

ANALYSIS

**of the advances in and impacts
from the implementation of
biodiversity policies, strategies,
plans and programs in Bolivia,
Brazil, Colombia and Peru**

Manuel Ruiz Muller



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PERUVIAN SOCIETY FOR ENVIRONMENTAL LAW

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Author: Manuel Ruiz Muller, Peruvian Society for Environmental Law (SPDA)

Collaboration: Dennise Quiroga, Paula Lavratti y Elsa Matilde Escobar

Assistance: Maria Alejandra Bellota.

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Prolongación Arenales 437, Lima 27, Perú
Teléfonos: (511) 6124700 Fax: (511) 4424365
www.spda.org.pe

KonradAdenauer Stiftung e.V./ KAS

Av. Larco 109, Piso 2, Miraflores, Lima 18 - Perú
Tel: +51 (1) 416 6100 Fax: +51 (1) 447 4378

Regional Programme Energy Security and Climate Change in Latin America

Calle Cantuarias 160 Of. 202, Miraflores, Lima 18 - Perú
Tel: +51 (1) 320 2870, +51 (1) 731 2898

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<http://www.kas.de/energie-klima-lateinamerika>

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Acronyms

CBD	Convention on Biological Diversity
CICC	Inter-institutional Council of Climate Change
CIFOR	Center for International Forestry Research
CGEN	Genetic Heritage Management Council
COLCIENCIAS	Administrative Department of Science, Technology and Innovation
CONADIB	National Commission for Biological Diversity
DGFFS	General Directorate for Forestry and Wildlife
ENBCC	Forest and Climate Change National Strategy
ENCC	National Climate Change Strategy
FAN	Friends of Nature Foundation
FBCN	Brazilian Foundation for the Conservation of Nature
FONAMA	National Fund for the Environment
FUNBIO	Brazilian Biodiversity Fund
IBAMA	Brazilian Institute of the Environment and Renewable Natural Resources
IDEI	Institute for Environmental Studies
INRENA	National Institute for Natural Resources
LIDEMA	Environmental Defense League
MADS	Ministry of Environment and Sustainable Development - Colombia
MINAM	Ministry of Environment
MINAGRI	Ministry of Agriculture and Irrigation
MMA	Ministry of the Environment
PAB	Biodiversity Action Plan
PAAB	Environmental Action Plan
PANBIO	Action Plan for the Implementation of the National Biodiversity Policy
PANELBIO	Brazilian Panel for Biodiversity
PDES	Economic and Social Development Plan
PLANAPO	National Plan for Agro-ecology and Organic Production
PNAP	Strategic National Plan for Protected Areas
PNAPO	National Policy for Agro-ecology and Organic Production
PNGIBSE	National Policy for the Integrated Management of Biodiversity and Ecosystem Services
PROBIO	Project for the Conservation and Sustainable Use of Brazilian Biodiversity
PRONATURALEZA	Peruvian Foundation for the Conservation of Nature
SENMA	National Secretariat for the Environment
SEMAN	Secretariat for the Environment of the Presidency of the Republic
SERNAP	National Service for Protected Areas

SINA	National Environmental System
SINANPE	National System of Natural Areas Protected by the State
SIRENARE	System for the Regulation of Renewable Natural Resources
SNAP	National System of Protected Areas of Bolivia
SPDA	Peruvian Society for Environmental Law
TPP	Trans-Pacific Partnership
IUCN	World Conservation Union
UNCED	United Nations Conference on Environment and Development
USAID	United States Agency for International Development
WWF	Worldwide Fund for Nature

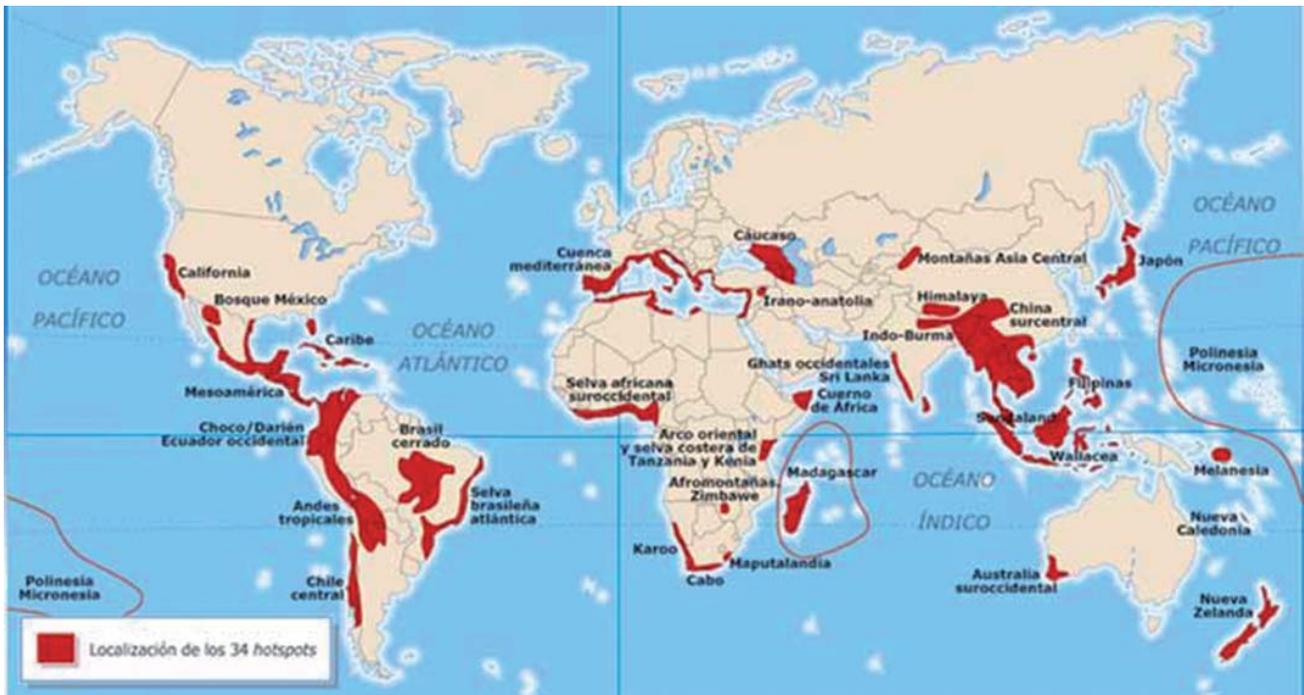
Note from the author

This research is focused on the advances and impacts from nearly two decades since the adoption and implementation of biodiversity strategies, programs and plans in Bolivia, Brazil, Colombia and Peru. Whilst there are many strategies, programs and plans and other instruments that without necessarily referring to biodiversity per se, may be relevant, this research does not intend to be comprehensive of each and all existing instruments. It focuses on those that, according to experts working on the studies of each country, are the most important and relevant. To undertake this research short interviews and contacts were made with a range of institutions: MINAM, INIA, and experts in Peru; MMA, PNELBIO and experts in Brazil; MADS and FAN in Bolivia; and NATURA, Von Humboldt Institute and experts in Colombia. The studies of each country are available in PDF as working documents at: <http://www.spda.org.pe>

Introduction

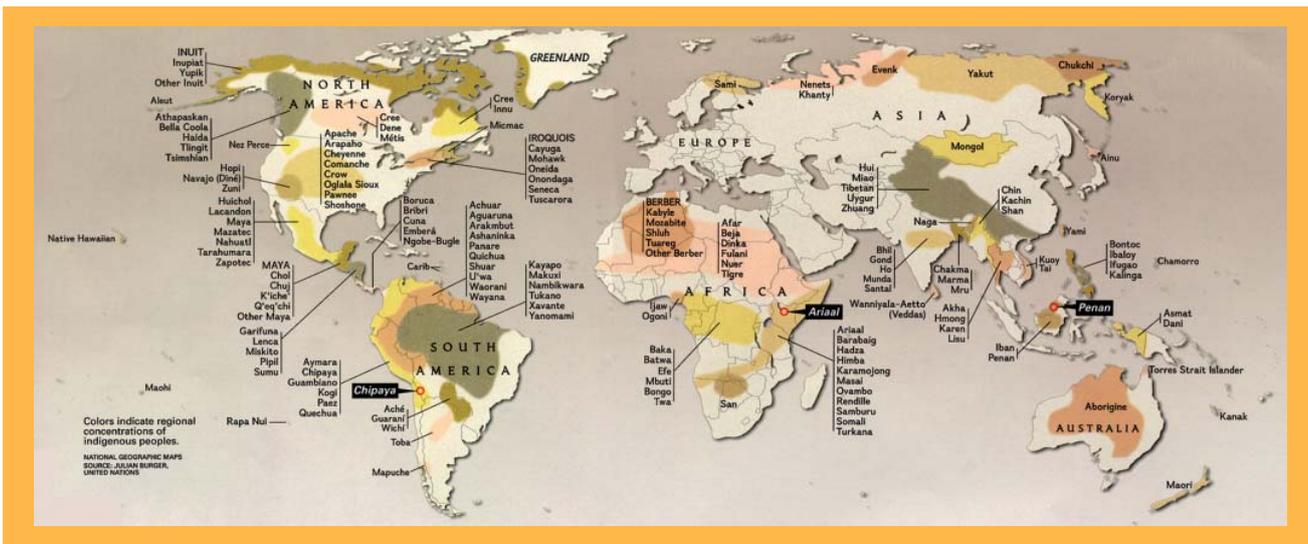
The Andean-Amazon territories of Bolivia, Colombia and Peru, and the Amazon territory of Brazil, are home to some of the most important biodiversity “hotspots” (Myers *et al.* 2000) and cultural diversity centers on the planet (Maps No. 1 and 2). Although the Amazon extends beyond these four countries, they represent nearly 80% of coverage of this massive ecosystem.¹¹

Map No. 1 Biodiversity “Hotspots”



Source: Un Mundo de Vida: <https://unmundodevida.wordpress.com/que-es-la-biodiversidad/puntos-calientes-de-biodiversidad-hotspots/>

Map No. 2 Cultural diversity: indigenous peoples and ethnic groups



Source: National Geographic, 2013 http://library.buffalo.edu/maps/img/indig-cultures-NG-1999Aug66-67_lrg.jpg

11 Bolivia, Brazil, Colombia, Ecuador, Guyana, French Guyana, Peru, Surinam and Venezuela are considered Amazon countries.

