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# Multi-Level Environmental Governance : a Comparative Case Study of Five Large Scale Natural Resource Management Programs

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MULTI-LEVEL ENVIRONMENTAL GOVERNANCE:  
A COMPARATIVE CASE STUDY OF FIVE  
LARGE SCALE NATURAL RESOURCE MANAGEMENT PROGRAMS

by

SHPRESA HALIMI

A dissertation submitted in partial fulfillment of the  
requirements for the degree of

DOCTOR OF PHILOSOPHY  
in  
PUBLIC ADMINISTRATION AND POLICY

Portland State University  
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DISSERTATION APPROVAL

The abstract and dissertation of Shpresa Halimi for the Doctor of Philosophy in Public Administration and Policy were presented June 5, 2008 and accepted by the dissertation committee and the doctoral program.

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## ABSTRACT

An abstract of the dissertation of Shpresa Halimi for the Doctor of Philosophy in Public Administration and Policy presented June 5, 2008.

Title: Multi-level environmental governance: A comparative case study of five large scale natural resource management programs.

Globalization is occurring at an unprecedented pace through the end of the twentieth century and into the new millennium. In such a world, governance is increasingly shared among governments, civil society organizations and businesses. Globalization has placed new demands on environmental management across national borders. Hence, changes in the environmental governance frameworks are required to create the enabling conditions for the effective management of the natural resources and the environment.

This study seeks to develop an integrated “Multi-level Environmental Governance” (MLEG) framework and to explore the relationship between the core characteristics of the framework and the achievements of large scale natural resource management programs. The MLEG framework encompasses several related theories and frameworks of Multi-level Governance, Institutions for Environmental Governance and Environmental Decision Making.

To explore its explanatory power, the MLEG was applied to five of large scale natural resource management cases respectively: The Central Africa Regional Program for the Environment; the Central Truong Son Biodiversity Conservation Initiative; The Central America Regional Environmental Program; The European Climate Change Program and Northwest Power and Conservation Council Fish and Wildlife Program.

This research found that the MLEG framework is best suited to address the governance challenges of stationary natural resources. The presence of the core characteristics of the MLEG framework contributes to a higher degree of program achievement under the following conditions: 1) The resource is of a stationary nature and the program uses an ecologically defined governance structure; 2) There is continuous funding to support the conservation effort; 3) There is a high degree of scientific certainty about the management of the resource; 4) The conservation effort is based on “multi-stakeholder processes” that are informational and consultative in nature.

To my Mother

*Nadide Halimi*

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## CHAPTER I – INTRODUCTION

### 1.1 Introduction and Overview of the Study

Globalization is occurring at an unprecedented pace through the end of the twentieth century and into the new millennium. Thomas Friedman (2005) defines globalization as “the inexorable integration of markets, nation-states and technologies to a degree never witnessed before – in a way enabling individuals, corporations and nation-states to reach around the world farther, faster, deeper and cheaper than ever before.” Keohane and Nye (2001) define globalization as networks of interdependence that span intercontinental distances. With globalization we are witnessing a shift from “government to governance” (Pierre & Peters, 2000). By governance, we mean: “The sum of many ways that individuals and institutions, both public and private, manage their common affairs” (Commission on Global Governance, 1995). Globally, governance centers on the idea that states are only one of the players in the global arena. The forces of globalization are leading to the weakening of the nation state. The nation state is increasingly unable to fulfill its traditional roles (Halliday, 2002). In the face of global interconnectedness state sovereignty no longer prevails as the means to provide the “global public goods”. The nation state is not about to be replaced as the primary instrument of domestic and global governance but it is being supplemented by other actors, private and third sector, in a more complex geography (Caporaso, 2000; Keohane & Nye, 2000; Barber, 2001; Florini, 2003; Kahler & Lake, 2003).

In such a world, governance is increasingly shared among governments, civil society organizations and businesses. In other words, the demand for shared-power arrangements is growing<sup>1</sup>. Shared power arrangements are designed to increase governance and management capacity in this world that is functionally interconnected by structurally divided (Crosby & Bryson, 2005). However, the fundamental problem is that contemporary global governance lacks the capacity and required frameworks to better manage the multi dimensions and interconnected systems of globalization (Stiglitz, 2003).

Globalization and its interconnectedness qualities are inherent in the area of natural resources and the environment. Environmental problems ranging from climate change, to transcontinental air pollution, to the loss of bio-diversity, land and soil degradation, forest degradation and deforestation, freshwater stress and scarcity, degradation and pollution of coastal and marine areas, etc occupy the headlines of our news media and the global agenda. On the other hand, economic globalization has placed new demands on environmental management across national borders and has raised new questions about the appropriate roles of the private sector and of international organizations in environmental governance. Increasing democratization of political systems around the world and the growing acceptance of “good governance” norms have opened the door to public participation in environmental

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<sup>1</sup> Crosby & Bryson (2005) define shared power as actors jointly exercising their capabilities related to a problem in order to further their separate and joint gains (p.18). A shared power arrangement enhances the power of participants beyond the sum of their separate capabilities. “We see power as not just the ability to make and implement decisions (a traditional view) but also the ability to sanction conduct and, most important, to create and communicate shared meaning” (p.29).

decision-making. At the same time, the rapid growth of nongovernmental organizations such as environmental groups and other public interest advocates has helped organize and enable the public to participate. Finally, the proliferation of new information and communication technologies is allowing social movements to coordinate at the global level and helping the public to hold governments and corporations accountable for their environmental performance (UNEP, 2002; WRI, 2004). Hence, changes in environmental governance frameworks are required to create the enabling conditions for the effective management of the environment (Millennium Ecosystem Assessment, 2005). Environmental problems do not respect political boundaries (Esty, 1999; Badenoch, 2002; Young 2002, 2005; Marks & Hooghe, 2004; Karkkainen, 2004;), which raises the question of how to negotiate a better fit between nature and politics.

## **1.2 Problem Statement**

Over the last 20 years, governance and natural resource scholars have relied mainly on the theories of Common Pool Resources (CPR) (Ostrom, 1990) and Environmental Regimes (Young, 1989) for exploring the challenges of environmental governance. The CPR theory deals primarily with natural resource management at the local level and actually requires the state in its traditional functions in order to work (Finger et al, 2006).

Whereas, regime theory to date remains too state centric (Young, 1999); it refers to sectoral problems and does not really constitute a comprehensive approach. In the mid 90's a new approach known as "Ecosystem Management" emerged in the

literature (Grumbine, 1994). However the ecosystem management has been seen more as a problem of science and management than of “governance” (Imperial, 1999).

Each of the existing theories and frameworks captures some important dimensions of environmental governance, and there are some important areas of overlap. But none of them is comprehensive enough to deal with the complexities and interdependencies inherent in the contemporary environmental challenges. The current environmental governance structures are inadequate to address the complexities of these challenges (WRI, 2004). Many existing institutions at both the global and national level are not well designed to deal with the management of open access resources (a characteristic of many natural resources) and face the challenge in addressing the degradation of natural resources related to the need for greater cooperation across sectors (or media) and the need for coordinated responses at multiple levels (Millennium Ecosystem Assessment, 2005). Practitioners are also increasingly recognizing that the most effective scale<sup>2</sup> for managing natural resources and planning conservation activities is large – at the scale of entire ecosystem, ecoregions, or ecologically functioning landscapes or seascapes (USAID, 2005).

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<sup>2</sup> Gibson et al (1998) define scale as “the spatial, temporal, quantitative, or analytical dimensions used to measure and study any phenomenon”. While natural scientists have long understood the importance of scales, and have operated within relatively well-defined hierarchical systems of analysis, social scientists have worked with scales of less precision and greater variety. With the growing realization that the insights of social science are crucial to understanding the relationships between people and the natural environment, it is necessary for social scientists to identify more clearly the effects of diverse levels on multiple scales in their own analyses, to comprehend how other social scientists employ diverse kinds of levels and scales, and to begin a dialogue with natural scientists about how different conceptions of scales and levels are related. Whereas *levels* are “the units of analysis that are located at the same position on a scale (Gibson et al, 1998)”. According to Young (2002), scale has to do with the levels at which phenomena occur in dimensions of space and time.



Given the seriousness of these environmental challenges, the field of environmental governance is in immediate need for a more integrated framework adapted to contemporary complexities and realities. A multi-level approach is in fact much more suited to the current trend of globalization; in a world increasingly recognized as being multi-level, solutions must be as well (Finger et al, 2006; Lemos & Agarwal, 2006; Cash et al, 2006). This new approach has begun to emerge for some very good reasons, which include: the need for locally tailored and context specific environmental management; the need to build ongoing institutional learning capacities at local, state, regional and international levels appropriate to the ecosystem to be managed; the need for flexibility and adaptability in response to complexity and dynamic conditions; and the need for collaboration arising from the nested scales of interests implicated in managing large scale conservation units (Eckerberg & Joas, 2004).

The proposed research responds to this need with a two step approach. *First*, the research will review the existing environmental governance theories and frameworks and based on that develop an integrated “Multi-Level Environmental Governance” (MLEG) framework. *Second*, the research will apply the MLEG framework to five of large scale natural resource management program cases across several environmental media to explore its initial explanatory power. The proposed research will address the following research question:

*Does the presence of the three core characteristics of the MLEG framework contribute to a higher degree of the large scale natural resource management program achievement? If so, in what manner and under what sets of external and internal conditions?*

### **1.3 Value of the Study**

This study will be of value to both the development of theory and to the practice of large scale natural resource program management. The results of the research will contribute to the enhancement of the understanding of theory and practice of MLEG.

In the environmental arena, both domestically and globally, we are witnessing a move toward sub-national units that are reforming environmental governance patterns directly with supra-national units, with national states, with non-governmental organizations as well as other sub-national governments.

A theoretical foundation of MLEG is needed because it's a new concept with unique characteristics. This foundation will be developed by drawing from the existing theories and frameworks in the disciplines of public administration and political science. In this process, the theoretical contributions of each theory and framework will be highlighted along with their strengths and weaknesses. The research will further develop the theory underpinning the MLEG and help provide depth to the concept.

To date there has been little research on MLEG because it's a new construct. The literature is top heavy with case study research developed within a single level or specific nation-state contexts. To date, there has been little serious attention to the types of processes that exist at multiple levels and large scales versus those that exist at only one level and at small scales. This study will address the gap by developing the theoretical foundations of the concept and assessing its value. By doing so, it will contribute to the enhancement of the understanding of the concept – its uses, misuses and limitations.

The design and implementation of large scale natural resource management programs is becoming a common practice. There are many pressing issues, i.e. loss of biological diversity, soil and land degradation, deforestation, climate change, trans-boundary air pollution, to name but a few that require immediate action. To date, the efforts made to mitigate the adverse effects of the above mentioned problems have had a local focus. But a growing number of practitioners are becoming aware of the fact that the solutions to natural resource management problems require large scale actions. This realization is accompanied by many uncertainties associated with the design and implementation of such programs which require the concerted efforts of many players at sub-national, national and supra - national levels. Many practitioners are well trained in the technical and managerial aspects of natural resource management, however they do lack the set of skills required to address the myriad of issues from a governance perspective (USAID, 2005).

This study will provide a valuable learning tool for practitioners responsible for the design and implementation of large scale natural resource management programs. The MLEG framework is not a panacea to resolving all the issues. Rather, it is one more tool that can be added into the practitioners' tool-box, which they can use as they see fit.

On the other hand the policy makers might consider whether different environment problems might lead themselves to MLEG arrangements operating at appropriate scales and then look to experiment with, evaluate, and replicate the most successful governance arrangements.

## CHAPTER II – RELEVANT LITERATURE

The literature consists of three dominant theoretical constructs – namely Multi-Level Governance (MLG), Institutions for Environmental Governance (IEG) and Environmental Decision Making (EDM) that are related to the study of the environmental governance of natural resources. Each of these three will be elaborated in the proposed integrated framework of Multi-Level Environmental Governance (MLEG). A review of the relevant literature is presented below. First, some theoretical issues related to the concept of “governance” will be discussed, followed by an in depth literature review of the theoretical constructs.

### **2.1 Governance – Theoretical issues**

Over the last 30 years governance has become a prominent subject in public administration. As a popular catchword “governance” has been used to describe different things, with a common aspect, that is a change from a traditional way of management or government into a new, modern way of management of government (Eckeberg & Joas, 2004).

It was Cleveland (1972) who first used the word “governance” as an alternative to the phrase “public administration” and urged that “what the people want is less government and more governance”. According to Cleveland the organizations that get things done will no longer be hierarchical pyramids with most of the real control at the top. They will be systems—interlaced webs of tension in which control

is loose, power diffused, and centers of decision plural. "Decision-making" will become an increasingly intricate process of multilateral brokerage both inside and outside the organization which thinks it has the responsibility for making, or at least announcing, the decision. Because organizations will be horizontal, the way they are governed is likely to be more collegial, consensual, and consultative.

In the years to follow many scholars of public administration and policy have visited and revisited the subject of "governance" by providing definitions as well as theoretical constructs of the concept, which according to Fredrickson (2004) tends to take one or more of the following forms: (1) It is substantively the same as already established perspectives in public administration, although in a different language; (2) It is essentially the study of the contextual influences that shape the practices of public administration, rather than the study of public administration; (3) It is the study of interjurisdictional relations and third party policy implementation in public administration; (4) It is the study of the influence or power of non-state and non-jurisdictional public collectives.

Some of the definitions of "governance", to mention but a few, include:

"Governance is the shift from the bureaucratic state to the hollow state or to third-party government" (Salamon, 2002; Rhodes, 1997); "Governance is market-based approaches to government" (Kettl, 2002); "Governance is the development of social capital, civil society, and high levels of citizen participation" (Sorensen, 2003); "Governance is the work of empowered, muscular, risk-taking public entrepreneurs" (Osborne & Gaebler, 1992); "Governance is interjurisdictional cooperation and

network management” (Fredrickson, 1999; Peters & Pierre, 2001; O’Toole, 2003); “Governance is regimes, laws, rules, judicial decisions, and administrative practices that constrain, prescribe, and enable the provision of publicly supported goals and services” (Lynn, 2001). Rhodes (1997)<sup>3</sup> defines governance as:

- Interdependence between organizations. Governance is broader than government, covering non-state actors. Changing the boundaries of the state means the boundaries between public, private, and voluntary sectors becoming shifting and opaque.
- Continuing interaction between network members, caused by the need to exchange resources and negotiate shared purposes.
- Game-like interactions, rooted in trust and regulated by rules of the game negotiated and agreed by network participants.
- A significant degree of autonomy from the state. Networks are not accountable to the state; they are self organizing. Although the state does not occupy a privileged, sovereign position, it can indirectly and imperfectly steer networks.

At the global level, a common thread in the discussions about governance is that a simultaneous movement of political power is occurring up to transnational levels of government and down to local communities (Pierre, 2000; Peters & Pierre, 2004; Bache & Flinders 2004; Rosenau, 2004). The term has been defined as: “The sum of many ways that individuals and institutions, both public and private, manage their common affairs” (Commission on Global Governance, 1995). According to Koehane (2002) the functions of global governance are: (1) To limit the use of large

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<sup>3</sup> This study will use Rhode’s definition of the term.

scale violence; (2) To limit the negative externalities of decentralized action; (3) To provide focal points in coordination games; (4) To deal with system disruptions; and (5) To provide a guarantee against the worst forms of abuse.

Held and McGrew (2002) suggest that global governance, as an ideal, centers on evolving systems of formal and informal political coordination, across multiple levels and multiple authority structures, that attempts to realize common purposes or resolve collective problems.

An evolution of the concept has also occurred in the environmental field, both domestically and internationally. The matters of environmental governance are extraordinary dynamic today (WRI, 2004).

The United States, for example, is rapidly shifting from a conventional sovereignty-based regulatory model based on hierarchical, piecemeal, command-style rules, toward a model based on locally or regionally tailored, broadly integrative, collaborative, and experimental polyarchic governance arrangements (WRI, 2004). More responsibility for both making and implementing policy has flowed to state and local governments, and the federal Environmental Protection Agency has increasingly shifted into the role of service purchaser and service arranger. (Kettl, 2000). The general trend is toward building a system of environmental governance that: (1) addresses problems at a range of geographic scales; (2) generates a mix of regulatory "competition" and "cooperation" both horizontally and vertically; (3) remedies information failures; and (4) promotes an appropriate mix of public engagement and delegation in the policymaking process (Esty, 1999).



On a global level, a system for environmental governance now exists (Axelrod et al, 2005) and consists of three main elements:

1. Intergovernmental organizations such as United Nations Environmental Program, Commission on Sustainable Development, etc.
2. A framework of international environmental law based on hundred multilateral treaties and agreements.
3. Financing institutions and mechanisms to carry out treaty commitments and build capacity in developing countries including the World Bank, Global Environmental Facility, etc.

Especially in the past decade a host of nongovernmental organizations, including international environmental interest groups, scientific bodies, business and trade associations, women's groups, and indigenous people's organizations, have also come to play an important role in global environmental governance. Despite these strides, there is a growing perception that the current international governance system remains weak and ineffective (Axelrod et al, 2005; WRI 2004).

## **2.2 Multi-Level Governance**

In response to the world's interconnectedness, and the emergence of a myriad of shared-power arrangements, a new mode of allocating authority known as "Multi-Level Governance" (MLG) has gained widespread acceptance in the literature (Marks 1993; Rhodes 1997; Marks & Hooghe 2004; Peters & Pierre, 2004; Rosenau, 2004; Bache & Flinders, 2004). The MLG concept appeared in the political science literature

in the early 90's to describe a system of continuous negotiation among nested governments at several territorial tiers—supranational, national, regional and local. But the term is now applied more generally; it refers to negotiated, non-hierarchical exchanges between institutions at the transnational, national and local levels (Pierre & Peters, 2001; Hix, 1998; Smith, 1997) and the relocation of authority upwards, downward and sideways from central states (Hooghe & Marks, 2003).

Rosenau (1997) argues that national governments are losing ground to networks of corporations, nongovernmental organizations, professional societies, and advocacy groups, alongside governments. These “spheres of authority” ensure compliance but they are nonhierarchical, fluid, mostly nongovernmental, and often nonterritorial. Rosenau coins the term “framegration” which is “the interactions of globalizing and localizing forces, of tendencies toward integration and fragmentation that are so simultaneous and interactive”(p. 293).

MLG contains both vertical and horizontal dimensions. “Multi-level” refers to the increased interdependence of governments operating at different territorial levels, while “governance” signals the growing interdependence between governments and non-governmental actors at various territorial levels (Bache & Flinders, 2004; Peters & Pierre, 2004).

MLG's main advantage lies in its scale flexibility. MLG allows jurisdictions to be custom designed in response to externalities, economies of scale, ecological niches, and preferences (Marks & Hooghe, 2004). Marks & Hooghe define jurisdiction as a set of rules for cooperation among a particular set of persons.

The theory on Multi Level Governance uses a typology that distinguishes between two contrasting visions namely Type I and Type II MLG.

**Table 1: Multi-level Governance Typology**

Type I	Type II
General-purpose jurisdictions Non intersecting -- memberships Jurisdictions at a limited number of levels System wide architecture	Task-specific jurisdictions Intersecting memberships No limit to the number of jurisdictional levels Flexible design

*Source: Marks & Hooghe (2004)*

Type I governance is rooted in federalism (Marks, 1993) where authority is centered in multi-task bundles among a limited number of mutually exclusive jurisdictions. Type I governance is predominant across established core constitutional institutions of the legislature, executive, and judiciary, and institutions that are responsible for core competencies, including monetary, fiscal, defense, justice, and welfare policy.

Type II governance is organized across a large number of levels. Instead of conceiving authority in defined local, regional, national, and international layers, Type II governance scholars argue that each public good or service should be provided by the jurisdiction that effectively internalizes its benefits and costs. A range of public goods demand jurisdictions at a range of scales. Something akin to a marble cake emerges. That is why the scholars of Type II governance prefer the terms multi-tiered governance, or polycentered, or interjurisdictional governance (Ostrom, Tiebout, & Warren, 1961; Ostrom & Walker, 1997; Fredrickson, 2004).

Type II governance is found in the following frontiers or niches: public/private frontier (Majone, 1998); densely populated frontier regions of bordering states

(Blatter, 2001) and the national/international frontier (Rosenau, 1997), where a growing number of policy areas are perceived to involve regional or global spillovers. Some jurisdictions coordinate state actors; others coordinate a mix of state and non-state actors; while others are entirely non-state (Clark, 2000). Type II governance may also appear where local communities are faced with local common pool resource problems. Elinor Ostrom has demonstrated how communities around the world have developed task-specific governance structures, often self-generated, to cope with common pool resources (Ostrom, 1990).

A large number of ad hoc intergovernmental organizations and nongovernmental actors are involved in international governance (Clark, 2000; Young, 1999). There are many Type II arrangements for self-regulation among firms (e.g. the World Business Council for Sustainable Development) and a vast web of issue-specific transnational networks (Clark, 2000). Functionally specific, territorially overlapping, and fluid jurisdictions are the norm in international policy making, which prompted Ronnie Lipschutz to coin the term “global civil society” (Lipschutz, 1996).

Lipschutz (1996) claims that there is reason to think that a governance system composed of collective actors at multiple levels, with overlapping authority, linked thorough various kind of networks, might be as functionally-efficient as a highly centralized one. It is essential to construct environmental governance systems of networks and alliances, national, transnational and global, all linked together. These multiscale networks improve governance through both “function and social meanings, anchored to particular places but linked globally through networks of knowledge-

based relations” (Lipschutz 1996, p.74) Lipschutz suggests a model of environmental protection, conservation, and restoration consisting of a consciously developed system of multiple layers and actors, lined loosely together in systems of political and social governance.

Hass (2004) argues that an international society of states founded on the principle of national sovereignty alone discouraged serious state attention to international environmental externalities. Consequently there is the potential for replacing the traditional dichotomous concepts of global governance organized hierarchically or anarchically with a network model of decentralized global governance. The best institutional structure for dealing with complex and uncertain policy environments is one of multilevel decentralized governance. Decentralized information-rich systems are the best design for addressing highly complex and tightly-coupled problems.

Badenoch (2001) alerts that the need for interaction across the regional, national, and sub-national levels in transboundary environmental issues is particularly acute. Governance reform is already underway at the national level, and interest is growing in regional arrangements operating above the local level but below the national level, as well as in regional arrangements operating above the national level but below the global level. Governments should continue gradually to increase the roles of supra-national and sub-national actors in environmental decision making as required by the many scales of environmental challenges. (Young 2002; Badenoch, 2001). Thus, finding the “appropriate level” to place authority over environmental

decisions sometimes requires devolving the authority to lower, more local levels of decision-making. At other times it involves relinquishing authority to higher levels with a greater geographic and political reach. This is especially true when tackling problems that have “transboundary” effects and require regional solutions (WRI, 2004).

Due to the nature of environmental problems, MLG features seem to be obvious in the environmental arena (Eckerberg & Joas, 2004). However, the current literature lacks an overarching conceptual framework that captures the dynamics of MLG of natural resources. There is a gap in our knowledge about how to integrate Type I and Type II approaches into the environmental realm to gain the benefits of large scale-flexibility while not diminishing the benefits of smaller-scale institutional arrangements that are nested in the larger frame. We do not have a clear understanding of the types of MLG institutional decision making processes that can simultaneously maximize the benefits of different levels of embedded institutional arrangements with differing configurations working together for the mutual benefit of the whole and all of its parts.

The theory of MLG is relatively new and there is much more that ought to be done if the potential of the concept is to be fully developed (Bache & Flinders, 2004).

*In summary, MLG it is focused on systems of governance involving transnational, national, and subnational levels and actors; it highlights negotiations and networks as the defining features of institutional relationships; and it emphasizes the role of satellite organizations which are not formally part of the governmental*

*framework. The most relevant MLG arrangements for the MLEG are those that fall under the Type II namely an unlimited number of task specific, flexible jurisdictions. Type I arrangements are ill suited to solving problems in certain policy areas (e.g environmental policy and natural resource management) that are perceived to involve regional or global spillover.*

### *2.2.1 Multi-level governance of water resources*

Several authors have developed a number of theoretical constructs and frameworks that aim at exploring the multi-level governance of water resources.

In the article “*Post Sovereign Environmental Governance*” Karkkainen states that a new type of environmental governance is emerging that is non-exclusive, non-hierarchical and post territorial, and calls this phenomenon “post-sovereign environmental governance.”

Post-sovereign governance may be characterized as non-exclusive to signal its departure from the conventional state-centric understanding that sovereign states hold exclusive authority over environmental and natural resource policies within their territorial jurisdictions. Post-sovereign environmental governance arrangements do not rely exclusively on the traditional modalities of hierarchical authority. They are founded upon ongoing, open-ended commitments by multiple parties to “do whatever it takes” individually and jointly to restore ecological integrity in particular locales. The governance arrangements are post-territorial; the governance effort is problem-driven, and its spatial and conceptual boundaries are defined not by reference to fixed,

territorially delimited jurisdictional lines, but by reference to shared understandings of the nature, scale, and causes of the problem to be addressed (Karkkainen 2004; pp 75-76). Karkkainen applied its framework to two case studies: the “The Chesapeake Bay Program” and “The US-Canadian Great Lakes Program”. He concludes that the model has larger implications for environmental management and global environmental governance well beyond those two particular regions.

In their article “*Sustainable Development in the Baltic Sea Region*” Kern & Löffelsend (2004) discuss the multi-level governance arrangement in the Baltic Sea region<sup>4</sup>.

After the end of the Cold War, the Baltic Sea Region (BSR) developed into a highly dynamic area of cross-border cooperation and transnational networking. “State centered governance was replaced by multi-level governance which caused political actors to interact across the different levels of government ” (p.452). This development encompasses the establishment of direct relations with the European Union as a supra national body and networks of local and regional actors, such as the Union of Baltic Cities.

They note that in the past, the environmental policy on the BSR was centered on the level of the national governance. However, with the new developments in the region new governance arrangements are emerging that transfer the national authority

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<sup>4</sup> The Baltic Sea is located in Northern Europe, from 53°N to 66°N latitude and from 20°E to 26°E longitude. It is bounded by the Scandinavian Peninsula, the mainland of Europe, and the Danish islands. There are nine countries that have access to the Baltic Sea: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, and Sweden.



in three directions: upwards to the level of international and supranational institutions, sideways to civil society actors, and downwards to sub-national actors (p.453).

The authors describe and analyze three different forms of governance beyond the nation state in the BSR that include (1) “international governance *by* nation states”, which relates to efforts on the part of all of the countries in the BSR to solve existing problems through cooperation and coordination of governmental actors (e.g. the Helsinki Convention) ; (2) “international governance *with* nation states” as a form of an international policy network beyond the scope of single countries, which relies on the cooperation between all relevant governmental and non-governmental actors (e.g. Baltic 21 – Agenda 21 for the Baltic Sea Region) ; and (3) “transnational governance *without* nation states”, characterized by the absence of governmental actors (e.g. the Union of Baltic Cities).

The authors conclude that new forms of governance beyond the nation state can substantially contribute to the sustainable development of the BSR. Networks like Baltic 21 and the Union of Baltic Cities can develop capacities and instruments for implementation that cannot be created through intergovernmental cooperation alone. The new governance arrangements are influenced by the EU, which has become a strong political player in the BSR, mainly through its direct involvement in the decision making of the relevant actors (Baltic 21), through European regulations (especially via directives) and through the funding of specific projects. “The achievement of sustainable development in the BSR undoubtedly requires a productive combination of national governance and new forms of governance beyond

the nation state. In this respect, international policy networks, such as Baltic 21, and transnational networks, such as the UBC, represent promising new approaches that can complement cooperation between nation states. These networks are generally characterized by a horizontal, polycentric and non-hierarchical structure” (Kern & Löffelsend 2004, p.466).

### **2.3 Institutions for Environmental Governance**

Governance at multiple levels raises the question of what constitutes the linkages between these levels. While individual actors can occasionally serve as such linkages, the most important continuous linkage between different levels of governance is institutions (Peters & Pierre, 2004). Institutions are sets of rules, decision-making procedures, and/or programs that give rise to social practices, assign roles to participants in these practices and govern their interactions (Young 1989; 1998; 1999; 2002; 2005). This is a normal point of departure for those who take a “thin” perspective on institutions and speak of the rules of the game as the defining feature of institutions. Institutions in the “thick” sense consist of cognitive, normative, and regulative structures and activities that provide stability and meaning to social behavior. Institutions are transported by various carriers-cultures, structures, and routines-and they operate at multiple levels of jurisdiction (Scott, 1995). The thin definition directs attention to matters of compliance or conformance, whereas the thick definition focuses on a broader range of behavioral patterns arising in conjunction with the operation of social practices (Young, 2002). These perspectives are not

mutually exclusive; they are complementary (Young, 2005). The important thing is to derive insights from both approaches about the specific role that institutions play in environmental governance.

### 2.3.1. *Typologies of Institutions*

Scott (1995) in his book “*Institutions and Organizations*” sketches out an analytic framework built around what the author calls the three pillars of institutions. The pillars are the regulative pillar, the normative pillar and the cultural-cognitive pillar. Whereas Young (1994; 2002; 2005) explores two families of models, collective-action models and social-practice models, that seek to expose the behavioral pathways through which institutions affect the course of human-environment interactions.

#### Regulative Pillar and Collective Action Models

In the broadest sense, all scholars emphasize the regulative aspects of institutions; institutions constrain and regularize behavior (Scott, 1995). Scholars supporting this pillar are distinguished by the importance they give to regulative processes; rule-setting, monitoring, and sanctioning activities. In this conception, regulative processes involve the capacity to establish rules, inspect or review others' conformity to them, and as necessary, manipulate sanctions, rewards or punishments, in an attempt to influence future behavior (Ostrom, 1990).

Rules are an implicit or explicit attempt to achieve order and predictability among humans (Ostrom, 1990). Rules can be formal (e.g., laws, policies, regulations, etc) or informal (e.g. behavioral norms). Since rules are not self-formulating, self-

determining and self-enforcing, they are formulated in human language and subject to problems of lack of clarity, misunderstanding, and varied interpretations. The stability of ruled-ordered relationships depends upon the development of meaning of rules.

This requires building trust and monitoring and enforcing rules. Enforcement can take the form of formal (e.g., civil penalties, criminal penalties, etc.) or informal (e.g., a verbal comment or facial expression demonstrating displeasure) sanctions (Imperial, 1999). The primary mechanism of control is coercion (Di Maggio & Powell, 1983).

Scott's regulative approach resonates well with Young's collective action models. Collective action models focus on the behavior of regime members which they generally treat as unitary actors whose identities predate and are largely unaffected by participation in specific institutional arrangements (Young, 2001). Collective-action models rest on utilitarian premises in the sense that they treat the actors in social settings as coherent entities possessing well-defined preference structures and seeking to maximize payoffs to themselves through a process of weighing the benefits and costs associated with alternative choices in situations involving interactive decision-making or strategic interaction (Young, 2002; 2005). Behavioral prescriptions, often characterized as the "rules of the game", are the essential elements of institutions, and implementation coupled with the achievement of compliance with these prescriptions is critical to their success. The role of institutions is to prevent individualistic behavior from producing Pareto inferior outcomes or, in other words, outcomes that are worse for all participants than feasible alternatives under conditions of interactive decision making (Young, 2001).

Those who work with collective-action models take the view that incentive mechanisms are preferable to command-and-control regulations not only in terms of effectiveness (that is, getting the job done) but also in terms of efficiency (that is, achieving the desired results at the lowest cost). Incentive mechanisms allow individual subjects to make their own choices about how to respond to overall goals and targets and, in the process, to minimize the costs of complying with regime rules and commitments (Esty, 1999).

Those who adopt a collective-action perspective generally expect actors to make careful calculations about participation in individual regimes at an early stage and then to exhibit a high degree of consistency with respect to actions taken on the basis of the conclusions flowing from these calculations.

#### Normative Pillar and Social Practice Models

A second group of theorists see institutions as primarily resting on a normative pillar. Emphasis here is placed on normative rules that introduce a prescriptive, evaluative, and obligatory dimension into social life. Normative systems include both values and norms. Values are conceptions of the preferred or the desirable together with the construction of standards to which existing structures or behavior can be compared and assessed. Norms specify how things should be done; they define legitimate means to pursue valued ends (Scott, 1995). Normative rules are often regarded as imposing constraints on social behavior, and so they do. But at the same time, they empower and enable social action. They confer rights as well as responsibilities, privileges as well as duties.

The normative approach to institutions emphasizes how values and normative frameworks structure choices. Rational action is always grounded in social context that specifies appropriate means to particular ends; action acquires its very reasonableness in terms of these social rules and guidelines for behavior. Here choices are structured by socially mediated values and normative frameworks. Actors conform not because it serves their individual interests, narrowly defined, but because it is expected of them; they are obliged to do so (Scott, 2001).

March and Olsen (1989) develop a primarily normative conception of institutions. "The proposition that organizations follow rules, that much of the behavior in an organization is specified by standard operating procedures, is a common one in the bureaucratic and organizational literature. . . . It can be extended to the institutions of politics. Much of the behavior we observe in political institutions reflects the routine way in which people do what they are supposed to do" (p. 21).

March's distinction between the logic of instrumentalism and the logic of appropriateness helps to clarify the difference between a regulative and a normative conception of institutions. An instrumental logic asks, "What are my interests in this situation?" A logic of appropriateness asks, "Given my role in this situation, what is expected of me?" (March 1981, March & Olsen, 1989, Scott 1995; 2001)

According to March and Olsen, those who see actions as driven by expectations of consequences imagine that human actors choose among alternatives by evaluating their likely consequences for personal or collective objectives, conscious that other actors are doing likewise. Linking action exclusively to a logic of

consequences seems to ignore the substantial role of identities, rules, and institutions in shaping human behavior.

Within the tradition of a logic of appropriateness, actions are seen as rule-based. Human actors are imagined to follow rules that associate particular identities to particular situations, approaching individual opportunities for action by assessing similarities between current identities and choice dilemmas and more general concepts of self and situations. Action involves evoking an identity or role and matching the obligations of that identity or role to a specific situation. The pursuit of purpose is associated with identities more than with interests, and with the selection of rules more than with individual rational expectations (March & Olsen, 1989).

Appropriateness need not attend to consequences, but it involves cognitive and ethical dimensions, targets, and aspirations. As a cognitive matter, appropriate action is action that is essential to a particular conception of self. As an ethical matter, appropriate action is action that is virtuous. Like the logic of consequences, the logic of appropriateness is explicitly a logic of individual action. It is specified as a mode of action or justification for an individual actor. Thus, it is as individualistic in structure as is the logic of consequences.

The major concepts of the normative approach are in line with Young's social practice models. Social-practice models look at institutions as arrangements that engender patterned practices which play a role in shaping the identities of participants and feature the articulation of normative discourses, the emergence of informal communities, and the encouragement of social learning (Wend, 1987). These models

direct attention to processes through which actors become enmeshed in complex social practices that subsequently influence their behavior through de facto engagement in belief systems and normative preferences rather than through conscious decisions about compliance with regulatory rules (Scott, 2001).

The social-practice models differ from their counterparts with regard to the assumptions about the identity and nature of the actors. While states may be the members of most international regimes in formal terms, the actors whose behavior gives rise to environmental problems and whose responses are critical to solving them typically include corporations, nongovernmental organizations, and even individuals (Young, 2001). A key concern in thinking about environmental regimes, then, is to understand how states as the formal members of regimes are able to use their membership in regimes as a means of influencing the behavior of various non-state actors (Victor et al, 1998).

As far as sources of behavior are concerned, the social-practice models rest on different premises, some of which are captured in the idea of the logic of appropriateness as opposed to the logic of consequences (March & Olsen, 1989). The social-practice models often assume that actors comply with rules or live up to commitments because they are authoritative or legitimate or, because such behavior is deemed normatively correct (Young, 2001).

Those who favor social-practice models, are more favorably inclined toward command-and-control regulations and find the use of incentive mechanisms troubling, and for several reasons (Young, 2001). The use of incentive mechanisms as a standard



procedure may have the effect of commoditizing compliance and the fulfillment of commitments. Thus, encouraging subjects to respond to obligations in utilitarian terms can lead to the conclusion that noncompliance is acceptable so long as one is prepared to pay for it. In extreme cases, it may even lead actors to conclude that behavior on their part that causes the depletion of living resources or the pollution of ecosystems is acceptable, so long as they are willing to link this behavior with measures, such as joint implementation or the payment of fees or fines, that can subsidize environmentally benign and compensatory actions on the part of others.

Those who think in terms of social practices typically regard institutions as sticky or persistent; many arrangements are highly resistant to pressures for change, even when such pressures emanate from actors that are undoubtedly influential members of the relevant groups. Institutions, on this account, can and often do acquire lives of their own that allow them to exercise influence over the behavior of members and other subjects long after the circumstances that led to their creation have disappeared. The social-practice perspective points to the role of shared discourses, socialization, and institutional cultures in order to account for the stickiness of institutional arrangements (Ostrom, 1990; Young 2001; 2005).

### The Cognitive Pillar

A third set of institutionalists, principally anthropologists and sociologists stress the centrality of cognitive elements of institutions: the rules that constitute the nature of reality and the frames through which meaning is made (Geertz, 1973; Zucker 1977; Meyer 1977). As DiMaggio and Powell (1991) observe, a focus on the cognitive

dimensions of institutions is the major distinguishing feature of the new institutionalism within sociology. Theorists embracing a normative conception of institutions emphasize the stabilizing influence of social beliefs and norms that are both internalized and imposed by others (Scott, 1995).

Among the cognitive elements, particular emphasis has been given to the constitutive rules. Unlike the regulative view, cognitive theorists insist that games involve more than rules and enforcement mechanisms: they consist of socially constructed players endowed with differing capacities for action and parts to play (Scott, 1995). The cognitive view insists that much of the coherence of social life is due to the creation of categories of social actors, both individual and collective, and associated ways of acting. For cognitive theorists, compliance occurs in many circumstances because other types of behavior are inconceivable; routines are followed because they are taken for granted as “the way we do these things.” Whereas the emphasis by normative theorists is on the power of roles, normative expectations guiding behavior, the cognitive framework stresses the importance of social identities: our conceptions of who we are and what ways of action make sense for us in a given situation. And rather than focusing on the constraining force of norms, cognitive theorists point to the importance of scripts: guidelines for sensemaking and choosing meaningful actions (Scott, 1995).

Sociologists like Meyer and Rowan (1977) and DiMaggio and Powell (1983) emphasize the extent to which wider belief systems and cultural frames are imposed on or adopted by individual actors and organizations. Thus DiMaggio and Powell

underline the extent to which organizations attempt to be isomorphic in their structures and activity pattern with specified cultural patterns present in their environments.

### 2.3.2 *The Problems of Scale, Fit and Interplay*

In the environmental arena the need to govern transnational environmental resources raises the question of how to integrate smaller-scale and place-based institutions with higher levels of governance (NRC, 2005; WRI, 2004; Ostrom, 1990). This is known as the problem of “scale”<sup>5</sup> (Young, 2002). In essence, the problem of scale refers to the transferability of both empirical generalizations and causal inferences from one level to another in the dimensions of space and time (Young, 2005; Ostrom et al, 1998, Berkes, 2003; 2006).

Human activities of relevance to global environmental governance occur at various levels of social organization (see Figure 1). Scaling up in space, then, concerns the applicability of findings derived from an analysis of small scale or micro-level systems to meso-scale and even macro-scale systems. Conversely, scaling down is the process of bringing findings about large scale systems to bear on the analysis of meso-level or micro-level systems. The problem associated with scale arises from the fact that while scaling up and scaling down are relatively straightforward procedures under

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<sup>5</sup> Gibson et al (1998) define scale as “the spatial, temporal, quantitative, or analytical dimensions used to measure and study any phenomenon”. While natural scientists have long understood the importance of scales, and have operated within relatively well-defined hierarchical systems of analysis, social scientists have worked with scales of less precision and greater variety. With the growing realization that the insights of social science are crucial to understanding the relationships between people and the natural environment, it is necessary for social scientists to identify more clearly the effects of diverse levels on multiple scales in their own analyses, to comprehend how other social scientists employ diverse kinds of levels and scales, and to begin a dialogue with natural scientists about how different conceptions of scales and levels are related. Whereas *levels* are “the units of analysis that are located at the same position on a scale (Gibson et al, 1998)”. According to Young (2002), scale has to do with the levels at which phenomena occur in dimensions of space and time.

some conditions, this is not the case under other conditions. It is therefore an important challenge both to identify circumstances under which generalizing across scales is hazardous and to develop procedures for adapting propositions and models to allow for scaling up and scaling down in such cases (Young, 2002).

Methodologically, research on environmental governance is top heavy with case study research developed within a single level or specific nation-state contexts. Since many social scientists have organized their disciplines using an implicit spatial scale to determine what they study, there has been little serious attention to the types of processes that exist at multiple levels versus those that exist at only one level (Young, 2005).

In the contemporary environmental governance literature, the links between various scales have not received much attention. Given the significance of cross scale institutional linkages and their dynamics, surprisingly little research has been carried out in this area and there is as yet no accepted typology of these emerging cross-scale linking institutions (Berkes, 2002).

Cross scale linkages are a critical focus for future research in institutional design. There are trade-offs between the potential benefits of higher level arrangements, such as efficiencies of scale, correspondence with large-scale ecological structures and functions, and avoidance of externalities problems, and the benefits of smaller scale institutions, such as more accurate monitoring of environmental variation and variability and the ability to use low cost informal sanctions to include compliance (National Resource Council, 2005; Berkes, 2002; Young, 2002).

Cash et al (2006) have identifies three types of cross-scale challenges: ignorance, mismatch and plurality.

The problem of ignorance is related to failure to recognize important scale and level interactions altogether. “Examples of these kind of problem in the natural resource management arena are national policies that adversely constrain local policies, local actions that aggregate into large-scale problems, and local solutions that aggregate into long-term problems” (Cash et al, 2006, p.11).

The problem of mismatch is also known as the problem of “fit”. The problem of fit revolves around one fundamental idea; it asserts that the effectiveness of social institutions is a function of the match between the characteristics of the institutions themselves and the characteristics of the biogeophysical systems with which they interact (Young, 2002; 2005; Cleveland et al, 1996; Holling and Sanderson, 1996).

Plurality challenge arises out of the assumption that there is a single, correct, or best characterization of the scale and level challenge that applies to the system as a whole and for all actors (Cash et al, 2006).

Cash et al. (2006) identify three responses to the problems of cross-scale interactions: institutional interplay (cross level interactions), co-management and bridging organizations.

According to Young (2005) cross level interactions occur when there is vertical interplay between or among regimes located at higher and lower levels on the jurisdiction scale<sup>6</sup> (Young, 2006). In many cases, such interactions involve interplay

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<sup>6</sup> The jurisdictional scale has the following levels: localities, provincial, national and inter-governmental (Young, 2006).

between management systems located at adjacent levels. The problem of interplay rests on the assumption that “as the number of institutions operating in a given social space rises, opportunities for interplay between or among institutions increase” (Young, 2002).

An increasingly popular response to the problems of scale-dependent interplay is to negotiate some sort of hybrid regime that provides recognized roles for players at more than one level of social organization, and that stresses the need to devise mutually agreeable rules and procedures in contrast to the imposition of regimes located at one level on those operating at other levels (Berkes, 2003). These collaborative resource management efforts are known as “co-management”.

When it comes to addressing the plurality challenge, boundary or bridging organizations come into play. These organizations play an intermediary role between different arenas, levels or scales and facilitate the co-production of knowledge (Cash et al, 2006).

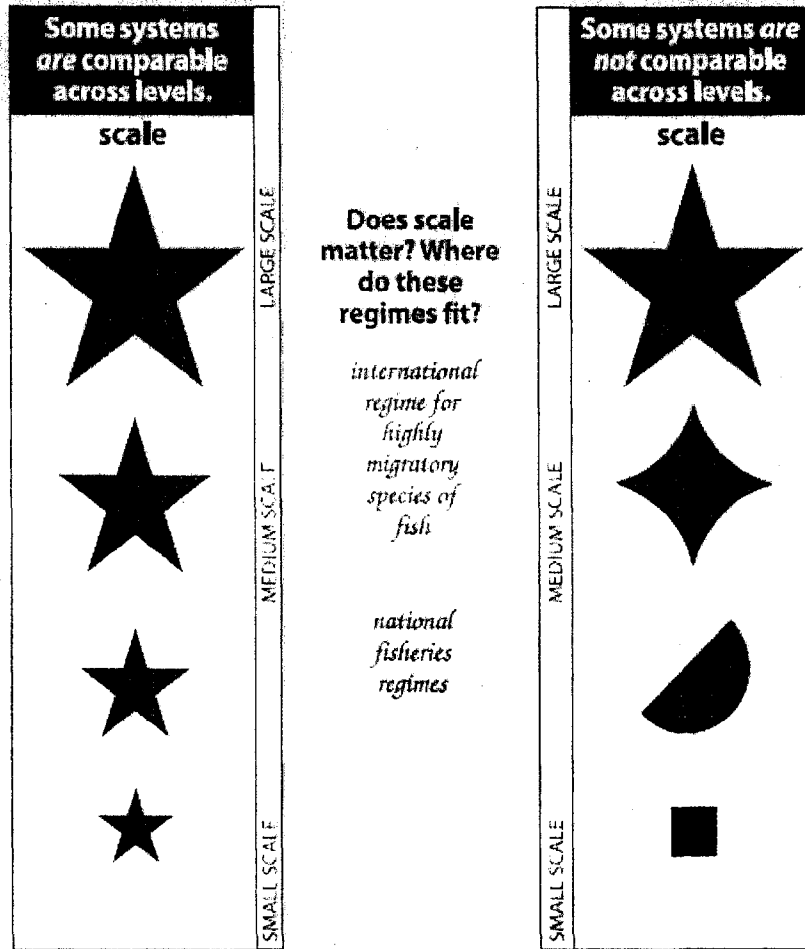
Berkes (2003) looked at the problem of scale in the case of migratory marine resources and identified a number of alternative approaches in dealing with the management of such resources. These include multi-level co-management arrangements and multi-stakeholder bodies, civic science involving policy networks; polycentric institutions, and institutional interplay. Co-management is a partnership in the sharing of management power and responsibility between a group of resource users and the government. Migratory resources are likely to require multi-level co-management, as an extension of partnerships in a simple co-management. However

there is little experience with multi-level co-management, most of literature deals only with simple partnerships involving local-level management with government-level management (Berkes, 2002). Civic science is science that is political, transparent and responsible; science that is open to citizen input. All policy issues, including the management of migratory resources bring together a “community” of players referred to as policy networks. Governance is said to be polycentric in structure if it has multiple overlapping centers of authority. “Many areas of public policy do not fall neatly into one jurisdiction or one authority. Thus, no entity or agency can encompass the scale of this domain. But the agencies can cooperate and, with the help of intermediary institutions, the efforts of each entity can contribute to the solution of the problem” (McGinnis, 2000).

To address these issues, several conceptual frameworks have been developed including: international environmental regimes (Young, 1989); institutional analysis and development (IAD) framework (Ostrom, Gardner & Walker, 1994); ecosystem management (Grumbine, 1994); and networked governance (Scharpf, 1994; Rhodes, 1997).

Figure 1 : Approaches to Scale

## Approaches to Scale



Source: Adapted from Gibson et al. 1998:54



### 2.3.3 *International Environmental Regimes Theory*

Regime theory has become an increasingly influential approach to the analysis of international relations, particularly in the areas of international political economy and international environmental politics. Krasner (1983) in "*Structural Causes and Regime Consequences*", offers the following definition of international regimes: "International regimes are defined as principles, norms, rules, and decision-making procedures around which actors expectations converge in a given issue-area" (p. 18).

According to Krasner, principles are beliefs of fact, causation, and rectitude; norms are standards of behavior defined in terms of rights and obligations; rules are specific prescriptions or proscriptions for action; and decision making procedures are prevailing practices for making and implementing collective choice.

Whereas Young (1989) argues that regimes are social institutions governing the actions of those involved in specifiable activities or sets of activities. (Young, 1989, pg.12). More specifically regimes are set of rules, decision-making procedures, and/or programs that give rise to social practices, assign roles to participants in these practices and govern their interactions (Young 1989; 1998;1999;2001;2005). Regimes approach to governance highlights the ideal of "governance without government" (Rosenau, 1992), and may fulfill the functioning of governance while minimizing the establishment of new bureaucracies or administrative entities (Young, 1994; 1999). International regimes are generally problem driven in the sense that they come into existence to solve or manage problems (e.g. jurisdictional conflicts, transboundary

fluxes of pollutants, health hazards) that individual countries are unable to cope with on their own (Young, 1999).

Regimes vary along a number of dimensions, most obviously in their functional scope, geographic domain, and membership (Young, 1999). Beyond this, a number of more analytic distinctions have emerged in the literature on international regimes. Individual regimes may be (1) largely regulatory in that they emphasize the formulation of rules or behavioral prescriptions; (2) predominantly procedural, focusing on mechanisms for arriving at collective choices; (3) primarily programmatic in that they lead to joint or collaborative projects; (4) essentially generative, highlighting new ways of thinking about problems (Young, 1989).

According to Young (1989) institutions that deal explicitly with environmental or resource issues are commonly known as environmental or resource regimes. The effectiveness of environmental regimes or, in other words, the capacity of these arrangements to prevent undesirable environmental changes and to solve environmental problems once they arise is determined in considerable measure by the degree to which they are compatible with the bio-geophysical systems with which they interact (Young, 2002).

By focusing on the jurisdictional attributes of the problems at stake, Young (1994; 1996) differentiates among international commons, shared natural resources, and transboundary externalities.

International commons are physical or biological systems that lie wholly or largely outside the jurisdiction of any individual member of the international society

but there are of interest to two or more of them as valued resources. Examples of such systems include high seas fisheries, deep seabed minerals, the ozone layer, etc. Three broad options are available to those concerned with extension of national jurisdictions, (1) enclosure through the extension of national jurisdiction, (2) the creation of supranational or world government, and (3) the introduction of codes of conduct analogous to common property arrangements in small-scale societies.

Shared natural resources, by contrast are physical or biological systems that extend into or cross jurisdictions of two or more members of the international society. They may involve renewable resources (e.g., migratory stocks of wild animals or straddling stocks of fish), non-renewable resources (e.g. pools of oil that underlie areas subject to the jurisdiction of two or more states), or complex ecosystems that transcend the boundaries of national jurisdictions (e.g. shared river basins and lake basins). The fundamental problem in dealing with shared natural resources is how to establish joint management regimes or arrangements analogous to utilization schemes among property owners in a domestic society.

Transboundary externalities arise when activities occurring wholly within the jurisdiction of one state nevertheless produce (normally unintended) consequences that affect the welfare of those located in other jurisdictions. Classic cases involve tangible impacts, such as acidification of Swedish lakes from transboundary fluxes of airborne pollutants, or the loss of biological diversity associated with the destruction of moist tropical forests in Amazon basin.

International environmental regimes are intended to tackle particular global environmental problems. But the extent to which the multilateral agreements establishing these regimes can effectively attend to local causes and domestic environmental impacts of such problems remains murky (Joyner, 2005). Regime theory to date has been to state centric (Young, 1999). Not only are we faced with the growth of transnational regimes whose members are not states at all, but we also need to pay more systematic attention to the participation of non-state actors in international regimes.

