

MISSING TITLE PAGE

Table of Contents

List of Tables and Figures.....3

List of Acronyms.....3

Abstract.....4

Chapter I: Introduction.....5

 a. Cultural Importance of the Alps.....5

 b. Climate Change and Water Issues.....6

 c. Methods.....10

 d. Overview of Chapters.....11

Chapter II: Switzerland.....12

 a. History and Traditions of the Alps and Switzerland.....12

 b. Industry, Innovation and Economics.....13

 c. Current Government, Direct Democracy and Law-making.....14

 d. Neutrality, International Isolation and National Environmental Governance....17

 e. Conundrum of Economics and Environment in Switzerland.....18

 f. Conclusion.....20

Chapter III: Organizations and Documents.....22

 a. United Nations Educational, Scientific and Cultural Organization.....25

 b. Organization for Economic Cooperation and Development.....26

 c. World Conservation Union.....28

 d. International Commission for the Protection of the Alps.....29

 e. Alpine Convention.....30

f. European Environmental Agency.....	31
g. Climate and Environment in Alpine Regions.....	32
h. Conclusion.....	33
Chapter IV: Strategies and Motivations.....	34
a. Introduction and Literature Review.....	34
b. Strategies: Information Provided, Policy Action, and Recommendations....	39
c. Motivations: Environmental Interests versus Economic Interests.....	46
d. Conclusion.....	48
Chapter V: Comparisons and Connections.....	49
a. Introduction and Literature Review.....	49
b. Comparisons.....	52
c. Connections.....	54
d. Conclusion and Future Research Ideas.....	55
Chapter VI: Conclusion.....	57
a. Conclusions about International Environmental Governance.....	57
b. The Future of the Alps.....	57
Appendix.....	59
Bibliography.....	60

Tables and Figures

Table 1: A Summary of Organizations and Documents of Analysis.....24

Table 2: Information, Policy, and Recommendations within Documents.....38

Table 3: Environmental Interest versus Economic Interests within Documents...45

Figure 1: Comparisons and Connections.....52

Acronyms

CIPRA	International Commission for the Protection of the Alps
CLEAR	Climate and Environment in Alpine Regions
EEA	European Environment Agency
EU	European Union
IUCN	World Conservation Union
JAB	Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site
OECD	Organization for Economic Cooperation and Development
NGO	Non-Governmental Organization
UN	United Nations
UNESCO	United Nations Educational, Scientific, and Cultural Organization

Abstract

The Alpine ecosystem of the European continent represents a diverse and vulnerable center of natural water management. Global climate change caused a significant increase in average temperatures in the Alps in the past century. Also, precipitation patterns were severely altered due to global warming. Because of the practical and aesthetic value of this unique natural resource, international organizations are concerned with the conservation of the Alps and are attempting to reverse the negative effects. Two main priorities or agendas emerge within the realm of those fighting environmental problems in the Alps: the need to sustain economic forces such as winter tourism or industry, and the need to sustain the Alps as a natural habitat for both its beauty and ecological contribution to the water system of Europe. In order for us to preserve this special region, we must attempt to find a compromise between development and conservation. The nature of international organizations, however, is not conducive to creating environmental policy or action.

Chapter I: Introduction

When I began researching climate change in the Swiss Alps, I expected to find a plethora of information concerning the policy and action of different international organizations in the Alps. There is an enormous amount of information concerning negative environmental issues in the Alps, but there is a lack of environmental policy action and regulation from international organizations. I discovered that concern for economic preservation and development is more important than environmental policy at the international level. The future of conservation at the international level is bleak, and a more involved strategy is necessary to solve environmental issues. Using Switzerland and six international organizations as examples, I examined the international response to climate change in the Swiss Alps.

Cultural Importance of the Alps

The European Alpine climate reaches from Slovenia to France, covering parts of Germany, Liechtenstein, Italy and Switzerland. The ecosystem hosted by the mountain range is a natural and diverse habitat that acts as an important part of the hydrological cycle of Europe. The Alps are part of a mountain belt that stretches across Europe to the Himalayas. I lived and studied in Fribourg, Switzerland for a spring semester. Fribourg is a small city located an hour from Grundenwald and Interlaken (the favorite ski resorts of thousands of visitors each year). I soon fell in love with the beauty of the Alps, which were visible from my third-floor apartment window. The rich culture and natural beauty represented by the Alps have had many global effects. As a child I can remember spinning and singing in my backyard in imitation of Julie Andrew's character Maria in the 1965 film *The Sound of Music* (my mother's all-time favorite movie) set against the Alpine background.

Folklore, art, traditional industry, historic neutrality, and many other attributes of the Alpine region have played a large part in the creation of cultural ideas about nature. The mountains have influenced not only visual artists but also important writers, ranging from Swiss-born Jean-Jacques

Rousseau, to English Romantics Lord George Byron and Percy Bysshe Shelley. His wife Mary Shelley wrote *Frankenstein* partly set on Lake Geneva, and American novelist Henry James set his novella *Daisy Miller* in the beautiful ruins of the Chateau de Chillon near Vevey, Switzerland. Also, who could forget Johanna Spyri's 1880 novel *Heidi* set against the Alps? This unique landscape has captured our imagination for centuries. We are now faced with the decision of how to preserve it. The increased accessibility of the beloved Alps is becoming harmful to the environment. Policy measures to control development are necessary before it is too late to save the mountainous cultural icon.

Climate Change and Water Issues

The Alps are a complex and sensitive center of natural water management for much of Europe. Erosion, loss of biodiversity, introduced species from farming, increased contamination of water due to tourism, and rising temperatures are some of the issues that threaten to destroy the Alps. The Alpine region of Europe is divided into five climate zones that make up different ecosystems for the plants and animals living there. The section above 3,000 meters, referred to as the neve zone, is the coldest and least hospitable to plant and animal life because it is permanently covered in snow. The next zone is the alpine zone, between 2,000 and 3,000 meters, that hosts wildflowers and grasses. The subalpine zone is 1,500 to 2,000 meters and is home to forests of fir and spruce trees naturally equipped to survive at this elevation. Below the subalpine zone lies the arable zone, the home to farming land and oak trees. Below 1,000 meters are the lowlands. This zone holds much biodiversity of both plants and animals. This is also the section where most human villages are located because the temperature is conducive to life. We can also find Edelweiss, the iconic small, white Swiss national flower, at this altitude. As temperatures rise in the Alps, glaciers are slowly receding to higher altitudes, causing changes in the system of climatic zones and Europe's water supply.

The geological and ecological history of the Alps is a pristine example of mountain formation.

Scientists from all over the world look to the Alps for research on the geological history of the Earth. According to Andrew Beattie (2006), the mountain range was created by millions of years of rocks folding over one another, creating an example of continental movement and plate tectonics (p. 7). During the ice age that took place roughly 20,000 years ago, the Alpine region was completely covered by glaciated ice. Moving glaciers are the most important part of the Alpine water supply system; they continue the slow retreat up that they began at the end of the most recent ice age.

In recent decades, however, we can see the accelerated affects of melting glaciers and the reduction of snow caused by human forces. In his 2006 documentary film *An Inconvenient Truth*, Al Gore uses the Alps to demonstrate the visual effects of climate change by comparing photos of the Alps fifty years ago to more recent photos, giving the audience a clear view of the melting snow and glaciers. In another attempt to highlight the changes in the Alps, *The Age of Stupid*, a 2009 film by Franny Armstrong, takes a closer look at the receding ice through the eyes of a mountain guide who has witnessed these changes throughout his lifetime and has acted against expanding transportation infrastructure on the Mont Blanc glacier in France in an attempt to sustain his beloved Alps.

In the past century, global warming has led to an increase in temperatures in the Alpine region. Also, precipitation patterns have been severely altered due to global warming. Several important water sheds of Europe including the Danube, Rhine, Po and Rhone Rivers receive most of their headwaters from the Alps. Smaller lakes and tributaries also receive water from the Alps. During the winter, large amounts of water are stored as ice in glaciers, lakes and soil; this melts in spring and summer to feed many of Europe's most important rivers. The Alps are commonly referred to as the “water towers” of Europe because of the large reservoir of fresh water held in Europe's largest mountain range. However, increasingly variable temperatures and precipitation trends have altered the flow and water quality of rivers that depend on the Alps.

Global warming in the Alps has many causes. According to Mojca Golobic (2010), “The main

historical driving forces that have changed landscapes, namely, traffic (accessibility), socioeconomic shifts (urbanization and globalization), and tourism, are still driving landscape change in the Alps” (p. 271). In the past century, transportation technologies have allowed a much larger volume of visitors and transporters to transverse the Alpine region leading to a strain on the ecosystem. Within the socioeconomic realm, Golobic (2010) finds, “The main trend is polarization, which is reflected in the Alpine landscape as urban sprawl and intensive tourist use on the one hand and extensification and abandonment of poorly accessible areas on the other” (p. 271). The Alps are becoming polarized into two zones: densely populated cities and tourist areas, and deserted rural areas. This polarization leads to increased environmental degradation because of the imbalance it creates.

The Alpine region is made up of a mosaic of geographical and socioeconomic divisions that influence environmental measures in each region. The three main developmental issues that face the Alps are the trend in polarization, natural resource management such as water issues, and increased accessibility that leads to transportation pollution (Golobic, 2010, p. 272). Landscape alteration has been greatly accelerated by globalization, common markets, and other economic movements of the past century. The alteration of the Alpine landscape because of economic incentives and global trends in development are part of the cause of environmental problems in the Alps.

Global warming that affects the Alps is not only generated within the region. Tourism and transportation issues do contribute slightly to the worldwide percentage of greenhouse gases but not a significant amount. The Alps are, however, experiencing changes because of climate disturbance. My analysis focuses on how international organizations are attempting to reduce emissions in the Alps and to control systems that have been disrupted by climate change. Nations like Switzerland that do not produce a significant amount of greenhouse gases but are affected by the emissions of other nations, will soon rely on international organizations to prevent environmental degradation.

International organizations and policies are needed to protect the Alps as we face a new frontier

of human globalization and environmental law-making. The economic factors that drive globalization and environmental degradation are major concerns of international organizations. A compromise between the factors outlined by Golobic and environmental preservation practices must be reached to preserve the Alps and the water system of Europe.

