Permanent River Conservation Strategies for China

Group Project Proposal

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Abstract

Increasing development in China has created a need for water resource development projects that increase both energy production and the availability of potable water. The majority of these projects include the rapid construction of dams or massive water diversions, both of which often incur negative environmental, social, and economic impacts. As a team, we will 1. identify the benefits of maintaining rivers in a less developed state and 2. provide a set of recommendations for the creation of a permanent river protection system for China. Increased public and governmental interest in environmental protection, as well as the movement toward a comprehensive dam law, have produced an opportune sociopolitical environment for the inception of a river protection system. We will identify the most important environmental, social, and economic benefits of river protection by conducting an extensive literature review. From a selection of case-studies of river protection systems and their legal frameworks in other nations, we can recognize the drivers of river protection. Our research and analysis will then allow us to formulate recommendations as well as create a decision support tool that will be useful to Chinese stakeholders if they choose to implement a river protection system.
Executive Summary

China is a nation with a long and rich history. Now, at the turn of the 21st century, it is one of the world’s economic leaders after decades of reform and struggle. As global communities begin to confront the world’s environmental crises, China has the opportunity to be a leader on a number of fronts. While many industrialized nations have rapidly depleted their environmental resources in the pursuit of economic expansion only to later regret those heedless actions, China can set itself apart by prioritizing environmental protection. China certainly can continue to develop and prosper while retaining its environmental integrity; however, Chinese leaders must act quickly to safeguard their nation’s valuable natural resources. One of China’s most distinctive geological features is its extensive network of rivers. Currently though, a permanent protection system for rivers is neither legally maintained nor enforced in China. It is encouraging to note, however, that dialogue regarding new approaches to river protection has already begun between Chinese governmental officials, environmental experts, and the NGO community. The Chinese are looking to implement a comprehensive decision-making framework that will ensure thorough environmental impact assessment before the inception of major dam projects. Officials have also become interested in looking at the river protection strategies employed by other nations, with the consideration of developing their own. Therefore, it is a propitious time for researchers and organizations, such as China Rivers Project, to demonstrate to these officials the benefits of permanent river protection and cite examples of successful programs around the world.

In order to demonstrate that river protection will be beneficial for China, our team will explain the various environmental, economic, and social benefits of rivers that are left in a free-flowing state, or that are protected from major development projects. An extensive literature review will provide a majority of the information necessary to accomplish this objective. Environmental benefits from protecting rivers include a number of ecosystem services, for example, careful regulation of flood levels, good water quality, and sufficient nutrient and sediment transport. Rivers also provide rich and varied habitats that support biodiversity. Economic benefits include profits from fisheries, recreation, tourism, and averted costs of dam removal or repair. Social benefits include intact local communities, preserved cultural and spiritual practices, and sustained social order.

Case-studies of river protection systems in various nations will be examined to determine the drivers for their implementation, and will point to examples of both success and failure. We will generate a matrix that identifies various features of the countries selected for case-study so that comparisons between systems and the suggestions we can make based on that research for China are meaningful. Additionally, we plan to familiarize ourselves with the operation of the Chinese legal system and the institutional structure responsible for environmental protection, especially in relation to river management. This aspect of our research is imperative because the case-studies we address will highlight river protection systems which operate within the disparate legal and institutional contexts, but will also demonstrate at least some similarity to the Chinese situation. Therefore, establishing the
differences and commonalities will place our team in a position to draw meaningful conclusions. The case-study evaluation is the component of our research design that will ultimately aid our determination of the attributes and conditions that are necessary when strategizing for an effective system of river protection.

After synthesis of our research, we will also be better prepared to provide recommendations for incorporation of a river protection into the existing legal framework in China. Our recommendations will include a host of river protection measures that can be applied to near-pristine rivers, and to rivers that are already affected by some form of development. These suggestions can form a useful guide for decision makers who will weigh value and feasibility in selection of a specific river protection system. Our final report will be presented to our client, and can be shared with Chinese decision-makers. As a team, we will create a decision support tool that will assist Chinese stakeholders in their consideration of the impacts of river protection and non-protection, and see how these considerations can lead to a strategy for implementation. If time allows, we would like to create a rubric for classification of rivers (or river segments) to be protected. This tool will be used as a guide when deciding what level of protection a river or river segment will be afforded based on various characteristics of the river and surrounding region. Accompanying the rubric will be a GIS overlay of priority river stretches. As a result of our work, we hope that China Rivers Project, and perhaps decision-makers in China as well, will have the information necessary to demonstrate how a permanent river protection system can help China meet its resource protection goals.
Problem Statement

In recent years, the Chinese government has become increasingly focused on finding new approaches to improve its energy production and water availability, but also on protecting its natural resources, specifically its rivers. Yet China currently lacks a legal framework that provides for permanent river protection. In the next ten to fifteen years, an estimated 150 new large dams (in addition to the tens of thousands that already exist) have been proposed for construction on the country’s last remaining intact river systems (World Commission on Dams 2000); these dams will have major impacts on both water quality and supply in China (Liu and Yu 1992). Their construction will alter downstream habitats, and will likely displace entire communities. In addition, the dam construction may diminish a number of geographical features of social and cultural worth to communities downstream (Ligon 1995; Poff 1997). Concerns regarding the continued development of dam projects have precipitated discussions between the National Development and Reform Commission (NDRC), Chinese NGOs and the Chinese government for the creation of a comprehensive dam law, which will require a thorough exploration of both economic and environmental impacts of potential dams (McDonald 2009). This law, once in effect, will utilize an integrated decision-making framework for consultation prior to new dam construction (McDonald 2009). Due to increased stakeholder and political interest in natural resource protection and new dialogue about dams in China, the sociopolitical environment is poised for Chinese lawmakers to go a step further and create legislation that protects select rivers and/or river segments from new development.

Chinese environmental and governmental planners may be able to draw from the experiences of countries that have already implemented such programs. Canada, the United States, Australia, and the European Union currently have programs that permanently designate “free flowing rivers”, which are appreciated for their natural beauty as well as for their ecological and social values. It is with these interests in mind that decision makers, business leaders, and NGOs in China have asked China Rivers Project (Berkeley, California), whose mission is "to protect China’s river heritage for people and for wildlife", to demonstrate how a permanent river protection system can benefit China.