#### *2.3.4. Institutional Analysis and Development Framework*

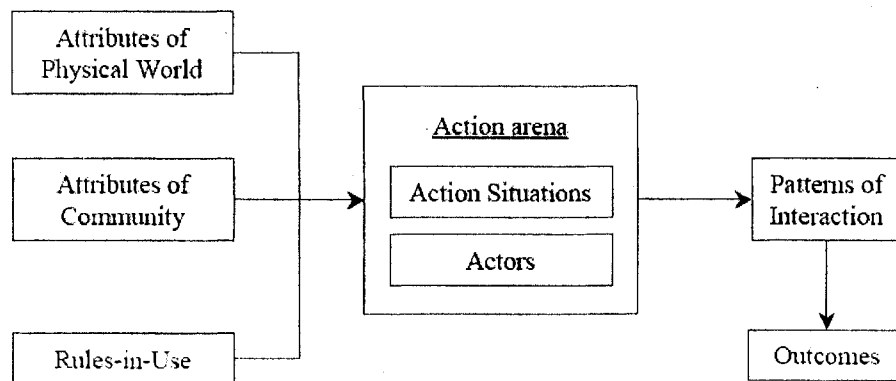
Institutional Analysis and Development (IAD) framework is a positive attempt to link different scientific disciplines in the analysis of how institutions affect individuals behavior. IAD has its roots in classic political economy, neoclassical microeconomic theory, institutional economics, public choice theory, transaction cost economics and cooperative game theory (Ostrom, Gardner & Walker, 1994). The unit of analysis in the IAD framework is what is termed an “action arena”. It refers to a social space where individuals interact, exchange goods and services, solve problems, dominate one another, or fight. Action arena includes one set of variables called an “action situation” and a second set of variables called an “actor” (Ostrom, 1999).

The set of variables used to describe the structure of an action situation includes 1) participants 2) specific positions to be filled by participants 3) the set of actions 4) the potential outcomes 5) the level of control each participant has over

choice 6) the information available to participants 7) and, the cost and benefits assigned to actions and outcomes. The actor in a situation can be thought of as a single individual or as a group functioning as a corporate actor. “The actor is, thus, the animating force that allows the analyst to generate predictions about likely outcomes given the structure of the situation” (Ostrom et al. 1994).

**Figure 2: The Institutional Analysis and Development Framework**

*Figure 1: The IAD framework.*



Source: Ostrom, Gardner and Walker, 1994, 37

Underlying the way analysts conceptualize action arenas are implicit assumptions about the rules individuals use to order their relationships. Rules are shared understandings among those involved that refer to enforced prescriptions about what actions are required, prohibited or permitted (Ostrom, 1990).

In addition to being effected by rules some variables of an action situation are also affected by attributes of the physical and material world. Another set of variables that affect the structure of an action arena relates to the community and include norms

of behavior, the level of common understanding, the extent of homogeneity in the preferences of those living in a community, and the distribution resources. The IAD framework is a general language about how rules, physical and material conditions, and attributes of community affect the structure of action arenas (Imperial, 1999).

Another important feature of the IAD framework is that it recognizes that action arenas are linked across different levels of analysis (Imperial, 1999). The framework distinguishes three basic levels: *operational choice*, *collective choice*, and *constitutional choice* levels. The decisions made at the operational choice levels directly determine how resources are used. Decision-makers at the operational choice level are often natural resource users of some sort. They decide upon actions to divert and store water, to operate reservoirs, to maintain minimum streamflows, to graze cattle or sheep, to cut timber, to recreate, and other on-the-ground activities. In taking these actions, they are guided by the set of operational choice rules associated with a given institution, which may contain such familiar elements as water rights, grazing lease terms, timber sale contracts, mining permits, and other rules that specify accepted patterns of interaction between humans and natural resources.

Operational choice rules are made and revised at a second, and higher, decision-making level- *collective choice* level. Rule-making activity at the collective choice level normally occurs in group settings. A variety of such group settings can be found, including legislatures, courts, committees, etc. The kind of behavior which occurs in these settings usually involves bargaining, voting, litigating, or other

interactive modes. Natural resource planning is, itself, an activity carried out at the collective choice level.

The collective choice rules, which define the mechanisms for making operational choice rules, are in turn made and changed at the third, or *constitutional choice*, level. The name given to this level reflects the analytical assumption that this is the highest decision-making level to be considered. Furthermore, the constitutional choice rules are not considered to be open to change. Legislatures and courts will frequently appear as participants in constitutional choice level action situations in many analyses.

Problematic situations can occur at any of the three levels of decision-making and action. At the operational choice level, we distinguish four types of natural resource and environmental problems. They are *depletion* (a condition in which current resource use threatens to diminish future use), *underinvestment* (condition in which the anticipated future provision of resource-related goods and services is smaller than desired, presumably due to failure to invest sufficient capital and/or labor in resource management); *maldistribution* (any situation in which the allocation of a finite resource-related good or service is perceived by one or more parties to be inadequate) and *externalities* (problems occur when the use of a resource related good or service by some parties diminish the availability of other goods and services received by different parties). The resolution of operational choice level problems typically requires action at the institution's collective choice level (Ostrom, 1998).

With its emphasis on the role of the actors, the main limitations of the IAD framework is its assumptions about actors. The IAD assumes that individuals are self-serving and goal oriented in all situations (Schlager, 1995). It assumes that actors make commitments based on incentives and sanctions.

Ostrom's work encompasses the set of small-scale common pool resources (CPR), where small scale is defined in terms of numbers of appropriators as well as spatial domain, and CPRs are constructed as goods and services that are both non-excludable and rival (Young, 2001). Ostrom and her colleagues (1990) have produced a set of design principles for CPR institutions (See Figure 4). An obvious question is whether these design principles can be generalized to apply to cases that lie outside the universe of small scale CPRs (Young, 2001; 2005).



Figure 3: Common Pool Resources design principles

### Design Principles Illustrated by Long-Enduring Common Pool Resource (CPR) Institutions

1. **Clearly defined boundaries**  
Individuals or households who have rights to withdraw resource units from the CPR must be clearly defined, as must the boundaries of the CPR itself.
2. **Congruence between appropriation and provision rules and local conditions**  
Appropriation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions and to provision rules requiring labor, material, and/or money.
3. **Collective-choice arrangements**  
Most individuals affected by the operational rules can participate in modifying operational rules.
4. **Monitoring**  
Monitors, who actively audit CPR conditions and appropriate behavior, are accountable to the appropriators or are the appropriators.
5. **Graduated sanctions**  
Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and context of the offense) by other appropriators, by officials accountable to these appropriators, or by both.
6. **Conflict-resolution mechanisms**  
Appropriators and their officials have rapid access to lowcost local arenas to resolve conflicts among appropriators or between appropriators and officials.
7. **Minimal recognition of rights to organize**  
The rights of appropriators to devise their own institutions are not challenged by external government authorities.

Source: Ostrom 1990:90

### 2.3.5. *Bioregionalism and Ecosystem Management*

Bioregionalism<sup>7</sup> is a body of thought and related practice that has evolved in response to the challenge of reconnecting socially-just human cultures in a sustainable manner to region-scale ecosystem in which they are irrevocably embedded (Aberley, 1999).

A bioregion can be determined initially by use of climatology, physiography, animal and plant geography, natural history and other descriptive natural sciences. The final boundaries of a bioregion are best described by the people who have lived within it, through human recognition of the realities of living in place ( Berg & Dasmann, 1977).

Bioregionalism has been called the 'politics of place' (Michael, 1983). It has a number of characteristics. These include a belief in *natural*, as opposed to political or administrative, regions as organizing units for human activity; an emphasis on a practical *land ethic* to be applied at a local and regional scale; and the favoring of locally and regionally *diverse cultures* as guarantors of environmental adaptation, in opposition to the trend towards global monoculture (Alexander, 1990).

In 1981 Dodge in an article titled "Living by life: Some bioregional theory and practice" summarized three central values that animate bioregionalism: the importance placed on natural systems as a reference for human agency, reliance on an anarchic structure of governance based on interdependence of self-reliant and

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<sup>7</sup> The term was first conceived by Allen Van Newkirk in 1975. As conceived by Newkirk, bioregionalism is presented as a technical process of identifying biogeographically interpreted culture areas called bioregions.

federated communities, and rediscovery of connections between the natural world and human mind (Aberley, 1999).

In 1985, the Sierra Club published "*Dwellers in the Land: The Bioregional Vision*" authored by Kirkpatrick Sale, which expands upon Dodge's presentation of regionalism. Another major development in the theory of regionalism is Thomas Berry's *The Dream of Earth* (1988), where he describes a set of six functions which are necessary for bioregional living:

1. Propagation – it requires that we recognize the rights of each species to its habitat, to its migratory routes, to its place in the community.
2. Self nourishment – it requires that the members of the community sustain one-another.
3. Self – education through physical, biological, chemical and cultural patterning.
4. Self-governance: an interior bonding of the community that enables each of its members to participate.
5. Self-healing: the community contains within itself the special powers of regeneration.
6. Self-fulfillment: the community is fulfilled in each of its components.

According to Lipschutz (1996) bioregionalism calls for human society to be more closely related to nature. Advocates of bioregionalism suggest that existing political units are artificial and bear no relationship to the land. The purpose, therefore,

is that human societies and their politics be formulated around ecological – geographic areas such as creek and river watersheds (p.106).

Bioregionalism is also about jurisdictions and borders: the boundaries of bioregions are supposed to correspond to ecosystem boundaries, rather than political, economic or social ones (Lipschutz 1996, p.104). Bioregional management seeks to encompass whole ecosystems as to protect and restore their components sustainably.

Miller (1996) defined 14 characteristics of bioregional management work:

1. Large, biotically viable regions<sup>8</sup>.
2. Leadership and management.
3. A structure of cores, corridors and matrices.
4. Economic sustainability.
5. Full involvement of stakeholders.
6. Social acceptance of proposals for change.
7. Solid and comprehensive information.
8. Research and monitoring.
9. Use of scientific, local and traditional knowledge.
10. Adaptive management.
11. Restoration of habitats and ecological functions.
12. Cooperative skills development of communities, public and private organizations.
13. Institutional integration.

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<sup>8</sup> Regions which are able to accommodate migratory patterns, anticipate nature's time cycles, and absorb the impacts of global change.

#### 14. International cooperation.

Since the late 1980s, the development of contemporary bioregionalism has not evolved so much in broad strokes (Aberley, 1999), and it does not appear frequently in the literature of international conservation (Ankersen, 1999).

Instead, the literature on ecosystem management, that embraces the concepts and principles of bioregionalism, has gained prominence. The philosophy and principles of ecosystem management are quickly converging with those of previous approaches to suggest that achieving sustainability and conserving biodiversity require shifting conservation programs to ecosystem scales of management (Miller, 1996).

Ecosystems are complex, dynamic, and subject to an immense number of internal and external relationships that change over time. Key to ecosystem management is the goal of ecological sustainability – protecting and restoring critical ecological components, functions and structures in perpetuity so that the future as well as current generations will have their needs met – a concept that links politics and natural resources (Cortner & Moote, 1999).

While researchers such as Lynton Caldwell (1970) advocated using ecosystems as a basis for land-use policy as early as 1970, the ecosystem-based approach is relatively new and still evolving. According to Grumbine (1994) an ecosystem-based approach is one that “integrates scientific knowledge of ecological relationships within a complex sociopolitical and values framework toward the general goal of protecting native ecosystem integrity over the long term”. He argues that several common themes are reflected in most ecosystem-based management programs: a strong

emphasis on data collection and monitoring, working across administrative boundaries, adaptive management, interagency cooperation, organizational change, and a strong focus on maintaining ecological integrity. Slocombe (1993) argues that the common characteristics of an ecosystem-based approach are that it “is holistic, interdisciplinary, goal-oriented, participatory, and aimed at getting people to realize that people are part of the ecosystem-not separate from it.”

These common characteristics of ecosystem approaches can provide a framework for describing, understanding, and addressing ecosystems. The main components of an ecosystem approach (Slocombe 1993, Cortner and Moote, 1999):

- Are holistic, comprehensive, and transdisciplinary
- Include people and their activities in the ecosystem
- Describe system dynamics through concepts such as stability and feedback
- Define the ecosystem naturally, for example, bioregionally instead of arbitrarily
- Look at different levels and/or scales of system structure, process, and function
- Recognize goals and take an active, management orientation
- Incorporate stakeholder and institutional factors in the analysis
- Incorporate collaborative decision making
- Use an anticipatory, flexible research and planning process
- Entail an ethics of quality, well-being, and integrity
- Recognize systemic limits to action--defining and seeking sustainability
- Include socially defined goals and objectives

- Include adaptable institutions

The work of Grumbine and Slocombe encouraged scientific groups which began to formulate principles for ecosystem management. The Ecological Society of America (1996) identified eight common elements that are associated with ecosystem-based management:

1. Long-term sustainability is a fundamental value.
2. Goals must be clearly defined.
3. Sound ecological models and understanding are essential.
4. Management efforts must recognize the complexity and interconnectedness of ecological systems.
5. Management efforts must recognize the dynamic character of ecosystems.
6. The design of management systems must be carefully crafted to suit specific local conditions.
7. Humans are a fundamental component of ecosystems.
8. Knowledge of ecosystems is incomplete, ecosystems are dynamic, and a variety of changes occur over time, therefore, management should be adaptive and include a means of learning from policy experiments.

Thus, while the ecosystem-based approach is still emerging, it certainly appears to have a strong administrative and institutional orientation. It is important for practitioners and researchers to recognize that ecosystem-based management is as much a problem of “governance” involving multiple organizations located at

different levels of government as it is a question of science and designing effective policies for managing natural resources (Imperial, 1999). Imperial also emphasizes that when viewed from an institutional perspective, ecosystem-based management can be seen as an explicit attempt to build, manage, and maintain interorganizational networks, in other words, to develop an institutional ecosystem. "Viewed from this perspective, the implicit goal of ecosystem-based management is to improve resource management by changing institutional arrangements and improving coordination between the organizations (public, private, and nonprofit) that comprise interorganizational networks" (p.452).

Ecosystem governance is typically carried out through public/private hybrid institutions, with government and non governmental parties working side by side as partners in the ongoing work of governance (Karkkainen, 2001).

Considerable emphasis is put on the decentralized decision making arrangements to avoid the rigidities of highly centralized institutional arrangements with inflexible prescriptions..... Ecosystem management means management across ecological, political, generational, and ownership boundaries. Management decisions must be made collectively by all parties because in most cases no single entity has jurisdiction over all aspects of an ecosystem" (Cortner & Moote 1999, p. 45).

In 2001, Karakkainen developed a framework called "collaborative ecosystem governance". The model explicitly wrestles with questions of scale and complexity in ecosystem management, emphasizing locally (or regionally) tailored solutions within broader structures of public accountability. These challenges are typically addressed through hybrid public-private governance structures, emphasizing broad information-



sharing and collaborative problem solving among parties representing interests at multiple, spatial scales, from the immediately local to the national, international, or even global. “Because problems and solutions are not uniform across all ecosystems, management systems must be capable of generating locally and regionally tailored responses” (Karkkainen 2001, p.83).

Despite its advantages, in many respects, ecosystem-based management presents a classic collective action problem (Olson, 1965). There are a number of reasons why non-cooperative behavior might be expected. First, government programs are subject to different statutory and budgetary responsibilities. This creates different constituencies and can lead to competing programmatic priorities and objectives. Second, organizations may need to change their policies in order to implement an ecosystem-based management program. The policy changes may be inconsistent with the present disposition of the implementers or come about only at great cost (political and economic) to the organization. Finally, sharing information and coordinating programmatic efforts can be time-consuming and requires a significant commitment of organizational resources. Unless agency officials perceive that there are benefits associated with these costs, coordination efforts are likely to meet resistance (Imperial, 1999).

Collaborative ecosystem management is often messy, elaborate, cumbersome, ad hoc, and defiantly unconventional. Lines of authority and divisions of responsibility are often neither formal nor transparent; institutional boundaries are fluid and permeable; and roles, identities, and allegiances are blurred in a jumble of hybrid

public-private, national-and-local arrangements. Rules tend to be provisional and, for that matter, may not even be enforceable through the familiar channels of formal, compulsory processes. It is hard to see where accountability comes from when the lines of authority become so blurred that no single party can be identified as the authoritative decision-maker (Karkkainen 2001; Cortner & Moote, 1999).

#### 2.3.6. *Networked governance*

The use of the network concept is emerging in the Public Administration literature. What many authors share in common is a definition which characterizes networks as a set of relatively stable relationships which are of a non-hierarchical and interdependent nature linking a variety of actors, who share common interests with regard to a policy and who exchange resources to pursue these shared interests acknowledging that co-operation is the best way to achieve common goals (Rhodes, 1997; O'Toole, 1997; Klijn, 1997; Borzel 1998; Marcussen & Torfing, 2003).

Marcussen and Torfing (2003) define governance networks can be defined as 1) a horizontal articulation of interdependent, but operationally autonomous actors; 2) who interact through negotiations; 3) transpiring within a regulative, normative, cognitive and imaginary framework; 4) that to a certain extent is self-regulating; and 5) which contributes to the production of public purpose within a particular area.

Goldsmith and Eggers (2004) identify the following advantages of the network model:

- *Specialization.* Networks free organizations to concentrate on their core mission by leveraging the expertise of the “best of the breed” providers.

- *Innovation.* Networks enable government to explore a greater range of alternatives that involve a variety of providers.
- *Speed and flexibility.* By using outside partners to deliver a service or accomplish a task, managers can increase, decrease, or change resources on a short notice.
- *Increased reach.* To maximize their potential, networks often move both horizontally and vertically; not only do they engage services across sectors, but they also employ the concepts of devolution that involve units of governments and programs that are closest to the customer.

Kickert, Klijn and Koppenjan (1997) provide the following arguments in favor of networks.

- Because of the networks, interest groups and implementing organizations are involved in policy making;
- Because of the participation of the above mentioned organizations, the societal acceptance of the policy is furthered.
- Participation of many individuals, groups and organizations indicates that a great variety of interests and values are considered, which is favorable from a democratic point of view;
- Networks make it possible for governments to address societal needs and problems despite restricted capabilities. They improve the problem solving capacity and therefore the effectiveness of government.

Alexander (1993), Klijn (1997), Bruijn and Heuvelhof (1997) and Marcussen and Torfing, (2003) discuss some of most important defining characteristics of networks including:

Governing by network is hard. Government's organizational, management, and personnel systems were designed to operate within a hierarchical, not a networked, model of government, and the two approaches often clash (Goldsmith & Eggers 2004, p.22). Hence, there is a need to reconcile the traditional top-down hierarchy, built along vertical lines of authority, with emerging networks, built along horizontal lines of action.

However, Goldsmith and Eggers (2004) argue that certain conditions favor a networked model of delivery and certain others support a more traditional hierarchical approach (see table below).

**Table 2: Factors determining government's choice of a governance model**

Factors favoring network model	Factors favoring hierarchical model
Need for flexibility Need for differentiated response to clients or customers Need for diverse skills Many potential private players available Desired outcome or outputs clear Private sector fills skill gap Leveraging private assets critical Partners have greater reach or credibility	Stability preferred Need for uniform, rule-driven, response Only a single professional skill needed Government predominant provider Outcome ambiguous Government has necessary experience Outside capacity not important Government experienced with citizens in this area

Third parties can deliver service or achieve goal at lower cost than government	Service is relatively stand-alone
Rapidly changing technology	In-house delivery more economical
Multiple levels of government provide service	Service not affected by changing technology
Multiple agencies use or need similar functions	Single level of government provides service
	Single agency uses or needs similar functions

The network approach to governance underlines the highly interactive nature of policy processes while at the same time highlighting the institutional context in which these processes take place. Institutional contexts are characterized by relatively stable relations between organizations which are sustained by ongoing resource flows between those organizations (Klijn, 1997, p.33).

Successful network management requires grappling with skill-set, technology, information asymmetry, and cultural issues. Networks often bring together actors whose goals simultaneously overlap and differ. In addition, the missions of organizations within the network do not always align well. Networked governance typically involves coordination between multiple levels of government, non profit organizations, and for profit companies. Each has its own constituencies, and when complexity is high and responsibility unclear, coordination problems can undermine the network (Goldsmith & Eggers 2004, p.45).

Scholars are also concerned with issues of accountability and transparency associated with the governance by network model. Accountability problem presents networked government with its most difficult challenge (Goldsmith and Eggers 2004, p.122). Interorganizational co-ordination efforts have a profound impact on the

capacity of governments to hold organizations accountable. Kettl (2002) argues that complex public-private networks raise vastly different accountability questions than programs managed directly through government bureaucracies. "They require creative solutions on the strengths of time honored traditions while incorporating new tactics that work effectively to shape the behavior and results of networks. Perhaps more than any other element of the transformation of governance, the control issue raises most sharply the tough problem of who governs and how" (p.167).

According to Kickert, Klijn and Koppenjan (1997), networks result in:

- Non transparent policy processes. Informal interactions, complex consultancy structures and overlapping administrative positions make it impossible to determine who is responsible for what decision. Collective responsibility for joint decisions will result in a situation in which nobody is accountable.
- Insufficient democratic legitimacy. Interaction between civil servants and representatives of private interest groups, other governmental layers and implementing organizations make it vary hard for representative bodies to influence policy.

Glodsmith and Eggers (2004) suggest that getting results from networks requires a comprehensive framework that contains a set of strategies for addressing the following seven areas crucial to accountability: setting goals, aligning values, establishing trust, structuring incentives, measuring performance, sharing risk, and managing change.

*In summary, the most appropriate institutional relationships for MLEG are defined at the scale of the problem and have features drawn from both the “thin” and the “thick” perspectives. The institutional relationships are of a non-hierarchical and interdependent nature linking a variety of actors at subnational, national and supranational levels. Previously hierarchical models of institutional “layering” are being replaced by a more complex image of intergovernmental relations in which subnational authorities engage in direct exchange with supranational institutions and vice versa. Political arenas are interconnected rather than nested. The evolving structures of MLEG are likely to necessitate new forms of accountability and transparency that seek to build new and innovative channels between the actors and the institutions involved in complex networks.*

## 2.4 Environmental decision making

Environmental decision processes refer to ways by which individuals, groups, and organizations – and ultimately societies – go about making choices that have implications for the natural environment (Gregory & Daniels, 2005).

Decisions affecting environmental processes are among the most challenging because of the collection of attributes that environmental choices usually share (Renn, 2003; Dietz & Stern, 1998; Peretz, 2001; NRC, 2005):

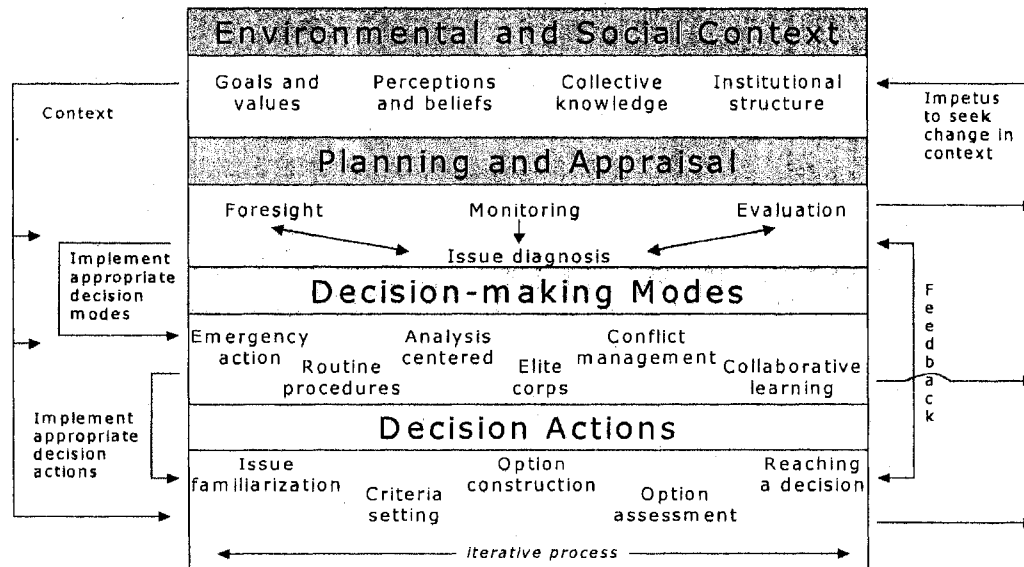
- Structural complexity: choices affect phenomena that operate at multiple scales; decision making entities also exist at multiple scales, not necessary matched to those of the phenomena; and many different kinds of expertise are required to understand the issues.
- Multiple, conflicting, and uncertain values: people affected by the choices have deeply held values, and sometimes their values seem to shift unexpectedly.
- Long time horizon: the consequences of choices made now may extend for decades or longer.
- Open access structure: it is often difficult to exclude people from using or polluting a resource.
- Incomplete and uncertain knowledge: the consequences of choice options may be unknown or in dispute among scientist.



- High stakes: the long term implications of the wrong choice for environment and society may be profound.
- Time pressure: decisions must be made without waiting for scientific certainty or agreement on values.

Tonn, English and Travis (2000) present a framework for understanding and improving environmental decision making. They discuss four interrelated components: 1) the environment and cultural context; 2) planning and appraisal activities; 3) decision making modes; and 4) decision actions. Environmental decision making takes place within the context of environmental and social realities. The environmental context includes the past, present, and expected state of various aspects of the environment – e.g. drinking water supplies, air quality, soil quality, endangered species, waste disposal, wilderness protection. But environmental decision making is rooted in the social context as well (cultures, religions, political institutions, organizations, communities, individuals). The authors believe that environmental decision making should ensure that environmental and social systems have long term stability. The planning and appraisal framework addresses the need for oversight and guidance functions for the entire environmental decision-making process. The functions include foresight, monitoring, evaluation and issue diagnosis. The decision actions constitute the actual activities that lead to environmental decision including issue familiarization, criteria setting, option construction, option assessment and reaching a decision. The interaction between the four levels of the framework is not only top-down but also bottom up.

**Figure 4: Environmental Decision Making Framework**



Source: Tonn, English & Travis (2000)

A further challenge is to address the linked nature of environmental processes and environmental decisions across time scales, physical scales, and institutional scales (NRC 2005, p.24). Decisions made on one scale can be transformed or undermined by processes at other scales, which must therefore be taken into account.

#### 2.4.1. Multi-stakeholder processes

Over the last decade the stakeholder based environmental decision making has represented an increasingly established and important set of processes for addressing the complexities of the environmental decision making processes. Nevertheless the quality of these decisions is only beginning to be evaluated and the knowledge base for selecting the best process for a specific decision remains weak (NRC, 2005).

The reasons for the expanded use of stakeholder processes stem from a variety of environmental, political and technological changes that include: a lack of public confidence and trust in the environmental decision-making of many government agencies and corporations; the increasing transparency of institutions whose decisions affect environmental quality; greater societal expectations for improved environmental quality; the enhanced ability of citizens to participate in stakeholder processes; the growing diffusion of information technology and an associated decentralization of decision-making in large institutions; and policy commitments made by government agencies and industries to expand stakeholder participation in their decision-making processes (Yosie & Herbst, 1998).

In response to these challenges a new way of making environmental decisions known as “multi-stakeholder processes” is emerging. Hemmati et al. (2002, p.19 ) use the term multi-stakeholder processes (MSP) to describe processes which:

- aim to bring together all major stakeholders in a new form of communication, decision-finding (and possibly decision-making) structure on a particular issue;
- are based on recognition of the importance of achieving equity<sup>9</sup> and accountability<sup>10</sup> in communication between stakeholders;
- are based on democratic principles of transparency<sup>11</sup> and participation<sup>12</sup>; and

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<sup>9</sup> Equity means leveling the playing field between all relevant stakeholder groups by creating dialogue based on equally valued contributions from all, providing support for meaningful participation, and providing equitable access to information (Hemmati, 2002).

<sup>10</sup> Accountability means that individuals and institutions are answerable for their actions and consequences that follow them (Hemmati, 2002).

<sup>11</sup> Transparency implies that the procedures and methods of decision-making should be open so that effective participation is possible. Transparency is based on the free flow of information so that processes, institutions and information are directly accessible to those concerned with them (Hemmati, 2002).

- aim to develop partnerships and strengthened networks between and among stakeholders.

Stakeholders are those who have an interest in a particular decision, either as individuals or representatives of a group. This includes people who influence a decision, or can influence it, as well as those affected by it (Randolph & Bauer, 1999; Hemmati, 2002).

“MSPs aim to bring together all relevant stakeholders in order to: promote better decisions by means of broader input; integrate diverse viewpoints; bring into the process those who have important expertise pertaining to the issues at hand; allow for groups un- or under-represented in formal governance structures to have their say in policy-making; create trust through honoring each participant’s contribution; create mutual benefits (win-win rather than win-lose solutions); develop shared power with a partnership approach; create commitment by enabling participants to identify with the outcome and to value it, thus increasing the likelihood of successful implementation; put issues of concern to stakeholders on to the political agenda; and allow for clear and shared definitions of responsibilities in the implementation of change” (Hemmati 2002, p.23).

Yosie & Herbst, (1998) argue that there are at least three kinds of stakeholder processes: 1) decisional (e.g., stakeholders directly participate in making final choices and subsequently help implement them); 2) consultative (e.g., stakeholders are asked to comment or provide input on policy choices that others will decide); and 3) informational (e.g., stakeholders are requested to provide data, general perspectives, or specific input on an issue or problem). MSPs vary enormously in terms of their purpose, scope, complexity, level of engagement (local to global), size and diversity of partners.

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<sup>12</sup> Participation implies that all stakeholders have a voice in influencing decision-making (Hemmati, 2002).

Randolph & Bauer (1999) have identified the following elements of multi-stakeholder environmental decision making processes.

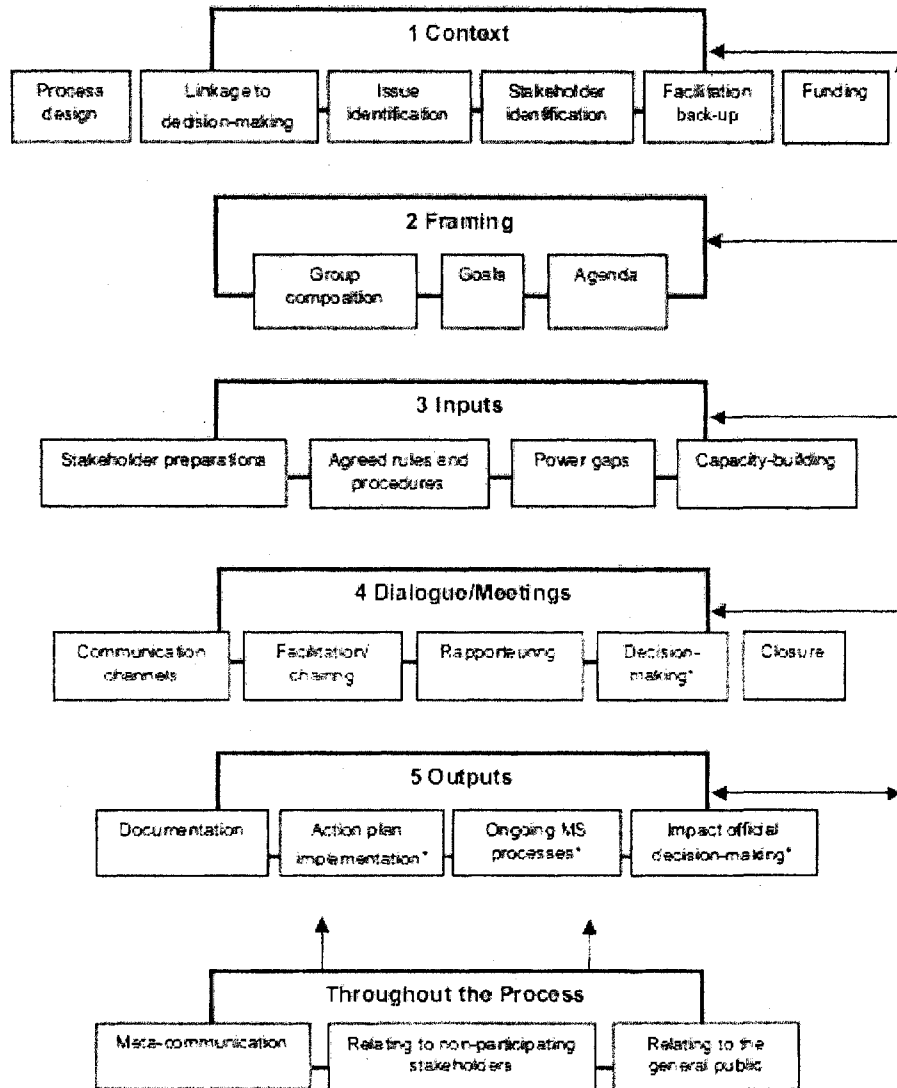
**Table 3: Core elements of multi-stakeholder environmental decision making**

Stakeholder Involvement	Early engagement of stakeholders in the process of planning and implementation.
Knowledge Based	Strong and sound information exchange by the process participants.
Holistic, Proactive Approach	Holistic or “contextualized” understanding of environmental problems, and proactive efforts to resolve and prevent them.
Sharing Power	Parties in authoritative positions relinquish some control to other participants.
Joint Responsibility	Participants share credits for success and acknowledgements of failures.
Integrated Solutions	Integration of a wide range of creative solutions to problems, such as flexible regulation, economic incentives and compensation, negotiated agreements, voluntary actions, and educated programs.

*Source: Randolph & Bauer (1999)*

The design of MSPs goes through several phases as described in the Figure 5 below.

Figure 5: MSP - Phases



Source: Hemmati (2002)

Involving stakeholders in every aspect of the design process is crucial to achieve the best design, commitment to the process, credibility, legitimacy and trust. A core coordinating group may be required to manage the process, identify the issue to be addressed, approach possible independent facilitators and involve relevant stakeholders. Procedures need to be agreed by the participants – the procedures of preparation, communication, the ground rules for the meeting, the issues around confidentiality, decision-making, reporting, documentation, and fund-raising. Procedures should be designed to ensure democracy, equity, mutual respect, transparency, legitimacy, accountability, and inclusiveness in order for the process to benefit from diversity; generate mutual understanding, creative outcomes and win-win solutions; and to encourage commitment (Hemmatti, 2002).

Hemmatti also asserts that it is important to create a mechanism for sharing information and a 'home' for a common knowledge base for the process, ensuring that all concerned have equal access to the relevant information from the outset. Such a base does not need to be in one place, but should be easily accessible to all. Everybody who might be involved in the process should be informed of this information base and how it is being assembled.

Participants need to agree in the beginning of the process on what kind of decision-making process will be used. Consensus is the preferred method of decision-making because it will generate better solutions and commitment by all. It is important to ensure symmetry of powers within MSPs. MSPs with equal participation from all

stakeholder groups attempt to increase the equity between different sectors of civil society in their involvement and impact (Hemmati 2002, p.226)

MSPs need to provide the opportunity for participants to work together as equals to realize acceptable actions or outcomes without imposing the views or authority of one group over the other. “Yet fundamental differences exist between stakeholders in such things as knowledge and information, size, nature and the amount of resources, which define significant power gaps and unfair distribution of bargaining and negotiating power”(Hemmati 2002, p.233).

Malenna (2004) identifies the following five key operational challenges related to the management and governance of MSP: inclusion; participation/power-sharing; clear definition of purpose and roles; accountability, and strategic influence.

A first key operational challenge is getting the right actors around the table. As partnership experience has evolved, a general lesson that has emerged is the importance of involving diverse stakeholder viewpoints. The identification of relevant stakeholders and an “optimal” level of inclusion must, however, derive directly from the specific purpose and goals of the partnership. For example, a partnership mandated to negotiate a highly controversial issue (such as the sustainable development impacts of large dams) will likely need to pay greater attention to issues of inclusion, diversity and representation than one that is established to implement a more straightforward, pre-agreed development task (World Commission on Dams, 2000).



A second important operational challenge is ensuring that the purpose and expected results of the partnership as well as the respective roles and responsibilities of each partner are clearly defined and commonly agreed. Though this may seem obvious it is described by practitioners as a classic example of “more easily said than done’ and, in reality, many partnerships fail to explicitly specify goals, expectations and clear roles (Beierle, 1999).

Closely linked to issues of inclusion and the definition of partner roles and responsibilities is the challenge of ensuring effective participation and appropriate power sharing within multi-stakeholder partnerships (Crosby & Bryson, 2005).

A shared power arrangement enhances the power of participants beyond the sum of their separate capabilities. “We see power as not just the ability to make and implement decisions (a traditional view) but also the ability to sanction conduct and, most important, to create and communicate shared meaning” (Crosby & Bryson 2005, p.29).

A final operational challenge for MSPs is maximizing their strategic influence. The type of influence a partnership seeks to have will obviously depend upon its specific purpose. Some MSPs are created with the purpose of impacting processes, institutions or actors beyond those directly involved in the partnership. Even partnerships that have a narrower implementation orientation may aim to impact (directly or indirectly) broader policies and processes, for example, by raising the public profile of an issue or sector, demonstrating innovative practice or drawing

attention and/or resources to an issue within participating organizations (Malenna, 2004).

The experience from using the multi-stakeholder environmental decision making process in the United States and elsewhere shows that the decision whether to utilize a stakeholder process should be guided by an evaluation of key issues. These issues include: 1) assessing the attitude of convener organizations (to measure their willingness to listen to stakeholders' views in a decision-making process); 2) evaluating potential alternatives to a stakeholder process; 3) determining whether the decision has already been made; 4) identifying potential stakeholders for the specific issue under review; 5) clarifying the roles and capabilities of scientists and other stakeholders; 6) selecting the kind of stakeholder process that should be used; 7) agreeing upon ground rules for the process, particularly for seeking consensus and making decisions; 8) establishing goals; 9) choosing the types of issues and decisions that stakeholders will address; 10) using evaluative criteria to better assess the value and progress of discussions and decisions at various stages of the process; 11) assessing the availability of resources to support the stakeholder process; 12) determining whether a process hammer exists or should be established; 13) providing for transparency and communication to ensure ongoing access to information and accountability of the parties to each other; 14) dealing with the power gaps among stakeholders; 15) building on and learning from previous experiences; and 16) developing fund-raising strategies to make sure that MSPs are sufficiently funded

(Bingham, 1986, Yosie & Herbst, 1998, Malenna, 2004, Crosby & Bryson, 2005; Hemmati, 2002).

Those (Beierle, 1999; Beierle & Cayford, 2002; Conley & Moote, 2003,) asserting that improved environmental decisions occur through the use of stakeholder processes offer the following reasons for their views:

- Stakeholder processes introduce a greater variety of information and dimensions of a problem than traditional regulatory processes.
- The interaction among different stakeholders often generates more creative solutions to problems than would have occurred in the absence of such a process.
- Trust increases over time.
- The process encourages voluntary actions.
- Relationships are built that can last beyond a particular decision-making process and yield beneficial results in addressing other issues.

Bingham (1986), Susskind & Cruikshank (1987), NRC (2005) include the parties' willingness or incentive to negotiate as a precondition for the likelihood of success. According to Susskind and Cruikshank (1987) "Solutions are better, and will be accepted, only if all stakeholding parties are confident they will get more from a negotiated agreement than they would from a unilateral action, or from conventional means" (p.116).

However, environmental groups have expressed various concerns about the use of stakeholder-based decision-making (Yosie & Herbst, 1998). These include:

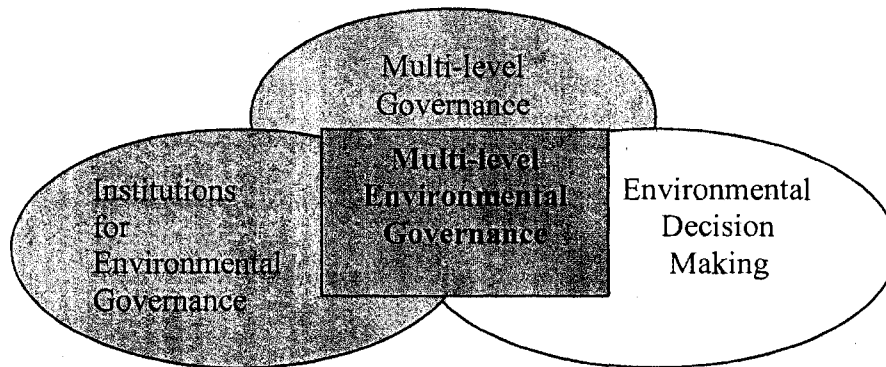
- Because stakeholders provide input on so many issues affecting a decision, there is a potential for democracy to displace science, thereby reducing the factual basis of environmental decisions.
- There are capacity limits to the number of people who can effectively participate in stakeholder-based decision-making. Neither citizens nor environmental groups can effectively participate in the growing number of stakeholder processes, thus placing them in a disadvantageous position relative to other groups with a financial stake in the outcome of a decision.
- Government agencies are increasingly using stakeholder processes to avoid having to make difficult, politically contentious decisions. Instead, they are relying upon stakeholder negotiations to provide political cover on issues where they already have the authority and responsibility to act.

*In summary, environmental decision making in the context of MLEG is built upon multi stakeholder processes that aim at bringing together all major stakeholders and are based on the democratic principles of accountability, transparency, participation, equity and information sharing.*

## 2.5 Multi-level Environmental Governance Framework

In the current literature, there is no commonly agreed upon definition of multi-level environmental governance. The Figure 6 below presents an initial integrated conceptual framework for “Multi-level Environmental Governance” (MLEG). The framework encompasses several related theories and frameworks of Multi-Level Governance, Institutions for Environmental Governance and Environmental Decision Making. MLEG draws on the “appropriate concepts” from the existing theories and framework; those that apply to natural resource management.

Figure 6 : Multi-level Environmental Governance Framework



The integrated MLEG conceptual framework has *three* core characteristics, one from each theoretical construct.

1. Vertical and horizontal linkages within an unlimited number of task specific flexible jurisdictions (drawn from Multi – level Governance).
2. Institutional relationships are defined at the scale of the problem, and are of a non- hierarchical nature linking a variety of actors at subnational, national and supranational levels. These relationships are governed by a negotiated set of

rules, norms and procedures for cooperation (drawn from Institutions for Environmental Governance).

3. The governance arrangements are founded upon multi-stakeholder, collaborative, power shared decision making processes based on the principles of equity, accountability, transparency, participation and access to information (drawn from Environmental Decision Making).

The proposed research aims at exploring the relationship between the core characteristics of the integrated MLEG framework and the achievements<sup>13</sup> of large scale natural resource management programs, by exploring the following research question:

*Does the presence of the three core characteristics of the MLEG framework contribute to a higher degree of the large scale natural resource management program achievement? If so, in what manner and under what sets of external and internal conditions?*

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<sup>13</sup> The programs are still on going, therefore this study will not explore the relationship between the MLEG and the final result(s) of the programs. It will focus on the achievement of outcomes or Intermediate Results.

## CHAPTER III. METHODS

### 3.1 Study design: Research Universe and Strategy

The fact that natural resource management involves problems at various levels makes necessary a multi-tier regulatory structure with appropriate entities at the sub-national, national and supranational levels. In a world increasingly recognized as multi-level, solutions must be as well (Cash et al, 2006) hence, a new type of environmental governance, called Multi-level Environmental Governance, is emerging. The MLEG framework to be explained in this research has the following salient features: it is broad in scope; integrated; covers multi-media; and it is designed to deal with the complexities of the contemporary environmental governance of natural resources. To adequately explore these features this study will employ a design strategy that is qualitative and comparative in nature.

Cresswell (2003) argues that qualitative approaches should be used if a concept or phenomenon needs to be understood because: little research has been done on it; the topic is new; the topic has never been addressed with a certain sample or group of people; or existing theories do not apply with a certain sample or group under study. For this study a qualitative approach is best for a number of reasons.

*First*, to date there has been little research on MLEG because it is a new construct. Most research to date has focused on multi-level governance of water resources<sup>14</sup> (Chesapeake Bay Program; Great Lakes, Baltic Sea, etc). The literature

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<sup>14</sup> The multi-level governance of water resources is outside the scope of this research.

lacks evidence of a comprehensive framework that can be applied to different media (air, fisheries, biodiversity, etc) or across the media.

To address this gap, the research will be comparative in nature. The application of the comparative method produces explanations that account for every instance of a certain phenomenon. This feature of the comparative method makes it especially suited for the task of building new theories and synthesizing existing theories (Ragin, 1987). The comparison across cases increases the external validity of the study.

For this study five cases of large scale natural resource management programs have been selected, from five different regions around the world. The cases vary across environmental sectors; each case tackles a different natural resource management problem or a combination of problems, e.g. atmosphere, biodiversity, fisheries, forests, etc. Depending on the type of the program, the unit of analysis is a region, an eco-region or a landscape<sup>15</sup> within an eco-region (definitions of the terms are provided in the respective cases).

The selected cases are:

1. Central Africa Regional Program for the Environment (CARPE)
2. Central Truong Son Biodiversity Conservation Initiative (CTSL)
3. European Union Climate Change Program (ECCP)
4. Northwest Power and Conservation Council Fish and Wildlife Program  
(NPCC)
5. Regional Environmental Program for Central America (PROARCA)

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<sup>15</sup> Sometimes, the concept of the “landscape” could be problematic in the way it is used. In general it comprises the visible features of an area of land. Landscape may also refer to: cultural landscapes, landscape architecture, landscape design, landscape engineering



*Second*, the state of theory for MLEG is underdeveloped. Eisenhardt (1989) argues that case-oriented strategy allows the researcher to reframe perceptions by juxtaposing cases, data and existing literature.

### **3.2 The comparative method**

The comparative method involves the non-statistical comparative analysis of a small number of cases (George & Bennett 2005, pg.151); it's also known as the small N research to distinguish it from the statistical method or the large N research. Small-N research tends to be case-oriented, qualitative, and intensive, while large-N research tends to be variable-oriented, quantitative, and extensive (Ragin, 2004).

The utility of the comparative method has been discussed by Lijphart and others (Lijphart 197; Prezeworski & Tuene, 1970; Smelser 1973;1976; Ragin, 1987). Lijphart (1971) defined the comparative method as one of the basic methods- the others being the experimental, statistical, and case study methods-of establishing general empirical propositions. He (pp. 682-683) also asserted that:

- the comparative method is defined as *one* of the basic scientific methods, not *the* scientific method<sup>16</sup>;
- the comparative method is regarded as a method of discovering empirical relationships among variables, and
- the comparative method is a broad-gauge, general method, not a narrow, specialized technique.

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<sup>16</sup> Lijphart does not equate the comparative with the scientific methods. The later is broader in scope.

Ragin (2004 ) compares and contrasts the comparative method with the case study and variable oriented method. The results are summarized in the table below.

**Table 4: Case oriented, comparative and variable oriented methods**

	<b>Case-oriented research</b>	<b>Comparative research</b>	<b>Variable oriented</b>
<b>1. Proximate goals</b>	Case study researchers focus on the problem of making sense of a very small number of cases, selected because they are substantively or theoretically important in some way. The key concern is the representation of the case.	Comparative researchers study substantively or theoretically defined categories of cases (usually five to 50 or more), with the goal making sense of both individual cases and clusters of similar cases in the light of knowledge of cross-case patterns, and vice versa.	Variable-oriented research seeks to document general cross-case relationships between variables characterizing a large population of generic observations. The key focus is on the relative conformity of cross-case relationships with theoretically based models.
<b>2. Population</b>	The case-study researcher's answer to "What is my case a case of?" may change throughout the course of the investigation, as the investigator learns more about the phenomenon in question and refines his or her guiding concepts and analytic schemes. The fact that a single case can be defined in multiple ways is usually seen as a strength, making the case "rich."	In comparative research, the investigator constructs a carefully delimited set of cases, using theoretical and substantive knowledge as guides. The boundary around this set is initially flexible and becomes more fixed as the research proceeds, through the interaction of ideas and evidence. Concept formation and empirical categorization go hand-in-hand.	In variable-oriented research, cases and populations are typically seen as given. The ideal typical case (or "observation") is the survey respondent. Macro level cases such as countries are treated in the same generic manner. The key issue is how to derive a representative sample from the abundant supply of "given" observations.
<b>3. Number of cases</b>	Case-study research is often defined by its focus on phenomena that are of interest because they are rare--that is, often an N of only one. Empirical	Comparative researchers often make strategic comparisons and thus need diverse cases. At the same time, they need to maintain	Variable-oriented researchers are encouraged to enlarge their number of cases whenever possible; more is

	<p>depth is more important than breadth; therefore, enlarging the N is typically viewed as hazardous.</p> <p>Comparability of cases is never assumed and usually viewed as limited at best.</p>	<p>case homogeneity because their cases should all be instances of or candidates for the same outcomes.</p> <p>Thus, comparative researchers must balance conflicting pressures when delimiting the set of relevant cases.</p>	<p>always better. With more cases, researchers can make more precise estimates of the strength of the connections among variables. The individuality of each case is relegated to the error vector, giving the researcher a distilled representation of what is general across cases.</p>
<b>4. Role of theory</b>	<p>Case-study researchers use in-depth study of cases to advance theory. Thus, they often choose cases that are anomalous in some way from the viewpoint of current theory. A case study is successful even if it succeeds in showing only that existing theory is inadequate. Thus, case selection is critically important.</p>	<p>Existing theory is rarely well-formulated enough to provide explicit hypotheses in comparative research. The primary theoretical objective of comparative research is not theory testing, but concept formation, elaboration, and refinement, and also theory development. Sharpening the definition of the set of relevant cases is often an important theoretical advance in itself.</p>	<p>In variable-oriented research, it is often presumed that researchers have well defined theories and well-formulated hypotheses at their disposal from the very outset of their research. Theory testing is the centerpiece of social research. The ideal variable-oriented investigation adjudicates between competing theories.</p>
<b>5. Conception of outcomes</b>	<p>Case-study researchers often select cases specifically because of their uncommon or anomalous outcomes. The usual goal is to resolve the anomaly in a theoretically progressive way, based on in-depth knowledge of the selected case(s). Often there is no sharp separation of causal conditions and outcomes, for an outcome may seem inherent in the</p>	<p>Comparative researchers often begin by intentionally selecting cases that do not differ greatly from each other with respect to the outcome that is being investigated; they are all "positive cases." The constitution and analysis of the positive cases is usually a prerequisite for the specification of relevant negative cases—if they can be reasonably identified.</p>	<p>Variable-oriented researchers are advised to direct their attention to "dependent variables" that display a healthy range of variation across a systematic sample of cases drawn from a large population. Usually, the more fine-grained this variation, the better. Outcomes that do not vary across cases</p>

	constitution of the case.		cannot be studied because there is no variation to explain.
<b>6. Understanding of causation</b>	Case-study researchers examine causation holistically, in terms of a convergence of structures, actors, and events. They are also centrally concerned with sequences and timing of events, with an eye toward turning points and path dependence.	Comparative researchers usually look at causation in terms of multiple pathways. Positive cases often can be classified according to the general path each traveled to reach the outcome. Each path, in turn, can be seen as involving a different combination of relevant causal conditions.	Variable-oriented researchers assess the relative importance of competing independent variables in order to test theory. The key focus is on the relative importance of causal variables across cases, not on how they come together or combine in any single case. A single causal model is derived that applies equally to all cases.
<b>7. Within vs. cross case analysis</b>	Case-study research is focused almost entirely on within case patterns. Researchers examine parts of the case as mutually constitutive of each other and the whole they form together. Case-study researchers often ask: 'What kind of whole has parts like this?' as they explore connections among case aspects.	Comparative researchers focus on configurations of causally relevant characteristics of cases, with the goal of determining how relevant aspects fit together. They use cross-case analysis to strengthen and deepen within-case analysis, and vice versa. To the extent possible, comparative researchers try to balance cross-case and within-case analysis.	Variable-oriented researchers give priority to cross-case patterns. Aspects of cases are viewed primarily in terms of how they vary and covary across cases. How aspects of cases connect within each case is more or less ignored. The idiosyncracies of cases cancel each other out, as deviations from general patterns are assigned to the error vector of probabilistic models.

According to Ragin (1987) the comparative method is superior to the statistical method, or “the variable oriented method”, in several important respects.