The Worldwide Fund for Nature (WWF) calculates that there are 350 ethnic groups in the Amazon. This biodiversity and cultural diversity is concentrated in the plains of the Amazon rainforest and Tropical Andes (see Map No. 3), which have the highest rate of mammals, amphibians, plants insects etc. (USAID 2005). Most biodiversity can be found in the Amazon forest regions of these countries, although in the case of Bolivia, Colombia and Peru, their Andean regions are also critically important. They are countries of origin and crop diversification (e.g. potatoes, Andean roots, maize, quinoa, yucca, beans, banana, etc.) and the areas where the mighty Amazon River is born.²

Map No. 3 The Tropical Andes and the Amazon: a large ecosystem



Source: OTCA, 2014

The Amazon provides a wide range of global, regional, national and local ecosystem services, including through climate stabilization, carbon sequestration, provision of food and water, maintenance of the ecological processes, conservation of genetic resources, among others (Gómez y Aguirre 2015).³

Historically, the Amazon has contributed substantially to the world economy.⁴ During recent times, its central contribution to the stabilization of global climate as a purifier and repository of green-house gases has also been recognized (CIFOR 2012; Urioste 2010; Cano 2008). This huge positive externality has global repercussions in all productive fields of the economy, including, in agriculture, fisheries, farming, etc. The contribution of the Amazon

- 2 Peru is the center of origin of the *Solanum* (potato) species (3000 different varieties) and 4 domesticated cereals (kiwicha, kañiwa, quinoa, maize), as well as of squash, a variety of chilis and beans, among many others. It is also the center of origin and domestication of 4 South American camelids (alpaca, llama, vicuña, guanaco) and center of origin of sub-utilized Andean roots such as (maca, arracacha, oca, olluco, mashua and yacón). According to Víctor Manuel Patiño, a renowned biodiversity researcher in Colombia, hundreds of native American species were domesticated before the arrival of the Spaniards, many of them for common use regionally and globally. See, http://www.accefyn.org.co/revista/Volumen_17/65/259-264.pdf
- 3 See, IDB, UNDP (1993). *Amazonia Without Myths*. Available at: http://www.academia.edu/7415846/La_amazonia_sin_mitos_chico_mendes
- 4 Products such as curare in the XVI Century, quinoa in the XVII Century, rubber in the XI Century, timber throughout the XX Century, oil in the XX Century, and others such as soy, chestnuts and most recently cacao, are some of the contributions of the Amazon to the world, with an important commercial value in different sectors. To understand the strategic importance of the Amazon, see: Mario Miguel Amin, "A Amazônia na Geopolítica Mundial dos Recursos Estratégicos do Século XXI", *Revista Crítica de Ciências Sociais* [Online], 107 | 2015, placed online on September 4th 2015, created on November 26th 2015. URL: <http://rccs.revues.org/5993> DOI: 10.4000/rccs.5993.

and biodiversity to national and local food security in Bolivia, Brazil, Colombia and Peru, and the development of their economies with the services they benefit from, continue to be absolutely critical (CIFOR 2012; Forests Trends 2011).

However, this biodiversity and cultural diversity is increasingly threatened and at risk due to different factors, some more present than others in each country. The extensive farming of palm and soy, illegal mining and logging, construction of highways, dams and hydroelectric plants, human settlements, extraction of natural resources, among others, progressively reduces the Amazon space and affects biodiversity *in situ* (Humboldt Institute 2015); Dourojeanni *et al.* 2011; Ochoa *et al.* 2011).

Although the rates of deforestation vary in each country, this translates into a direct impact (loss) of biodiversity. Bolivia has a forest coverage of nearly 50 million hectares, and loses 200,000 hectares a year (Muller *et al.* 2014); Brazil has more than 341 million hectares of forest in the Amazon,⁵ of which 500,000 to 600,000 hectares is lost each year (INE, 2016); Colombia has approximately 45 million hectares of forest, and loses nearly 350,000 hectares a year; in the case of Peru, forest coverage is 72 million hectares, (of which 54 million hectares are Amazon forests), with a yearly loss of 118,000 hectares (MINAM 2016).

Bolivia, Brazil, Colombia and Peru, as well as several other Amazon countries find themselves in a paradoxical situation. On the one hand, since the nineties, policy and regulatory environmental and biodiversity frameworks⁶ have been developed and consolidated, with ups and downs over time. This has meant the creation of ministries of the environment,⁷ the implementation of policies, strategies and environmental plans (of biodiversity) and the strengthening of national systems for natural protected areas.⁸ At the same time, these processes and threats (see Box No. 1) have ultimately placed environmental issues and biodiversity on national development agendas, and allowed social sectors to demand for the recognition and enforcement of rights, including NGOs and indigenous peoples (Fontaine 2006).

5 <http://www.mma.gov.br/biomas/amaz%C3%B4nia/mapa-de-cobertura-vegetal>

6 Peru is the only country with a specific law on biodiversity. Law 26839, on the Conservation and Sustainable Use of Biodiversity, of May 12th 1999.

7 In Bolivia, the Ministry of Environment and Sustainable Development was created in 1993, at present it is the Ministry of Environment and Water Resources; in Brazil, the Ministry of Environment was created in 1992; in Colombia, the Ministry of Environment and Sustainable Development was established in 1993; in Peru the Ministry of Environment was created in 2007. Prior to these dates, each country had agencies or secretariats to address environmental matters, although all were of a lower rank than ministries and with environmental management excessively sectorialized. The latter continues to be a problem in each of these countries, with nuances and improvements over time.

8 The coverage of protected areas has increased in the four countries during the last 20 years. During the 1990s, Bolivia had 66 national, departmental and municipal protected areas that covered an extension of approximately 20,000,000 hectares (CBD Fifth National Report 2015). By 2016, this area increased to 23,736,443 for a total of 123 protected areas (22 national areas). Emphasis is being put on the creation of communal protected areas, although SERNAP does not rely on systematized information of their number and extension.

Colombia has a National System of Protected Areas (SINAP) and a National Natural Parks System (SPNN). It has 59 natural parks (October 2014), with an extension of about 12.602.320,7 hectares (126,023 sq. km.) that covers more than 11.04% of Colombia's continental territory. In addition to national parks, the system is formed by: national protected areas; regional protected areas; and local protected areas. It also has private protected areas that integrate the Network of Nature Reserves of the Civil Society, which involves an unknown number of hectares under conservation status.

(<http://www.parquesnacionales.gov.co/porta/es/sistema-de-parques-nacionales-naturales/>). At present, 2,5 million hectares are being studied and in the process of being declared national parks. The current indicator for all types of conservation areas reaches 150,000 km², with a predominance of strict conservation areas (Andrade, 2014).

<http://www.foronacionalambiental.org.co/nuestros-temas/areas-protegidas/>).

Box No. 1 Interesting information on Amazon countries

Bolivia: The Plurinational State of Bolivia is politically organized in 9 departments, with a geographical extension of 1,098,581 km², and a population of 7,767,000. It is divided into four large biographic regions: Amazon region, Brasileño-Paranense, Chaqueña and Andino Tropical. 50% of the surface in Bolivia is made up of forests, and of these, 27% are Amazon forests. It is one of the most megadiverse countries, with the highest rate of endemism in the world. According to some estimates, it holds 70% of the planets known biodiversity. It has 1,430 bird species (6th in the world); 266 amphibian species (7th place); 306 reptile species (9th place). Bolivia is also the center of origin and diversification of native crops and their wild relatives such as olluco, Andean maca, chestnuts, potato, among others. It borders with Peru and Chile on the West, with Argentina on the South, and Paraguay and Brazil on the East. The greatest pressures on biodiversity come from deforestation due to agricultural expansion; mining activities (many informal); expansion of infrastructure without adequate environmental assessments; and illegal logging and hunting (**Source of data:** CBD Fifth National Report 2015).

Brazil: Is a Federal Republic, formed by 26 States, which and borders geographically with 10 different countries. Its territory extends over 8,514,877 km², with a population of 190,755,799. Federal protected areas cover 73,047,462 hectares, a 300% increase from the 1990s. They are part of the National System of Units of Conservation (SINUC), mainly comprised of National Parks (71 in total). Brazil has the greatest diversity of species in the world (103,877 animals and 43,020 plants), 20% of the global total. It has six biomes: Amazonía, Cerrado, Mata Atlántica, Caatinga, Pantanal and la Pampa. Amazonía covers nearly 50% of Brazilian territory. It has the largest extension of tropical forests on the planet. The Amazon River reaches its greatest range and extent in Brazil. The main threats to biodiversity are: agricultural expansion, deforestation, invasive species, fire, climate change, contamination and affectation of the aquatic habitat (**Source of data:** Fifth National Report for the CBD, 2015. Available at: <https://www.cbd.int/doc/world/br/br-nr-05-en.pdf>).

