

# **MAP Initiative, Infrastructure and Energy: CHALLENGES FOR GREEN GOVERNANCE IN SOUTHWESTERN AMAZONIA**

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## **1. Introduction**

Southwestern Amazonia is the frontier area between Brazil, Bolivia and Peru. In recent years this region has been faced with IIRSA (Integration Initiative of South American Infrastructure), the huge transnational program to promote integration by transportation and to a lesser degree, with energy, particularly hydroelectric. The center of this area consists of the Department of Madre de Dios, Peru; the State of Acre, Brazil; and the Department of Pando, Bolivia; known as the MAP region. This region is one of the most biologically diverse regions of the world and also is highly socially diverse with a population that speaks more than ten languages.

This area is also rich in resources. A Chinese and an American oil company are prospecting in Madre de Dios, Peru, along the Brazilian and Bolivian borders, and plan to prospect soon in Bolivia. In the concession areas for exploration in Peru, there are indigenous people living that are voluntarily isolated. One of the other areas for oil exploration is part of the tri-national Acre River Basin, shared by Bolivia, Brazil and Peru, and is a water source for over 250 thousand people that live in this basin. These prospecting activities may be intensified by the infrastructure planned for this region. The acceleration of the integration process stands this region in a crucial moment and creates a challenge for MAP's societies: how can they combine development with environmental conservation? The MAP Initiative, a collaborative effort of individuals and academics, governmental and non-governmental organizations, is working to reach this goal, as a model of cooperation between frontiers countries.

Generally there are widespread allegations that the oil companies operate in developing countries without environmental and social concern. This work discusses the process of cooperation of the MAP Initiative as an experiment of green governance which could be an important tool for sustainable development in the context of the pressure of large investments in infrastructure and energy sources prospecting in the MAP region.

## **2. Historical Context of MAP Region.**

The MAP region in the center of the Southwestern Amazon consists of the Peruvian Department of Madre de Dios (Peru), the Brazilian State of Acre and the Bolivian Department of Pando. This area covers around 300 thousand square kilometers of Amazon rain forest and with of around 700 thousand inhabitants (MAP Initiative, 2006).

The historical context of the MAP region shows a singular occupation and land use dynamic. Like other areas of the Amazon rain forest, its occupation was driven by the search for economically viable natural resources. As Raffles (2002) and Schiebinger (2004) analyze, bioprospecting was the first step toward imperial expansionist and mercantilist activities of the Portuguese and Spanish in the 17<sup>th</sup> and 18<sup>th</sup> centuries. Naturalists play an important role in the knowledge generated about the Amazon and its potentialities. In 1743 the French naturalist, Charles Marie de La Condamine, made an economic discovery, the rubber tree, *Hevea brasiliensis*, used by the indigenous people, and he described its useful potentialities.

With a vision of economical forest products, the invention of tires in 1888 and the sprouting of the automobile industry, the international demand for the rubber abundant in the Amazon increased. It was the moment for Spain and Portugal to establish the limits of their empires in the Amazon. The countries formed after the age of colonization inherited this conflict. The MAP region, in the center of Southwestern Amazonia, was an area of conflict and litigation between Bolivia, Brazil, and Peru as a result of the process of colonization by Spain and Portugal. Several treaties were signed to solve this problem since 1750. In November 1903, with the signing of The Petrópolis Treaty, the territory of Acre was incorporated into Brazil (ZEE/AC, 2000). The current border between Bolivia and Peru was defined only in September 1909. However, its official inauguration was on June 2, 1911 (Toppin, 1916).

Rubber was an important commodity driving exportation that shaped the environment and demarked the boundaries between these three countries, which worked to protect their rubber production interests at that time.

During the boom of rubber in 1890–1920 the governments adopted policies to meet the demand of international markets in the United States and Europe and promoted the migration of thousand of workers to this region. With the crisis in the rubber sector affected by competition from rubber production in Malaysia and Ceylon, the residents turned to other activities including gold mining in Peru, selective logging and collection of Brazilian nuts (*Bertholletia excelsa*) and subsistence agriculture in Brazil and Bolivia.