- First, the statistical method is not combinatorial; each relevant condition typically is examined in a piecemeal manner.

- Second, applications of the comparative method produce explanations that account for every instance of a certain phenomenon. “This feature of the comparative method also makes it especially suited for the task of building new theories and synthesizing existing theories” (pg.16).
- Third, the comparative method does not require the investigator to pretend that he or she has a sample of societies drawn from a particular population so that tests of statistical significance can be used. The boundaries of a comparative examination are set by the investigator.
- Finally, the comparative method forces the investigator to become familiar with the cases relevant to the analysis. Researchers examine cases as wholes, not just as a collection of variables. To make meaningful comparisons of cases as wholes, the investigator must examine each case directly and compare each case with all other relevant cases to the analysis.

Yin (2003) asserts that multiple case designs have distinct advantages and disadvantages in comparison to single-case designs. The evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust (Herriott & Firestone, 1983)<sup>17</sup>. He goes on to say that every case should serve a purpose within the overall scope of the inquiry. “ Here, a major insight is to consider multiple cases as one would consider multiple experiments-that is, follow a “replication” logic” (Yin 2003, pg.47). Each case must be carefully selected so that it either (a) predicts similar results (a literal replication) or b) predicts contrasting results but for predictable reasons (a theoretical replication). An important

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<sup>17</sup> As cited in Yin (2003).

step in all these replication procedures is the development of a rich theoretical framework, which states the conditions under which a particular phenomenon is likely to be found as well as the conditions when it is not likely to be found.

According to Przeworski and Teune (1970) the comparative approach aims at explaining processes in a society by means of theoretical frameworks of reference and where explanations are validated by comparing with other units of analysis or units of variation. They argue that in order to keep the context under control one has to choose between a large or optimal number of cases/systems that are contextually similar with only few variables that differ amongst each other, on the one hand, or one can maximize control by using a small number of cases and a higher number of variables which have in fact almost all contextual features in common, on the other. "In order to answer a research question one needs to make a choice between a most similar and a most different design for comparison" (Przeworski & Teune 1970, pg.42). The "most similar" design attempts to identify a similarity in the independent variable associated with a common outcome in one or more cases. The "most different" design attempts to identify independent variables associated with different outcomes (George, 1997). The latter design often leads to problems regarding the external validity of the results, whereas the former strategy has potential implications for the internal validity (Pennings et al, 1999).

The criticisms on the comparative method concern issues such as (Pennings et al, 1999):

- Whether Research Question and Research Design, i.e. the relationship between theory and reality, is embedded in the correct approach in terms of case selection, cross-sectional or time series analysis, variable oriented or case oriented design (Lijphart, 1971; Ragin, 1987).
- Whether or not casual or conditional explanations can be achieved by means of empirical and statistical corroboration (Ragin, 1987; Smelser, 1976).

George et al. (2005) list several requirements that the comparative method must meet to overcome criticism. First, the investigator should clearly identify the universe-that is, the “class” or “subclass” of events-of which a single case or a group of cases to be studied are an instance of. Second, a well-defined research objective and an appropriate research strategy to achieve that objective should guide the selection and analysis of a single case or several cases within the class or subclass of the phenomenon under investigation. Third, case studies should employ variables of theoretical interest for purposes of explanation. These should include variables that provide some leverage for policymakers to enable them to influence outcomes.

Another problems associated with the comparative method is known as “the problem of selection bias”. Selection bias is commonly understood as occurring when the nonrandom selection of cases results in inferences, based on the resulting sample, that are not statistically representative of the population. A common problem arising from such selection is that it may over-represent cases at one or the other end of the distribution on a key variable (Pennings et al, 1999).

This is the basis for warning about the hazards of "selecting on the dependent variable" (Geddens 1990; King, Keohane & Verba, 1994; Goldthorpe, 1997). This expression refers, not only to the deliberate selection of cases according to their scores on this variable, but to any mode of selection correlated with the dependent variable (i.e., tending to select cases that have higher, or lower, values on that variable) once the effect of the explanatory variable is removed. If such a correlation exists, causal inference will tend to be biased (Collier, 1993).

By the late 1990s, a number of scholars responded to these concerns ( Dion 1998; Ragin 2000; Braumoeller and Goertz, 2000). One response to these concerns is to emphasize ways in which qualitative researchers constitute populations and establish the scope of their theories. They choose to locate smaller population of cases that exhibit sufficient similarity to be meaningfully compared to one another (Mahoney, 2004). Dion offers a defense of analyses of a small number of cases selected on the dependent variable and asserts that it is an appropriate procedure in evaluating necessary conditions<sup>18</sup>. We look at all the cases where the phenomenon occurs and see if the necessary condition is satisfied. He proposes two strategies that can be pursued. First, the conceptual characterization of the necessary condition should be precise. Second, case selection should be designed to minimize the possibility of spurious conditions. Dion is also concerned about the sample size in

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<sup>18</sup> Suppose we are interested in explaining a phenomenon Y. Condition X is necessary for Y if, for Y to occur, X must also occur. By contrast, X is sufficient for Y if the occurrence of X implies the occurrence of Y. For instance, consider the statement "social revolution is possible only if the state is in crisis". This preposition is equivalent to saying that state crises is a necessary condition for social revolution. To say that "state crises leads to social revolution" would be to state a sufficient condition for social revolution.



comparative case study work. His calculations show that “to reach a strict 95 percent confidence only five cases are necessary” (Dion 1998, p.135).

Lijphart (1971) points out that the comparative method is based on the same logic as the experimental method and in many ways resembles the statistical method. The crucial difference between the two is that the comparative method deals with too few cases to allow for systematic control of variables by partial correlations. Lijphart summarizes the problem as one of “many variables, few cases”, and suggests a number of ways of addressing the problem. The first is to increase the number of cases as much as possible. The second is to reduce property space of the analysis by combining two or more variables that express a single underlying characteristic, or by reducing the number of classes into which variables are divided by reducing several categories into a dichotomy. A third possibility is to focus on cases which are similar in a number of characteristics, which are treated as constants, but are dissimilar with respect to experimental variables. A fourth approach involves focusing the analysis on key variables.

Various attempts have been made to develop the logical analysis of relatively small numbers of cases. Most notable in this connection is the technique of “qualitative comparative analysis” (QCA) proposed by Ragin (1987). This technique aims to alleviate the small N problem by allowing inferences to be drawn from the maximum number of comparisons that can be made, in terms of the presence or absence of attributes of interest, across the cases under analysis.

QCA is an analytic technique designed specifically for the study of cases as configurations of aspects. In the most basic form, the idea of viewing cases as configurations can be captured by examining different combinations of values on relevant variables and treating each combination of values as potentially a different type of case. For instance, with three independent variables (all dichotomies), there are eight (8) logically possible combinations of values. The key to configurational thinking is to see these eight possible combinations of values as providing the basis for differentiating eight different kinds of cases. In other words, the analysis involves not three independent variables, but eight configurations conceived as types of cases. “Rather than viewing cross-case patterns through the relationship between variables, the researcher compares and contrasts configurations” (Ragin 1999, p.1226). The investigator looks for features that go together as configurations, not features that correlate.

Ragin also argues that the configurational understanding of cases it is integral to diversity-oriented research. “Diversity oriented research lies midway between studying general patterns across all the cases, on one hand, and attending the complexity of a specific case, on the other. Attending to diversity involves careful consideration of the possibility that cases differ by type or kind, not merely by level or degree” (Ragin 2000, p.74). ). By viewing aspects of cases configurationally, it is possible to assess whether the impact of similar scores on some outcome differs by context.

The QCA method has been supplemented by other “within case” methods that aim at generating and analyzing qualitative data on causal mechanisms. As Ragin states “ The best way to address the limitations of cross-case analysis is by complementing it with within-case analysis. If possible, it is good to balance cross-case and within-case analysis in social research”(Ragin, 2000).

Two of the “within” case analysis methods - the congruence method and the process tracking method - are discussed below.

The essential characteristic of the congruence method is that the investigator begins with a theory and then attempts to assess its ability to explain or predict the outcome in a particular case (George & Bennett, 2005). The congruence method has several features: 1) the investigator does not have to trace the causal process that leads from the independent variable to the case outcome; 2) the investigator may be able to clarify and refine a theory through its use in case studies, making it more nearly testable.

The congruence approach works with either a deductive or empirical theory that purports to predict or explain outcomes on the basis of specified initial conditions. Such a theory may be provided by existing formal or tacit theories; or it may be formulated by the investigator by drawing on the results of previous case studies or from quasi-experimental work. Or the theory may be postulated for the first time by the investigator on the basis of a hunch that is an interesting theory whose predictive or explanatory potential should be assessed (George, 1997).

The congruence method can be combined with process tracking to assess whether the congruence between the independent and the dependent variables is casual or spurious and to enrich theories that only posit a relationship between independent and dependent variables and have nothing to say about the intervening variables and casual processes that connect them (George & Bennett, 2005).

The general method of process tracking is to generate and analyze data on the casual mechanisms, or processes, events, actions, expectations and other intervening variables, that link putative causes to observed effects (George & Bennett, 2005). Process tracking forces the investigator to take equifinality into account, and it offers the possibility of mapping out one or more casual paths that are consistent with the outcome, checking for spuriousness, and pointing out variables that might be left out.

Within the general method of process tracking there are two different approaches. The first – process verification – involves testing whether the observed processes among variables in a case match those predicted by previously designated theories. The second – process induction – involves the inductive observation of apparent casual mechanisms and heuristic rendering of these mechanisms as potential hypothesis for future testing.

Despite its advantages the process tracking method has its limitations. Process tracing is no guarantee that a study can establish internal validity; external validity also remains a difficult standard (George & Bennett, 2005).

### 3.3 Data collection and Potential Sources of Bias

This study uses secondary data. To identify the cases the literature was searched as far back as the early 1990, which coincides with the time when the theory of multi-level governance was first developed. More than 100 publications were identified for review. To avoid the potential of a biased sample, case identification involved a comprehensive search of published governmental and agency reports, articles, books, discussion papers, and draft manuscripts. A caveat here is that the authors of the reports or other documents may be motivated to write about the successes of the programs. This is more likely to occur when the author is closely connected to the process rather than an independent researcher (Beierle & Cayford, 2002). If this were true, the case study records might demonstrate a selection bias toward more successful programs.

However, there are several reasons to believe that the selection bias may not exist. *The first issue* is timing. The cases selected for analysis describe “on going programs” - hence they focus more on describing the progress up to date (in terms of the achievement of the intermediate results) rather than successes or failures in achieving final results. *The second issue* is the definition of “success”. Even if authors are motivated to write about successful programs, they use many definitions of success. Some consider the progress toward implementation successful, and still others consider the programs successful if all the relevant stakeholders are involved in the process and decisions are made by consensus. If the author’s notion of success was

independent from the MLEG framework by which this study evaluates cases, then the bias from the author would not effect the results (Beierle & Cayford, 2002).

Singelton and Straits (1999) note that a major problem in much social research is reactive measurement; changes in behavior that occur because of subjects' awareness that they are being studied or observed (the Hawthorne effect). This is not usually the case with available data; many available data sources, are not reactive. "With physical evidence and many other available data sources, there is simply no reasonable connection between a researcher's use of material and the producer's knowledge of such material" (p.367). Another advantage of using available data is that they often enable the researcher to analyze larger social units (e.g the whole society; the community; the metropolitan area; the region; etc).

Because of the commitment and costs involved, social scientists rarely conduct longitudinal surveys or do field research over long spans of time. The analysis of the available data, however, is well suited to studies of social and cultural change (Singelton & Straits, 1999). Moreover, insofar as research using available data bypasses the stage of data collection, it can economize greatly on cost, time and personnel.

Despite the advantages of using available data, there are several problems with this approach. "Using available data is a bit like wearing someone else's shoes" (Singelton & Straits, 1999). Seldom available data will be well suited to the purposes the researcher has in mind. At best data may require the creative construction of measures that provide indirect evidence of a given variable. At worst data may be

inadequate to address the research question. Another possible source of bias is how to treat data gaps or missing data. When the case study has no information, interpreting whether the item should be left blank or coded as “No” might sometimes be difficult, as it was the case of Central Truong Son Biodiversity Conservation Initiative<sup>19</sup>.

To reduce the potential of bias, triangulation was used to ensure the validity of data. Patton (1999) notes that four kinds of triangulation contribute to the validation and verification of qualitative analysis 1) checking out the consistency of findings generated by different data collection methods, that is, method triangulation; 2) examining the consistency of different data sources within the same method, that is triangulation of sources; 3) using multiple analysts to review findings, that is analyst triangulation; and 4) using multiple perspectives on theories to interpret the data, that is, theory/perspective triangulation. This study employed the method and theory triangulation as means of exploring conceptual linkages as well as to offer various perspectives other than that of the researcher.

### **3.4 Analytical design of the research**

The research involved several stages. *In the first stage*, based on the literature review the integrated Multi-level Environmental Governance framework was fully developed.

*The second stage* included writing the narratives of the selected case studies. The narratives did not provide an in depth description of the political, social or cultural issues for the respective cases. These issues were “outside” the boundaries of the

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<sup>19</sup> For additional details see Chapters III and IV.

study. Instead, they focused on proving evidence of the core characteristics of the MLEG framework.

The next step was to determine, through in-depth case analysis, the extent to which the core MLEG characteristics were evident in each of the cases. To process the qualitative information, the Qualitative Comparative Analysis method was employed.

For each characteristic several measures were developed as indicated in the table below. The selection of measures was informed by the integrated MLEG framework.

**Table 5: Multi-level Environmental Governance characteristics and measures**

<b>Core characteristics of MLEG Theoretical Constructs</b>	<b>Measures</b>	<b>YES/NO</b>	<b>1/0</b>
Multi – level Governance (MLG)- <i>Vertical and horizontal linkages within an unlimited number of task specific flexible jurisdictions</i>	<ul style="list-style-type: none"> <li>• Unlimited number of task specific jurisdictions</li> <li>• Vertical linkages</li> <li>• Horizontal Linkages</li> </ul>		
Institutions for Environmental Governance (IEG) - <i>Institutional relationships are defined at the scale of the problem, and are of a non- hierarchical nature linking a variety of actors at the subnational, national and supranational levels. These relationships are governed by a negotiated set of rules, norms and procedures for cooperation.</i>	<ul style="list-style-type: none"> <li>• Ecologically defined governance structure</li> <li>• Non-hierarchical institutional relationships</li> <li>• Negotiated sets of rules, norms and procedures for cooperation</li> </ul>		
Environmental Decision Making (EDM) - <i>The governance arrangements are founded upon multi-stakeholder, collaborative, power shared decision making processes based on the principles of equity, accountability, transparency, participation and access to information</i>	<ul style="list-style-type: none"> <li>• Diverse, inclusive participation</li> <li>• Equitable DM process</li> <li>• Clear goals, objectives and written plan</li> <li>• Information is constantly shared among stakeholders</li> </ul>		



For each characteristic an average value was assigned based on the following decision rules:

1. For each measure a YES/NO dichotomy was used.
2. If there were more YES-s than NO-s the characteristic was given the value of 1.
3. If there are more NO-s than YES-s the characteristic was given the value of 0.
4. If there was an equal number of YES-s and NO-s the research made a justified decision on whether to code the variable as 0 or 1.

The results were transferred into a summary case matrix or the truth table (Ragin, 1987)<sup>20</sup>. With three variables, there are eight possible combinations of values.

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<sup>20</sup> The idea behind the truth table is simple. Once the data have been recorded into nominal scale variables are represented in binary form (as 1's and 0's), it is necessary only to sort the data into their different combination of values on the independent variables. Each logical combination of values is represented as one row of the truth table. Once this part of the truth table is constructed, each row is assigned an output value (a score of 1 or 0) based on the scores of cases that share the combination of input values. Thus, both the different combinations of input values and their associated output values are summarized in a truth table. Truth tables have as many rows as there are logically possible combinations of values on the casual variables.

**Table 6: The Summary Matrix (the Truth Table)**

MLG (A)	IEG (B)	EDM (C)	Program Outcomes (O)
1	1	1	0/1
1	1	0	0/1
1	0	0	0/1
1	0	1	0/1
0	1	1	0/1
0	0	1	0/1
0	1	0	0/1
0	0	0	0/1

The following step in the analysis was to score the degree of program achievements for each case. To do this, scores of 1 or 0 were given to the degree of program achievement. For each case, when the outcome was present it was coded as 1, otherwise it was coded as 0. These score were transferred into the summary case matrix.

The *third stage* in the analysis was to explore the validity of the research question that shed light on the issue of whether more comprehensive MLEG, as predicted by the MLEG theory, would contribute to higher levels of program achievements. The analysis was carried out using the Boolean Algebra technique<sup>21</sup> of the qualitative comparison.

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<sup>21</sup> Ragin (1987) explains that in Boolean Algebra, if  $A+B = Z$ , and  $A = 1$  and  $B = 1$ , then  $Z=1$ . In other words,  $1+1=1$ . The basic idea in Boolean addition is that in any of the additive terms is satisfied, then the outcome is true (occurs). Thus, the statement  $A+B=Z$  becomes: if A equals 1 OR B equals 1, then Z equals 1. Boolean multiplication also differs substantially from normal multiplication. A product is a specific combination of casual conditions. While uppercase letter indicating presence and lowercase letter indicating absence, the data can be presented in a sum-of-products form as follows:  $O = Abc +$

For simplicity let's consider MLG as variable A, IEG as variable B and EDM as variable C, then 8 configurations (rows of the truth table) have the potential of producing the outcome.

$$O = ABC + ABc + Abc + AbC + abC + aBc + aBC + abc$$

This equation assumes that determining an output value for each row it is not a problem. However, empirical cases are only occasionally this neat, and it might be necessary to consider what to do when the cases conforming to some of the configurations do not exhibit clear tendencies toward presence or absence of the phenomenon of interest (Ragin, 1987). When that occurred, then the troublesome case(s) were examined in greater detail using the within case "process tracking" method.

Finally, additional cross case analysis was carried out to further elaborate the following issues:

- The relative importance of the three core MLEG characteristics
- The configuration that appeared to be most effective
- The effects of other intervening variables not included in the MLEG framework

At the end, the study suggested some revisions that should be made to the framework and to the measures for the core characteristics.

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$aBc + abC + AbC + ABc + aBC + ABC$ .  $Abc$  does not mean that the value of A(1) is multiplied by the value of B (0) and by the value of C (0) to produce a result value of 0. It means simply that a presence of A is combined with an absence of B and an absence of C. In Boolean Algebra addition indicates logical OR and multiplication indicates logical AND.

## CHAPTER IV. CASE STUDIES

This chapter will introduce five cases studies: The Central African Regional Program for the Environment (CARPE); Central Truong Son Biodiversity Conservation Initiative (CTSL) ; European Union Climate Change Program (ECCP); Northwest Power and Conservation Council Fish and Wildlife Program (NPCC) ; and The Regional Environmental Program for Central America (PROARCA). The narrative of each case will include five sections: 1) Background and Settings; 2) Multi-level Environmental Governance; 3) Institutional Arrangements; 4) Environmental Decision Making; and 5) Program outcomes. For each case, the results will be summarized in tables using the measures identified in the methodology section.

### **4.1 The Central African Regional Program for the Environment**

#### *4.1.1. Background and Settings*

The Central African Regional Program for the Environment (CARPE) is a long term initiative by the United States Agency for International Development (USAID) to address deforestation and biodiversity loss in the Congo Basin of Central Africa.

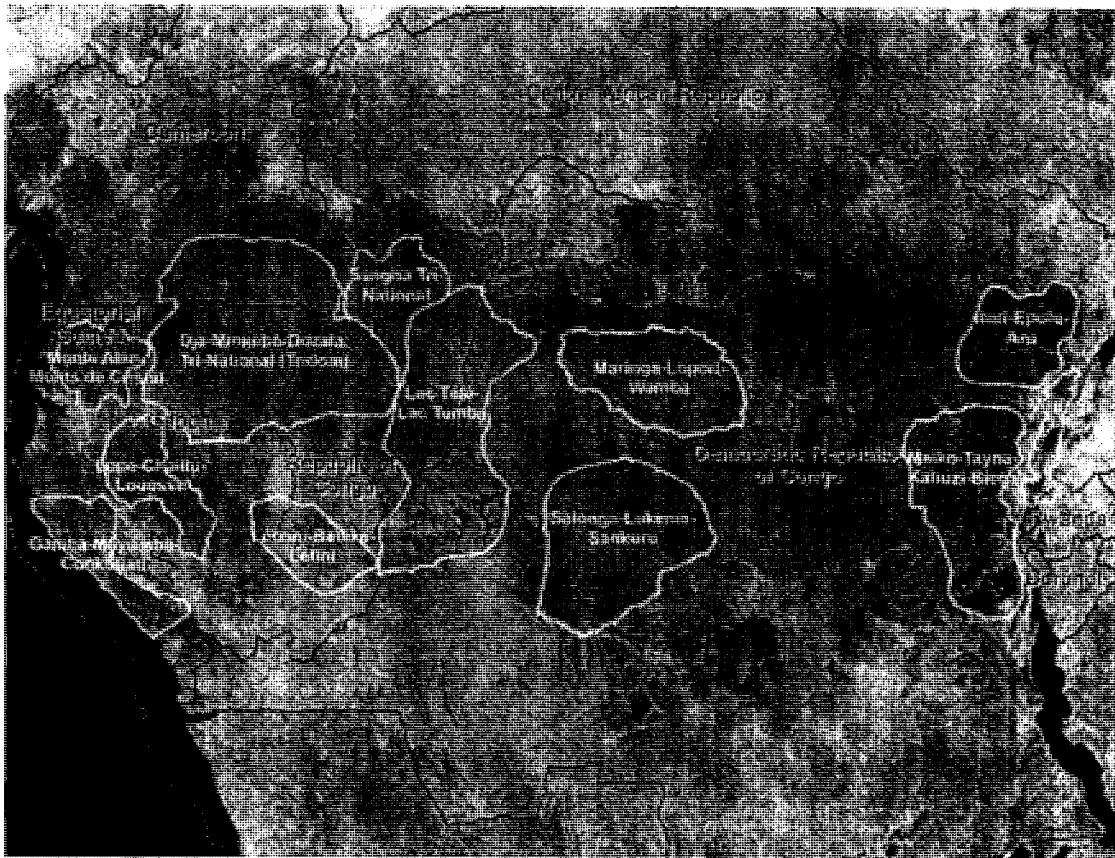
Implemented by a team of U.S. – based nongovernmental organizations (NGOs) and U.S. government agencies<sup>22</sup>, CARPE works in collaboration with local partners in Cameroon, Central African Republic, Equatorial Guinea, Gabon, Republic of Congo,

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22 World Conservation Union, NASA, World Wildlife Foundation, Conservation International, African Wildlife Foundation, World Resources Institute, US National Park Service, Wildlife Conservation Society, US Forest Service, Smithsonian Institute

Democratic Republic of Congo, Rwanda, Burundi, and Sao Tome and Principe  
(CARPE, 2003).

**Figure 7: Congo Basin Countries and Landscapes**



Source: [http://carpe.umd.edu/where-carpe-works/CARPE\\_BaseMap\\_landscapes.jpg](http://carpe.umd.edu/where-carpe-works/CARPE_BaseMap_landscapes.jpg)

The Congo Basin is the second largest area of contiguous moist tropical forest left in the world. It covers an area of approximately 1.8 million hectares from the Atlantic Ocean's Gulf of Guinea to the mountains of the Albertine Rift. Eighty percent of the forest range in altitude from 300 to 1,000 m and forms the catchment basin of the Congo River. The Congo Basin forest is of local, regional, and global environmental significance because it represents approximately one fifth of the world's remaining closed canopy tropical forest; The forest serves as critical habitat for biodiversity (home to three of the world's four species of great apes) and provides vital regional and global ecological services by controlling and buffering climate at a regional scale, and by absorbing and storing excess carbon dioxide releases from the burning of fossil fuels (CARPE, 2003). The forest also represents a rich resource in terms of food, shelter, and livelihoods for the over 60 million inhabitants of the region. The sustainable management of these resources is seen as critical to the economic development of the region (USAID, 2005b).

The Congo Basin forests are at risk from a complex set of threats. While much of the forest currently remains intact, many factors contribute to its continual loss. These factors include proximate threats from the persistent unsustainable extraction of timber and mineral resources, agricultural expansion, an active bushmeat trade, poor management, and increasing pressure due to population growth. An estimated 50% of Central Africa's forests are now under logging leases. While logging companies generally harvest only the most valuable trees, the extraction and transportation of these trees causes significant collateral damage to the forests (CARPE, 2003). In

addition, the forests of the Congo Basin are vulnerable to more ultimate threats related to regional poverty, weak governance, and civil unrest (CARPE, 2005).

The overexploitation of wildlife for commercial purposes is considered as the most imminent threat to forests and biodiversity in the Congo Basin. “Another severe threat to many large and medium-size mammals in Central African forests is uncontrolled hunting to supply bushmeat for urban markets and for laborers working in the logging industry. Dramatic reductions in mammal populations could lead to serious disruption of these complex forests ecosystems, damaging their ecological resilience and natural regeneration capacity by eliminating pollinators, seed dispersers, and predators that keep the populations of herbivores in check. There is also a fear that bushmeat hunting and trade contributes to the emergence of new viral diseases in human population such as HIV/AIDS and Ebola hemorrhagic fever” (CARPE, 2003, p.2). Trade threatens not only the wildlife, but also the livelihood of traditional forest peoples dependent on wild meat for their subsistence (CARPE, 2005). Mining for gold and diamonds is also quite common in the Congo basin, often resulting in environmental degradation. Conflict has affected many of the Congo Basin countries over the past several years. The sources of the conflict are complex and historic, but are often fuelled by rivalry over natural resources including minerals and forest products (CBFP, 2006).

*CARPE – Phase I*

Recognizing the importance and difficulty of conservation in the Congo Basin, USAID began a 20 year program in 1995. The program was designed to provide a mechanism to support conservation and sustainable management of natural resources in the tropical forests of Central Africa. The strategic objective of CARPE is to **reduce the rate of forest degradation and loss of biodiversity in the Congo Basin by increasing local, national, and regional natural resource management capacity**. Intermediate results to be achieved in order to reach this objective involve implementing sustainable forest and biodiversity management practices, strengthening environmental governance, and working to monitor forests and other natural resources throughout the region (USAID, 2006).

The CARPE program was first authorized by the U.S. Government in 1995 and was initially proposed as a 20-year regional initiative divided in three strategic phases. Phase I of CARPE began operating out of Washington, D.C in 1997 and centered on gathering information on the Central African forest ecosystem, while simultaneously building regional human resources and institutional capacity. The program began in four countries; the Central African Republic, Equatorial Guinea, Gabon, and the Republic of Congo. Since its beginning five additional countries have been added;



Burundi, Cameroon, the Democratic Republic of the Congo, Rwanda, and Sao Tome & Principe<sup>23</sup>.

In 1997, there were no USAID missions in Congo Basin countries and the decision was made to work directly through partner organizations already operating in the region. The first set of ten partners included: the Wildlife Conservation Society (WCS); the World Resources Institute (WRI); World Wildlife Fund (WWF); World Learning; the U.S. Forest Service (USFS); the Peace Corps; and the National Aeronautics and Space Administration (NASA), in collaboration with the Universities of Virginia and Maryland. The tenth partner, the Biodiversity Support Program (BSP), a USAID-funded consortium of the World Wildlife Fund, The Nature Conservancy, and the World Resources Institute, handled program management until its Global Bureau cooperative agreement ended in December, 2001.

Four other partners began participating in CARPE in 2000: the World Conservation Union (IUCN); Conservation International (CI); the African Wildlife Foundation (AWF); and the U.S. Fish and Wildlife Service (USFWS).

### *CARPE – Phase II*

In January of 2003, CARPE began its second strategic phase and officially transferred management to the region. CARPE Phase II is being operated as a regional Strategic Objective (SO) managed through the environmental sector of USAID in Kinshasa - the Democratic Republic of the Congo (DRC). The transfer of USAID

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<sup>23</sup> The area is also known as the Congo Basin.

management responsibilities to Kinshasa has had a positive effect on USAID's ability to coordinate a complex field based program.

Phase II is projected to continue until September 11, 2011 and is specifically concerned with supporting sustainable natural resource management in the field, improving environmental governance, and strengthening natural resource monitoring capacity in Central Africa. This primary objective has been further divided into three Intermediate Results concerned with: (1) sustainably managing natural resources; (2) institutionalizing natural resource monitoring; and (3) strengthening natural resource governance. All of CARPE's intermediate results are tracked through corresponding indicators.

The implementation of Phase II corresponded with the launching of the Congo Basin Forest Partnership (CBFP) at the 2002 World Summit on Sustainable Development. CBFP was co-initiated by the US and South African Governments and it is an association between some 30 governmental and non-governmental organizations concerned with the Congo Basin<sup>24</sup>.

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<sup>24</sup> As a group, the founding members committed to financing and/or implementing programs in line with the CBFP priority areas that totaled tens of millions of dollars over three to five years.  
*Governments:* Republic of South Africa (DWAF; Germany (BMZ, GTZ); Belgium (MAECECD); Cameroon (ONADEF); Canada (ACDI); European Union (EC, ECOFAC, JRC); USA (DSPI, CARPE-USAID); France (MAE, AFD, MEDD, CIRAD); Equatorial Guinea; Gabon; Japan (Embassy of Japan in France); Netherlands (SNV); Central African Republic; Democratic Republic of Congo; Republic of Congo (MEFE); United Kingdom (DFID).  
*Intergovernmental organizations:* World Bank; COMIFAC; FAO; World Mechanism; ITTO; UNESCO; GRASP.  
*NGOs:* American Forest & Paper Association; Association technique internationale des boi Tropicaux (ATIBT); Center for International Forestry Research (CIFOR); Conservation International (CI); Forest Trends; Jane Goodall Institute (JGI); Society of American Foresters; World Conservation Union (IUCN); Wildlife Conservation Society (WCS); World Resources Institute (WRI); World Wildlife Fund (WWF-USA); World Wide Fund for Nature (WWF-Int'l).

At the summit, the U.S. Government (USG) committed \$53 million to finance the CBFP's efforts to support sustainable forestry, biodiversity conservation, and poverty alleviation. The USG identified CARPE as the principal mechanism through which these funds would be dispersed. At its current level of funding, CARPE represents the United States' largest conservation project in Africa.

In addition to the funds provided through the USG, CARPE requires matching funds from its primary partners amounting in aggregate to more than 50% of USAID's contribution. Thus far, the primary partners serving as executing agencies have been successful at leveraging approximately \$150 million additional funds in support from international donors and non-USG sources.

The majority of CARPE funds are allocated to support activities in designated landscapes. CARPE landscapes were identified as appropriate conservation targets at a 2000 Conservation Priority-Setting Workshop for Central Africa. The workshop was organized by the World Wildlife Fund and brought together over 160 biologists and socio-economic experts to carry out a region-wide evaluation. Eleven landscapes were recognized as priority areas for conservation based on their relative taxonomic importance, their overall integrity, and the resilience of ecological processes represented. The landscape has been defined as “ *a geographical construct that includes not only biophysical features of an area but also its social, political institutional and aesthetic attributes*”(Zuidema & Sayer, 2006)<sup>25</sup>.

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<sup>25</sup> Each landscape is unique. Criteria for choosing the landscapes included vulnerable and irreplaceable species or biodiversity richness, and/or ecosystems that had remained unusually intact or that were unique in the region.

At the completion of Phase II in 2011, a third CARPE strategic phase is expected to continue through 2016. Phase III is projected as the final period of transfer, when CARPE activities will be turned over to Central African institutions.

To date, almost 80% of program resources have been allocated to the achievement of the first intermediate result – natural resources managed sustainably. Much of the progress has been focused on protected areas especially national parks, within landscapes, where implementing NGOs have the most experience. These NGOs work closely with the government agencies charged with protected area conservation and management and have built the capacity of these agencies personnel.

#### *4.1.2 CARPE – Multi-level Governance*

CARPE is a large scale natural resource management program implemented at multiple levels. The multi level governance of CARPE is very complex and deserves a thorough analysis of different arrangements at and across levels.

From the outset, CARPE effectively recognized the need to manage landscape issues across borders. Transnational problem identification and coordination are sanctioned by governments which have developed transnational mechanisms that operate at local, cross border and regional/international levels.

At the supra national level, the governments of CARPE countries have demonstrated their willingness to create a meaningful regional forest dialogue by becoming members of the Central African Forest Commission (COMIFAC). The COMIFAC is the primary authority for decision-making and coordination of sub-regional actions and initiatives pertaining to the conservation and sustainable

management of the Congo Basin forests. It is made up of the forestry ministers of participating Central African countries and is under the head of a secretariat. The legal basis for the Commission was laid in 1999 when the heads of state of the Republic of the Congo, Chad, Equatorial Guinea, Sao Tome/Principe, Gabon, and the Central African Republic convened and produced the Yaoundé Declaration. The Declaration recognizes the protection of the Congo Basin's ecosystems as an integral component of the development process and reaffirms the signatories' commitments to work cooperatively to promote the sustainable use of the Congo ecosystems in accordance with their social, economic, and environmental agendas.

Since its formation, COMIFAC has met regularly to discuss its agenda and develop an official *Plan de Convergence*, an action plan that identifies COMIFAC priorities. Since 1999, the signatories of the Yaoundé Declaration have also worked to overcome variances and formalize their commitments in a treaty. To this end, in February of 2005 a landmark conference was held in Brazzaville, Republic of Congo. At this conference an official treaty was signed by the heads of state of the Cameroon, the Central African Republic, the Republic of the Congo, the Democratic Republic of the Congo, Gabon, Equatorial Guinea, Chad, Sao Tome/Principe, Burundi, and Rwanda, and wherein the Heads of State declared (COMIFAC Treaty, 2005)<sup>26</sup>:

- their attachment to the principle of biodiversity conservation and sustainable management of forest ecosystems in Central Africa;

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<sup>26</sup> <http://www.comifac.org/> (Retrieved on Dec 23, 2007).

- the right of their peoples to rely on forest resources to support their economic and
- social development efforts;
- their long-standing support for the need to reconcile economic and social development requirements with biological diversity conservation within the framework of sub-regional and international co-operation; and
- their interest in the establishment by the international community, which is today increasingly aware of the ecological role of forests, of an international mechanism for the financing of a trust fund to lend sustainable support to the countries of the subregion in their efforts to manage, conserve and conduct research on forest ecosystems;

COMIFAC is financed through a mandatory contribution of the member states and is composed of the following bodies:

- the Summit of Heads of State and Government
- the Council of Ministers<sup>27</sup>
- the Executive Secretariat

In addition to the signing of the official treaty, at the summit, the TRIDOM accord was signed, which set up the institutional framework to facilitate implementation of a trans-boundary conservation program in Cameroon, Gabon, and the Republic of Congo. The agreement represents a big step towards the battle against

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<sup>27</sup> The Council of Ministers has the responsibility for the decision making, coordination and monitoring of policy implementation in the Congo Basin, whereas the Executive Secretariat coordinates the implementation of COMIFAC activities and implements the decisions of the Council of Ministers (COMIFAC Treaty, 2005).

poaching and illegal logging. The Sangha Tri-National (TNS), a 2.8 million hectare stretch of forest in Central Africa, was established following the agreement signed between the Governments of Cameroon, Central African Republic and the Republic of Congo. The 2.8 million hectares of forests include national parks and surrounding multiple use zones (WWF, 2006)<sup>28</sup>. The TNS and TRIDOM are pioneer conservation initiatives that have significantly contributed in forging a new vision within the Congo Basin on development and implementation of trans-boundary conservation programs.

At the national level the responsibility for managing the natural resources falls under the line Ministries in the respective countries. For instance in Congo the forest domain is administered by the Directorate for Forests of the Ministry of Forest Economy and the Environment. The fauna and the protected areas are administered by the Directorate for Fauna and the Protected Areas.

At the local level the social organizations differ from one landscape to the other. For instance, in the Monte Alen-Monts de Cristal Landscape<sup>29</sup>, administratively, the Gabonese portion of the landscape straddles three provinces; each province is managed by a governor. Departments are run by a prefect and a departmental council. The prefect, assigned by the Interior Ministry and supervised by the provincial governor, is in charge of departmental administrative services. The prefect also oversees the budgets of the different central government agencies, the departmental council and the local town hall. At the department level, deputies

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<sup>28</sup> [www.panda.org](http://www.panda.org) (Retrieved on January 4, 2008)

<sup>29</sup> It covers the South and South East of Equatorial Guinea and the Northwest Gabon

represent the population at the National Assembly. Each department is divided into canton, settlement and village leaders.

Since there is no clear administrative counterpart for the landscape, local authorities become involved but more in support roles to project directed interventions (Pielemejer et al, 2006).

In accordance with principles of integrated conservation initiatives and broad-scale land management, each landscape is divided into different categories of management areas, including: protected areas, community-based natural resource management zones, and extractive zones. Within these zones, CARPE and its partners are working to implement sustainable natural resource management practices at the local scale. The CARPE Landscape Programs are currently being administered by multiple international conservation organizations. These organizations work with other international NGOs, local NGOs, government agencies, international research institutions, and specific individuals to implement the landscape programs. Coordination among multiple governments, donors, implementing partners and multiple stakeholders is a substantial management challenge of CARPE and its implementing partners.

In addition to the landscape programs, CARPE also supports broader cross-cutting activities throughout the Congo Basin. Cross-cutting activities are designed to bring specific expertise to the Congo Basin and are concerned with a wide variety of tasks, including: natural resource monitoring, land management, policy development, and institutional capacity building. Finally, to provide additional technical and



administrative guidance at the country level, CARPE supports 4 national-level 'focal points'. Focal points work with local non-governmental organizations and community-based organizations to increase their capacity to accomplish CARPE activities.

CARPE supports the activities of the Congo Basin Forest Partnership (USAID, 2006). The partnership's primary aim is to enhance natural resource management and improve the standard of living in the Congo Basin. Based on COMIFAC's *Plan de Convergence* (2003-2010), the CBFP identifies its major themes as: harmonization of forest policy and taxation, inventory of flora and fauna, ecosystem management, conservation of biodiversity, sustainable use of natural resources, capacity building and community participation, research, and innovative financing mechanisms. The partnership supports a network of national parks, protected areas, and forestry concessions, and assists communities that depend upon the conservation of forest and wildlife resources. Recently, the partnership was responsible for creating a clause in the Congolese forestry code that allows communities to create "community forests" with rights to collectively manage land and associated wildlife and forests so as to provide incentives for the community to invest in forestry preservation (USAID, 2006).

The Conference on Central African Moist Forest Ecosystems (CEFDHAC) is another regional network that brings together States, national and sub regional non-governmental organizations, the private sector and other parties involved in the management of the forests of Central Africa (State of the Forests, 2006). CEFDHAC is recognized as a forum through which a broad range of participants can engage in a

dialogue on forest management and policy (Pielemejer et al, 2006). It has initiative and supports various networks, such as the Network of Parliamentarians for the sustainable management of Forest Ecosystems in Central Africa (REPAR) created in Libreville in 2002. The objectives of this network are to enable parliamentarians in the region to share their respective national legislative experiences in the management of the forest ecosystems, to deliberate on common themes, and to encourage consideration for the interests of local communities in the preparation of the environmental legislation (CBFP, 2006).

Another attempt to promote the development and good management of protected areas in the region is the creation of a regional association that brings together the agencies in charge of protected area management in seven Central African countries (RAPAC). Each member of RAPAC is appointed by his corresponding Ministry. RAPAC is a technical body that specializes in the management of the protected areas; the objective is to make RAPAC a technical tool that uses an overview of initiatives pertaining to the management of the protected areas in Central Africa to help develop a regional strategy<sup>30</sup>.

*In summary, the MLG arrangements of the CARPE program include vertical as well as horizontal linkages, and are characterized by a large number of task specific jurisdictions (landscapes, protected areas, community-based natural resource management zones, and extractive zones). Therefore MLG is scored as 1.*

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<sup>30</sup> [www.rapac.org](http://www.rapac.org) (Retrieved on January 4, 2008)

#### 4.1.3. *CARPE – Institutional Arrangements*

Over time there has been increasing recognition that wildlife movements, ecological processes, and human influences move across political boundaries (USAID, 2005). Addressing natural resource management at a larger scale allows for broader examination of conflicting policies and practices across jurisdictions and land use regimes. To accommodate a more integrated perspective, the CARPE program took a landscape approach, which focuses on managing large, multiple-use forest zones with high priority for biodiversity conservation. The landscape units do not generally correspond to territorial, local government administrative or line ministry management units. The landscape approach provides an effective mechanism by which conservation programs can be understood to extend beyond formal boundaries. One of the strengths of this design approach is the ability to identify high priority conservation targets and supporting adequate habitat conservation needs.

Several of CARPE's landscapes are transboundary and are recognized by international agreements promoting cooperation on environmental monitoring and law enforcement. These 11 landscapes form the pillar of CARPE's regional conservation strategy and cover an area of 680,300 km<sup>2</sup>. By implementing a landscape approach to natural resource management, CARPE works to integrate conservation objectives with objectives concerning the subsistence of human populations, commercial exploitation and agriculture, industry, and urban development.

However, designing CARPE around landscapes has introduced ambiguity. The landscape approach to conservation is relatively new and experimental. Landscapes

are understood by various parties as natural areas, as cultural areas, as ecological units regrouping overlapping ecosystems, as multi-layered mapping units, and as scenic areas (Pielemejer et al, 2006).

A major issue in CARPE is not so much that the landscape approach is a work in progress but that it has built limited local buy-in. With its emphasis on implementing within individual landscapes the current design does not encourage a CARPE-wide approach to cross cutting issues (Pielemejer et al, 2006). Significant landscape successes such as land use agreements in the Okapi reserve, cooperation with forest concessions in ROC, and public-private partnership formation tend to remain bound within a given landscape's specific approach, rather than accepted models for replication across programs.

The management structure of CARPE has evolved over time. CARPE I was managed by USAID/Washington with the support of an interagency coordination committee. CARPE II is managed from Kinsasha. CARPE's activities as linked with CBFP are overseen by an Interagency Advisory Board<sup>31</sup>. In addition, CARPE management team includes Focal Points who work at the country level under the direction of the CARPE SO (strategic objectives) team. This is an unusually complex management structure for a USAID program.

The 2006 Program evaluation report indicated that the transfer of USAID management responsibilities to Kinsasha has had a positive effect on USAID's ability to coordinate a complex field based program. CARPE partners have established

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<sup>31</sup> This group meets only on special occasions, e.g., when the CTO (Cognizant Technical Officer) is in Washington, DC and had not met for a year prior to briefing and answering questions posed by the assessment team.

offices in Kinsasha, which makes it a growing hub for informal, as well as formal coordination among partners (Pielemejer et al, 2006). However, no Washington or USA based structure has been developed that includes all the CARPE implementing partners.

The rapid scale up and the increase in CARPE funding for the second phase led to a number of design compromises (Pielemejer et al 2006, p.8):

- Too strong of a linking of funds to geographic areas, without adequately linking them to existing governance regimes.
- Insufficient USAID management structure for the scope of the undertaking.
- A design that did not facilitate important cross-cutting functions such as monitoring, policy coordination, and determining best practices that were dispersed across a confusing array of USG and NGO organizations.

The current management structure recognizes four types of “management” interventions in CARPE<sup>32</sup>:

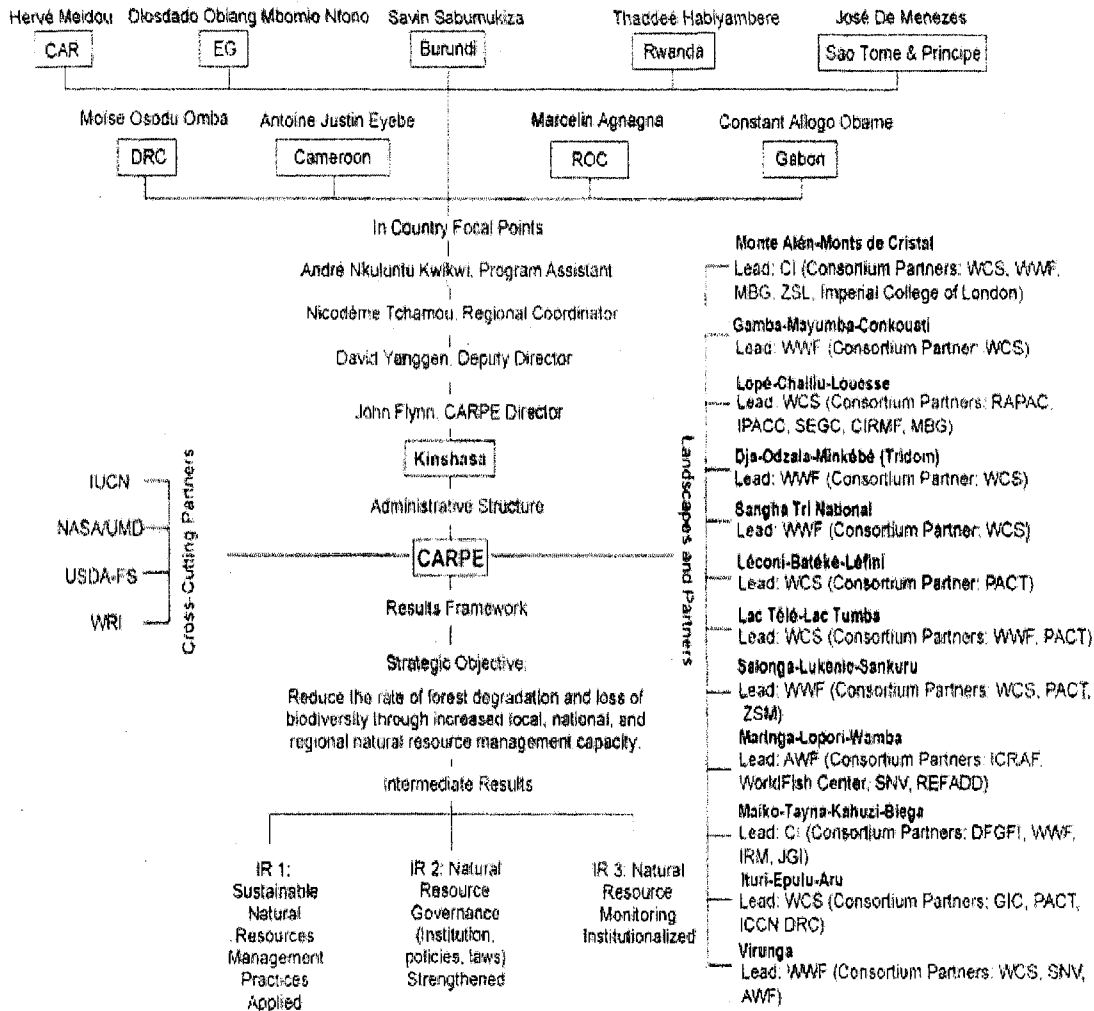
1. The final management authority for decisions about the use of program funds, and related decision making authority remains with the USAID project officer and the responsible representatives of each grantee with a cooperative agreement funded under CARPE.
2. Program management bodies organized to assume responsibility for the management of CARPE activities (CARPE SO Team, Strategic Objective Support Fund team).

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32 USAID – CARPE Overview. Carpe.umd.edu (Retrieved on January 9, 2008)

3. Operational support bodies, organized to manage tasks that need to be undertaken to ensure the smooth implementation of the program. These bodies are primarily tasked with facilitating information flow, tracking and supporting decision making process by the responsible parties, facilitating the coordination of program implementation, and managing the day to day operations which are necessary to keep CARPE activities on target ( USDA contract staff, Biodiversity Support Program team, etc)
4. Advisory groups and supporting bodies, which are in position to assist in the flow of information, in the oversight of program implementation and in the organization of CARPE sponsored activities (US Embassy staff, CARPE advisory group).

Figure 8: CARPE Administrative structure



Source: Pielemejer et al (2006)

The traditional roles and responsibilities for the USAID CARPE

Strategic Objectives team include strategic planning and program design, program management, monitoring and evaluation and liaison with the host government(s) and with other donors. The SO team evaluates progress based on the implementing partners' performance. Performance targets are included in the Cooperative

Agreements, but are established in more detail through the approval of the annual work plan and monitoring system.

The roles and responsibilities of the US based environmental NGOs are spelled out in their individual cooperative agreements. Whereas, the roles and responsibilities of the USA federal agencies include: a) providing services to implementing NGOs to work within the landscapes; b) meeting some of the “cross cutting” needs of national government institutions, such as the ministries of environment, separate from CARPE landscape activities; c) bringing additional funding into the program. “ Although some cross cutting issues were identified and agreed upon as important for the CARPE program, there has been no clear identification of a leader for a “cross-cutting issue” among the federal agencies” (Pielemejer et al 2006, p.32).

When it comes to national governments, many of those have a history of colonial and autocratic centralized administration from the capital.

“Most of these governments do not have much experience working with USAID and have little knowledge of USAID rules and regulations. Therefore, their roles in relation to CARPE are not at all clear to them. Their expectation that CARPE would provide funding and direct program assistance to governments has not been met. Even those officials that now accept that USAID cannot provide “direct” assistance to them in the absence of bilateral country agreements, still complain that they are inadequately involved in program planning and are also not informed about the CARPE activities in their country. At worst, they see CARPE as a program wherein the US government simply provides funds to US conservation organizations to carry out the NGO’s agendas in huge tracts of their countries. These governments contrast this “assistance” unfavorably with donor programs managed by the European Union, the World Bank and other bilateral donors that are managed in direct cooperation with host government institutions” (Pielemejer et al 2006, p.33).



At the landscape level, landscape or segment leads have been designated for most sites. They are responsible for preparing the integrated Annual Work Plan, Budget and managing the landscape/segment program. CARPE expects that each landscape/segment leader should have a written agreement with the subpartners that, at a minimum, specifies the administrative and management arrangements. Several of the landscapes overlap national, provincial, and local administrative boundaries, which has been a factor contributing to the limited involvement by local government units.

Coordination among multiple governments, other donors, implementing partners and multiple stakeholders is a substantial management challenge for CARPE and its implementing partners. Several mechanisms are being developed to cope with this management challenges including the concept of the “landscape leaders”, “steering committees” and other structures, but the transaction costs of coordinating multiple actors are significant (USAID, 2005). Coordination with local leaders and other actors in the landscape level has been most effective when Comité Technique de Gestion or Co-co-si (DRC) have been formally established and where governmental officials have been substantially involved in planning and monitoring (Pielemejer et al, 2006). However, CARPE has not yet established a mechanism for bringing together the host governments, CARPE partners and the CARPE SO team to plan and review progress in meeting CARPE objectives.

The local institutional capacity for managing natural resources in the region is generally very low and a variety of donors are beginning to make investments in institutional assessments and organizational strengthening. CARPE has been designed

to support human and institutional capacity building at multiple levels (Pielemejer et al, 2006). The capacity of provincial, district and local level government units has been strengthened through exposure to CARPE activities. CARPE does not have a mechanism to fund centralized government in the region. However, through the involvement of the US Federal Agencies, which have provided training and training materials, national level staff have participated in CARPE capacity building activities.

World Resources Institute is working with the provincial government in Cameroon to build local government capacity towards transferring rights and responsibilities to the appropriate local structures (Pielemejer et al, 2006).

Institutional strengthening efforts have targeted networks and regional organizations, such as the Conference on Central African Moist Forest Ecosystems (CEFDHAC). The World Conservation Union is working on building the capacity of CEFDHAC, which has organized workshops and other activities to promote advocacy initiatives and to mobilize network members to participate in national and regional activities.

Most of the implementing partners are constrained from working with local government staff or involving them in the capacity building activities, because the NGOs do not have an official mandate to partner with them.