Colombia: The Republic of Colombia is formed by 32 Departments and geographically limits to the North with Venezuela and Panama; with Brazil to the East; and Peru and Ecuador to the South. It has a territorial extension of 1,141,748 km² with a population of 47,662,000. Colombia is a megadiverse country (4th in the world), with 55,000 plant species, 3000 vertebrate species - 492 mammals (2nd in the world), 537 reptiles (4th in the world), 1,921 bird species (1st in the world) and more than 700 frog species, which makes it third in the world for amphibians, among other data. Major threats to biodiversity are deforestation, intensive agriculture and farming, soil contamination and water resources, mining, the fragmentation of habitat, illegal crops, among others, (Gulh, 2015) (**Source of data:** Biodiversity Information System of Colombia. Available at: <http://www.sibcolombia.net/biodiversidad-en-cifras/>).

Peru: Peru is divided into 26 Regions (Departments). It has an extension of 1,285,215 sq.km. with a population of nearly 31,000,000. Until the nineties, natural protected areas covered an extension of 10,000,000 hectares, while it has extended to 22,530,000 by 2015 (nearly 22% of national territory and an increase of more than 100% in coverage) (MINAM 2015). This includes natural protected areas at the national level, regional conservation areas and private conservation areas. The main tributaries of the Amazon River - Marañón and Ucayali – originate in the Andes of Peru. It limits to the North with Ecuador and Colombia, to the East with Brazil and to the South with Bolivia and Chile. Peru is also a megadiverse country; it is third in the world, with the largest diversity of species (3rd with mammals, 3rd with birds, 3rd with amphibians, 1st with fish, 1st with butterflies, 10th with plants). It has the 4th biggest surface of tropical forests in the world (54 million hectares) and 84 of the 117 life zones in the world. The main threats against biodiversity are centered on land use change (monoculture, migratory agriculture, illegal crops), illegal mining, deforestation, illegal extraction of forestry products and the introduction of exotic species (**Source of data:** National Strategy on Climate Change to 2021 - Action Plan 2014-2018. Available at: <http://www.minam.gob.pe/diversidadbiologica/wp-content/uploads/sites/21/2013/10/1.-EPANDB-2014-2018.compressed-1.pdf>).

In regard to biodiversity, the adoption and later ratification of the Convention on Biological Diversity (CBD) in 1992 by these four countries triggered a comprehensive “overhaul” of policy frameworks, norms and instruments for conservation, management and sustainable use of biodiversity.⁹

⁹ Bolivia, Brazil, Colombia and Peru ratified the CBD rapidly. Bolivia by means of Law 1580 of 1994; Brazil ratified the CBD through Legislative Decree 2 of February 3rd 1994, but enacted the CBD text by Federal Decree 2.519 of March 16th 1998 (4 years later); Colombia by means of Law 261 of 1994; and Peru through Legislative Resolution 26181 of April 1993.

The countries have been particularly diligent with the implementation of many instruments, including general policies, strategies, programs and plans related to biodiversity, at the national and regional level. Some of these instruments have been the direct result of the dynamic generated by the CBD, particularly during the 1990s and part of the 2000 decade. Other processes have been a part of internal dynamics (national), generated in turn as a reaction to these instruments. As recognized by experts in multiple opportunities, norms and regulations are in abundance in Bolivia, Brazil, Colombia and Peru. The challenge lies in their *application and implementation*.¹⁰

In parallel to this situation, the processes initiated to open up trade/economic liberalization and the intensification of globalization during the 1990's, produced, with variations among countries, a range of situations that have caused problems in terms of conservation and the loss of biodiversity, and a growing affectation of the environment (Stiglitz 2006).¹¹ The Amazon has not been immune to the economic liberalization and globalization process. Colonization, expansion of agricultural borders, informality, exploitation of natural resources, watershed contamination and deforestation in general have been accelerated.¹²

The purpose of this brief research document is to analyze the impacts and effects of policies, strategies, plans and programs associated to biodiversity in Bolivia, Brazil, Colombia and Peru.¹³ Not only the effects in terms of processes generated but also in terms of their actual impacts on the conservation of biodiversity and sustainable use. Although it is difficult to establish a direct correlation between these types of instruments and their incidence on a determined reality, some assumption are suggested, and lines of reflection raised to help evaluate the benefits of these instruments for biodiversity conservation and national development in each country.

1. A minimal and general base line pre-CBD: understanding the background

The pre and post CBD stage is distinctly different in terms of the international dynamics and their effects on biodiversity frameworks and national environmental institutional structures. Prior to the CBD, the concept of "biodiversity" was nonexistent in legislation of Brazil, Bolivia, Colombia and Peru.¹⁴ References were mainly made to natural resources and their different components, for example, renewable and non-renewable resources, species, flora and fauna, among others.

During the 1970's and the 1990's, these countries started to adopt important international environmental conventions (or Multilateral Environmental Agreements – MEAs), such as the Convention on Wetlands of International Importance as waterfowl habitat (Ramsar Convention, 1971), the Convention Concerning the

10 This was one of the conclusions reached during the Workshop on the Elaboration and Methodology Validation of the Analysis of Biodiversity Strategies, Plans and Programs, which took place in Lima, Peru, on February 31st 2016 with the presence of the experts Paula Lavratti (Brazil), Elsa Matilde Escobar (Colombia), Dennise Quiroga (Bolivia) and Manuel Ruiz, Silvana Baldovino and Dino Delgado (Peru).

11 The different trade promotion agreements (or Free Trade Agreements – FTA) signed by Colombia, Brazil and Peru with different nations and regions are one of the vehicles through which economic liberalization and trade have materialized, and its tendencies have emphasized the export orientation of these countries. Peru has FTAs in force with U.S.A., Europe, China, Japan and South Korea, among others. Bolivia has signed trade agreements with Chile, Cuba, MERCOSUR, Mexico and Venezuela. The Trans-Pacific Partnership Agreement (TPP) is the most recent and ambitious trade promotion agreement in the negotiation process by Colombia and Peru with major economies of the Pacific. Colombia has commercial agreements with Mexico, El Salvador, Guatemala, Honduras, Chile, Nicaragua, Cuba, Costa Rica, Canada, United States, European Union (EFTA) and Korea. In addition to the TPP, Colombia is also part of the CAN, CARICOM and MERCOSUR. Brazil has not signed these types of agreements, except for their integration to MERCOSUR. This is partly due to the protectionist nature of Brazil's international trade policies over time. MERCOSUR has FTAs with Israel, Palestine and Egypt (in the process of ratification).

12 The clearest and most present example of the effects of globalization and opening-up trade is possibly the presence of Chinese capital in the region, particularly the proposal to develop a bioceanic railway to unite the Atlantic and Pacific through the Brazilian and Peruvian Amazon – with an investment of US \$60 billion. For further details on this initiative see, Caillaux, Jorge; Novak, Fabián; Ruiz, Manuel (eds) (2016) *La Relación de China con América Latina y el Perú y el Tren Bioceánico*. SPDA, IDEI. Mac Arthur Foundation, Lima, Peru.

13 This investigation is focused on the analysis of impacts from strategies, plans and programs directly and explicitly associated to biodiversity, including agrobiodiversity. Only instruments specifically oriented to biodiversity planning and management on different levels have been addressed, not laws and regulations.

14 The concept of "biological diversity" dates back to the 1960s, but it has only been used intensively in recent years, attributing this to work during the 1980s undertaken by Thomas Lovejoy (Preface to the book (Conservation *Biology: An Evolutionary and Ecological Perspective*) and specifically Edward O. Wilson (memories of the National Forum on Biological Diversity 1986, entitled, *Biodiversity*).

Protection of the World Cultural and Natural Heritage (Washington Convention, 1972), and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES Convention, 1973). These international instruments occupied a large part of the agendas of specialized agencies and institutions that at the time had environment and natural resources related competences. The Stockholm Conference on Human Environment (1972), was also an important driving force of initiatives and actions by national governments. The Brundtland Report was fundamental to create an enabling environment towards UNCED.¹⁵

In addition, the first environmental/natural resources agencies emerged, including the National Secretariat for the Environment (SENMA, 1992), the National Fund for the Environment (1992) and the Ministry of Sustainable Development and Environment (1993) in Bolivia (MDSP-Informe Técnico III, without the year of publication); the Environment Secretariat of the Ministry of Interior (1973), the Ministry of Environment and Urban Development (1975), and the Secretariat of the Environment of the Presidency of the Republic (SEMAN, 1990) in Brazil;¹⁶ and the Office of National Assessment of Natural Resources (ONERN, 1962), the National Institute for Natural Resources (INRENA, 1992) (Pulgar-Vidal 2008) in Peru. Finally, in 1974, Colombia established the National Code of Renewable Natural Resources and Environmental Protection and regulatory decrees, becoming a pioneer in terms of environmental legislation in the region. Together with the National Institute of Natural Resources and the Environment (INDERENA), created in 1968, these initiatives were fundamental in the construction of an emerging environmental institutional framework. INDERENA was particularly relevant in the creation of environmental awareness through a number of educational programs, publications and different ecological campaigns.¹⁷

