There are other examples of whitewater tourism companies and recreationists engaging in efforts that did result in hydropower projects being abandoned by planners, investors, and governments. In the case of the Payettes in Idaho, a group of local whitewater recreationists formed a small grassroots group that eventually were successful in shutting down the construction of proposed hydropower projects on the North and South forks of the Payette (Idaho Rivers United, 2019). In this case study, research indicated that all interviewees were aware of advantages of hydropower development, but not all interviewees were aware of disadvantages of hydropower development. In the context of the relatively good

governance of Bhutan, there are opportunities for the whitewater ecotourism companies to start, grow, and engage in efforts that grow education, awareness, engagement and action for free-flowing rivers and their benefits. As certain stretches of rivers that would be dammed would have a direct impact on current and future ecotourism development in Bhutan, emerging leadership from whitewater ecotourism companies in Bhutan for free-flowing rivers is relevant.

In the context of waste, the application of frames results in the assertion and establishment of waste management practices that become established in industrial systems through infrastructure development, use of certain technologies, and the creation of specific executive and supervisory organizations and institutions (Lounsbury et al., 2003, O'Brien, 2008, Boons, 2009, Corvellec and Hultman, 2012, Silva et al., 2016).

Engagement of whitewater ecotourism guides in addressing hydropower and waste management in Panbang, Bhutan is significant to local, national, and global conservation efforts and to the global whitewater ecotourism industry, both as an example of a whitewater ecotourism company engaged in river stewardship, and for current and future business opportunities. Thus far, there have been many examples of river stewardship advocacy, particularly against hydropower development that have had unsuccessful outcomes, such as the campaigns against hydropower projects on the Bio Bio river in Chile and Nile river in Uganda; however there are examples of successful campaigns that were led by whitewater recreationists, such as the protection of the Payette River system from future hydropower projects in the late 1980s and early 1990s. In that effort, a group of whitewater boaters and other dedicated to free-flowing rivers launched “Friends of the Payette”, which protected both the South Fork of the Payette and the North Fork of the Payette from hydropower development and dewatering, and also resulted in the creation of Idaho Rivers United, a nonprofit organization dedicated to free-flowing and

clean rivers in the state of Idaho (Idaho Rivers United, 2019; Idaho Conservation League, 2019). Incomplete environmental impact assessments, corruption, transnational corporation investment, and a lack of transparent information are common themes to failed river stewardship advocacy efforts. River stewardship environmental activism engagement and leadership is particularly relevant to whitewater ecotourism guides because of loss of clean, free-flowing rivers, and an inherent need to participate in individual behavior development and related policy development and implementation.

This is particularly relevant in Bhutan due to the current context of hydropower development proposals and a call for waste management initiatives. By driving river stewardship advocacy at local levels, framing collective action in terms of relevance to both rural and urban populations, and forming coalitions that motivate action and push forward alternative political agendas, whitewater ecotourism can serve as a means to protect rivers from the significant global issues of hydropower development and pollution. In order to address hydropower development initiatives, whitewater ecotourism has the potential to locally defend stretches of river and work together as an industry to change political agendas and public perceptions of hydropower. In order to address waste management, whitewater ecotourism has the opportunity to continue to engage in local efforts, education, advocacy, and infrastructure development that could be carried into policy and practice at national levels. While Bhutanese currently take great pride in their forests, there is immense potential to switch local pride to clean, free-flowing rivers and to play off of the Gross National Happiness Tenet of ecological diversity and resilience.

Importance of Infrastructure and Coordination Across Scales

Infrastructure and coordination across scales is significant in strengthening river stewardship in Panbang and proximate river communities. Community members and river guides identified a need for improvement in waste management infrastructure especially with the introduction of single-use plastic and packaged goods to many remote communities in Bhutan. Infrastructure needs include larger trash and recycling bins, containers for compost, improved waste collector vehicles, and better maintained waste disposal sites. Due to limited waste management infrastructure in the Panbang area and throughout Bhutan, coordination across scales and development of infrastructure based upon available resources is crucial in order to maximize impact of waste management initiatives; however, studies suggest that this coordination is often difficult. Locally, whitewater ecotourism can help facilitate these changes by participating in town planning and town working groups, contributing to application for related community grants and also showing leadership by example and connecting with the local school.

The literature calls for infrastructure and coordination across scales for effective environmental action. In multiple case studies, Heberlein (2012) criticizes what he calls the "cognitive fix" which refers to the concept that environmental education alone will change attitude and behavior. While Heberlein emphasizes infrastructure and policy as necessary drivers of environmental action, others' studies present related installation and maintenance of infrastructure and coordination across scales as being complementary in effective environmental action, and environmental values, attitudes, and behaviors.

The implications of these findings extend to the larger whitewater ecotourism industry as waste management practices and zero waste goals can contribute to river stewardship.

International associations and organizations, such as Adventure Travel Trade Association and UNWTO contribute guidelines, research, case studies, and models for engagement of the tourism industry in waste management (ATTA, 2019; UNWTO, 2019). Governments are also taking initiative, such as the government of Rwanda instituting a national ban on plastic bags (source NYT). Communities are taking initiative, such as Kamikatsu, also known as Japan's "zero waste town" that sorts its waste in 45 different categories so that it can be recycled, reused, or composted and attracts tourism based on its zero waste practices (Associated Press, 2017). Both the town of Panbang and the whitewater ecotourism industry have opportunities to lead by example, take leadership in these efforts, and attract tourism based upon sustainability practices; however, government involvement and investment in infrastructure and coupled education campaigns is necessary, especially in the increasing changes in road accessibility and imported packaged goods. Opportunities to plan and encourage zero waste practices will support a limited need for investment in infrastructure. Further, it is noteworthy that the impact of waste in Bhutan verses developed nations is less at this time, and there is immense opportunity in developing infrastructure, education, coordination, and policy across scales in order to address future waste management challenges. Due to the size of Panbang, existing integrity of community, and relatively moderate current waste challenge, there is immense opportunity in Panbang becoming a zero waste town in Bhutan. Currently, Clean Bhutan and Green Bhutan are innovative initiatives of the Bhutanese government working to achieve zero waste in Bhutan by 2030; they use the 6Rs (rather than the 3Rs): Rethink, Reduce, Recycle, Recover, Responsibility (Zangmo, 2015). Overall, as tourism is Bhutan's second largest revenue generating industry and has unique opportunities for local community and guest education, there are opportunities for more engaged

efforts from whitewater ecotourism and River Guides of Panbang to work towards Zero Waste and improved waste management.

CHAPTER 7. Conclusion

In Chapter 7. Conclusion, I first present outcomes and implications of this study, and further include both conceptual and practical contributions. Next, I cite recommendations, and then note limitations of this study. I conclude with a call for additional research.

OUTCOMES AND IMPLICATIONS

This thesis provides an understanding of: (1) the community and industry benefits and challenges of whitewater ecotourism development; (2) benefits, opportunities, constraints, and constraint negotiations to increasing women's involvement in whitewater ecotourism; and, (3) opportunities and considerations for whitewater ecotourism engagement in addressing hydropower development and waste management practices through a case study in Panbang, Bhutan. The results suggested similarities to previous literature while also acknowledging the unique aspects of whitewater ecotourism in Bhutan.

Whitewater ecotourism in Bhutan was a previously unstudied topic, and whitewater ecotourism in developing nations is an understudied topic globally. This thesis provides a definition of whitewater ecotourism, and a case study that particularly points towards benefits and challenges of it as an international conservation and development opportunity. While there seems to be unique opportunities in whitewater ecotourism development, particularly in the context of benefits of women's participation, engagement in addressing hydropower development and waste management, and recreation-related improved health and beneficial technical skills for rescue and conservation area monitoring, there also appears to be challenges of sustainability due to donor-dependency, potential financial challenges related to choices of spending profits should there be any in the future, and lack of industry knowledge, equipment, and marketing. Further research on whitewater ecotourism is needed, particularly in the context

of maximizing benefits and minimizing challenges to local communities, of particularly including women in general, adventure, and whitewater ecotourism, and of massive international plans to develop hydropower and increased global challenges of waste management.