Global climate change is causing increased temperatures that are disruptive to the hydrological cycle of the mountains. International intervention is necessary to combat these problems. According to the European Environmental Agency (EEA)'s November 2009 report, the Alps, “have undergone an exceptionally high temperature increase of around + 2 °C between the late 19th and early 21st century, more than twice the rate of average warming of the Northern hemisphere” (p. 17). Precipitation has also been altered, increasing in some regions while decreasing in others, and leading to an overall trend of imbalance. Temperatures are projected to continue to rise with accelerated speed in the next hundred years. The Organization for Economic Cooperation and Development (OECD)'s report entitled “Climate Change in the European Alps: Adapting Winter Tourism and Natural Hazards Management” (2007) cites the vulnerability of winter tourism and the shift of many resorts to producing artificial snow in the wake of climatic crisis. The change from snow to rain in winter precipitation will increase water run-off in the winter and decrease previously normal trends of run-off in the summer. Decreased or extremely variable drinking water supply and border changes due to melting ice are only two of the problems that could lead to international conflict within Eurasia because of the effects of global warming in the Alps. Because the Alps create borders between several nations, changing water flow could alter borders and lead to national conflict. Other problems such as increased landslides, amplified flooding, summer droughts, and a complete depletion of winter tourism (a major contributor to the economies of all Alpine states) are also concerns that must be addressed. Compromise between the economic forces that cause environmental degradation and conservation practices is at the forefront of international relations between Alpine states in an attempt to preserve not only the beauty of the

mountain range but also the water supply of Europe. Are we willing to sacrifice this unique habitat for economic development, or can a compromise be fostered?

Methods

Because of the practical and aesthetic value of this unique natural resource, all levels of society, from transnational organizations to grassroots community campaigns, are concerned with the conservation of the Alps. In this paper, I reviewed the efforts and motivations of six different international organizations. I focused on the conundrum between development and sustainability concerning water issues in the Alps by looking at different types of organizations and examining the way they address economic and environmental issues. I also examined the history of seven groups and one publication from each group in order to understand how international organizations are responding to climate change. The organizations I chose to study are the World Conservation Union (IUCN); the United Nations Educational, Scientific, and Cultural Organization (UNESCO); the International Commission for the Protection of the Alps (CIPRA); the Organization for Economic Cooperation and Development (OECD); the Alpine Convention; the European Environmental Agency (EEA); and the Climate and Environment in Alpine Regions (CLEAR); the last is funded by and representative of the Swiss government. These seven groups are the most relevant transnational organizations and networks that work towards the preservation of the Alpine ecosystem. I analyzed seven documents (one by each organization) concerning issues in the Alps and means to combat problems. I examined each publication through the lenses of three different ideas: what type of information or policy measures are presented or recommended by each group; the implications of decision-making at different levels of governance; and finally the overall conundrum between conservation and development within the sphere of international organizations. I read each document, took specific notes, and created standards and criteria to compare them.

Overview of Chapters

In Chapter II, I examine why Switzerland is different from other nations in responding to climate change. Direct democracy, decentralized government, and a cultural history of traditional values and technological innovation, have all given Switzerland a unique context of fighting environmental degradation. Also, the conundrum between conservation and economic development is heightened in the Alps because of the reliance of economics upon the natural beauty of the habitat.

In Chapter III, I look to the histories and goals of each organization or group to better understand their place in the analysis of international policy on environmental factors. I also introduce the seven documents of analysis. The seven documents I chose are the most important publications concerning the environmental and developmental issues in the Alps in the wake of climatic destruction and economic worries. They are also a good sample of international environmental policy.

In Chapter IV, I begin deciphering the motives of each organization by looking at what each does in the fight against climate change. Many organizations' goal is to provide sound research, while others are involved in policy implementation. I also look at motivations (environmental interests versus economic interests) of each organization.

In Chapter V, I look to the levels of governance and interconnectedness of the organizations I am studying. How do they fit into the overall transnational or national framework of organizations? How are they related to each other in a network of Alpine expertise or policy action? I am interested to see which groups have the strongest connections.

Finally, in Chapter VI, I form conclusions from my analysis and make comparisons to other areas of the world. I believe the Alps are an example of environmental and economic preservation that can be used to study other mountain ranges. Also, the future holds many implications for other research concerning the Alpine response to climate change.

Chapter II: Switzerland

Switzerland is an interesting example of the battle against climate change because of its unique history, its economic condition, and its tendency of neutrality. Switzerland is also a special case because it does not heavily contribute to greenhouse gas emissions but is subject to the effects of global warming. Nations like Switzerland that are affected by global warming need international governance to regulate emissions from nations that are heavy polluters. Technological innovation and an appreciation of traditional life form the basis of current Swiss culture. Ideas specific to Switzerland concerning government, economy, and cultural landscape are a means to uncover how to fight global warming in the Alps.

History and Traditions of the Alps and Switzerland

Before Switzerland began its long road of neutrality in the twentieth century, the Alpine region was a place of military conquest. The history of the Alps consists of “constant fighting between the ethnic, linguistic, religious, and national groups that have occupied the mountains over the millennia” (Beattie, 2006, p. 23). From the Romans, to the Celts, to modern nation states that claim control of the region, humanity has taken a toll on the natural state of the region. The beginnings of Christianity and the formation of the Holy Roman Empire in Europe created a feudal system with dukes and princes, many of whose castles still exist today. The full-scale invasion of the Alps during the Napoleonic Wars led to a reaffirmation of Swiss neutrality during both World War I and World War II. Many factors led to the creation of a rich culture influenced by French, German, and Italian heritage in and around the Alps.

Traditionally, mountain dwellers were peasant farmers living in conditions bordering on poverty. One example of a traditional industry still practiced in Switzerland is cheese production. This industry continues to be a crucial part of the economy of the Alps as in Gruyeres, Switzerland, a town

just outside Fribourg that hosts a cheese factory and a medieval castle surrounded by cobblestone streets and cafes. As technological advances created easier ways to produce agricultural products, farmers and other Alpine workers are leaving traditional practices behind and switching to easier but more destructive techniques. Another example of traditional farming is the spring and summer movement of cattle up and back down the mountains. Within the realm of government, tradition also reigns supreme. The Swiss continue to opt for paper ballots counted by hand, and women were not granted the right to vote until 1971. This shows the strong ties many still feel to the traditions of the past and the historic culture of the Alps that has led to an increased value of environmental protection.

Industry, Innovation, and Economics

Metal ore and salt mining, and timber trade are also practices that have dominated the economics of the Swiss Alps for many years. With the expansion of forestry, mining, and farming came industry and trade. In the past one hundred years, advances in transportation technology such as railways, mountain roads, and cable cars as well as the development of winter sports such as skiing and tobogganing have led to increased tourism. This boom in tourism now dominates the Alpine economy. Tunneling through the Alps brought tourists and heavy trucks through the once-treacherous landscape. From sky-diving in Interlaken to eating fondue at a sidewalk cafe, the Alps are a lovely place to visit and traditionally considered the playground of wealthy Europeans. According to swissworld.org (2011), tourism contributes roughly 1.5 billion Swiss Francs to the economy annually and the service industry contributes 71% of the Swiss economy. This surge of expounding tourism, however, not only pumps money into the economy of the Alps, but it also threatens to destroy the natural beauty and health of the region.

The Swiss are globally known as innovators in the realms of both science and culture. From CERN's particle collider near Geneva, to tunneling through the Alps for transportation purposes, the

Swiss are a productive and innovative people. Land management practices as well as community-led conservation have made a big difference in the Alps. Increased transportation, agriculture, and service technology, however, are major causes of environmental degradation. However, the causes of global warming are on an international scale, and the Swiss are only able to solve a small part of the problem. The aid of international organizations is necessary. In the future, the Swiss will use their propensity for innovation to combat the effects of climate change in their own nation, but international institutions are still needed.

In the realm of current economics, Switzerland, with its roughly 7.7 million citizens, enjoys one of the most stable economies on the planet, with a GDP of about \$300 Billion. Comparatively, it has a very low level of federal deficit, equaling less than 1% of GDP. The stability of the Swiss economy allows for the nation to concern itself with issues of the environment. Perhaps in the future, the Swiss will emerge as a leader in the global fight against climate change because the nation is heavily affected but not overtly responsible.

Current Government, Direct Democracy, and Law-making

Switzerland, or the Swiss Confederation as we know it today, was formed in 1848, unifying small parts of a loose confederation of states that existed for centuries before the formation of the nation. The confederation consisted of culturally different groups that create the diverse nature of Switzerland. The current Swiss Confederation consists of twenty-six cantons (self-governing districts), with Bern as its capital.

Switzerland is the best example of national-level direct democracy. Conservative politics and tradition, however, rule the politics of many Swiss nationals. For example, women were not eligible to vote until 1971, displaying the Swiss tendency to hold tightly to traditional culture. Citizens have the opportunity to challenge any law. Several times a year, the Swiss vote in public elections and

referendums. Swiss citizens are regularly involved at all levels of decision-making and directly vote on a vast array of legislative issues, ranging from civil rights to budgetary issues. The referendum is the principal medium within the Swiss electoral system and allows for participation of Swiss citizens in specific legislative matters. Referendums are mandatory for amendments to the federal constitution and are optional for any new law or amendments to existing laws. The referendum model specifically allows for citizen input, which generally shows up at the end of the decision-making process, and can effectively act as a veto, blocking or temporarily delaying the current state of political action if citizens do not agree with the desires or actions of the federal government.

Modifications to the Swiss Constitution begin with a legislative proposition or a popular initiative of 100,000 citizen signatures and require a double majority of votes at the individual and cantonal level. In his article “Democracy from Below: Environmental Concerns and Swiss Direct Democracy,” Adrian Schmid (2003) notes the use of the right of initiative. The right has been invoked 300 times but was only successful thirteen times, because of the requirement of the double majority of both those who vote nation-wide and those who vote in each of the twenty-six cantons (Schmid, 2003, p. 61). According to Adrian Schmid (2003), only a few initiatives have been successful concerning the protection of the moorlands, a ten-year ban on the construction of new nuclear power plants in 1991, and a measure to protect the Alps from heavy transit in 1994 (p. 62). Because of the low success rate of initiatives, these three environmental policies show rare national unity concerning the protection of the environment. Schmid (2003) goes on to note the success story of the campaign to protect the Alps, not only through the initiative, but also through technological innovation.