CARPE is also working to promote the legal and regulatory framework. Although forestry and wildlife conservation legislation for Central African countries addresses basic legal and regulatory issues, there are some conflicting laws and gaps in the frameworks (Pielemejer et al, 2006).

Congo Basin countries have intended to revise and reformulate their laws on forest and the environment. The strategies adopted have maintained a sectoral approach which tends to divide natural resources into compartments within ministries whose activities and projects are not always coordinated (AFAN & RAAF, 2000)<sup>33</sup>.

At the national level, several major policy issues have been identified and most are being addressed such as: forestry codes, adoption of sustainable forest management plans, community based natural resource management and wildlife management.

Although all CARPE countries have laws to prevent illegal hunting and to protect endangered species, national and local governments have limited capacity to enforce the laws. For instance, enforcement of existing bushmeat and anti-poaching laws are problematic because the areas to be covered by patrols are so large, and government agencies lack the resources to greatly increase enforcement personnel.

*In summary, CARPE uses an ecologically defined governance structure dominated by hierarchical institutional relationships complemented by non-hierarchical institutional relationships that are still under development. The program continues to develop a set of internal and external rules, norms and procedures for cooperation. CARPE-IEG is scored as 1 even though the case does not show strong evidence of regarding rules and procedures for cooperation.*

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<sup>33</sup> African Forest Action Network; Réseau Africain d'Action Forestière

#### 4.1.4 CARPE – Environmental Decision Making

In the Congo Basin region, no permanent mechanisms for and traditions of consultation exist between different stakeholders, particularly between governments and communities, and governments and civil society. Existing legal framework, the level and nature of different stakeholders accountability, and level of decentralization in most of the countries do not create the enabling conditions for promoting good environmental governance. The legal instruments and administrative structures, along with traditional authorities set an imbalance of power among governments, corporate interests, donors, and rural communities for the control of the uses of natural resources (USAID, 2000).

CARPE promotes the participation of non-governmental organizations, recipient countries, and other USG organizations, in light of their substantial expertise relevant to CARPE. This is consistent with USAID's policy to actively consult with its development customers and partners (CARPE, 2003).

There is a myriad of internal and external players at different levels with a direct role in the CARPE program. Internally CARPE has to manage all the implementing partners (USG institutions and NGOs); whereas externally CARPE has to work closely with political actors, management organizations, research institutes, funding agencies, training institutions, private sector, local community groups, etc.

The CARPE SO team's presence in the region is viewed as essential to enable them to: a) respond in a timely manner to needs and questions of implementing partners working in the region; b) monitoring progress; c) improving collaboration

among partners; d) building partnerships with host governments, as well as with private sector entities in the region; e) supporting CBPF political objectives by working with other donors and regional institutions.

Political decision makers are the principal layers in the formulation and implementation of forest policies at the international, national, and local levels (CARPE, 2005). They define the general framework within which the other stakeholders act and therefore have a substantial impact on all players. Political stakeholders, including the Heads of State of Central Africa, are increasingly aware of the key role they can play in the sustainable management of natural resources. CARPE supported the organization of regional workshops aiming at including environmental governance issues into CEFDHAC agenda. Support was also given to enable the full participation of environmental NGOs to the process, as well as helping CEFDHAC identify the most appropriate and efficient legal framework for its action.

While the private sector is increasingly emerging as a legal or de facto manager of forests under concession, the involvement of national NGOs and rural population remains minimal (CARPE, 2005). A number of implementing partners (WWF, IUCN, etc) have been successful in involving communities in the zoning and the land use planning process by training them in participatory, community mapping methods to define community land and resource use zones. However, the linkages between traditional decision-making processes at the local village or community level are two often disconnected from decisions made at the national level, resulting in conflict.

Lack of consensus and communication between partners has also hindered planning and implementation in several landscape. Strong collaborative partnering relationships between international NGOs seem to be more the exception than the norm (Pielemejer et al, 2006). CARPE's implementation partners have different management or conservation approaches. Some NGO partners emphasize the short-term need to secure protected areas, other implementing partners direct their efforts into long-term research to better understand the ecosystems and how to manage them, and some NGOs focus on strengthening local partners' capacity or extending their own capacity to tackle development and livelihoods issues. The 2006 CARPE evaluation report concluded that, among CARPE partners, there was not a clear consensus or common vision for the landscape approach.

As far as the equity issues in the decision making process are concerned, the implementing NGOs acknowledge the importance of developing gender strategies to ensure that benefits are shared equally by men and women . Several women employed by CARPE NGOs are in position of responsibility, but on the government partners' side there are very few women in professional positions. The World Conservation Union support for the Network of Local and Indigenous Population for the Sustainable Management of the Central African Moist Forest Ecosystems and for the Network of African Women for Sustainable Development, provides a unique opportunity for women and indigenous people to have a voice in these issues in the region (Pielemejer et al, 2006). Publications of WRI have addressed issues of distribution equity, for example how governments invest revenues generated from natural resource based

industries, and comparison between forest enterprises managed by communities and concession holders. These publications have been widely disseminated.

However, gender strategies have not been developed either at the country or the landscape level, and the underlying information needed to develop these strategies is lacking for the most part (Diamond, 2002).

CARPE has done a better job in promoting the development of performance monitoring plans. USAID' requirements concerning the details of the annual and performance monitoring plans are detailed by the CARPE SO team. Work plans must be described at the activity task level. A Performance Management Plan, developed through an extensive participatory process with CARPE partners, was approved in January, 2004.

At the landscape level, landscape strategies and protected area management plans have been initiated in most landscapes. Landscapes that have made most progress have prepared draft strategy plans for the overall landscape, draft management plans for protected areas, and have initiated zoning in areas outside the protected areas (Pielemejer et al., 2006).

With regard to information sharing among stakeholders, there appears to be a limited coordination/transfer of technical approaches and lessons learned among the landscapes. Landscape partners tend to be internally focused and do not seek general lessons and solutions. Governance lessons from WRI's work in Cameroon, the tool for bush-meat monitoring, and forest service models for multi-use planning are inadequately shared. Landscape specific successes such as land use agreements in the

Okapi reserve, cooperation with forest concessions in ROC, and public-private partnership formation tend to remain bound within a given landscape's specific approach, rather than accepted models for replication across the program (Pielemejer et al., 2006).

The development and the distribution of the "State of the Forest" report has proven to be a good model for encouraging information sharing and coordination among the stakeholders. The interactive forestry atlas for Cameroon produced by WRI/GFW contributes both to landscape level knowledge of the forest resource and to accountability, transparency and good governance at the national level.

The World Resources Institute initiated the Global Forest Watch to help establish a global network of NGOs with the skills necessary to provide governments and other stakeholders, with timely and credible information on the state and uses of the world's remaining large blocks of intact tropical forests in Cameroon and Gabon. This initiative helped provide the means for local and national stakeholders to gain access to relevant information on

- the changing state of the forest;
- forest concessions and their allocation;
- the performance of companies engaged in forest resource use;
- compliance with forest management policies.

The Cameroon national report aimed at encouraging the government to implement the new Forest Law. The Gabon report is intended to influence the current debate on the new forest law, by providing parliamentarians, government officials and



other audiences with a concise, objective data overview of the forestry sector. A great deal of information is also being disseminated through the CARPE, CBFP and COMIFAC websites.

*In summary, CARPE's environmental decision making is characterized by a diverse, accessible and inclusive but not equitable process. The program has done a good job with the development of clear goals and objectives and is making improvements in sharing the information among stakeholders. Hence, CARPE-EDM is scored as 1.*

**Table 7: CARPE Summary Table**

Core MLEG Theoretical Constructs	Measures	YES/NO	1/0
Multi – level Governance (MLG)	<ul style="list-style-type: none"> <li>• Unlimited number of task specific jurisdictions</li> <li>• Vertical linkages</li> <li>• Horizontal Linkages</li> </ul>	<p style="text-align: center;">+</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p>	<b>1</b>
Institutions for Environmental Governance (IEG)	<ul style="list-style-type: none"> <li>• Ecologically defined governance structure</li> <li>• Non-hierarchical institutional relationships</li> <li>• Negotiated sets of rules, norms and procedures for cooperation</li> </ul>	<p style="text-align: center;">+</p> <p style="text-align: center;">+</p> <p style="text-align: center;">-</p>	<b>1</b>
Environmental Decision Making (EDM)	<ul style="list-style-type: none"> <li>• Diverse, inclusive participation</li> <li>• Equitable DM process</li> <li>• Clear goals, objectives and written plan</li> <li>• Information is constantly shared among stakeholders</li> </ul>	<p style="text-align: center;">+</p> <p style="text-align: center;">-</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p>	<b>1</b>

#### 4.1.5. *CARPE Outcomes*

CARPE is an extraordinary regional program in terms of: a) the number of the countries included (9); the number of landscapes (11); the relative novelty of the basic program concept; the remoteness of most of the program landscapes, the recent history of conflict in the region; and very limited capacity of host governments and the region's human resource base. Despite these constraints, CARPE has been successful in moving towards the achievement of long-term program objectives (Pielemeier et al., 2006).

CARPE has three outcomes or Intermediate Results (IRs):

IR 1: Natural resources managed sustainably;

IR 2: Natural resources governance (institutions, policies, laws) strengthened;

IR 3: Natural resources monitoring institutionalized.

A program evaluation conducted in 2006 showed that the vast majority of program resources (approximately 80%) have been dedicated to achievement of IR 1. Much of the progress to date has been focused on protected areas, especially national parks, within landscapes, where implementing NGOs have the most experience. Factors that have the greatest influence on the achievement of goals at the landscape level include: a long-term NGO presence, previous investments in infrastructure and local partner capacity, an existing information base for planning/management, NGOs' success at leveraging additional funding, and commitment by the lead NGOs to convening the land use planning process.

CARPE Activities in 2006<sup>34</sup> built on the management plans established in 2005 and extend massive landscape management planning from 28 million hectares in 2005 to approximately 34 million hectares of protected areas, logging concessions and community common lands in 2006. In all of the CARPE countries partners have developed relationships with local communities, private and public sectors and other stakeholders towards the creation of land use plans within the target landscapes (USAID, 2004). However the evaluation report indicated that the work plan targets for IR 1 in terms of land use plans adopted and implemented, will only be met partially<sup>35</sup>.

Implementing NGOs also work closely with government agencies charged with protected area conservation and management and have built the capacity of these agencies' personnel. Approximately 1,900 African experts, community leaders, members of legislatures and park rangers are being trained in a variety of technical, management and scientific areas, mainly by local institutions in member countries (USAID, 2005).

However, the implementing NGOs have limited relationships with government agencies that have the legal authority to work in the landscape areas that are not protected areas (PAs), such as forest concessions. Progress in working with forest concessions and in establishing community based natural resource management (CBNRM) reserves is limited.

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<sup>34</sup> [http://www.usaid.gov/policy/budget/cbj2007/afr/pdf/car\\_complete.pdf](http://www.usaid.gov/policy/budget/cbj2007/afr/pdf/car_complete.pdf) (Retrieved on January 28, 2008)

<sup>35</sup> The performance monitoring plan defines an "adopted land use plan" as one that is "legally recognized by the legal controlling authorities that govern the specific land use types".

Very limited funding was provided to IR2 and IR3; the funding was dispersed across a confusing array of USG and NGO organizations whose efforts were unevenly implemented in scope, scale, and geographic focus. The roles of the federal agencies are not clearly understood by the partners as a whole. The “market approach” with implementing NGOs encouraged to buy their services has failed (Pielemeier et al., 2006). Only the US Forest Service (USFS), the National Aeronautics and Space Administration/University of Maryland (NASA/UMD), World Resources Institute/Global Forest Watch (WRI/GFW) and the US Fish and Wildlife Service (USFWS) have a proven track record that is likely to lead to a continuing demand for their presence in CARPE.

The mix of NGOs and federal agency service providers has not effectively addressed the capacity building objective. NGOs have strengthened park management and surveillance capacity, but impact on Community Based Organizations (CBOs) and local NGOs has been much less effective. Federal agency capacity-building efforts have been too sporadic (lacking continued follow-up), and too limited in scope to have made broad program impact. The implementing NGOs have not been able to establish relationships with government agencies that work in the landscape areas that are not protected areas, such as forest concessions. Little progress has been made in addressing conservation threats, such as bushmeat hunting. Collaboration across the program’s landscape is also weak. There has been insufficient progress in sharing information, ideas and lessons across landscapes. Very little funding has been

provided to address the natural resource governance and natural resource monitoring objectives.

When it comes to the policy issues, although forestry and wildlife conservation legislation for the Congo Basin countries addresses basic legal and regulatory issues, field level implementation of existing laws is hindered by corruption and weak enforcement agencies. By engaging with government agencies, CARPE activities have helped to build the legitimacy of national institutions. CARPE partners appear to be influencing national policies by taking the lead in: a) establishing community management reserves and concession agreements and (b) developing landscape tourism plans.

The Summit in Brazzaville in February 2005, at which the COMIFAC treaty was ratified, was a significant achievement for all the parties involved, and an important outcome of CARPE support for an improved policy environment in the region (Pielemeier et al., 2006). The COMIFAC *Plan de Convergence* provides a vehicle for encouraging the countries of the region to come together on policy issues.

Several CARPE country governments have demonstrated their support for conservation through public commitments to establishing and strengthening national institutions responsible for natural resource conservation. For instance the government of Gabon has taken steps toward developing a framework for its network of national parks which include the addition of 13 new protected areas. In the Republic of Congo, the government announced its commitment to create a new institutional structure, the

Congo wildlife service, to manage the country's network of protected areas (USAID, 2005).

The CARPE program is a good example of public-private alliances. Implementing partners contributed over \$10 million to the CARPE program alliance in 2004 and addition \$10 million was contributed in 2005. In addition, a range of international organizations and private companies committed an additional \$ 50 million to support the CBFP objectives (USAID, 2005).

CARPE partners collaboration with the private sector has raised the standards for forest management throughout the Congo Basin. Several major logging companies are moving toward forest certification and in the process have committed to improving management practices through activities such as halting the bush meat trade associated with their concessions.

As far as the IR3 is concerned, the natural resource monitoring supported by NASA and the University of Maryland has provided objective assessment of the status of the forest cover. The work is highly valued not only for the quality but also for the political neutrality. Because the data is perceived as neutral, it can be used in support of legislative and regulatory reform, land use planning, and other decision making.

Natural resource monitoring has brought together multiple partners and has resulted in one of the most effective collaboration between CARPE partners as demonstrated by the increased GIS capabilities in the region, and shared data and information about the status of the ecosystems, illegal activities, fire and other threats to forests and to biodiversity. The process of bringing partners together to produce the

State of the Forest report, reaching consensus on the indicators, and putting in place the monitoring system, it is a significant accomplishment in itself, and it has gained a broad international support. Another important contribution has been the development of the Interactive Forestry Atlas for Cameroon, which represents an important step towards greater transparency at the government level in terms of the availability of natural resource data. Despite the successes, there is still a need for improved, systematic data collection, management, sharing and dissemination by and between CARPE partners.

*In summary, the evaluation report concluded that overall, CARPE has made progress toward reaching the IR objectives and it's on track to meet overall results and goals (Pielemeier et al., 2006, p.26). As a result, "CARPE-outcomes" is scored as*

1.



## 4.2 Central Truong Son Biodiversity Conservation Initiative

### 4.2.1 Background and Settings

In 1998, the World Wildlife Fund (WWF) embarked on "Ecoregion-based conservation" in response to the increasing pace of biodiversity loss and the need to enhance the scale and impact of global conservation efforts. Ecoregion based conservation allows for planning and action across larger spaces to address protection of viable species populations and ecosystem processes.

The *ecoregion* is defined as a relatively large unit of land or water containing a characteristic set of natural communities that share majority of their species, dynamics, and environmental conditions (Olson and Dinerstein, 1998).

Scientists have undertaken a major analysis of the world's biodiversity and identified more than 800 ecoregions that reclassify the way we view the natural world. From this global inventory, 238 ecoregions have been identified that comprise the most valuable and representative global biodiversity. These priority ecoregions have been labeled as the "Global 200".

In 1998, the "Forests of the Lower Mekong Ecoregion Complex" was selected as one of the first locations to initiate an ecoregion based conservation program. The Forests of the Lower Mekong is a complex of four diverse and threatened ecoregions including, Greater Annamites, Central Indochina Dry Forest, Lower Mekong Flood Land and Cardamom mountains. The Greater Annamites (known also as the Greater

Truong Son) is the most diverse and distinctive of these ecoregions. It comprises some of the world's most unique and threatened wildlife, from its endemic species such as the Douc langur and the remarkable Saola, to some of the world's most endangered and species like the Asian elephant, tiger and Javan rhinoceros (Schaller et al 1990; Baker et al 2000).

Within the Greater Annamites, 15 large landscapes have been identified as the priority areas of greater importance. *Priority landscapes are defined as areas that comprise the most suitable habitats for conserving critical components of the ecoregion biodiversity (Baltzer et al, 2001).*

Central Truong Son Landscape (CTSL) has been designated as a pilot area for large scale conservation in the Greater Annamites ecoregion. The Central Truong Son is situated in central Vietnam and southern Lao<sup>36</sup> and is ranked as a “critically important” conservation landscape<sup>37</sup> because of its unique assemblages of species.

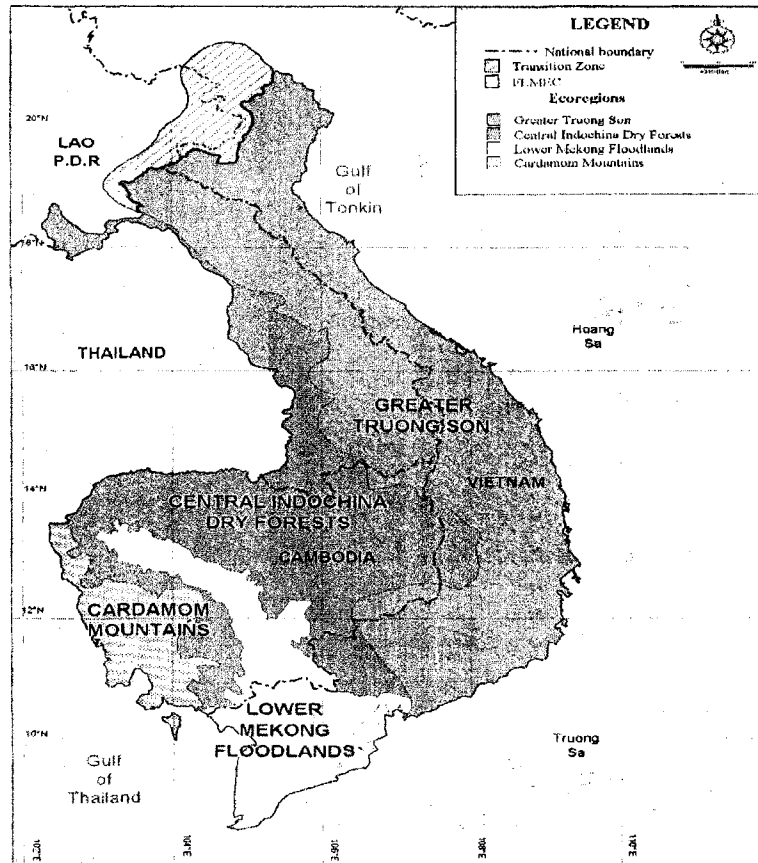
The Central Truong Son Landscape is of high biological significance. As a critical component of the Greater Truong Son Global 200 Ecoregion, the CTSL supports a large number of both unique and endangered species. These species include many of the characteristic Greater Truong Son endemic species, plus several species totally restricted to the Central Truong Son. In addition, the Central Truong Son supports a diverse range of more widespread fauna and flora from both tropical and sub-tropical habitats.

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<sup>36</sup> Due to the lack of data on Laos, the case will mainly focus on the Vietnamese part of the landscape.

<sup>37</sup> A conservation landscape is a spatial representation of conservation priorities, which facilitates the long term conservation of the full range of biodiversity and biological processes within a priority landscape (Baltzer, 2001).

Figure 9: Central Truong Son Landscape



Source: WWF (2003)

Aside from the biological and geographical significance, the CTSL is also culturally diverse, and is home to different ethnic groups with a long history of settlement in the region. Many of these ethnic groups have been dependent on natural resources for generations. The Central Truong Son region is now settled by 37 ethnic minority groups, of which 11 ethnicities have resided there for many generations and can be considered as indigenous. Other ethnic minority groups, originating from the north, have settled in areas convenient for cultivation or advantageous for transport

and access. Ethnic minority communities, typically poor and located in remote mountainous areas, are highly dependent on forest resources for their food production, building materials, handicraft materials and cultural practice. Expansion of settlements and agricultural production has resulted in clearing large swathes of critical lowland forest, decreasing the area and biodiversity of critical lowland forest habitat and fragmenting forest cover. There is a lack of an integrated land and forest classification system, which creates confusion and difficulties in land-use planning and forest allocation at micro and macro levels. In some areas, unused land without any economic potential is automatically classified as forest land. In other areas, old shifting cultivation fields are considered forest land while a more accurate description is agro-forestry land. This confusing system continues in the absence of a clear and comprehensive land allocation strategy and land-use plan for the CTSL (World Bank, 2001).

The ecological integrity of the Central Truong Son has declined rapidly, particularly in the last 50 years. Natural resources have been depleted and lost, and soil erosion and flooding has increased as the Landscape is unable to provide the vital services to the people of the Central Truong Son. Unsustainable management of the natural resources, habitat loss, fragmentation of forest landscapes and depletion of biodiversity have led to the current situation where:

- The economic base, traditions and customs of rural communities are deteriorating;
- Key species are on the verge of extinction;

- Ecological services such as flood control, soil conservation and pest control are significantly reduced.

Local communities and their resource management practices are often assumed to be the underlying cause of resource degradation. Poor rural populations can contribute to pressure on biodiversity resources; however, they are neither the only nor necessarily the key threat in any specific locality. The major categories of conservation threats in CTSL are identified as: (1) people in new economic zones, (2) habitat loss and degradation (3) changing land-use as land has been converted for agriculture and basic construction, (4) overexploitation of natural resources (WWF, 2002).

Although the region has experienced many years of economic and social turmoil, today there is peace and stability accompanied by economic growth. Economic growth and social stability can provide many opportunities for biodiversity conservation. A brief summary of opportunities includes the following:

*Forest cover within the CTSL.* Although the integrity of the CTSL forests is under threat from a variety of causes, and forest loss has steadily reduced coverage over the last few decades, there still remain large tracts of forest and some areas are showing an increase in forestation due to initiatives such as the Government of Vietnam "Five Million Hectare" program. The main goal of the program is to conserve biodiversity, stabilize watersheds, produce timber, fuel wood, etc. The program also includes a component of community based management of natural forests.

*Enabling policies and government initiatives.* Frameworks, policies and programs currently implemented by the government of Vietnam include both specific forestry and biodiversity policies, protected area management, sustainable forest management as well as wider economic and development programs, hunger eradication and poverty reduction programs. These programs include policies on special-use forests, decentralization, forestry reform and sustainable forest management, and in some cases poverty alleviation programs. Vietnam has also developed the Biodiversity Action Plan and is signatory to a wide range of International Conventions, such as CITES<sup>38</sup>, and the Convention on Biodiversity.

*High level of education and literacy in Vietnam.* Vietnam's national policies have put a special emphasis on education, at primary, secondary and tertiary levels. The literacy and general education levels in Vietnam are considerably high, especially compared to regional standards. This is a fundamental opportunity within the CTSL in Vietnam, especially in terms of conservation awareness raising and the capacity to manage and plan for conservation. New technologies are being developed and adopted by Vietnamese practitioners in the fields of conservation and development. The absorption of new research, field technologies and methods into the Vietnam context provides an opportunity for conservation success. Techniques such as GIS, conservation networking, database management, and research of international standard, are all supported by the base of academic and research institutions that currently operate within the CTSL.

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<sup>38</sup> Convention on International Trade of Endangered Species.

*Strong international NGO presence and bilateral and donor support.* Vietnam cooperates with a number of NGOs and international support agencies to further conservation and development goals within the country.

*Economic factors.* Economic factors can both enhance and exacerbate conservation achievements. The recent growth rate and reduction in poverty levels allows for a higher degree of choice concerning conservation issues, as dependencies and subsistence level limitations are resolved.

The Government of Vietnam launched the Central Truong Son Biodiversity Conservation Initiative in May 2004. This was the first landscape level conservation plan approved by the Vietnamese Government with the Ministry of Agriculture and Rural Development (MARD) having primary implementation responsibility.

In recognition of the importance of the landscape and the need for an integrated, holistic approach to the conservation of the landscape, a major conservation initiative for the Central Truong Son Landscape was launched by World Wildlife Fund (WWF) in cooperation with the government of Vietnam, with the following long term objective (WWF, 2004<sup>39</sup>):

*To establish an integrated mosaic of complementary land-use and development practices to protect, manage and restore natural resources and biodiversity in the Truong Son in the industrialization and modernization process, while also contributing to institutional development, good governance and raised standards of living for local communities.*

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39 Source [www.panda.org](http://www.panda.org) (Retrieved on December 13, 2007)

The Initiative is based on three key principles:

1. The Initiative will aim to ensure that natural ecosystems' functions are maintained to secure the global biodiversity value of the landscape for future generations.
2. The Initiative will aim to engage stakeholders at all levels, across a multitude of administrative and institutional boundaries, in conservation planning and action to create a constituency acting towards the long-term integrity of the landscape. Rural communities must be recognized as the key custodians of their local natural resources.
3. The Initiative will be based on long-term, ambitious goals designed and achieved by the key stakeholders.

The Initiative has been divided into three key phases, and actions and targets have been designed to meet these phased objectives.

*Phase One* - "Creating the Foundations for a Sustainable Landscape" (2004 – 2010).

Based on the analysis of the current situation for biodiversity conservation in the CTSL, the first phase of the Initiative aims at establishing the capacity and framework that will facilitate effective conservation and sustainable natural resource management into the long term. The focus of this phase will be on the most critical sites and species and ensure that the forest cover and quality is not further reduced.

*Phase Two* - "Expanding the Priority Landscape" (2011 – 2015)



Once the priority areas have been secured in the first phase of the project and the capacity has been raised, the objective will be to expand the scope of the protection efforts to restoration and management of the CTSL. It is also assumed that successful conservation efforts in the first phase would have contributed to the stability of threatened populations. The objective during the second phase is to increase the populations and productivity of the natural systems to the point where use can be sustainable and benefits can be obtained.

*Final Phase - "Making the Connections" (2016 – 2030)*

In the long-term, the objective is to link the CTSL with its neighboring landscapes. This is likely to require the restoration of large areas of habitat depending on the socioeconomic situation and land-use patterns established over the last fifty years in the Landscape.

The program includes the following components: 1) conservation; 2) awareness strengthening; 3) establishment of the legal framework and enforcement mechanisms; 4) capacity strengthening; and 5) economic development.<sup>40</sup>

The conservation component aims at developing and completing a system of protected areas in the CTSL as well as developing management plans which meet conservation targets of each area. New protected areas for the CTSL will also be established.

By 2010, a program of conservation education and awareness will be delivered throughout the landscape. The conservation/environmental education activities in the program will support major government programs related to conservation, famine

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<sup>40</sup> Source: Ministry of Agriculture and Rural Development of Vietnam. Decree No: 06/2004/QĐ-BNN

eradication and poverty reduction in mountainous areas. A series of training courses on community outreach, conservation education, monitoring wildlife and enforcing wildlife protection laws will be delivered to the key personnel of the provinces within the CTSL.

The Ministry of Agriculture and Rural Development will establish a legal framework to implement the strategy for meeting conservation objectives in individual provinces in CTSL. By 2010, provinces in CTSL will have a legal framework for conservation to guide the implementation of appropriate decisions regarding plans for land use and development. Support will also be provided for the development of institutions responsible for managing natural resources in the area and controlling the illegal exploitation of natural resources and biodiversity. A new program is underway to promote sustainable tourism that contributes significantly to the conservation of biodiversity and provides appropriate livelihoods for the local communities.

In addition, the MOSAIC (Management of Strategic Areas for Integrated Conservation) project was developed by WWF to meet the landscape conservation goals set out in the Central Truong Son Biodiversity Conservation Initiative. MOSAIC works at two levels within the province of Quang Nam: local and provincial. Through local authorities and communities, the project enhances stakeholder capacity to plan and manage natural resources in order to promote biodiversity conservation and sustainable development. At the provincial level, the MOSAIC project works in partnership with the Forest Protection Department (FPD in MARD), the Department of Natural Resources and the Environment (DONRE), the Forest Development

Department (FDD) and a host of other provincial departments. An overarching goal of the MOSAIC is to institutionalize conservation, so that any efforts will leave a long and lasting legacy in the region.

#### 4.2.2 *CTSL Multi-level Governance*

The multi-level governance arrangements of the Central Truong Son Biodiversity Conservation Initiative are dominated by vertical linkages.

At the supra national level, the cooperation between Vietnam and Lao PDR on the initiative is minimal. Two parallel conservation efforts are underway in Vietnam and Lao PDR. The Central Truong Son landscape covers 4 provinces in Lao PDR. In order to attain the true landscape approach an integrated transboundary initiative is required. However, political, social and economic realities determine that the best immediate approach is to develop two separate programs in each country and bring them together at a convenient point in time in the future. Currently, the potential for transboundary conservation at priority sites is limited to two areas: Xe Sap (Lao) and southern Thua-Thien Hue (Vietnam); and Phou Ahyon (Lao) and the Song Thanh- Ngoc Linh area (Vietnam)<sup>41</sup>. Linkages and trans-boundary cooperation between Vietnam and Laos PDR will evolve and increase as each country works

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<sup>41</sup> These issues are being addressed by another program Biological Corridors Initiative (BCI) funded by the Asian Development Bank. In Vietnam, the pilot project is in Quang Nam Province of the Central Annamites and bordering areas of Thua Thien Hue and Kon Tum provinces and Sekong and Attapeu in the Lao PDR. Activities in the three BCI phases are designed in sequence to tackle the areas of highest risk first without losing sight of the long-term goal of establishing a continuous forest landscape throughout the Central Annamite Mountains. Phase 1 focuses on the links between three nature

toward their part of the whole conservation landscape for the Central Truong Son (MARD, 2004).

Both Lao PDR and Vietnam are signatories to the UN Convention on Biological Diversity, demonstrating their policy commitment to biodiversity conservation. At a national level this commitment is further strengthened by the development of National Environment Strategies, Biodiversity Strategies and Action Plans and Forestry Strategies<sup>42</sup>.

At the world conservation congress in November 2004, the government of Lao PDR and Vietnam, facilitated by the World Bank, announced the agreement of the Cooperative Action Plan between Ha Tinh/Quang Binh (Vietnam) and Bolikhamxay/Khammouane (Laos), to control illegal hunting, trading and transporting of wild fauna and flora for the period 2005 – 2010. This is the first time a cooperative joint action plan to control the transboundary wildlife trade at the field level has been signed (World Bank, 2005).

Vietnam's Hunger Elimination and Poverty Reduction program provides assistance in rural development at the grassroots level for the poorest communes in the country, many of which are within the Greater Annamites. The National Growth and Poverty Eradication Strategy in Lao PDR has identified 47 poor districts as priority areas for development, many of which are situated along the western spine of the Annamites mountain chain.

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reserves, Ngoc Linh, Song Thanh, and Ba Na in Quang Nam Province, and Xe Sap NBCA in the Lao PDR.

42 <http://assets.panda.org/downloads/9gafactsheete.pdf> (Retrieved on January 25, 2008)

Within CTLS there is an existing network of protected areas. A system of protected areas aimed to conserve environmental biodiversity in Lao PDR is central to the *National Biodiversity Strategy and Action Plan*. The National Protected Area system was established in 1993 through the Prime Minister's Decree No.164 which defines its three main objectives as (Glanzrig & Jellinek, 2006):

1. protection of forests, wildlife and water;
2. maintenance of natural abundance and environmental stability;
3. protection of natural beauty for leisure and research;

Protected areas in Lao PDR are home to many villages and communities and protected area legislation provides for and promotes sustainable use of the environment by these communities.

Over the last decade, in Vietnam, an extensive national network of protected areas has been established with important benefits for biodiversity, forestry and watersheds. They have succeeded in slowing the rate of destruction of Vietnam's forests<sup>43</sup>. The Management Strategy for a Protected Areas System in Vietnam until 2010 approved by Decision 192/2003, and the recent revision of the Forest Protection Law both highlight the importance of Vietnam's wild resources and provide directions for its conservation. However, due to a lack of funding, many protected areas do not yet have a management board. At those protected areas that do have a management board, staff typically have low capacity, a low level of training and little knowledge about conservation. There is insufficient cooperation between central and local level

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43 <http://www.mekong-protected-areas.org/vietnam/round1.htm> (Retrieved on February 2, 2008)

institutions in biodiversity survey, capacity building and environmental management (Tordoff et al, 2003).

The provincial People's Committees of the central Vietnamese provinces of Thua Thien Hue and Quang Nam (in the CTSL) endorsed a set of conservation actions on September 28, 2007, that will help ensure the saola (*Pseudoryx nghetinhensis*) will survive in Vietnam. These two reserves are directly adjacent to each other as well as connecting to a 165 km<sup>2</sup> expansion to the 220 km<sup>2</sup> Bach Ma National Park. The result of this action is the formation of a continuous protected landscape covering approximately 2,920 km<sup>2</sup> stretching from the Vietnamese coast to Xe Sap National Biodiversity Conservation Area in Lao PDR. This secures a landscape corridor which is less vulnerable to the impacts of development, climate change and human pressure<sup>44</sup>.

At the national level, in Vietnam<sup>45</sup>, the Ministry of Agriculture and Rural Development has the primary implementation responsibility for the biodiversity conservation initiative.

At the provincial level the Chairman of People's Committee is responsible to the Prime Minister for forest development and protection. The Provincial Department of Agriculture and Rural Development is the focal agency to support the Provincial

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<sup>44</sup> [http://www.solutions-site.org/artman/publish/article\\_358.shtml](http://www.solutions-site.org/artman/publish/article_358.shtml) (Retrieved on February 2, 2008)

<sup>45</sup> In Vietnam, the new legislative instruments specifically aimed at improving the management of natural resources include the National Plan for Environment and Sustainable Development (NPESD) (1991), the Environmental Protection Law (1994) and the Biodiversity Action Plan (BAP) for Vietnam (1994). The central responsibility for environmental matters rests with the MONRE (Ministry of Natural Resources and Environment), and specific responsibilities for environment and resource management issues are held by its subsidiary unit, the National Environmental Agency (NEA). The Ministry of Agricultural and Rural Development (MARD) maintains lead responsibility in matters relating to both water and forests.

People's Committee (PPC) in implementing state management responsibility on forest and forest land management, whereas the Provincial Forest Protection Department is the agency responsible for implementing and monitoring law enforcement on forest management. At the district level the District People's Committee, the District Department of Agriculture and Rural Development, and the District Forest Protection Department play similar roles (Thanh, 2003).

In the Central Truong Son residential communities live in groups, and the village is considered to be the basic social unit as well as the traditional social organization. Community level residents have a direct influence on protected/conservation areas through land and available water use, and the exploitation of forest that has potential to guarantee a secure livelihood. This group plays an important and decisive role, and their input is vital to ensure the success of planning and managing the preserved areas. Developing the communes' socio-economic situation, reducing hunger, alleviating poverty and improving people's lives are fundamental to ensuring that strategic conservation is successful (Thanh, 2003). However the awareness of local people about government conservation priorities is low to non-existent (MARD, 2004). For the truly poor there are few resources available to help local communities get involved in the co-management of local forest resources. The local communities lack the capacity to communicate their needs to the government.

There are also other socio-political organizations in the State administrative system such as the Fatherland Front, Women's Association, Farmer's association,

Veteran's association and Youth Union, which cast a wide net from provinces to districts and communes. These organizations play a role in encouraging, speeding up and supporting activities in peoples' communities. In addition, they also direct and participate in some socio-economic development programs to create motivation for social development, for example helping with income generation, alleviating hunger, reducing poverty and protecting the environment (Thanh, 2003).

Vietnam cooperates with a number of international NGOs and international support agencies to further conservation in the Central Truong Son Landscape. A great number of activities have been implemented by WWF and other international conservation organizations.

WWF's MOSAIC project works at three administrative levels firstly, with a coordination unit at the provincial level, directly linked to key government departments. Secondly, MOSAIC is active in all 16 districts of Quang Nam province, working through the relevant sub-departments. Finally, MOSAIC works within the Commune level, initially within twenty-one prioritized Communes, liaising with the Commune People's Committees, whilst working on the ground with villages and communities (Dudley, 2006).

As far as horizontal linkages are concerned, the biodiversity conservation plan emphasizes the fact that the implementing partners of the Central Truong Son initiative include relevant organizations from the government of Vietnam, international non-governmental organizations, private sector, universities, research organizations, mass organizations and community groups. Following the methodology



of the ecoregional approach, the Central Truong Son Initiative is based on coordinated conservation actions, designed under a large-scale framework and guided by a long-term vision of success. The approach is based on the recognition that uncoordinated actions at individual sites are neither efficient nor effective at conserving functioning ecological systems or halting the loss of natural resources. In order to be more effective, a more ambitious coordinated effort is required that is developed and designed under an overarching strategy. The need for such a coordinated effort resulted in the establishment of an advisory group comprising 16 government institutions. This unprecedented collaboration work provided invaluable support to the Central Truong Son Initiative in its planning process (Thanh, 2003). However, with few exceptions (e.g. the MOSAIC project) there is little evidence to show that such linkages are operational.

*In summary, the multi-level governance structure of the initiative is not well developed. Vertical linkages are well developed at the national and sub-national levels but they are not present at the supra-national level. The government of Vietnam has established some horizontal linkages but they remain very weak. Task specific jurisdictions are limited to the creation of protected areas within the landscape. Because of the lack of evidence, CTSL-MLG is scored as 0.*

#### 4.2.3 *CTSL - Institutional arrangements*

The Initiative has planned for, but not yet put into operation, an ecologically defined governance structure. At present a complicated institutional environment with incomplete or confused responsibilities of management agencies causes numerous constraints in the management of land, forest and biodiversity (MARD, 2004).

The Biodiversity Conservation Initiative recognizes the importance of the institutional arrangements and lays out an elaborated management structure composed of a Board of Signatories, a Steering Committee, a Coordination Committee and a Coordination Unit (MARD, 2004).

The Board of Signatories will consist of representatives of all relevant ministries, sector/agencies, donors and non-governmental organizations who are signatories on the Memorandum of Understanding (MOU). The Board is ultimately responsible for the macro direction of the Initiative. This Board is to meet every two years to discuss the progress and future of the Initiative.

The Steering Committee will be comprised of representatives of key stakeholder groups. The Committee will be responsible for providing leadership and consultation to the Initiative Director. The Committee is to prepare an annual report to the Board of Signatories.

The Coordination Committee will be principally organized under the institutional management of MARD, yet is financially independent. The Committee is to provide essential functions to support implementation of the Initiative. The responsibilities of the Coordination Committee include:

- Coordinate the implementation of programs and projects among implementing agencies.
- Supervise and evaluate the effectiveness of projects' implementation.
- Secure target-driven funding for projects both for immediate and long-term development.

The Coordination Unit will be lead by a single Director responsible for the reporting to the Core Steering Committee. The Coordination Unit will be housed in the FPD – MARD office. The function of the Coordination Unit should remain coordination and supervision for the Initiative and will not be responsible for implementing specific projects. The Coordination Unit will cooperate with PPCs and relevant sectors in each province to implement specific projects. PPCs will provide leadership and direction for provincial sectors/agencies responsible for projects and specific activities. Specific projects within the Initiative will have offices located in departments or Provincial FPDs which are directly related to projects. The offices will be nominated by PPCs and relevant agencies.

NGOs involved in this Initiative will support the Coordination Unit in fund raising and project development. Whereas the independent consulting and research institutions will support projects that implement research, and carry out surveys on biodiversity and socio-economics. These institutions will also provide consultation to the Coordination Unit to achieve objectives of the Initiative.

Even though almost three years have passed from the development of the CTSL Biodiversity Conservation Plan the proposed management structure is not in

place at the landscape level. The MOSAIC project has successfully developed a management structure within the Quang Nam province, but this effort remains localized. The challenge is in finding how best to “scale up” so that the experience gained in local projects has the necessary impacts over an entire conservation landscape or ecoregion (Dudley, 2006).

Efforts have been made to establish a set of negotiated rules and norms for cooperation between the Vietnamese governmental structures at different levels, the WWF and community groups.

For instance, WWF MOSAIC project has worked in the Tabhing commune to establish village protection teams (VPT)<sup>46</sup>. The objectives of the establishment of Village Protection Teams are (Thuong et al, 2004) :

- To decrease community vulnerability to poverty through empowerment;
- To provide an internal policing mechanism for Community Based RM;
- To protect the community’s natural resources from outside harvest;
- To monitor community-based natural resource harvest mechanisms;
- To improve forest protection through increased enforcement efforts.

These teams are formed through community vote and can be changed at any time if the communities don’t feel they are representing their interests sufficiently. The village management board is responsible for convening meetings to change team membership if requested by any community member. Village Protection Teams are

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46 <http://www.iapad.org/publications/ppgis/communitypatrolteams.pdf> (Retrieved on February 3, 2008)

managed by the Commune People's Committee; they cooperate with commune police and army and are technically advised and trained by the commune ranger from the district Forest Protection Department. VPTs are formed via a district level instruction drafted by the Commune People's Committee. This instruction outlines the responsibilities of VPT members as well as their rights and benefits. The instruction also states the responsibilities of the Commune People's Committee and the commune ranger.

All villages in the pilot site, Tabhing commune, expressed a wish to have legal recognition of tenure for what they consider their forest and the rights to protect forest and freshwater resources from the high-intensity exploitation by 'outsiders'. Discussions were held that included the commune authorities, the management board of Song Thanh Nature Reserve and the district People's Committee. The main issues to address were the legal procedures for the establishment, the legal rights, the structure, the management and the funding of such groups. Once the legal and administrative issues were clarified, the groups were established at the village level. It was decided by the communities that five to six members would be required per village. The patrol group members were voted for during village meetings with a leader being appointed in the same manner (Hardcastle et al, 2004).

A workshop was held with the newly established VPTs, commune and district departments and Song Thanh Nature Reserve. During this workshop all outstanding issues were settled and the VPTs became operational based on Decision 18/QD-UB of Tabhing commune People's Committee dated 26<sup>th</sup> August 2003.

Initially each team consisted of five to six members, with each team having an elected leader. With nine villages in Tabhing commune, this led to a total of 50 VPT members. Team leaders made monthly reports to the commune People's Committee. This structure was shown, over time, to have two flaws that prevented effective community-based natural resource protection:

1. The number of teams members was too high to allow for the development of a sustainable funding mechanism to be implemented through district or commune systems.
2. Unless a ranger from Song Thanh Nature Reserve accompanied a patrol, a team did not feel they possessed sufficient authority or protection to confront violators.

Through discussions with village, commune, district and provincial stakeholders a new structure was developed that addresses both of these issues. The teams were to be reduced in size to three to four members per village, however, a core team of commune officers would serve on a permanent basis. The commune level staff included a minimum of:

- Commune chairperson or vice-chairperson
- Commune police chief
- Commune army chief
- Commune forestry officer
- Commune accountant.

This new structure has three advantages over the old structure:

1. Commune level members have more power to deal with the violators.
2. The Village Protection Teams become institutionalized.
3. A single organization is responsible for their performance.

In addition, the WWF MOSAIC project is trying to develop a model for sustainable community-based natural resource management that can be implemented by communities cooperating with local authorities. Forest management agreements were always seen as a first step in the development of more comprehensive harvest regulations and management. The documents are legally strong and provide a framework for community management and protection of natural capital according to their traditional systems and cultural beliefs. Implementation of these documents is currently weak and requires a combination of awareness building and training of communities and authorities on their power and use in natural capital management and protection (Thuong et al, 2004).

In Quang Nam province a holistic approach to the development of sustainable natural resource management is being developed by relevant departments (mainly FPD, DONRE and DARD) under the umbrella of a provincial Biodiversity and Natural Resource Conservation Strategy (1332/QD-UB dated 4<sup>th</sup> May 2005) and with technical support from the WWF MOSAIC project. This approach involves six steps, which are currently in varying stages of development and implementation; the earliest of which was started in June 2002:

1. Forest land allocation
2. Village forest management agreement

3. Village Protection Team establishment
4. Participatory assessment of natural resource abundance
5. Legal community harvest mechanisms
6. Village and commune development plans.

A provincial method for the allocation of forest land to communities has been produced. Forest land allocation throughout the six mountainous districts should be complete by the end of 2007 providing legal tenure over and access rights to natural resources for all people living in forest edge communities (Andersen & Long, 2006).

*In summary, the institutional arrangements are characterized by the lack of an ecologically defined governance structure. The existing structure is dominated by hierarchical institutional relationships guided by a partially negotiated set of rules for cooperation. Hence, CTSL-IEG is scored as 0.*

#### 4.2.4. CTLS - Environmental Decision Making

During the design stage, CTSL Biodiversity conservation initiative employed a decision making process that was participatory in nature. As a result a well developed conservation plan with specific goals and objectives was developed with the input of different stakeholder groups.

The Truong Son Conservation Action Plan is a plan adopted by the Government of Vietnam to bring greater focus, coordination and domestic investment to protect landscape's natural systems. Overseen by the Ministry of Agriculture and Rural Development, through its Forest Protection Department, with technical support



from WWF, the plan has undergone wide-ranging and comprehensive input, review and consultation with involving stakeholders and expertise from community to international levels (Cox, 2006). Over 100 Vietnamese government, academic, NGOs and independent institutions were directly involved in information gathering and priority setting for a conservation and sustainable development agenda for the Truong Son.

In June 2003, an international ecoregion workshop began the process of honing this information into a situation analysis to identify ecoregion-wide pressures and their root causes, associated opportunities, and to direct the development of the action plan (Cox, 2006). The Plan adopts the overall goal of the Greater Annamites ecoregion, which was sub-divided into 6 objectives specific to the Truong Son:

1. Protect, restore and sustainably manage biodiversity elements of high scientific and economic value in the ecoregion.
2. Mitigate the most urgent, broad scale pressures on biodiversity in the ecoregion.
3. Harness local, national and international support for long-term conservation of the ecoregion.
4. Strengthen the human resource capacity for long-term conservation and sustainable development in the eco-region.
5. Foster the implementation of the existing policies and effectiveness of institutions, and comprehensively develop the necessary policy, legal and institutional framework for the conservation of biodiversity of the ecoregion.

6. Yield significant, tangible benefits for regional, national and local stakeholders through conservation approaches in the ecoregion.

The plan lists an initial selection of 69 priority actions, out of which, seven activities were considered the most urgent. Those include the effective management of the five most important protected areas; the preparation and implementation of action plans for five flagship species; the preparation and implementation of the wet forest conservation plan; conservation of forests and environmental protection associated with Ho Chi Minh City Highway; pilot integration of local socio-economic planning with biodiversity conservation priorities; conduct a program that impacts the wildlife trade across Truong Son; and prepare and implement a monitoring and reporting framework to keep track of the biodiversity status of the Truong Son.

At the provincial level, WWF MOSAIC project in Quang Nam has assisted with the development of provincial action plan for conservation within the province, working with all stakeholders to identify and prioritize forest units for scaled conservation effort in order to mitigate and offset current and potential threats, and act on the varied opportunities. A series of multi-stakeholder workshops provided crucial support and approval for the MOSAIC project. For Tabhing, a draft action plan was compiled based on detailed participatory research, with twenty key activities to be initiated over a six-month period. Participatory three-dimensional modeling was one of the primary tools to be employed, primarily to facilitate forestland allocation and resolve tenure conflicts. The action plan was then taken to the commune and villages for public scrutiny. A series of consultation meetings preceded village-level 'citizen's

juries' (called 'people's forum' in Vietnamese). Each item on the action plan was presented for questioning by local villagers, using the discussion forum and also a household response sheet. The aim of the action plan was to clarify local land-use issues and develop a coherent land-use plan for each village within the Commune. The final action plan for the Commune was approved at the district level, where all stakeholders had a chance to review the plan. Budgets and timeframes were linked to milestones and indicators, and the plan was officially recognized by the District Government (Hardcastle et al., 2004 ).

When it comes to information sharing among stakeholders, insufficient information is available about the biodiversity of the Central Truong Son Landscape, and much of the information that is available is unreliable and imprecise (Tordoff et al, 2003). There is a lack of a centralized information management system for biodiversity data, with the result that only a small proportion of data are easily accessible to environmental managers and policy makers.

*In summary, the decision making process during the planning phase was characterized by a participatory inclusive approach which resulted in the development of a detailed plan for action. Yet during implementation the decision making process became fragmented. The information sharing among stakeholders remains weak. CTSL – EDM is scored as 0.*

**Table 8: CTLS Summary Table**

Core MLEG Theoretical Constructs	Measures	YES/NO	1/0
Multi – level Governance (MLG)	<ul style="list-style-type: none"> <li>• Unlimited number of task specific jurisdictions</li> <li>• Vertical linkages</li> <li>• Horizontal Linkages</li> </ul>	<p style="text-align: center;">+</p> <p style="text-align: center;">-</p> <p style="text-align: center;">-</p>	0
Institutions for Environmental Governance (IEG)	<ul style="list-style-type: none"> <li>• Ecologically defined governance structure</li> <li>• Non-hierarchical institutional relationships</li> <li>• Negotiated sets of rules, norms and procedures for cooperation</li> </ul>	<p style="text-align: center;">-</p> <p style="text-align: center;">-</p> <p style="text-align: center;">-</p>	0
Environmental Decision Making (EDM)	<ul style="list-style-type: none"> <li>• Diverse, inclusive participation</li> <li>• Equitable DM process</li> <li>• Clear goals, objectives and written plan</li> <li>• Information is constantly shared among stakeholders</li> </ul>	<p style="text-align: center;">-</p> <p style="text-align: center;">-</p> <p style="text-align: center;">+</p> <p style="text-align: center;">-</p>	0

#### 4.2.5 CTSL Biodiversity Conservation Initiative – Outcomes

The central Truong Son biodiversity conservation initiative's long-term objective is to establish an integrated mosaic of complementary land-use and development practices to protect, manage, and restore natural resources and biodiversity in the Truong Son (Central Annamites), while contributing to institutional development, good governance, and an increased standard of living for local communities. The first phase (2003-2010) will focus on "Creating the Foundations for a Sustainable Landscape" with the following outcome. *"To create the foundations for long-term conservation and remove the immediate threats to highly threatened habitats and species"*. The focus of this phase is on the most critical sites and species and ensure that the forest cover and quality is not further reduced (MARD, 2004).

Some of the most important milestones for Phase 1 include:

- By 2010, a network of strictly protected areas will be established and effectively managed.
- By 2010, effective conservation secures habitat and species in all priority areas.
- By 2010, specific direct and effective conservation measures provide adequate protection for key species.
- By 2010, understanding of the ecology and threats to the species conservation foci is sufficient to support effective conservation efforts.

- By 2010, the competency and skills of those key players responsible for the protection, management and restoration of key species and habitats in priority areas is sufficient to provide effective conservation.

To date, no systematic monitoring or evaluation have been conducted at the landscape level, therefore it is hard to make an informed judgment about the progress made toward the achievement of the Phase I outcomes.

The results presented below pertain mainly to the WWF MOSAIC project which has worked at the provincial (Quang Nam) and commune levels. An evaluation on the project conducted in 2006 indicated that “MOSAIC is an excellent project, which has had considerable success in addressing one of the key challenges facing broad-scale conservation; namely how to integrate local actions into an ecoregional strategy in a way that carries forward beyond the life of the project” (Dudley, 2006).