China Rivers Project has asked our team to compile and analyze (1) data and case-studies of permanent river protection acts and systems, such as the U.S. Wild and Scenic Rivers Act, and (2) legal models and strategic considerations, which will provide groundwork for developing a similar system in China. Our team seeks to identify the myriad benefits of permanent river protection. We then plan to develop recommendations for structure and implementation of a protection system in China. These recommendations can be utilized by NGOs and state water agencies within China that are familiar with the specific river systems. We recognize that we are being tasked with an assignment that requires our commitment to developing a strong understanding of the historical, economic, legal and political implications that have shaped and characterize China’s current river management. The scope of our work will narrow as we familiarize ourselves with the country's geography, current land-use practices, legal system, and governmental and citizen
willingness to participate in such a movement. The basis for our methods is a set of overarching project objectives detailed in the next section. The first three objectives will precede the development of the final two objectives.

Objectives

1. **Identify the Benefits of River Protection**
   For the success of our project, it is crucial that our group clearly identifies the multiple social, economic, and environmental benefits that can be gained with permanent river protection. Additionally, we will need to draw attention to the degradation of river resources by activities such as overfishing, mining, and excessive infrastructure development (e.g. dams, dikes, levees, channelization of rivers, and diversion of flow). Finally, explaining the costs of protection and development will offer a more balanced perspective of the trade-offs facing decision-makers when permanently protecting rivers.

2. **Conduct an Analysis of River Protection Systems**
   To gain a better understanding of river protection strategies that have worked in different countries, we will conduct a survey of case-studies for countries in which river protection systems have been implemented, for example, the United States (Wild and Scenic Rivers Act), Canada (Canadian Heritage Rivers System), and Europe (EU Water Framework Directive), as well several other nations. We will address the context in which these systems were applied, the motivation and implementation of each policy, and the successes and failures of these policies in meeting their goals. This analysis will be used to assess the best methods for integration of a permanent river protection strategy into the current Chinese national system for environmental resource protection.

3. **Examine the Chinese Legal System**
   To complement our case-study research of river protection systems, we will need to dissect the major differences between the legal systems and institutions of China and those in other nations with protective frameworks. In addition to speaking with experts in the fields of Chinese law and environmental planning, we can refer to Chinese water laws and EIA documents to aid our understanding.

4. **Establish a Set of Recommendations for Permanent Protection of Rivers**
   Based on our research, we will formulate a set of recommendations that will explain how rivers can be protected to ensure the longevity of cultural, social, economic, and environmental values. These recommendations will clearly indicate how a permanent river protection system could fit into existing laws and policies in China. Furthermore, these recommendations may be more readily accepted by an audience of Chinese government officials and NGOs in
China if the suggestions can be tailored to meet the country’s current focus on a “harmonious society” and sustainable development. Our recommendations may focus on prohibition of the development of dams, dikes, levees, channeling or diverting of rivers, dredging, or on mining operations within a suggested distance of designated rivers. It may also be beneficial to develop a stratified protection index for rivers or river stretches with different levels of prior development. For example, a “wild” or “free-flowing” river may be set aside to be “most protected,” while a river that is already characterized by minimal development may also be designated as “protected,” but be guarded with a slightly different approach. The scope of this project will not include issues of water quality due to urban and agricultural runoff; China already has laws established to protect water quality. The goal of a permanent river protection system will be to preserve flow and the natural characteristics of rivers from harmful over-development. As we become more knowledgeable about the current forms of environmental protection in China, and are more familiar with permanent river protection systems in a variety of global locales, we will be better prepared to develop recommendations for structure of a permanent river protection system that can be adopted in China. Questions we may answer include: Who will take responsibility for implementation? Which legal tools are needed for implementation? and How does the system fit in with current natural resources protection?

5. System for Designation of Potential Rivers for Protection

As mentioned in the previous section, we plan on developing a set of recommendations applicable to a variety of rivers and/or stretches of rivers, as well as a decision support tool that can be used in selection of an appropriate protection plan. If time allows, we will also work on creating a rubric for classification of protected rivers and river segments. We will need to communicate with our clients, possibly with Chinese environmentalist Ma Jun, and with influential NGOs such as WWF, TNC, and CI who are familiar with China’s river networks and water resources management. The aforementioned NGOs will likely be consulted by the central government prior to implementation of such a system because their work and expertise is well-established within China. As a team, we can request data from some of these groups, especially in order to compile a list of possible rivers/ stretches of rivers to accompany our research and recommendations. Additionally, we will create a GIS overlay of priority river reaches as an additional tool for our client.
Deliverables

Upon completion of our research and analysis, China Rivers Group Project Team will compile a thorough report, create a decision support tool with an accompanying guidance document, and if time permits, perform a GIS overlay of rivers with potential for river protection.

Our report will explicitly elucidate the multiple social, economic, and environmental benefits that can be gained with permanent river protection, and draw attention to the negative consequences that can result from not having a protection system in place. While the construction of dams may be considered the largest contributor to those negative impacts on river systems in China, our report will address the impacts that other infrastructure development such as dikes, levees, and channelization, also have on rivers. The benefits of protection do not come without costs, and our research will include discussion of the costs associated with comprehensive river protection, as well.

Included in our report will be an analysis of case-studies focused on river protection systems in both developed and developing countries with varied geopolitical contexts. This section of our report will examine the case-studies based on drivers of protection, and go a step further in analyzing the successes and failures of these specific systems. Synthesis of our findings will allow us to culminate our report for our client and stakeholders in China with a set of recommendations for river protection that might be applicable to the Chinese context.

Our decision support tool will provide a mechanism for determining the feasibility of implementation of river protection measures for China’s rivers. Government officials and environmental experts in China will be able to employ the use of our decision support tool when exploring options for protection, or even in the assessment of development plans. This decision support tool will take into account environmental (ecological values and ecosystem services), economic, and social impacts (spiritual and cultural considerations). A comprehensive tally of these impacts will be applied to a metric of evaluation that will then help decision makers narrow the host of recommendations we have offered into one or more strategies that may be adopted. The decision support tool will be accompanied by a guidance document, or manual, for ease of utilization.

Finally, we hope that we will be able to create a GIS overlay which will show a graphic representation of the rivers or stretches of rivers that might be candidates deemed most appropriate for permanent river protection.
Assertions Supported by Literature Review

- A discussion about the development of a more comprehensive system of river protection has begun in China.

- There are environmental, social, and economic benefits to permanent river protection in China
  - There is a value to the functioning of a natural, undeveloped river.
  - There are negative impacts associated with infrastructure development on rivers in China.
  - There are values and uses of rivers in China (some non-utilitarian – cultural, spiritual, and ancestral) that are important to consider when formulating a set of recommendations for river protection.