This pre-CBD period also placed an emphasis on national development of frameworks and institutions related to natural protected areas (NPAs) and forests. More than 30 NPAs were created in Bolivia, mainly at the national level. This process was not exempt of problems including overlap with indigenous land and territories (MDSP-Informe Técnico III, without year of publication).¹⁸ In Brazil, the first forestry and NPAs laws were developed, and a specialized institutional framework created, the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA, 1989). Meanwhile, in Peru, the first forestry laws emerged with the creation of the General Forest and Wildlife Directorate (DGFFS) as part of the Ministry of Agriculture. Additionally, new NPAs were also created, under the Conservation Directorate of DGFFS, and subsequently, what is now the National System of Natural Protected Areas (SINANPE) was created in 1990.¹⁹

The early 1990's can be regarded as a sort of "awakening" of environmental matters that would later be emphasized post-United Nations Conference on Environment and Development (UNCED, 1992) and the CBD. In this respect, the pre-CBD phase is not only important from the perspective of the public sector, but was also critical in terms of the creation of a growing number of non-governmental organizations (NGOs), that began to have an increasingly

15 In the case of Stockholm and Rio, they influenced the creation of new national natural parks around the world and in the region, a process also promoted by IUCN. IUCN suggested a model which called for 10% of the total territory of countries to be recognized as protected areas, as an ideal for conservation. During this period there were advances in the establishment of multilateral agreements among neighboring countries, for the protection of ecosystems located on the borders, and in the development of sub-regional agreements. Examples include initiatives by the United Nations Environment Program (UNEP) to protect the seas, and the Amazon Cooperation Treaty Organization signed in 1978. UNEP as a result of the Stockholm Conference, also provided support for the development or strengthening of environmental institutions and programs.

16 In the case of Brazil, specific importance was given to the environment early on (at least formally), as part of structures and specific actions by different ministries, and at the level of the Presidency of the Republic.

17 In this case, the environmental institutional framework in Colombia begins in 1954, with the establishment of CVC, and in 1986, eighteen entities were created for the management of river basins, loss of soil and local development. In 1959, Law 2 was created declaring the seven large Forest Reserves; in 1960, the first PNN was created; in 1968 INDERENA was created and in 1969 and the first forestry statute was issued. Four hundred Cabildos Verdes were created and subsequently Municipios Verdes; environmental activism led by people that are still active, started strongly. See, Rodríguez Becerra, Manuel. *INDERENA, el gran pionero de la gestión ambiental en Colombia*. Article taken from the Memory of the first Minister of the Environment. Volume I, Manuel Rodríguez Becerra, February 7th to August 6th 1994. (pp.93-98).

18 The March for Territory and Dignity in 1990, was a key milestone to exercise pressure on the State in the recognition of indigenous rights. Partly due to the effect of the CBD and new trends, and possibly due to the need to improve processes for the creation of NPAs, the National System for Protected Areas (SNAP) was created in 1993 and the National Service for Protected Areas (SERNAP) years later, in 1997.

19 Solano, Pedro (2005) *La Esperanza es Verde. Areas Naturales Protegidas en el Perú*. SPDA. Lima, Peru. Available at: http://www.spda.org.pe/?wpfb_dl=104

more relevant participation and incidence in the debates and agendas on development/environment of each country. In Bolivia, the non-governmental sector began to undertake more important responsibilities in terms of, for example, the management of NPAs. The Association for the Defense of Nature (PRODENA), the Ecology Institute of Universidad de la Paz, the Environmental Defense League (LIDEMA), the Friends of Nature Foundation (FAN) and Conservation Data Center (CDC), led environmental advocacy processes.

In Brazil, between 1960 and 1970, the Brazilian Foundation for Conservation of Nature (FBCN), the Gaúcha Association to Protect the Natural Environment (AGAPAN), the Sao Paulo Natural Protection Association (APPN), and close to the 1990's, the SOS Mata Atlântica Foundation and Social-Environmental Institute, among others, worked actively in the environmental agenda. This movement participated very actively in the elaboration of the current Constitution of Brazil, and in parallel, originated the creation of the Brazilian Green Party.²⁰

In Colombia, during the second half of the 1980's, more than 30% of national territory was titled in favor of indigenous peoples mainly of the Amazon, and the first efforts to create an environmental movement began with the creation of ecological groups and the institutionalization of lectures and seminars on ecology. The NATURE Foundation was created in 1983, and was the first NGO with a mission towards biodiversity conservation, leading the issue in the country and participating actively at the international level together with other newly established NGOs in the region.

Organizations such as the Peruvian Foundation for the Conservation of Nature (PRONATURALEZA), the Institute for Development and Environment (IDMA) and the Peruvian Society for Environmental Law (SPDA) in Peru, during the late 1980's, began to participate more actively and efficiently in policy development processes and environmental frameworks. In a very evident way, although with differences among countries, civil society played an important role in putting pressure on the public sector and the State in general, to fulfill their environmental and institutional obligations.

2. Description of developments of biodiversity strategies, plans and programs based on the CBD

From 1992 onwards, the enthusiasm and response from countries such as Bolivia, Brazil, Colombia and Peru towards an evolving international context and the concept of "biodiversity" in particular, has been significant. This is reflected in inclusions of environmental and biodiversity provisions in constitutional texts,²¹ and in normative/regulatory and institutional developments. A highlight is also the development of a multiplicity of biodiversity strategies, plans and programs and others related to, for example, forestry and climate change which also include biodiversity related provisions.

Andean Community

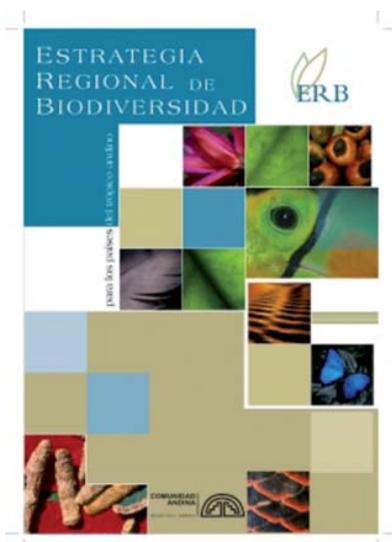
For Bolivia, Colombia and Peru, the Andean Community (CAN)²² is relevant in terms of developments that took place from 1992, to the mid 2000's. After the CBD was adopted at UNCED, the CAN developed and active environmental and biodiversity agenda (see Box No. 2) that provided it with a renewed impulse and triggered its presence at the regional and international level, whilst also promoting national processes.²³

20 See: Alonso, Angela, Costa, Valeriano and Maciel, Débora, *Identidade e estratégia na formação do movimento ambientalista brasileiro*, Novos Estudos CEBRAP no 79, São Paulo, 2007. Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0101-33002007000300008.

21 The Constitution of the Pluricultural State of Bolivia 2009, the Constitution of the Federative Republic of Brazil of 1988, the Political Constitution of Colombia of 1991 and the Political Constitution of Peru of 1993, all include explicit references to biological diversity or biodiversity, and in some cases, to its specific components.

22 The Andean Community (previously called the Andean Pact or Cartagena Agreement) is a regional cooperation and integration agreement signed in 1969, and originally formed by Bolivia, Chile, Colombia, Ecuador, Peru and Venezuela. Chile withdrew at an early stage in 1971 and Venezuela followed in 2006 (becoming effective in 2011). An important feature of the CAN is that it enacts mandatory legislation that enters into force once published in the official legal gazette. Decisions and Resolutions become a binding national legislation in each Member Country. See: <http://www.comunidadandina.org/>

23 Environmental issues and biodiversity became one of the few areas where CAN member countries committed themselves to explicitly working together, in contrast with a protracted integration process throughout the 1980's. The announcement that Venezuela was withdrawing from the CAN in 2006 and the ideological differences between the Governments of Colombia and Peru with Ecuador and Bolivia, as of 2005, gradually undermined this enthusiastic collaboration during the 1990's and part of 2000. Some internal initiatives have started to appear and may reactivate the regional environmental and biodiversity agenda.



Comunidad Andina de Naciones



Box No. 2 Instruments (planning and legal) related to biodiversity in CAN

- Decision 345: Common Regime on the Protection of the Rights of Breeder of New Plant Varieties (1992)
- Decision 391: Common Regime on Access to Genetic Resources (1996)
- Decision 435: The Andean Committee of Environmental Authorities is established (1998)
- Decision 486: Common Industrial Property Regime (2000)
- Decision 523: Regional Biodiversity Strategy for the Tropical Andean Countries (2002)
- Decision 524: The Working Group on the Rights of Indigenous Peoples (2002)
- Decision 596: Creation of the Andean Community's Council of Environmental and Sustainable Development Ministers (2004)
- Andean Environmental Agenda for 2006-2010 (Approved by the III Meeting of the Council of Ministers of the Environment and Sustainable Development)
- Decision 729: Regional Biodiversity Program in the Amazon Andean Regions of CAN Member Countries (2010)
- Andean Environmental Agenda for 2012-2016 (Andean Committee of Environmental Authorities and the General Secretariat)

Decision 523 of the Andean Community (CAN), the Regional Biodiversity Strategy for the Tropical Andean Countries (2003), was the first regional biodiversity planning effort, which included objectives with regards to in situ conservation; fair and equitable distribution of benefits; protection of TK; development of scientific knowledge and innovation; integration of biodiversity policies in national plans and strengthening the negotiating capacities of the countries.