During World War II, in the 1940's, the United States invested again in rubber production in the Amazon, but after the war, its investments in the region were stopped and the rubber tappers were forgotten. Meanwhile, Brazil started to plan the development and integration of this region with the rest of the country.

In the 1960s roads, such as Belen–Brasilia and Brasilia–Acre in Brazil and also the road that connects Madre de Dios with the Peruvian highlands, fostered the Amazon occupation. In this period the forest was used as a safety valve to accommodate landless people from Northeastern Brazil and the highlands of Peru. With the possibility of major migration to this region from other Amazonian countries and the major influence on the area that would cause, and also the Bolivariana Marginal of the Amazon Highway, the occupation of the Amazon region was the priority for Brazilian planners (Becker, 2001).

Infrastructure was implemented to promote the occupation of the region, and also institutional organization was improved in Brazil to provide favorable conditions for colonization of the region, including the Superintendence of Amazonian Development (SUDAM) and the Amazonian Bank (BASA), originally the Rubber Bank. Fiscal and credit mechanisms were implemented to support the southeastern and foreign capital influx to the region, principally through the BASA (Becker, 2001).

During the decade of the 70's, the Brazilian government established that a zone of 100 km along each side of the federal roads was owned by the public sphere in order to make land available for the settlement of people from other Brazilian regions (Becker, 2001). The National Institution of Colonization and Agrarian Reform (INCRA) was established to implement this strategy.

In this period, the roads, such as BR 364 constructed to connect Acre, played a principal role in the way the Brazilian Amazon was occupied by people from northeastern and southern Brazil. Another important road was the Interoceanic Highway, which was conceived in an agreement signed in 1979 by Peru and Brazil (Neaughton-Treves, 2004). The road to link Santa Cruz in the Bolivian Amazon to La Paz drove the massive expansion of agroindustrial activities (Alvarez, 2003).

The policies adopted encouraged occupation not only by small landholders but also by large investors (national and foreign) for cattle raising and large-scale agriculture, logging and mining. The migration resulted in social conflicts due to the occupation of land without concern for the people already established in the region (indigenous and rubber tappers). These conflicts were characterized by the violence with which they banished people from their lands. This was one of the reason for the extinction of many indigenous communities.

In Bolivia it was private credit, rather than governmental policies such as roads and programs to acquire land to promote colonization of the Amazon, that promoted deforestation for soybean agriculture in the Department of Santa Cruz (Alvarez, 2003).

In the 1980s, the incentive to occupy the region continued. In Peru, fiscal and credit mechanisms to support capital influx to the region were implemented from 1985 to 1990 (Weil, 1983) while in Brazil, the context was characterized by a step back from aggressive national development but continued intervention of the State in the economy and in the territory. However, the conflicts between large estate owners and rubber tappers became more violent (ZEE/AC, 2006).

The National Union of Rubber Tappers was created in order to resist land expropriation and protect the rubber tappers' rights. With this social organization and pressure from the international movements, development policies changed but many rubber tapper leaders were murdered, including Chico Mendes in Acre (ZEE/AC, 2006). Later in 1990 the IBAMA (Brazilian Institute for Renewable Resources and the Environment) declared and regulated extractive reserves (RESEX) in order to meet the rubber tappers demands and also protect the forest from the deforestation promoted by extensive cattle activity.

The effects of the Amazon colonization policies were highly negative. They promoted systematic occupation of the territory without environmental and social concern. Large-scale cattle raising replaced rubber extraction which resulted in severe deforestation along the roads, land speculation, high debts by the small landholders, violence and conflicts over land possession. At the end of this decade in the Brazilian Amazon, more than 155,000 km<sup>2</sup> had been deforested (INPE, 2000) at a rate of around 22,000 km<sup>2</sup>/year over the period of 1977 to 1988.

From the 1990s to the present, Brazil implemented two programs of development planning and infrastructure funding named Brazil in Action (1996 – 1999) and “Avanço Brasil” (Forward Brazil) from 2000 – 2003, with additional projects on the horizon through 2007. The objective is the provision of access to isolated areas principally through the paving of BR 163 (Cuiabá–Santarén) and BR 319 (Manaus–Porto Velho) highways. These programs also include the construction of hydroelectric dams, gas pipelines, railways and transmission lines (Fearnside, 2000, IPAM/ISA, 2000).