- Successful river protection systems with national legislation have been implemented in the United States, Canada, and the European Union, and various other nations. These could serve as a template for successful river protection if modified to the Chinese legal and institutional context.

- Major differences exist between the legal systems and institutions in China and those in other nations, specifically the United States.
A discussion about the development of a more comprehensive system of river protection has begun in China.

Rapid development in China has led to economic growth that has benefited the country, but has also produced environmental degradation with impacts that may be irreversible if they are not addressed soon. Primary energy consumption, in particular, has been a focal point for China, both of energy from coal power plants and from large-scale hydropower projects on China’s major rivers.

The growth of hydropower has not been fueled solely by energy demands, but also by technological innovation that has made the construction of dams much simpler than in days past. Dams are being planned on more remote rivers along China’s borders, mainly on the upper reaches of the Yangtze and on rivers flowing into Thailand and Burma. Chinese environmentalist, Ma Jun, has explained that what is left of China’s near pristine nature has receded to the country’s borders (Yeung and Turner 2006). With greater development moving into these remote areas there may be little pristine nature left for China’s future generations to enjoy.

Chinese scientific researcher Chen Guojie warns that if the current trend is allowed to continue, the Yangtze, Pearl, Lancang, Nu and Hongshui rivers will no longer be natural rivers – their form and process will be altered by human activities. He explained “they will be like staircases -- a series of sections interrupted by hydro stations. So the water of the Yangtze will no longer come from heaven but from these 'steps,' and our free-flowing rivers will disappear forever” (Guojie 2008).

Some of these large-scale dams and other development projects, such as levees and channelized river segments, have become issues of concern to environmentalists and to ethnic minority communities. These groups not only see impacts on their own livelihoods and lifestyles due to development, but also see an end to the few pristine rivers and highly biodiverse areas that exist in China. Hundreds of fish and wildlife species could go extinct in the next wave of dam construction in Southwest China (Yeung and Turner 2006).

In 2004, Chinese environmental NGOs and journalists’ active involvement in initiating a national discussion on protecting a pristine river and pushing for more transparency in dam construction began. After plans to dam the Nu River – one of the two remaining “wild”, or “near-pristine” rivers in China – were announced, Chinese environmental journalists investigated the plans and potential impact on the Yunnan province in which the river is located. Reports drew attention to the beautiful area, which is a noted World Heritage Site. Discussions on the need for transparency in planning through EIA assessments ensued (Yeung and Turner 2006), and today the Chinese people have access to the EIAs that are prepared when any major development project on a river is proposed.

Collaboration between environmental NGOs within China has brought significant attention to this issue. Since 2004, additional discussions on the state of dam-planning in China have led the government to open its ears to environmental NGOs who suggest that dam projects should be evaluated more carefully before their inception. Protecting rivers
from damming is just a precursor to the possible implementation of a comprehensive river protection system that would protect rivers from all development and simultaneously celebrate their myriad of cultural, social, environmental and aesthetic values.

There is a value to the functioning of a natural, undeveloped river.

Undeveloped rivers provide a wide range of unique services for human communities and natural environments. They offer a number of social provisions including: drinking water, food, water for irrigation, and a means for navigation. Rivers also regulate flood levels, water quality, nutrient and sediment transport, as well as provide rich and varied habitats that support the distinctive biodiversity that characterizes riparian ecosystems. All of these services are driven by a delicate balance of natural flow characteristics that, when disturbed, weaken the complex resilience of riparian communities (Lingon et al. 1995). Out of the 177 major rivers in the world, however, only a third remain “free-flowing” (WWF 2006). As human populations continue to grow, it is critical that the value of undeveloped rivers is recognized not only for rivers’ consumptive utility. These last remaining wild rivers should be protected before dams, levees, and other forms of river modification deteriorate these special systems.

Complete river systems with natural flow patterns are critical for protecting riparian biodiversity (Querner and Povilaitis 2009). Rivers have complex flow patterns that vary through time; this variation serves as a cue for life cycle stages of many riparian species, such as the spawning, hatching, and migration of fish species (Suen and Herricks 2009, Fu et al. 2003, Poff et al. 1997). Additionally, many migratory fish species require large catchment basins and long uninterrupted stretches of river for different stages of their life cycles (WWF 2006). In the Southwest United States, almost all native river fish species are listed as threatened under the Endangered Species Act due to water withdrawal, flow stabilization, and introduced species (Poff et al. 1997). In the United States, the last remaining strongholds of healthy fish populations are in the wild rivers that have natural flow patterns (Poff et al. 1997). This condition is not unique to the United States, though; freshwater biodiversity in China is also most robust in free-flowing rivers. For example, the Gezhouba Dam has endangered migratory sturgeon and paddlefish populations by fragmenting their habitats (Fu et al. 2003). Recognizing the value of natural river flow mechanisms of undeveloped rivers is important if we are to protect riparian biodiversity.

The dynamic nature of river flow characteristics not only provides cues for species, but also shapes the geomorphic structure of the river that defines the ecological functionality (Frings et al. 2009, Poff et al. 1997). A critical function of natural river flow is its ability to move sediment through a river channel. The rate of flow is directly related to the volume and the size of sediment suspended and carried downstream (Frings et al. 2009). Sediment transport shapes the river habitats, transports nutrients that are useful to agriculture and wildlife, and reshapes river flow over time. Deltas, lagoons, sand banks, and coastal wetlands are all dependant on natural sediment deposition (WWF 2006). The Mississippi Delta, which supports the city of New Orleans, is rapidly retreating due to the heavy damming of the Mississippi and Missouri Rivers (WWF 2006). Dams have cut off the sediment supply that maintains the structure of the delta that supports New Orleans.
Without the natural flow regimes of undeveloped rivers, sediment transport stops, habitat structure erodes, and nutrient transport is reduced.

This is only a brief introduction to the benefits provided by natural river flow, and of the negative impacts that result when rivers are degraded. Growing human populations are demanding greater use of water resources for consumption, agriculture, and energy production. In China today, per capita demand for water is leaving less than 25% of the quantity needed to meet ecological demand (Wallace et al. 2003). Conscientious river management is required to balance the costs of water needs with the human and environmental benefits gained from protecting natural flowing rivers.

There are negative social impacts associated with infrastructural development on rivers in China.