These outcomes provide a foundational understanding for specific opportunities, benefits, and challenges associated with whitewater ecotourism in Panbang, Bhutan. The implication of this research can help inform River Guides of Panbang, Bhutan Tourism Council, Bhutan legislature, conservation and development nonprofits, and both Bhutanese and international whitewater ecotourism stakeholder groups about considerations for planning, investment, women's empowerment, and engagement in addressing hydropower development and waste management.

There are multiple primary considerations moving forward in management and planning for River Guides of Panbang as a whitewater ecotourism company, and of whitewater ecotourism in Bhutan. Consideration of self-sufficiency for RGP with a larger emphasis on development and implementation of a business plan that outlines means of profit generation, and no donor-dependence is significant, as long-term donor-dependent ecotourism initiatives can result in abandoned and unsustainable conservation and development projects (Honey, 2008; Horning, 2008). Further, any management and planning of RGP and any expansion of other tourism, including whitewater ecotourism, in Panbang, should consider implications of tourism growth and plan accordingly to maximize benefits and minimize challenges for the local community. This is particularly relevant in Panbang due to the noted current small scale of whitewater and general ecotourism in the area, the goals to grow tourism in the area, and the January 2019 passed legislation to open up border crossings to overnight and multi-day stay to Indian residents near Panbang. On the national scale of whitewater ecotourism development in Bhutan, there is a

need for further monitoring and research. This is important because the industry is largely in its infancy and conducting research as a baseline at this stage can inform planning and monitoring, as well as potentially decipher other impacts of tourism both locally, and in other destinations.

This study indicates that locally, nationally, and globally there are significant opportunities for the whitewater tourism industry to further incorporate and centralize ecotourism tenets, making a shift to intentional whitewater ecotourism that plans and monitors for maximizing benefits and minimizing challenges for local communities and natural systems. While dependent upon the integrity of natural resources and local communities, adventure tourism and whitewater tourism are criticized for disregarding benefits and investment in the resources and communities (Farooquee et al, 2008; Regmi & Walter, 2016; Smith & Heshusius, 1985; Zurich, 1992). To shift from whitewater tourism to whitewater ecotourism, it is crucial to address threats to river systems locally and globally through education, community engagement, and advocacy. Recreation and recreational tourism can be resources for growing resources and advocates for local communities and conservation, particularly through integrated environmental education programming and direct integration of related projects and participation for tourists (Farooquee, 2008; Koens et al, 2009; Serenari et al., 2011). Recreation and related environmental education (with particular attention to female involvement) is a large opportunity in whitewater ecotourism communities (Chang & Monroe, 2012; Evans & Anderson, 2018; Scheyvens, 2000).

The conceptual contributions of this thesis include a definition of whitewater ecotourism, and a more in-depth understanding of the community and industry benefits and challenges of whitewater ecotourism development, with deeper dives into ways to maximize the social cultural benefit of women's empowerment and the environmental benefit of river stewardship industry

engagement and leadership for clean, free-flowing rivers. This study supports both evidence and considerations of adventure ecotourism as a sustainable means of development and conservation, and therefore expands the current literature base for adventure ecotourism in relation to women's empowerment/ involvement and engagement and leadership in river stewardship. The practical contributions of this thesis include considerations and action items for the whitewater ecotourism company River Guides of Panbang, for the five Punakha-based whitewater ecotourism companies, and for Tourism Council of Bhutan for planning and development of whitewater ecotourism in Bhutan.

Within the scope of this study, there are multiple recommendations for maximizing benefits and minimizing challenges of whitewater ecotourism development in Panbang, Bhutan and in Bhutan. Primary recommendations include:

1) The development of a National Whitewater Ecotourism Association with representatives from all operators in Bhutan that serves not only as a unified voice in communication with governing bodies such as Tourism Council of Bhutan and the Forest Department in development and monitoring of industry rules and regulations, but also as a network for resources and action for river stewardship engagement and leadership, support for involvement of more women, and professional development.
2) Engagement with local schools with program development that includes interdisciplinary experiential learning opportunities in whitewater rafting, whitewater kayaking, river stewardship action and leadership, and women's empowerment.
3) Facilitation of increased and consistent industry expert involvement to grow professional capacity and leadership within the industry, increase international exchange and

knowledge sharing, and promote leadership and training of Bhutanese trainers in safety, river stewardship, and growing women's involvement in the industry.

4) Build and promote cohesive adventure and nature-based tourism experiences and itineraries and experiences that can be marketed to a younger tourist demographic (25-50)
5) Establish a designated role within RGP to lead environmental and social-cultural projects and efforts, and focus on establishment of short-term goals and deliverables in the scope of long-term goals with systems of accountability, sustainability, and collaboration. Consistent projects, and establishment of school programs community days that focus on women's inclusion are prominent opportunities for maximizing community benefit of whitewater ecotourism in Panbang.

These recommendations include expansions upon established action items and considerations of the final RGP focus group, which included targets of establishing needs for positive expansion and growth of whitewater ecotourism in Panbang, RGP leadership and engagement in river stewardship, and support of involvement of more women in whitewater ecotourism. There is particular opportunity globally for scalability of implementation of community and industry involvement in river stewardship and women's empowerment engagement and leadership.

As with all research, there are limitations to this study. This research focuses on one whitewater ecotourism company in Bhutan, which is particularly unique in that it is the only known community-based whitewater ecotourism company in the world, and currently, the scale of operation is small. This study was also conducted by a female kayak instructor with members of RGP as translators, which could have affected responses; however, introduction and phrasing of interviews and focus groups was such to minimize any potential of this. Additional research could pursue expansion of this research to the other five companies in Bhutan, and successes and

failures of implementations of RGP action items and recommendations if implemented. Further, additional research on benefits of whitewater ecotourism, particularly in the distinguishing benefits of search and rescue and patrolling for illegal activity could be conducted in other regions globally. Lastly, this study forms a basis for additional research to identify opportunities for maximizing benefits and minimizing challenges of whitewater ecotourism as a means of international sustainable development and conservation.

Appendix

Appendix A

Interview Guide A
Short-Interviews Community Members
Version 1

Community Assessment

Date_____
Time_____
Name of Village_____

Personal Information (about interviewee)
We'd like to begin by learning about you.

1) Gender (check one) ___ Female ___ Male

2) What is your age? ____ years (or if know year born)

3) Where were you born? _____ (name of village or dzonghap)

4) Did you move here? ____Yes ___ No. If you moved to _____ (current village), why did you move?
___ employment
___ family
___ other _____

5) Do you have any children? ____Yes ___No. If yes, how many _____

6) Are you attending/ Did you attend school? ___Yes ___No. If yes, what is the highest year of education you completed? _____

7) What is your main occupation? _____
What is your secondary occupation? _____
Where is your place of work? _____

Household
Next, we'd like to learn more about who lives in your house with you and how all of you (which I will refer to as your "household") obtains its food and cash.