The period of colonization of the Amazon after the rubber boom was characterized by the search for new economically viable natural resources such as timber and mining and energy sources, but also by the search for space to implement agriculture such as soybeans and large-scale cattle raising.

During the 1990s and the period of Brazil in Action the rate of deforestation fluctuated considerably from 29,000 km<sup>2</sup>/year in 1995 to a median around of 17,200 km<sup>2</sup>/year from 1996 to 1999 (INPE, 2006). The deforestation rates increased from 18,100 km<sup>2</sup>/year to 27,400 km<sup>2</sup>/year during 2000–2004 and decreased in 2005 to 18,700 km<sup>2</sup>. According to Alves (2001), 90% of the deforestation of the 1970s and 1991–1997 occurred within 100 kilometers of major roads running from eastern to western Brazil.

In Peru and Bolivia the road construction was less intensive than in Brazil. In the Peruvian Amazon, with an area of more than 550,000 km<sup>2</sup> the current length of gravel roads is only 1000 km (Maki *et. al* 2001). This lack of road networks in the Peruvian Amazon resulted in less deforestation than in Brazil. According to FAO (2000) the Peruvian Amazon lost 2,690 km<sup>2</sup>/year from 1990 to 2000. In Bolivia from 1975 to 1990 the total deforestation rates did not pass 20,000 km<sup>2</sup> or 500 km<sup>2</sup>/year over 15 years.

Large-scale deforestation affects climate, land-atmosphere interactions (greenhouse gas emission), and ecosystems including loss environmental services, such as biodiversity maintenance, water cycling, and carbon storage, as the Experiment of Large Scale of Biophere-Atmosphere in Amazonia shows through the different studies developed in order to determine the interaction between atmosphere, biosphere and human dimension (<http://www.lbaeco.org/lbaeco/>).

In the MAP region, cattle, logging and gold mining (principally in Madre de Dios) became the most important activities with large impacts in the environment. In this Amazon area most isolated from Brazil, Peru and Bolivia, land occupation was less intense than in other parts of the Amazon due to the conditions of the roads. The BR 364

in Acre, Brazil, was paved only in 1992 and in Madre de Dios, Peru, the road connecting Masuko on the frontier with the department of Cusco to Iñapari on the frontier with Brazil as part of the Interoceanic Highway, is currently being paved.

In sum the infrastructure that made possible the flow of public and private credit in order to meet international markets, changed the landscape through the acceleration of the deforestation often without concern for rural livelihood and indigenous communities.

As the historical context shows, the infrastructure implemented in the Amazon in order to develop the region, didn't align with social and environmental justice. Social justice was not meted to the people already established in the region (indigenous people) and also to the new "amazonidas" such rubber tappers and smallholders who were not able to be economically profitable even though large areas were converted to large-scale agriculture or cattle ranching.

### **3. Current Infrastructure and Energy Planned for the MAP Region: Risks and Challenges**

The Integration Initiative of South American Infrastructure (IIRSA) is a multi-sectoral project signed by the presidents of the twelve South American countries in 2000. This project aims at higher productivity, equity and growth in a process of political, social and economic integration (IIRSA, 2006). To achieve this goal, it plans to modernize regional infrastructure (land, aerial, and river transport), energy, waterways, maritime and river ports and telecommunication; plans will be executed under a regional vision to stimulate the integration and development of isolated sub-regions such as the MAP region by 2010. The financial support for this project will be provided by the Andean Promotional Corporation (CAF), and the Financial Fund for the Development of the Rio de la Plata Basin (FONPLATA), in addition to important contributions from the Brazilian Development Bank.

IIRSA organized the project on 12 integration and development axes, which are corridors to increase trade and create chains of production connected to global markets, in order to catalyze the relationships between South American countries.