Currently, a new tunnel is being constructed connecting the German and Italian speaking parts of Switzerland and will be the world's longest tunnel, at 57 kilometers; the tunnel is an answer to the initiative won a few years past to protect the Alps from the destructive construction of new highways and roads throughout the mountains of the region, which would have had multifaceted

impacts on the environment. We forced a major change in orientation with the construction of the less damaging tunnel, and this is considered a major success for Swiss environmental organizations (p. 63).

The people of Switzerland intend on holding the government accountable to the fight against transportation damage in the Alps. The initiative passed by a small majority and requires foreign truck transport to be taken across the Alps by rail (*The Economist*, 1994). The article also notes that the new initiative, “delights environmentalists and rail enthusiasts but infuriates the Swiss government and the European Union” (*The Economist*, 1994). Thus, smaller regional groups are more concerned with environmental action at the expense of development than even the national government and definitely international bodies.

The Swiss political model is best defined as bottom-up federalism. Thus, starting from the smallest political unit, the commune, political sovereignty exists. The actions of the canton, the next higher level, and the confederation, the federal level, will not impinge on the desires or wishes of any smaller unit. Specific exceptions exist, such as those in the areas of national security, postal service, or transportation infrastructure; but for the majority of public issues, it is up to the local government to devise a plan, make a budget, and execute. As a result, each canton is able to make major decisions about environmental policy and Swiss citizens have a firmer grip on policy measures. The leaders of the national government are less powerful than a more centralized democracy like the United States.

Switzerland's environmental governance sector is referred to as the Federal Office for the Environment (FOEN) and is responsible for constantly monitoring water resources to prevent pollution, overuse, and flooding. An addition to their constitution that specifically protects waterways from misuse displays the environmental concern of the Swiss. The nation prides itself on the pristine condition of water. Eighty percent of drinking water in Switzerland comes from groundwater (runoff from snowmelt in the Alps) (swissworld.org, 2011). Tourism as well as agriculture are concerns of

FOEN as water pollution threatens the nation's water supply. On a global level, Switzerland contributes a minimal 0.2 percent to worldwide carbon dioxide (CLEAR, 1998, p. 373) but is highly affected by global warming because of the vulnerability of the Alps.

Neutrality, International Isolation, and National Environmental Governance

Switzerland has a long history of neutrality and political isolation. In the wake of environmental catastrophe, however, Switzerland has the potential to lead developed nations in the fight against climate change. It became a member of the United Nations in 2002 but has yet to join the European Union. The nation's wariness to commit to international organizations displays the fierce independence of the Swiss as well as the high place within the hierarchy of developed nations they have created for themselves. The ideas of decentralized government, federalism, and a distrust of autonomous power at the international level are seen in Switzerland's rebellion against international governance and binding laws.

German, French, and Italian are the three main linguistic and cultural influences in Switzerland. Concerning the diversity of the nation based on four languages (French, German, Italian, and Romansh) and various cultures, Schmid (2003) states, "initiatives (as well as federalism) bring the disparate people of the nation together, even when they are unsuccessful" (p. 63). Thus, the nation is not founded on common linguistic or ethnic identity but instead on a historical background and appreciation for ideas such as neutrality, staunch federalism, and democracy through a decentralized government.

The Swiss tendency towards neutrality is evident in the nation's avoidance of alliances that could lead to military, political, or economic influence from other nations. Switzerland did not take an active role in either World War I or World War II, but, as European integration and globalization

increased in the second half of the twentieth century, the Swiss began to loosen the bounds of isolation as a means to encourage European economic recovery and development. Switzerland's move away from neutrality towards involvement at the European and global level is still a heated topic of debate. Switzerland was a founding member of the European Free Trade Association in 1960 and became a full member of the Council of Europe in 1963 (swissworld.org, 2011). The nation has yet to join the European Union because of economic concerns about less stable European nations as well as a standoffishness concerning the imposition of international law. Switzerland did not become a full member state of the United Nations until 2002, despite the fact that the United Nations' European headquarters is located in Geneva. Swiss neutrality has allowed the nation to serve as a mediator between other states and host the headquarters of many international organizations. Switzerland is a member of the Organization for Economic Cooperation and Development. Switzerland tends to join international organizations that encourage economic development but is unwilling to join organizations such as the European Union that could lead to political alliances or economic loss from less-developed nations.

Conundrum of Environment and Economics

The beauty and preservation of the Swiss landscape are intrinsically tied to economic forces such as tourism and transportation that exist in the Alps. The Alpine region is a unique example of the relationship between conservation and economic development. In order to maintain the current level of national economic success, Switzerland must find a way to preserve the natural state of the Alps. The loss of the natural beauty of the mountain range would destroy revenue for many who depend on it to sustain tourism.

Economic incentives are a way to encourage conservation in the Alps. Margot Hill, Astrid Wallner and Jose Furtado's article entitled "Reducing vulnerability to climate change in the Swiss Alps:

a study of adaptive planning” (2010) focuses on the problems from winter tourism and looks at two areas in Alpine regions. Stakeholders tend to focus on maintaining winter tourism activities for economic gain. The article argues that policy initiatives and sustainable planning are needed to maintain the natural habitat as well as satisfy the needs of those who depend on money brought in by tourism (Hill et al, 2010).

Some groups have agendas that lead to sustainable business instead of blatant conservation. Are these two ideas so heavily intertwined in the Alpine region that any form of environmental conservation has inherent economic incentives? The article by Urs Wiesmann et al (2005) entitled “Between Conservation and Development” presents a quantitative interdisciplinary study of participatory process in 2004 in UNESCO's World Natural Heritage Site in the Jungfrau-Aletsch-Bietschhorn (JAB) area of the Swiss Alps. The authors find that in order to create solutions of action instead of vision, debate between stakeholders in areas such as tourism and agriculture must be fostered within the context of environmental policy creation. Because of the overlying nature of environmental issues, many groups and stakeholders must participate in negotiation to find a solution that benefits all. Issues arise between those who have completely different goals, such as a conservationist and a ski lodge owner, causing problems within negotiations. The authors find that the institution of the World Heritage Site in 2001 was not an effective way to maintain the JAB region because it negated direct democracy and caused an “emergence of contradictory expectations among stakeholders” and miscommunication with local elites (Weisman et al, 2005, p. 136-137). Thus, in this case, a melange of different groups and different politics did not work to the advantage of policy makers and little real action took place in the region.

Marcel Kok and other contributors believe that climate policy must begin with development. Because the priorities of most nations are geared towards economic development, the best way to combat climate change is through a development approach to the problem (Kok et al, 2008). Kok is

correct in that the beginnings of environmental policy must be integrated into economics as well as conservation. I do, however, believe we can find new ways to reduce harmful means of development such as increased transportation, and we must look to future innovation to effectively combat climate change.

The conundrum between development and conservation is also visible within the framework of each organization I analyzed. Can those who have economic interests in the Alpine region work with conservationist ideas to create sustainable development practices that allow for economic gain without undermining the natural contributions of the Alps? Because the natural beauty of the Alps is indirectly economically valuable, will groups tend to care more about preservation in this region than groups whose economic incentives do not concern natural beauty and preservation?

I hypothesize that regardless of the interwoven nature of conservation and development in the Alps, there will still be obvious economic goals in many if not all of the texts I analyze. In other words, conservation is initiated for the primary goal of sustaining economic systems. I also hypothesize that each organization will attempt to find a balance between social and cultural needs and natural processes. I hope, because economics depend on the natural habitat of the Swiss Alps, this region will be an example of environmental progress and the prevention of climate change. Because development is such an intricate part of human society and quality of life, I believe the only way to combat climate change, especially at the international level, will be to place great importance on economic systems.

Conclusion

In order for us to preserve this special region, not only for its natural beauty, but also for the Earth's ecological needs, we must attempt to find a compromise between economic development and conservation. The groups of tourists who flock to the Alps yearly to experience one of the most beautiful winter sports atmospheres on Earth are not only economically helpful to the region, but also

contribute to environmental problems. International contributions to global warming are, however, a greater cause of melting glaciers in the Alps. In the wake of environmental destruction as well as increased globalization, will the Swiss abandon the traditional principle of neutrality and fight in the transnational arena to save the Alpine landscape? Only time will tell if Switzerland will commence the fight for the Alps through increased global influence and involvement.

Decision-making at the canton level and ground-level initiatives display the Swiss' concern for Alpine deterioration. The success of the referendum that limits heavy truck transport is an example of the mobilization of the populace in a direct democracy. The large percentage of the Swiss economy attributed to tourism and service is an incentive to fix environmental problems, but globalization and economic competition also lead higher levels of government to disregard environmental concerns in an effort to maintain Switzerland's place as an economic power.

Chapter III: Organizations and Documents

After the Second World War, the international community came together to create several key institutions that foster international governance and compromise. In the past several decades, our world has seen a dramatic increase in communication and globalization, both economically and politically. I believe that environmental degradation will open a new window of international cooperation as we must solve problems never before faced by the human race. Global warming is a problem that we must deal with as a planet and find solutions for all. We are no longer isolated; global environmental governance must meet the needs of a changing world system as well as adapt to future threats and drastic climatic change.

While working on my thesis, I found a large amount of closely related groups concerned with the Alpine region. I was not able to closely examine all of them and chose the organizations that are most important in the fight against climate change and most relevant to my own research. Other organizations include the Mountain Partnership, the Alpine Space Programme, the Alliance in the Alps, the Network Enterprise Alps, the Institute for Mountain Research, Club Arc Alpin, various community groups, and many others. I limited my analysis to the seven organizations included in Table 1 because I believe they are the most relevant sample to find conclusions about international environmental governance. I chose a representative of the most prominent international organization of the last century (the United Nations), the most important economic body of nations (the European Union), two differently focused international NGOs (the IUCN and CIPRA), two organizations based on agreements between state bodies (the OECD and the Alpine Convention), and the organization representative of the Swiss government (CLEAR). Also, as seen below in Table 1, chronologically, I analyzed four organizations formed just after World War II in the wake of European destruction (UNESCO, the OECD, the IUCN, and CIPRA), and three that were created during the 1990s with the wave of globalization and creation of international institutions (the Alpine Convention, the EEA, and

CLEAR). The analysis of all of these in unison gives a comprehensive look at international governance in the Alpine region. The organizations in Table 1 are ordered by creation date, beginning with the earliest.