There has been a high level of productivity and many outputs, including a provincial conservation plan, surveys, field manuals and more detailed strategies for education, law enforcement etc. Basing WWF in the offices of the Forest Protection Department, and building close links with other parts of the provincial government, appears to have been successful in integrating conservation within the wider work of the government.

Facilitated through the MOSAIC project, Quang Nam has become the first of seven central provinces in Vietnam to introduce a multi-stakeholder conservation strategy which aligns directly with the Central Truong Son Biodiversity Conservation Initiative. A multi-departmental provincial action plan providing the framework for

conservation education actions across many sectors has been developed and is being implemented. Commune-level education networks have been established in two priority communes, with representatives from across the community.

One of the objectives of the provincial conservation strategy is that “The natural resources of Quang Nam are sustainably managed by the appropriate user to meet the economic, social and environmental goals of the Quang Nam development strategy” (Andersen & Long, 2006) . For a large proportion of Quang Nam, the forests will soon be allocated to communities. The system under development is one which involves the whole community, is managed by the commune People’s Committee, but implemented at the village level and supported by the relevant departments. The aim is to develop an integrated, holistic community based mechanism that is institutionalized and supported by all stakeholders. This brings sustainability and longevity to the approach and is ensuring community needs and wishes are integrated into government work at many levels (Andersen & Long, 2006).

The process of going through the action of deciding on the area has empowered communities to protect and manage their resources and all have expressed appreciation for the process. Through the co-development of methods with provincial level departmental staff, their piloting and their subsequent adaptation, the understanding and awareness of the impact of natural resource use on poverty alleviation has been raised significantly at the provincial level. Forest management agreements were always seen as a first step in the development of more comprehensive harvest regulations and management. The documents are legally strong and provide a

framework for community management and protection of natural capital according to their traditional systems and cultural beliefs. Implementation of these documents is currently weak and requires a combination of awareness building and training of communities and authorities on their power and use in natural capital management and protection (Thuong et.al., 2004).

The evaluation report concluded that despite its successes, three key challenges will face the MOSAIC project in the future:

1. Institutionalizing the changes so that they are regarded as a regular part of people's jobs rather than "additional" project elements.
2. Replicating the changes across the whole landscape - which means "letting go" and allowing government institutions to take over;
3. Sustaining the changes so that they will continue after project funding ceases.

*In summary, the CTLS Biodiversity Conservation Initiative has made some progress in achieving the desired outcomes at the provincial and communal level. Much more needs to be done to ensure the achievement of the outcomes at the landscape level. Because of the lack of progress in the achievement of outcomes, "CTSL – Outcomes" is scored as 0.*



## 4.3 European Climate Change Program

### 4.3.1 *Background and Settings*

The European Union (EU) Climate Change policy has its beginnings in the early 1990s, during the preparatory process for the Rio Summit. In October 1990, a meeting of the energy and environmental ministers concluded that the EU would be prepared to take measures to stabilize CO<sub>2</sub> emissions at their 1990 levels in the Community as a whole. Initially the EU and the Member States ratified the UN Framework Convention on Climate Change<sup>47</sup> (FCCC) without having a concrete internal policy, and the first measures were largely symbolic (Deketeleare & Peters, 2006). Directive 93/76/ECC required Member States to establish programs to limit the emission of greenhouse gases through improvements in energy efficiency; at the same time the Council<sup>48</sup> adapted the “Altener” program, a Community program for the promotion of renewable energy sources.

The EU started the political process on the ratification of Kyoto protocol immediately after the 6<sup>th</sup> Conference of the Parties (COP6) to the United Nations Framework Convention on Climate Change in November 2000. The conference of the Parties delivered decisions on the issues left unfinished in Kyoto, in particular of flexible mechanisms and compliance. The EU discussions had several dimensions, but two were of major importance:

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<sup>47</sup> The Convention entered into force in 1994.

<sup>48</sup> See the section on Institutions for more details

1. The burden sharing agreement that was agreed by the Council in 1998 was incorporated into a legal instrument. The 8% reduction in the emission of greenhouse gases for the EU as a whole had to be shared amongst the Member States so as to allow for different economic development patterns.
2. An implementation strategy that accompanied the ratification instrument.

**Table 9: EU Members Burden Sharing Agreement**

Country	Share of EU emissions in 1990	Emissions in 1990 in Mt eq CO <sub>2</sub>	Burden sharing (BSA) <sup>*</sup>	Burden sharing in Mt eq CO <sub>2</sub>
<i>Austria</i>	1.7	74	-13.0	64
<i>Belgium</i>	3.2	139	-7.5	129
<i>Denmark</i>	1.7	72	-21.0	57
<i>Finland</i>	1.7	73	0.0	73
<i>France</i>	14.7	637	0.0	637
<i>Germany</i>	27.7	1201	-21.0	949
<i>Greece</i>	2.4	104	25.0	130
<i>Ireland</i>	1.3	57	13.0	64
<i>Italy</i>	12.5	542	-6.5	506
<i>Luxembourg</i>	0.3	14	-28.0	10
<i>Netherlands</i>	4.8	208	-6.0	196
<i>Portugal</i>	1.6	69	27.0	87
<i>Spain</i>	7.0	301	15.0	347
<i>Sweden</i>	1.6	69	4.0	72
<i>U.K.</i>	17.9	775	-12.5	678
<i>Total EU</i>	100.0	4334	-8.0	3998

<sup>\*</sup>Emission limits for each Member State with the aim of ensuring that the EU meets its overall 8 percent reduction commitment under the Protocol. The limits are expressed in terms of percentages by which Member States must reduce, or in some cases may hold or increase, their emission compared with the base year level (1990). Source: Annex 1 of Commission of the European Communities (1999) 230 final of 19.05.1999.

Source: EEA (2006)

On March 8, 2000 the European Commission adopted the Communication on “EU policies and measures to reduce greenhouse gas emissions: Towards a European Climate Change Program”<sup>49</sup>. The Communication stressed how much more effort was needed for the EU to meet its target set by the Kyoto Protocol.

The European Climate Change policy follows two main tracks: the burden sharing agreement (BSA) and the common and coordinated policies and measures (CCPM). The CCPM measures can be found mainly in the area of energy efficiency, renewables and transportation. “Common” refers to the EU level action involving all the Member States, whereas the coordinated measures aim to add value through the EU level coordination of national measures (Hyvarinen, 2000). The poorest member states, known as “cohesion countries” (Portugal, Spain, Greece and Ireland) were allowed to increase their GHG emissions up to the year 2010<sup>50</sup>.

#### *Overall objective and phases*

Following the adoption of the Communication, in June 2000 a comprehensive package of policy measures to reduce greenhouse gas emissions was initiated through the European Climate Change Program (ECCP). The ECCP builds on existing emissions-related activities at EU level. It dovetails EU’s Sixth Environmental Action Program (2002-2012)<sup>51</sup>, which forms the strategic framework for EU environmental

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<sup>49</sup> COM (2000) 87 Final

<sup>50</sup> These countries form a distinct category for climate change purposes within the EU because: Their per capita CO<sub>2</sub> emissions are relatively low (in the EU context) Their combined contributions to the EU total of CO<sub>2</sub> is fairly small

<sup>51</sup> The 6th EPA is a decision of the European Parliament and the Council adopted on 22nd July 2002. It sets out the framework for environmental policy-making in the European Union for the period 2002-

action and includes climate change among its four top priorities, as well as the EU's Sustainable Development Strategy.

*The ECCP's overall objective is to help identify and develop the most environmentally friendly and cost-effective EU measures enabling the EU to meet its target under the Kyoto protocol, namely an 8% reduction on greenhouse gas emissions from 1990 levels by 2008-2012.* These measures include mitigation of emissions through policies and measures and the flexible mechanisms, capacity building/technology transfer, research/observation and training and education (ECCP, 2003).

The commitment was related to the group of 15 Member States that joined the EU before May 1, 2004 (the so called EU-15). The EU developed a mix of regulatory approaches<sup>52</sup> to meet the target, and a lot of discretion to set up climate change policies was left to the member states. Decision 280/2004/EC of February 11, 2004 set up a mechanism to acquire information about the climate change policies and the level of compliance of each Member State with its emission reduction target (Deketelaere & Peeters, 2006). The Member States were required to report their emissions to the Commission by January 15 of each year.

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2012 and outlines actions that need to be taken to achieve them. The 6th EAP identifies four priority areas: climate change; nature and biodiversity; environment and health; natural resources and waste. The 6th EAP promotes full integration of environmental protection requirements into all Community policies and actions and provides the environmental component of the Community's strategy for sustainable development. The link is made between environment and European objectives for growth, competitiveness and employment.

<sup>52</sup> Soft law approaches like labeling, voluntary agreements, etc; market based instruments (taxation and emission trading); and tradition command and control regulations (the permit approach; best available technologies).

The first ECCP progress report (June, 2001) summarized the outcomes and conclusions of the first phase of ECCP covering the period 2000-2001. The results of the first phase indicated that EU would not achieve the Kyoto target with the measures currently in place, but could exceed the target with additional policies and procedures. The report concluded that “the only efficient way to address such global issues is to develop a comprehensive strategic approach that will require improvements in the implementation of existing legislation, integrating environmental concerns into other policies, encouraging the market to work for the environment, and empowering citizens and changing behavior” (ECCP, 2001).

The report included the following recommendations for the next phase of ECCP.

- Developing measures to enhance energy-efficiency, energy saving, more use of renewable energies, and the reduction of greenhouse gases other than CO<sub>2</sub>.
- Integrating further the climate change objectives into the Community’s sectoral policies such as transport, energy, industry, and agriculture based on specific targets, identifying concrete actions to be taken and developing relevant indicators.
- Developing cross-sectoral approaches, including the establishment of an EU-wide emissions trading scheme that will enter into force by 2003-5.
- Enhancing research especially in the context of the new Framework Program.

- Improving information to citizens and businesses about climate change, the implications it may have for them at the local level, and showing them how they can contribute to addressing the climate change challenge.

The publishing of the report was followed by a Commission Communication<sup>53</sup> in October 2001 which converted the ECCP results into a clear commitment from the Commission (ECCP, 2003). It highlighted a package of twelve priority measures and an action plan for implementation of these measures, to be brought forward by the Commission in 2002 and 2003. They were grouped in four sections: crosscutting, energy, transport and industry.

In the first phase, the ECCP acted predominantly as a initiator, catalyst and discussion forum to prepare a strategy to meet the EU's and Member States' Kyoto objectives. With the October 2001 Communication, laying down the Commission's 2002-2003 action plan, greater focus on the concrete adoption and implementation of measures was required. As a result, the second phase of the ECCP had as its first aim monitoring the implementation of the agreed measures.

The second ECCP Progress report summarized the outcomes and the results of the second phase covering the period 2001-2003. The report concluded that during the second phase the ECCP analyzed extensively the most environmentally and cost-effective additional policies and measures enabling the EU to meet its -8% target under the Kyoto Protocol.

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53 COM (2001) 580 Final

The monitoring mechanism and its review, as well as the EU's emissions trading scheme and the link with the Kyoto flexible mechanisms (Joint Implementation<sup>54</sup> and Clean Development Mechanisms<sup>55</sup>) are key elements of the EU's climate change strategy. On these issues, the planned work proceeded on schedule. The implementation of measures related to the supply of energy was also on track. The first phase of ECCP had a strong focus on energy demand measures in the household, tertiary and industry sector. By 2002, progress was achieved in the preparation of the key measures (e.g. directive on the establishment of a framework for the eco-design of the energy-using products; directive on energy services; public awareness campaign and public procurement). However, except for the strategy on the reduction of CO<sub>2</sub> emissions from the passenger cars, the implementation of measures in the transport sector showed slow progress. As far as the industry sector policy measures were concerned, the report concluded that a better control of non-CO<sub>2</sub> emissions in the industrial sector was required, especially with regard to the fluorinated gases.

As a result, the February 2005 Communication<sup>56</sup> "*Winning the battle against climate change*" indicated that the Commission "will review progress and explore new actions to systematically exploit cost effective emission reduction options", to meet the environmental objectives while maintaining the economic competitiveness. The

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<sup>54</sup> This mechanism will allow industrialized countries to gain credits for financing emission reduction projects in other industrialized countries with Kyoto targets.

<sup>55</sup> This mechanism will allow industrialized countries to gain credits for financing emission reduction projects in countries without Kyoto targets.

<sup>56</sup> COM (2005) 35 Final



report concluded that the future climate change strategy of the EU needs to include the following elements:

*The broadening of participation:* The EU will continue to play a leadership role in the multilateral approach to climate change, but wider participation on the basis of common but differentiated responsibilities<sup>57</sup> is urgently required. Moreover, policies to tackle climate change must be consistent with and contribute towards other important objectives (e.g. poverty reduction), accommodating the rather diverse conditions of current and future major emitters.

*The inclusion of more policy areas:* The scope of international action must be widened to cover all greenhouse gases and sectors. In particular, the fast growing emissions from aviation and maritime transport should be included. A fresh look will have to be taken at how to halt deforestation of the world's forests. Addressing this problem as a specific issue in some regions is necessary as almost 20 % of global greenhouse gas emissions are currently emitted due to land use changes.

*Enhanced innovation:* The required transformation of energy and transport systems presents a major innovation challenge. More research is needed to bring new technologies closer to the market.

*The continued use of market based and flexible instruments:* Successful structural elements of the Kyoto Protocol should be maintained in any new system post 2012.

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<sup>57</sup> Among the principles of the Climate Change convention is that of common but differentiated responsibilities whereby the industrialized developed countries would take the lead in addressing the climate problem, specifically excluding developing countries from binding GHG emissions reductions. This principle is grounded in shared notions of fairness: the developed countries are disproportionately responsible for historical GHG emissions and have the greatest capacity to act.

These include emissions trading on the basis of emission limitations and project based mechanisms as building blocks to a truly international carbon market, the rules for monitoring and reporting on emissions, and a multi-lateral compliance regime. While continuing to promote the concept of targets and timetables, the scope of international negotiations has to be broadened so as to concretely link climate change issues with research, development, deployment and diffusion of new technologies, improving energy efficiency and developing low-carbon sources of energy and development policy.

Developing countries will make huge investments into their energy infrastructure over the coming decades. Public funds that are channeled by the World Bank, EBRD<sup>58</sup> and other development banks need to be used to leverage developing countries' own savings towards climate-friendly investments, particularly in the energy sector.

*The inclusion of adaptation policies:* More resources need to be allocated in the EU to adapt effectively to climate change. The adaptation efforts of the poorest and worst-affected countries should be financially supported.

Based on the aforementioned conclusions the Commission recommended that the European Council endorse the following approach on which to base the development of the Union's climate change policy:

*Immediate and effective implementation of agreed policies:* the EU has succeeded in reducing its emissions by 3% below the 1990 level, but much more needs to be done to reach the 8% emission reduction targets agreed in the Kyoto Protocol. A key

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<sup>58</sup> European Bank for Reconstruction and Development

element will be strengthened support for investment in climate-friendly technologies under different headings in the new Community budget for the period 2007 to 2013. In addition, a major new effort throughout Europe is necessary to make real progress in energy efficiency: a new European-wide Energy Efficiency Initiative.

*Increased public awareness* should be fostered through a strategic program to raise the general public's awareness to the climate change significance of their actions, i.a through the launching of an EU-wide awareness campaign.

*More and better focused research* should be directed to further improving knowledge on climate change, including the links to ocean processes, to addressing global and regional impacts, developing cost-effective adaptation and mitigation strategies, including non CO<sub>2</sub> gases.

*Stronger co-operation with third countries* could be promoted through a strategic program for enhanced technology transfer and scientific R&D cooperation on low greenhouse gas technologies in the field of energy, transport, industry and agriculture. Climate friendly development policies should be drawn up in co-operation with developing countries, in particular in the areas of energy and air quality.

Strengthening the adaptive capacity, particularly of the most vulnerable developing countries, should become an integral part of development assistance.

*A new phase of the European Climate Change Program in 2005:* The Commission will review progress and explore new actions to systematically exploit cost effective emission reduction options. Attention will be paid in particular to energy efficiency,

renewable energy, the transport sector (including aviation and maritime transport), and carbon capture and storage.

### *The way forward*

The EU is convinced that strong global action to combat climate change will continue to be needed after 2012, when the Kyoto Protocol's targets are due to have been met. It therefore favors an early start to negotiations on an international climate regime for the post-2012 period (ECCP, 2003). Consequently the Commission has initiated the Second European Climate Change Program (ECCP II). ECCP II was launched in October 2005 at a major stakeholder conference in Brussels. It will explore further cost-effective options for reducing greenhouse gas emissions. New working groups have been established, covering carbon capture and geological storage, CO<sub>2</sub> emissions from light-duty vehicles, emissions from aviation, and adaptation to the effects of the climate change (EC, 2006),

#### *4.3.2. ECCP Multi – level Governance*

The climate change arena is characterized by a great degree of complexity and it is in need for coordination of policies vertically as well as horizontally. European Union countries function within a layer of regional, supranational cooperation that covers climate along with many another policy areas. Climate change is an area of increasing complex multi-level governance. Task specific jurisdictions have been created to address issues such as renewable energy, flexible mechanisms, transport, etc (Andonova et al, 2007, p.5). The first ECCP (2000-2004) examined an extensive range

of policy sectors and instruments with potential for reducing greenhouse gas emissions. Coordinated by an ECCP Steering Committee, a number of working groups were established covering the following areas:

1. Flexible mechanisms - emission trading. An emission trading system limiting CO2 emissions from 11,500 installations in the the EU's 25 Member States through the allocation of emission allowances by Member States<sup>59</sup>.
2. Flexible mechanisms - joint implementation and clean development mechanism. Companies falling under the scope of the EU emission trading scheme could use credits from the Kyoto project-based mechanisms<sup>60</sup> to comply with their emission limits.
3. Energy supply. Member states were required to promote electricity produced from non-fossil renewable energy sources such as wind, solar, geothermal, wave, biomass, landfill gas, sewage treatment gas and biogas energies.
4. Energy demand. Policies and measures under energy demand included provisions for the energy performance of the buildings (Directive 2002/91/EC); energy labeling of domestic household appliances (Directive 1992/75/ECc); and the

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<sup>59</sup> The 2003/87/EC established a legal framework for an emission trading scheme (ET) covering carbon dioxide releases. By March 2004, national allocation plans for the period 2005-2007 had to be submitted to the EC commission for approval (Eritja, 2006). The ET directive stipulates that the method of allocation needs to be fair, consistent, clear and feasible (Peeters, 2003). The Commission gave Member States considerable leeway in choosing the allocation measure (Schmitt-Rady, 2006). Member States responded to the ET directive in different ways (Eritja, 2006). Although Member States passed national legislation, most of them did not focus on its implementation. While some Member States actively pushed for an ET scheme as a policy preference, and took specific actions to reduce CO2 emissions, other Member States were reactive since they feared such reductions would impede their economic growth.

<sup>60</sup> Kyoto's project based mechanisms include Clean Development Mechanisms that envisage emission-saving projects in developing countries and Joint Implementation in countries with Kyoto emission targets.

framework for setting eco-design requirements for energy-using products (Directive 2005/32/EC);

5. Energy efficiency. Energy efficiency measures consisted of the inclusion of energy efficiency requirements in the permit system for industrial and agriculture installations (Directive 96/61/EC); motor challenge program; sustainable energy Europe campaign; green public procurement and climate change awareness campaign.
6. Transport. In 1995 EU launched a strategy aiming at reducing CO<sub>2</sub> emissions from new passenger cars from their average 186 g of CO<sub>2</sub>/km in 1995 to 120 g of CO<sub>2</sub>/km by 2010. The strategy included the voluntary commitments by European, Japanese and Korean carmakers to reduce CO<sub>2</sub> emissions from cars sold in the EU; information for consumers about the fuel-economy and CO<sub>2</sub> emissions of new cars and a proposal to base car taxation rates on CO<sub>2</sub> emissions to further influence consumer behavior. Other measure were related to shifting the balance between transport modes from road to rail and water, charging the heavy duty vehicles for the use of the road infrastructure, minimum taxation of mineral oils, coal, natural gas and electricity, and a proposal to phase out the fluorinated greenhouse gas HFC-134a (that has a global warming effect) in car air conditioning system.
7. Industry. The industry policies and measures included proposal to regulate fluorinated greenhouse gases; prevention of emissions of greenhouse gases from industrial and agriculture installations; and reduction of methane emissions from landfills and the thematic strategy on waste prevention and recycling.

8. Research. The EU sixth Research and Development framework program (2002-2006) allocated 2 billion Euro to research that directly or indirectly deals with climate change. An environmental funding scheme with a budget of 957 million Euro, LIFE Environment, co-finances innovative environmental demonstration projects. Beneficiaries include local enterprises, national and local authorities, NGOs, research institutions and inter-governmental bodies.
9. Agriculture. The agriculture measures aimed at integrating climate change into EU's Rural Development policy. The improvements of the environment would be achieved through better land management, support schemes for energy crops and reduction of NO<sub>2</sub> in the soil.
10. Forestry. Forestry measures aimed at increasing carbon sequestration potential of afforestation and reforestation practices as well as improving forest management and natural forest expansion in the EU – 15 member states.

ECCP incorporates a structure at multiple levels, from local authorities to the EU as a whole. Sub-national authorities have become active players in the climate change policy arena in a number of countries, often ahead of central governments (Andonova et al, 2007). The ECCP has sought to work with a clear cross-cutting approach, through different sectors (energy, transport, industry, etc) but also at different levels, the European, the national, in some cases also the regional perspective, have been taken into consideration (ECCP, 2001). The country-specific examples below illustrate the different types of MLG arrangements.

In 1997 Ireland agreed to limit greenhouse gas emissions to 13% below 1990 levels over the period 2008- 2012. The main greenhouse gas in Ireland is CO<sub>2</sub> which arises predominantly from the burning of fossil fuels in transport, heating and electricity generation. The key measures for reducing emissions are set out in the National Climate Change Strategy (NCCS) and include the following sets of instruments: carbon taxation and emission trading, fuel efficiency and demand management in energy and transport.

The implementation of NCCS is overseen by a climate change team made up of representatives from the Departments of Environment, Heritage and Local Government, Finance, Public Enterprise, Trade and Environment, Agriculture, Food and Rural Development, Marine and Natural Resources, and office of Public Works. A cross departmental/agency support unit assists the team with the national infrastructure. The NCCS emphasizes the role of other sectors of government in the successful implementation of the strategy. It states that the “new structures, within and beyond the traditional framework of local government, will provide an influential, representative local base from which to incorporate climate change considerations into relevant local policies and programs” (Davies, 2005).

NCCS identifies the Local Energy Agencies (LEAs) as the providers of direct assistance to local authorities in energy and climate change matters. There are 12 LEAs in the Republic of Ireland; the initial formation of LEAs was supported through the EU SAVE program. In 2002, LEAs formed the association of Irish Energy Agencies to coordinate the exchange of good practices information. LEAs are also



members of European Networks such as Fedarene, Islenet, Energy Cities, and Cities for Climate Change Protection.

In UK and Germany the situation is a little different. The burden sharing agreement set the target of reducing emissions by 21% for Germany and 12% for UK below 1990 levels by 2010.

The UK climate change program sets out the government's proposed approach to implementing the Kyoto protocol. The policies and measures in the program include: the climate change levy; negotiated agreements with the industry; integrated pollution prevention and control; domestic emission trading; measures in the transport sector; and the new energy efficiency standards of the performance for the domestic sector (Hyvarinen, 2000).

In the UK the relationship between central government and local authorities is governed by the principle of *ultra vires* (Bulkeley & Kern, 2006); local councils have been able to do only what they are statutorily permitted to do. The statutory duties set by central government can be compulsory or discretionary. This partial autonomy is evident in relation to local climate change policy; in the UK local authorities have various duties which relate to climate protection, including Best Value Performance indicators for energy use in council buildings and the Home Energy Conservation Act and guidance on local transportation plans and local land use planning.

Germany has set a domestic target that goes beyond both the Kyoto Protocol and the EU burden sharing commitments. The target is to reduce CO<sub>2</sub> emissions by 25% by 2015, from the baseline year of 1990. Key policies and measures include

voluntary commitments by industry since the mid 90s; ecological tax reform; measures to encourage energy efficiency in buildings and household; the promotion of co-generation and the promotion of renewables.

In Germany local authorities are not restricted to the duties mandated to them by the national government. Climate change policy is considered a voluntary task and municipalities have freedom to choose whether to become active or not and “how” such measures should be implemented. Many municipalities have developed action plans, with the main focus on actions within the energy sector. Some examples include city council resolutions for the reduction of CO<sub>2</sub> emissions; the adaptation of energy-saving models in schools; the provision of environmental advisory services for citizens; and regulations for mandatory connection to and the use of district heating systems (Kern, 2006).

In Spain responsibilities for addressing climate change are shared by central, regional and local authorities. Whereas in Belgium the central government is powerless because climate change matters come entirely under the jurisdiction of the regions (Eritja, 2006).

Although the most high profile negotiations about EU climate change policies have taken place between the nation states, non-state actors and both sub- and supra-national governments are also significant in terms of the contribution they make to climate change emissions and the role they can play in reducing those emissions (Davies, 2005). Due to the importance of local actions for combating the climate change, a number of networks of local agencies and local authorities have been

established and have become increasingly visible actors in climate change governance across Europe as a way to share experiences and stimulate policy innovations (Bulkeley & Betsill, 2003). These networks are generally characterized by a horizontal, polycentric and non-hierarchical structure (Kern & Löffelsend, 2004).

In the private sphere, both non-governmental organizations and corporations have initiated programs to shape public understandings of climate change and to develop innovative policies and technologies for controlling greenhouse gas emissions. The adoption of flexible mechanisms has opened the regime directly to transnational actors interested to get involved in the mechanisms. “The implementation of these flexible mechanisms has necessitated the building of a range of governance structures to support the new markets in emission reduction units and technology. Such institution building requires diverse skills and inevitably creates opportunities for cross-border cooperation between government agencies, intergovernmental organizations and a range of non-state actors” (Andonova et al, 2007).

Andonova et al. (2007) identify three types of transnational networks: public, hybrid, and private (established and managed by non-state actors) transnational governance networks. An example of public transnational governance for climate change is the Cities for Climate Change Program (CCP). The CCP works with local governments in order to reduce harmful emissions that accelerate climate change and cause air pollution. One of the projects of CCP known as “Success for Sustainable

Energy Systems in Advanced Cities”<sup>61</sup> is intended to support and accelerate innovative large scale integration renewable energy (RE), advance energy efficiency (EE) and systems for poly-generation linked together with concepts for eco-buildings. The three cities Delft (Netherlands), Grenoble (France) and Växjö (Sweden) are involved to demonstrate innovative RE and EE technology developments.

In the second category, actors from both public as well as the non state sectors establish joint programs. An example includes the voluntary agreement between the European Commission and the Association of European, Japanese and Korean car manufacturers to voluntarily limit CO<sub>2</sub> emissions from automobiles.

Climate Action Network Europe (CAN-E) is another one recognized as Europe's leading network working on climate and energy issues. With over 109 members in more than 25 European countries, CAN-E unites to work to prevent dangerous climate change and promote sustainable energy and environment policy in Europe. CAN-Europe Membership<sup>62</sup> is open to non-government/community based

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<sup>61</sup> [www.concerto-sesac.eu](http://www.concerto-sesac.eu) (Accessed on Dec 21, 2007). Local stakeholders in Delft (NL), Grenoble (F) and Växjö (SE) demonstrate how a more sustainable local energy economy can be achieved through incorporating innovative approaches to the implementation of energy efficiency measures in new and refurbished buildings together with an increased use of renewable energy (RE) technologies and systems for electricity supply, as well as for heating and cooling. Kaunas (LT), Miskolc (HU) and Vastseliina (EE) will study the results and work-methods and make local energy flow analysis. Tools for effective policymaking, implementation, monitoring and management of the sustainable energy processes will be developed. Researchers will analyse and ensure the quality of the measures, whilst city networks will make the results available to others. Experiences will be shared and know-how transferred both within each project and with other Concerto projects. The city networks Energy Cités and ICLEI will ensure that the results are available and widely disseminated. Means of dissemination will be among others; SESAC project website, E-Newsletter; case studies on each Concerto community, posters and leaflets. A market interaction campaign will be developed to create a "closed loop" between the regulatory authorities, public opinion and the industry. The associated cities will gain knowledge and get substantial transfer of best practice, enabling and facilitating the future development and replication. Replication in other European Communities will be stimulated.

<sup>62</sup> NGOs that qualify for membership of Climate Action Network Europe (CAN-E) should fulfill the following criteria:

non-profit organizations, situated in Western Europe, which have an interest in the promotion of sustainable development and are active in, have a focus on, or interest in climate change issues. CAN members have administrative independence and pursue their own mandates, organizational aims and objectives.

The third category includes a variety of Climate Change governance programs of environmental NGOs. The NGOs participate in a number of different ways, through both formal and informal channels (Yamin & Depledge, 2004). Over the last ten years, several research institutes organized themselves into a constituency of research and independent NGOs (RINGOs). RINGOs are coordinated by a steering committee, with focal point functions carried out at the Center for European Policy Studies in Brussels<sup>63</sup>.

*In summary, the ECCP exhibits the multi-level governance aspect of MLEG framework. The program is implemented at multiple levels and involves vertical and*

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1. The organization is legally constituted pursuant to the laws of their country of origin and is defined as a non-governmental, not-for-profit organization according to the appropriate national authorities.
  2. The organization must be demonstrably independent of governments, political parties and commercial interests
  3. The organization's members should be fully transparent of funding sources and their application could be evaluated on this basis.
  4. The organization's mission and activities should be in line with the mission statement of Climate Action Network Europe. The applicant member has to declare that it will respect and apply the statutes, support the vision, mission and activities of CAN-Europe and CAN-International.
  5. The organization should be an international, national and or regional organization representing constituencies in their respective area.
  6. Organizations must be committed to actively limit/reduce human induced climate change and adhere to the practices and principles of sustainable development and environmental protection.
  7. Organizations involved in delivering emissions off-sets should be in line with the Gold Standard or equivalent criteria. Such activities should not constitute the primary activity of any prospective CAN-Europe member.
  8. The organization must agree to refrain from public confrontation with other groups in the network and their positions, and agrees to support common CAN positions. The organization must also respect the confidentiality of CAN meetings and communications.

<sup>63</sup> [www.ringos.net](http://www.ringos.net) (Accessed on Dec 15, 2007)

*horizontal linkages. In addition a number of task specific jurisdictions have been created to deal with the multi facet issues of the climate change. Because the case shows evidence of all the measures, ECCP-MLG is scored as 1.*

#### *4.3.3. ECCP Institutional arrangements*

EU has sought to position itself as an “environmental leader” in the climate change regime (Yamin & Depledge, 2004 ). Climate change is part of the Environmental Chapter<sup>64</sup> of the European Community<sup>65</sup>. Treaty is a shared competence of both the EU member states and the Union. As a result, both the EU and the member states are signatories to the Kyoto Protocol (Van Schaick & Egenhofer, 2005) and both have legally binding reduction targets in greenhouse gas emissions. A key principle guiding the climate change policy design and implementation is that of subsidiarity, which requires that policies be developed and implemented at the most effective level (Gupta & Grubb, 2000).

In the EU’s battle against climate change, complex institutional arrangements have evolved alongside programmatic commitments. Institutional arrangements extend beyond the organs of respective nation states to include supra-national, sub-national and non-state actors acting through both formal and informal channels. At

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<sup>64</sup> The EU objective in environmental policy includes “promoting measures at international level to deal with regional and world-wide environmental problems.”

<sup>65</sup> The European Community was the pillar of European Union in which the Community policies were placed. The EC had legal authority and falls under the jurisdiction of the European Court of Justice. After 2003 the EC was absorbed under the European Union.

the EU level three main institutions are involved: the European Parliament<sup>66</sup>; the Council of the European Union and the European Commission. The European Commission's Environment Directorate-General (Environment DG), based in Brussels is in charge of the European Commission's work on climate change. The Commission is in the role of EU's formal agenda setter<sup>67</sup>.

In the context of the ECCP, a Steering Committee composed of all Commission services that take part in the ECCP, is responsible for the overall management and coordination of the program. The Steering Committee creates working groups on specific problem areas and decides on their terms of reference and timetable. It also informs and exchanges information with other stakeholders on a regular basis.

At the next tier are the working groups (WG). Their main task is the assessment of the environmental and cost implications of policies and measures as well as their compatibility with the sector integration policies. On the basis of these assessments policy recommendations can be made to the Commission<sup>68</sup>. The working groups work based on the terms of reference and the timetable developed by the Steering Committee. Each working group has its specific "set of stakeholders" representing a European rather than a national or regional clientele (ECCP, 2001).

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<sup>66</sup> The European Parliament represents the EU citizens and is directly elected by them; the Council Represents the member states; the Commission seeks to uphold the interests of the Union as a whole – it is EU's executive arm. The Council is the EU's main decision making body and meets at the ministerial level. The Council shares legislative power to adopt European laws with the EU Parliament.. EU laws vary from non-binding recommendations to binding directives and regulations (directives must be incorporated into national legislation).

<sup>67</sup> Formal agenda setting consists of the Commission's right, and the European Parliament's conditional right, to set the Council formal or procedural agenda.

<sup>68</sup> COM (2000) 88 Final

Each working group reports regularly to the Steering Committee through its chairperson.

The institutional arrangements have been complemented with the development of sets of rules, norms and principles for cooperation. In order to reach the political objectives, the EU may use binding and non-binding instruments. A broad and complex package of regulatory measures has now been established at the EU level, representing a mix of instruments, among which soft law approaches (like labeling, voluntary agreements), market based-instruments (taxation and emission trading) and traditional command and control regulation (the permit approach). However, the policy regarding climate change within EU is dependent on the interplay between the EU institutions and the Member States (Deketeleare & Peters, 2006).

A good illustration of that is the EU Emission Trading Scheme (ETS). The ETS is a cornerstone in the EU's fight against climate change. It covers over 11.500 energy-intensive installations across the EU, which represent close to half of Europe's emissions of CO<sub>2</sub>. These installations include combustion plants, oil refineries, iron and steel plants, and factories making cement, glass, lime, brick, ceramics, pulp and paper. The aim of the EU ETS is to help EU Member States achieve compliance with their commitments under the Kyoto Protocol. Emissions trading does not imply new environmental targets, but allows for cheaper compliance with existing targets under the Kyoto Protocol (Deketeleare & Peters, 2006). The scheme is based on recognition that creating a price for carbon through the establishment of a liquid market for emission reductions offers the most cost-effective way for EU Member States to meet



their Kyoto obligations and move towards the low-carbon economy of the future. The scheme should allow the EU to achieve its Kyoto target at a cost of between EUR 2.9 billion and EUR 3.7 billion annually. This is less than 0.1 % of the EU's GDP.

Without the scheme, compliance costs could reach up to EUR 6.8 billion a year<sup>69</sup>.

The ETS has been established through binding legislation proposed by the European Commission (Directive 2003/87/EC which entered into force on 25 October 2003<sup>70</sup>) and approved by the EU Member States and the European Parliament. The scheme is based on six fundamental principles:

1. It is a 'cap-and-trade' system.
2. Its initial focus is on CO<sub>2</sub> from big industrial emitters.
3. Implementation is taking place in phases, with periodic reviews and opportunities for expansion to other gases and sectors.
4. Allocation plans for emission allowances are decided periodically.
5. It includes a strong compliance framework.
6. The market is EU-wide but taps emission reduction opportunities in the rest of the world through the use of the CDM and JI, and provides for links with compatible schemes in third countries.

Under the ETS, each Member State is required to develop a national plan stating the total quantity of allowances that it intends to allocate and how it proposes to allocate them. The National Allocation Plans (NAPs) determine the total quantity of CO<sub>2</sub> emissions that Member States grant to their companies, which can then be sold or

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<sup>69</sup> [www.europa.eu/environment](http://www.europa.eu/environment) (Accessed on Dec 23, 2007)

<sup>70</sup> European Commission (2005). *EU action against climate change. EU emission trading – an open scheme providing global innovation*. Publications Office, Brussels; Belgium.

bought by the companies themselves. This means each Member State must ex-ante decide how many allowances to allocate in total for a trading period and how many each plant covered by the Emissions Trading Scheme will receive. The first trading period runs from 2005-2007, the second one from 2008-2012, and the third one will start in 2013. The NAPs have been based on objective and transparent criteria, including a set of common rules that are laid down in the legislative framework establishing the ETS, taking due account of comments from the public<sup>71</sup>. The most important of these rules (European Commission, 2005) are:

- An allocation plan has to reflect a Member State's Kyoto target as well as its actual and projected progress towards meeting it. The total quantity of allowances allocated is key in this regard. Allocating too many allowances would mean that greater efforts to cut emissions would have to be taken in economic sectors not covered by the scheme, in potentially less cost-effective ways than trading.
- Allocations to installations must take account of their potential for reducing emissions from each of their activities, and must not be higher than the installations are likely to need.
- Where Member States intend to use JI and CDM credits to help them reach their national emission target — thereby giving their companies more scope to

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<sup>71</sup> For the three-year period beginning 1 January 2005 Member States shall allocate at least 95 % of the allowances free of charge. For the five-year period beginning 1 January 2008, Member States shall allocate at least 90 % of the allowances free of charge.

emit — these plans must be substantiated, for example through budgetary provisions.

The European Commission has issued specific guidance on how these rules are to be applied by Member States. The Commission assesses NAPs on the basis of these rules, as well as EU rules on State aid and competition<sup>72</sup>, and has the power to require changes or even to reject a plan altogether. Once it approves a plan, the total quantity of allowances cannot be changed; nor can the number of allowances per installation following the final allocation by the Member State. Each year the Member States shall submit to the Commission a report on the application of this Directive. This report shall pay particular attention to the arrangements for the allocation of allowances, the operation of registries, the application of the monitoring and reporting guidelines, verification and issues relating to compliance with the Directive and on the fiscal treatment of allowances, if any. On the basis of the reports, the Commission publishes a report on the application of this Directive within three months of receiving the reports from the Member States. The Commission also organizes an exchange of information between the competent authorities of the Member States concerning developments relating to issues of allocation, the operation of registries, monitoring, reporting, verification and compliance.

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<sup>72</sup> The European Commission has launched in June 2005 a comprehensive reform of state aid rules and procedures under the title of State Aid Action Plan1. The Commission announced that it would aim in particular to ensure that EC Treaty's state aid rules are better suited to encourage Member States to contribute to the Lisbon Strategy by focusing aid on improving the competitiveness of EU industry and creating sustainable jobs (for example aid for R & D, innovation and risk capital for small firms), on ensuring social and regional cohesion and improving public services. Since the adoption of the Plan, a number of new regulatory texts have been adopted (such as the new regional aid guidelines) and others are currently under revision. The process should largely be completed by 2009.  
[http://ec.europa.eu/comm/competition/state\\_aid/studies\\_reports/vademecum\\_on\\_rules\\_2007\\_en.pdf](http://ec.europa.eu/comm/competition/state_aid/studies_reports/vademecum_on_rules_2007_en.pdf)  
(Accessed on Dec 23, 2007)

In addition to formal rule setting the ECCP exhibits the informal and the non-hierarchical aspects of institutional arrangements.

Rule setting transnational governance networks contribute to climate governance by establishing a new set of rules and norms intended to guide and constrain members' behavior. These could emerge in parallel to the existing inter-governmental or domestic rules and norms or as a substitute in the absence of rules and norms in the international or domestic sphere. This type of transnational governance mimics traditional systems of intergovernmental and domestic governance in terms of function, although through a different configuration of authority. All these initiatives have emerged in parallel to the intergovernmental regime on climate change. However, these initiatives link actors across boundaries and layers of governance to establish a set of rules not necessarily envisaged or specified by the Kyoto Protocol but serving the general goals of climate change mitigation and management (Andonova et al., 2007).

Djelic & Quack (2003) suggests that institution building in the transnational sphere occurs through a mutually dependent relationship between the national institutional frames and the transnational space. Building on these ideas, the concepts of "trickle-down" and "trickle-up" effects can prove useful. Through trickle-down effects transnational institutional frames can challenge national institutional systems and through trickle-up effects actors at local, national or regional level can extend their activities to the transnational sphere. Multiple national actors can extend their national contextual rationalities into the international sphere where they interact,

confront and negotiate with each other. Contemporary regulation is not developed by policymakers in isolation, but the debate can to a large extent be driven by and in interaction with stakeholders at different levels (Buhr, 2007).

In the context of the ECCP, transnational governance networks played an important role in crafting the aviation regulations. In 2005, the European Commission presented a proposal for the development of the first international regulation on aviation. In this proposal, the aviation was outlined to be included in the EU's ETS (European Commission, 2005). The announcement triggered intense lobbying activities toward the European Commission. Officials experienced frequent lobbying by governments, individual companies, NGOs and business associations (Buhr, 2007). In July 2005, six business associations representing the European aviation industry, presented a joint climate change position to the European Commission, which favored emission trading to other economic instruments<sup>73</sup>. When the Commission adopted its Communication on 27 September 2005 it concluded that 'the inclusion of aviation in the EU ETS appears to be the most promising way forward' (EC, 2005b). In its accompanying press release, Vice President and Commissioner for Transport Jacques Barrot added that: 'there is a growing consensus in the aviation sector that emissions trading represents the best way forward to cut greenhouse gas emissions' (European Commission, 2005).

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<sup>73</sup> An important channel for an industry to bring forward their opinions to the EU is through business associations. The European aviation industry is represented by several business associations based in Brussels. Their aim is to defend the interest of their members and influence the regulatory framework at EU level. These associations represent companies throughout the aviation sector, including airlines of various business models and airports. There is a continuous dialogue between these associations on issues that concern the sector as a whole. In 2005, six associations representing the European aviation industry presented an emissions containment policy to the European Commission which clearly articulates the industry's support for emissions trading (Buhr, 2007).

*In summary, the ECCP is characterized by complex hierarchical and non-hierarchical institutional arrangements at multiple levels that shape the behavior of state and non-state actors. The cooperation between the EU, state and transnational institutions is facilitated by the EU legislative framework and a set of negotiated rules, norms and principles for cooperation. The governance structure is not defined at the scale of the problem; the new member states and the non-member states are not included in the program. ECCP-IEG is scored as 1 because the case analysis provides evidence of all measures but the ecologically defined governance structure.*

#### *4.3.4. ECCP Environmental Decision Making*

In a white paper<sup>74</sup> on European governance (European Commission, 2001), the Union called for the active involvement of local and regional authorities. In 2003, the Commission proposed dialogue processes prior to formal decision making<sup>75</sup>. No EU policy or legislation is put forward without first consulting the stakeholders. These include non-governmental organizations, citizens, businesses and experts. Once the European Commission has made a proposal, it is extensively debated by the democratically elected representatives in the European Parliament and the EU Council of Ministers before final decisions are taken (European Commission, 2005a).

One of the ECCP's most important features is the multi-stakeholder consultative process, where relevant players, such as representatives of the European

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<sup>74</sup> White papers published by the European Commission are documents containing proposals for European Union action in a specific area. They sometimes follow a green paper released to launch a public consultation process.

<sup>75</sup> COM (2003) 811 Final

Commission, the Member States, industry and the NGO community undertake a cooperative effort (ECCP, 2001). As the world's most ambitious experiment in regional integration, the EU is the most cohesive coalition in the climate change regime (Yamin & Depledge, 2004).

The program has involved in total more than 200 stakeholders. The ECCP has worked with stakeholders and national experts in order to identify the building blocks for possible European-wide initiatives to implement Kyoto commitment. The ECCP 2001 report stated that "there is a need to develop common solutions to common problems that at the same time are able to find support among the different stakeholders" (p.45).

Since 1990, there has been public access to environmental information requirements in the EU, though these have been subsequently repealed in favor of the current Directive 2003/04/EC (MacDonald & Makuch, 2006). For instance, the Emission Trading directive requires mandatory access to environmental information and public participation "In order to ensure transparency, the public should have access to information relating to the allocation of allowances and to the results of monitoring of emissions" (European Commission, 2003).

On 29 June 2007 the Commission adopted a Green Paper on "Adapting to climate change in Europe – options for EU action"<sup>76</sup>, which sets out options for EU action to help the process of adaptation<sup>77</sup> to climate change across Europe. The Green Paper also contained options on integrating adaptation into the EU's external

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<sup>76</sup> [ec.europa.eu/environment/climat/eccp.htm](http://ec.europa.eu/environment/climat/eccp.htm) (Accessed on Dec 27, 2007)

<sup>77</sup> Adaptation means taking action to cope with changing climatic conditions, for example by using scarce water resources more efficiently or ensuring the elderly are properly cared for during heat wave.

actions. The paper aimed to stimulate a broad public debate on adaptation in Europe and with third countries. On the 3<sup>rd</sup> of July, the Commission held a high level conference to publicly present the green paper and launch an EU-wide debate on further action. All those interested - organizations and individuals - were invited to contribute to the debate, including through the use of an internet chat. During this conference active participation and feedback from the audience was requested particularly on the questions raised in the green paper. As part of the consultation process on the Green Paper, a series of 4 workshops for European Stakeholders took place in Helsinki, Budapest, London and Lisbon. They covered both aspects of the Green Paper and a debate on broader climate change issues. Each of the workshops focused on the specific climate change impacts and challenges for adaptation in the 4 main geographical regions of Europe (North, South, West, East). Their main aim was to generate discussion and debate on the green paper, stimulating genuine participation and feedback. Participation at the workshops included stakeholders, citizens, authorities, NGO's, the private sector, academics and civil society in the widest possible sense. A web-based public consultation was launched that remained open until the end of November 2007 to solicit views from the general public in the EU and in the EU's partner countries.

In addition to the requirements for public participation and public access to information, the ECCP has developed programs with clearly stated goals and objectives accompanied by detailed actions plans. A good illustration of this process is the EU Emission Trading Scheme.



The ECCP has also addressed the equality issues in the climate policy as demonstrated by the “*Climate for Change: Gender Equality and Climate Policy*” project that was launched in 2003. The project was designed to raise awareness of decision-makers and exchange ideas of best practice to improve the participation of women in decision-making in fields related to climate protection.<sup>78</sup> The long-term goal of the 'Climate for Change' project was to contribute to a well-balanced participation of women and men in decision making processes relevant to climate protection and, in particular, in local climate protection policies. In particular, the work packages of the “Climate for Change” project included:

- Conducting a current analysis of the conditions related to the participation of women within formal and informal decision making in the area of climate protection.
- Working through and expanding the methods and instruments to improve the current situation, while taking into account the conditions and experiences in different European countries.
- Raising awareness of the members accountable for municipal decision making in the area of climate change.
- Initiating a discussion process and developing supporting materials for this process.
- Strengthening the contribution of city-to-city networks which focus on changing structures offering gender equality within the local authorities.

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<sup>78</sup> \_\_\_\_\_ *Women and Energy. Sustainable Energy Use. No.50, September 2005*

*In summary, the ECCP decision making process is characterized by a consultative multi-stakeholder process with requirements for public participation and public access to information which takes the equality principle into account. Hence, ECCP-EDM is scored as 1.*

**Table 10: ECCP Summary table**

<b>Core MLEG Theoretical Constructs</b>	<b>Measures</b>	<b>YES/NO</b>	<b>1/0</b>
Multi – level Governance (MLG)	<ul style="list-style-type: none"> <li>• Unlimited number of task specific jurisdictions</li> <li>• Vertical linkages</li> <li>• Horizontal Linkages</li> </ul>	<p style="text-align: center;">+</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p>	<b>1</b>
Institutions for Environmental Governance (IEG)	<ul style="list-style-type: none"> <li>• Ecologically defined governance structure</li> <li>• Non-hierarchical institutional relationships</li> <li>• Negotiated sets of rules, norms and procedures for cooperation</li> </ul>	<p style="text-align: center;">-</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p>	<b>1</b>
Environmental Decision Making (EDM)	<ul style="list-style-type: none"> <li>• Diverse, inclusive participation</li> <li>• Equitable DM process</li> <li>• Clear goals, objectives and written plan</li> <li>• Information is constantly shared among stakeholders</li> </ul>	<p style="text-align: center;">+</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p>	<b>1</b>

#### 4.3.5 *ECCP – Outcomes*

The ECCP's main objective is in line with the EU's Six Environmental Action Program objective of stabilizing the concentration of greenhouse gases in the atmosphere at a level that will not cause unnatural variations in the Earth's climate. In the short to medium term it aims to reduce greenhouse gas emissions by 8% compared with 1990 levels by 2008-12 (as agreed at Kyoto).

Since 1990, reductions in emissions have been mostly from waste (largely methane) and industrial processes. There have also been more modest reductions in the energy sector and in agriculture, but emissions from transport have increased by more than a fifth. Within the transport sector, emissions from aviation and shipping rose the most. Among the EU-15, emissions from domestic transport are projected to increase by 31 % between 1990 and 2010, with increased mileage more than offsetting improvements in the energy efficiency of new vehicles (EEA, 2006).

The EU's greenhouse gas emissions have been falling due to the combined impact of policies and measures resulting from the ECCP, domestic action taken by Member States and the restructuring of the European industry, particularly in Central and Eastern Europe (European Commission, 2006).

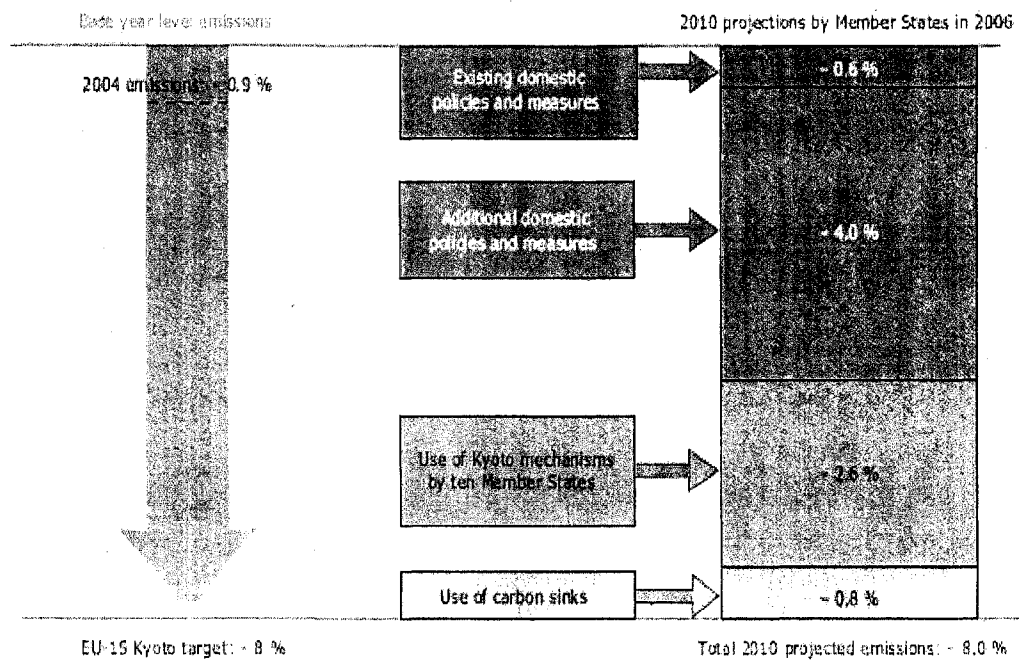
The EU as a whole met its CO<sub>2</sub> stabilization target in 2000 under the UNFCCC. Emissions for that year were in line with the Kyoto target path for 2008-2012. Overall greenhouse gas emissions in 2000 decreased by 3.5% compared to 1990, while in 1999 they had been 3.8% below 1990 levels. In the EU, greenhouse gas emissions per capita decreased by 6% from 11.5 tonnes in 1990 to 10.8 tonnes in 2000

(ECCP, 2003). By 2003, combined emissions from today's Member States (EU-25) were down 8% compared to their levels in the respective base year (mostly 1990). Emissions from the 15 "old" Member States (EU-15) had fallen by 1.7%, or 2.9% averaged over 1999-2003 (Nilson & Nilson, 2005).