The MAP region is within the Peru, Bolivia and Brazil axis which IIRSA has labeled the MAP zone. The area covered by this region is around 3 million km<sup>2</sup> and has a population of 12 million of inhabitants. The projects planned for this axis are estimated at more than US\$11 billion. The principal projects planned for this region are the construction of the Interoceanic Highway, the Hydroelectric Complex of Madeira River and the bi-national Dam of Brazil and Bolivia.

The construction of these two huge hydroelectric dams on the Madeira River in the Brazilian Amazon will require an investment of between US\$6.5 and \$8.7 billion, and will generate more than 6,000 MW of energy together. A Brazil-Bolivia bi-national dam is planned in addition to these two dams in Brazilian territory.

Along with tapping hydroelectric energy, the IIRSA project also plans to construct pipelines. This infrastructure aims to facilitate the exportation of natural gas produced in key points on the Amazon and Southern Amazon axes, which contain important ports such as Manaus on the first axis and Porto Velho on the second axis, and will be connected with Peruvian ports on the Pacific. IIRSA's plan would allow transportation of grain products (soy, corn and wheat) in addition to Camisea's natural gas from Peru. It would also facilitate oil prospecting activities in Madre de Dios on the border between Brazil and Bolivia.

Clearly, the construction of roads has been the driver of intensive land occupation and many negative social and environmental impacts in the Amazon region.

Dourejani (2001) analyzed the probable negative impacts of the Interoceanic Highway and identified, based on the Brazilian experience in road construction, that the principal negative impacts on the environment could be legal and illegal deforestation, forest degradation, and the fostering of intensive legal and illegal timber exploitation by small- and medium-scale loggers who already have activities in the region.

In addition, several rivers will be dredged and straightened, and overhauled in other places (river ports) to meet the river transportation system plan. These infrastructure projects and the intensification of transportation flows they will generate will result in massive environmental impacts on the Amazon ecosystem.

Added to these infrastructure projects is the Peruvian program for oil exploration in this region. In October of 2005 the Peruvian Government made contracts with Chinese and American companies for oil prospects in Madre de Dios, in areas along the border with Brazil and Bolivia. However, incursions of oil and gas prospecting in the Amazon are not new. Registers of 1959 show that there were drilling operations in this region, extending from the mouth of the Amazon River westward to the Acre basin close to the Peruvian border in Brazilian territory. Also in Peruvian territory, prospected areas cover the Marañon and Ucayali basins in the Peruvian Amazon. In Bolivia at this time oil and gas exploration didn't occur in the Amazon region (Clark, 1960).

The most important exploitation activity in the Brazilian Amazon is on the Urucu province of Amazonas State in the North from Acre. Amazonas state has the third sedimentary basin in petroleum production and the second major Brazilian reserve of natural gas of the country. Urucu produces oil with high quality and have met more than 3% of the national oil production (PETROBRAS, 2006). In Peru the most important source of energy is the natural gas from Camisea discovered from 1983 to 1987. Shell geologist estimate Camisea contains 11 trillion cubic feet of natural gas and 600 million barrels of liquid natural gas, enough fuel to meet the capital of Lima's energy needs for a century (Chatterjee, 1997) while maturing fields and a lack of new discoveries have resulted in a steady decline of oil production in Peru.

According to the Pricewaterhouse Coopers (2005) in *Energy in South America Potential and Development*, oil is the source of energy par excellence. It represents 37%

of the energy consumed in the world and 46% of energy consumed in South America. Coal is the world's second leading energy source, though in South America it is hydroelectric (27%) followed by natural gas (22%). Nuclear energy represents 6% of the world's energy and 1% of the energy consumed in South America.

Currently South American oil reserves represent 9% of those in the world and the reserves have a horizon of about 40 years. Brazil increased its reserves by 50% in the last 5 years; these reserves have a horizon of 20 years, like all the South American countries except Argentina (10 years) and Colombia (8 years). The regional oil production (6.8 million barrels per day) is less than 9% of the world production and 50% of this production is exported. The US is the principal destination of crude oil exports (80%).

The regional gas reserves increased 13% in the last 5 years and have a horizon of 55 years of consumption. The destination of gas exportation continues to be US. It is expected that Peru's Camisea natural gas will continue to lead this market, exporting to the US and Mexico.