In China, when large-scale dams are constructed on major rivers for hydropower or increased water supply, the impacts also extend to human livelihoods, lifestyles and survival. In the case of the Three Gorges Dam, the construction of which has been the topic of heated debate for years, and has already displaced an estimated 1.4 million people. The 640-km-long reservoir forming behind the dam has also flooded several important archaeological sites (Yang 2007). Affected citizens will be required to uproot from their communities and land and move to the interior of the country with no guarantee of adequate compensation (Hvistendahl 2008). Fishermen who once garnered income and fed their families with fish from the river are increasingly unable to sustain their business and family, since water displacement threatens the survival of aquatic biodiversity. Finally, the communities that have inhabited the riverside for hundreds of years, but are currently displaced, have been forced to abandon their homes and traditions.

In China, when people are forced to relocate as a result of infrastructural development on rivers, they must not only give up their homes. When they are moved to resettlement sites, they lose their food security and their water supply. They may even be forced to give up their ability to maintain the lifestyles or practice the traditions that have been important to them for hundreds of years. Displacement is not a choice. Instead, communities are forced to abandon their traditional livelihoods, land and natural resources, which are often “the social fabric that binds their communities together” (International Rivers 2008). As a result of uprooting, disease, domestic violence, alcoholism and depression may increase within the communities.

Often communities that are displaced are promised compensation, but if compensation is provided at all, it tends to be inadequate. When people are offered cash as compensation, they rarely receive enough money to purchase land comparable to what they had prior to displacement. Even those who are offered land-for-land compensation, usually receive smaller plots of land that may also be poor in quality. Families who are unable to subsist on their land, they may end up working as migrant laborers, or becoming slum dwellers (International Rivers 2008). Specifically in China, one third of "reservoir oustees", as displaced people are often called, struggle to reestablish their lives at “satisfactory standards”. Another third of these people create subsistence lifestyles, and the remaining third are “mired in poverty” (McCully 2001).

Both the large-scale and local economies of China are negatively affected by environmental degradation, including infrastructure development on rivers. The Vice
Minister of China’s State Environmental Protection Administration (SEPA), Pan Yue, has stated that the magnitude of China’s environmental degradation costs the country approximately 8% of its annual GDP growth (Lorenz 2005). In addition, water pollution cost China’s fisheries $130 million in 2004; an increase of over $40 million from the previous year (“Pollution Costs” 2005). According to The World Commission on Dams, large dams have been, at best, only marginally economically viable. Dams on average exceed their expected cost by 56% (World Commission on Dams 2000). In addition, local communities are affected by the loss of livelihood. Income sources such as fisheries and agriculture are affected by the degradation of the resources that support their generation, including arable land, forests, flood plains, and surface water. The loss of economic power in local communities leads to a decline in living standards and loss of productivity in the work force (Cernea 1999).

There are values and uses of rivers in China (some non-utilitarian – cultural, spiritual, and ancestral) that are important to consider when formulating a set of recommendations for river protection.

Worship of nature has been an integral part of Chinese culture for centuries. Daoism, a belief system with folk religion roots in China, was popularized by philosopher Laozi in the 5th century, at the same time that Confucianism and Buddhism existed. Laozi Daodejing wrote, “Humans model themselves on earth, earth on heaven, heaven on the way, and the way on that which is naturally so” (Berling 2005). Daoism advocates respect for nature through a philosophy centered on man’s submission to “heaven”. The word for heaven in Chinese is “tian”, which means not only heaven but the entire cosmos, including Earth. This original philosophy has since been overshadowed by the philosophies of Confucius and Marx in modern Chinese society. Along with this change has come what can be perceived as an accompanying shift in attitudes toward the environment. In Chinese modern society, it would seem that the priority of environmental protection is very low on the totem pole when the main item on the country’s agenda is economic growth (McDonald 2008); however, there are many people for whom the cultural relevance of rivers continues to be important.

In the Three Gorges area specifically, few ancient civilian residences with cultural value have been left and most of them were built during the Ming (1368-1644) and Qing (1644-1911) Dynasties. The three representative ancient residential house groups can be found in the upper, middle and lower reaches of the Yangtze River, and are some of the existing evidence of the powerful dynasties that once ruled China. Unfortunately, it was predicted that by 2008, when the water level of the great Three Gorges Reservoir reached 175 meters, these residences would be buried (Jinhui and Moller 2003), demolishing access to this cultural and historical archeological record forever.

Elsewhere in the country, the threat of increased and continued development would have lasting impacts on both remnants of and current cultural practices. Upstream in eastern Tibetan regions, people’s lives have been similarly arranged around the tributaries. For the Tibetan Buddhists, the Nu River carries spiritual importance. It is seen as a conduit to central Tibet and Lhasa, the heart of Tibetan Buddhism. As a result, river burial is widely practiced in this region. In this ancient ritual, the remains of the deceased are cut into pieces, bound together with ropes, covered with stones, and then cast into the deepest part
of the river. Rivers are thought to provide a portal to the underworld. It is even said that ancestral spirits on great golden yaks will sometimes appear in certain eddies (McDonald 2008).

The current economic incentives suggest that numerous dams may be built along China’s few wild or nearly wild rivers. Some Chinese citizens worry that it will be impossible to protect their cultural and historical roots as the rewards of development projects are made more attractive to a rapidly growing population in the context of globalization. Chinese environmentalist Ma Jun has compared China’s wild rivers to endangered species, and likened rivers’ unique ecosystems to breathing organisms that will die if they are not protected. He has called these river landscapes “an important part of China’s national identity” (Yeung and Turner 2006) – but this change, too, if river protection is not prioritized.

River protection systems have been implemented in the United States, Canada, and the European Union with varying levels and points of success.

There are a few examples of national and international programs designed to protect undeveloped rivers and segments of rivers. Unfortunately, most are in developed nations that have already considerably modified the majority of their river systems. The United States (Wild and Scenic Rivers Act of 1968), Canada (Canadian Heritage River System), Australia, and the EU have implemented fairly successful plans that can be used along with different international programs as templates to design a successful river protection system in China.

Wild and Scenic Rivers Act

In 1968, the Wild and Scenic Rivers Act (WSR) was passed during controversial discussions about the process of constructing dams and other forms of infrastructure that restrict river flow in the US. It was designed to preserve rivers and their immediate environments in “free-flowing” state for the benefit and enjoyment of present and future generations. For a river or segment to qualify for protection under WSR, they had be free flowing and have “outstandingly remarkable scenic recreational, geologic, fish and wildlife, historic, cultural or other similar values.” (IWSRCC 1998) “Free flowing” is defined in the act as “existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. (IWSRCC 1998) The existence of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the national wild and scenic rivers system shall not automatically bar its consideration for such inclusion” (IWSRCC 1998).