8) How many people currently live in your household?
_____ under 18 years ____ 18 years old or older
Please explain if and why one or more person living here now are temporary (here for just a while):

Livelihood

9) Over the last year, please tell me what is the most important way you or your household get your staple food (such as rice, buckwheat, wheat, barley)?
Are there other ways?
(Follow up by ranking what s/he said: 1 next to the most important, 2 to the second important, and 3 to the third…)
__ Buy it from the market
__ Produce it from their farm
__ Trade/ Barter
__ Get it from family members
__ Other Explain:

10) Over the last year, please tell me what is the most important way you or your household get **income (Nu, money)?**
(Follow up by ranking what s/he said: 1 next to the most important, 2 to the second important, and 3 to the third…)
__ Sell farm crop, which crops?
__ Sell something else, what?
__ Wage labor, who does what work?
__ Own business, what kind of business?
__ Pension
__ Remittances (Relatives send from outside; explain who, where sends)
__ Other Explain:

11) Have the following changed for your household? If so, how?
11.1 Owning or operating a business Y/N
11.2 Engaging in wage labor Y/N
11.3 Engaging in agriculture Y/N
11.4 Raising cattle Y/N
HOW?

12) Have any of the following changed for your family over the last 15 or so years: (check each). For these that have changed, can you tell us how and why? (Name the change)
12.1 Food/ eating habits
12.2 Dress/ types of dress
12.3 Language/ language loss
12.4 Rituals/festivals
12.5 Housing changes/ type of housing
12.6 Traditions/ loss of traditions

12.7 The roles of women and their status
12.8 House construction/material and type
HOW AND WHY?

13) Are there any changes that you feel would improve your life/ the lives of your family and grandchildren? If yes, what are the top 3? (rank)
____improved access to water
____improved roads
____improved access to healthcare
____improved access to education
____more jobs
____improved electricity access
____Other

River Use, Perspective, and Knowledge

13) How do you use the river? (check all that apply)
__ agriculture/ irrigation
__ drinking/ cooking
__ food source (plants and animals- circle one or both)
__ laundry
__ bathing
__ cultural ceremonies/ rituals

14) Where do you access the river?

Is this different for different purposes? ___ Yes ___ No. If yes, list above where each activity is conducted next to the respective activity.

15) What are the current annual patterns of the river (highs/ lows volume, and sediment)? Do these patterns affect your livelihood? ___ Yes ___ No. If yes, how?

16) Have you seen any changes in the river patterns and character in the past 15 years? ___ Yes ___ N. If yes, what are the changes?

17) Do you see any potential challenges to your existing river use activities in the future? ___ Yes ___ No. If yes, check all that apply. If no, read through list.

__ hydropower
__ Climate Change
__ higher demand from population and/ or industry
__ human waste-related pollution
__ trash-related pollution
__ industry-related pollution
__ reduction in food sources
__whitewater ecotourism
__Other _____

18) How do you want the river to look for your grandchildren?
__ Flowing/ Still/ no preference, why?
__ clean/ dirty/ no preference, why?
__ Similar/ Different/ no preference; if different, how and why?

19) Are you familiar with whitewater ecotourism? Yes__ No__ If yes, What is your perception of it? If no, explain and ask if have opinion on it.

Whitewater and Adventure Ecotourism
20) Have you ever seen foreigners here (not government or park officials) but people who came to learn about the place "tourists" here? __ Yes ___ No

20.1 If yes, where were they from (if you remember)?

20.2 How often do you see them? __once a year __twice a year __ more than twice a year __year round __certain times of year __winter __spring __summer __ fall

21) Does anyone in your household benefit from tourists? __Yes __ No. If no, do you think there are ways you or someone from your household could benefit from having tourists come to your village ___ Yes ___ No.
Explain…

22) If yes, what benefits have you seen from whitewater and adventure ecotourists coming to Panbang? (Probe afterwards for the specific ways you think you and/ or anyone in your household could get food or income from tourism)? (check all that apply below, and add in additional comments)
22.1 What do you see as potential benefits of whitewater and adventure ecotourists in the future?

P=present; F= potential future

Social Cultural
P___ F___ improved facilities
P___ F___ improved skill development
P___ F___ empowerment of women and marginalized groups
P___ F___ promotion of local culture
P___ F___ encouragement of community organization
P___ F___ encouragement of improved education
P___ F___ encouragement of the re-securing of greater control of natural resources by the local population
P___ F ___ Learning (__knowledge __awareness ___health ___hygiene ___ other)
P___ F___ Other (P) _____ Other (F) _____

Environmental
__ preservation of nature
__ environmental education and conscious raising
P___ F___ Other (P) _____ Other (F) _____

Economic
P___ F___ opportunity to own and operate whitewater/ adventure ecotourism companies
P___ F___ industry jobs such as guiding, reservations, logistics, marketing, and food and beverage
P___ F___ tourist related businesses such as hotels, homestays, restaurants, shops, other cultural and nature based activities and education, and sales of locally made handicrafts and goods

P___ F___ Economic benefits of ecosystem services maintained by healthy and free-flowing rivers and healthy environments
P___ F___ expanding economic diversity
P___ F___ Other (P) _____ Other (F) _____

23) Please tell me about your level of interest in being part of the following activities:

	A lot of interest	Some interest	No interest	No opinion
Homestays				
Camping				
Whitewater guide				
Bike guide				
Hiking guide				
Village guide				
Cultural performance				
Meal service				
Porter				
Selling vegetables/ kitchen garden				
Selling handicrafts				
Selling firewood				
Other				

23) Do you think it is appropriate for men and women to be involved in … If not, which would be inappropriate and why?
Homestays

Camping

Whitewater guide

Bike guide

Hiking guide

Village guide

Cultural performance

Meal service

Porter

Selling vegetables/ kitchen garden

Selling handicrafts

Selling firewood

Other

23) Have you seen any negative effects of tourists visiting the village? __ Yes __ No If yes, what? (mark below)

If yes or no, what can you see as potential negative effects of whitewater and adventure ecotourists visiting the village in the future?

P=present; F= potential future

Social Cultural
P___ F___ forced changes to local river use
P___ F___breakdown of social structures
P___ F___loss of community coherence
P___ F___loss of access to facilities for local people
P___ F___degradation of local culture
P___ F___ growing crime rates, prostitution, and drug and alcohol abuse
P___ F___ Other (P) _____ Other (F) _____

Environmental
P___ F___increased pollution related to whitewater tourism
P___ F___ land clearance and erosion
P___ F___ disturbance and biodiversity losses
P___ F___ increase in garbage
P___ F___ increase in sewage
P___ F___ increase in air pollution
P___ F___ Other (P) _____ Other (F) _____

Economic
P___ F___economic leakage

P___ F___ Other (P) _____ Other (F) _____

Do you have any questions for me?
This ends our interview. Thank you very much for sharing your opinions!

Interview Guide A
Short-Interviews Community Members
Version 2

Community Assessment

Name of Village _____
Date_____
Time _____

Name of Interviewee: _____
Language of Interview: _____
Translator: ___
Notes: _____

Personal Information (about interviewee)

We'd like to begin by learning about you.

1) Gender (check one) _ Female ___ Male

2) What is your age? ____ years (or if know year born)

3) Where were you born? _____

4) Did you move here? __Yes __ No. If you moved to _____ (current village), why did you move?
   _ _ employment
   ___ family
   ___ other _____

5) Do you have any children? __Yes ___No. If yes, how many _____

6) Are you attending/ Did you attend school? __Yes ___No. If yes, what is the highest year of education you completed? _____

7) What is your main occupation? _____
   What is your secondary occupation? __ _____
   Where is your place of work? _____

Household

Next, we'd like to learn more about who lives in your house with you and how all of you (which I will refer to as your "household") obtains its food and cash.