Table 1: A Summary of Organizations and Documents of Analysis

Organization	Members	Year Founded	Goals in the Alps	Document of Analysis
United Nations Educational, Scientific, and Cultural Organization (UNESCO)	193 states	1946	Create government structures to preserve the JAB site as a area important to humanity	<i>World Heritage Nomination: IUCN Technical Evaluation for Jugfrau-Aletsch-Bietschhorn, Switzerland</i> (2007)
Organization for Economic Cooperation and Development (OECD)	34 states	1947	Sustain winter tourism and manage future natural hazards in the wake of changes brought on by global warming	<i>Climate Change in the European Alps: Adapting Winter Tourism and Hazard Management</i> (2007)
World Conservation Union (IUCN)	84 states, 117 government agencies, and 903 NGOs	1948	Encourage cooperation between states, agencies and NGOs	<i>Cooperation in the European Mountains I: The Alps</i> (1999)
International Commission for the Protection of the Alps (CIPRA)	Germany, France, Italy, Slovenia, Liechtenstein, Austria, Switzerland, and around 100 member organizations and institutions	1952	Ensure future sustainability through advocating lifestyles and economic systems that are mindful of nature and natural resources	CIPRA.org
Alpine Convention	Germany, France, Italy, Slovenia, Liechtenstein, Austria, Switzerland, and the European Economic Community	1991	Work towards an integrated water management system that will prevent conflict in the future	<i>Water and Water Management Issues: Report on the State of the Alps</i> (2009)
European Environmental Agency (EEA)	27 member states of the European Union	1993	Create an adaptation plan as water resources from the Alps are affected by global warming	<i>Regional Climate Change and Adaptation: The Alps Facing the Challenge of Changing Water Resources</i> (2009)
Climate and Environment in Alpine Regions (CLEAR)	Switzerland	1997-2000	Use the Swiss Alps as an example of how to fight global detriments and find a solution that fits economic and environmental needs	<i>Views from the Alps: Regional Perspectives on Climate Change</i> (1998)

The United Nations Educational, Scientific and Cultural Organization

The United Nations (UN) was a founding member of the international governance community. It was formed after World War II when 51 nations committed themselves to upholding human rights and increasing communication among nations in an attempt to maintain peace and security as well as economic growth and social progress. Switzerland did not become a member of the UN until 2002. The UN has three main branches: the General Assembly, the Security Council, and the Economic and Social Council. There are various other bodies, committees, and the International Court of Justice.

As seen above in Table 1, the United Nations Educational, Scientific and Cultural Organization (UNESCO) is a branch of the UN formed in 1946 and based in Paris. Its mission is to, “contribute to the building of peace, the eradication of poverty, sustainable development and intercultural dialogue through education, the sciences, culture, communication and information” (UNESCO.org). Switzerland became a member of UNESCO in 1949. The organization currently has 193 member states. Switzerland is home to UNESCO's International Bureau of Education which is responsible for coordinative research.

One of the programs instituted by UNESCO is the World Heritage Programme responsible for naming and protecting sites that are of cultural or natural importance to all people. The program began in 1954 as a means to protect the ruins of ancient Egypt from destruction threatened by the creation of the Aswan Dam.

The property of Jungfrau-Aletsch-Bietschhorn (JAB), located in the south-central Swiss Alps, became a World Heritage Site in 2001 because of the aesthetic and scientific value of the region. The site is a pristine example of mountain formation as well as home to the largest

glacier in Eurasia and a wealth of ecosystems. The site was added because of the retreat of glaciers due to global warming. As discussed earlier, the region is also an intricate part of European art, literature, and tourism activities.

The document I chose for my analysis of UNESCO is the “World Heritage Nomination” for the JAB region from 2007. The United Nations Environmental Programme presents a yearly report on environmental issues but has yet to complete a report on the condition of the Alps. The only documentation of UNESCO's work in the Alps is the nomination of the region. The document of nomination from 2007 includes the reasons for choosing the area as a World Heritage Site, a comparison to other mountain areas, the legal framework of the region, an outline of major threats, and recommendations for a future management plan from the Swiss government. The other half of the document concerns the expansion of the area in 2007 and includes more information about the implementation of the management plan described in the original nomination from 2001. I am interested in the environmental as well as the economic nature of the plan from 2007. I hypothesize that UNESCO is funding environmental protection of the area as a means to preserve the natural contributions of the region.

The Organization for Economic Cooperation and Development

As with many international organizations of today, the OECD began after World War II as a means to encourage healthy rebuilding and cooperation in Europe for both the victors and defeated of the war. The OECD was established in 1947 to implement the Marshall Plan (the United-States-funded European reconstruction plan following the Second World War). The organization forced economic cooperation between independent European states and began the

era of economic connection in Europe today. After Canada and the United States joined in 1960, the international organization officially became the OECD. The Convention came into force in 1961 (oecd.org).

The OECD is an agreement between thirty-four member nations including the Alpine states of France, Austria, Germany, Switzerland, Slovenia and Italy. With the associate members of the organization, the OECD negotiates between forty nations that account for eighty percent of all world trade and investment. The mission of the organization is to, “promote policies that will improve the economic and social well-being of people around the world” (oecd.org, 2011). The OECD measures and monitors the world economy and sets international standards on various areas of trade. Although the OECD has increased the wealth of many of its member nations and encouraged economic cooperation, I believe the organization is focused solely on economic advancement with little regard for the environment and will use economic incentives as a means to influence policy, leaving out environmental improvements that could endanger economic development.

As seen in Table 1, the document I will be analyzing is the OECD's 2007 report entitled *Climate Change in the European Alps: Adapting Winter Tourism and Natural Hazards Management*. The goal of the document is an economic planning response to the environmental degradation brought on by climate change and is primarily focused on maintaining development and tourism by quick fixes like the creation of artificial snow. Within this document, the writers do not address how to fix environmental problems but only how to maintain the current level of tourism.

The World Conservation Union

The World Conservation Union, also known as the International Union for the Conservation of Nature (IUCN), is an international organization whose primary goal is to conserve natural resources and to find real solutions for environmental and developmental challenges. The IUCN is the world's largest and oldest environmental network of states, non-governmental organizations, international organizations, communities, and privately owned businesses. More than 1,000 governments and NGOs are members of the IUCN as well as roughly 11,000 volunteer scientists from all over the world (IUCN.org, 2011). The main goals of the IUCN are to support research concerning the science of environmental issues and to find implementation strategies that allow for environmental concerns to be addressed alongside development. The IUCN is headquartered just outside Geneva in Gland, Switzerland.

The IUCN was founded in 1948 at Foutainebleau, France, when UNESCO needed to establish a scientific base for its organization. Thus, UNESCO sponsored a congress to create a new environmental organization that became the IUCN. Eighteen governments, seven international organizations and 107 national nature conservation organizations established an International Union for the Protection of Nature (IUCN.org). The name of this organization is slightly misleading because the IUCN is more concerned with economic development than it seems at first glance.

For my analysis, I examined the IUCN's 1999 report on the Alps entitled *Cooperation in the European Mountains: the Alps* written by Martin F. Price. The report is a product of the European Programme of the IUCN. It outlines implementation strategies and different means of cooperation between states (the Alpine Convention) and different regional groups. The IUCN has

not released a more current publication about the Alps, but I believe the difference in timing will add to the completeness of my analysis.

The International Commission for the Protection of the Alps

The International Commission for the Protection of the Alps, or, in French, Commission Internationale pour la Protection des Alpes (CIPRA), is a nongovernmental organization made up of over 100 regional and local organizations from the seven Alpine states. The goal of the NGO is fostering sustainable development in the Alps. CIPRA was created in 1952 and is composed of national representatives from each Alpine state. The headquarters is located in Schaan, Liechtenstein. The main goal of CIPRA is to communicate information between states and groups to raise awareness about issues in the Alps. CIPRA also takes action in various projects as a means to implement their research.

CIPRA pursues its goal in two ways: a top-down approach by working with the Alpine Convention and a bottom-up approach by networking with smaller groups and initiating action (cipra.org, 2011). I chose CIPRA for my analysis because it is the most prominent and encompassing NGO that works towards sustainability in the Alps. CIPRA was instrumental in the formation of the Alpine Convention and is involved in putting the Convention's plans into action.

Because CIPRA does not have any formal documents, I used their website for information. The website (cipra.org, 2011) displays information about different projects CIPRA is working on. CIPRA is an important part of Alpine conservation and my own research because it is the most prominent NGO and a source of action in the Alps.

The Alpine Convention

As seen in Table 1, the Alpine Convention is an agreement between seven Alpine states (Germany, France, Italy, Slovenia, Liechtenstein, Austria and Switzerland) and the European Union as a means to preserve the Alps as both a living and economic environment. The Convention was ratified in 1998. The major challenge of the Alpine Convention is finding a medium between environmental protection and economic sustainability. Innsbruck, Austria hosts the Permanent Secretariat of the Alpine Convention, and an office in Bolzano, Italy is charged with providing research as well as technical support (swissworld.org, 2011). The creators of the Alpine Convention hope for it to be a model for multinational preservation plans of other mountain ranges in the future. The Alpine Space Programme is the transnational sector of the Alpine Convention run by the European Union. The Alpine Convention is responsible for funding implementation projects in Alpine states, connecting the European Union in the fight against destruction of the mountains, and encouraging international cooperation.

In comparison with UNESCO, the Alpine Convention concerns a larger area than the defined World Heritage Site. Also, the Alpine Convention is a means to connect the states that are most affected by the environmental distress of the Alps. Table 1 states above that the goals of the Alpine Convention concern the future implications of changing water resources in the Alps as a source of conflict. Despite national boundaries and varied cultures, the Alps are a shared resource and negotiations must be made to ensure the sustainability of the mountain water system as well as human communities. The decisions made by each nation affect the others. In a time of potentially changing boundaries, cooperation across national borders is necessary to

sustain peace.

For my analysis, I used the 2009 report entitled *Water and Water Management Issues: Report on the State of the Alps*. After its ratification in 1991, the Alpine Convention has produced reports on many different issues. From a report on the different national cultures featured in the Alps to a description of walking trails, the Alpine Convention focuses on many aspects of Alpine life. I chose this document because it is the most current research publication concerning climate change and water management issues.