Nationally protected rivers are given one of three classifications: wild, scenic, or recreational. Classification is based on the level of development pre-protection along the river. Designation also determines the level of protection for each area. To attain national protection, rivers must be listed by congressional vote or mandated by the Secretary of Agriculture or the Interior. Once listed, management responsibility falls under of one of four agencies: the Bureau of Land Management, the National Park Service, United States Forest Service, or the United States Fish and Wildlife Service. All new development plans for use of water or related land resources must first obtain consideration for potential
inclusion under the WSR and receive consideration by the 4 aforementioned agencies. Any projects that work on or affect Wild and Scenic Rivers are denied license for construction.

**Canadian Heritage River System**

Roughly 25 years ago, Canada recognized the need to preserve river heritage in order to protect its natural resources from the negative impacts of development, dams, and pollution. The Canadian Heritage River System (CHRS), Canada’s national river conservation system, was established in 1984. It is run as a cooperative between the 10 provinces and three territories (The Canadian Heritage River System, 2009). The CHRS “promotes, protects, and enhances Canada’s river heritage, and ensures that Canada’s leading rivers are managed in a suitable manner” (The Canadian Heritage River System, 2009). A priority for Canada is to ensure that rivers and river heritage remain intact for future generations to enjoy and benefit from. Since rivers are a part of people’s livelihoods, they have acknowledged the numerous benefits that result in river protection (e.g. increased wilderness, abundant fish, swimming areas, rapids for recreation, etc.).

Nomination of a river can be made by the Canadian Heritage Rivers Board, private citizens, or groups. In order for a river to be reviewed, it must have:

- Outstanding natural, cultural and/or recreational values
- A high level of public support
- Demonstrate that sufficient measures will be put in place to ensure that those values will be maintained

Thus far, 39 rivers or sections of rivers (approximately 10,000 km long) have been designated as Heritage rivers; 36 of those have management plans (CHRS Annual Report, 2007).

The CHRS (2009) lists a number of benefits that can be associated with river protection: (1) a clean environment (2) a healthy ecosystem for wildlife (3) a culturally rich community (4) an area for outdoor recreation (5) an ecotourism destination (6) a potential business location (7) a place with a strong sense of community and (8) a quiet place (Canadian Heritage River System, 2009). While these benefits do not have a direct dollar value associated with them, a boosted economy could result in the influx of new residents, tourists, and even increased employment in Canada. It was estimated that the economic benefits to Canada in 1997 that were attributable to the CHRS were approximately $32 million (CHRS 2009). Additional non-monetary benefits include environmental protection, recreation, heritage appreciation, preservation of historic sites, and community development. Benefits from monitoring include coordinated river management, greater environmental protection, water quality improvement, and a focus on government programs.

**The EU Water Framework Directive- integrated river basin management for Europe**

The EU Water Framework Directive (WFD) was adopted in 2000, in response to a demand for cleaner water from citizens and environmental organizations (Europa, 2009). Previous water policy was fragmented. When the WFD was introduced, it had the following goals: (1) to expand the scope of water protection to all waters, surface and ground water (2) to achieve “good status” for all waters by a set deadline (3) implement water management based on river basins (4) take price into account (5) involve citizens more
closely, and finally (6) to streamline legislation. The WFD’s overarching goal is to achieve “good status” for all of Europe’s surface waters and groundwater by 2015.

A key aspect to the WFD’s water management model is that rivers should be managed based on geographical and hydrological boundaries, as opposed to political or administrative boundaries. Hence, a river basin management plan was created. (Europa, 2009). Protection of drinking water, aquatic ecology, unique and valuable habitats, and bathing water are the main management objectives; however, “the central requirement of the Treaty is that the environment be protected to a high level in its entirety” (Europa, 2009).

Major differences exist between the legal systems and institutions in China and those in other nations, specifically the United States.

Since many of the case-studies of river protection systems that we will be examining are in countries with democratic legal systems, it is important to gain an understanding of the differences between law in China and in a nation with a Western system such as the United States. The development of law in China is distinct from the experience in the West. The concept of “rule of law” is a foundation of Western society, but in China, the concept was contemptuous until the end of the 19th century. According to Confucian teachings, a ruler governs with virtue not law. People learn the rules of proper behavior through socialization and education, and only under extreme circumstances is it necessary to use sanctions of law. Therefore, in a “harmonious society”, law can be avoided (Li 1977). René David and John Brierley (1968) describe the traditional Chinese concept of law by explaining that “The enactment of laws is an evil, since individuals, once familiar with them, will conclude that they have rights and will then be inclined to assert them, thereby abandoning the traditional rules of propriety and morality which should be the only guides to conduct.” Moreover, legal disputes could disturb the natural order, which could lead to the disturbance of overall social order (David and Brierley 1968).

Some of the most fundamental differences between American and Chinese law are philosophical and ideological value judgments. In the United States, emphasis is placed on the individual; the system stresses individuality, privacy, diversity, and individual action. In Chinese society, the individual serves as a function of a larger group, such as a family or village. Therefore, individuals are urged not to act in their own self-interest but rather in the interest of the group. Emphasis is placed on group action and decision making, rather than on the individual (Li 1977). While liberal norms supporting individual right and the restraint on state power inform the legal systems of Europe and America, the Chinese system does not support these norms.

In China, law does not function as a limit on the State, but instead, it is a mechanism by which political power is exercised and protected. Therefore the Western concept of “rule by law” can be translated to “rule through law” for the Chinese context. Policy outcomes are prioritized over legal processes by the Chinese government (Potter 1999). Western-style law, which assumes stability and restrains change, has not been preferred in the People’s Republic of China. Due to rapidly changing social and economic conditions, the PRC must be able to make rapid changes in rules. Laws themselves have a sense of permanency inherently attached. Although laws can be amended, it is a cumbersome process that tends to inhibit change (Li 1977).
Political institutions in China were modeled on former Soviet Union institutions (Dreyer 2006). The Chinese Constitution, first passed in 1954, is in fact based largely on Soviet ideas of constitutional law and socialist principles. The Chinese Communist Party (CCP) is the highest authority over the State and society and in all practical purposes directs, guides, and controls the State. The highest organ of the state is the National People’s Congress (NPC); the NPC has the power to enact laws, ratify treaties, and select the president and vice-president. Unlike, many other political systems, especially Western systems, the office of president and vice-president are essentially ceremonial. In contrast to the United State Congress, the NPC has no size limit; membership typically ranges from two to three thousand. Although it is not a requirement that NPC members belong to the Chinese Communist Party (CCP), most do. Due to the immense size of the NPC, there is a Standing Committee of the NPC (SCNPC) with approximately 150 members that meets more frequently (Dreyer 2006). In sum, legislative power resides with the NPC and SCNPC (Otto et al. 2000). Most administrative work is performed by the State Council which is headed by a powerful premier and several vice-premiers. The numerous Chinese ministries and commissions report directly to the State Council (Dreyer 2006).