Greenhouse gas emissions in the pre-2004 EU Member States (EU-15) in 2004 were 0.9 % below base-year level. This means the EU-15 was little more than a tenth of the way towards achieving the 8 % emissions reduction from base-year level required by 2008–2012 under the Kyoto Protocol. In 2005, a 2 % reduction of EU-15 greenhouse gas emissions compared to base-year levels had been achieved . Past trends between 1990 and 2005 show that the EU-15 is not on track to meet its Kyoto target, but projections for 2010 indicate that the target will be met if Member States implement existing and additional measures fully and quickly, and make use of carbon sinks and Kyoto mechanisms (EEA, 2007).

**Figure 10: Projections of emissions reductions by 2010 for EU-15 Member States**

**Figure 0.1 Summary of EU-15 projections of greenhouse gas emissions reductions by 2010**



**Note:** Without existing policies and measures, total EU-15 greenhouse gas emissions would have been higher than the base-year level. The total effect of the existing policies and measures compared to a theoretical reference scenario without any measures since 1990 would be greater than the 0.6 % reduction referred to here.

**Source:** EEA, based on EU-15 Member States projections.

The most recent estimate is that emissions within the EU-15 in the first compliance period from 2008 to 2012 will be 1.6 % below the 1990 level, compared with a targeted 8 % reduction (EC, 2006). Nevertheless, if all the planned domestic measures and use of Kyoto mechanisms that Member States have so far stated they intend to implement are introduced, then emissions are expected to be reduced by more than the target (9.3 %). This means that the Kyoto target could be achieved. It assumes, however, over-delivery by several Member States (Finland, France, Greece,

Ireland, Sweden and the UK) compared with the burden sharing targets (Nilson & Nilson, 2005).

Sweden and the United Kingdom project that existing domestic policies and measures will be sufficient to meet their burden-sharing targets and they may even over-deliver. Finland and the Netherlands project that they will meet their target with a combination of additional policies and measures, and emission allowances from the use of Kyoto mechanisms. Germany and Greece project that they will reach their targets if currently planned additional policies and measures are implemented. France projects that it will reach its target with a combination of additional measures and the use of carbon sinks. Seven countries (Italy, Belgium, Portugal, Ireland, Austria, Denmark and Spain) of the EU-15 project that they will miss their target with the currently planned additional domestic policies and measures and/or use of Kyoto mechanisms and/or carbon sink activities (EEA, 2007). Ten countries have allocated financial resources for using the Kyoto mechanisms for the whole 5-year Kyoto Protocol commitment period (2008–2012).

From 1990 to 2004, EU-15 greenhouse gas emissions decreased from most sectors, particularly energy supply, industry, agriculture and waste management. During the same period, however, emissions from transport increased by nearly 26 %. With the help of additional measures, emissions from energy supply, agriculture and waste management are projected to further decrease, while emissions from transport and industrial processes will both roughly stabilize at 2004 levels.

Domestic policies and measures in EU-15 Member States that are projected to contribute most to achieving the targets include the EU emissions trading scheme. By June 2005, the European Commission had accepted all 25 national allocation plans (NAPs) for the first period (2005–2007). An estimate of the overall effect of the EU ETS based on a comparison between verified emissions in 2005 and 2006, and the European Commission's decisions on proposed NAPs for the period 2008-2012, indicates that a further reduction of 1–2 % from base-year emissions could be achieved, in addition to the emission reductions already projected by EU-15 Member States (EEA, 2007).

Other key policies and measures include promotion of electricity from renewable energy, promotion of combined heat and power, improvements in energy performance of buildings and energy efficiency in large industrial installations, and promotion of the use of energy-efficient appliances.

Greenhouse gas emissions have also declined in almost all new Member States (EEA, 2006). In 2004, emissions were 23 % below 1990 level. This is mainly due to the introduction of market economies and the consequent restructuring or closure of heavily polluting and energy-intensive industries. Greenhouse gas emissions from transport decreased by 5 % between 1990 and 1995 but increased after 1995. In 2004 they exceeded 1990 levels by 28 %.

Seven new Member States project that they will meet or even over-achieve their Kyoto targets by 2010 with existing domestic policies and measures. However, in most countries emissions will increase between 2004 and 2010. Slovenia projects that

it will meet its Kyoto target with additional policies and measures. Cyprus and Malta do not have a target under the Kyoto Protocol. EU acceding countries and Iceland are on track to meet or even over-achieve their Kyoto targets. Bulgaria and Romania will further over-achieve their targets using additional policies and measures. In 2004, Norway and Liechtenstein were not on track to meet their Kyoto targets and project that they will only meet these targets by using Kyoto mechanisms in addition to existing policies and measures. Switzerland projects to reach its target with additional measures and the use of Kyoto mechanisms. Turkey and Croatia have ratified the UNFCCC, but not the Kyoto Protocol (EEA, 2007).

*In summary*, the achievement of the ECCP's main objective depends on a number of conditions:

- Full delivery of emission reductions from existing domestic policies and measures, already implemented by Member States;
- Rapid adoption and implementation of additional policies and measures currently under discussion at European and national levels;
- Accounting of CO<sub>2</sub> removals from land use, land-use change and forestry;
- Use of Kyoto mechanisms to the full extent currently being implemented and planned by Member States;
- Substantial overachievement of their individual targets by some Member States, to cover the gap left by those Member States which currently anticipate that they will not achieve their targets;



- Achievement of the emission reductions, currently projected for the single year 2010, during each year of the whole five-year commitment period, from 2008 to 2012.

“ECCP-outcomes” is scored as 0, because the case analysis provides evidence that EU-15 is not on track to meet the Kyoto targets.

#### **4.4. Northwest Power and Conservation Council Fish and Wildlife Program**

##### *4.4.1 Background and Settings*

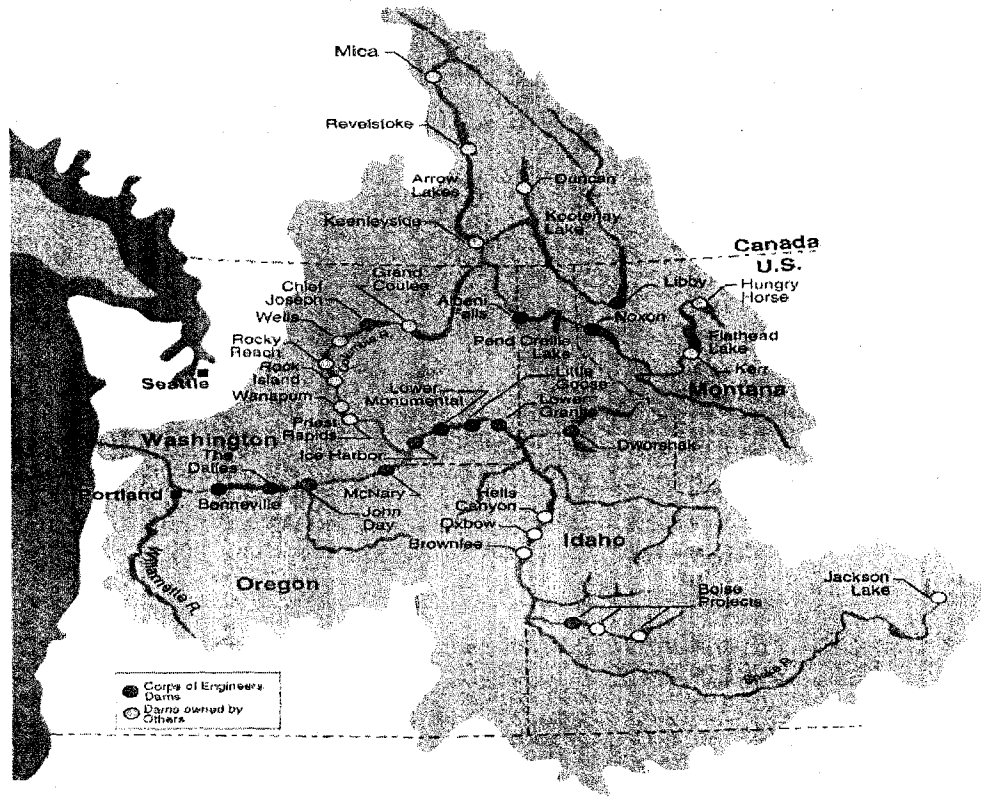
The Northwest Power and Conservation Council Fish and Wildlife Program, also known as the Columbia River Basin Fish and Wildlife Program, is unique in that it is the largest regional effort in the United States to recover, rebuild, and mitigate impacts on fish and wildlife (NPCC, 2007b). The Columbia River Basin covers a major portion of the landscape of North America including parts of seven states (Oregon, Washington, Idaho, Montana, Nevada, Wyoming, and Utah) and British Columbia, Canada.

The basin provides drainage through hundreds of tributaries of an area of more than 260,000 square miles into a river near 1,200 miles in length. The largest tributary of the Columbia River is the Snake River, flowing from its headwaters in Yellowstone National Park for over 1,000 miles through Idaho, Oregon and Washington (Army Corps of Engineers, 2002)<sup>79</sup>. The Columbia River basin is home to more than 11 million residents, including historically significant populations of Native Americans, who have lived in the basin for thousands of years and have great cultural, economic, recreational, and symbolic importance to the Columbia River region (NPCC, 2000).

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<sup>79</sup> [http://vulcan.wr.usgs.gov/Volcanoes/Washington/ColumbiaRiver/description\\_columbia\\_river.html](http://vulcan.wr.usgs.gov/Volcanoes/Washington/ColumbiaRiver/description_columbia_river.html) (Retrieved on January 28, 2008)

Figure 11: Columbia River Basin



Source: NPCC (2007)

The Columbia River Basin has been and will continue to provide an important North American backdrop for urban settlement and development, agriculture, transportation, recreation, fisheries and hydropower. The Columbia River Basin is the most hydroelectrically developed river system in the world (Lang, 1999). By the time the hydroelectric system was completed in 1975, a total of 211 dams existed in the Columbia River Basin (McConnaha et al, 2006 ).

Estimates of the average annual adult salmon and steelhead runs before development in the basin (dating to the mid-19th century) ranged from about 10

million to 16 million fish. In contrast, the average annual run size in mid 1980's was about 2.5 million adult fish. These estimates indicated a net basin-wide decline in run size of about 7 million to 14 million adult fish due to a variety of causes including fishing, logging, mining, grazing, agriculture, irrigation, pollution and urban development, as well as hydropower development and operation. Salmon and steelhead habitat in the entire basin had decreased from about 14,700 river miles before 1850 to about 10,100 river miles in 1976, a loss of about 30 percent. The greatest salmon and steelhead losses occurred in the Columbia and Snake river drainages above Bonneville Dam (NPCC, 2005).

The many uses of the Columbia River have caused significant constraints and declines in the salmon population (Lichatowich, 1999; McConnaha et al, 2006). The earliest explorers of the Columbia River envisioned it as a river of commerce. Today the Columbia and Snake rivers comprise a major transportation system. Every year, the rivers carry some 17 million tons of cargo to and from the Pacific Ocean. Navigation on the lower Columbia and Snake rivers is an inexpensive and energy-efficient means of transporting grain and other bulk products, such as pulp, paper, peas and lentils, hay, and other forest and agricultural products, from producing areas in the basin to Portland for export overseas (NPCC, 2000).

In 1990, the Corps of Engineers reported the results of its study of potential navigation improvements and suggested the channel between the ocean and the Portland/Vancouver area could be deepened to accommodate larger ships. The strongest opposition to this proposal came from fish and wildlife interests, which

reasoned that the dredging would affect migrating salmon, both adult and juvenile fish, and that the thousands of tons of dredged spoils would have an environmental impact wherever they were dumped. A challenge in federal court followed, and the Corps was ordered to conduct an environmental impact study. This study noted potential impacts to fish, and the Corps proposed in response to acquire and improve resting and rearing habitat for salmon and steelhead in the lower Columbia and the estuary.

In addition to navigation, floods and flood control measures has also shaped the life history of salmon. Regular annual cycles of flooding in spring and early summer influenced the anadromous life history of Columbia basin salmon and steelhead. Prevention of damage by flooding is usually achieved through the use of flood control dams, dredging to increase channel capacity and dikes to prevent rivers from overtopping their banks and spilling out onto the flood-plain. Flood control measures can have a serious effect on salmon habitat (NRC, 1996).

Over time, salmon have adapted to changes in climate and the physical environment. During the last ice age, Pacific Northwest salmon probably populated rivers as far south as California. Repeated floods altered their habitat, and the warmer climate that followed the retreat of the ice probably caused salmon to abandon the warmer, more southern rivers and move north again<sup>80</sup>. As the modern Columbia River Basin took shape, salmon adapted their journey to the ocean to coincide with the annual snowmelt freshet in the spring and early summer. The rushing water provided the fastest possible journey from the freshwater spawning habitat to the estuary, where

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<sup>80</sup> <http://www.nwcouncil.org/history/Floods>

the fish undergo physiological changes to adapt to salt water before spending most of their adult lives in the ocean.

*Salmon Management in the Columbia River Basin and beyond*

In the Pacific Northwest, and Alaska, seven species of anadromous salmon are prevalent. Salmon spawn in rivers from California to Alaska, but in the ocean they mix and become, in essence, a common resource. While political jurisdictions can regulate salmon harvest in their own waters, it is impossible to regulate the capture of one jurisdiction's fish as opposed to another's in the ocean. For decades, this led to overfishing of some stocks in the ocean and tensions among the state, provincial and federal governments of the United States and Canada<sup>81</sup>.

In 1985, the two countries signed the Pacific Salmon Treaty, which sought to limit harvest of Columbia River fish in Canada and Alaska, and harvest of Fraser River fish in United States waters. Two key elements of the treaty are to 1) conserve salmon by preventing overharvest and providing for optimal production and 2) share the harvest benefits to the extent that each country contributes salmon to the fisheries. The treaty also created the Pacific Salmon Commission to manage provisions of the treaty.

In the Columbia Basin, the fish recovery efforts are structured by three primarily Federal legal mandates: the Northwest Power Planning and Conservation Act of 1980; the Endangered Species Act, and Federal Treaties with Indian Tribes.

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<sup>81</sup> <http://www.nwcouncil.org/history/PacificSalmonTreaty.asp> (Accessed on April 3, 2008)

Most fish recovery actions in the basin are arrived at through negotiation and compromise between these three authorities (McConnaha et al., 2006).

Part of the reason for cooperation between the three authorities is that they all rely on a single source of funding for their fish restoration efforts – electric ratepayer funds collected by the Bonneville Power Administration (BPA)<sup>82</sup>.

The Pacific Northwest Electric Power Planning and Conservation Act was intended to restructure the Northwest power industry and especially the role of BPA (Blumm, 2002). To provide a regional voice to energy planning and fish and wildlife mitigation, the act created the Northwest Power Planning Council (currently known as the Northwest Power and Conservation Council) composed of two representatives appointed by the governors from each of the states of Montana, Idaho, Washington, and Oregon. The Northwest Power act played a crucial role in creating the concept of the Columbia River as integrated system rather than as the collection of parochial interests that had characterized the river through much of the 20<sup>th</sup> century (McConnaha et al, 2006). However, the act established the Council as a policymaking body, but gave it no regulatory authority. The Council has no authority over regulation of many diverse fisheries that take place on stocks of salmon and steelhead originating in the Columbia Basin (Whitney et al, 2006).

The Endangered Species Act (ESA) charges the National Oceanic and Atmospheric Administration (National Marine Fisheries Service) with review and

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<sup>82</sup> BPA is the federal agency created to market and transmit power created by the Columbia River hydroelectric system. The agency has annual gross revenues from power sales in excess of 2 billion dollars. Of this, around 240 million dollars is annually devoted to funding of fish and wildlife restoration projects in the Columbia Basin.

determination of the status of the anadromous salmon. It began to analyze the status of salmon population in 1979 to determine if they warranted protection under the ESA. Presently, 13 species of salmon and steelhead that spawn in the Columbia River or its tributaries have been listed as threatened or endangered (McConnaha et al, 2006).

In the Columbia River the tribes are fundamental components of fish and wildlife management. Over the years, the tribes fought, and generally won, numerous court battles to affirm their hunting and fishing rights (Blumm, 2002). In 1970 the federal district judge Robert Belloni made the decision that the treaties<sup>83</sup> clearly reserved for the tribes on the Columbia river unique rights that superceded the authority of the states over tribal fishing. In mid-1970s, federal Judge George Bolds decisions entitled the tribes to 50 percent of the allowable harvest of salmon. During the 1980s, the tribes developed their own fishery management and restoration programs for the Columbia river.

#### *NPCC Fish and Wildlife Program (1982-2000)*

The NPCC created the Fish and Wildlife Program in November 1982 in response to the Northwest Power Act. The Act directed the Council to prepare a program to protect, mitigate, and enhance fish and wildlife of the Columbia River Basin that had been affected by the development, operation and management of the hydroelectric dams while also assuring the Pacific Northwest an adequate, efficient,

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<sup>83</sup> In the 1850s, Washington governor Isaac Stevens and Oregon governor Joel Palmer negotiated treaties with many Indian groups. Indians were concentrated in a number of reservations; in exchange the tribes reserved their right to hunt and fish in their "usual and accustom places" in common with non-Indian residents.



economical and reliable power supply (NPCC, 2000). While the program addresses the impact of hydroelectric system on both fish and wildlife, the bulk of the program is devoted to the restoration of fish, especially salmon (McConnaha et al, 2006). In addition, the Congress directed the Council to base its fish and wildlife program on recommendations solicited from throughout the region, paying particular attention to those provided by the region's fishery managers and Indian Tribes. Hence the Council's program was to be a collection of views and opinions rather than a program united by a common conceptual foundation (Lichatowitch et al, 2006).

To better address the issues of decline in the salmon population and the habitat loss, the 1982 Program was amended in 1984, 1987, 1991-1993 and 1994. The Council learned several important lessons during the first 12 years of the conservations efforts. It realized that any approach to fisheries recovery would require contributions from all who benefited from the river. And, a rebuilding plan had be comprehensive; piecemeal efforts simply had not been effective (NPCC, 2003). The challenge was best illustrated by the salmon's extensive environment, an environment defined by migratory habits that recognized "no governmental boundaries"<sup>84</sup>.

The 1994 Program superseded the previous versions. It established a system wide goal: **"A healthy Columbia River Basin that supports both human settlement and the long term sustainability of native fish and wildlife species in**

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<sup>84</sup> Salmon hatch in inland headwaters and travel downstream to mature in the ocean. Depending on the species, after one to five years, usually three to five, they return to the river. Thanks to an extraordinary homing instinct, they make their way to their home tributary where they will spawn and die. This wide-ranging environment, sometimes encompassing thousands of miles, became the arena for salmon recovery efforts in the 1980s.

**native habitats where possible, while recognizing that where impacts have irrevocably changed the ecosystem, we must protect and enhance the ecosystem that remains”** (NPCC, 1994). To implement this goal, the program “will deal with the Columbia Basin as a system; will protect, mitigate and enhance fish and wildlife while assuring an adequate, efficient, economical and reliable power supply; and will be consistent with the activities of the fish and wildlife agencies and tribes” (NPCC, 1994).

In addition, the Council adopted four system-wide sub-goals. The *first* goal was to halt declines in the salmon populations and rebuild populations to a biologically sustainable level by the year 2000. The *second* goal was to further rebuild populations by 2030 to a level that will support commercial and sport harvest and contribute to the Council’s interim goal of doubling the abundance of salmon and steelhead in the basin. The *third* of these goals was, by 2194, to rebuild populations beyond the level in the previous goals to a level that will protect, mitigate and enhance fish and wildlife affected by the operation and development of the Columbia Basin hydroelectric system. The *fourth* goal was to accomplish these rebuilding efforts without loss of biological diversity.

The 1994-1995 Program had several distinguishing characteristics. *First*, the program was focused and organized around a framework. This framework consisted of an overall goal (of doubling salmon and steelhead runs without loss of biological diversity) and rebuilding targets for Snake River salmon populations. The program also provided a process for developing additional rebuilding targets, salmon and

steelhead rebuilding schedules, survival targets and performance standards to track change for individual measures (NPCC, 1994).

Second, the program established a coordinated implementation process. The program was primarily implemented by the Bonneville Power Administration, but also by the region's State fish and wildlife agencies and tribes, the U.S. Army Corps of Engineers, the Bureau of Reclamation, and the Federal Energy Regulatory Agency. Recognizing that the Council was a planning and oversight entity, not an implementing entity, action on program measures were managed by implementing agencies, not the Council. The Council monitored and commented on this process, offered help where requested, and could, through additional program amendments, establish new measures or priorities.

Third, reflecting the Council's longstanding commitment to adaptive management, the program established a process to monitor and evaluate program implementation in a way that added systematically to the region's knowledge of salmon and steelhead recovery.

#### *The 2000 NPCC Fish and Wildlife Program*

In 2000, the Council began another comprehensive revision of the program. In preparing the 2000 Fish and Wildlife Program, the Council solicited recommendations from the region's fish and wildlife agencies, Indian tribes, and others, as required by the Northwest Power Act. The agencies and tribes responded, and the Council also received proposals from other interested parties. In all, the Council received more than

50 recommendations totaling more than 2,000 pages. After reviewing the recommendations, the Council prepared a draft and then conducted an extensive public comment period before finalizing the program in December 2000 (NPCC, 2000).

Unlike past versions of the program, which were criticized by scientists for consisting primarily of a number of measures that called for specific actions without a clear, program-wide foundation of scientific principles, this version of the program expresses goals and objectives for the entire basin based on a scientific foundation of ecological principles<sup>85</sup> (Williams et al., 2006).

The 2000 Program addresses all of the “Four Hs” of impacts on fish and wildlife - hydropower, habitat, hatcheries and harvest (NPCC, 2007b):

- It recommends that resources and energy be directed away from breaching the four federal dams on the lower Snake River. Instead, the program recommends actions to improve dam-passage survival that are biologically sound and economically feasible — actions that benefit the range of species in the river and fit natural fish behavior patterns.

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<sup>85</sup> *Principle 1.* The abundance, productivity and diversity of organisms are integrally linked to the characteristics of their ecosystems.

*Principle 2.* Ecosystems are dynamic, resilient and develop over time.

*Principle 3.* Biological systems operate on various spatial and time scales that can be organized hierarchically.

*Principle 4.* Habitats develop, and are maintained, by physical and biological processes.

*Principle 5.* Species play key roles in developing and maintaining ecological conditions.

*Principle 6.* Biological diversity allows ecosystems to persist in the face of environmental variation.

*Principle 7.* Ecological management is adaptive and experimental.

*Principle 8.* Ecosystem function, habitat structure and biological performance are affected by human actions.

- It directs significant attention to rebuilding healthy, naturally producing fish and wildlife populations by protecting and restoring habitats and the biological systems within them.
- It requires that fish hatcheries funded through the program operate consistent with reforms recommended to Congress by the Council in 1999, reforms that would shift hatchery production away from a primary focus on providing fish for harvest to also providing fish to rebuild naturally spawning populations.
- It promotes increased fish harvest, consistent with sound biological management practices, recognizing that harvest provides significant cultural and economic benefits to the region.

The fundamental elements of the program are:

- The vision, which describes what the program is trying to accomplish with regard to fish and wildlife and other desired benefits from the river;
- The biological objectives, which describe the ecological conditions needed to achieve the vision; and
- The implementation strategies, procedures and guidelines, which guide or describe the actions leading to the desired ecological conditions.

The vision for this program is a “Columbia River ecosystem that sustains an abundant, productive, and diverse community of fish and wildlife, mitigating across the basin for the adverse effects to fish and wildlife caused by the development and

operation of the hydrosystem and providing the benefits from fish and wildlife valued by the people of the region” (NPCC, 2000). In the vision, the Council has stated four overarching biological objectives for this program. They are:

- A Columbia River ecosystem that sustains an abundant, productive, and diverse community of fish and wildlife.
- Mitigation across the basin for the adverse effects to fish and wildlife caused by the development and operation of the hydrosystem.
- Sufficient populations of fish and wildlife for abundant opportunities for tribal trust and treaty right harvest and for non-tribal harvest.
- Recovery of the fish and wildlife affected by the development and operation of the hydrosystem that are listed under the Endangered Species Act.

The program will be implemented primarily through sub-basin plans, which will be consistent with the program-wide goals, objectives and scientific foundation.

Projects that implement the program are vetted through the Independent Scientific Review Panel<sup>86</sup> and the Columbia Basin Fish and Wildlife Authority as well

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<sup>86</sup> While the Council has always been involved in efforts to ensure that the program it adopts is being implemented effectively, Congress gave the Council an increased and explicit role in program implementation in a 1996 amendment to the Power Act. The Act charged the Council, with the assistance of the Independent Scientific Review Panel, to make annual recommendations to Bonneville on projects to be funded through the Bonneville fish and wildlife budget to implement the program. The Act requires the Independent Scientific Review Panel to determine whether projects proposed for funding: Are based on sound science principles; Benefit fish and wildlife; Have clearly defined objectives and outcomes; Have provisions for monitoring and evaluation of results; Are consistent with the program. The Independent Scientific Review Panel then provides the Council its recommendations regarding project quality and priorities. The Council's primary role in the project review process is to decide which projects to recommend to Bonneville for funding to implement the program. The Council

as the Council itself. Following these reviews, the Council recommends projects to the Bonneville Power Administration, which provides funding. BPA annually funds 135 million dollars in projects called under the Council's program (McConnaha et al., 2006).

#### *4.4.2. NPCC Fish and Wildlife Program - Multi-level Governance*

The program is characterized by a complex network of vertical and horizontal linkages. From the outset the program involved the coordination of combined capabilities of multiple tiers of government. Over the past several decades, a constellation of agencies, courts and other entities has shaped the development and management of the Columbia River (NPCC, 1996). By the 1980, it was fair to say that Columbia River fish and wildlife policy was in large part federal; it was driven by federal decisions about dams, "water budget", harvest management, and mitigation policy.

Throughout the basin, the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Fish and Wildlife Service are administering the Endangered Species Act, which requires information gathering, planning, and mitigation actions. In addition, the Environmental Protection Agency, in cooperation with the states and tribes, is taking actions to achieve compliance with the Clean Water Act. The Council's fish and wildlife program does not attempt to pre-empt the legal authorities

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is also to provide recommendations to Congress and to the federal agencies on funding for the reimbursable programs.

of any of these parties, but it does provide an opportunity for each to coordinate information gathering, planning, and implementation of recovery actions on a voluntary basis. That is, the Council's program is designed to link to, and accommodate, the needs of other programs in the basin that affect fish and wildlife. This includes meeting the needs of the Endangered Species Act by describing the kinds of ecological change needed to improve the survival and productivity of the diverse fish and wildlife populations in the basin.

NOAA is responsible for leading the recovery effort for salmon and steelhead in the Columbia River Basin. The other 10 agencies are the 3 (The department of the Interior's Bureau of Land Management; U.S. Fish and Wildlife Service and U.S. Forest Service) that manage natural resources in the Columbia River Basin, the 3 that are responsible for operating the dams and selling the electric power they produce (U.S. Army's Corps of Engineers; the Department of the Interior's Bureau of Reclamation, and BPA), and the 4 (EPA; Department of Agriculture's Natural Resource Conservation Service; the Department of Interior's U.S. Geological Survey and the Bureau of Indian Affairs) that carry out various other actions that affect the resources of the basin<sup>87</sup>.

In addition to federal agencies, many states and local governments, Indian tribes, private interest groups, and private citizens are involved in the recovery efforts. For example to guide state recovery efforts, Idaho, Montana, Oregon, and Washington have jointly prepared a salmon and steelhead recovery plan referred to as the Governor's Plan. At the local level the participants in the recovery effort include cities

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<sup>87</sup> GAO-02-612 Salmon and Steelhead Recovery.



of Portland, Oregon and Yakima, Washington; and local conservation districts such as Asotin County Conservation District in Washington. Tribal entities – the Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, Confederated Tribes of the Warm Springs Reservation, etc also participate in the recovery efforts.

In 1987 The Columbia Basin Fish and Wildlife Authority was established to coordinate the efforts of its Members to protect and enhance fish and wildlife resources of the Columbia River Basin through joint planning and action. The Columbia Basin Fish and Wildlife Authority is an organization whose membership consists of the four state and two federal fish and wildlife management entities and thirteen Indian tribes of the Columbia River Basin<sup>88</sup>.

The members established the Authority by charter<sup>89</sup> in 1987 to:

- Coordinate the efforts of its members to protect and enhance fish and wildlife resources of the Basin through joint planning and action.
- Provide an open forum for its members to exchange information on matters affecting anadromous and resident fish, wildlife resources, and habitat concerns in the Basin and develop unified positions.
- Assure comprehensive planning and implementation of the Northwest Power and Conservation Council's Fish and Wildlife Program.

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<sup>88</sup> The Authority Members include: Burns-Paiute Tribe, Coeur d'Alene Tribe, Confederated Salish and Kootenai Tribes of the Flathead Reservation, Confederated Tribes of the Colville Reservation, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, Idaho Department of Fish and Game, Kalispel Tribe of Indians, Kootenai Tribe of Idaho, Montana Department of Fish, Wildlife and Parks, National Marine Fisheries Service, Nez Perce Tribe of Idaho, Oregon Department of Fish and Wildlife, Shoshone-Bannock Tribes, Shoshone-Paiute Tribes, Spokane Tribe of the Spokane Reservation- Washington, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, Confederated Tribes and Bands of the Yakama Nation

<sup>89</sup> [http://www.cbwf.org/aboutusauthority\\_main.cfm](http://www.cbwf.org/aboutusauthority_main.cfm) (Retrieved on February 1, 2008)

- Improve the quality of fish and wildlife decision making.
- Influence other regional decision makers.

The members identified three general objectives or areas of involvement through the Authority:

- Coordinate the fish and wildlife activities of interagency and tribal concern
- Facilitate interagency and tribal involvement in the implementation of the Northwest Power Planning Council's Fish and Wildlife Program
- Interact with the water and land planning and management authorities of the Columbia River Basin

The Authority is a consensus organization. All actions supported by CBFWA are developed through a consensus process and only consensus positions are communicated on Authority letterhead. Consensus focuses the agency and tribal actions into a single direction, providing the Northwest Power Planning Council and the BPA with recommendations representing the best available information from the fish and wildlife managers.

In addition, over 65 groups have been formed to help facilitate communication and coordination between the various entities involved in the salmon and steelhead recovery. The size and purpose of the groups range from large groups that deal with basin-wide concerns to smaller, more narrowly focused ones that deal with local issues. For example, the Federal Caucus, comprising 10 federal agencies having natural resource responsibilities under ESA, meet to discuss issues and make policy decisions on the implementation of the basinwide strategy that it developed to help

recover salmon and steelhead population. Local groups, such as Asotin County Conservation District, meet to develop watershed plans and to secure funding for landowners to make water quality and habitat improvements in their property (GAO, 2002).

*In summary, NPCC Fish and Wildlife Program is characterized by vertical and horizontal linkages and has developed an unlimited number of task specific jurisdictions that coordinate federal, state and non-state actors. NPCC Fish and Wildlife Program – MLG is scored as 1, because the case analysis provides evidence of all the measures.*

#### *4.4.3 NPCC Fish and Wildlife Program - Institutional Arrangements*

The program uses a governance structure organized in three levels (NPCC, 2000):

1. A basin wide level that articulates objectives, principles and coordination elements that apply generally to all fish and wildlife projects, or to a class of projects that are implemented throughout the basin.
2. An ecological province level that addresses the unique ecological areas of the Columbia River basin, each representing a particular type of terrain and the corresponding biological community.
3. A level that addresses the more than 50 subbasins, each containing a specific waterway and the surrounding uplands.

This governance structure is supported by a set of institutional arrangements. The Northwest Power Act created the Council and specified that the Council is not a federal agency. The Council is also not a state agency in the usual meaning of the word, because it acts on behalf of more than one state. So what is it? The Council is one of a small group of hybrid organizations known as interstate compact agencies<sup>90</sup>. These multi-state organizations are created by an agreement among the participating states with the consent of Congress. The Council was authorized by Congress in December 1980, and came into being when each of the legislatures of the participating states passed a law agreeing to participate in the Council, subject to the conditions in the Northwest Power Act.<sup>91</sup> NPCC is an interstate compact with two representatives from each of the states of Idaho, Montana, Oregon, and Washington. Through their membership on the Council, the region's four states acquired a significant voice in the management of the hydropower system for power production and fish and wildlife rehabilitation (NPCC, 1996).

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<sup>90</sup> <http://www.nwcouncil.org/LIBRARY/poweract/default.htm> (Retrieved on February 3, 2008)

<sup>91</sup> Interstate compact agencies are usually created to deal with issues or to manage resources that involve more than a single state. The Constitution gives most of the authority over matters between states to the federal government exclusively. In the Northwest Power Act, however, Congress gave back to the Northwest states some of this federal authority. In other words, although the Council is not a federal agency, it exercises certain powers granted to it by the federal government. State agencies are governed by state law. Federal agencies are governed by federal law. For interstate compact agencies, there is no general body of governing law. When Congress created the Council, it solved this problem by making a number of laws regulating federal agencies applicable to the Council. However, Congress recognized that not all of these laws would fit the Council exactly and therefore gave the Council yet another unique authority, the power to adapt federal laws to fit its own circumstances. The Northwest Power Act says that the specified federal laws "shall apply to the Council to the extent appropriate." The legislative history of the Act explains that the Council is to determine when it is and is not "appropriate" to follow the federal law, and explains that the Council has discretion to depart from the requirements of federal law where it has good reason to do so.

The Council has authority to adopt plans and programs that guide the actions of federal agencies. The Bonneville Power Administration is required to ensure that its actions are “consistent” with these plans and programs. Other federal agencies are required to take the Council’s fish and wildlife program into account “at each relevant stage of decision-making processes to the fullest extent practicable.” (NPCC, 2007a).

Expenses of the Council necessary for carrying out its functions and responsibilities under the Northwest Power Act are paid from funds received from the Bonneville Power Administration. Funds are advanced to the central office from Bonneville on a request basis. Each state, in turn, requests funds to be advanced from the central Council office to the state to cover the operating expenses of the state Council offices and personnel. Costs associated with the operation of the Council’s central office in Portland, Oregon are paid from the central office budget. Expenses for each state Council office are paid from each state Council budget by the state agency which provides accounting/payroll services to each state Council office.

The Act provides that the Council shall determine its organization and prescribe its practices and procedures for carrying out its functions and responsibilities under the Act. Council members organize and staff their state offices based on the level of support they determine necessary. This typically includes technical assistants and/or policy analysts in the areas of power planning, fish and wildlife, and public information and public involvement. Administrative support is also provided.

The central office provides overall support to the Council in the areas of power planning, fish and wildlife, public affairs, legal matters, and finance and

administration. Staffing levels for the central office are established by the Council in its budget. All personnel actions are authorized by the executive director after consultation/approval by the Council chairman.

In developing the power plan and the fish and wildlife program, the Northwest Power Act directs the Council to observe certain procedures unique to the Power Act, the informal rulemaking procedures of the federal Administrative Procedure Act (APA) and any other procedures the Council may adopt. The Council must hold public hearings in each of the member states before adopting the plan or program or substantial, non-technical amendments to either. The Council must review the plan at least every five years.

In 1992 the Council created the Independent Scientific Group (ISG) to provide scientific advice (NPCC, 2007b). In 1993, the Council asked the ISG to review the fish and wildlife program. Subsequently, the ISG reported to the Council that the program lacked an explicit scientific basis. As a result, the ISG concluded, the program contained conflicting strategies that often were not based on a rigorous scientific rationale. The Council responded in its 1994 revision of the program by asking the ISG to develop an explicit conceptual foundation for the program and, after that, to conduct biennial reviews of the program. The ISG issued its report, entitled "Return to the River: Restoration of Salmonid Fishes in the Columbia River Basin," in 1995. A revised version was issued in 2000. The conceptual foundation proposed by the ISG was based on the relationship between natural ecological functions and processes, including habitat diversity, complexity, and connectivity, and salmonid

diversity and productivity. In the 2000 Program, the Council responded by establishing a framework of vision, objectives and strategies at different geographic scales (basinwide, ecological province, subbasin) tied together by a consistent scientific foundation. The Council also committed to conduct future rulemakings to add specific objectives and measures at the subbasin and province levels consistent with the basinwide goals and objectives and the scientific foundation.

The importance of independent scientific advice in fish and wildlife policy has also been recognized by the NOAA Fisheries Service, its Recovery Team, and the National Research Council panel on salmon recovery. Recognizing that this need is common to the Northwest Power Act and the Endangered Species Act processes, the National Marine Fisheries Service and the Council worked together in late 1995 to form a single scientific group. With advice from the National Academy of Sciences, the Council's Independent Scientific Group was expanded to bring in new areas of expertise. A new charter was developed for the expanded group, which was called the Independent Scientific Advisory Board.

The Council and NOAA anticipate that the Independent Scientific Advisory Board will play a crucial role in ensuring that the best available scientific information is used in decision-making and implementation and that effective monitoring and evaluation mechanisms are developed (NPCC, 1996).

*In summary, the institutional arrangements are built upon a governance structure characterized by a blend of hierarchical and non-hierarchical institutional relationships facilitated by negotiated sets of rules and principles for cooperation. The*

*governance structure does not match the boundaries of the resource. NPCC Fish and Wildlife Program – IEG is scored as one even though the case does not show strong evidence of an ecologically defined governance structure.*

#### *4.4.4. NPCC Fish and Wildlife Program - Environmental Decision Making*

The Council's fish and wildlife program is a regional program. The Council's process is open to all interested parties. Decisions are made in public, and public comments are crucial in helping the Council shape the program<sup>92</sup>. Through the planning and implementing of the program, diverse interests from around the Columbia River Basin, from local landowners to state and federal agencies and Indian tribes, have the opportunity to identify and address problems affecting fish and wildlife and to build a mitigation program that is consistent with goals and legal requirements for production, harvest and restoration. By addressing the impacts of hydropower on all fish and wildlife of the basin, the program incorporates actions that benefit both Endangered Species Act-listed and non-listed fish and wildlife.

In amending the fish and wildlife program, the Act requires the Council to request from the region's fish and wildlife agencies and appropriate Indian tribes recommendations for measures for fish and wildlife affected by hydropower in the Columbia and its tributaries. There is a widespread agreement on the need for a

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92 <http://www.nwcouncil.org/library/2003/2003-20/process.htm> (Retrieved on February 12, 2007)



collaborative decision- making process in which sovereign entities participate on the basis of equality (NPCC, 1996).

Section 4(h)(2) of the Act provides that recommendations must be solicited prior to the development or review of the power plan, or any major revision to the plan. Others may also make such recommendations. Once the Council has received these recommendations, along with supporting documentation, it must make them available for comment. Typically, the Council also issues its own draft of fish and wildlife amendments, which reflect the Council's attempt to fit the recommendations into a systemwide context, and invites public comment. The Council must act on the recommendations within one year. If the Council rejects a recommendation, it must give its reasons in writing.

For instance, in the Hydrosystem Strategies section of the 2000 Program, the Council established the following strategy: Establish and maintain a plan to assure coordination of mainstem operations and improvements. Because the mainstem plan would propose specific operating guidelines for the mainstem dams of the Federal Columbia River Power System, the Council decided to conduct a separate rulemaking to amend a mainstem plan into the program once it was amended with basin-wide goals, objectives and strategies. This amendment rulemaking was completed in December 2000.

In March 2001, the Council wrote to the region's fish and wildlife agencies and Indian tribes requesting their recommendations for the mainstem coordination plan. These were received in June and posted on the Council's website. The Council

invited public comments on the recommendations and then proceeded to prepare draft amendments for public review in late 2002. Public hearings were conducted on the draft mainstem amendments in late 2002 and early 2003, and the Council adopted the mainstem coordination program in April of that year. The amendments adopted the biological objectives of the 2000 biological opinions on Operations of the Federal Columbia River Power System issued by NOAA Fisheries and the U.S. Fish and Wildlife Service. In addition, the Council proposed new strategies for dam operations that are consistent with measures in the biological opinions. The amendments are directed primarily at federal agencies with responsibilities for the Federal Columbia River Power System, but the Council also recommended collaborative actions that would involve other entities including state fish and wildlife agencies, Indian tribes and non-federal dam operators.

When it comes to the formulation of clear goals, objectives and action plans, the program has developed an elaborated framework - an organizational concept for fish and wildlife mitigation and recovery efforts that the Council introduced in the 1994-95 version of the program. The 2000 Program, organized with the framework concept, is intended to bring together, as closely as possible, Endangered Species Act requirements, the broader requirements of the Northwest Power Act and the policies of the states and Indian tribes of the Columbia River Basin into a comprehensive program that has a solid scientific foundation. State, tribal and local governments

often work closely with the Council as it develops its power and fish and wildlife plans, and these entities also implement measures in those plans<sup>93</sup>.

Subbasin plans were developed throughout the Columbia River Basin to help the Council plan for the future in each subbasin. The plans were developed locally and collaboratively among fish and wildlife managers, local governments, interest groups, and stakeholders, as well as other state and federal land and water resources managers where they elected to participate (ISRP, 2004). One of the most basic requirements of both the Northwest Power Act<sup>94</sup> and the Endangered Species Act is that decisions be based on the best available scientific information. To comply with those requirements, a group of 26 members from the combined Independent Scientific Advisory Board, Independent Scientific Review Panel, and its Scientific Peer Review Groups reviewed the 45 plans that cover 58 subbasins for the Columbia River Fish and Wildlife Program.

These plans will eventually be adopted as part of the Council's Columbia River Basin Fish and Wildlife Program. The Council anticipates that the plans will help direct Bonneville Power Administration funding of projects that protect, mitigate, and enhance fish and wildlife that have been adversely impacted by the development and operation of the Columbia River hydropower system. The Council, Bonneville, NOAA Fisheries, and the U.S. Fish and Wildlife Service intend to use subbasin plans as a foundation for recovery planning for threatened and endangered species.

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93 <http://www.nwcouncil.org/about/background.htm> (Retrieved on January 30, 2008)

94 Northwest Power Act, section 4(h)(6)(B); Endangered Species Act, section 4(b)(1)(A)

Thus far, the planning process has resulted in increased provincial overview and insights, increased planning organization at both provincial and subbasin levels, and in most cases, increased coordination among subbasin and provincial fish and wildlife managers. The subbasin planning process also intensified the local and province-wide focus on the decline in fish and wildlife populations, particularly as that decline relates to human-generated degradation of habitat at the local and subbasin level.

The planning process has unquestionably achieved some important improvements in understanding fish and wildlife recovery efforts at the local level, including:

- Increased stakeholder involvement at the subbasin level;
- Improved provincial overview and insights into local restoration questions;
- Established planning organization at provincial and subbasin levels;
- Enhanced coordination among subbasin and provincial fish and wildlife managers;
- Focused attention on causes of fish and wildlife declines;
- Enhanced the empirical basis for assessments of habitats, both terrestrial and aquatic, and provided extensive data records of these efforts.

Based on discussions throughout the region, the Council recognizes the need to improve accountability and it believes there are several ways the region should go about this. One is for the Council to conduct more frequent reviews of agency and tribal implementation of the fish and wildlife program. The Council has proposed to

publish a periodic “report card” summarizing the performance of implementation agencies. The Council also believes that the region should make a significant commitment to monitoring and evaluation (NPCC 1996; 2006).

The Council is also concerned about constant information sharing among stakeholders. It maintains an updated website which provides information about the Council and its programs. All the documents, reports, papers and other publications produced by the Council are uploaded into the website. In addition the council publishes two newsletters “Monthly Spotlight” and “Council Quarterly”.

In October 2007, senior leaders of federal, state, and tribal agencies and other organizations convened to discuss ideas about information sharing and decision-making in the Pacific Northwest. The staff and leaders of the Pacific Northwest Aquatic Monitoring Partnership (PNAMP), the Northwest Environmental Data-network (NED), and the Pacific Northwest Regional Geographic Information Council (PNW-RGIC) defined the need for the Summit as a means to raise awareness and commitments among regional executives. The executives outlined their on-going interests, critical needs and potential next steps. Major interests focused on ecosystem and watershed conditions, fish population status and trends, and water quality. Participants discussed their commitment to regional information sharing and acknowledged the positive outcomes and specific challenges found in past efforts. Executives from NOAA and the NPCC agreed to offer support and direction as initial

co-chairs and work at the executive level to form an executive steering group to provide overall focus, direction and forward momentum to the process<sup>95</sup>.

*In summary, the Program has developed a participatory, diverse, inclusive, equitable and accessible decision making process with clearly stated goals, objectives and action plans. The information is constantly shared among stakeholders. Because of the importance of these measures, NPCC Fish and Wildlife Program – EDM is scored as 1.*

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<sup>95</sup> <http://www.nwcouncil.org/ned/summit/notes.pdf> (Retrieved on January 30, 2008)

**Table 11: NPCC Fish and Wildlife Program Summary Table**

Core MLEG Theoretical Constructs	Measures	YES/NO	1/0
Multi – level Governance (MLG)	<ul style="list-style-type: none"> <li>• Unlimited number of task specific jurisdictions</li> <li>• Vertical linkages</li> <li>• Horizontal Linkages</li> </ul>	<p style="text-align: center;">+</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p>	<b>1</b>
Institutions for Environmental Governance (IEG)	<ul style="list-style-type: none"> <li>• Ecologically defined governance structure<sup>96</sup></li> <li>• Non-hierarchical institutional relationships</li> <li>• Negotiated sets of rules, norms and procedures for cooperation</li> </ul>	<p style="text-align: center;">-</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p>	<b>1</b>
Environmental Decision Making (EDM)	<ul style="list-style-type: none"> <li>• Diverse, inclusive participation</li> <li>• Equitable DM process</li> <li>• Clear goals, objectives and written plan</li> <li>• Information is constantly shared among stakeholders</li> </ul>	<p style="text-align: center;">+</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p>	<b>1</b>

<sup>96</sup> If we consider only the geographical range of the resource covered by the program, then we can claim that the program uses an ecologically defined governance structure.

#### 4.4.5. *NPCC Fish and Wildlife Program Outcomes*

The 2000 Fish and Wildlife Program established a basin-wide vision for fish and wildlife along with four overarching biological objectives:

- A Columbia River ecosystem that sustains an abundant, productive, and diverse community of fish and wildlife;
- Mitigation across the basin for the adverse effects to fish and wildlife caused by the development and operation of the hydrosystem;
- Sufficient populations of fish and wildlife providing abundant opportunities for tribal trust and treaty right harvest and for non-tribal harvest;
- Recovery of the fish and wildlife affected by the development and operation of the hydrosystem that are listed under the Endangered Species Act.

The principal vehicle for implementing these objectives are the restoration projects to improve conditions for listed and non-listed anadromous fish, resident fish, and wildlife that have been impacted by the hydrosystem in the Columbia River Basin. The central question for the Council is whether or not the projects are in fact helping the Program reach these objectives (NPCC, 2006).

During more than a century of development in the Columbia River Basin, the region attempted to provide technological solutions for losses of salmon habitat and reductions in salmon survival first through hatcheries, and fish ladders, then latter through installation of screens as turbine intake and irrigation diversion screening, and finally barging and trucking of juvenile fish around the dams (ISG, 2000; Lichatowic 1999; Williams et al, 2006). The total amount of money spent maintaining and



resorting salmon in the Columbia River Basin is difficult to determine, but it exceeds 3 billion dollars over the last two decades (GAO, 2002).

Since 1981, hundreds of restoration projects have been funded to implement the council's Fish and Wildlife program. Since the early 1990s, restoration has been effected increasingly by the recovery needs of the Endangered Species Act- listed salmon and steelhead stocks (Williams et al., 2006; ISAB 2007).

There have been some notable successes over the last twenty five years in protecting and rebuilding salmon and steelhead runs in the Columbia River Basin, however naturally spawning salmon populations remains too low (Sheets, 2004). NAOO Fisheries review of the status of the Columbia Basin salmon listed under the Endangered Species Act found that 25 of 26 listed species were continuing to decline in population.

BPA which funds the council's projects through revenue from the region's electricity consumers, has spent about \$3.7 billion on fish and wildlife restoration from 1981 to 2006 (NPCC, 2006) with an average annual budget of \$130 million over the last 5 years (ISAB, 2007). In Fiscal Year 2006, the Bonneville Power Administration incurred costs totaling \$851.7 million to mitigate the impacts of hydropower dams on fish and wildlife of the Columbia River Basin. Of this amount, \$137.9 million was for direct spending to implement the Northwest Power and Conservation Council's Columbia River Basin Fish and Wildlife Program.

*Despite these expenditures, the abundance of wild salmon and steelhead populations has not recovered to target levels (ISAB, 2007). Annual returns of*

anadromous salmon and steelhead to the Columbia River Basin ranged from about 7 to 15 million fish in the mid 19<sup>th</sup> century. In 1980, when the Northwest Power Act was passed, total runs averaged fewer than 1 million adults at Bonneville Dam; total Columbia River runs were estimated at 2.5 million adult fish. The total returns in 2003 were 2.5 million salmon and steelhead, the same as in 1986. Eighty percent of these fish came from hatcheries (Sheets, 2004). In 2005-2006, runs averaged about 1.1 million adults to Bonneville Dam with most returning fish (about 75%) being of hatchery origin. Return of naturally spawning fish are currently about 1-2% of historical numbers (Williams et al, 2006).

The Fish and Wildlife Program addresses all of the Hs, but relies most heavily on mitigating the effects of hydropower operations on fish and wildlife. The program hinges on a broad framework consisting of a vision, scientific principles, biological objectives and strategies laid out at the basin level, with plans to move into planning and implementation at the subbasin level. Implementation primarily focuses on funding projects that support priorities identified in the planning process. While some of the implementation strategies are quite specific the mechanism for how priorities determined in the planning process will result in actions on the ground is unclear (ISAB, 2001).

Until now, monitoring in the Fish and Wildlife Program has primarily been conducted to evaluate work at the project scale, across all subject areas. This approach has generated monitoring information useful to individual restoration projects. However, monitoring has not been developed into an element of the program

that can provide a basis for evaluating the program (NPCC, 2006). The absence of a regionally coordinated approach to monitoring and evaluation in the Columbia River Basin has constrained restoration and planning efforts for decades.

The 2000 Fish and Wildlife Program, Basinwide Provision D.9, stated that: “The Council will initiate a process involving all interested parties in the region to establish guidelines appropriate for the collection and reporting of data in the Columbia River Basin.” (NPCC, 2000). Another directive for developing a regional approach to monitoring was included in the “Recommendations of the Governors of Idaho, Montana, Oregon and Washington for Protecting and Restoring Columbia River Fish and Wildlife and Preserving the Benefits of the Columbia River Power System,” issued in June of 2003. In response, Council staff has joined and helped inaugurate the Pacific Northwest Aquatic Monitoring Partnership, or PNAMP, chartered to provide such a forum. Through their participation in PNAMP, the Council, Bonneville, and the fish and wildlife managers are working to implement the Program within the context of a regional network of monitoring efforts. PNAMP is playing a key role in the development of coordinated approach to monitoring at a regional scale. It provides a central forum for the discussion of policy and management issues and sponsors workgroups comprised of monitoring practitioners working to resolve technical issues (NPCC, 2006).