8) How many people currently live in your household? __
   __ under 18 years ___ 18 years old

Livelihood

9) Over the last year, please tell me what is the most important way you or your household get your staple food (such as rice, buckwheat, wheat, barley)?
Are there other ways?
(Follow up by ranking what s/he said: 1 next to the most important, 2 to the second important, and 3 to the third…)
__ Buy it from the market
__ Produce it from their farm (don't sell)
__ Trade/ Barter
__ Get it from family members
__ Other Explain:

10) What would make your life better here? What are the top 3? (rank)
____improved access to water
____improved roads
____improved access to healthcare
____improved access to education
____more jobs
____improved electricity access
____Other:

River Use, Perspective, and Knowledge

11) How do you use the river? (check all that apply)
__ agriculture/ irrigation
__ drinking/ cooking
__ food source (plants and animals- circle one or both)
__ laundry
__ bathing
__ cultural ceremonies/ rituals
_Recreation

12) What are the current annual patterns of the river (highs/ lows volume, and sediment)? Do these patterns affect your livelihood? ___ Yes ___ No. If yes, how?

13) Have you seen any changes in the river patterns and character in the past 15 years? ___ Yes ___ N. If yes, what are the changes?

Whitewater and Adventure Ecotourism

14) Are you familiar with whitewater ecotourism/ rafting? Yes__ No__ If yes, What is your perception of it? If no, explain and ask if have opinion on it.

20) Have you ever seen foreigners here (not government or park officials) but people who came to learn about the place "tourists" here? _ Yes ___ No

20.1 If yes, where were they from (if you remember)?

20.2 How often do you see them? __once a year __twice a year __ more than twice a year __year round __certain times of year __winter __spring __summer __ fall

21) Does anyone in your household benefit from rafting tourists? __Yes _X_ No.
Other tourists? __Yes __ No
If no, do you think there are ways you or someone from your household could benefit from having tourists come to your village ___ Yes ___ No.
Explain…

22) If yes, what benefits have you seen from rafting tourists coming to Panbang? (check all that apply below, and add in additional comments)

Nothing don't know
Social Cultural
___ improved facilities
___ improved skill development
___ empowerment of women and marginalized groups
___ promotion of local culture
___ encouragement of community organization
___ encouragement of improved education
___ encouragement of the re-securing of greater control of natural resources by the local population
___ Learning (__knowledge __awareness ___health ___hygiene ___ other)
___ Other (P) _____ Other (F) _____

Environmental
__ preservation of nature
__ environmental education and conscious raising
___ Other _____ Other (F) _____

Economic
___ opportunity to own and operate whitewater/ adventure ecotourism companies
___ industry jobs such as guiding, reservations, logistics, marketing, and food and beverage
___ tourist related businesses such as hotels, homestays, restaurants, shops, other cultural and nature-based activities and education, and sales of locally made handicrafts and goods

___ Economic benefits of ecosystem services maintained by healthy and free-flowing rivers and healthy environments
___ expanding economic diversity
___ Other _____

23) Have you seen any negative effects/ challenges of foreign tourists, Indian tourists, or Bhutanese tourists visiting the village? __ Yes __ No If yes, what and from who? (mark below)

Social Cultural
___ forced changes to local river use
___breakdown of social structures
___loss of community coherence
___loss of access to facilities for local people
___degradation of local culture
___ growing crime rates, prostitution, and drug and alcohol abuse
___ Other _____

Environmental
___increased pollution related to whitewater tourism
___ land clearance and erosion
___ disturbance and biodiversity losses
___ increase in garbage
___ increase in sewage
___ increase in air pollution
___ Other _____

Economic
___economic leakage

___ Other _____

24) Do you like that Indian tourists can just enter for a day or would you like them to stay

longer?

25) What do you think would make tourism better here? What is needed?

TRASH

26) What do you do with your trash?

27) How does your trash pick-up work?

28) What can be recycled?

29) How did you learn about what to do with trash? Have you always done ___ (current practice), or has it changed?

30) Are you concerned about trash?

31) Have you seen it grow in amount? When did that start?

32) What do you do with your organic waste?

HYDROPOWER

33) What do you know about dams/ hydropower? What do you think about them? What do you know about good things about dams and bad things about dams?

34) How did you learn about dams? Where do you get your information?

35) Where is your energy from? When did that start? What did you use for electricity before?

36) What do you think of solar, wind, biogas, microhydro? Are you interested in seeing development of other energy sources in Bhutan?

Women in Whitewater

37) Have you been rafting? (if man, follow up with wife or sister). If no, why not? If yes, what do you think of it?

38) Why do you think someone would be afraid to go rafting?

39) How do you think more women could become guides?

Do you have any questions for me?
This ends our interview. Thank you very much for sharing your opinions!

Interview Guide A
Short-Interviews Community Members
Version 3

Community Assessment

Name of Village _____
Date_____
Time ___

Name of Interviewee: _____
Language of Interview: _____
Translator: _ __
Notes: _____

Personal Information (about interviewee)

We'd like to begin by learning about you.

1) Gender (check one) _ Female ___ Male

2) What is your age? ___ years (or if know year born)

3) Where were you born? _____

4) Did you move here? __Yes __ No. If you moved to _____ (current village), why did you move? When __
   ____ employment
   __ family
   ___ other

5) Do you have any children? __Yes ____No.

6) Are you attending/ Did you attend school? ___Yes ___No. If yes, what is the highest year of education you completed? _ year ____

7) What is your main occupation? _____
   What is your secondary occupation? __ _____
   Where is your place of work? _____

Household

Next, we'd like to learn more about who lives in your house with you and how all of you (which I will refer to as your "household") obtains its food and cash.

8) How many people currently live in your household? 3 live hotel full time__
   ___ under 18 years ___ 18 years old

Livelihood

9) Over the last year, please tell me what is the most important way you or your household get your staple food (such as rice, buckwheat, wheat, barley)?
Are there other ways?
(Follow up by ranking what s/he said: 1 next to the most important, 2 to the second important, and 3 to the third…)
___ Buy it from the market, mostly from market and sometimes from own village, family members
_ _ Produce it from their farm (don't sell)
__ Trade/ Barter
___ Get it from family members
__ Other Explain: They are not doing farming but something like donation getting from high authority people

10) What would make your life better here? What are the top 3? (rank)
____improved access to water
____improved roads
____improved access to healthcare
____improved access to education
____more jobs
____improved electricity access
____Other:

River Use, Perspective, and Knowledge

11) How do you use the river? (check all that apply)
__ agriculture/ irrigation
__ drinking/ cooking
__ food source (plants and animals- circle one or both)
__ laundry
__ bathing
__ cultural ceremonies/ rituals
__ Recreation

Whitewater and Adventure Ecotourism

14) Are you familiar with whitewater ecotourism/ rafting? Yes__ No__ If yes, What is your perception of it?
Have you been rafting?
What do you think?
If not, Any reason you haven't been rafting yet?

Do you benefit from rafting tourists in any way?

21) Does anyone in your household benefit from rafting tourists? __Yes _X_ No

Other tourists? __Yes ___ No

22) If yes, what benefits have you seen from rafting tourists coming to Panbang? (check all that apply below, and add in additional comments)

Prompts:
Social cultural?

Environment help with conservation of environment or no difference?

Economically:

23) Have you seen any negative effects/ challenges of foreign tourists, Indian tourists, or Bhutanese tourists visiting the village? __ Yes _)__ No

24) Do you like that Indian tourists can just enter for a day or would you like them to stay longer or no opinion?

25) What do you think would make tourism better here? What is needed? What would make tourism grow positively?

TRASH

30) Are you concerned about trash? Any concerns about waste and trash?

Why burn?

29) How did you learn about what to do with trash? Have you always done ___ (current practice), or has it changed?

Where learn about burning trash?

31) Have you seen it grow in amount? When did that start?

26) What do you do with your trash?

HYDROPOWER

33) What do you know about dams/ hydropower? What do you think about them? Current status? Advantages/ Disadvantages?

34) How did you learn about dams? Where do you get your information?

35) when you were a kid where get electricity from ?

36) Are you interested in seeing development of other things in Bhutan?

Energy? Just hydro or diversify: solar, biogas, ?