After Mao Zedong’s death in 1976, the Chinese government began to move away from strict Communism. China has now evolved toward a socialist market economy. As part of this evolution, there has been a decentralization of authority to provinces and cities in effort to create a state system subject to the rule of law. In a few decades of reform, hundreds of codes, laws, and orders have been passed to support the main foundation of law (Otto et al. 2000). Legal reform efforts have been aimed at building legitimacy and furthering economic objectives of the CCP (Potter 1999). Although law making and institution-building has increased dramatically, the preservation of political supremacy of the CCP remains most important (Potter 1999).

In stark contrast to the United States, China has relatively few lawyers and legal experts. The Chinese maintain that law must be broadly based rather than the specialized domain of elite professionals. In the United States, legal professionals inside and outside of government are appreciated for their expertise (Li 1977). Whereas, senior leadership in China contains very few, if any, trained lawyers, and other legal bureaucracies contain senior officials with little formal legal training (Potter 1999). Another dissimilarity between law in China and the United States is the role of the courts. In the United States legal system, the courts serve a fundamental purpose. The courts, or judiciary, exist as one of the three branches of government. The judiciary functions as a check on the other two branches, executive and legislative, in order to balance the system and separate powers. In contrast, in China, the courts do very little (Li 1977). Most disputes that arise are handled with more informal means, including adjudication and mediation. Hence, a river protection system designed to meet the needs of the Chinese must function within a broadly based law, which can be upheld without requiring the participation of courts. Since extensive administrative rule-making does not occur, the language of the law must clearly and explicitly state what it aims to accomplish and how it is to be enforced (Lubman 1996). In addition, the courts do not play a leading role when disputes arise over interpretation of a law. Therefore, since neither lawyers nor the courts are actors in law-making in China, litigation should not be relied on to produce the desired results after a law is enacted.
Methods

I. Basic Steps Required to Meet Objectives

1. **Identify the Benefits of River Protection** – we will conduct a thorough literature review using books, journals, grey literature, relevant online resources, and interviews with external advisors, clients and key experts.

2. **Analysis of River Protection Systems** – based on a case-study research design we will look at river protection systems in several countries, including the US, Canada, and the EU as well as look at current systems in place in China. We will examine the history, implementation, and legal statutes for each of these systems to gain insight to the features that bring success and failure to protection.

3. **Examine the Chinese legal system** – we will look at the Chinese legal system in order to better understand how laws, specifically those pertaining to water resources are both written and implemented.

4. **Establish a set of recommendations for permanent protection of rivers** – given our findings from the previous three objectives, we will be prepared to suggest river protection measures tailored to the Chinese context.

5. **System for designation of potential rivers for protection** – after completion of our case-study research and preparation of a set of recommendations, we will create a decision support tool. This tool will incorporate the environmental, social and economic impacts into decisions made in favor of river protection for specific rivers in China.

II. Description of Data and Sources

- Publications including books, newspapers, EIAs, and journal articles*
- Laws and statutes: U.S. Wild and Scenic Rivers Act, Canadian Heritage River System, China Water Law, China Environmental Protection Law, etc.
- Interviews and consultation: with clients, external advisors, NGOs, experts
- Lexis-Nexis, THOMAS and Web of Science Databases

*Our group will need to obtain these texts translated into English.
III. Description of the Analysis

- Our analysis will be based on a case-study research design.

  - Initially, our group will investigate the drivers of successful or unsuccessful river protection systems around the world using a matrix.

  - We will develop a method of case-study selection through the construction of this matrix, which will be based upon a series of hypotheses about which drivers are most powerful. A research design book, Designing Social Inquiry (King, Kohane, and Verba) will be useful to us in selection of applicable case-studies and in formulation of a focused research objective.

  - In order to test our hypotheses we must find cases of success and failure of river protection systems (or the lack thereof) in order to identify key variables that account for similar or different outcomes. Thus, we can demonstrate the specific attributes of systems driving the variation in outcomes.

  - Our case-studies, both of river protection success and failure, will be our dependent variables and the attributes driving variation (drivers of protection and drivers of development) will be our independent variables. Our dependent and independent variables will be displayed in a matrix. Cells of the matrix will be filled in as appropriate. Our independent variables may include “Type of Political System”, “Stage of Economic Development”, “Degree of Enforcement”, “Capacity for Hydropower”, or “Uses of Rivers”. (this is kind of unclear, but I’m not sure how best to say it --- see what you can guys can do with it – and I’ll look at it again on Sunday?)

  - Many successful river protection systems have been implemented in democratic countries such as the United States and Canada. Since China is a Communist nation, we should also examine a case-study of river protection in a country with a similar political system, or look at a country that is similarly large and regionally diverse. Freedom House Scores data may help guide our selection of countries to compare and contrast.

  - Since we will not be able to analyze all of the factors we believe may be driving successful or unsuccessful river protection, we will focus on factors that offer the most significant support about the claims we make in assertion of success or failure.
Our research design will help us to determine the attributes and conditions that are necessary for an effective system for river protection. Then we can better foresee the applicability of particular measures to the Chinese context.

Our case-studies analysis of river protection systems, along with our analysis of the current political, legal, environmental climate in China will precede our creation of recommendations and decision support tool for permanent river protection.

Our research will be molded into a comprehensive report that will be useful to our clients and to parties in China interested in the applicability of a permanent river protection system into the Chinese context.

IV. **Identification for Choice of Method and Data**

A case-study research design is a useful method of analysis for our project because it will allow us to test specific hypotheses and narrow the focus of our research. This method allows us to organize and focus our analysis so that we can conduct effective research within both our time and resource constraints.