European Environmental Agency

The European Union (EU) was formed after the Second World War to encourage economic cooperation and reconstruction in Europe. It has grown from six nations to twenty-seven. The European Environmental Agency (EEA) is a program of the EU. The goal of the EEA is to provide information about the environment for the public and for those working towards creating, implementing, and evaluating environmental policy. The EEA has 32 member nations. Although Switzerland is not a member of the European Union, it is a member of the EEA. The EU created the EEA in 1993. It is located in Copenhagen, Denmark. Eionet was created at the same time as the EEA. The European Environment Information and Observation Network (Eionet)'s purpose is to connect information and observation throughout the EEA. The main goals of the EEA are to help member nations of the EU make good decisions concerning the environment, and to integrate environmental ideas into economic policies to foster sustainability.

Since its foundation, the EEA has released many publications concerning areas of environmental and economic interests. Besides a publication concerning the intrinsic value of

Europe's mountains in 2010, the most current release on my topic is the 2009 report entitled *Regional Climate Change and Adaptation: the Alps Facing the Challenge of Changing Water Resources*. This document is the most relevant to my topic because it focuses not only on the Alpine region specifically, but also on water resource issues brought on by climate change.

Climate and Environment in Alpine Regions

Climate and Environment in Alpine Regions (CLEAR) is an ongoing research program carried out by a network of approximately 50 researchers from various areas of study, including physical, ecological, and social science. The implicit goal of the organization is to study issues that relate to global climate change in the Alpine region. The organization is funded by the Swiss National Science Foundation; it carries out research and makes recommendations on behalf of and to the Swiss government. In my research, CLEAR is a representative of the Swiss reaction to climate change in the Alps. CLEAR states its goals as providing information about issues, creating modeling tools, developing a means to assess climate risks in an integrated way, and recommending policy strategies as well as a mechanism for testing strategies (CLEAR.eawag.ch, 2011). CLEAR also has 15 smaller projects that focus on integrated assessment through trans-disciplinary research. It was developed between 1997 and 2000 as a means to combat issues brought on by climate change in the Alps.

For my analysis, I used the 1998 report from the ongoing Swiss research program Climate and Environment in the Alpine Region (CLEAR). The report is titled *Views from the Alps: Regional Perspectives on Climate Change* and was written by an independent network of fifty researchers from disciplines ranging from economics to biological science. I believe this

document is relevant to my study of the conundrum between economic development and conservation because the contributors recognize not only environmental policy, but also economic, social, agricultural, and urban policy.

Conclusion

There is a plethora of information concerning the Alps and the numerous organizations that focus attention on the preservation of the Alpine landscape. I am interested to see how these groups go about combatting environmental issues in the Alps and what can be discovered through the analysis of each document.

Chapter IV: Strategies and Motivations

My first area of interest is how each organization goes about combatting water issues. I compared the different types of organizations I am analyzing through their recommended strategies, and the way in which they present information to achieve a specific goal. I found a distinction between organizations that primarily provide research reports on current environmental topics and those that implement policy strategies. Environmental policy analyst, William Clark (2006), notes the abundance of expert knowledge concerning global sustainable development, but states that assessments that link this knowledge to a framework of action are necessary. Information must be converted into action through institutionalization and participation. I agree with Clark that there is a separation between providing information and forming policy. I am interested in the divide between organizations that produce expert assessments and the organizations that implement action.

An article by Matthias Buchecker, Christine Meier, and Marcel Hunziker (2010) published in *European Planning Studies*, entitled “Measuring the Effects of Consensus-building Processes with Methods of Intervention Research,” compares methods of consensus-building within the public about issues such as climate change in the European Alps. Buchecker et al (2010) were able to create a list of tactics that work better than others in environmental policy action. My research concerns the tactics used by organizations (either policy action or providing information), but looks at motives and strategies to analyze implicit goals. Many of the groups I analyzed also have defined lists of tactics that work as well as those that do not. Whether or not these have implicitly economic or conservationist goals is the point of my analysis.

As information concerning climate change in the Swiss Alps becomes more readily available, an environmental expertise of scientists and bureaucrats has emerged. Jaques Lolive and Anne Tricot's (2010) article “The Emergence of an Alpine Environmental Expertise” focuses on sustainable development through the Alpine Agreement and the logistics of its implementation through a

transnational and multilateral framework. Because of call for limitations on transportation, the Alpine Agreement seems willing to limit economic development and pursue an environmental goal (Lolive et al, 2004). This idea goes back to the Swiss form of government (the population's intent on limiting transportation shown through direct democracy) as well as a concern for the Alps at a lower level of the political system. Lolive's research is relevant to my thesis because I am analyzing the multifaceted goals of each organization. As a broad range of expertise emerges, sifting through political, economic and environmental agendas is necessary to create a productive plan of action that fosters sustainability in the Alps. Recommendations from lower levels of communities are more inclined to limit economic ideas as a means to fight environmental problems; but small towns are more susceptible to economic decline from limiting transport or tourism in the Alps.

In his article, "Research on Alpine Landscape Development: From Research to Policy," Paul Messerli (2008) focuses on the work of the Swiss research program "Landscapes and Habitats of the Alps." The goal of the program is to connect research networks and to allow policy makers to craft policy action from information. According to Messerli (2008), "the perspective of historical landscape research in Switzerland was translated into a research perspective building on the hypothesis that a new form of governance of landscape development is needed" (p. 128). As the Alpine region is threatened by climate change, a need for governance must be met by the international community.

Messerli (2008) outlines the three reasons for the resurgence of environmental concern: an incapacity to maintain and control cultural landscapes, the appreciation of landscape as an attribute of Switzerland, and the already-in-place network of unconnected laws and policies concerning environmental issues (p. 129). Messerli (2008) calls for a cooperative approach to working in the Alps from both researchers and policy makers as a means to save the habitat that has been on the minds of many in recent decades (p. 131). An emergence of research and policy action concerning the environmental detriments of the Alps is in place as global warming threatens the livelihoods of the

Swiss and the natural landscape many Europeans formerly took for granted. A complicated framework of economic, scientific and socially-conscious knowledge seekers has emerged.

Because of human interactions with our natural environment, science is no longer the deciding factor when creating policy to combat environmental issues. Human systems like economics and culture are taken into account when policy makers attempt to decipher and implement the recommendations of scientists. I believe we would act differently towards our natural habitat and make drastic changes in how we treat it if impartial science were the basis of policy action instead of human greed and economics.

Do the tactics of these organizations focus on providing information for policy makers, or do they focus on implementing policy measures and infrastructure? Do the information and policy initiatives of each organization focus on combatting ecological issues or on fixing problems to prevent economic decline? I examined the differences between the main goals of each organization through the policy or information they produce. What are the different concerns of each group and the theories or ideas upon which they were founded? Most of the information in this section comes from the primary sources of the groups' websites and the documents outlined in Chapter III.

I hypothesize that groups will have overlapping principles of both conservation and economic concerns. Information or policy will concern the preservation of not only the natural system of the Alps but also social, economic, and cultural aspects of life. Also, at a transnational level, groups focus more on providing information to smaller groups instead of creating policy initiatives. This lack of international action illuminates the need for grassroots organization at the regional level to combat environmental problems. The documents presented by each organization are vague and sometimes unclear in their goals.

Each document I analyzed deals with various issues and circumstances in the Alps in different ways. Table 2 gives a summary of the information provided by each organization, the policy action

each document puts in place, and the recommendations made by each organization.

Table 2: Information, Policy and Recommendations within Documents

Organization and Document	Information Provided	Policy Action	Recommendations
United Nations Scientific, Cultural and Educational Organization <i>World Heritage Nomination: IUCN Technical Evaluation for Jungfrau-Aletsch-Bietschhorn, Switzerland</i> (2007)	Natural value, boundaries, legal status and management	Creates a management body with offices in the JAB area that develops policies Switzerland is responsible for implementing	JAB remains a World Heritage Site and Switzerland is encouraged to implement management
Organization for Economic Cooperation and Development <i>Climate Change in the European Alps: Adapting Winter Tourism and Hazard Management</i> (2007)	Provides an assessment of and adaptation to climate change in winter tourism and natural hazards management	None; only recommendations	Individualistic adaptation to maintain winter tourism; enhance natural hazards management system
World Conservation Union <i>Cooperation in the European Mountains 1: The Alps</i> (1999)	Outlines cooperation in the Alps at various levels and through different types of organizations	None; only information on groups, states, etc. who work in the Alps	Continued cooperation as the Alps face new changes and problems
International Commission for the Protection of the Alps cipra.org	Current news from the Alps, projects, ecological networks, future of the Alps and Alpine Convention	Exerts pressure on policy makers, connects organizations, and works on projects	Protection and sustainability in the Alps
Alpine Convention <i>Water and Water Management Issues: Report on the State of the Alps</i> (2009)	Reasons and ideas concerning a new water management system in the Alps as the natural one becomes inadequate	None; only recommendations to Alpine states	Management of natural hazards and water systems, development of hydropower, and adaption to consequences of climate change
European Environmental Agency <i>Regional Climate Change and Adaptation: The Alps Facing the Challenge of Changing Water Resources</i> (2009)	Effects of climate change, the Alpine contribution to the water system of Europe, and adaptation strategies	None; only recommendations	Uses economic incentives to encourage environmental preservation
Climate and Environment in Alpine Regions <i>Views from the Alps: Regional Perspectives on Climate Change</i> (1998)	Past, present and future Alpine climate; vulnerability to climate change	None; only recommendations	Regional-level sociotechnical innovation

Strategies: Information Provided, Policy Action, and Recommendations

I found that every organization I analyzed except for CIPRA only presented information and did not put policy action in place. I also found that recommendations usually centered around connecting various groups and implementing action at a regional or local level. The following analysis of each organization is organized in the same way as Table 2.