Development (hydro only or diversity, other industries, tourism), where should bhutans attention be for the future?

Why?

Women in Whitewater

37) is it important for more women to work in rafting, right now just one…

(If important, Why?

38) constraints?

39) constraint navigations?

Do you have any questions for me?
This ends our interview. Thank you very much for sharing your opinions!

RGP Guide River Stewardship Mini Curriculum
(Written for Nat Geo Grant, informed by research)

Conservation, Empowerment, and Sustainability:
Maximizing Benefits and Minimizing Costs of Bhutan's Whitewater Ecotourism

Kira Tenney
Early Career Grant
National Geographic
2019

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Advisors:
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Dr. Sarah Halvorson
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River Guides of Panbang (RGP) River Stewardship Mini-Curriculum

Purpose: This mini-curriculum was developed to increase knowledge, skills, and capacity-building for the community-based whitewater ecotourism company River Guides of Panbang (RGP) in order to grow conservation, empowerment, and sustainability through developing local leaders accordingly in Panbang, Bhutan.

Methods:
This mini-curriculum is informed by an extensive literature review, project fieldwork (October-December, 2018), participatory development approaches and activities with RGP, and conducting data collection and analysis of 45 survey questionnaires, 13 in-depth interviews with the founding members of RGP (9) and the new kayak trainees (4), 4 key informant in-depth interviews, structured observation, and 4 out of 5 focus groups.

Note: This Mini-Curriculum was developed to be read and used as a quick reference with the audience of RGP in mind, as well as consideration of scalability to all whitewater ecotourism raft and kayak guides in Bhutan, and as such is written to be clear, digestible, and succinct in order for it to be most easily understood and used. All members of RGP can read English, although some are more advanced than others; accordingly, this document uses simple terms and RGP has planned to work together to discuss understanding of this document. Individual members are encouraged to be in touch with Kira Tenney with any outstanding questions (all are connected via WeChat and Facebook messenger).

River Guides of Panbang (RGP) Mini-Curriculum
River Stewardship, Conservation, Education, and Advocacy
April 2019

GOAL: Provide an educational mini-curriculum that supports and expands river stewardship/ river conservation education for whitewater guides, and also targets pro-environmental behavior generation interpretive-programming for whitewater tourists.

Context: The top 2 "threats" to Bhutan's rivers at this time are hydropower development and trash. This is relevant to the rivers currently commercially run by RGP: the Drangme Chhu, Mangde Chhu, and Manas Chhu. Accordingly, this mini-curriculum particularly addresses hydropower development, the value of free-flowing rivers, and trash management, and takes into account select Bhutanese cultural references and interpretations in order to optimize relatability.

OUTLINE:

I. The Value of Clean, Free-Flowing Rivers
II. The World and Her Rivers: Threats in a Global Context
III. The Current State of Bhutan's Rivers (2019)
IV. Finding a Balance: Advantages and Disadvantages of Hydropower Development, and Alternatives
V. The Idea of Zero Waste: Reduce, Re-Use, then Recycle
VI. Why is burning trash bad?
VII. Whitewater Ecotourism Expedition Leave No Trace Practices and Protocols
VIII. How do Whitewater Ecotourism and RGP fit into the big picture of River Stewardship?
IX. How do *YOU* fit into the big picture of River Stewardship? Personal Practice and Being a Guest Educator

I. The Value of Clean, Free-Flowing Rivers

- **What is a clean, free-flowing river?**
  - A clean river is one that does not have any trash or pollution, such as factory dumping or mine waste, in it. It also does not have human waste in or around it.
  - A free-flowing river is one that is unobstructed by hydropower/ dams and flows freely from its source to the sea or confluence with a larger river or inland sea. A free-flowing river creates many valuable benefits for communities, animals, and plants, but free-flowing rivers are one of the most endangered ecosystems in the world due to the global rush for hydropower development.
  - *Interesting Fact:* According to *International Rivers*, as of 2018, in the entire world, only 21 rivers longer than 1,000 kilometers long are still free-flowing.

- **What is river stewardship and river conservation?**
  - ***Stewardship*** means taking care of something. River stewardship means taking care of the river and taking actions to keep it in a clean, free-flowing state.
  - ***Conservation*** means keeping something in a good form and preserving it so future generations will also be able to benefit from it. River conservation means taking action to keep rivers healthy for future generations so that future generations can have the benefits of healthy river systems to provide them water, food, a healthy nature, beauty, rituals and cultural celebrations, and enjoyments such as rafting.

- **Ecosystem Services**
  - Rivers provide what are known as "ecosystem services".
  - "Ecosystem services" refer to services that the environment or ecosystems provide both to us, as humans, and the integrated system of our environment. Just as Bhutan's forests provide a service filtering and providing clean air for us to breathe, the rivers provide the water for Bhutan's plants, animals, and human families to drink, and for farmers to grow food.

- Ecosystem services are difficult to account or put a money value on, but when you cut off the systems that create these services or do not care for the environment and make it dirty, these ecosystem services the environment provides us can create enormous money and cultural costs to human, community, and environmental health, well-being, and Gross National Happiness.
    - *Group Question: What other ecosystem services can you think of that rivers provide you and that you would like to see your children provided with?*
    - *Potential Answers: clean water supply, steady food supply (both farming and legal fishing), irrigation, natural cycling of nutrients for a healthy environment, reduction of disease carrying insect-breeding (vs. stagnant water of reservoirs), job opportunity (rafting and kayaking, fly-fishing, wildlife watching), recreation and enjoyment opportunity (swimming, picnic-ing, rafting, kayaking), spiritual and cultural uses of rivers and sacred areas, opportunities for science and education, climate change resilience.*
- The primary ecosystem services free-flowing, clean rivers provide are food security (fisheries), floods (the natural flood-pulse cycles that you see in rivers every year with the summer monsoons replenishes nutrients in the river banks for farmers, plants, and animals, and provides the same for people and environments downstream), biodiversity, fresh water and water quality; human health; and cultural, spiritual, and religious contributions (Source: International Rivers, 2018). Communities worldwide depend upon the ecosystem services of rivers.

II. The World and Her Rivers: Threats in a Global Context

"When we think of the world, it is really one functioning body, just like our own bodies. The rivers are the body's arteries. So, how can we expect to cut off the arteries and still have the body function? If you keep cutting arteries, it is only a matter of time before you are no longer 'just' losing limbs—you die." -Ruth Alipaz Cuqui, Bolivian indigenous advocate for free-flowing rivers in her Amazon home and worldwide

- Currently, there are more than 57,000 large dams worldwide, and 3,700 dams proposed or under construction around the world.
- As a result of an increase in global hydropower development, there have been losses of biodiversity, losses of climate regulation, reductions in food and water security, increases in pests and diseases around created reservoirs, forced relocation of millions of people (the Three Gorges dam in China alone displaced 2 million people), and increased threats to downstream communities in the circumstance of dam failure (risk is especially high in mountain areas such as the Himalayas because the mountains are still growing and shifting and that makes these mountain areas more subject to earthquakes) all over the world.
- Increases in packaged and single-use/ throw-away goods has created so much plastic pollution and big generation of trash that there is a sort of a global emergency. Bhutan can be a leader to the world by learning from what it has done for many generations: considering the environment, and making and using items from natural, local materials that last and do not cause pollution. There is great opportunity to be an example to the entire world. For example, think about the Fourth King's Birthday Celebration and the woven booths and local goods- this is a great example of positive and earth-friendly materials for an event and work together as a community!
    - *Activity: On the google on your phones, take 15-30 minutes to have a group of RGP members look up the Laos dam disaster, a second group look up the article: It Doesn't Matter if Ecuador Can't Afford this Dam. China Still Gets Paid. and a third group look up National Geographic's Planet or Plastic? Including 10*