We recognize that we will not become experts on China, Chinese history, or the Chinese legal and institutional structure over the next three quarters. We do not expect to understand the depth of the political and legal context in China, and we can only begin to look at current water resources management in reference to China’s immense history in that realm. So, even while we attempt to draw conclusions from our research, we must be attuned and sensitive to the social, cultural and historical context of China. In addition, broad generalizations may prove useless and even recommendations that seek to be extremely specific may extend beyond our expertise.

Consultation with Chinese experts, especially those connected to decision-makers, will help us to ensure that our research and recommendations are sensitive to cultural and social values in China. Consultation with experts will also aid us in our understanding of the decision-making processes that characterize China, and this lens may allow us to determine the likelihood of adoption of our suggestions.

The research that we will conduct will be useful to our client and to their partner organizations. The interdisciplinary knowledge that we are developing as Bren students will be extremely useful in achieving our objectives and in communicating with a variety of stakeholders since we will pull from a variety of disciplines - including, biology, ecology, geography, political science, and law - in our research and work.
Contacts

Opportunities for links with outside advisors and the professional environmental community

The China Rivers Group Project is international in scope. We understand the significance of making connections with experts both from the Bren and UCSB communities, but also with outside researchers and professionals. We want to communicate regularly with our advisors, who have expertise in the legal system both here and abroad, and especially who have research interest and hands-on field experience in China. Additionally, we hope to create links with researchers and professionals whose foci are Chinese law and environment, or the law in relation to the environment in other countries where our case-studies are focused.

Our faculty advisor, Professor Robert Wilkinson, studies and teaches courses in water policy and global climate change. Our two additional Bren advisors are Professor Oran Young (Institutional and International Governance and Environmental Institutions) and Professor Tom Dunne (Geomorphology, Hydrology). Professor Hilal Elver, of the Global Studies department, famous for her writing and work in transboundary water issues, serves as an external advisor to our team.

Since we plan to familiarize ourselves with the Wild and Scenic Rivers Act of 1968, and better understand its implementation, as well as its successes and failures, we plan to speak directly with our client, Mike Gheleta (Brownstein Hyatt Farber Schreck, LLP), but also make contact with experts at Friends of The River (Sacramento, CA), and at American Rivers (namely Jack Hannon and David Moryc). For a better understanding of the Canadian Heritage System, we will consult with Juri Peepre and Mark Angelo of the BC Institute of Technology Rivers Institute. To look at Europe, we will likely consult with Professor Elver. To look at Brasil or India, we will be able to speak with Glenn Switkes and Ann Kathrin Schneider, respectively, both of International Rivers (Berkeley, CA). Other contacts will be determined once appropriate case-studies are selected.

And finally, some of the most important links will be those made with people in China, who understand the complexities of even considering a permanent river protection system for the Chinese. Principally, we hope to speak, and maybe even meet with journalist and environmentalist, Ma Jun, who is the director of the Institute for Public Affairs in China. Additional contacts might include Yu Xiaoagnag (Director of China Green Watershed), Li Bo (Director of Friends of Nature), Sun Shan (Director of the Shan Shui Conservation Center), Yang Xin (Green River) and Tashi Tsering (Tibet Justice Center). We plan to be in contact with professionals and academics here that have experience with China as well. Some of these people include Professor of Chinese rural economics, Phil Brown (Colby College), Christine Tam from the Natural Capital Project, Professor of Law, Robert Percival (University of Maryland) and Professor of Political Science and China expert, Susan Shirk (UCSD).
Management Plan

Group Structure and Management

Group Members:

- Matthew Freiberg
- Hanna Jacobsen
- Lydia Leclair
- Carly Wilburton

Faculty Advisor:

- Professor Robert Wilkinson

Advisory Committee

Clients:

- Kristen McDonald, China Rivers Project
- Michael Gheleta, Attorney, Brownstein Hyatt Farber Schreck, LLP

External Advisors:

- Tom Dunne
- Oran Young
- Hilal Elver
- Various other external advisors to be determined

Group Roles:

<table>
<thead>
<tr>
<th>Role</th>
<th>Financial Manager</th>
<th>Internship Coordinator</th>
<th>Web Manager</th>
<th>Data Manager</th>
<th>Scheduling Manager</th>
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</thead>
<tbody>
<tr>
<td>Member</td>
<td>Matthew Freiberg</td>
<td>Hanna Jacobsen</td>
<td>Lydia Leclair</td>
<td>Carly Wilburton</td>
<td>Hanna Jacobsen</td>
</tr>
</tbody>
</table>

*Financial manager* is responsible for handling our finances as prescribed in the Group Project General Guidelines.

*Web manager* will design, create, and manage the group’s website.

*Data manager* will compile and actively revise our literature review (catalog hardcopy literature), as well update our list of contacts/advisors.

*Scheduling manager* is responsible for scheduling group meetings via Corporate Time, and making contact with advisors/clients to ensure attendance.
Meeting Structure

Weekly meetings with our faculty advisor will be held on campus, and Lydia will provide an agenda to be distributed prior to each meeting. The agenda will guide the course of the 1-3 hour meetings. Following each meeting, brief minutes will be recorded by Carly, who will be sure to note the weekly deliverables that each team member is responsible for accomplishing. This will keep team members on track, and aware of the tasks that should be completed each week. For Spring quarter, weekly meetings will be held on Tuesdays from 12-1:30; however Prof. Wilkinson’s availability varies weekly due to his travel schedule. Therefore, we will be flexible with his schedule, while respecting the group members’ availability. We will also have meetings with our clients via conference call and in person throughout the duration of the project. At least once per quarter we hope to meet with our clients in person either here in Santa Barbara, or in Berkeley, CA.

Responsibilities of Group Members

We will hold the roles listed above for the Spring 2009 quarter, and determine the duration of the roles beyond this quarter in June. At this time, we have not assigned a project manager. A project manager may be assigned at a later date if more structure is necessary to accomplish the group’s goals.

Systems to Ensure Deadlines are Met

All group members will have access to a calendar --either Google Calendar or Corporate Time-- that details our availability and our project deadlines. Calendars will be consulted often, so that all members are aware of upcoming and future deadlines. Corporate Time will be especially useful in this respect because of the “reminder email option” which notifies, via email, all group members of upcoming deadlines and meetings. In addition, the weekly minutes will include a brief reminder of the tasks assigned to group members. Most importantly, group members will stay in close communication with one another.