UNESCO's World Heritage Site Nomination begins with an outline of the main reasons for considering the JAB region as a World Heritage Site. The nomination also states the boundaries of the region and its status as communal land. The World Heritage Association created a, "highly democratic institutional structure," recognized by the Swiss government in 2002; it consists of a board of six supervisors that represent each canton, a committee for developing strategies, and a management center with offices in both Bern and Wallis (World Heritage Nomination, p. 82). UNESCO encourages the implementation of management strategies by making recommendations to the Swiss government. The state party is responsible for the operational management of the area and for funding programs to sustain the JAB region for future generations. The IUNC nominates and chooses which geographical locales become World Heritage Sites. The IUNC also makes recommendations to UNESCO based on research. UNESCO's main goals in the Alps are to preserve the ecological history of the Alps including the glaciated areas and to preserve the beauty of the landscape. On a more human note, UNESCO's inherent purpose is to preserve the JAB area for the role the Alps have played in European culture.

I found that UNESCO encourages state-level support for the determined World Heritage Site. Also, UNESCO works closely with the IUNC in nominating sites and making recommendations for policy action. The bureaucratic nature of the United Nations comes through in UNESCO's attention to relatively insignificant and extensive details such as the property's name as well as an exhaustive account of the boundaries for the JAB region. As I hypothesized, UNESCO encourages cooperation and makes recommendations to the Swiss government but does not actually enact its own programs

through binding regulations or organized action in the JAB region.

The OECD document begins with a summary of the climate and economy of the Alps and how each are effected by the onset of climate change. Next, the report outlines the vulnerabilities of winter tourism brought on by climatic changes and adaptation responses. These responses include strategies like making artificial snow and the creation of new business models (OECD, 2007, p. 50-7). The report goes on to outline the future of natural hazard management in the wake of global warming. There is no policy within the report, only recommendations. The OECD (2007) recommends individualistic adaptation measures for ski operators in the winter tourism sector, and an enhancement of natural hazard management systems to combat the potential effects of climate change and reduce economic losses for shareholders.

Cooperation in the European Mountains 1: The Alps, written by Martin F. Price on behalf of the IUCN in 1999, is a look at the different organizations that work to combat environmental disturbance in the Alps. The document outlines cooperation at various levels of governance and within different types of organizations. It is the only report of this kind because it focuses less on the Alpine climate and more on international cooperation within the area. The document begins with a description of the plan developed by the Pan-European Biological and Landscape Diversity Strategies (PEBLDS) to initiate biological and ecological preservation and restoration and to provide financial support. The IUCN document continues with a description of bilateral agreements between states such as the Alpine Convention and other regional-level cooperation.

In conclusion, Price (1998) states that regional-level cooperation is key in initiatives at the state level, and that regional and local governments should be more involved in international environmental governance to help put practices into action (IUCN, p. 41). I agree that regional and local governments and organizations are more effective at fighting environmental problems, especially in the case of the Alps. The IUCN's main goal for the future of the Alps is to encourage and to monitor continued

cooperation as the Alpine landscape faces new changes and problems.

Next I examined CIPRA. CIPRA's website (cipra.org, 2011) has a wealth of information about the Alpine landscape and initiatives in the Alps. I enjoyed reading about current news, projects, and ecological networks at work in the Alps. The website also provides information on the future of the mountains and the work of the Alpine Convention. Within the realm of policy, although CIPRA does not have a binding legislative body, they do exert pressure on policy makers, connect organizations through publications and information, and work on projects at the transnational, national and regional levels. CIPRA works to preserve a balanced ecosystem as well as an intact Alpine landscape and advocate lifestyles and economic systems that are considerate of both nature and natural resources (cipra.org, 2011).

CIPRA works with different regional groups to create initiatives that foster action in the Alps. Encouraging local and regional stakeholders is a main goal of CIPRA and is the most effective strategy in policy implication. CIPRA is the only organization I examined that initiates programs at the regional level for action as opposed to providing information to self-created groups. Although CIPRA unites several nations and various organizations, the projects they enact are at the regional level. This supports my hypothesis that regional-level cooperation and action is more effective.

The Alpine Convention's report *Water and Water Management Issues: Report on the State of the Alps* outlines the reasons and strategies for a new water management system in the Alps as the natural one becomes inadequate because of environmental degradation. The Alpine Convention does not put in place policy action, but it makes recommendations. This organization also connects the Alpine states through providing information and connecting state officials. The report on water management outlines the main goals of a potential plan: integrated risk management against natural hazards, implementation and update of river basin management plans, an increase in the use of non-detrimental hydropower, remediation of hydro-issues caused by past human alteration, and an adaptation to the consequences of

climate change on water in the Alps.

The Alpine Convention works to connect the Alpine states. It does not focus on a regional-level approach to climate destruction. Although legislation and large infrastructure changes are made at the state level, environmentalism is usually initiated at the local level. As I hypothesized, the Alpine Convention does not initiate policy action but only makes recommendations and fosters connections between national governments.

The EEA's report entitled *Regional Climate Change and Adaptation: The Alps Facing the Challenge of Changing Water Resources* begins with an overview of the vulnerabilities of the Alps and the current European Union policy in the region. The report also outlines the various sectors of life that depend on the the Alps and the European water system of rivers: ecosystems services and cross-sectoral adaptation, biodiversity conservation, households, forestry, agriculture, energy, industry, and river navigation (EEA, 2009, p. 41-60). The report continues with a regional analysis and case studies. Finally, the EEA gives a recommendation for adaptation at the European scale. The document provides an analysis of Alpine vulnerabilities from both a European and regional level. The EEA states that to combat climate change, organizations and states must promote market-based economic incentives, create a sound legal framework, develop new technology, raise stakeholder awareness of water issues, and work with local and regional governments. Similarly to other documents from high-level international organizations, the report does not provide any policy implication but instead recommends using economic incentives to encourage environmental action.

CLEAR's study of the Alpine region was conducted by Swiss nationals in various areas of study. It looks at the Alps as an example of the affects of climate change and attempts to solve the global dilemma of environmental deterioration by examining one problem in one region. By looking to local studies, the scientists and policy makers that participate in CLEAR attempt to illustrate global problems on a smaller scale. Only by understanding the small implications of climate change can we

move forward to battle global environmental degradation. This principle supports the idea of the tragedy of the commons: we must all acknowledge how we are individually affected by climate change and share the burden of repairing and preventing future problems. Another goal of the research report is to find sound environmental public policy that suits the needs of both nature and people. The study provides data for the current state of the Alpine climate, Alpine paleoclimatology (the study of climate change over the course of the entire history of our planet), a projected view of the future climate in the Alps, and specific information on the sensitivity and response of plant life to climate change.

Besides providing information concerning the state of the Alpine climate, CLEAR's report gives practical implications to fight climate change, but gives no policy action strategies. As in the Swiss fashion, the researchers call for, “innovation-oriented policies in the face of global climate risks” (CLEAR, 1998, p. 351). The authors state that regional-level sociotechnical innovation, like changes in traffic technology, are more easily adaptable to radical transformations of technology and are better starting grounds to fight climate change (CLEAR, 1998, p. 352-357). The researchers also analyze and recommend changes to transAlpine freight traffic through the creation of a railway transportation system (CLEAR). They also recommend increased research and innovation to encourage more lightweight vehicles for individual transport in the wake of an increase in the demand for the mobility of people.

My hypothesis was correct in that CLEAR is heavily based on innovation just as the Swiss stereotype denotes. Through the research of scientists as well as economists and intellectuals in different fields of climate research, *Views from the Alps: Regional Perspectives on Climate Change* offers a summary of current Alpine problems and a future plan for innovations that could help prevent future deterioration while maintaining economic viability. In conclusion, from CLEAR's research report, the Swiss study presents information on the state of the climate of the Swiss Alps as well as a highly researched plan for innovation as well as a call for planning at a regional level. The Swiss

principles of innovation and direct democracy (beginning at a smaller, regional level to fight a larger problem) are heavily seen in the way in which CLEAR presents information to combat climate change in the European Alps.

Next I focused my analysis on environmental and economic interests. Table 3 gives a summary of the inherent goals of each organization.

Table 3: Environmental Interest versus Economic Interests within Documents

Organization and Document	Environmental Interests	Economic Interests
United Nations Scientific, Cultural and Educational Organization <i>World Heritage Nomination: IUCN Technical Evaluation for Jungfrau-Aletsch-Bietschhorn, Switzerland</i> (2007)	Preserve ecological history and glaciers stored in the Alps	Preserve Alps for the role they have played in European culture
Organization for Economic Cooperation and Development <i>Climate Change in the European Alps: Adapting Winter Tourism and Hazard Management</i> (2007)	None; concerned predominately with maintaining economic levels	Safeguard winter tourism and manage natural hazards to insure continued economic success for business owners
World Conservation Union <i>Cooperation in the European Mountains 1: The Alps</i> (1999)	Preserve ecological diversity of the mountain area	Connect governments and organizations to solve problems that affect all; cooperate to solve future border conflicts
International Commission for the Protection of the Alps cipra.org	Preserve a balanced ecosystem and intact landscape	Advocate lifestyles and economic systems that are mindful of nature and natural resources
Alpine Convention <i>Water and Water Management Issues: Report on the State of the Alps</i> (2009)	Preserve healthy water systems	Sustainable development and safeguarding of the interests of the people who live there
European Environmental Agency <i>Regional Climate Change and Adaptation: The Alps Facing the Challenge of Changing Water Resources</i> (2009)	Connect human and environmental systems	Use economic incentives to encourage sustainable practices
Climate and Environment in Alpine Regions <i>Views from the Alps: Regional Perspectives on Climate Change</i> (1998)	Preserve the Alpine landscape	Continue to allow traffic through the Alps but in a more sustainable way

Motivations: Environmental Interests versus Economic Interests

I found common ideas within all of the documents I analyzed. Most organizations have elements of both environmental and economic ideas. I found, however, economic interests are more important than environmental interests in the documents I analyzed.

UNESCO's environmental preservation ideas are heavily linked to the historic value of the Alps for both natural and human systems. UNESCO hopes to preserve the immense ecological history of the Alps as well as the role the mountains have played in European culture. UNESCO does not, however, present any binding regulations to preserve the World Heritage Site.

The OECD report is primarily focused on maintaining economic systems as opposed to combatting climate change. The report does not address environmental problems but looks at them only through the lens of vulnerable human, economic systems. The main goals of the OECD are to safeguard winter tourism and manage natural hazards as a means to insure continued economic success for business owners. The OECD completely leaves environmentalism out of the organization's recommendations. Because of the ideas upon which the OECD was founded, its economic goals are not surprising. Also, as an international organization, its lack of policy implementation is also to be expected.