Recently in 2006, Brazil meets its sustainable self-sufficiency with a production's expectative of 180 thousands of barrels of oil and 6 million of cubic meters of natural gas per day (PETROBRAS, 2006).

As in other parts of Amazon region the oil prospecting in Peru is developing in indigenous territories or very close of protected areas such as Camisea project in the Lower Urubamba River. Working with the assumption that the indirect impacts of roads occur 50 km on each side in the Amazon region, the Interoceanic Highway and the concession areas for oil prospecting cover both indigenous territories and protected areas.

In Madre de Dios, Lot 76, includes the Communal Reserve Amaraeri, as well as 16 native communities of Harakmbut, Yine, Matsigenkas. This area will be operated by the American company Hunt Oil. Lot 111 assigned to the Chinese company includes areas of Shipibo and Yine indigenous communities as well as areas of extractive activities, mainly Brazilian nuts (*Bertholletia excelsa*). Lot 113 includes the whole area of State Reserve for indigenous communities voluntarily isolated from Madre de Dios, as well as an important area of Forest of Permanent Production designated for legal timber extraction. This lot could be developed by the China National Petroleum Corp in the future (FENAMAD, 2006).

Energy is the most important driver of global economy with many benefits to the society. Oil as the principal source of energy is the most valuable commodity in world trade. With many uses such as transportation, heating, electricity and industrial applications, the oil industry is the most profitable economic activity in the countries where it is produced, and employs more than 2 million workers in production and refining (O'Rourke, 2003).

However, who benefits from these strategies of development? Oil and gas exploration and exploitation as well as hydroelectric dams have caused negative impacts

on the local environment (soil, surface and groundwaters and ecosystem). In addition, there are many social problems including health concerns, the increase of violence and degradation of local culture in indigenous or local communities (Sawyer 2002; O'Rourke, 2003; San Sebastian, 2004; Gavaldá et al. 2006).

The following impacts of energy exploration and extraction should be noted:

- Deforestation: oil and gas exploration requires moving heavy equipment into remote environments. In order to set up operations, companies open roads through forests. These promote the migration by the easy access to isolated areas for cattle, agriculture and timber at least in a ratio of 50 km along road (O'Rourke, 2003; Alves, 2000).
- Indigenous conflict: deforestation contributes to the loss of territory and displacement of native groups to more isolated areas. This colonization can also bring infectious diseases to previously unexposed native populations. Indigenous and local peoples often gain the least from natural resources extraction, but stand to lose the most, including indigenous identity loss. Compensation from energy firms and the government, where it is awarded, is often very small. In addition, local communities are not always informed of extraction projects (Sawyer, 2002; MAIPPA, 2006; Gavaldá, 2006; FENAMAD, 2006).
- Biodiversity loss: Fragmentation of natural habitat caused by the installation of pipelines leads to smaller population sizes that are not viable in the long term. Oil and gas exploration often include the use of subsurface explosives that could displace local fauna, principally migratory birds. Also, aquatic biodiversity could be affected by the chemical contamination of water used in drilling activity and discharged back, after contamination, into the environment (O'Rourke, 2003). In the case of hydroelectric dams, they could lead to the extinction of ecologically and economically important fish species through the blocking upstream migrations of adult fish, most larva and fry heading downstream would be ground up by the turbines (Switkes, 2006).
- Soil and aquatic pollution: exploration activities generate petroleum waste, drilling fluids, and by-products of drilling such as water, drill cuttings, and mud that may contaminate soil and water. In addition, the high quantity of water used during the drilling activities that is discharged in the environment could contaminate rivers and accelerate erosion (O'Rourke, 2003). The deforestation that is promoted compacts the soil thus diminishing the permeability, favoring the fast draining and consequently accelerates erosion, blocking the rivers by the sediments depositions and diminishing the water flow and also affect the hydrological cycle (Costa and Foley, 2000, Foley *et al.* 2000; Avissar *et al.* 2002)
- Air pollution: the by-products of natural gas are often burned in the open air. The flames pollute the atmosphere and can cause fires, threatening the lives of local inhabitants. Unnecessary flaring is also a waste of gas which could provide energy to local people, reducing deforestation (O'Rourke, 2003). In the same way, the slash-and-burn activities along of roads could be more intensive in periods of hard dry season as happened in MAP region in 2005, when this activity resulted in high quantity of smoke and air pollution (MAP, 2006, Artaxo, 2005).