An important portion of the foreign technical cooperation that reached CAN was targeted at implementing the Regional Biodiversity Strategy and the Andean Environmental Agenda 2006-2010. The investment made during nearly two decades in terms of technical cooperation projects with regard to biodiversity ascends to approximately US\$ 12 million. Table No. 1 provides a summary of the main projects undertaken to promote the implementation of the Regional Strategy, including terms and estimated budgets of each.

Table No. 1 International cooperation and investment in the implementation of the Regional Biodiversity Strategy

Actions/Projects	Cooperation	Budget
Agrobiodiversity, Biotechnology and Biosecurity, Valuation and Distribution of Benefits	BID/SGCAN/SPDA	N/D
Andean BioTrade Program	CAF/UNCTAD/SGCAN	US \$ 2.700.000
Support to ABS Negotiators	CARF/SGCAN/PNUMA/BID	US \$ 200.000
Financial Mechanism for the Regional Strategy	CI/SGCAN	N/D
Paramo Project	CONDESAN/SGCAN	US \$ 3.000.000
Initiative against Biopiracy	SPDA/SGCAN	US \$ 200.000
Strengthening Regional Management	Ministry of Environment Spain / SGCAN	N/D
BIOCAN Project	Government of Finland / SGCAN	US \$ 6.000.000
Andean Biodiversity Institute	Andean Parliament/IUCN South	N/D

Source: The information was obtained from personal conversations with CAN ex-officials. In some cases, information on specific funding for projects was not available.

The Amazon Cooperation Treaty Organization

Regionally, the Amazon Cooperation Treaty Organization (ACTO)²⁴ has also had an important role. Since its creation, ACTO has conducted coordination and collaboration activities with regard to the conservation of Amazon natural resources and biodiversity. Unlike the CAN, ACTO does not enact binding legislation; it is primarily a space for cooperation and coordination. However, its contribution to the creation and management of knowledge, and to the coordination of common actions and measures among member countries, has been continued over time. Table No. 2 provides a summary of the most important projects and investments executed through international cooperation by ACTO since 2004, not all specifically with regards to biodiversity, but to related issues. The total investment reaches approximately US \$ 120 million.²⁵

Table No. 2 Projects executed by ACTO relevant for biodiversity

Project	Objective	Funder	Amount
GEF Project Amazon	The project seeks to support the construction and dissemination of a reference framework for integrated and sustainable management of water resources, promote major access for the population to water and its services, and contribute to improving the quality of life of the Amazon society.	GEF	US \$ 7.000.000
		Member countries and other donors	US \$ 45.200.000
Forest Cover Monitoring Project	The objective of this project is to orient, develop and implement participatory forest cover monitoring systems in the Amazon. The main goal is to contribute to forest management in ACTO countries, on issues related to deforestation, land ownership, changes in land use and sustainable forest management.	Member countries	US \$ 43.470.001,04
		OITM	US \$ 971.467
		ITTO	US \$ 1.023.492,00
		BMZ/DGIS/GIZ	US \$ 11.883,084,00
		BNDES/Amazon Fund	US \$ 11.500.000

²⁴ ACTO was established in 1978 and is formed by Brazil, Bolivia, Colombia, Ecuador, Guyana, Peru, Surinam and Venezuela. Its mandate is the promotion of harmonious development of the Amazon Basin, and the incorporation of Amazon territories in national economies; crucial to maintain a balance between economic growth and preservation of the environment. See: <http://otca.info/portal/tratado-coop-amazonica.php?p=otca>

²⁵ This is an estimated calculation to provide an idea of investments made by ATCO over the years.

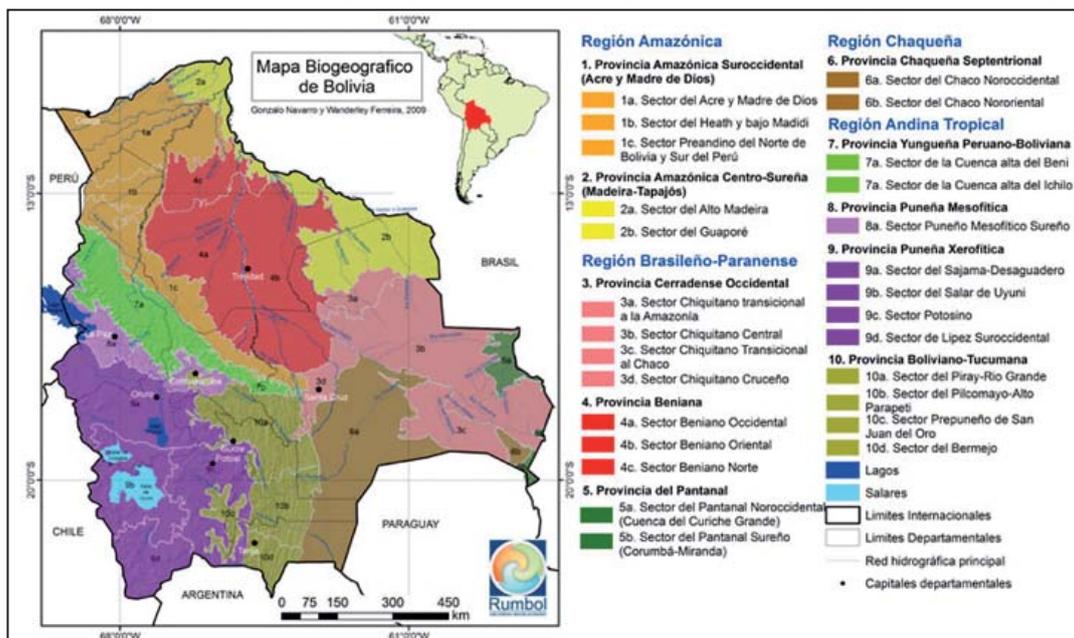
Indigenous Peoples in Frontier Regions	The project will contribute to establish standards for epidemiological control and monitoring of indigenous peoples in frontier regions, and protocols to exchange traditional knowledge in territorial management and biodiversity for the formulation of life plans, among indigenous communities.	Inter-American Development Bank (IDB)	Unavailable
Strengthening the Amazon Cooperation Treaty Organization	The project responds to the need of strengthen the capacity of ACTO to meet the demands of Amazon countries through regional initiatives and actions for sustainable development.	GIZ (BMZ/DGIS)	Unavailable

Source: Information from the web page of the Amazon Cooperation Treaty Organization (ACTO) <http://otca.info/portal/projetos-programas.php?p=agd>. These are estimates and do not necessarily include (due to difficulties in accessing the information) all the projects and initiatives promoted by ACTO.

The UNCED and adoption of the CBD in 1992, mark a milestone for many countries. Countries begin to better understand the integrality of the “biodiversity” concept. Prior to 1992, countries developed only environmental and natural resources sectorial norms, covering matters such as forests, species, protected areas, water, fisheries, etc., in a rather isolated and non-integrated manner. The legal and institutional course followed by Brazil, Bolivia, Colombia and Peru is very similar. Bolivia, Colombia and Peru developed general environmental laws, with the explicit reference to biodiversity. In some cases, such as Peru, biodiversity laws and a number of strategies programs and plans on biodiversity or directly related to biodiversity were produced and implemented.

Bolivia

Bolivia has suffered an important institutional transformation with regard to the environment, largely driven by the debates on protected areas, indigenous peoples issues and the need to adapt a development model “for the people” based on the vision of “sumac kawsay” or “good living”.²⁶ The pillars for environmental and biodiversity management were established in 1992, with the approval of the Environment Law, creation of the National Environmental Secretariat (SENMA), that was later transformed into the Ministry of Environment and Sustainable Development in 1996, and the National Fund for the Environment (FONAMA). The Environmental Action Plan of Bolivia (PAAB), incorporated the basic principles for biodiversity conservation and its different components.



Source: Rumbo, Naturaleza y Ciencias (2014)

²⁶ This is established in Law 071, Law of the Rights of Mother Earth, enacted on December 21, 2010, which describes social development from an intercultural perspective, non-commercialization of nature, common good, harmony, etc. Available at: <http://www.harmonywithnatureun.org/content/documents/158Bolivia%20Ley%20071.pdf>

When the Ministry of Sustainable Development and Environment was created (an international milestone as it unified the notions of “development” and “environment” under one governing body), the concept of “development” starts to pass through a process of national internal reflection, which led to the approval of the General Plan for Economic and Social Development (PGDES) or “El Cambio para Todos”, where biodiversity conservation is viewed as cross-cutting and not necessarily that relevant.

In 1994, with the ratification of the CBD by Bolivia,²⁷ its biodiversity obligations became apparent and explicit under different sectorial frameworks, including forests and protected areas. The Agenda 21 – Bolivia of 1996, was presented as a programmatic policy instrument to the Hemispheric Summit on Sustainable Development held in Santa Cruz de la Sierra (Bolivia) in 1996. This agenda gave rise to the creation of Departmental Economic and Social Development Plans (PDEDES), which in turn were informed by the PGDES. The fact that the PGDES of 1994 did not realize its objective of informing and orientating sustainable public investment at the national level, resonated directly in the implementation of the PDEDES processes.

Continuing with the planning trend and in the wake of the adoption of the Convention to Combat Desertification and Drought of 1994, the National Action Program to Combat Drought and Desertification (2000) was developed, to strengthen the sustainable use of land and mitigate desertification in all its variants. National Action Plans were also developed for the regions of the Puna and Chaco Americano.

Although they are not strictly biodiversity strategies or plans, the System for the Regulation of Renewable Natural Resources (SIRENARE) and the Forest Superintendency, created in 1997, are part of a gradual process of consolidation of environmental and natural resources institutions under the Ministry for the Environment and Development.