Conflict Resolution Process

We are hopeful that our group will not endure intense conflicts between members, but we recognize that we must feel comfortable in expressing our concerns and frustrations with one another. Our group members have different backgrounds and specific interests in the project; however, our group is confident that we can work to find constructive, efficient ways to combine our interests and create a project that is representative of all of our skills and interests. Communication is key in this endeavor. Our group plans to meet regularly, as mentioned above, so that we develop a rapport and operate with an understanding of each team member’s personality and work ethic. We understand that some weeks, a team member’s ability to contribute will be limited, or conversely, be increased. Therefore, we will communicate about the events/assignments/etc. that pertain to our work outside of this project, so that we can have realistic expectations for one another.

In order to prevent tension that might hinder our ability to work constructively, we will speak directly with one another about our concerns, so that issues are actually resolved in a calm, respectful manner. This will be done on a one-on-one basis or in a group setting, depending upon the specific conflict. All efforts will be made to resolve conflicts or ill feelings before they escalate or need to be addressed with outside assistance.
If a conflict does escalate to an irreconcilable scale within the group, we will seek the assistance of our faculty advisor, Bren School Administration and/or the services of the UCSB campus ombuds office for mediation.

**Procedures for Documenting, Cataloging, and Archiving Information**

As per the duties of the Data Manager, Carly will have access to a shared directory housed on a Bren School Windows system server. Within the directory, our group will have a Windows Group, “China Rivers”, in which all group members will have permission to add folders and files. The Data Manager will be responsible for organizing this electronic information. Hardcopies of literature will be cataloged into a portfolio. Books and periodicals will be accessible to all group members in a designated group member’s Bren locker or assigned Bren Commons group project space.

**Guidelines for Interacting with Faculty Advisors, External Advisors, Clients, Customers, or Consultants**

Our faculty advisor will attend scheduled group meetings at least once per week, with the opportunity to attend additional meetings. Our advisor wishes that pertinent email correspondence be forwarded to him as well. Our clients will be forwarded emails less frequently due to their busy schedules. Emails will be forwarded to clients when deemed appropriate by the group. Our group is expecting a higher than average degree of interaction with our clients due to the nature of our project and to the expertise they possess.

We expect to be in close communication with our clients, and our progress will be shared with them regularly. When the group finds it beneficial to seek the review of our clients, we will send an electronic copy of our documents in progress to them. We expect our clients to require at least a week to review a document. When a document is sent for review, we will inform the client if a document review is needed at an earlier time and also ask the client if they need additional time to review our work.

Our group’s primary methods of communication with clients and external advisors will be email, telephone (including conference calls), and occasional in-person appointments. Our clients will be sent electronic documents, except when meetings are scheduled in person; in this case, a hard copy of relevant documents will be provided. Every attempt will be made to meet with our clients at least once per quarter in person. We understand this may be difficult since neither works within a close proximity to Santa Barbara, and both maintain busy schedules.

**Overall Expectations of Group Members and Faculty Advisors**

Our group welcomes the active involvement of our faculty advisor, Robert Wilkinson, due to his extensive knowledge of China and to his expertise in water policy. Our advisor has expressed his personal interest in this project and therefore our group is expecting a fairly high degree of involvement. While our advisor will provide us with guidance and feedback, our team will develop the project in such a way that we accomplish both our clients’ and our personal goals.
Timeline

2009

**May**
21: @ 2 p.m. In-class presentation
26: Final Proposal Draft Complete

**June**
8: @ 3:30-5:00 p.m. Proposal review with advisors
Conference call with clients and Ma Jun (China)
12: One page summary of proposal review meeting complete
12: Weblink due to GP Coordinator

**July-August**
Continue Literature Review and Research; Matrix completed for case-study selection

**September**
Research for each objective should be complete (1-3)

**October**
By the end of the month, we should be midway through our objectives (1-3)

**November**
Objectives 1-3 should be complete
Recommendations will be finalized (Objective 4)
13: Progress Reviews must be completed

**December**
Decision-making tool and guidance document will be completed
Draft report will be sent to clients, advisors, and our Chinese contacts
GIS overlay of candidate rivers or river sections will be complete if time allows
4: Written Progress Report; Self/ Peer Evaluations

2010

**January**
Project Defenses

**February**
15: Draft of final report to Faculty Advisor

**March**
10: Submit presentation program abstract
19: Final Report with all signatures due: hard copy and pdf version due to GP Coordinator
19: Submit Self/ Peer Evaluation to Faculty Advisor and GP Coordinator: form on website

**April**
Take group photos with Faculty Advisor to use on the first Final Presentation slide
Submit PowerPoint presentation to the Faculty Advisor for review
Optional practice and videotape of presentation
Group Project Presentations; when finished, give posters to GP Coordinator
## Projected Budget

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<tbody>
<tr>
<td><strong>Project Code</strong></td>
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<tr>
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<tr>
<td><strong>Final Products</strong></td>
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<tr>
<td>Poster Printing (2 copies)</td>
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<tr>
<td>Binding (7 copies)</td>
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<tr>
<td>Briefs ($1.50/copy)</td>
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<tr>
<td><strong>Materials</strong></td>
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<td>Books</td>
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<td>Copies and printing</td>
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<tr>
<td><strong>Travel ($0.55/gallon)</strong></td>
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<tr>
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## Finances Used

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Budget Justification

The Donald Bren School of Environmental Science & Management provides us with a budgetary contribution of $1,300 plus a $200 printing stipend.

Description of anticipated expenses:

- **Poster Printing:** Four hundred dollars were allocated to printing of our final 4’X6’ poster to allow for two printings in the event of an unsatisfactory first printing.
- **Binding of Final Report:** $175 was earmarked for printing and binding of our final report. We expect to print 7 copies at around $25 per copy for high-end printing.
- **Printing of Briefs:** Seventy-five dollars have been set aside for printing of our final briefs to be handed out in at our final presentation. We expect to spend about $1.50 for each double-sided color copy.
- **Books:** Much of our project will require an extensive literature review. We hope to make the UCSB library and online journals our principle sources of materials; however, we will need to allocate funds toward harder-to-find works. 200 has been allocated for attaining these books.
- **Copies and printing:** The Bren School has provided us a $200 stipend that will be equally distributed among group members to print articles and drafts of our documents as needed.
- **Travel:** We may take one or two trips over the next two quarters to meet with our client, Kristen Mc Donald, in Berkeley. The travel costs include the cost of gas alone. Members of our group will cover all other expenses.
- **Entertainment:** So far, $70.39 has been spent on providing lunch for a meeting with both our clients and our faculty advisor.

The sum of our expenses leaves us with a modest surplus of $13.63 to be allocated as needed in the future.
References


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