The IUCN strives to connect governments and organizations to solve problems and to encourage cooperation to solve future border conflicts that could be brought about by environmental degradation. The IUCN is more concerned with environmental issues than many of the organizations I am examining, but it still has a predominantly human focus. The IUCN does not, however, have explicitly economic goals in the Alps. I am interested to see the future implications of the IUCN's work in the Alps and its next report on the state of the mountain range.

The goals of CIPRA are more environmentally friendly than those of other groups within my analysis. This NGO seems to be getting much more done than other larger, bureaucratic networks and

organizations. CIPRA works to preserve a balanced ecosystem and intact landscape in the Alps. It also advocates lifestyles and economic systems that are mindful of nature and natural resources. CIPRA is centered around the idea that environmental health comes first, and humanity must fit into nature's needs.

The Alpine Convention's interest in sustainable environmental practice is to preserve a healthy water system in the Alps and to encourage sustainable development in order to safeguard the interests of the people who live there. Like CLEAR, the Alpine Convention hopes to preserve the Alps as a means to prevent future conflict from changing borders or water resources.

The EEA recommends using economic incentives for stakeholders to fight global warming. This idea is at the forefront of environmental policy from international organizations in recent years. For instance, offsetting emissions through a trading system of negative and positive contributions to the environment has had some success but lacks binding authority. As the EEA recommends, economic incentives are needed to combat climate change. The EEA report is centered around the connectivity of human and environmental systems. Thus, the environment is only preserved because its economic value to humans.

Finally, CLEAR is concerned with preserving the Alpine landscape but is not willing to take action. By encouraging technological innovation to sustain traffic through the Alps, CLEAR does little to inconvenience human systems. CLEAR advocates the continuation of traffic through the Alps but in a more sustainable way.

Conclusion

All of the organizations I analyzed have giant goals concerning some improvement for the human race and forming cooperation between all sectors of human and ecological systems. In sifting through the publications and websites concerning each organization, I realize that international organizations continue to be subject to highly bureaucratic systems and tend to provide research and policy solutions more than to implement strategies. International organizations give financial and technological support, but operation and policy changes are at the regional level of governance.

I also found that the international organizations I analyzed are more connected than they seem at first glance. Thus, they all have similar goals and work together to succeed. There is an overall theme of encouraging regional and local participation to foster action in the Alps. Information on why the Swiss Alps should be saved is prevalent from every organization, but actual policy and action is harder to find. I believe international organizations are limited by non-binding regulatory processes. They are more focused on building a network of information and initiatives than creating legally binding policy or legislation. Binding laws at the international level are met with resistance from nations unwilling to give up their sovereignty. Perhaps the environmental movement will foster more globalized and binding action to protect humanity from environmental disasters.

Chapter V: Comparisons and Connections

Because the issues facing the Alps cannot be confined to one specific area or one cause, different strategies and various levels of governance are involved. The Alpine region encompasses multiple nations and many different ethnic, religious and cultural groups. Issues concerning the environment, like the effects of ozone depletion or global warming, are difficult to define. It is also harder to find the sole culprit because we all contribute to environmental degradation. For this reason, environmental policy and information are usually divided into two broad ideas: top-down or bottom-up political orientation. I define top-down or international organizations as environmental policy or information that is integrated on a transnational level from a large intergovernmental body such as the United Nations. Bottom-up policy comes from regional or local communities; examples are measures instituted from the cantons of Switzerland or efforts from small community groups like those who work with CIPRA. I am also interested in the connections between different international organizations. The organizations I am examining are more closely related than it seems at first glance.

Michael Bell, author of *An Invitation to Environmental Sociology* (2009), notes the merits of a bottom-up approach, defined as grassroots movements at the community level (p. 271). Bell also notes that top-down approach can help the bottom, “with regard to these challenges of coordination, democracy, resources, expertise, and influence” (p. 271). Bell (2009) later states that both top and bottom approaches to environmental problems are important; the distinctions between communities and the power needed to put environmental policy into action require a mixture of the two (p. 270-2). The Alpine region is a geographically encompassing, unique habitat of both natural and human forces. A transnational, multilateral approach is necessary and

already in place, but only time will tell if international relations can meet the requirements of a changing environment. The funding and expertise from international organizations are as important as regional action, but I found (like Bell) that they tend to get less done because of bureaucracy, an over-abundance of influences, and a lack of binding regulations.

In the article, “Transformation Processes of Alpine Landscapes and Policy Responses: Top-Down and Bottom-Up Views,” Mojca Golobic compares top-down and bottom-up policies. The author finds that bottom-up policy along with consideration of socioeconomic factors and span of local government is the best combination to fight problematic changes incurred from global warming (Golobic, 2010). Both Golobic (2010) and Bell (2009) find problems with high-level responses to environmental issues. There is a disconnect between bureaucrats in international organizations and the people who live and work in the areas of concern. Within my own research, I found that top-down approaches are usually more focused on providing expertise and funding whereas bottom-up groups have a better connection with the area and those who live in the Alps and are more capable of getting things done. Transnational organizations and even the Swiss government are more concerned with economic development than conservation in the region.

Because of the supposed success of capitalism and globalization in the Western world, a need for international political bodies has emerged and been met with the creation of groups like the European Union, the Organization for Economic Cooperation and Development, and the United Nations. These organizations were largely founded as a means of economic recovery after the Second World War. The next wave of international cooperation focused on globalization after the fall of the Soviet Union in 1989, and fostered the creation of groups like the Alpine

Convention and CLEAR in the 1990s. International organizations are more inclined to push for economic development and globalization in the Alps such as a continuation of transportation and protected tourism revenue. On the other hand, I hypothesize that with a bottom-up response from small community groups and Swiss cantons, conservation will be more important and protection measures will be more prominent. Of course there is no black or white solution to these questions, but I believe the overall trend will be that higher-level organizations are focused on economic development while regional and local institutions will focus on conservation.

Figure 1, below, is a summary of the relationships between the seven organizations I analyzed. Vertically, it is organized based on the level of governance in which each organization works. Horizontally, Figure 1 shows the spectrum of environmental and economic interests within the seven organizations. The arrows point towards organizations that are members of others. For example, CLEAR is a member of CIPRA. Other arrows denote different connections that will be explained later. Figure 1 shows the web of international organizations I discovered during my analysis.

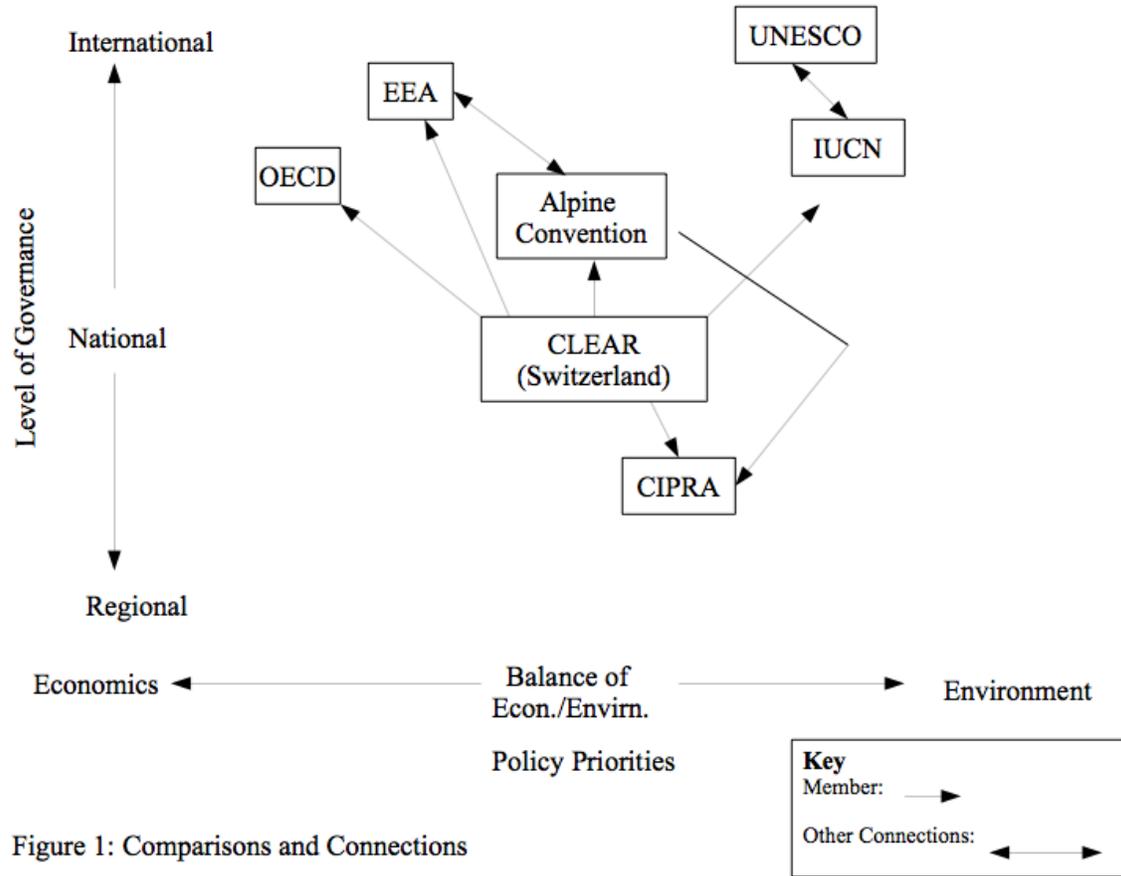


Figure 1: Comparisons and Connections

Comparisons

Figure 1 is organized by the policy priorities of the different organizations within my study and by the level of governance in which they work. Each organization falls on the “Level of Governance” axis not as a result of its members (for example, CIPRA is an international NGO but is placed nearer regional cooperation in Figure 1), but by the level at which they work. Most lie somewhere near the middle, but a few lie farther apart on the axis. All of the organizations I analyzed work at an international level except CIPRA.