In 1997, a new and updated PGDES was adopted, which included more substantive references to the need (among others) for adequate biodiversity management. As well as in the previous PGDES (of 1994), it failed to be internalized by key actors to secure flows of public investment, mainly by the Ministry of Economy and Public Finances (previously Ministry of Finance and Economic Development) to the environmental sector.

The 1990’s were also important, due to the emphasis placed on land-use planning and the need for municipalities to lead planning and territorial processes in Bolivia.²⁸

The National Conservation Strategy for Biological Diversity was approved in 2002, as the “mother” instrument for planning actions with regard to biodiversity.²⁹ In 2007, the National Development Plan – Dignified, Sovereign, Productive and Democratic Bolivia to Live Well was approved.³⁰ All Bolivian sectors must incorporate in their management, the four main dimensions of this Plan: dignity, sovereignty, production and democracy dimensions. In parallel to this process of national reflection for development planning, between 2006 and 2009, the competences with regard to biodiversity pass from the Ministry of Development and Environment, to the Ministry of Rural Development, Agriculture and Environment, and specifically the General Direction for Biodiversity. In 2009, the Ministry of Environment and Water Resources was created, as the competent body for the formulation of national policies with regards to the environment, climate change, biodiversity and waters.

The Strategic Plan for Biological Diversity 2011-2020 – Living in Harmony with Nature, seeks to implement the Aichi Biodiversity Targets (2010), on the basis of specific national biodiversity interests and priorities, in line with priorities under the Patriotic Agenda 2025, of 2014. The latter is the central policy of the Plurinational State of Bolivia and inspires all levels and sectors of the State (Central Government, Autonomous Departmental Governments, Autonomous Municipal Governments and Autonomous Indigenous and Aboriginal Farming Communities). Pillar 9 of this Agenda addresses biodiversity conservation and management, including matters regarding NPAs, forests, territorial management and food production. Finally, the Economic and Social Development Plan 2016-2020 of 2016 falls within the pillars of the Strategic Agenda 2015, on the basis of a number of goals and results.

27 Law 1580, whereby the Convention on Biological Diversity is ratified on July 25th 1994.

28 Under Law No. 2028 of October 28, 1999 – Law of Municipalities- Municipalities are given the authority to elaborate a Municipal Development Plan and Plan for Urban and Territorial Development with norms and regulations, ensuring their participative implementation, coordination and compatibility with national and departmental development plans. Supreme Decree No. 27729 of September 15, 2004, approved three Technical Operational Instruments for Territorial Planning. However, these legal and planning instruments have been replaced recently by the Law of the Integral Planning System of the State (SPIE) of January 21, 2016 and its technical guide to elaborate Territorial Plans for Integrated Development.

29 Approved by Supreme Decree 26556 of March 19th 2002.

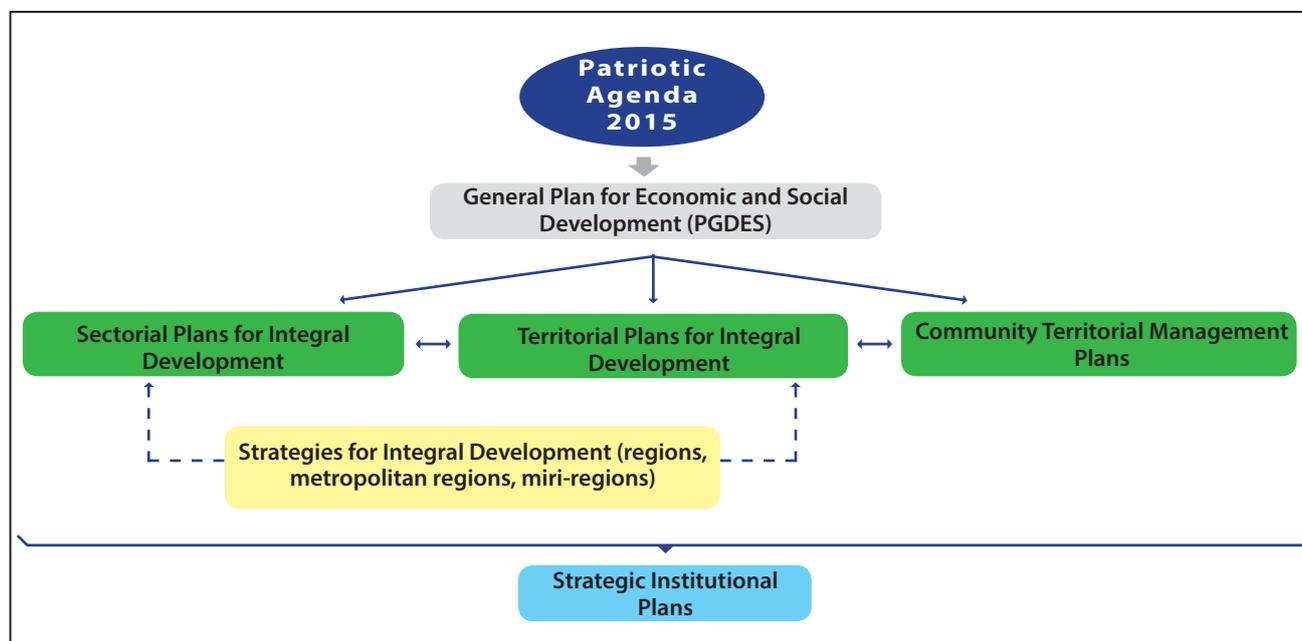
30 Supreme Decree 29272, enacted on September 12th 2007.

Box No. 3 Relevant policy instruments and norms with regard to biodiversity in Bolivia

- General Economic and Social Development Plans (PGDES) (1994)
- Departmental Economic and Social Development Plans (PDDES) (1996)
- National Program to Combat Desertification and Drought (2000)
- National Biodiversity Conservation Strategy and Action Plan (2002)
- National Development Plan – Dignified, Sovereign, Productive, and Democratic Bolivia to Live Well (2007)
- National Strategy for the Conservation and Sustainable Use of Wild Relatives of Cultivated Species and Action Plan
- Forest – Climate Change National Strategy and its Action Plan (2010)
- Master Plan for the National System of Protected Areas (2012)
- Strategic Plan for Biodiversity 2011-2020 (2012)
- Patriotic Agenda 2025
- Economic and Social Development Plan 2016-2020 (2016)
- National Plan for Climate Change Adaptation (in elaboration)
- National Sustainable Bio Trade Program (2003), at present the National Bio-culture Program (2010-2014)³¹
- Biodiversity and Climate Change Program (1997 F1 – 2006 F2)

These different strategies, plans and programs have a hierarchy and interdependence that allows the organized articulation of goals and results, as well as the construction of complementary processes in sectorial and territorial planning.³² This hierarchy is determined in Figure No. 1.

Figure No. 1 Hierarchy in planning



31 The objective of this Program is to contribute to the conservation of ecosystems and for peasant and indigenous communities of the country's Andean region to “Live Well” (reduction of poverty), through biodiversity sustainable management, as well as respect and revalue local cultures. It is promoted by the Vice Ministry of Environment, Biodiversity, Climate Change and Forestry Development Management.

32 This is defined and regulated in Law 777, Law of the Integrated Planning System of the State promulgated on January 21, 2016.

Brazil³³

Brazil did not ratify the CBD immediately (it was ratified in 1994).³⁴ However, the first policy instrument referred to biodiversity was the National Program for Biological Diversity (PRONABIO), approved in 1992. This Program reflected CBD obligations and mandates and promoted cooperation between civil society and the State. It was led by the Ministry of Environment (MMA),³⁵ created the same year, and consisted basically of two support mechanisms: the Project for the Conservation and Sustainable Use of Brazilian Biodiversity (PROBIO) (coordinated by the MMA and National Council for Scientific and Technological Development) and the Brazilian Biodiversity Fund (FUNBIO).³⁶

The concept of “biodiversity” is not systematically reflected in the Constitution of the Federal Republic of Brazil of 1998, which however, contains references to directly related elements, such as genetic patrimony, essential ecological processes, management of species and ecosystems, among others. This is also a common phenomenon in Latin America: various countries, including Bolivia, Colombia and Peru, enact constitutions in the 1990’s with explicit reference to biodiversity or its elements.

PROBIO was substantially modified in 2003 and its coverage extended, in addition to consolidating an institutional structure for its management and promotion through the National Biodiversity Commission (CONABIO). CONABIO was strengthened in terms of an expansion of PRONABIO objectives and a more numerous structure including civil society organizations. CONABIO is made up of ministries, public sector institutions, labor unions, academic sector, NGOs, indigenous organizations, among others.³⁷



Source: <https://sites.google.com/site/geografiadobr/vegetacao>

33 Given the dimensions of Brazil, this report provides an analysis basically of instruments at the federal level.

34 The CBD was ratified in Brazil by means of Legislative Decree No. 2 of February 3, 1994.

35 The creation of MMA in 1992 was the resulting product, possibly of the United National Conference on Environment and Development (UNCED) itself that took place in Rio de Janeiro the same year.

36 PRONABIO was approved by Federal Decree 1.354 of December 29, 1994.

37 Federal Decree 4.703, of May 21, 2003. Available at: http://www.planalto.gov.br/ccivil_03/decreto/2003/D4703.htm

This effort took place in parallel and was the result of the complex and difficult elaboration process of the National Biodiversity Policy (PNB) adopted in 2002,³⁸ under responsibility of the MMA. The federal structure of Brazil involved a long process of consultations and exchanges among different competent actors and institutions in terms of biodiversity and its components, both at the central/federal and state level. The seven components of PNB focus on: the knowledge of biodiversity, conservation, sustainable use, monitoring (evaluation, prevention and mitigation), access to genetic resources, education and awareness, legal and institutional strengthening.