Shocking Facts About Plastic and *We Made Plastic. We Depend On It. Now We're Drowning in It*. *After, have each group present a summary and interesting information found to the entire team.*

III. The Current State of Bhutan's Rivers (2019)

- This is an activity unit: You are the Bhutan experts.
    - *Activity: Designate a discussion leader, and address the following questions, making sure to facilitate participation from the entire group- this is a group brainstorming exercise to learn from each other and work together to learn more. Discuss the following questions:*
        1. *What are the current "threats" to Bhutan's rivers? (dams, trash, industrial waste, mining waste, human waste?)*
        2. *As a group last fall, we identified dams and trash as the top 2 threats to Bhutan's rivers… so let's focus in on those. How many dams does Bhutan currently have? How many are currently under construction? Where do individuals in the group get information about hydropower development?*
        3. *What are the threats with trash to Bhutan's rivers? How has Panbang improved its trash management practices and how can it further improve them?*

IV. Finding a Balance: Advantages and Disadvantages of Hydropower Development, and Alternatives

- This is an activity unit. Use your personal knowledge and experience to complete the following activity.
    - *Activity: Designate an activity leader. Break into two groups (Groups A and B). Group A will think about the Advantages of hydropower development in Bhutan and Group B will think about the Disadvantages of hydropower development in Bhutan. Both groups with re-convene and present their lists of the Advantages and Disadvantages of Hydropower development. If individuals from the other group have things to add to either list, add them at this time. Cross-check your lists with the below lists*
        - *Advantages: Increased Income for the Country; Increased Job Opportunity; Associated Development such as Roads; Increased Electricity*
        - *Disadvantages: Environmental Degradation; Increased Dependence on India; Increased Risks of Flooding; Limits and Negative Effects to Rafting Tourism; Loss of Job Opportunity and Rafting and Kayaking Tourism-Related Business Revenue; Disturbance to Communities During Construction and After Construction; Risk of Loss of Personal Land; Loss of Education and Science Opportunities)*

    Next, as individuals, take 5 minutes to think about and take notes on: what would be best for Bhutan's Future? Bhutan currently has enough hydropower generated energy to support the country and still provide some export. Should Bhutan build more dams? Why or why not? What are the alternatives for providing energy, jobs, income, and development for Bhutan? Why might other people have a different opinion than you? (different priorities? Lack of information/ education?) After individual thought, the activity leader will join the

group together to facilitate discussion of everyone's input. There are no "right" or "wrong" answers.

V. The Idea of Zero Waste: Reduce, Reuse, then Recycle

- **What is meant by the term "Zero Waste"?**
  - "Zero Waste" is actually what people in Bhutan have done for a very long time. It is what your parents and grandparents did before packaged goods and imports came from other places. "Zero Waste" simply means having practices and making choices to purchase or create things that do not end up creating trash, therefore making "Zero Waste"; you can also think of it as "Zero Trash".

- **What are some examples of "zero waste"?**
  - *Group Question: What are examples you can think of that would help achieve "zero waste"? Discuss as a group for up to 5 minutes, then check out other examples below.*
  - Individual Action Examples: Bring your own bags to the shop, market, and for kids at school; Buy unpackaged "bulk" goods instead of packaged goods (this is usually a double benefit because unpackaged goods are usually local and healthier vs. imported goods); Have a reusable water bottle
  - Business Action Example: Provide filtered water from Bhutan Foundation filter system instead of putting out bottled water for guests (have reusable bottles and glasses available, and take this as an opportunity to educate guests on the local, national, and global issue of plastic pollution. Check out this article from the Adventure Travel Trade network about adventure tourism businesses around the world taking on this issue); source local food with biodegradable or no packaging
  - Community Examples: Some communities and even countries have "plastic bag" bans in order to address their negative impact on the environment (Check out this article from National Geographic about New York City and this article from the New York Times about Rwanda)
  - Composting, or throwing organic waste in the garden or in a pit to create fertilizer is something that used to be done everywhere in Bhutan. Now that people live in towns, some do not compost, but some farmers need extra organic waste for gardens and to feed to their animals. Some towns collect organic waste for community compost. When organics are combined with inorganics in a waste pit, it contributes more to global warming with the production of methane gas. When organics are composted, they help make the soil more fertile for crops to grow and can also be good food for animals.
  - *Something to Remember:* FIRST, REDUCE waste, then REUSE items if you can, then RECYCLE items. You can think about this when making choices with every day actions, purchases, and creations.
    - *Group Question: What are some action items RGP can do as a company to strive for "zero waste"? Create a plan and timeline to put these action items into action!*

VI. Why is Burning Trash Bad?

- **What to do with all this trash?**
  - As road accessibility increases in Bhutan, so does the amount of packaged goods in remote areas. What is to be done with this new trash that does not biodegrade in the garden like organic items? And in these places without infrastructure to dispose of this

trash? In places with no trash collection tractors, or pits to dispose of non-biodegradable trash? This issue of what to do with trash is not just an issue in Bhutan, it is an issue for the entire world, and RGP and Panbang have an opportunity to be leaders by thinking and acting on such ideas as zero waste.

- While remote areas in Bhutan still burn trash due to this lack of infrastructure and information, some of Panbang's community members and businesses still burn trash, even with the start of the free government tractor trash pick up two years ago.

- In our RGP Meeting and Thinking Group about trash, the team came up with the following reasons community members and organizations in Panbang still burn trash
    - If the tractor is broken and does not come on trash pick-up day, people will burn their trash
    - It is not beautiful
    - Burning plastic is good for starting fires to enjoy and keep warm
    - New community members do not know about the trash pick-up
    - People do not have big enough trash bins (so trash would otherwise overflow), and people do not have good trash bins that are closed with lids (so the trash gets wet or taken by dogs)
    - People do not know the negative effects of burning trash

- We also thought about and discussed the negative effects of burning trash, which are:
    - Negative health effects (emissions can cause breathing issues, cancers, and damage to brain and kidneys)
    - Bad smells and haze
    - It contributes to global climate change
        - *Group Activity: Split into two groups (Group A and Group B). Group A, read the Conservation Law Foundation's blog post: What's Wrong with Burning Our Trash Anyway? and Group B, read the Scientific American article Burning Trash Bad for Humans and Global Warming. Both groups imagine that you are presenting information about burning trash to the community. In 30 minutes, use these articles and personal experience and knowledge to create a 3 minute presentation and present it to the other group.*

VII. Whitewater Ecotourism Expedition Leave No Trace Practices and Protocols

- Based on our RGP Meeting and Thinking Group about *Whitewater Ecotourism Expedition Leave No Trace Practices and Protocols in Bhutan*, this is what we came up with! It is written here for reference, to help remember and to teach. As you'll recall, we went through rafting/ kayaking expedition Leave No Trace Practices and Protocols in the U.S., talked about current practices in Bhutan, and then worked together to create a list of *Whitewater Ecotourism Rafting/ Kayaking Expedition Leave No Trace Practices and Protocols* that made sense in the context of facilities and infrastructure in Bhutan.

- **Bhutan's Whitewater Ecotourism Expedition Leave No Trace Practices and Protocols**
    - **Remember: the idea is to leave the camps and the river looking like no one has camped there or passed through, "natural", so that your next guests have the feeling that they are the first ones to step foot or paddle there.**

    - ***Trash:*** Bring water tight containers to contain and pack out all recyclable items and trash; have separate containers for trash and recyclables and try to minimize trash items you

bring on the river. Provide small trash containers at the toilette and "living area" for guests so that they can have easy access to them. Show them the containers in camp orientation, and tell them why you have the system and why it is important to keep the river and river bank clean. For any biodegradable items from cooking, gather them in one container and dump the container in the toilette pit before covering it.