I found several divisions of levels of governance and types visible within the

organizations: international organizations between states (the EEA and UNESCO), international NGOs (the OECD, the IUCN, and CIPRA), and national organizations (Alpine Convention and CLEAR). At the international level, UNESCO and the EEA both encompass many nations, but they differ on the motivations behind their agendas. UNESCO focuses on the preservation of the Alpine landscape and the EEA pushes to sustain human systems. A similar pattern can be seen between international NGOs the IUCN and the OECD. Although they are the same type of entity, the IUCN has environmental motives whereas the OECD is concerned purely with economic sustainability. Because CIPRA focuses mainly on regional and local programs, it is different from the IUCN and the OECD in the level of governance in which it makes recommendations and works. However, CIPRA is an international NGO. The Alpine Convention represents the national level because it encourages cooperation between national governments of the Alpine states and focuses on national issues specific to each country it represents. The members of the Alpine Convention are state officials, as opposed to UNESCO and the EEA whose members are transnational bureaucrats. CLEAR is representative of the Swiss government and is purely national.

All of the organizations I analyzed fall near the middle of the tension between environmentalism and economic development. There seems to be a general consensus that environmental action is taken as a means to sustain both human and natural systems in conjunction as opposed to one or the other. As suspected, the organizations that work at an international level focus on economic motives. I was surprised to find how clearly all of the organizations I studied are concerned with human systems. Where are the environmental organizations? My sampling of organizations that work in the Alps gives an accurate portrait of

the international involvement in the Alpine region. If I had examined more regional-based, mountaineering, activists, or preservation groups I believe I would have found more policy action. Even the organizations that outwardly seem focused on conservation are structured around economic sustainability.

Another issue could be a lack of funding and attention to the Alps because they are within the developed world. International organizations tend to pay more attention to nations that are political issues (an example is the heavy international involvement in the Balkan War due to its region) or affect a large number of people who have no means to solve problems. The Alps lie in first-world nations that have the means and opportunity to solve the issues brought about by global warming. However, the Alpine nations cannot fight climate change alone. Perhaps a push from international governance, however, will be needed to bring about measures that will sustain the Alps.

Connections

While analyzing the seven organizations I chose for my research, I was surprised to find many of them very closely connected by various ways. Switzerland is a member of the EEA (not, however, the EU) as well as the IUCN, the OECD, and CIPRA. The Alpine Convention is also a member of CIPRA. In addition to membership, CIPRA was responsible for the creation of the Alpine Convention and remains one of the eleven official organizations that has observer status over the Convention (CIPRA.org, 2011). Through this role, CIPRA submits policy proposals for changes in the Alpine nations. The Alpine Convention is also related to the European Union through its branch, specific to the EU, the Alpine Space Programme. Another close connection is

found between the IUCN and UNESCO. The document of nomination for the JAB World Heritage Site was created by the IUCN and submitted to UNESCO for approval.

The international governance system of today is a closely related but ultimately bureaucratic entity that is less than transparent at times. Each of these entities appears to be an autonomous organization at first glance, but they are actually very closely related. The ultimate goal of international relations is to connect different nations and foster cooperation. I believe the organizations I have examined have reached the goal of cooperation. The problem, however, is if those connections can be used to combat environmental issues as well as foster development and economic success. The sharing of information and hopefully a future of shared environmental regulations could be the positive things to come out of the network of Alpine expertise and policy initiators.

Conclusion

For future research concerning this topic, a more inclusive study of all of the organizations working on environmental issues in the Alps could be helpful. Also, I was interested in the funding of different groups I examined and believe a tracing of money could shed more light on motivations behind different organizations. Another topic of future research could be a more systematic comparison of the Alps with other mountain ranges at various degrees of environmental peril as a means to see the potential implications of global climate disturbance in different areas and climates.

As seen with the earlier analysis of Switzerland, regional-level work (Swiss cantons) encourages environmentalism more than international organizations. Because of the economic

and conflict-preventative basis most transnational organizations are founded upon, development is of a higher stature than environmental degradation. Perhaps a resurgence of grassroots environmentalism is emerging in the region of the Alps, or maybe large transnational organizations are adapting to new roles in a changing world and adopting better strategies to combat environmental problems. Capitalism drives greed in the Western world, and resources that are of an intrinsic but not necessarily economic value are sometimes left out of priorities. The organizations I sampled are interconnected and highly concerned with sustaining human development and economic systems. I hope in years to come the creation of a new type of international organization, not focused on economic systems but solely on finding solutions to environmental problems, will emerge. Another solution could be binding environmental legislation from already existing organizations like the United Nations and the European Union.

VI. Conclusion

International policy makers are currently struggling with human rights issues. Perhaps environmental sustainability will be the next hurdle for international cooperation. Anna Russell (2010), an expert in international law at Oxford University, states that not until the 1990s were international organizations willing to take up the cause of human rights through encouraging development that fostered the integration of human rights into development practices (p. 22). I hope that environmental sustainability will be the next wave of international compromise and legislation. Disenfranchised people and the environment lack a voice with which to defend themselves, leaving the responsibility to governments and other organizations. Because global warming is such a far-reaching problem with no specific source, many nations refuse to accept responsibility or acknowledge there is an issue. Michael Bell (2009) states that, “individual actors pursuing their rational self-interest often lead us to irrational collective outcomes that, in fact, undermine the interests of those who enact them” (p. 250). Each nation or organization acts on its own self-interest. Problems like environmental degradation are expensive to fix, have little immediate result of change, and do not have obvious or specific causes or solutions. For these reasons, environmental issues are not a priority of international governance.

How can the small nation of Switzerland win in the fight against global warming without the help of international environmental regulations? Environmentalism opens new doors to international cooperation as measures are needed to globally reduce emissions. Can environmental international governance catch up to the needs of nations like Switzerland before it is too late? Is Switzerland prepared to take on a larger role in the international policy arena to protect its landscape?

In my research, I have found that international organizations can adapt to climate issues in the Alps. As expected, at the international level many of the documents I analyzed are vague and bureaucratic. Thus, I advocate a regional and local response from international organizations. Combatting environmental issues is more productive at a lower level of governance. Perhaps the international community is not prepared to deal with the onset of climate change because international bodies were created to encourage economic development and globalization. I hope in the wake of environmental peril, international policy makers will meet this unique challenge before it is too late for both the Alpine landscape and those who depend on the natural resources found there. I agree with the ideas of interconnectedness between human and natural systems but believe we should place more emphasis on nature within the relationship. Sustainable development is key in addressing environmental problems but a better solution could be to limit development instead of solely encourage it.

The future implications of climate change in the European Alps are far-reaching and unpredictable. Could the Alps be an example of cooperation and sustainable development for other parts of the world and could Switzerland emerge as a leading nation in the fight against climate change? Only the future will tell the implications of global warming and how we respond. Because of the cooperative nature of government at the European level as well as an overwhelming love for the Alpine landscape, I believe a compromise between economic and ecological forces will be reached.

Appendix: Documents Analyzed

World heritage nomination. (2007) *United Nations Scientific, Cultural, and Educational Organization*.

Climate change in the European Alps: Adapting winter tourism and natural hazards management. (2007) *Organization for Economic Cooperation and Development*.

Cooperation in the European Mountains 1: The Alps. (1999) *World Conservation Union*.

cipra.org (2011) *International Commission for the Protection of the Alps*.

Water and water management issues: Report on the state of the Alps. (2009) *Alpine Convention*.

Regional climate change and adaptation: The Alps facing the challenge of changing water resources. (2008) *The European Environmental Agency*.

Views from the Alps: Regional perspectives on climate change. (1998) *Climate and Environment in Alpine Regions*.

Bibliography

alpconv.org (2011).

Balsiger, J. (2008). Sustainable development at the ballot box: policy change and regional political solidarity in Switzerland and California. *International Studies Association*, 1-42.

Beattie, A. (2006). *The Alps: A cultural history*. New York: Oxford University Press.

Bell, M. (2009). *An invitation to environmental sociology*. Thousand Oaks: Pine Forge.

Beniston, M. (2006). Mountain weather and climate: A general overview and a focus on climatic change in the Alps. *Hydrobiologia*, 562(1), 3-16.

Buchecker, M., Mieier, C. & Hunziker, M. (2010). Measuring the effects of consensus-building processes with methods of intervention research. *European Planning Studies*, 18(2), 259-280.

Church, J. M. (2009) Saving the Alps? on the state of regional environmental initiatives in Europe. *International Studies Association*, 1-6.

Clark, W. (2006) Global environmental assessments: lessons from history. *Global Environmental Assessment Project* from harvard.edu.

clear.eawag.ch (2011).

Convention on the protection of the Alps (Alpine Convention). (1989) *Official Journal of the European Communities*, 1-10.

eea.europa.eu (2011).

Environmental governance. (2010) *United Nations Environmental Programme Year Book*. Nairobi: United Nations Environment Programme.

Golobic, M. (2010). Transformation processes of Alpine landscapes and policy responses: Top-

down and bottom-up views. *Society & Natural Resources* 23(3), 269-280.

Hill, M., Wallner, A., & Furtado, J. (2010) Reducing vulnerability to climate change in the Swiss Alps: A study of adaptive planning. *Climate Policy (Earthscan)* 10(1) 70-86.

Holding the Alps (1994). *The Economist* (52), 1.

icun.org (2011).

Kok, M., Metz, B., Verhagen, and J., Van Rooijen, S. (2008) Integrating development and climate policies: national and international benefits. *Earthscan*. 8(2), 103-118.

Lolive, J., & Tricot, A. (2004). The emergence of an Alpine environmental expertise.” *Innovation: The European Journal of Social Sciences* 17(3), 243-257.

Messerli, P. (2008). Research on Alpine landscape development: From research to policy. *Mountain Research and Development* 28(2), 128-131.

oecd.org (2011).

Price, M. (2000). The Alpine Convention: A model for other mountain ranges? *Mountain Research and Development*, 20(2) 192-194.

Russell, A. (2010) International organizations and human rights: Realizing, resisting or repackaging the right to water? *Journal of Human Rights*. 9(1), 1-23.

Scmid, Adrian. (2003). Democracy from below: Environmental concerns and Swiss direct democracy. *International Symposium on Initiatives, Referendums, and Direct Democracy* (Session 4). Taiwan.

swissworld.org (2011).

unesco.org (2011).

Wiesmann U., Liechti K., & Rist, S. (2005) Between conservation and development. *Mountain*

Research and Development 25(2), 128-138.