In 2006, the National Strategic Plan for Protected Areas (PNAP) was approved, under the competence of MMA.³⁹ The four core areas of the Plan are: planning and management, governance, participation, equity, distribution of costs and benefits, institutionality, evaluation and monitoring.

The Action Plan for the Implementation of the National Biodiversity Policy (PANBIO) was also approved in 2006.⁴⁰ For every directive of each PNB component, specific actions and measures were defined for effective implementation, including through a prioritization process. In addition, this is complemented by the action of a Permanent Technical Chamber that monitors PANBIO. Months after the approval of PANBIO, CONABIO approved the National Biodiversity Goals to 2010.⁴¹ The 51 identified goals refer to each one of the seven PNB components.

These goals were updated through the definition of the National Biodiversity Goals for 2020,⁴² where two processes took place: the first, led to the elaboration of a Government Action Plan for the Conservation of Biodiversity and Sustainable Use and, the second, resulted in the creation of the Brazilian Panel for Biodiversity (PANELBIO), under the executive direction of the International Union for Conservation of Nature – Brazil (IUCN-Brazil). The work of PANELBIO has also led to the development of indicators to measure the progress of National Goals to 2020.

The Action Plan seeks to ensure optimum synergy between the different ministries with biodiversity competences, and ultimately, reverse the levels of biodiversity loss. The Plan is pending approval. PANELBIO is a multisectorial institution of a scientific character, focused on providing scientific and technical information to processes of decision-making.

Brazil does not have a general biodiversity law. Nevertheless, it does have a number of legal norms and institutional structures that addresses its different components. Although national reports or documents to the CBD on the state of biodiversity are not policy instruments in particular, Brazil has complied with submitting its five reports to the CBD Secretariat.

Box No. 4 Policy instruments and biodiversity programs at the federal level

- National Biological Diversity Program (PRONABIO) (1994)
- National Biodiversity Policy (PNB) (2002)
- Amazon Region Protected Areas Program (2002)
- National Biodiversity Commission (CONABIO) (2003)
- Plan for the Prevention and Control of Deforestation in the Amazon (2004)
- National Strategic Plan for Protected Areas (PNAP) (2006)
- Action Plan to Implement the National Biodiversity Policy (PANBIO) (2006)
- National Biodiversity Targets to 2010 (2006)

38 Approved by Federal Decree 4.339 of August 22, 2002. Available at: http://www.planalto.gov.br/ccivil_03/decreto/2002/d4339.htm

39 Created by Federal Decree 5.758 of April 13, 2006. Available at: http://www.planalto.gov.br/ccivil_03/decreto/2002/d4339.htm

40 Deliberation CONABIO No. 40 of February 7, 2006. Available at: http://www.mma.gov.br/estruturas/conabio/_arquivos/15_24112008034912.pdf

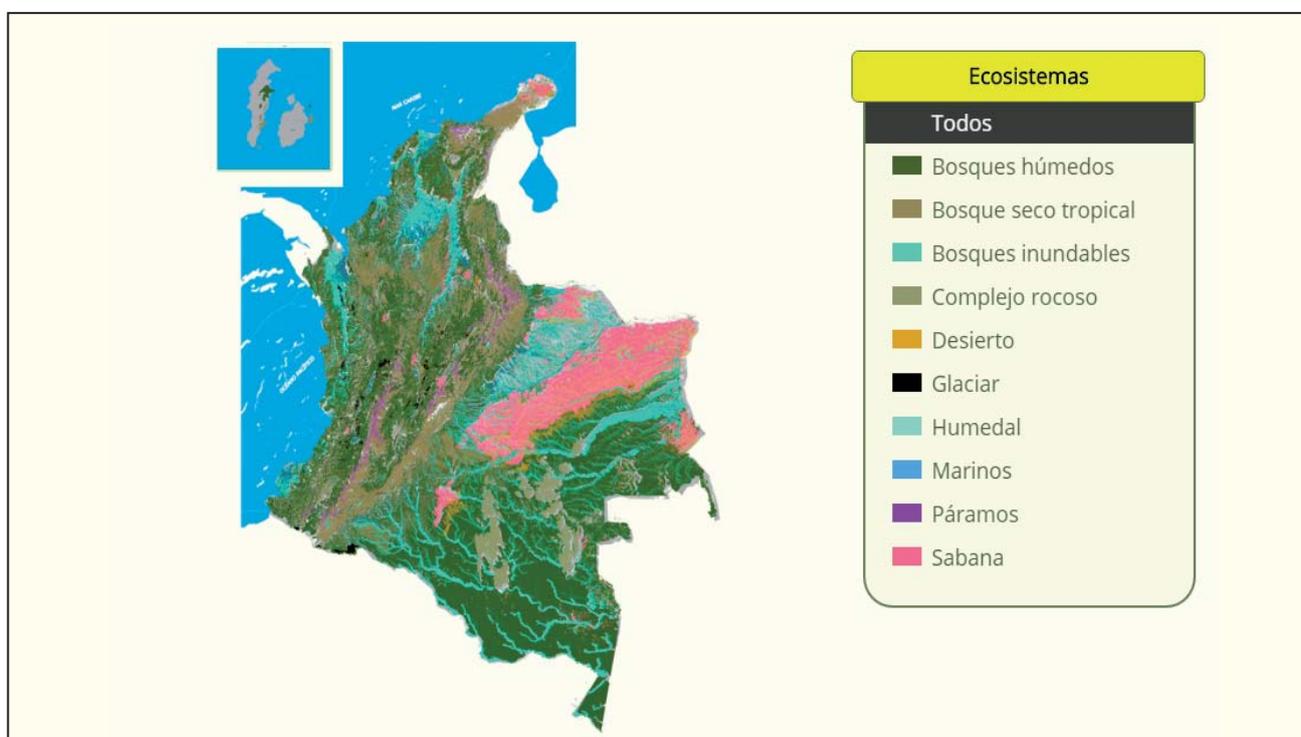
41 CONABIO Resolution No. 3 of December 2, 2006.

42 Approved by Resolution CONABIO No. 6 of September 3, 2013.

- National Strategy for Invasive Alien Species (2009)
- Plan to Prevent and Control Deforestation and Burning in the Cerrado (2010)
- National Biodiversity Target for 2020 (2013)
- National Plan on Agro-ecology and Organic Production (2013)
- Governmental Action Plan for the Conservation and Sustainable Use of Biodiversity (2014)
- National Program for the Conservation of Threatened Species (2014)

Colombia

As in other countries, the 1990's were very important from the perspective of environmental legislation and institutional developments in Colombia. The Political Constitution of 1991 is a key instrument within the legal, administrative and institutional architecture on biodiversity in Colombia. The National Environment System (SINA) established that biodiversity conservation should be a priority of national interest.⁴³



Source: <http://iluminatointelecto.blogspot.pe/2016/07/ecosistemas-en-colombia.html>

In 1996, the Ministry of Environment and Sustainable Development (MADS) of Colombia published the First National Biodiversity Policy,⁴⁴ and immediately after developed a National Biodiversity Strategy and Action Plan, called "Colombia and Biodiversity XXI Century" (1997). According to the Action Plan, regional development plans are required from Regional Autonomous Corporations and Sustainable Development.⁴⁵ These instruments are based on the recognition of biodiversity as patrimony of the Nation and are founded on three main principles: *in situ* conservation, knowledge generation and sustainable use. An important part of the measures, are focused on access to genetic resources and traditional knowledge.

⁴³ Created by Law 99, that establishes the National Environment System, enacted on December 22, 1993.

⁴⁴ Developed by the Alexander von Humboldt Institute for Research on Biological Resources, the Ministry of Environment and the Directorate for National Planning.

⁴⁵ These Regional Corporations are competent to implement national environmental policies under the scope of the National Environment System (SINA).

Based on this Strategy and Action Plan, six Biodiversity Regional Action Plans for were developed (see Box No. 4). Their objectives respond to regional contexts and realities of Colombia. Additionally, a national policy was developed -the Environmental Wildlife Management for Colombia (1997)- to generate the necessary conditions for the sustainable use of wildlife as a biodiversity conservation strategy and socio-economic alternative for national development. This policy was accompanied by the preparation of several (15) specific management plans at the level of species and specific ecosystems. From then on, planning and management instruments (plans in particular) for biodiversity and its specific components have multiplied, reaching nearly 50 instruments that include all the levels of biodiversity: ecosystems, species and genetic resources at the national and regional level (see Box No. 5).

In 2014, MADS presents the Second National Policy for the Integrated Management of Biodiversity and Ecosystem Services (PNGIBSE) and its Action Plan, aimed towards promoting integral management for the conservation of biodiversity and ecosystem services, through a coordinated and concerted participation of different actors (State, productive sector, communities and civil society).

Unlike the first policy during the 1990's, this policy is more oriented towards issues regarding development and well-being. In this respect, its basic principles recognize the critical importance of biodiversity, improving the quality of life and well-being and guaranteeing the ecosystem services it provides, among others. This is a more comprehensive and ecosystemic view of the role of biodiversity in the country.