- ***Toilette:*** Dig a pit at least one paddle length deep and 60 meters away from water sources; do your best to dig above high water line. Give guests proper orientation for the "toilette". Keep a toilette map, so you can monitor where you have put the toilettes before, and which are getting washed away with high water over the years.

- ***Fire:*** Use driftwood (and if necessary) branches that are already down to build fires. Break down the fire pit before leaving camp so that it looks like there has not been a fire there- bury ashes and throw any remaining wood in the river (especially if it still has embers).

- ***Dishes:*** Bring four buckets to do dishes and have pre-wash, wash, rinse, and bleach buckets. Dump bucket scraps and water in toilette pit.

- ***Camp Breakdown and Trash Sweep:*** Break down camp so that it seems no one has camped there. Move rocks used for seats and tents off beaches and back to rocky areas. Line up all the guests and guides to do a trash sweep and explain why, have a competition for who can find the most trash.

- ***Do what Bhutanese do best! Be respectful of wildlife, plants, and culture and teach your guests to do the same from the start:*** Be respectful of local wildlife, plants, and culture and, while on the raft talk to your guests about why it is important to be respectful of the people and places you might interact with on your trip.

VIII. How do Whitewater Ecotourism and RGP fit into the big picture of River Stewardship?
Providing livelihoods that give rivers' ecosystem services immediate and tangible values

- **How does whitewater ecotourism fit into the big picture?**
  - Whitewater ecotourism, or rafting and kayaking can play a big and key role in the big picture of river stewardship, or taking care and taking action to ensure the health of your rivers.
  - Guides and Employees of whitewater ecotourism have an extra connection to rivers: it is your and Bhutan's rivers clean, free-flowing nature that brings guests from around the world to go rafting and kayaking, and offers your children and grandchildren the benefits of rivers for food, water, and opportunities to experience the benefits of rivers in the way you are experiencing them.
  - Whitewater ecotourism is unique, because while ecosystem services are hard to exactly quantify, whitewater ecotourism gives immediate and tangible economic value to clean, free-flowing rivers because guides and companies are able to support their families from work that depends on free-flowing, clean rivers.
    - *Group Questions:*
      - *How do you as an individual benefit from the Drangme Chhu, Mangde Chhu, and Manas Chhu?*
      - *How could this change if the river changed?*
      - *How do these rivers benefit the community?*

- *How does RGP benefit the community? (community projects and other businesses benefiting from rafting tourism, environmental education, etc.)*

- In our RGP Meeting and Thinking Group, you came up with ideas about engaging with the school, giving community presentations, hosting community raft days, and hosting documentary movie nights.
    - *Group Questions:*
        - *What else can you think of?*
        - *Why are these things important?*
        - *How can you share your work in river stewardship and river conservation with other rafting companies, and educate them on how to do it in Punakha?*

IV. How do *YOU* fit in to the big picture of river stewardship? Personal Practice and Being a Guest Educator

- **How do *YOU* fit in to the big picture of river stewardship?**
    - There are many ways that you can engage in being an actor, advocate, and educator of river stewardship in Panbang, Bhutan and beyond.
        - *Group Question: What are ways you can think of being a river steward for RGP's local rivers?*
        - *Discuss, and then cross check with this list:*
            - *talking with guests, friends, family, and community groups about river stewardship and its benefits*
            - *Practicing personal zero waste practices*
            - *Advocating for and setting up company zero waste practices*
            - *Engaging in community work and education about river stewardship*
            - *Keeping up to date with news about rivers on the google*
            - *Becoming active and engaged in partner efforts (Clean Bhutan, Bhutan Waterkeeper, what else?)*
            - *Connect companies with similar efforts (follow through on founding of Bhutan National Raft and Kayak Association)*
            - *Perhaps most importantly, enjoy and take pride in your work of sharing Bhutan's beautiful rivers with others. A great experience on the river speaks for itself.*

- **How can I be a great guest educator about river stewardship and river stewardship practices?**
    - "Start with Why" is a concept that means people are more likely to listen to you if you tell them why you're doing it and connect with their personal values, which are very related to their culture. An example to think about "Starting with Why", is to show that you're not just picking up trash when you do a camp trash sweep, you're providing a clean environment for people, animals, and plants, and keeping things clean for human and environmental health now and for future generations- this is *why* you're doing it. Watch this TED talk from Simon Sinek about How Great Leaders Inspire Action.

    - Remember, there are 3 types of learners:
        (1) Learners that learn from hearing/ being told about something
        (2) Learners that learn from seeing something done
        (3) Learners that learn from doing something/ experiencing it themselves

People are a combination of types and all types are out there, so try to teach something by incorporating all three things. For example, if you would like to teach guests about the disadvantages of hydropower development, discuss the benefits of free-flowing rivers before the proposed dam site on the Drangme Chhu and ask guests to imagine what it would be like if the place was no longer there? For reduction of trash on the river, lead by example. Give the guests a talk about leave no trace trash practices, go pick up some trash, and then organize them to do a trash sweep with you.

- *Activity: Individually, take five minutes to think about some "why"s and ways you could deliver river stewardship and conservation messages based on the previous sections. Start with one topic, and think about how you would present it to a guest (identify the guests' background) to connect it with them and to make them understand* ***"why"*** *it is important? Partner up and present your idea to your friend as if they were a guest.*

RGP Action Plan
(Written for Nat Geo Grant, informed by research)

Conservation, Empowerment, and Sustainability:
Maximizing Benefits and Minimizing Costs of Bhutan's Whitewater Ecotourism

Kira Tenney
Early Career Grant
National Geographic
2019

University of Montana
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River Guides of Panbang (RGP) 1-year Action Plan: April 15, 2019- April 15, 2020
Increase River Stewardship, Conservation, Education, and Advocacy

Purpose: This action plan was developed to increase knowledge, skills, and capacity-building for the community-based whitewater ecotourism company River Guides of Panbang (RGP) in order to grow conservation, empowerment, and sustainability through developing local leaders accordingly in Panbang, Bhutan.

Methods:
This action plan is informed by an extensive literature review, project fieldwork (October-December, 2018), participatory development approaches and activities with RGP, and conducting data collection and analysis of 40 survey questionnaires, 13 in-depth interviews with the founding members of RGP (9) and the new kayak trainees (4), 4 key informant in-depth interviews, structured observation, and 4 out of 5 focus groups.

Note: This Action Plan was developed with the audience of RGP in mind, as well as scalability to all whitewater ecotourism raft and kayak guides in Bhutan, and as such is written to be clear, digestible, and succinct in order for it to be most easily used and executed. It focuses on increased river stewardship education in the local community.

River Guides of Panbang (RGP) Action Plan:
Increase River Stewardship Education and Advocacy
April 15, 2019- April 15, 2020

GOAL: Take action to increase the company's work and leadership in growing river stewardship education and advocacy in the local community.

Context: The top 2 "threats" to Bhutan's rivers (Rivers currently commercially run by RGP: Drangme Chhu, Mangde Chhu, and Manas Chhu) at this time are hydropower development and trash. Accordingly, this action plan particularly addresses hydropower development, the value of free-flowing rivers, and trash management.

Action Items:

1. **Establish RGP internal management for River Stewardship Education and Advocacy.**

Date: This was completed January 2019.
Action: RGP's Mr. Lam Dorji has been designated the River Stewardship Education and Advocacy Manager. All RGP members will contribute to this program, and the 4 new kayak trainees: Ms. Tshering Choki, Mr. Rinchen Thopjur, Mr. Sangay Dorji, and Mr. Sangay Phuntsho will most support the needs of the program as a primary role. As program manager, Mr. Lam Dorji's role includes: coordinating with partners, planning monthly river stewardship education and advocacy activities, and composing and presenting program progress reports for the company and monthly calls with Kira Tenney. Business Manager Ugyen Khenda will coordinate with Bhutan Foundation (who has thus far agreed to financially support RGP school programs) and this action plan will be adjusted if needed based on RGP budget.