*In summary, “NPCC Fish and Wildlife Program – Outcomes” is scored as 0, because the case provides no evidence of progress toward meeting program’s objectives.*

## 4.5. The Regional Environmental Program for Central America

### 4.5.1 Background and Settings

The Regional Environmental Program for Central America (PROARCA) is funded by the United States Agency for International Development (USAID). It was created in 1995, by the Joint Central America-USA Declaration (CONCAUSA)<sup>97</sup> made in December 1994 to support the Alliance for Sustainable Development (ALIDES). The Alliance is a national and regional strategy, aimed at making the Central American isthmus a region of peace, liberty, democracy and development, which promotes a change in individual and societal attitudes in order to assure the construction of a development model which is sustainable in political, economic, social, cultural and environmental terms<sup>98</sup>.

**PROARCA's main objective is to improve regional stewardship of key natural resources, focusing on consolidating the Central American Protected Areas System (CAPAS)<sup>99</sup>, especially the Mesoamerican Biological Corridor<sup>100</sup>,**

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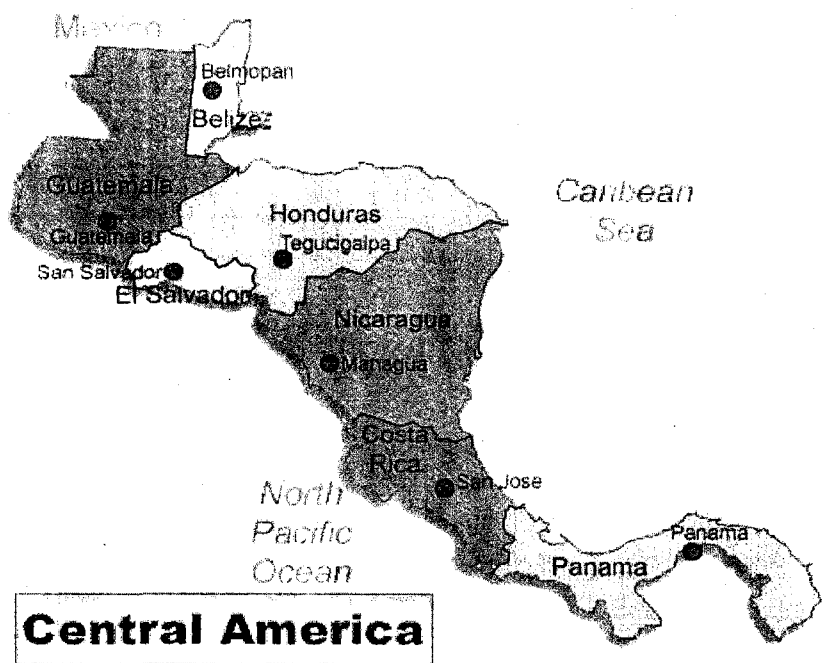
<sup>97</sup> In October 1994, Belize, Guatemala, Honduras, El Salvador, Nicaragua, and Panamá formed the Alliance for Sustainable Development, **ALIDES**. In December the United States supported ALIDES by means of the Joint Declaration of the Presidents of Central America and the United States, **CONCAUSA**. This agreement established that the United States would form a counterpart to support the Central American Commission on Environment and Development (**CCAD**), which is part of the Central American Integration System (SICA). On June 5 1992, six Central American Presidents signed the Central American Agreement for Biodiversity and the Protection of Priority Wildlife Areas, in Managua, Nicaragua. This agreement gave way to the Central American Council for Protected Areas (CCAP), technical implementing body of CCAD conformed by the national directors of the National Systems of Protected Areas (SINAP).

<sup>98</sup> [http://findarticles.com/p/articles/mi\\_m1584/is\\_nSUPP-2\\_v6/ai\\_17369942](http://findarticles.com/p/articles/mi_m1584/is_nSUPP-2_v6/ai_17369942) (Retrieved on Jan 12, 2008)

<sup>99</sup> CAPAS includes all the Protected Wildlife Areas that the seven countries of the region have incorporated into their National Systems of Protected Areas (SINAP). level, as well as private and municipal protected areas.

and improving regulatory frameworks and enforcement for environmental protection at a regional level<sup>101</sup>.

Figure 12: Central America



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Comprising the five southern states of Mexico and the Central American countries of Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama, the Mesoamerican region covers 768,990 square kilometers. Its natural ecosystems range from coral reefs and lowland rainforests to pine savannas, semi-arid woodlands, grasslands, and high mountain forests. Although the region contains only 0.5 percent of the world's land surface, because of the variety of its ecosystems and its location, which links the Americas' northern and southern biotas, Mesoamerica is

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<sup>100</sup> A biological corridor is a defined geographic space that provides connectivity between landscapes, ecosystems and habitats, natural or modified, and ensures the maintenance of biological diversity, ecological and evolutionary processes.

<sup>101</sup> [http://www.ccad.ws/proarca/index\\_1.asp](http://www.ccad.ws/proarca/index_1.asp) (Retrieved on January 23, 2008)

home to a disproportionate share—about 7 percent—of the planet’s biological diversity (Miller et al, 2001).

From political, social, and economic standpoints, however, the region has been far less fortunate. Although the civil conflicts of recent decades have come to an end, the human and material destruction they created has exacerbated problems of social inequality, economic underdevelopment, and environmental decline. Currently, almost half the population remains below the poverty line and many lack access to basic healthcare, education, and clean water (World Bank, 2000). Moreover, Mesoamerica’s population is growing rapidly—at over 2 percent per annum from 1995 to 2000—and despite rapid urbanization, the majority of the region’s inhabitants still live in the countryside and depend directly on biological resources for subsistence (Miller et al, 2001).

This rapid growth, combined with the continued dependence of much of the population on agriculture, and high levels of poverty, has led to unsustainable exploitation of natural resources, widespread water pollution, soil erosion, sedimentation, and deforestation. By the mid-1990s, the region was losing an estimated 2.1 percent of its forests every year—one of the highest rates in the world (FAO, 1999). More than half of Mesoamerica’s forests have been lost and approximately 90 percent of its primary or “frontier” forests have been logged, converted to agriculture, or replaced with tree plantations (Bryant et al., 1997). Similar habitat losses have occurred in other ecosystems, including the region’s coastal mangroves, coral reefs, grasslands, and wetlands (Burke et al. 2000). The scale and

speed of habitat loss and fragmentation in one of the world's biologically richest areas, has led many conservationists to consider Mesoamerica one of the world's biodiversity "hotspots" (Mittermeier et al., 2000).

The first regional environmental and natural resource management (RENARM) project was designed in 1990 with the purpose of being flexible and allowing for experimentation to encourage testing new approaches to achieve an improved natural resource status in the region. Key among these were regionalism<sup>102</sup>, involvement of regional institutions, NGOs and NGO consortia. Under RENARM the concept of a *wildlife or biological corridor* was introduced, defined as linkages between protected areas and buffer-zone development, to serve as an organizing framework to unify research, advocacy, protection, and development efforts with the goal to establish both terrestrial and marine biological corridors (Rivas et al, 2000). RENARM activities were later criticized as being thematically and geographically dispersed and the recommendation was made to focus on consolidating the Central American Protected Areas System, especially the Mesoamerican Biological Corridor and improve regulatory frameworks and enforcement for environmental protection at a regional level in the follow-on program – PROARCA I.

#### *PROARCA – Phase I*

The Central American Regional Environmental Program (PROARCA-I) was approved in July 1995, taking into account the experience of the RENARM. The programmed actions were in response to Strategic Objective 2 of the Regional

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<sup>102</sup> Regionalism refers to programming activities to address natural resource activities of regional scope, i.e., those having significant economies of scale, cross-border impacts, and the involvement of regional institutions, NGOs, and NGO consortia.

Program of the United States Agency for International Development in Central America for “**Increased effectiveness in regional management of key natural resources**”. The project was designed to have the Central American Commission on Environment and Development (CCAD)<sup>103</sup> as the counterpart institution and main partner in its execution.

PROARCA-I had three main components:

1. ***Central American Protected Areas System (CAPAS)***, managed under an institutional contract by the consortium of International Resources Group (IRG-lead) and The Nature Conservancy (TNC);
2. ***Coastal Zone Management (Costas)***, managed under a cooperative agreement by the consortium of TNC (lead), Worldwide Fund for Nature (WWF) and the University of Rhode Island/Coastal Resources Center (URI-CRC); and
3. ***Environmental Protection and Legislation***, implemented under three subcomponents:
  - *Environmental Risk Assessment and Prioritization*, which was completed by Chemonics International;

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<sup>103</sup> CCAD was created in 1989 as part of the CONCAUSA Agreement signed between the U.S. and the Central American governments to create a “regimen of regional cooperation for the optimal and rational utilization of the natural resources of the area, to control environmental contamination, and to establish ecological equilibrium to guarantee a better quality of life for the population of the Central American isthmus.” As such, CCAD was charged with directing and administering the regional portfolio of international donor environmental programs in its enabling legislation in order to “promote the coordinated action of the governmental entities, NGOs and international organizations.” A large number of foreign donors who are investing in managing protected areas in Central America, including USAID’s PROARCA project, therefore fall within the jurisdiction of CCAD’s enabling function to harmonize and rationalize such regional donor programs and projects.



- *Local Environmental Policy and Program Initiative (LEPPI)*, a community action planning effort managed under a cooperative agreement with the Cooperative Housing Foundation (CHF) with technical assistance provided by U.S. EPA;
- *Upward Environmental Legislative Harmonization and Enforcement*, managed by CCAD under two initiatives: the Legislation Program (PROLEGIS) with technical assistance from U.S. EPA and the Biodiversity Protection Program (PROBIO); and
- *Pollution Prevention*, being managed under a PASA<sup>104</sup> with the U.S. Environmental Protection Agency, and providing on-demand services through the LEPPI and PROLEGIS subcomponents.

CAPAS provided technical assistance across a broad array of topics related to conservation and sustainable resource use. It produced technical studies and provided training to 1,500 professionals. It managed a regional web page and disseminated numerous reports and information produced under the project. CAPAS' small-grants and genius-grants programs offered financial resources traditionally not available to NGOs and individual scientists, thus promoting local research and management initiatives for protected areas, natural resources conservation and environmental protection. CAPAS cooperated with CCAD in biodiversity protection including CITES and climate change control initiatives, and in policy research on transboundary resource conservation (PRORACA, 2000).

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<sup>104</sup> Project Assistance Service Agreement

COSTAS was pivotal in facilitating the declaration of new marine-coastal protected areas, including reserves for fisheries management and strengthening management in those already declared (Ochoa., et al., 2001). It's approach of building coalitions as a basis for participation of stakeholders yielded positive results. The establishment and support of Trinational Alliances in the Gulf of Honduras and Gulf of Fonseca was seen as promising coalition for meeting transboundary natural resource management challenges. COSTAS cooperated with CCAD in the development of the Meso-American Barrier Reef Initiative and in aspects of policy analysis for fisheries and coastal resources use.

Under LEPMI, CHF, with EPA assistance, facilitated the prioritization, design of pilot projects for environmental sanitation in selected municipalities through a highly participatory process. The subcomponent assisted in the creation of steering committees of municipal employees and community members to facilitate all aspects of project design and development (Rivas, C., et al., 2000).

CCAD's PROLEGIS and PROBIO Programs represented the principal programmatic outreach activities of CCAD. With EPA assistance, CCAD/PROLEGIS contributed to the process of elaboration and promulgation of environmental framework laws in five countries. Under PROBIO, CCAD advanced the regional agenda in biodiversity protection. PROBIO collaborated with CAPAS and Costas, as well as with other international agencies in efforts to instrument international conventions to which most Central American countries are signatory, including CITES, Ramsar, Climate Change and MARPOL. PROBIO promoted the

establishment and strengthening of regional biodiversity conservation networks with CCAD's constituency.

The evaluation of PROARCA-I indicated that the activities within and among different components of PROARCA-I were implemented thematically and/or geographically in isolation of each other (Rivas, C., et al., 2000). COSTAS worked in four mostly transboundary sites with established geographical boundaries. CAPAS worked throughout the region on a variety of technical themes (without a specific geographic location). LEPPi worked with 11 municipalities, but only five of these in proximity to COSTAS sites and the others were not programmatically tied to other components. Further, the components were not implemented under a unified strategic plan, nor was there an effort to integrate annual planning, monitoring and evaluation of activities. Lack of integration resulted in reduced implementation efficiencies and effectiveness, with some duplication of efforts and loss of opportunities for synergy. The evaluation team did not find that there was a shared vision for the implementation of the projects among USAID, CCAD and the implementing agencies (TNC/WWF, IRG, CHF and EPA).

Consequently, the Evaluation Team recommended that USAID and CCAD adopt a concept of regionality that promotes the thematic and geographic concentration of project activities in carefully selected transboundary subregions. More specifically, the following design criteria for the second phase of PROARCA (PROARCA-II) were proposed (Post & Worden, 2004):

- PROARCA – II should concentrate all activities within four to six trans-boundary subregions rigorously selected based on environmental, social and economic criteria such as biological values (biodiversity); socio-economic values (poverty, quality of life, risk); socio cultural values (ethnicity); environmental vulnerability; development opportunities; political vulnerability; etc.
- The methodology for participation in the new Project should be based on the coalition model developed under Costas. The coalition should be extended where appropriate to include local government institutions and representatives of decentralized national organizations to achieve the broad and constant support of activities.
- It will be necessary in designing PROARCA-II to clearly define the relationship and participation with the governments of the various countries. It is also imperative to define the coordination mechanism with NGOs, governments and regional organizations.
- PROLEGIS and PROBIO should be reoriented geographically and thematically to better address the legislative and enforcement issues in the sub-regions. These issues should be handled creatively with local, national and regional input, and respond to concrete situations in the selected areas, such as land use planning; environmental impact assessment; promotion of clean technology and application of stipulations and protocols found in the regional and international conventions and accords.

*PROARCA – Phase II*

In 2001, USAID funded the continuation of the Central America Regional Environmental Program (PROARCA-II). PROARCA-II's Strategic Objective is to **achieve the improved protection and management of the Mesoamerican Biological Corridor** through four Intermediate Results (IRs)<sup>105</sup>:

IR 1: Promoting the sustainable management of protected areas in key sites that are part of the Mesoamerican Biological Corridor (MBC);

IR 2: Promoting regionally environmentally sound products and services.

IR 3: Enhancing compliance with harmonized environmental standards and regulations;

IR 4. Fostering the increased use of less-polluting technologies.

PROARCA- II's partners and administration include: (1) a Cooperative Agreement with The Nature Conservancy, in alliance with WWF and the Rainforest Alliance, (2) a contract with ARD<sup>106</sup>, (3) a PASA with EPA, (4) a PASA with USDA, (5) a Cooperative Agreement with CATIE<sup>107</sup>, (6) a PASA with DOI, (7) a PASA with NASA, (8) a Cooperative Agreement with ICRAN/UNF<sup>108</sup>, and (9) a Strategic Objective Grant Agreement with SICA-CCAD.

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105 Post, J. & Worden, R (2004). *Program assessment of the regional of the regional environmental program – PROARCA II*. Bethesda, Maryland.

106 Associates in Rural Development, Inc

107 Central American Tropical Center for Research and Education

108 The International Coral Reef Network/United Nations Foundation

The Protected Areas and Environmentally Sound Products components (PROARCA/APM) are implemented by The Nature Conservancy (TNC), World Wildlife Fund (WWF) and Rainforest Alliance (RA).

The protected areas management component has three key strategies: 1) The development of effective alliances for protected area management; 2) Improved financing for protected areas management; and 3) Increased application of best management practices for protected areas.

The environmentally sound products and services component coordinates efforts in the forestry, agriculture, sustainable tourism, and marine products sector, in order to increase the availability of certified products and develop alliances for effective commercialization of certified products.

The “enhancing compliance with harmonized environmental standards and regulations” component (PROARCA/PROLEGIS) is implemented by CCAD and the US Environmental Protection Agency (USEPA). PROARCA/PROLEGIS seeks to harmonize environmental policies in the region. It aims at developing harmonized environmental standards and regulations; facilitating the creation of enforcement and compliance regional networks<sup>109</sup>; facilitating the effective application of key international agreements; and developing a harmonized regional system of environmental audits.

The PROARCA/SIGMA (Environmental Management Systems) component seeks to increase the use of less polluting technologies. Managed by Associates in

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109 These networks include judges and magistrates, prosecutors and environmental ombudsmen, legal advisers to Ministers of the Environment and other environment authorities.

Rural Development, Inc. (ARD) the component is focused on two sectors:

Municipalities and Private Sector (ARD, 2005). The municipal sector strategy is to:

1. Develop case studies and share best practices in solid waste and wastewater management.
2. Train municipal groups in environmental management systems planning and in financial planning to guarantee the sustainability of these efforts.

The private sector strategy aims at promoting the use of cleaner technologies and environmental management systems. A small grants program complements the aforementioned components (PRODOMA) which aims to strengthen environmental civil society organizations.

In 2004, USAID<sup>110</sup> approved the Central America and Mexico (CAM) Regional Strategy which provides the framework for regional and country-specific programs leading to achievement of the overarching regional goal of a more democratic and prosperous Central America. The new regional strategy narrows the focus of USAID investment to a limited number of results within the three performance “arenas”: Ruling Justly (more responsive, transparent governance) Economic Freedom (open, diversified, expanding economies and Investing in People (healthier, better educated people). The CAM Regional Strategy marked a major shift in how USAID development assistance is provided. For instance, it:

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110 [www.usaid.gov/camstrategy](http://www.usaid.gov/camstrategy) (Retrieved on Nov 24, 2007)

- Focuses on contributing to the achievement of national level impact, and is deliberately structured to encourage good performance by partner countries.
- Requires each mission to make strategic choices that focus each program on a selected number of approaches and interventions.
- Gives greater focus to implementation of sound policies that address the key constraints to development.
- Places good governance as a crosscutting theme and an essential part of each objective.
- Provides a single framework, strengthening the linkages between regional and bilateral efforts.
- Proposes, as a resource allocation tool, the creation of a Performance Fund, to reward good performers and to provide an incentive to those that lag behind.

The latter half of the PROARCA-II program will now need to reflect the new CAM Regional Strategy. This focuses on promoting more efficient functioning of markets and facilitating access to external markets by helping the countries in the region achieve more open, diversified and expanding economies.



#### 4.5.2 *PROARCA – Multi-level Governance*

The complexity of PROARCA as a large scale natural resource management program is captured by its multi-level governance arrangements. As the following analysis will demonstrate, the program has developed a system of vertical and horizontal linkages that facilitate the achievement of the intermediate results in an unlimited number of task specific jurisdictions.

At the supra national level, the Central American Commission for Environment and Development (CCAD)<sup>111</sup> is the lead regional counterpart organization in the implementation of PROARCA.

The Central American Commission for the Environment and Development was created in 1989 with the goal of raising awareness of environmental issues, strengthening institutions involved in natural resources and environmental protection, and assisting with the harmonization of related legislation to incorporate sustainable development issues into national development plans. CCAD also seeks to promote participatory decision-making and decentralization of governmental activities (Page & Swchartz, 1996).

CCAD is in the process of redefining its strategic and institutional plan under a new organizational structure whose objective is to guarantee the sustainability of operation in regional environmental subjects. CCAD's Strategic Program developed and is operating the Mesoamerican Biological Corridor (MBC) to rescue and make sustainable use of regional biodiversity. In 1997, during the Panama Presidential

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<sup>111</sup> [www.ccad.org](http://www.ccad.org)

Summit, the following concept was adopted for the MBC (Zuniga, 2002): “A system of territorial organization composed of natural areas under special management prescriptions, nuclear zones, buffer zones, multiple use zones and connecting areas organized and consolidated to provide a set of environmental benefits and services to the Central American society while providing areas for social agreement to promote investments for conservation and sustainable use of the natural resources, with the purpose of contributing to the improvement of the quality of life of the population of the region” (Project for the consolidation of the MBC, 2002).

At the national level, PROARCA continues to provide technical assistance to the national governments in their efforts to establish and manage national systems of the protected areas system. At present, all seven countries have a National System of Protected Areas that includes all areas that are legally supported or that have been declared (protected areas), plus areas that are deemed important to the system but that don't yet have legal support (proposed areas). All the National Systems constitute the Central American System of Protected Areas (SICAP). The system includes very diverse categories (at least 40 different), which vary from country to country. The contribution of each country to the SICAP is quite different. Guatemala has contributed the largest territory which represents around 25% of the total coverage of the SICAP. These 173 protected areas, plus the territory covered by the 71 Forest Reserves, Indigenous Reserves, Protected Zones and Multiple Use Zones declared for the region, were part of the 244 total units declared, which cover almost 8.8 million

hectares that account for 16.53% of the Central American territory (PROARCA, 2003).

The systems have been defined under different institutional structures and under several legal and political frameworks, which differ from one operation prescription to the other. In Belize, protected wildlife areas (PWA) are managed by three different ministries: the Ministry of Natural Resources and Environment, a dependency of the Forest Department, which is in charge of natural PWAs; the Ministry of Fisheries, Agriculture and Cooperatives, a subdivision of the Fisheries Department, which is in charge of the marine PWAs, and the Ministry of Tourism, Culture and Communications, which manages archaeological sites through the Department of Archaeology. Each Ministry is financially independent, with its own management prescriptions and each one outlines its policies.

In Costa Rica, El Salvador, Nicaragua and Panama, one institution in each of these four countries is in charge of managing their individual PWAs. In Costa Rica, it is the Ministry of Environment and Energy (MINAE), through the National System of Conservation Areas (SINAC); in El Salvador, management is the responsibility of the Environment and Natural Resources Ministry; in Nicaragua, the Ministry of Environment and Natural Resources (MARENA), manages the PWAs via the General Directorate of Protected Areas, and the National Environment Authority (ANAM), in Panama, manages the PWAs through the Natural Heritage Directorate. Despite each country's efforts to declare protected areas, establish structures and generate policies and regulations for conservation and proper management, it is

evident that the longterm conservation of protected areas is not guaranteed. Today, most protected areas are isolated patches at best (PROARCA, 2003).

In Guatemala (CNAP, 1999)<sup>112</sup>, The National Council on Protected Areas (CNAP) manages and coordinates the SINAP. This includes the Ministry of Environment and Natural Resources, the Ministry of Agriculture and Farming , the Institute of Anthropology and History , the Guatemalan Tourism Commission, the National Association of Municipalities and the Center for Conservation Studies of the University of San Carlos. The executive institution is the Secretariat, which depends on the Guatemalan Presidential Office.

The Honduran<sup>113</sup> case is more complex because the responsibilities of each institution have not been yet defined. The Secretariat of Natural Resources and Environment is in charge of the coordination and evaluation of the policies for the environment, ecosystems, flora and fauna preservation, the National System of Protected Areas and National Parks and the regulatory office. Nevertheless, compliance with such standards and policies is the direct responsibility of the Secretariat of Agriculture and Farming, with support from the Honduras Corporation for Forest Development, which gave origin to the Directorate of Protected Areas and Wildlife.

Because SICAP is conformed by the National Systems of Protected Areas, regulations and standards are established by each country per their own legal

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<sup>112</sup> Consejo Nacional de Areas Protegidas, Guatemala (National Council of the Protected Areas).

<sup>113</sup> [http://www.cocatram.org.ni/gulfofhonduras/docs/pwd/chap1\\_english\\_tda.pdf](http://www.cocatram.org.ni/gulfofhonduras/docs/pwd/chap1_english_tda.pdf) (Retrieved on November 25, 2007).

frameworks, policies and interests. SICAP's PAs are therefore managed under different legal frameworks and standards established by each country. PROARCA is at present trying to establish a uniform system of categories for the region, which will allow a better understanding of the conservation objectives of the many protected areas and to better comprehend what is actually being protected.

At the sub-national level PROARCA/SIGMA is working with the local municipalities and private businesses to increase the use of less polluting technologies. SIGMA has developed two technical guides for local decision-makers, municipal technical managers, and communities wishing to build solid waste management (SWM) systems or waste water treatment plants (WWTP). SIGMA took over the final design and construction of two waste water treatment plants in Livingston, Guatemala and La Union, El Salvador that were begun under the LEPPi component of PROARCA-I.

SIGMA has also developed a broad spectrum, three-part packet of financial management training tools in English and Spanish. The purpose of the first guide is to provide municipal managers with an overview of the financial management systems and show them a logical sequence of actions and decisions that should be taken to achieve successfully operating public service programs.

When it comes to the private sector, SIGMA has collaborated extensively with an existing network of five national Clean Production Centers (CPC) in the region, assisting them in their institutional capacity-building, and organizing opportunities to

exchange technical knowledge and experiences through a series of regional and sub-regional training workshops (Post & Worden, 2004)

One of the strategies of SIGMA in promoting the application of CP practices and technologies in the private sector has been to financially and technically support the CPCs in the development of a series of technical reports of CP plant audits and case studies of CP applications in target industries or sectors that can then serve as key inputs to technical guides and training seminars that SIGMA prepares jointly with the CPCs for broader dissemination regionally.

This is a relatively new undertaking by SIGMA, and represents a joint activity between its municipal services and private sector programs to better manage solid waste by-products by creating a “market” of buyers and sellers of recyclable or reusable by-products in secondary markets. As a first step in that direction, SIGMA has supported the preparation of a National Report on the Management of Materials by the Costa Rican CPC (CNP+L) in which they characterized the composition and size of the national solid “waste stream” by sector, with the overall objective of creating a Strategy and a Plan of Action with concrete, measurable goals. Similar materials and management studies are now underway in El Salvador and Guatemala.

PROARCA has worked in establishing horizontal linkages by supporting the creation of a number of policy- alliances that work towards agreements between countries (such as TRIGOH), significant contacts and an extensive network of highly motivated professionals. TRIGOH<sup>114</sup> was formally established in February 1997, with participation of all the NGOs that manage the protected areas in South Belize, the

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114 [www.trigoh.org](http://www.trigoh.org) (Retrieved on January 15, 2008)

Guatemalan Caribbean Coast, and West Honduras. The Alliance has undertaken a range of activities that are planned to increase the knowledge of sustainable development issues in the Gulf of Honduras, strengthen the institutions and regulatory framework for the region, and foster collaborative activities and agreements among the three countries. The Alliance also reviews the compliance of each member country with respect to implementing the provisions of its laws and regulations governing protected areas. Representatives from several member organizations of TRIGOH participate on the Regional Stakeholders Advisory Committee.

Environmental organizations in the region have been active in establishing protected areas, as well as proactive in developing an agenda to promote harmonization of legislation and creation of a regional agenda to build institutional capacity.

Of the three countries, environmental nongovernmental organizations in Guatemala have been the most successful in advancing a regional agenda for protecting the Gulf through harmonization of legislation, creation of protected areas, and promoting a regional agenda for marine pollution control and navigational safety. Belize has an active environmental nongovernmental organization, TIDE, which forms part of TRIGOH. TIDE works in the areas of environmental education, protected area management, and environmental monitoring. TIDE is a well developed organization with 25 employees.

TRIGOH has worked closely with PRORCA for the implementation of PROARCA/COSTAS. In addition PRORCA has provided assistance to TRIGOH for the development of TRIGOH's Strategic Plan.

In summary, PROARCA has a well established MLG structure dominated by vertical linkages. The program has developed a number of task specific jurisdictions that tackle the issues of biodiversity conservation in the Central American Protected Areas System, environmental legislation, and cleaner production technologies. Because of the presence of the measures, PROARCA – MLG is scored as 1.

#### *4.5.3. PROARCA – Institutional Arrangements*

PROARCA's institutional arrangements have evolved over time and embrace an ecologically defined governance structure. In the final design of PROARCA-II the definition of regionalism was broadened to include three forms (ARD, 2000): geographic regionalism (when an ecosystem, protected area or a unit of management straddles national borders), ecological regionalism (when ecosystems, or components thereof, are contained within individual countries but provide ecological services of crucial regional importance), and thematic regionalism (applies to environmental management issues that repeat themselves throughout the region). The project works in territories defined by the watersheds of the Gulf of Honduras and the Gulf of Fonseca, the Mosquitia Coast (Honduras and Nicaragua), and the area from La Amistad to Río Cañas (Costa Rica and Panama).



PROARCA has established a structure with two levels of authority for its management and administration. The first is the Steering Committee made up of members of the USAID/G-CAP<sup>115</sup>, the environmental officers of all the bilateral missions in the region and officers of USAID/G-CAP related to aspects of the project in the region. The Committee is responsible for the decisions of the project concerning its leadership and management. The second level of supervision and coordination constitutes the Project Management Unit which is responsible for the coordination of activities among components and among implementing agencies (ARD, 2000).

The PROARCA design established that the components would be implemented by a number of implementing agencies, under a variety of contractual arrangements. This strategy had a lot to do with USAID's intention to assign coordination and implementation of each component according to the specialties of the organizations eventually to be selected (for example, NGOs for protected areas, EPA for pollution control). In any case, the number of contractors and the variety of contractual arrangements has complicated an inherently complicated project even more, requiring great efforts on the part of USAID/G-CAP administrative personnel in administrative supervisory activities and contributing to the bureaucratization of project management (Post & Worden, 2004). On the other hand, the implementing agencies of the PROARCA components have been able to direct a great number of activities tied to biodiversity conservation and environmental protection at the Central American level.

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<sup>115</sup> Regional program for the USAID in Central America and Panama.

TNC, with its sub-grantees WWF and the Rainforest Alliance, forms a trio of some of the most experienced, leading NGOs supporting the management of protected areas in Central America. It is no doubt partly due to their many years of work in the region that in the three short years of PROARCA, they have been able to establish links with so many local groups. The division of labor between these three NGOs and their ability to complement each other is clear. TNC deals directly with IR 1 and has subcontracted WWF to cover forest certification. WWF, in turn has subcontracted the Rainforest Alliance to support IR 2 through their other certification programs. For coordinating and monitoring the work under IR 1 and IR 2, TNC and WWF have deployed a total of 5 Regional Site Technical Advisors (RSTA) spread over the four trans-boundary sites.

“The complexity of dealing with multiple implementing partners, the CCAD, seven countries, more than 100 collaborating organizations, four Intermediate Results and innumerable activities is an obstacle to achieving coordination, synergy and a comprehensive understanding of the program” (Post & Worden, 2004).

At present, existing national institutions for conservation and natural resource management are poorly adapted to carry out the new roles as they are not cross-sectoral in their approach, lack clarity in their mandates, and frequently lack the power or authority needed to make decisions. As a result, their efforts are dispersed, duplicated, or conflict with other bodies' legal mandates and provisions, creating constant jurisdictional conflicts (Earth Council et al. 1997; CCAD 1998).

A good example of the institutional challenges faced by the existing institutions is the building of the MBC, which is clearly a cross-sectoral challenge that will require not only the cooperation of all government agencies whose interests and roles are affected by the MBC, but a fundamental transformation in their institutional structures and legal frameworks.

The more powerful ministries and public agencies, such as those of land reform, agriculture, trade, and transportation, can easily frustrate the attempts of environmental ministries to build the MBC. A transportation ministry, for example, decides where to route a new highway. If it is not engaged in the MBC planning process, and neither its legal mandate nor its policies support MBC goals, it is unlikely that it will integrate the location of proposed corridors into its plans. Regional, national, and local agencies need to establish organizational structures and management styles that can pursue the full range of social, economic, and conservation objectives envisioned for the MBC. The MBC needs to bring together the authorities responsible for natural resources, environment, agriculture, transportation and public works, tourism, forestry, and economic planning because each of these agencies has knowledge, skills, and authority essential for building the initiative. An inter-sectoral approach toward horizontal cooperation and collaborative problem solving is vital.<sup>116</sup>

To address these issues, PROARCA has worked very closely with its regional partner CCAD. Since its creation in 1989, CCAD has focused on the

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116 CM newsletter for the IUCN. Collaborative management working group. No. 3, December 1999 <http://www.iucn.org/themes/ceesp/publications/CMWG/CMNews3.pdf> (Retrieved on January 23, 2008).

institutionalization of environmental and sustainable development programs. It developed the Central American Regional Environmental Plan (Plan Ambiental de la Región Centroamericana, PARCA) which continues to be the medium and long-term strategy to address environmental issues in the region (ARD, 2000). CCAD has advanced the creation of a Central American Inter-parliamentary Commission for the Environment and Development. It has also promoted and obtained the creation of a regional initiative to integrate political, economic, social and environmental issues to promote sustainable development. The Alliance for Sustainable Development (ALIDES) advocates a regional approach to sustainable development and synergy of regional efforts as opposed to individual national efforts. The official alliance agreement was signed in 1994 at the Central American Environmental Summit in Nicaragua. CCAD, although only mandated to promote activities in the environmental sector, became the primarily driving force in promoting the institutionalization of the alliance (Page & Schartz, 1996).

CCAD provides the region's national governments with a forum for unified pursuit of environmental stability. The Commission's structure, approved by regions presidents, elicits the participation of each country in turn through an annually rotating presidency. It's also empowers an executive secretariat, based permanently in Guatemala, to coordinate ongoing policy dialogue between countries. CCAD's size and mandate have grown in the recent years. The Executive Secretariat manages a variety of programs.

USAID's assistance has played a vital role in the institutional growth of CCAD. Under PRORCA, USAID has committed to provide assistance in strengthening the Commission's administrative and financial operations; organize a regional information clearinghouse; establish regional networks of environmental professionals; harmonize environmental legislation from the national to the regional level; organize regional and national forums to build consensus and increase participation around biodiversity, urban pollution and other environmental issues; and develop a Central American strategy to coordinate environmental assistance from donors (Page & Swchartz, 1996).

The institution's practice of using consultative workshops to promote consensus on environmental issues is well established. As the focus on national integration increases and coordination efforts increasingly reach the grassroots level, more consideration is being given to the inclusion of indigenous people and other marginalized groups in sustainable development policy-making (Page & Schartz, 1996). With the support of USAID through PROARCA, the CCAD has arranged the association of interest groups in the environmental area as well as having participated in important strategic alliances which are about to produce results at the regional level, such as the Mesoamerican Biological Corridor, CITES, Mesoamerican Reef System, Protection of Biodiversity, and Climate Change among others. CCAD has expanded its outreach effort with the addition of its Environmental Dialogue (Diálogo Ambiental) initiative in which civil society uses its web site as part of its public consultation process.

*In summary, PROARCA uses an ecologically defined governance structure. The institutional arrangements form a blend of hierarchical and non-hierarchical relationships. The set of rules, norms and procedures for cooperation among the implementing partners and between the implementing partners and the regional and national institutions are still under development. PROARCA-IEG is scored as 1 because the case analysis provides evidence of most of the measures.*

#### *4.5.4 PROARCA – Environmental Decision Making*

Transboundary projects are inherently complex due to multiple layers of political issues and the relative newness of multi-stakeholder projects to addressing both national and regional technical and management issues. Despite the institutional challenges identified in 4.5.3, the Project, especially during Phase II, has made good progress in ensuring participation in the various components at all levels of society in the Central American Region. Increasing levels of participation have been obtained from authorities, technicians, specialists, NGOs, private sector, and grassroots organizations for different actions and in all the countries. The gap studies and mini-cases, environmental and site profiles, and the use of coordination workshops to identify the problems in natural resource use and biodiversity protection have taken resource user opinions as a basis for designing support and technical assistance strategies and activities (ARD, 2000).

Training workshops and courses have reached counterparts and beneficiaries of government institutions, NGOs and natural resource and biodiversity producer/user groups, all openly and without bias; this in itself has democratized technical assistance and knowledge transfer. For instance, SIGMA has collaborated extensively with an existing network of five national Clean Production Centers (CPC) in the region, assisting them in their institutional capacity-building by providing technical information on various subjects, supporting the development of more than two dozen case studies, technical reports, and organizing opportunities to exchange technical knowledge and experiences through a series of regional and sub-regional training workshops (PROARCA/SIGMA, 2005)

The Panama National Environmental Authority (ANAM), the USDA Forest Service, and PROARCA component on Protected Area Systems sponsored a Protected Areas Co-Management workshop<sup>117</sup>. Participants included 75 government representatives from the 7 Central American countries, as well as nongovernmental organizations with experience in co-management. The workshop included discussions of lessons learned, appropriate legal frameworks, institution building, and methods for the co-management of protected areas. Seldom have environmental workshops attracted so much interest from such diverse stakeholders.

The concept of co-management is the sharing of protected area management responsibilities between the resource users. It is an effort to promote public participation, decentralization, and democratization of resource conservation and development in such a way as to produce a “win-win” scenario and synergy of cross-

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117 [www.iucn.org](http://www.iucn.org)

sectoral capabilities for the benefit of all. Co-management agreements are promoted mainly for two reasons; (1) government initiatives cannot tend to all protected areas, and (2) the civil society of the region has been trying to participate in the management of protected areas and natural resources. Co-management agreements are based on the recognition that no individual party or stakeholder is capable of accomplishing all management objectives, so complementary and subsidiarity principles are required (Nunez, 2004).

A number of mechanism including advisory boards, consultative councils, directive committees, management committees and local committees have been established throughout the region to facilitate the implementation of the co-management plans for the protected areas. The success of the co-management agreements is based on the principles of public participation, equity, legitimacy and decentralization.

Almost every country of the region has developed preliminary plans for the System of Protected Areas (PROARCA, 2003). Costa Rica's system is the most consolidated. This country has produced documents that analyze individual sub-systems and evidence the present management status of the conservation areas. Of the SICAP's 554 protected areas (PAs), 104 already have a management plan, which accounts for 18.7%. In this case, and taking into account only the reported management plans, Honduras and Panama show the best coverage, because 32.9% and 36.0% respectively of the SINAP's PAs have management plans (36 protected areas in Panama have strategic planning).



When it comes to the involvement of indigenous population in the development and the implementation of the plans, most of the activity by indigenous organizations has been carried out on an individual basis, with each group seeking its own set of alliances and collaborative arrangements with sources of technical, political, and financial assistance. The indigenous people have not yet been able to form an effective, representative organization to coordinate activities and policies at the Central American level. In general terms, the indigenous people have not had active roles in the decision-making processes for the resources of their own regions (ARD, 2005).

The program has paid better attention to gender issues. The reports on workshop and meeting attendance are gender segregated and show a high percentage of females attending. For example in the municipalities of the *Mancomunidad* (that is, small association of neighboring communities) of MAMBOCAURE where the principal objective of this project is to improve the solid and liquid waste management of the community, a high level of participation by women in the community was assured (ARD, 2004).

The Program has done a good job with the dissemination of the information. Communications Unit of SIGMA is an important resource for both SIGMA and PROARCA more generally, publishing quarterly bulletins for PROARCA and having taken over all modifications, updates and maintenance of the PROARCA website. The bulletins are particularly well-written and informative. The Communications Unit has also developed a multimedia CD with text, photographs, and video feed to

promote PROARCA activities and achievements, and plans to distribute 700 copies. The Unit also provides support for all SIGMA publications, case studies, technical guides, and training materials. And finally, even though it is not part of the Communication Unit per se, SIGMA has promoted the distribution of a Clean Production “calendar”. The calendars are meant to be “stand alone” tools, meaning that they are not supposed to be accompanied by any training or follow-on activities. According to a follow-up survey done by SIGMA, 31 or 74 percent of the firms receiving the calendar had taken some action based on the information contained in the calendars (ARD, 2005).

*In summary, PROARCA promotes a diverse inclusive participation and an accessible decision making process where information is constantly shared among stakeholders. PROARCA-EDM is scored as 1, even though the case does not show strong evidence of an equitable decision making process.*

**Table 12: PROARCA Summary Table**

Core MLEG Theoretical Constructs	Measures	YES/NO	1/0
Multi – level Governance (MLG)	<ul style="list-style-type: none"> <li>• Unlimited number of task specific jurisdictions</li> <li>• Vertical linkages</li> <li>• Horizontal Linkages</li> </ul>	<p style="text-align: center;">+</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p>	<b>1</b>
Institutions for Environmental Governance (IEG)	<ul style="list-style-type: none"> <li>• Ecologically defined governance structure</li> <li>• Non-hierarchical institutional relationships</li> <li>• Negotiated sets of rules, norms and procedures for cooperation</li> </ul>	<p style="text-align: center;">+</p> <p style="text-align: center;">+</p> <p style="text-align: center;">-</p>	<b>1</b>
Environmental Decision Making (EDM)	<ul style="list-style-type: none"> <li>• Diverse, inclusive participation</li> <li>• Equitable DM process</li> <li>• Clear, feasible goals, objectives and written plan</li> <li>• Information is constantly shared among stakeholders</li> </ul>	<p style="text-align: center;">+</p> <p style="text-align: center;">-</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p>	<b>1</b>

#### 4.5.5 *PROARCA Outcomes*

PROARCA's Strategic Objective is to achieve the improved protection and management of the Mesoamerican Biological Corridor through four Outcomes or Intermediate Results (IRs):

IR 1: Promoting the sustainable management of protected areas in key sites that are part of the Mesoamerican Biological Corridor (MBC);

IR 2: Promoting regionally environmentally sound products and services.

IR 3: Enhancing compliance with harmonized environmental standards and regulations;

IR 4. Fostering the increased use of less-polluting technologies.

With regard to the achievement of IR1, The Nature Conservancy (TNC) has been successful in implementing its workplan, forging alliances, creating and training entities for management, drafting management and financial plans, carrying out studies etc. As part of the PROARCA project TNC had developed a system of protected area management (Courrau, 1999). Indicators organized in five different areas (social, administrative, natural resources management, political-legal and economic-financial) form the central component of the system. The system has been implemented in all the protected areas of Panama and Costa Rica and also in pilot sites in Nicaragua, El Salvador, Guatemala and Belize and it is expected to be adopted by more protected areas<sup>118</sup>.

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<sup>118</sup> To validate the method, Braulio Carrillo National Park, Poás Volcano National Park, Irazú Volcano National Park, Guayabo National Monument and Bosque del Niño Forest Reserve (Costa Rica);

PROARCA has created a number of policy- alliances that work towards agreements between countries (such as TRIGOH), significant contacts and an extensive network of highly motivated professionals. The Program also utilizes an effective management structure at the staff level through its use of Regional Technical Advisers (RSTAs).

A program evaluation conducted at the end of 2004 concluded that “at the moment there is little likelihood that any of the protected areas will become self-financing before the end of PROARCA II.” (DAI, 2004, p.8), and recommended that TNC should work on establishing a trust fund or an endowment for the longer terms benefit of the MBC.

Regarding IR 2, PROARCA II is, in general, off to a good start (DAI, 2004) PROARCA supports the green certification process of coffee, cocoa, cashew, cultivated shrimp, wild caught lobster, wood, and tourism. WWF supports the certification of forest management and wood in four areas. PROARCA/WWF has organized workshops to draft the more detailed norms to be applied in each country and for different forest types. WWF has developed tools in the form of a “Step-Wise

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Reserva de Manantiales de Cerro San Gil (Guatemala); Crooked Tree y Cockscomb Wildlife Sanctuaries (Belize); and Río Plátano Biosphere Reserve (Honduras) were selected as pilot programmes. Following the success of these pilots, the framework has been officially adopted in the Sistema Nacional de Areas de Conservación (SINAC) in Costa Rica. In Panama, the Autoridad Nacional del Ambiente (ANAM) has also adopted the framework and most of the protected areas of the country are already implementing it. Pilot sites have been supported in Belize in co-operation with the Belize Audubon Society (Cockscomb and Crooked Tree Wildlife Sanctuaries). In El Salvador the framework has been implemented in close co-ordination with Parques Nacionales y Vida Silvestre (PANAVIS) (Montecristo National Park) and in Nicaragua five protected areas have implemented the framework in cooperation with the Ministerio de Ambiente y Recursos Naturales (MARENA).

Approach” and offered training to enable the enterprises to meet the conditions, usually the most costly aspect of the certification program<sup>119</sup>.

Another promising initiative supported through WWF, seems to be GreenWood, an NGO that teaches community groups in the Mosquitia to produce wood products (chairs, boats) from certified forests for the Honduran market. About one sixth of their budget comes from PROARCA. In the Toledo District of southern Belize, near the protected areas of Port Honduras and the Sarstoon River, WWF is using its “Step-Wise Approach” to prepare Kekchí communities to certify their forests.

When it comes to IR 3, environmental policy-making is an activity that cuts across each of the other three intermediate results (IRs), creating an enabling environment that advances them as well as other important regional initiatives, such CONCAUSA, CAFTA, etc. Improving environmental policies and their compliance is advancing much more visibly at the local governmental level, rather than at the national or regional levels. Local governments are developing more capacity in planning and implementing environmental programs such as solid waste collection and disposal, recycling and re-use, as well as treatment of residential sewage and land-use planning, some of which has been supported by PROARCA project activities (DAI, 2004).

The cross-cutting theme or central focus that runs through all the components of PROARCA is the legislative or policy platform, which CCAD portends to promote

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<sup>119</sup>[http://www.panda.org/about\\_wwf/where\\_we\\_work/latin\\_america\\_and\\_caribbean/region/central\\_america/index.cfm](http://www.panda.org/about_wwf/where_we_work/latin_america_and_caribbean/region/central_america/index.cfm) (Retrieved on February 13, 2008).

and advance, and upon which the other three components of PROARCA, depend (DAI, 2004). CCAD has attended meetings to prepare regional negotiating positions in terms of forest definitions under the Kyoto Protocol framework, as well as in the Forest Working and Climate Change Groups, including organizing a regional forum on Climate Change in Panama.

IR 4 is divided into two sub-IRs: 4.1 “Municipalities adopt improved solid waste and wastewater management systems” and 4.2 “Private Sector institutions implement environmental management systems.” ARD implements this project under the name of SIGMA. The 2004 evaluation report concluded that the project is very well managed, and largely successful in achieving its objectives and producing useful documents of good quality (DAI, 2004).

SIGMA’s major achievements include (ARD, 2005):

- The development of an effective communications and dissemination unit for all components of PROARCA in general and SIGMA in particular;
- The development of a cadre of technical experts in clean production and municipal waste management through capacity-building efforts with SIGMA partners using a combination of training activities, demonstration projects and focused technical assistance;
- The construction of two wastewater treatment plants in Livingston, Guatemala and La Unión, El Salvador using innovative, low-cost technology, which serve as demonstration projects for other municipalities, not only in construction, but in the operation and maintenance of the plants; and

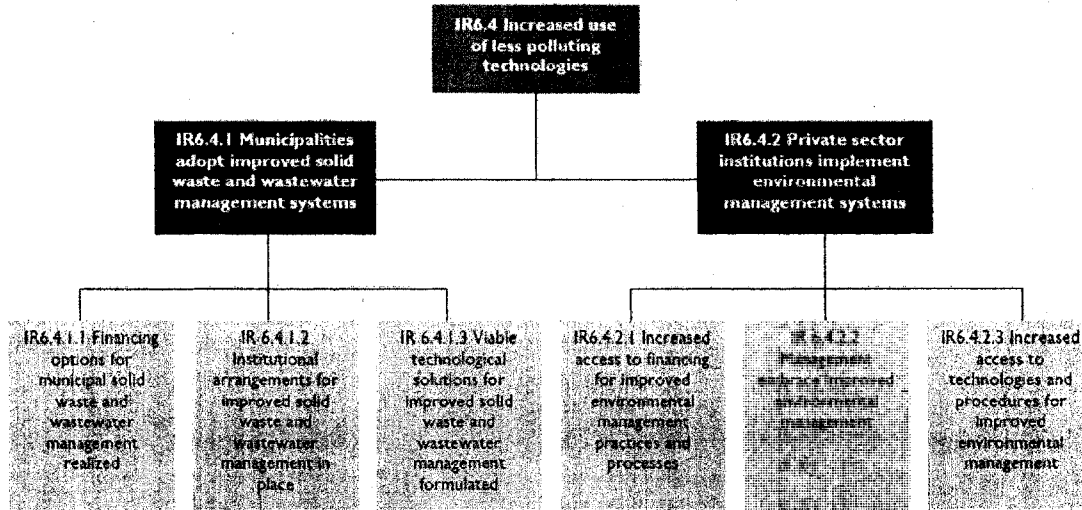
- The development of technical documentation (technical manuals, guides and best practices based on demonstration projects, research and municipal and industrial plant evaluations), which will serve as a technical resource for future activities in the region.

The objective of promoting the use of less polluting technologies was achieved by assisting municipalities in the management of domestic waste, through the promotion of low-cost, low maintenance solid waste and wastewater integrated management systems. Lower level results were the development of financing options, the establishment of institutional arrangements, and the formulation of viable technical solutions for solid waste and wastewater management by municipalities.

The objective of assisting private sector entities in specific industry clusters (e.g., dairy, tanneries, tourism, coffee, shrimp packing and others) to adopt environmental management systems in production processes and services delivery activities was achieved by increasing access to financing for improved environmental management practices and processes; increasing understanding and acceptance among private sector management of improved environmental management; and increasing access to improved technologies and procedures (ARD, 2005).



Figure 13: PROARCA/SIGMA Intermediate results



Source PROARCA/SIGMA (2005)

*In summary, “PROARCA – Outcomes” is scored as 1 because the case shows strong evidence of the achievement of intermediate results.*

## CHAPTER V. CASE ANALYSIS

This research follows an analysis strategy of working across and within cases. The initial task of the chapter is to develop a comprehensive comparison of the cases using Ragin's Qualitative Comparative Analysis methodology and to identify similarities and differences. The cross case analysis is followed by the within case analysis which aims at revealing what is unique about each case. The chapter will end with a discussion about cross-scale and cross-level linkages.

### 5.1 Cross Case Analysis

The Multi-level Environmental Governance (MLEG) framework predicts that there are three general conditions<sup>120</sup>, Multi-level Governance (A), Institutions for Environmental Governance (B), and Environmental Decision Making (C), related to the achievement of the programs outcomes. The result from each case are summarized in the truth table below.

Overall the results indicate that for the first and the last cases (CARPE + PROARCA) the presence of A is combined with the presence of B and C to produce a result value of 1. In the CTLS case the absence of A, B and C produces a result value of 0. We do not have any information on any of the other configurations ( 1/1/0; 1/0/0; 0/1/1; 0/0/1; 0/1/1; 0/1/0) to be able to make an informed judgment on whether the presence of A or B or C alone or any combination of two conditions would cause O (outcomes).

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<sup>120</sup> Conditions are equivalent to the theoretical constructs.

**Table 13: Cross Case Analysis Truth Table**

<b>Case</b>	<b>MLG (A)</b>	<b>IEG (B)</b>	<b>EDM (C)</b>	<b>Outcomes (O)</b>
Central African Regional Program for the Environment (CARPE)	1	1	1	1
Central Truong Son Biodiversity Conservation Initiative (CTSL)	0	0	0	0
European Climate Change Program (ECCP)	1	1	1	0
Northwest Power and Conservation Council Fish and Wildlife Program (NPCC)	1	1	1	0
Regional Environmental Program for Central America (PROARCA)	1	1	1	1

The results of CARPE, PROARCA and CTSL are in line with what theory predicts: the presence of three core characteristics of MLEG contributes to a higher level of program achievement and vice versa. Despite their distinctive features, all three regions share a number of environmental related problems. Most prominent among these common themes are issues pertaining to loss of biodiversity, forest ecosystems, and the interplay of external and internal forces. Moreover, the programs tackle the issues of *stationary* natural resources.

The most serious and major risk for conservation of biodiversity is the fragmentation of habitats, which is the principal cause of the extinction of species. Fragmentation has two essential components: the reduction to total area of available

habitat and the fractioning of the remaining area in isolated patches (MBC & CCAD, 2002). The reversal of the loss of biodiversity trend has become an important part of national and regional policy agendas in Central Africa, Central America and Vietnam. In Central Africa and Central America the programs are being implemented in a regional political contexts marked by efforts to consolidate democracy, decentralize public decision making, and increase opportunities for public participation by civil society groups. In all three regions, efforts to shift public authority to the local level have stimulated investment in strengthening of local government capacity, but these efforts have often been insufficient to fill the gaps left by the withdrawal of central government from many sectors of decision making. This seems to be especially true for the development and enforcement of environmental regulations and policies (WRI, 2001).