Energy alternatives such as the hydroelectric dams planned for the Madeira River also have environmental impacts that must be considered before construction in order to analyze the real cost and benefits of this mega-investment in this part of the Amazon region.

The MAP region is recognized as one of the most biodiverse in the world. Living in Acre, for example, are 40% of Brazilian mammals and 5% of the mammals of the world. In the case of birds, 45% of the Brazilian species and 8% of the world species occur in Acre (ZEE/AC, 2000). Madre de Dios is called the “The Peruvian Capital of Biodiversity” and in only the National Park of Manu live 25% of all the birds known in South America and 10% of all the species in the world; it is thought that there may be as many 1,000 bird species in total (INRENA, 2006).

We can clearly see the effects of the occupation and development model which were adopted to the Amazon. The large environmental and social impacts on local level, influence and are influenced by global climate changes.

In 2005, the Amazon rivers presented the extremely low water levels. The hard dry seasons in Amazonia are often promoted by the warming in the Pacific Ocean called “El Niño”. The rain in the Amazon region is influenced by the “inter-tropical convergence zone” that is a climate region localized in the Atlantic Ocean. In this region two air masses are formed, one of them is brought to the south. This dry air mass descends and inhibits the rain in the affected region. The abnormally warm water of the Atlantic in 2005 created a major dry air mass that descended exactly on the heads of all the tributaries on the right margin of the Amazon river basin, the MAP region. This phenomenon resulted in the inhibition of rain in the Amazon region and a huge drainage of the regional rivers (Fearnside, 2006).

This situation resulted in vegetation under stress from water deficiency and high potential for burning in forests and agroecosystems. In MAP region, during this period, only in Acre and Pando, more than 350.000 ha of primary forest were affected by fire, most of them in the East of Acre, into the influence area of the Interoceanic Highway and also conservation areas (MAP, 2006).

Recently regional climate models indicate a rise in the temperature in the Amazon region. In the most optimistic scenario the warming could meet 5° C. The air humidity could be 15% lower and the beginning of the rainy season could be delay. With this scenario we should hope more fires into the forest and the reduction of the rivers water level and the transportation of humidity to the Southeastern and South of Brazil (Fioravanti, 2006).

Since water is the base of the most of economic human activities, this climatic scenario together with the negatives impacts from the infrastructure planned, must have huge impacts in the agriculture affecting the food offer. The energy production by dams also could be affected due to the faster water evapotranspiration. In the future water with

quality and quantity for human consumption could become “the transparent gold” as the most important commodity and profit natural resource in the countries in which could be maintained.

The risks and challenges in MAP region into this context not only need to be analyzed from the environmental impacts that this infrastructure and search for energy sources plans have. It implies the need to analyze the capacity that governments and societies from this region have to deal with this huge transformation.

There are large differences between the legal an institutional capacity of these three countries to deal with this context, as Dourejani (2001) discuss about the legal and institutional capacity of Brazil and Peru to face the problems generated by the Interoceanic Highway:

*The legal and institutional differences, between both countries, related to the Amazon and the Transoceanic Highway are really large. The existence of mechanisms of decisive and participative management in the national, state and municipal scope, in Brazil, creates an abyss in the environmental treatment in both sides of the border. In Brazil, such mechanisms combined with the existence of an operating Public Ministry, create effective mechanisms to support the Environment Ministry, the state secretaries and the federal organisms and state executors, in their efforts to apply the legislation. Also they serve to control the performance of the authorities, including the environmental ones. In Peru, the Ministry of Agriculture and the INRENA are single, when they try to act in defense of environment, which is not common, dice the evident conflict of interests within that same Ministry, that is judge and part in the land use foragriculture and cattle and the exploitation of the natural forest.*