2. Develop official partnership with Panbang school (K-10) for RGP River Stewardship Education and Advocacy program for Panbang school's students.
Date: This was completed March 6, 2019.
Action: Mr. Lam Dorji, Mr. Ugyen Khenda (RGP General Manager), Ms. Tshering Choki, Mr. Namgyal Wangchuk, and Mr. Dorji Wangchuk met with Panbang school officials and outlined a partnership to give presentations on whitewater ecotourism's environmental, social-cultural, and economic benefits and minimization of potential associated costs in the local community; hydropower development; the value of free-flowing rivers; and trash management (most particularly focused on the negative impacts of burning trash). RGP will further facilitate additional trash management infrastructure for the Panbang school (a dry storage shed for the schools incentive-based student recycling program and trash cans with lids so that dogs do not get into the trash and so that they do not become mosquito breeding grounds during the monsoon season). RGP will also work with Panbang school's Nature Club to coordinate monthly rafting/ kayaking field trips and instruction that incorporate experiential learning models to teach river stewardship, conservation, and advocacy. While these actions are outlined and a general presentation is planned for May 1, 2019, a need to formally establish a timeline, dates, and goals for these objectives is addressed below.

3. School Programming: Hydropower Development Awareness/ The Value of Free-flowing Rivers

Date: Finalize Hydropower Development Awareness/ The Value of Free-flowing Rivers Panbang school program plan by August 15, 2019.
Action: Kira Tenney will work with Mr. Lam Dorji (who will work with all members of RGP and Panbang school partners) to finalize the Hydropower Development Awareness/ The Value of Free-flowing Rivers Panbang school program plan by August 15, 2019. Due to an established need for a course to teach the developed River Stewardship mini-curriculum and build capacity of participants to engage as river stewardship and river conservation actors, educators, and advocates, this will involve and be in conjunction with a distinct Phase II of this project: the development of a River Stewardship and Conservation Education Training Course that meets these needs October-November 2019. This school plan will be set to begin September 1, 2019 with manageable goals according to existing capacity, and will include an introductory presentation to the school, and scheduling for Panbang school involvement in a monthly raft and river stewardship half-day with RGP for students grade 6-10 by class, in which students will learn about hydropower development, the benefits of free-flowing rivers, and trash management, and engage in a river trash clean up, river stewardship activity/ lesson, and learn takeaways to tell their parents. Goals of this school program plan further include continuing to work with the Panbang school to both teach and train the students as teachers in Hydropower Development Awareness/ The Value of Free-flowing Rivers, particularly through involvement in the development of the Panbang School/ Nature Club River stewardship raft and kayak course that will be developed to take place one afternoon a week beginning January 1, 2019-March 31, 2020 and include development of related student-led projects as a pilot test.

4. School Programming: Trash Management
Date: Finalize Trash Management Panbang school program plan by August 15, 2019.
Action: Kira Tenney will work with Mr. Lam Dorji (who will work with all members of RGP and Panbang school partners) to finalize the Trash Management Panbang school program plan by August 15, 2019. Due to an established need for a course to teach the developed River Stewardship mini-curriculum and build capacity of participants to engage as river stewardship and river conservation actors, educators, and advocates, this will involve and be in conjunction with a distinct Phase II of this project: the development of a River Stewardship and Conservation Education Training Course that meets these needs October-November 2019. This school plan will be set to begin September 1, 2019 with manageable goals according to existing capacity, and will include an introductory presentation to the school, and scheduling for Panbang school involvement in a monthly raft and river stewardship half-day with RGP for students grade 6-10 by class, in which students will learn about hydropower development, the benefits of free-flowing rivers, and trash management, and engage in a river trash clean up, river stewardship activity/ lesson, and learn takeaways to tell their parents. Goals of this school program plan further include continuing to work with school to both teach and train the students as teachers in trash management, particularly about the negative effects of trash burning, the idea and goal of "zero waste", and development of student-based projects. Concepts will also be applied to the development of the Panbang School/ Nature Club River stewardship raft and kayak course that will be developed to take place one afternoon a week beginning January 1, 2019-March 31, 2020 as a pilot test.

5. Host Community Movie Nights: Screen Relative Documentaries and Facilitate Film and River Stewardship Discussion

Date: Begin May 18, 2019; Host Monthly May-September
Action: Host Community Movie Nights beginning on May 18, 2019 and host monthly May-September (during the off-season/ monsoons). Community Movie Nights will be hosted in a range of venues, including RGP's Jungle Lodge Dining Space, the Panbang School, and the Panbang Community Center. Mr. Lam Dorji and Kira Tenney will work together to choose and screen relative documentaries. With support from RGP, Mr. Lam Dorji will facilitate informal film and river stewardship discussion following the screening; however, this is optional and will serve to inform needs for presentation and facilitation training in the Phase II: River Stewardship and Conservation Education Training Course Fall 2019. Films must be downloaded ahead of time, during times of high-band available network.

6. Establish Community River Days, including Women-only day
Date: Begin December 15, 2019
Action: Establish a bi-annual community river day and women-only day in which people can take a ride on rafts by the Panbang bridge, cross the river, go slightly downstream and then catch the eddy and paddle back up; include opportunity for participants to learn "guiding basics" and safety. Discuss and decide which holiday/ festival/ celebration to associate these two days with. Create action plan for safety, guest dialog, and poster-display for river-stewardship awareness, promotion, and education; have action plan in place by November 15, 2019.

7. Partnership with Clean Bhutan
Date: Complete by June 1, 2015
Action: Re-establish contact with Clean Bhutan and inquire about future partnership, resource availability of river clean-up day incentives (Clean Bhutan tee-shirts), and other resources and information about relative trash management resources, information, and relative activities and Clean Bhutan or other programs with which to connect. Follow up accordingly.

8. Partnership with Bhutan Waterkeeper
Date: Complete by June 1, 2015
Action: Establish contact with Bhutan Waterkeeper and inquire about future partnership, resource availability of river clean-up day incentives, and other resources and information about relative river stewardship and conservation resources, information, and relative activities, and Waterkeeper or other programs with which to connect. Follow up accordingly.

9. Share Information with Bhutan's 5 other Raft Companies (Punakha), Work Together, Establish Bhutan National Rafting and Kayak Association
Date: January 1, 2020
Action: While informal sharing of RGP's River Stewardship Action Plan and development will be shared along the way, a more formal sharing of resources, network development, and capacity building to create a Bhutan National Rafting and Kayak Association in which River Stewardship Education and Advocacy is conducted on a national level by Bhutan's whitewater river guides needs to be established. This will also be supported by the Phase II: River Stewardship and Conservation Education Training Course Fall 2019.

10. Assess 3 Ps: Progress, Pit-Falls, and Plan every 3 months
Date: April 15, 2019- April 15, 2020

Action: In coordination of RGP's bi-monthly meetings (where related action and tasks will be established and delegated accordingly), every three months, Mr. Lam Dorji will provide a summary of *RGP's 1-year Action Plan: Increase River Stewardship Education and Advocacy* Progress, Pit-Falls, and Plan to the RGP team, and request and summarize input. Mr. Lam Dorji and Kira Tenney will discuss summary and streamline results to optimize progress, minimize pit-falls, and both adhere to and adjust plan as necessary for success. Success will be measured by attainment of listed action items. Planning for a subsequent 1-2 year *RGP's Action Plan to Increase River Stewardship Education and Advocacy* will be informed by this action plan and its progress, pit-falls, plan and success in attainment of listed action items and be scheduled for development March 15- May 15, 2020.

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