All three regions are also similar in the extent to which their fate is affected by forces exogenous to the region. Powerful corporate players whose decisions are made outside the regions, as well as international organizations such as the International Monetary Fund, the World Bank, the Asian Development Bank, USAID, bilateral donors, etc, exert great influence over the course of the events in each region. The international attention to environmental issues in all three regions has grown, resulting in financial support from international development agencies (e.g USAID) and international conservation NGOs (e.g. WWF). The evidence shows that donor and internationally led approaches are strong and powerful, having a significant and at

times overwhelming influence on what NGOs do and the way they do it (Wallace et al, 2007).

Regional leaders sometimes join forces with these outside actors to make decisions about the long term regional developments. For instance, at the regional level, Central America's presidents signed the Charter agreement for the protection of the environment in 1989, resulting in the establishment of the Central American Commission on Environment and Development (CCAD). Over the years CCAD has received financial support from various international donors including Global Environmental Facility, German Technical Cooperation Agency (GTZ), USAID, etc.

The results also indicate that there are two contradictory rows in the table: ECCP and NPCC. The presence of three conditions does not cause the achievement of the outcomes as the theory predicts. It could be that A, B and C have to be combined with conditions not included in the framework for the O to be achieved. The size of resources, the physical pressure on exploitation, and the static or fugitive nature of resources all play a part in determining the governance structures of collective resources (Dolsak & Ostrom, 2003; Adger et al, 2005).

As far as the NPCC Fish and Wildlife program is concerned, as indicated in the results section, the level of scientific uncertainty about the management of the resource is quite high. One of the basic requirements of the Northwest Power Act and the Endangered Species Act is that decisions be based on the best available scientific information. NPCC must determine whether fish and wildlife recommendations satisfy the requirement of the "best available scientific knowledge". Because there is so much

uncertainty about how to rehabilitate fish and wildlife populations, improving the level of scientific knowledge becomes critical (NRC, 1996).

Salmon is a migratory resource. Managing salmon fisheries is more difficult than managing any other fisheries because of the geographic distribution of the salmon, and the fact that most adult fish spawn only once and then die (NRC, 1996). The management of migratory resources creates different kinds of problems than the management of stationary resources (Berkes, 2003).

The Northwest Power Act addresses energy, fish and wildlife in the Columbia River. Yet salmon are also affected by fishing, timber harvest, grazing, irrigation, navigation in the Columbia River, ocean conditions, hatcheries and any number of human activities that are largely left out of the NPA (NPCC, 1996; NRC, 1996). The continuing species decline could be due to the lack of progress in these other parts of the fish and wildlife ecosystem. In addition, the Council is made of state representatives; the absence of federal and tribe representation on the Council could limit Council's authority and make the implementation of remedial measures harder in practice.

The hydropower operations also come into play. The Fish and Wildlife Program must assure an adequate, efficient, economical and reliable power supply for the region. However, it is the hydropower system – the large number of dams in the mainstem and tributaries – that is the obvious and pervasive alteration of the salmonid ecosystem in the Columbia Basin (Lichatowitch et al, 2006). The keystone of the program is an augmentation of the flow of the river called the “water budget”.

Before the dams were built, flow was concentrated in the spring, when mountain snow rapidly melts. Spring flood carried juvenile salmon to the ocean. The trip is made much longer now, by the slower flow of water in reservoirs, which exposes juvenile fish to predators for a longer time. For years, the fish and wildlife managers and American tribes had requested higher flows in the springtime migration season. But the request carried no authority, and the dams, controlled by utilities and the U.S. Army Corps of engineers, were usually operated to optimize power revenues (NRC, 1996).

The Council introduced adaptive management in 1987 to take action in the face of scientific uncertainties. However, its actual application in addressing scientific uncertainty appears quite limited (McConnaha & Paquet, 1996). “The result after over 20 years of implementation is a program that has failed to achieve its goal and it’s still providing massive funding to recovery activities whose efficacies are still uncertain” (Lichatowitch et al, 2006, p.47).

In the case of the ECCP, the global nature of the climate change problem requires additional measures to be taken and market mechanisms to be in place for the EU to be able to meet the Kyoto targets.

The EU has enjoyed some success with its policies, for example its emissions trading scheme. Yet, many cost-effective strategies for improving energy efficiency remain heavily underused, such as better running of power stations and awareness-raising in households. However, efficiency measures alone will not be sufficient; faster development of nuclear energy and renewable energy is urgent. Changes in fuel

mix are now inescapable, and hydrogen needs to become the ultimate fuel. The implementation of new ideas, such as carbon capture, is also critical (EEA, 2007). However, the EU funding which is made available to stimulate energy savings, increase energy efficiency or develop alternative energies, is low.

The analysis of the ECCP reveals the absence of a scientific advisory body on climate change issues at the EU level. “The EU has not even made any attempt to set up such an independent, scientific body which would give advice away from considerations of national political and vested interests” (Kramer 2006, p.288). In addition, the European Commission lacks a structure which responsibility for climate change issues. A commissioner for climate change who would keep this topic in the public discussion, stimulate research and innovation, and who would accumulate responsibilities from the energy, transport agriculture and environmental sectors in the area of climate change, could give a political dimension to the discussion. At the same time, it would affirm the EU’s leading role in the world in climate change issues (Nilson & Nilson, 2005).



## 5.2 Within Case Analysis<sup>121</sup>

### *NPCC Fish and Wildlife Program*

The NPCC's Fish and Wildlife Program is the largest recovery program in the Pacific Northwest, and is possibly the largest fishery restoration program in the world (Lichatowitch et al, 2006).

Currently the fish recovery efforts in the Columbia River are organized under three primary legal mandates – the Northwest Power Act, the Endangered Species Act, and federal treaties with Indian Tribes. The three legal mandates represent the states composing the NPCC, the federal government represented by the agencies in charge of implementing the Endangered Species Act and the Indian Tribes. The fish recovery actions in the basin are arrived at through negotiation and compromise between these three authorities (McConnaha et al, 2006).

From a governance perspective, the program has developed a complex structure of vertical and horizontal linkages in which the number of jurisdictions is vast, and they operate at diverse territorial scales (from regional to sub-basin). Multi-level governance arrangements are characterized by vertical linkages between the Federal, State, local governments and Indian Tribes. In addition, horizontal linkages have developed over time and are playing an important role by shaping the way the program is being implemented. Eleven federal agencies are involved in the recovery of salmon and steelhead in the Columbia River basin. The federal agencies must comply

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<sup>121</sup> This section will provide a more in depth analysis of the two “problematic” cases: NPCC and ECCP.

with the missions and responsibilities set out in their authorization legislation while also protecting salmon and steelhead under the Endangered Species Act. Other entities such as states, tribes, local governments and private interest groups are also involved in the recovery effort. To facilitate communication and coordination between the federal agencies and other entities, a network of over 65 groups has been formed (GAO, 2002).

The form of governance used by the program involves high levels of both vertical, horizontal, and functional coordination, across federal-state-local tiers of government, across multiple agencies within any single government, across multiple governments at the same tier, across governmental and non-governmental parties, and all these simultaneously (Karkkainen, 2002).

However, networks often bring together actors whose goals simultaneously overlap and differ. In addition, the missions of organizations within the network do not always align well. Each has its own constituencies, and when complexity is high and responsibility unclear, coordination problems can undermine the network (Imperial, 1999; Goldsmith & Eggers, 2004). For instance the BPA's goal for providing low-cost power to the region conflicts with the U.S. Fish and Wildlife's goals for providing more water in the rivers to protect endangered salmon species.

The program has grappled with the issue of how to make the collaboration work. External institution triggers have played a key role in shaping how collaboration works. The program plan that NPCC developed in 1994 included recommendations by the federal court ruling and regional input from federal and state water and land

managers, and numerous tribes (NPCC 1994). To support such efforts, in 1996 the Council and National Marine Fisheries Service jointly formed an Independent Scientific Advisory Board, with support from the National Academy of Science.

In addition, the interplay between collective choice, and constitutional choice rules has affected program's actions and outcomes. At the collective choice level the program' rule making has resulted in a set of immediate and intermediate-term actions to enhance salmon survival in the rivers e.g. increase river velocities to reduce fish travel time; screen dams and spill water to protect juvenile fish; improve screening and bypass for both juvenile and adult fish; reduce predation of juvenile salmon; improve harvest management; improve harvest and production practices; protect and restore habitat, etc. All the decisions have been made in a group setting – the Council has convened an appropriate group of experts from the fishery agencies, tribes, utilities, environmental groups, land use managers and elsewhere to provide recommendations for adopting and carrying out the strategy (NPCC, 2004).

A the constitutional choice level the Northwest Power Act and the Endangered Species Act has influenced collective choice rules by directing the NPCC and other agencies to look at all the impacts on salmon and device aregionally accepted and economically balanced salmon recovery strategy.

The Council's program is intended to only mitigate for the effects of hydroelectric development. Many factors, such as harvest, that have contributed to the decline of salmon are outside the Council's control (McConnaha et al, 2006). The Council was also granted little power to enforce it program, but instead must rely on

cooperation by federal, state and tribal management agencies. The Council's program was not to be developed by the Council, but rather was to be assembled from recommendations submitted by any party, with special difference given to recommendations from the federal, Tribal and state fishery managers (Lichatowitch et al, 2006). While the Council has identified general goals and priorities, their level of generality is such that they provide little guidance for the selection or prioritization of measures (Bisson et al, 2006).

The Congress has limited Council's authority to implement its program. The Council's main influence is through the public process and the political will of the body to create a regional vision. Any modification to the Council's program can occur only after a formal call for amendments and a lengthy review process that typically takes a year or more (Lichatowitch et al, 2006).

The program's decision making process has embraced almost all the attributes of the decisions affecting environmental processes: structural complexity; multiple, conflicting, and uncertain values; long time horizons; open access structure; time pressure and incomplete and uncertain knowledge.

The knowledge of how to restore key attributes of an ecological system of the scope and complexity of the Columbia River is imperfect, and a rigorous program of evaluation, monitoring and research will be required (McConnaha et al, 2006).

Lichatowich et al (2006) argue that the management of the Pacific Salmon has been characterized by conflicting and poorly articulated conceptual foundations<sup>122</sup>.

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<sup>122</sup> A conceptual foundation is the set of principles and assumptions that gives direction to management and research activities, including fishery restoration program. It determines what problems are

Different groups of scientists and managers interpret the same observations through differing lenses reflecting different academic disciplines, social objectives, and belief systems. The lack of progress toward salmon recovery goals in the Columbia Basin has been linked to restoration programs derived from a conceptual foundation that sought to circumvent important ecological process (Williams et al, 2006). Operation of the river via the hydropower system is driven largely by economic considerations of water usage in the basin and constrains conservation and restoration efforts for anadromous and resident salmonid fishes (Williams et al, 2006).

It is not possible to return Columbia River system to a completely natural state in order to achieve salmon restoration. However, maintaining the current approach to salmon restoration will not achieve the Council's salmon restoration goals of returning approximately 5 million adult fish to the basin annually and is likely to continue the present trends of declining wild salmon abundance, local population extinctions, and proliferating ESA listing (Williams et al, 2006). Hence, a major conclusion embedded in the conceptual framework proposed by Williams et al (2006) is the need to restore a greater degree of "naturalness" to the river than exists today. The region will have to improve ecological conditions in the river system before sustained salmon recovery is possible.

In addition the institutional framework for fishery management should be unified and streamlined. According to NRC (1996) three major principles must be adhered to:

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identified, what information is collected and how it is interpreted, and as a result, establishes the range of the appropriate solutions (Lichatowich et al, 2006).

1. The institutional structure must allow for sharing decision making among all legitimate interests.
2. It must consist of local units small enough to ensure local legitimacy and to respond to local variations in environmental and socio-economic factors, and it must make use of local knowledge.
3. There must be a mechanism to ensure that larger scale environmental and anthropogenic forces behind and consequences of local actions are taken into account, i.e. the interests of the greater region should not be submerged or sacrificed to local interests.

In summary, because the migratory range of salmon goes from Alaska to California, the biological range of the fish is too large and too diverse to be managed, by a single spatial unit. The salmon problem is regional in scale. Currently, there is no single body of law, nor a practical way to consolidate governing powers, sufficient to put each jurisdiction under the supervision of a single managing entity. The spatial structures and institutions that have been operating in the Pacific Northwest have provided incapable of ensuring a long term future of salmon, in large part because they do not match the spatial, temporal or functional scales of the salmon problem. Current institutional arrangements have contributed to the salmon problem and will probably need modification if the problem is to be solved.

The lessons learned from the NPCC case are:

1. The right scale for managing migratory resource should be determined by dialogue among all key stakeholders and informed by science, technology, information and social considerations.
2. There is a need for better coordination between agencies with conflicting missions.
3. Special attention should be given to the science policy interface and science based environmental decision making.

#### *The European Climate Change Program*

The European Climate Change Program (ECCP) provides a good example of the recent trend in the environmental arena – a move toward sub-national units that are reforming environmental governance patterns directly with supra-national units, with national states, with inter and non-governmental organizations as well as other sub-national governments where state centric governance has been replaced by multi-level governance (Kern, 2006).

The EU is bounded by the subsidiarity principle which requires the EU to become active only if subordinated (national and sub-national) levels are not sufficiently equipped to respond to particular challenges to implement certain policies (Kern & Löffelsend, 2004). As a result, the involvement of other levels of government into policy making and implementation has proven necessary. The White Paper on European Governance calls for the active involvement of local and regional authorities in the decision making process. Therefore, in the context of the EU climate change

policy, one can talk about and find evidence of the EU climate change policy, national climate change policy and local climate change policy. As a result, the EU's climate change strategy has vertical dimensions as it requires coordinated responses from all levels of government – European, national, and local (Kern & Löffelsend, 2004). With respect to horizontal dimension, the strategy affects the integration of sectoral policies such as energy, transport, agriculture, etc.

These developments have also resulted in the establishment of direct relations between the EU as a supranational body and networks of local and regional actors, such as the Climate Action Network Europe or the Cities<sup>123</sup> for Climate Change network. National and sub-national actors have established their offices in Brussels and the Commission depends on the expertise of these stakeholders. “Networking and collective articulation of interests is more essential than ever for actors at local levels to make their voices heard in European or international contexts” (Kern & Löffelsend, 2004). These networks are characterized by a horizontal, polycentric and non-hierarchical structure. These networks form the basis for decentralized cooperation among their member cities.

Through the emergence of transnational city networks, institutional arrangements shift to European or international level. The transnational networking of cities thus connects the local level directly to the global level. The direct connection

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<sup>123</sup> Transnational city networks are a relatively new phenomenon in Europe. Most of them have emerged since the 1980s and they are distinctly different from the traditional forms of interest representation of local authorities in the EU. Members of the networks are the cities themselves and not national associations. Characteristic of such networks is, first, autonomy of their member cities who may join or leave the group at their own discretion; second, as a rule, the networks are polycentric, horizontal, and not hierarchical; third, these networks form the basis for decentralized cooperation among their member cities.



between the EU and the cities not only bypasses the route from national to EU level, it also indirectly influences and can even change the hierarchical relationship between the nation-states and their cities. Thus, there is indeed strong evidence that a new model of European governance has emerged (Kern, 2006).

Adapting an approach is only a first step, but ensuring that the effects take place in practice is the second and more difficult step to address. Despite the well established multi-level governance institutional structure and decision making process, the EU has to take additional measures in order to reach the Kyoto target of 8% reduction in greenhouse gas emissions by the end of 2010.

The EU has developed a mix of regulatory approaches in order to contribute to the target, and a lot of discretion to set up climate change policies is left to the Member States. This already makes it hard to assess the real content of climate change policies within the EU: we do have in fact one global problem, but 26 climate change policy approaches, one at the EU-level, and 25 at the member states level (Deketelaere & Peeters, 2006). Until 2001, the climate change policy within the EU was merely a collection of soft law measures. From 2001, some more serious measures were adopted, like the ET Directive (Pallemarts & Williams, 2006). The EU Emissions Trading Scheme is expected to bring significant emission reductions between 2008 and 2012.

The time table for implementation as included in the ET Directive was remarkably short: the Member States had to prepare their national legislation in order to implement the new regulatory instrument within only a couple of months after the

adoption of the directive. Moreover, one of the core sensitive elements of the emissions trading scheme, the development of National Allocation Plans, had to be executed by the member states in a very tight schedule (Eritja, 2006).

In the first two years of the EU Emission Trading Scheme (2005 and 2006), allocated allowances exceeded verified emissions by at least 3 %, mostly in new Member States. As a result, the price of emission allowances for the first trading period (2005–2007) dropped below EUR 1 per tonne of CO<sub>2</sub> in 2007. For the second trading period (2008–2012), the Commission has enforced stricter caps for most Member States, which are well below projected emissions based on existing domestic policies and measures, or about 6.3 % below verified emissions in 2005–2006. The price of allowances for 2008–2012 ranged from EUR 12 to EUR 25 per tonne of CO<sub>2</sub>. The overall emission reduction due to the EU ETS is estimated to represent at least 3.4 % of EU-15 base-year emissions (EEA, 2007).

The greatest future emissions reductions (2005–2010) are projected to come from the Directives on emissions trading, the promotion of electricity from renewable energy sources, cogeneration, bio-fuels and energy performance of buildings.

In March 2007, the Council of the European Union decided that the EU would make a firm independent commitment to achieving at least a 20 % reduction of greenhouse gas emissions by 2020 compared to 1990 (EEA, 2007).

In summary, from a governance perspective, the program embraces all of the core characteristics of the MLEG framework and demonstrates all forms of governance beyond nation state: governance by nation states; governance with nation

states and transnational governance (Kern & Löffelsend, 2004). However, the evidence shows that the governance arrangements are necessary but not sufficient for the achievement of program's outcomes.

The lessons learned from the ECCP program are:

1. The management of complex multi-level programs requires the emergence of new forms of governance where authority gets dispersed between different levels.
2. There is a need for better coordination between EU, national and local climate change policy.
3. Mixed instruments produce better results than command and control or pure market ones.

#### *Central African Regional Program for the Environment*

The Central African Regional Program for the Environment (CARPE) displays many of the characteristics of the Type II MLG where governance is organized across a large number of levels (Marks, 1993) and the capacity to make collective decision is shared among a wide variety of stakeholders. The literature shows that Type II MLG can be found in the public/private frontier and CARPE is a prime example of public-private alliances several of which are task specific and are formed to develop certification schemes for forest products. In addition, some Type II transnational jurisdictions coordinate state actors in the Basin (COMIFAC, TRIDOM accord), while others coordinate a mix of state and non-state actors (Congo Basin Partnership).

From an institutional point of view, given the definition of international regimes as principles, norms, rules, and decision-making procedures around which actor expectations converge in a given issue-area (Krasner, 1983) the Treaty on the conservation of sustainable management of forest ecosystems in Central Africa and on the establishment of the Central African Forest Commissions features the process of an international regime formation. The “Yaounde Declaration” signed by the Central African heads of State, officially proclaims their attachment to the principle of biodiversity conservation and the sustainable management of the forest ecosystems of Central Africa, as well as the right of their people to rely on forest resources for their economic and social development<sup>124</sup>.

At an operational choice level CARPE has tackled the issues of resource depletion and externalities. Congo Basin contains the largest remaining expanse of tropical moist forest in Africa and the second largest in the world and the loss of biomass as a result of deforestation has the potential of releasing the carbon into the atmosphere thus contributing directly to global warming (USAID, 2005). To address these problems CARPE is working on identifying and helping establish conditions and practices required to reduce deforestation and biodiversity loss in the tropical forests of the Congo Basin and conserve the biodiversity contained within them.

At the collective choice level, CARPE has worked with the governments of the respective countries to identify and address the following major policy issues: forestry codes, adoption of sustainable forest management plans, community based natural resource management and wildlife management.

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<sup>124</sup> Treaty preface (2005).

CARPE is being implemented within the larger context of the programs and initiatives of multiple governmental, inter-governmental and non-governmental partners participating in the Congo Basin Forest Partnership. African institutions across the region are translating political commitments into concrete actions on the ground. CARPE partners, many of whom have been working separately in the region, now are pooling resources and collaborating in new ways to reach common goals.

Activities are expanding local capacities to manage protected areas, initiating innovative public-private partnerships for effective management of the forests, and leveraging significant international support for continuing the work in the Basin.

CARPE has put a strong emphasis on partnerships, linking local and international actors in support of long-term natural resource sustainability for the Congo Basin.

The active engagement of a variety of stakeholders in these processes, has resulted in the development of a new constituency of Central Africans calling for more democratic and open processes (USAID, 2005).

CARPE partners are nurturing and expanding the circle of local partners, creating opportunities for training and advancement, and looking for opportunities that simultaneously empower local people, improve their livelihoods and achieve conservation goals – all of which build a solid foundation for improved governance and economic development.

By engaging with government agencies CARPE partners are helping to build the legitimacy of national institutions that play a crucial role in natural resource decision making.

During the process of CARPE implementation, multi-stakeholder processes have also emerged which aim to bring together all relevant stakeholders in order to: promote better decisions by means of broader input (Hemmati, 2002). CARPE has also created a mechanism for sharing information and a 'home' for a common knowledge base for the process, ensuring that all concerned have equal access to the relevant information from the outset.

In the coming years, CARPE will continue its emphasis on partnerships, linking local and international players in support of long terms natural resource sustainability for the Congo Basin. CARPE is committed to making lasting contribution to the Congo Basin Forest Partnership by helping the people of Congo Basin achieve effective conservation and sustainable natural resource management in the coming years. CARPE will continue to work with African institutions to build their technical, communications, and advocacy capacities in support of sustainable resource management and conservation (CARPE, 2005).

In summary, landscape and community-based conservation activities undertaken by CARPE as part of CBFP can be useful tools to foster good governance by demonstrating the benefits of participatory and transparent processes. However, the conservation agenda is still too often perceived as an agenda imposed by foreigners. CBFP can play an important role in breaking down the distinction between

conservation and development through expanding the circle of local partners, creating opportunities that simultaneously empower local people, improve their livelihoods, and achieve conservation goals, all of which will ultimately build a strong foundation for improved governance and economic development (CARPE, 2005).

The lessons learned from the CARPE program are:

1. Clearly articulated intermediate results help keep the program focused and on track.
2. Rules, norms and procedures that ensure transparency, legitimacy, accountability and inclusiveness generate stakeholders' buy-in.
3. The landscape approach to natural resource management allows for the integration of the conservation objectives with socio-economic objectives.

#### *The Regional Environmental Program for Central America*

The Regional Environmental Program for Central America (PROARCA) is a well designed and implemented program that embraces all the core characteristics of the MLEG framework.

If we analyze the program from a multi-level governance perspective, PROARCA exhibits many characteristics of the Type II arrangements. Jurisdictions are task specific: some coordinate the state actors (the Central American Commission for Environment and Development), while others coordinate state and non state actors (TRIGOH).

The Central American System of Protected Areas includes an unlimited number of flexible jurisdictions (at least 40 different categories) which vary from country to country. In addition the Mesoamerican Biological Corridor represents a system of land use planning comprised of natural areas under special administrative regimes, nucleus zones, buffer zones of multiple uses and areas of interconnectivity (MBC & CCAD, 2002).

Type II arrangements can also be found in public/private frontier. The work that PROARCA/SIGMA is doing at the sub-national level aims at joining the activities of municipalities and private sector programs to better manage solid waste by-products by creating a “market” of buyers and sellers of recyclable or reusable by-products in secondary markets.

From an institutional perspective, PROARCA illustrates the characteristics of an ecosystem-management approach which aims at improving resource management by changing institutional arrangements and improving coordination between public, private, and nonprofit organizations.

At the operational choice level PROARCA is tackling two types of natural resource and environmental problems: depletion and underinvestment.

The region possesses one of the richest concentrations of species and ecosystem diversity in the world. Despite urbanization, the majority of region’s inhabitants still live in the countryside and depend directly on biological resources for subsistence (WRI, 2001), which has led to unsustainable exploitation of natural resources, widespread water pollution and deforestation. Currently, almost half of the



population remains below the poverty line. The present trend of growing ecosystem exploitation is imposing increasingly large economic costs on the region as clean and reliable water supplies become more scarce, fishery stocks decline, flooding and drought becomes more severe and wildlife disappears (WRI. 2001). PROARCA is addressing these problems by strengthening the SICAP and the MBC and promoting the sustainable development of the protected areas. PROARCA/SIGMA has also invested in increased use of less polluting technologies and in the construction of two waste water treatment plants (DAI, 2004).

At the collective choice level, PROARCA has contributed in the harmonization of environmental standards and regulations, especially at the local government level (DAI, 2004), in terms of developing and promoting the use of economic instruments (fees for services, differential tariffs based on usage or toxicity, deposit/refund systems for recyclable or reusable products, etc.), and informational instruments (public discharge disclosure systems like Community-Right-to-Know law, or certification programs that give consumers more information upon which to make their buying and investment decisions, etc).

At the constitutional level, through PROLEGIS, PROARCA has provided continuous support to CCAD. For instance, one of the major accomplishments of CCAD was the convening of the 3rd Regional Conference on Environmental Enforcement, which was attended by the attorney generals and public prosecutors of the member countries as well as the environmental lawyers and legal advisors to the respective environmental ministries.

PROARCA is being implemented in a regional political context marked by efforts to consolidate democracy, decentralize public decision making, and increase opportunities for participation by civil society and private sector. As such, PROARCA has created a conducive environment for multi-stakeholder processes. The interests and aspirations of PROARCA stakeholders vary widely, depending upon their current access to natural resources, their socio-economic status and their cultural values and beliefs. PROARCA has identified the conflicts and common interests; it has created a communication process among stakeholders that allows the differences to be negotiated and has implemented projects designed to build stakeholder commitment at and across levels.

In summary, PROARCA's particular significance lies in the scope and complexity of its goals and the wide range of institutions and social actors it involves. PROARCA has been successful in integrating development with conservation goals and measures, building local capacity and promoting cooperation between organizations and institutions working in the area.

The lessons learned from the PROARCA are:

1. A program produces better results when development and conservation initiatives are fully integrated.
2. Co-management is an effective way of addressing cross-scale interactions.
3. The distribution of authority and responsibility among levels of government and between the public and private interests is essential in promoting cooperation and mobilizing skills and capacity.

### *The Central Truong Son Biodiversity Conservation Initiative*

The Central Truong Son Biodiversity Conservation Initiative (CTLIS) turns out to be a case where none of the MLEG core characteristics is actually present. Its MLG structure is underdeveloped and not ecologically defined. Two separate strategies are being implemented in Vietnam and Laos, but there is no synergy between the two. The MLG arrangements could be characterized as more of a Type I governance which assigns functions to different levels of government that are limited in number (Hooghe & Marks, 2003). Vietnam has made some progress with the establishment of the national system of the protected areas (World Bank, 2005). Those protected areas have been supported with international funding and have the attention of the central and local governments. Vietnam has adapted conservation landscapes as one of the categories for its terrestrial protected areas system. As a result, protected areas are being networked into larger systems through ecologically friendly landscapes.

Nevertheless, the institutional structure that supports the initiative is fragmented and responsibilities are divided among several ministries at the national level, and local line departments at the provincial and city level. Implementation of the relevant legislation is frequently constrained by unclear and overlapping institutional jurisdictions, weak interagency cooperation, and capacity limitations among government institutions charged with conserving the country's biodiversity (World Bank, 2005). Responsibility for many aspects of biodiversity conservation is decentralized to the provincial level of local government. Decentralization has presented a number of obstacles to effective biodiversity conservation. Critical

responsibilities and authorities are often devolved to agencies that do not have the capacity, skills, and administrative arrangements to take new roles on board.

In 2001, 146 development initiatives under implementation were identified in the CTSL. More than half of those involved infrastructure development (road rehabilitation, well construction, school renovations, etc) and around one third were related to agriculture and forestry. Only three development initiatives were directly related to biodiversity conservation initiative . The communes receive support from international donor agencies (World Bank, Asian Development Bank, UK/DIFID, Finland, Germany) but the present investments do not provide sufficient support for forest protection and biodiversity conservation (Villemain et al, 2003).

During the design phase, the initiative was successful in building up an environmental decision making process that was based on the principle of a diverse and inclusive participation. A range of national research organizations contributed to the biodiversity conservation. They included the Institute of Ecological Economy, the Environment and Sustainable Development Institute, the Center for Education and Communication of Environment, the Center for Natural Resources and Environmental Studies, the Center for Biodiversity Conservation, etc. Universities also played a critical role in conservation, as the primary repositories of the technical knowledge. However, during the implementation stage, the decision making process became fragmented, and most of the activities took place at the provincial level.

Vietnam recently strengthened the policy and regulatory framework for public involvement. In decree 79/2003/ND-CP of 7 July 2003 “ Promulgating the regulation

on the exercise of democracy in communes”, Vietnamese citizens now have the right to implement the direct democracy regime at the grassroots for the people to discuss and directly decide on important issues closely related to their interest and obligations. This proclamation allows for local citizenry to actively participate in the environmental efforts (Ingle & Halimi, 2007). Nevertheless, several institutional barriers are constraining civil society’s ability to foster increased citizen involvement and influence environmental improvements. First, local communities and their citizens lack information about existing and new policies, laws and regulations. Due to the lack of awareness, local communities have not yet been given the authority to participate in the decision making, management and monitoring processes (Sinh, 2001). Second, reliance on mass organizations such as the Women’s and Youth Unions as channels of information sharing proves problematic (UNDP, 2006). In Vietnam, the activities of the mass organizations are guided by the state apparatus, which limits their ability to be objective advocates for the resolution of local environmental concerns. Finally, there is a “lack of tools that facilitate participation” along with “useful detailed guidelines” on when, where and how to apply the tools (Sinh, 2001). All of these barriers detract from the ability of citizens, communities and other stakeholders to collaborate and share power in solving local environmental problems (Ingle & Halimi, 2007).

At the provincial level, WWF’s MOSIC project has enhanced stakeholder capacity to plan and manage natural resources in order to promote biodiversity conservation and sustainable development. MOSAIC has embraced some of the

design principles for common pool resource institutions (e.g. clearly defined boundaries, monitoring, sanctioning, conflict resolution mechanisms, ect) as well as the principles of ecosystem management. However the project is confronted with several key challenges: institutionalizing the changes; replicating the changes across the whole landscape and sustaining the changes so that they will continue after project funding ceases and when WWF has less direct involvement.

The lessons learned from the CTSL program are:

1. Institutional arrangements and decision making processes need to be harmonized during a program's design and implementation.
2. In areas of multiple jurisdictions and in politically guided societies coordination mechanisms should be developed that do not immediately challenge nations sovereignty.
3. Institutional barriers that constrain the involvement of the non-state actors into the multi-level governance of natural resources need to be removed.

### 5.3. Cross-scale and cross-level dynamics

Each case study has its own dynamic of cross level and cross scale interactions.

Mismatch was the type of cross scale challenge (Cash et al, 2006) identified during the case analysis. Three cases demonstrate the mismatch challenge: CTSL biodiversity conservation initiative, the NPCC fish and wildlife program and the ECCP. These programs use a governance structure that does not map on to the biogeophysical scale of the resource.

Berkes (2003) and Cash et al. (2006) identify several responses to the cross-scale interactions including: multi-stakeholder bodies, civic science, institutional interplay (cross level interactions), co-management and bridging organizations:

- Evidence of multi-stakeholder bodies is found in each case as described in the previous chapter.
- The best evidence of civic science is found in the NPCC Fish and Wildlife Program. Over the years NPCC has done a good job in opening the science of salmon management to citizen input.
- The institutional interplay can be illustrated in two cases. In the case of NPCC Fish and Wildlife Program the institutional interplay involves interactions between management systems located at adjacent levels (Young, 2006), i.e. state level regimes administered by the five States Departments of Fish and Wildlife and the nation-level regimes administered by the U.S. Fish and Wildlife Service. Similarly, ECCP is

characterized by the interplay between Member States climate change regimes and EU-level climate change regimes.

- Some cross-level interactions produce a pattern characterized by dominance in the sense that an environmental or resource regime operating at one level dominates one or more regimes operating at other levels. Thus, constitutive rules sometimes specify that decisions made at one level take precedence over or trump decisions taken at other levels (Young, 2006).  
In the case of NPCC Fish and Wildlife Program, many of the salmon recovery efforts are being directed by the Portland Oregon US District Court (Williams et al, 2006). The 2004 NOAA Fisheries Biological Opinion (BiOp) for the Federal Columbia River Power System Operations did not require the U.S. Army Corps of Engineers or the Bureau of Reclamation to significantly change the current hydroelectric operations. In May 2005, Judge Redden of the US District Court in Portland, Oregon invalidated<sup>125</sup> the 2004 BiOp on the grounds that it was legally flawed. The Opinion was the latest in a series of decisions issued by judges from Portland District Court, since 1994.
- The best example of co-management is found in the PROARCA case. Throughout the region, PROARCA has developed a number of mechanisms including advisory boards, consultative councils, directive

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<sup>125</sup> In invalidating the 2004 BiOp, Judge Redden described the BiOp as having a jeopardy analysis that ignored the reality of past, present, and future effects of federal actions on listed species. Consequently, he judged that NOAA Fisheries' interpretation of jeopardy and their proposed mitigation measures conflicted with the structure, purpose, and policy behind the Endangered Species Act.



committees, management committees and local committees to facilitate the implementation of the co- management plans for the protected areas. The success of the co-management agreements is based on the principles of public participation, equity, legitimacy and decentralization.

- The role of boundary or bridging organizations is to facilitate the co-production of knowledge (Cash et al, 2006). For instance, the Pacific Northwest Aquatic Monitoring Partnership provides a central forum for the discussion of policy and management issues and is playing a key role in the development of coordinated approach to monitoring at a regional scale.

## CHAPTER VI: CONCLUSIONS, IMPLICATIONS AND FUTURE RESEARCH

The governance of large scale natural resource management programs is becoming increasingly complex. Nation states alone are incapable of coping with the complexities of governing at and across levels. In this regard, the concept of Multi-level Environmental Governance (MLEG) can be used to identify the multi-level governance and institutional arrangements as well as decision making processes that are needed to improve resource management.

This chapter will draw some conclusions about the MLEG framework and discuss the overall relationship to the research question; it will highlight the implications for the theory and practice of large scale natural resource management, and suggest some directions for future research.

### **6.1 Conclusions about MLEG framework**

The MLEG framework was developed based on three theoretical constructs Multi-Level Governance (MLG), Institutions for Environmental Governance (IEG), and Environmental Decision Making (EDM), each with a distinct explanatory power as discussed in turn.

*Multi-level Governance.* The concept of multi-level governance was selected because it raises important questions about the role of nation states and national government, and focuses attention on other levels and other actors, including non-state

actors (Bache & Flinders, 2004), where governance becomes organized through multiple jurisdictions and can no longer be understood as a central state monopoly.

The evidence from the cases shows that the national governments are entering into “power sharing” agreements (Bryson & Crosby, 2005) with the non-state actors to better address the issues of climate change, the loss of biodiversity, depletion of fisheries, and forests protection.

The analysis of the case studies showed that the MLG horizontal arrangements of the programs were not well developed from the outset; they developed over time and became more prominent during the second phase of the programs. These findings are in line with Scharpf (1994) and Jessop’s (2006) observations that the new forms of governance take place in the “shadow of hierarchy”. The end result is a multi-level system that is not a simple hierarchy. Rather there are multiple jurisdictions that in many respects are overlapping known as Type II MLG arrangements (Marks & Hooghe, 2004).

Another conclusion that can be drawn from the analysis is that nation states continue to play an important role at various territorial levels. State executives have still some control over what powers are transferred upwards, downwards and sideways, especially in countries with economies in transition (e.g. Vietnam). Yet, the distinction between “high” and “low” politics issue areas is important (Bache & Flinders, 2004). The argument from this follows that the MLG is likely to be more prominent in sectors or issues deemed “low politics” by national governments. Environmental and regional policies are considered “low politics” areas for national

governments (Bache & Flinders, 2004), hence they are more willing to promote multi-level governance arrangements. State executives may mobilize and draw on the resources of supportive non-state actors to achieve specific objectives and outcomes, as clearly demonstrated by CARPE and PROARCA.

What the studies on the multi-level governance of the water resources bring to bear is the recognition of the emergence of new forms of governance that go beyond the nation state and are non-exclusive and post-territorial. The typology of the governance “by the nation state”, “with the nation state” and “without the nation state” can be adapted and applied across media.

*Institutions for Environmental Governance.* This study reinforces the belief that the institutional dimension of MLEG remains critical, partly because it is institutions that define the linkages between different levels of government, partly because institutions as actors on more than one level help coordinate MLEG, and partly because MLEG – as all types of governance – is embedded in institutional webs which “shape and constrain political action” (Peters & Pierre, 2004).

The results from the cases speak to the fact that institutional arrangements which emphasize the “normative pillar” (Scott, 1995) or “social-practice models” (Young, 2005) that feature the articulation of normative discourses, the emergence of informal communities, and the encouragement of social learning (Young, 2001), are better suited to deal with large-scale natural resource management issues. Institutions in the “thick” sense, which emphasize the “rules in use”, are social processes that are based on the rules of the game but also include common discourses in terms of which

to address the issues at stake, informal understandings regarding appropriate behavior on the part of participants, and routine activities that grow up in conjunction with efforts to implement the rules (Scott, 1995). It is significant that intergovernmental entities such as COMIFAC (CARPE) or CCAD (PROARCA) have called for strengthening of environmental institutions in the member states in order to manage the regional environment effectively. In addition to soft-law approaches to environmental management (resolutions, declarations, action plans, etc), both entities have taken a number of hard-law measures by signing treaties for cooperation. In both regions, the efforts to implement the rules articulated in the treaties and accords have been complemented by the emergence of informal communities (policy alliances, environmental non-governmental organizations networks, etc) and encouragement of social learning (the development of technical documentation, publications, workshops for sharing the lessons learned, etc.).

Different IEG theoretical frameworks represent an added value to the thick perspective on institutions. The environmental regimes theory is particularly useful in understanding the dynamics of governance processes at the supranational level (e.g. ECCP and global climate change regime). The Institutional Analysis and Development Framework's typology about different sets of rules is applicable across cases. The Bioregionalism and Ecosystem Management frameworks and their guiding principles point to the importance of integrating scientific knowledge with a complex of sociopolitical and values framework to achieve the goal of improving resource management (e.g. CARPE, NPCC Fish and Wildlife Program). The Networked

Governance framework puts an emphasis on the “horizontal” nature of the relationships between the stakeholders, which interact through negotiations in an institutionalized framework. Such a framework has a regulative aspect in the sense that it conveys to norms, values and standards, a normative aspect and a cognitive element (e.g generates specialized knowledge).

Another conclusion that can be drawn is the importance of addressing the issues of cross-scale and cross-level interactions. It is dangerous to focus attention exclusively on one level, to assume that higher-level arrangements will take the form of macrocosms of lower-level arrangements, or that lower-level arrangements are microcosms of their higher-level counterparts (Cash et al, 2006).

The research on natural resource management has a history of emphasis on the community level, but community institutions are only one layer in a multi-level world. It is becoming increasingly clear that commons governance necessarily involves a network of interactions at various levels. An increasingly globalized world requires institutions that link the local level to the various higher levels of social and political organization. Such linkages can provide ways to deal with multiple management objectives and multiple knowledge systems; they may result in the creation of networks for learning and joint problem solving and may provide a framework for governance (Berkes, 2008).

However, as Ostrom (1998) alerts, an overemphasis on the need for large-scale institutional arrangements can lead to the destruction or discouragement of institutional arrangements at smaller to medium scales. Local scale institutions are a

necessary part of effective governance systems, but are not themselves a sufficient solution (Ostrom, 1998).

Institutions need to be flexible, in order that they may rapidly adapt to changes in social values, ecological conditions, political pressures, available data and knowledge.

*Environmental Decision Making.* Large scale natural resource management problems affect and are affected by institutionalized decision-making at sub-national, national and supra-national levels.

The presence of environmental decision making characteristics in all of the cases shows that successful MLEG arrangements are founded upon multi-stakeholder, collaborative, and power sharing, processes that take into account the principles of equity, accountability, transparency and access to information.

MLEG is intended to counteract the fragmentation that is characteristic of decision-making that is organized by territorial, social, and political divisions. The involvement of networks in MLEG is aimed to enhance the representation of the diversity of interests that may be affected by environmental problems. Participatory processes are a key element of MLEG because they contribute to the legitimacy and effectiveness of governance solutions.

Stakeholder involvement early on in the program design process is crucial for encouraging commitment to the process, credibility, legitimacy and trust. It is important to create a system for sharing information among stakeholders and ensuring

that all concerned have equal access to the relevant information from the outset. That ensures the transparency of the process.

Collaborative processes should be developed as adjuncts to normal decision making process. They must be treated as supplements, and not as alternatives to the conventional decision making. Accountability of a collective process can be ensured by its connection to normal government processes (Wondolleck & Yaffee, 2000). To achieve the higher level of accountability the affected groups need to be able and willing to participate, and collaborative processes must be carried out in accordance with the norm of good MSP as described in Chapter II.

Another way to ensure accountability is through mechanisms that allow decisions to be reviewed by independent sources (Wondolleck & Yaffee, 2000), and to institute mechanisms for independent scientific review.

#### *6.1.1. Overall relationship to the research question*

This dissertation has developed a framework called Multi-level Environmental Governance (MLEG) that is broad in scope and integrated. The MLEG framework is designed to deal with the complexities of the contemporary environmental governance of natural resources. The research explored the relationship between the core characteristics of the integrated MLEG framework and the achievements of the large scale natural resource management programs by addressing the following research question:



*Does the presence of the three core characteristics of the MLEG framework contribute to a higher degree of the large scale natural resource management program achievement? If so, in what manner and under what sets of external and internal conditions?*

The cross case analysis determined the extent to which the three core characteristics of the MLEG framework were present in each case. The analysis indicated that with the exception of the CTSL Biodiversity Conservation Initiative, in all the other cases the MLEG characteristics were present. However, the presence of the core characteristics did not always contribute to a higher degree of program achievements, as predicted by the MLEG theory.

The evidence showed that the slow progress in achieving programs objectives in the ECCP and NPCC cases was related to the lack of clearly articulated intermediate objectives and the structural complexity associated with the nature of the resources. The ECCP program addresses the issues of the climate change within the EU member states but it leaves out the non-member states. In the case of salmon management, the ecological boundaries of the resource transcend those defined by the program. “Regimes concerned with the conservation of living resources that do not cover the entire geographical ranges of migratory species (e.g. fish, birds) have build-in weaknesses that impede their ability to fulfill their goals” (Young 2005, pp 57-58). This evidence speaks to the importance of the ecologically defined governance structure for the management of natural resources.

Another conclusion that can be drawn from the analysis is that boundaries between MLG and IEG are fuzzy; the overlap between these two characteristics is much greater than their overlap with EDM, as demonstrated by the interconnectedness between some of the measures for each characteristic. For instance one of the measures for the IEG was the “non-hierarchical institutional relationships”. The horizontal linkages in the MLG are one of the manifestations of non-hierarchical institutional relationships.

In addition, the “multiple-stakeholder processes” is a recurring theme, and stands out as an important attribute of MLEG. Multi-stakeholder processes are part of the MLG (vertical and horizontal linkages), IEG (hierarchical and non-hierarchical institutional relationships between various stakeholders) and the EDM (diverse and inclusive participation). Different programs have chosen different approaches to design stakeholder involvement. In the cases of ECCP and NPCC the decisional stakeholder processes prevail, where stakeholders directly participate in making final choices. In the cases of CTLS, CARPE and PROARCA stakeholders level of engagement falls under informational and consultative processes. The coordination among the stakeholders at and across levels poses a challenge for the management of the programs. The coordination mechanisms are either lacking (CTSL) or not functioning properly (CARPE, PROARCA).

The importance of access to information and information sharing among stakeholders should be emphasized, especially when the management of the resources requires the interpretation of very complex scientific information.

Overall, the presence of the core characteristics of the MLEG framework contributes to a higher level of program achievements under the following conditions:

- The resource is of a stationary nature and the program uses an ecologically defined governance structure.
- There is continuous funding to support the conservation effort.
- There is a high degree of scientific certainty about the management of the resource.
- The conservation effort is based on “multi-stakeholder processes” that are informational and consultative in nature.

In summary, a number of revisions are needed to the MLEG core characteristics and measures. *First*, the original second characteristic, drawn from the Institutions for Environmental Governance, stated that “Institutional relationships are defined at the scale of the problem, and are of a *non-hierarchical* nature linking a variety of actors at subnational, national and supranational levels. These relationships are governed by a negotiated set of rules, norms and procedures for cooperation”. Based on the research findings, a revised version would state that “Institutional relationships are defined at the scale of the problem, and are of an *interdependent nature* linking a variety of actors at subnational, national and supranational levels. These relationships are governed by a negotiated set of rules, norms and procedures for cooperation”. In terms of measures, the “non-hierarchical institutional relationships” will be replaced by “a blend of hierarchical and non-hierarchical institutional relationships”. *Second*, because of the importance of technical

coordination among the stakeholders at and across levels, a new measure about coordination should be added to the list. The table below, presents the revised version of the MLEG core characteristics and measures.

**Table 14: MLEG revised characteristics and measures**

<b>Core characteristics of MLEG Theoretical Constructs</b>	<b>Measures</b>	<b>YES/NO</b>	<b>1/0</b>
Multi – level Governance (MLG)- <i>Vertical and horizontal linkages within an unlimited number of task specific flexible jurisdictions</i>	<ul style="list-style-type: none"> <li>• Unlimited number of task specific jurisdictions</li> <li>• Vertical linkages</li> <li>• Horizontal Linkages</li> </ul>		
Institutions for Environmental Governance (IEG) - <i>Institutional relationships are defined at the scale of the problem, and are of an interdependent nature linking a variety of actors at the subnational, national and supranational levels. These relationships are governed by a negotiated set of rules, norms and procedures for cooperation.</i>	<ul style="list-style-type: none"> <li>• Ecologically defined governance structure</li> <li>• A blend of hierarchical and non-hierarchical institutional relationships</li> <li>• Negotiated sets of rules, norms and procedures for cooperation</li> <li>• Technical coordination among stakeholders at and across levels</li> </ul>		
Environmental Decision Making (EDM) - <i>The governance arrangements are founded upon multi-stakeholder, collaborative, power shared decision making processes based on the principles of equity, accountability, transparency, participation and access to information</i>	<ul style="list-style-type: none"> <li>• Diverse, inclusive participation</li> <li>• Equitable DM process</li> <li>• Clear goals, objectives and written plan</li> <li>• Information is constantly shared among stakeholders</li> </ul>		

## 6.2 Implications

The main field of study that this research has aimed at contributing to is the field of environmental governance. This study has implications for both the theory and practice of large scale natural resource management.

### 6.2.1. *Theoretical implications*

The five case studies examined in this research confirm to some extent the relationship between MLEG core characteristics and the achievement of program outcomes under a specific set of conditions. This relationship is more clearly supported in two cases: CARPE, PROARCA where this sets of conditions are in place. It is more difficult to assert that ECCP and NPCC programs confirm this pattern.

On the other hand, the analysis casts doubt on some arguments raised by scholars who have studied the multi-level governance of water resources. For instance, Karkkainen's (2004) framework of "Post-sovereign environmental governance" states that this type of governance exhibits three distinguishing characteristics: it is non-exclusive, non-hierarchical, and post territorial. The findings from this research show that the MLEG arrangements are non-exclusive and post-territorial, but not totally non-hierarchical. The non-hierarchical arrangements emerge and develop over time and supplement the conventional hierarchical institutional relationships.

MLEG requires attention not only to the levels but also to scale and interplay of institutions across scales and levels. In the case of migratory or non-stationary resources, the problem of scale is crucial. As many non-stationary resource management problems require the involvement of multiple users, and the connection of several levels of jurisdiction, this is an area that requires further work (Berkes, 2003).

The concept and terminology of institutional interplay, with horizontal and vertical cross-scale linkages, allows for the great many possibilities in which institutions may interact in resource and environmental management (Young 1999; 2004). These concepts were applied in five case in different regions of the world. All of these areas provide ample opportunity to both develop and apply theory.

#### *6.2.2. Practical Implications*

Large scale natural resource management programs involve complex problems that are both poorly understood in scientific terms and subject to rapid – sometimes non linear change, over time (Young, 2005). Grappling with the whole ecosystem, managers face a daunting challenge. They must develop the capacity to plan, encourage, coordinate, and implement the many tasks and functions associated with the protection and use of biodiversity, and forests, soil, seas, and other biological resources (Miller, 1996). A legitimate question to ask is “Given those conditions, what are the practical implications of the MLEG framework?” For each core characteristics, the practical implications are listed below.

Multi-level governance practical implications:

- Design task specific, flexible jurisdiction;
- Establish and maintain vertical and horizontal linkages.

Institutions for Environmental Governance practical implications:

- Develop an ecologically defined governance structure;
- Create institutional arrangements that are flexible and open to adjustment;
- Clearly articulate “rules in use” and develop coordination mechanisms;
- Manage cross-level and cross-scale interactions. Consider using co-management, civic science, and building boundary or bridging organizations;
- Build the capacity of natural resource management professionals to design and manage complex programs;
- Ensure continuous funding.

Environmental decision making practical implications

- Take into account the principles of Multi Stakeholder Processes;
- Clearly articulate program’s *intermediate results* along with goals and objectives;
- Use science based decision making processes by integrating the forecasting task with other decision processes;
- Consider the use of independent scientific advisory groups;
- Put in place and institutionalize a monitoring and evaluation system and conduct periodic monitoring and evaluation at “whole” program scale;

- Make sure the information is available and constantly shared among the stakeholder;
- Create opportunities for learning at and across levels by presenting program accomplishments to different stakeholder groups.

### 6.3 Directions for future research

This study developed the MLEG framework and then applied it into five case studies to explore its initial exploratory power. The results from the case analysis showed that the framework is best suited to capture the dynamics of multi-level environmental governance of stationary natural resources.

That said, in order to increase framework's explanatory power, some modifications are needed. *First*, the implications of multi-level governance that arise from the "resilience"<sup>126</sup> (Gunderson & Holling 2002; Folke et al, 2002) of the ecosystems must be factored in. To achieve this goal a number of system dynamics must be accounted for, such as the existence of multiple thresholds, non-linearities in the system behavior, feedback and scale mismatch, cascading effects, and system collapse and reorganization (Gunderson & Holling, 2002). Mismatches between the scales of ecological processes and the institutions that are responsible for managing them can contribute to a decrease in resilience of the ecosystem, including the mismanagement of natural resources and a decrease in human well-being. Recognizing and resolving scale mismatches is thus an important aspect of building

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<sup>126</sup> The capacity of the ecosystem to cope with and respond to change.



resilience in ecological systems (Anderies, 2006). Solutions to scale mismatches usually require institutional changes at more than one hierarchical level. Long-term solutions to scale mismatch problems will depend on social learning and the development of flexible institutions that can adjust and reorganize in response to changes in ecosystems.

Interventions in ecological systems with the aim of altering resilience immediately confront issues of governance. “Much variation in the association between governance arrangements and the capacity to manage resilience remains unexplored” (Anderies, 2006). Who decides what should be made resilient to what? For whom is resilience to be managed, and for what purpose?

*Second*, the set of measures that captures systems dynamic should be added into the framework and additional evidence from the case studies, which indicates the presence or the absence of those measures, should be collected.

For the purpose of conducting this study, only five cases were selected to test the MLEG framework. Four out of the five cases, displayed the 1/1/1 configuration and only one case displayed the 0/0/0 configuration. Future research should aim at testing the framework by applying it to additional case studies that would fall under the missing configurations (see truth table in the methodology section). Moreover, the research question looked at the relationship between the Core MLEG characteristics and intermediate program results. Additional research is needed that would explore the relationship between the framework and final results and/or program impact.

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