The difference in the environmental legal scope varies since, the treatment an conceptualization of indigenous communities and their territories, to the treatment an conceptualization of protected areas and their management, as well as natural resources management, as Ballivian (2001) analyze in *Opportunities and threats of the process of integration of the Bolivian North Amazon with the neighboring regions of Madre de Dios - Peru and Acre – Brazil*:

*In synthesis, it is possible to affirm that the treatment of the indigenous in MAP region can be conceptualized as a continuum which it goes from the “indigenous reserve” and the “indigenous park” in Brazil, that prevents any attempt of transacculturation understood as auto-civilizatory”, to the possibility of sale of the indigenous territory in Peru, and through the exclusive right of the indigenous from Bolivia to make commercial use of renewable natural resources of their communitarian original territories or indigenous territories.*

Not only the legal scope is different but also the investments in environmental projects in order to protect the forests or mitigate the impacts of the development policies, are large too. While in Brazil are being invested around 2 million of dollars in environmental projects (in Acre 260 million of dollars) which are being executed or

negotiated, in Peru the government is applying only resources from international donations (Dourejani, 2001).

All of the activities planned to this region and the fragility of this ecosystem, the different institutional and legal capacities, different cultures, two official languages (Spanish and Portuguese) and more than 10 indigenous languages, create challenges to the communities and governments from this region of these three countries for green governance.

#### **4. MAP Initiative: A Process for Green Governance**

Many external forces of global market interests place the MAP region in a unique historical, economical, political and also environmental scenario. The Department of Madre de Dios, Peru; the State of Acre, Brazil; and the Department of Pando, Bolivia; were always considered “the end”, the most isolated and underdeveloped areas of these three countries. Now, this region crosses from “the end” of these three countries to “the center” of attention and huge investments. In the context of this scenario we need to ask if the local governments and communities from this region have the capacity to deal, or compensate for the probable impacts of the new wave of changes in this part of the Amazon.

The MAP Initiative appeared in this scenario to address this concern, with the realization that only through cooperation and integration between local, regional, national and global societies will it be possible to build sustainable development (Initiative MAP, 2006).

This initiative started in 2000, with the interest of universities from this region to work together to evaluate the environmental impacts of the Interoceanic Highway. In this discussion, 25 academic participants created the name MAP. However, many other actors wanted to work together in cooperation to discuss their problems on the frontier and created the forum MAP.

In the beginning, the MAP Initiative had trouble getting attention from the people and institutions that inhabit and develop the region, and from outside groups like big international NGOs and funding foundations. Since then, attendance has grown exponentially at the annual forums, from 25 participants in 2000 to over 1200 in 2004 and around 600 in 2006 (Iniciativa MAP 2006).

In addition, the MAP Initiative had had to expand its horizons in order to treat the four pillars of sustainable development. In this way, it has four thematic foci: environmental conservation, economic development, social equity, and public policy.

The tri-national forums led to formation of numerous “Mini-MAP” which are initiatives organized to address more focused themes such as biodiversity, timber, indigenous rights, education, roads, watershed management, among others. Each of these

nested groups constitutes an ongoing platform for social learning, adaptive management and are the center of MAP activities (Ballivian 2005).

The first step for this interaction was the creating of “trust” between the actors from these three countries. The MAP Initiative is based in two important human rights in order to gain trust: the right to have access to information relevant for sustainable development and the right to participate in collective decisions. In order to exercise these principles, the MAP Initiative principally promotes the interchange of knowledge. Trainings in many subjects for diverse communities are developed by the academic community from the region. In addition, information relevant for sustainable development is published on the MAP website ([www.map-amazonia.net](http://www.map-amazonia.net)) and is disseminated to representatives of social movements and organizations participating in the Mini-MAPS discussions.

The MAP Initiative now constitutes a polycentric network that includes numerous local, states, national, and international organizational partners. It became the catalyst for integration and cooperation as a result of the movement of MAP societies.

Is assumption that many of cooperation relationships between countries start by the international agreements for economic development. In this case the initiative of cooperation started by the social demand in the frontier region that share the same ecosystem and have the same problems.

In case of Environmental Governance or Green Governance also concerns the resolution of conflicts between different groups interested in environmental resources; it means environmental and social justice, MAP initiative creates a good environment to develop strategies for green governance where MAP actors have an space to discuss their problems and try to solve them together.

However we need to analyze what “Governance” or “Green Governance” means in order to understand how this initiative could be an example.

According to the UN ESCAP – United Nation Economic and Social Commission for Asia and the Pacific, “Governance” is not a new term. It means the process of decision-making and the process by which decisions are implemented (or not implemented) in different scales and contexts (corporate, international, national and local). Good governance must assure that corruption is minimized, the views of minorities are taken into account and that the voices of the most vulnerable in society are heard in decision-making. Then good governance also means good development management that requires efficient public service, transparent and accountable administration of public funds, respect for law and human rights to assure democratic community participation and a legal framework to enforce the rule of law (Al Hardallu, 2006).

Meanwhile “Green Governance” means not merely conservative consideration of environment management. It is obvious that the forms and conditions of the geographic

space and natural resources are influenced by the relationship that man has had with nature for many thousand of years. But in order to change the paradigms of development dissociated of conservation, it requires the recognition of the complexity of diverse societies with different cultures, notions of nature, relationships with the environment and with each other.

The MAP region, with its complexities of environment and societies, is a challenge for green governance. A primary concern of the MAP Initiative in its first seven years of collaboration is how to include all of the actors that live in MAP region.

MAP Initiative tries to establish a transparent sphere in order to meet this important goal. In this context the technology of the internet became the most important distribution of information, a space to share opinion and demands even though against MAP initiative activities that could not have included carefully the local communities in its discussions. Examples of this situation are the Indigenous Letter in 2003 and the Smallholders letter in 2006 which are published in MAP Web site.

Recently MAP initiative had adopted creative strategies to distribute the knowledge and relevant information to a major number of residents in the region. An international team of representatives from many research projects was organized to travel together and share results with leaders of multiple communities in a tri-national frontier area of the southwestern Amazon (MAP Initiative, 2006). This model of science dissemination quickly increased public knowledge in many communities, providing a means of broader participation in environmental governance, and can be adapted to other contexts.

However, these efforts are not enough to include everyone that must be included at the same time and with the adequate speed as the changes demand to discuss a new paradigm of regional development.

Currently the MAP Initiative is contributing to the formulation of public policies for sustainable regional development as among which we can detach the program for tri-national primary education called “Forest of Children”. This program was adopted by the local governments of the frontier municipalities in MAP region and currently attend about 1000 children in rural areas. Other example is the Program of the Tri-national Acre River Basin Management which is in agenda of the national governments through their related Ministries and recently through the MiniMAP Burnings, by which is adopted integral policies of fire control and monitoring in MAP region.

### **Learned lessons**

The historical context of Amazon occupation drove by the bioprospecting of profitable natural resources shows the negative environmental and social heritage for local communities and indigenous people, who always gain the least, by this kind of development, based in the capitalism model. MAP Initiative has been a door in which different actors, residents of the region, could change this paradigm of development and

discuss new forms of development. As Evans (2004) discuss about “deliberative development”, public discussion and popular deliberation could be important tools to set and meet common goals and collective goods. It is important to understand that even though MAP could be a good example in the construction of green governance by local communities and societies from the Amazon region, this is a fragile process. Since is based principally on voluntary work, the personal commitment is critical into the Minimaps, in order to develop the collaborative work. However in the current context, MAP Initiative needs to expand and to include more people with the same philosophy and overall vision, to meet development with social and environmental justice. Smallholders, large farmers, urban societies and national governments are the key sectors with difficulties to involve yet. In areas that are rich in resources such as Amazonia and other tropical rain forests, the rights to determine how the environment will be occupied and how natural resources should be used are claimed by local communities, governments and also the international community at the same time. This situation create the question: Who will make the final decision about appropriate use of the environment and regional development? In the case of MAP region the capability building through the dissemination of knowledge with formal and informal education could be the answer to the promotion of participatory policymaking.

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