As a result of the Second Policy, MADS continues with specific plans and programs for conservation and recovery of threatened species in the country, both with Regional Corporations and research institutions (e.g. Sinchi Amazonic Institute of Scientific Research for Sustainable Development in Colombia,⁴⁶ Alexander von Humboldt Institute⁴⁷), and recognized experts.

Box No. 5 Instruments implemented with regard to biodiversity in Colombia ⁴⁸

(national) Policies and strategies
<ul style="list-style-type: none"> • First National Biodiversity Policy (1996) • National Biodiversity Strategy and Action Plan (1997) • Policy for Environmental Management of Wildlife in Colombia (1997) • National Policy for Inland Wetland in Colombia (2001) • National Strategy for Combatting Wildlife Trafficking (2002) • National Program for Conservation, Sustainable Use and Management of Mangrove Ecosystems (2002) • Program for the Restoration and Sustainable Management of Alta Montaña Ecosystems (2002) • Second National Policy for the Management of Biodiversity and Ecosystem Services (2014) • National Biodiversity Strategy and Action Plan (in the process of adoption)
(national) Plans and programs
<ul style="list-style-type: none"> • National Action Plan to Combat Desertification and Drought (2004) • National Plan for Migrant Species (2009) • CONPES 3680 – Guidelines for the Consolidation of the National System of Protected Areas (2010) • Action Plan of the National System of Natural Protected Areas (2010) • National forestry Development Plan (2014)

46 See: <http://www.sinchi.org.co/>

47 See: <http://www.humboldt.org.co/es/>

48 About thirty very specific conservation and management plans referred to flora and fauna species and specific ecosystems, including parrots, amphibians, turtles, parakeets, Andean bears, etc. have not been included in this Box.

Regional level

- Regional Biodiversity Action Plan for Orinoquia (2004)
- Biodiversity Action Plan for Tolima (2009)
- Biodiversity Action Plan for Norte de Santander (2001)
- Biodiversity Action Plan for Valle del Cauca (2004)
- Regional Biodiversity Action Plan for Cuenca del Orinoco (2005-2015)
- Regional Biodiversity Action Plan for Sur de la Amazonía (2007)
- Biodiversity Action Plan for Nariño (2008)

In 2016, MADS has made the Biodiversity Action Plan (EPANB) 2020-2025 available to the public for comments.⁴⁹ The EPANB promotes the incorporation of biodiversity and its ecosystem services in sectorial planning, to ensure that the country's competitiveness and productivity are within the frame considering the resilience of socio-ecosystems as limits to growth.

Peru

The decade of the 1990's served to lay the foundations for the legal and institutional environmental architecture in Peru. During this decade the most important environmental norms were approved, including legislation on biodiversity, protected areas, forests, natural resources, biosecurity, among others.

The Political Constitution of 1993 included a specific reference – in the natural resources chapter- to biological diversity and the need to promote conservation and State action. The National Biodiversity Commission (CONADIB) was established in 1993, and to this day works as an interinstitutional space to discuss matters with regard to the implementation of the CBD. The Commission supports MINAM in the process of designing policies on biodiversity.⁵⁰ Without a doubt, the process of UNCED of Rio de Janeiro 1992 and the CBD played a major role encouraging these and other regulatory and institutional changes in the country.

In 2001, Peru approved the National Biological Diversity Strategy and Action Plan,⁵¹ that determines the following strategic lines: biodiversity conservation; integration of biodiversity in the sectorial plans "streamlining"; biodiversity conservation and restoration; social participation; improvement of biodiversity knowledge; accompaniment of the ENDB process; positioning due to comparative advantages of Peru with regard to biodiversity; and generation of reports and studies on biodiversity to comply with the country's international obligations.

The country recently updated the ENB and approved a new National Biological Diversity Strategy to 2021 (and its Action Plan 2014-2018) (2015).⁵² This Strategy extends its coverage, detail, and mediation instruments in order to improve the implementation process. Key objectives of the Strategy are: to improve the state of biodiversity conservation; encourage its contribution to national development; reduce the pressures and threats to biodiversity; strengthen management; improve knowledge and research related to biodiversity; and promote greater collaboration among different sectors and actors linked to biodiversity.

49 The National Strategy and Action Plan (APANB) is available at: <http://www.humboldt.org.co/es/investigacion/proyectos/ens-desarrollo/item/356-estrategia-y-plan-de-accion-de-biodiversidad-epanb>

50 CONABID was established by Supreme Resolution 227-93-RE of July 7, 1993. It is formed by a number of institutions of the public and private sector, including academic institutions, indigenous organizations, NGOs and sectorial authorities. At present, CONADIB is part of the organizational structure of the Ministry of Environment (MINAM).

51 The ENDB was approved by Supreme Decree 102-2001-PCM (2001). The approval of planning and strategic instruments of this nature through a Supreme Decree, is unusual. It could be interpreted that as a binding and mandatory norm, the text and content itself of the ENDB is to be complied with in every aspect, which in reality has not necessarily occurred.

52 Approved by S.D. 009-2014-MINAM and enacted on November 6th 2014. Available at: <http://www.minam.gob.pe/wp-content/uploads/2014/11/EPANDB-2014-20181.pdf>

In turn, the National BioTrade Strategy and Action Plan to 2025 (2016), approved by the National Commission for BioTrade,⁵³ is an effort to promote with specific measures and actions the sustainable use and commercialization of the country's native biodiversity components, exploiting the potential of a growing global market for products from a sustainably managed biodiversity.

During the past five years, the country has approved a number of sectorial planning instruments, with direct implications on biodiversity, and each with different institutions responsible for their implementation, including



a National Forest and Climate Change Strategy (ENBCC) (2016),⁵⁴ the National Climate Change Strategy (ENCC) (2016),⁵⁵ the National Strategy to Combat Desertification and Drought (2016),⁵⁶ the National Strategy for Family Agriculture 2015-2021 (2015)⁵⁷ and the National Forest Conservation Program for the Mitigation of Climate Change (2001).⁵⁸

Each of these instruments establishes a set of actions with regard to forest conservation, adaptation and mitigation, prevention of desertification through measures for the conservation of ecosystems and land, and the promotion of conservation activities and production by small farmers in the country, on the basis of their agrobiodiversity. In the case of the National Forest Program, the main objective is to maintain a total of 54.000.000 ha. of tropical forests under conservation, which constitutes 42% of national territory.

Source: http://peruroutes.com/peru_ecologia.htm

Box No. 6 Policies, programs and plans in Peru

Policies and strategies (national)

- National Biodiversity Strategy (and Action Plan) (2001)
- National Environmental Policy (2009)
- National Forest Conservation Programme for Mitigation against Climate Change (2010)
- National Biodiversity Strategy to 2021 (and Action Plan 2014-2018) (2015)
- Transversal National Programs for Science, Technology and Technological Innovation: Valuing 2015-2016 (2015)
- National Forestry and Climate Change Strategy (2016)
- National Strategy against Desertification and Drought (2016)
- National Biotrade Strategy and Action Plan to 2025

Plans and programs (national)

- National Agrobiodiversity Program (2004)

53 The Strategy was approved by Supreme Decree 008-2016-MINCETUR, enacted on July 22, 2016.

54 Approved by Supreme Decree 007-2016-MINAM of July 21, 2016. Available at: http://www.bosques.gob.pe/archivo/ff3f54_ES-TRATEGIACAMBIOClimatico2016_ok.pdf

55 Approved by Supreme Decree 011-2015-MINAM of September 23, 2015. Available at: http://www.minam.gob.pe/wp-content/uploads/2014/07/Estrategia-Nacional-ante-el-Cambio-Climatico_ENCC.pdf

56 Approved by Supreme Decree 008-2016-MINAM of July 20, 2016. Available at: <http://www.minam.gob.pe/wp-content/uploads/2016/07/LUCHA-CONTRA-LA-DESERTIFICACION-Y-LA-SEQUIA-2016-2030.pdf>

57 Approved by Supreme Decree 009-2015-MINAGRI of June 23, 2015. Available at: <http://www.agrorural.gob.pe/wp-content/uploads/2016/02/enaf.pdf>

58 Approved by Supreme Decree 008-2010-MINAM, of July 15, 2010. Available at: http://geobosques.minam.gob.pe:81/geobosque/descargas_geobosque/documentos_acerca/3_DS_008_010_MINAM.pdf

Regional level

- Regional Biodiversity Strategy for the Amazon (and Action Plan 2006- 2010) (2005)
- Regional Biodiversity Strategy and Action Plan for Ayacucho to 2021 (2014)
- Regional Biodiversity Strategy for Loreto (2005)
- Regional Strategy for the Diversity of Ucayali (and Action Plan 2006-2010) -Draft (2005)
- Regional Biodiversity Strategy for San Martín (and Action Plan) (2006)
- Regional Biodiversity Strategy for Cajamarca (2009)
- Regional Biodiversity Strategy for Huancavelica and its Action Plan (2016)
- Regional Biodiversity Strategy to 2021 and Action Plan for Junín 2015-2018 (2014)
- Regional Biodiversity Strategy for Madre de Dios to 2021 (and its Action Plan 2014-2021) (2013)
- Regional Biodiversity Strategy for Moquegua 2014-2021
- Regional Strategy and Action Plan for Biodiversity Conservation in the Piura Region (2012)
- Regional Biodiversity Strategy for Puno (2012)
- Strategic Action Plan 2015-2021 for Climate Change Adaptation of Communities Located in Centers of Origin and Diversification of Native Crops (2015)

In addition to a multiplicity of national planning instruments, various regions in the country have also adopted their own regional strategies and action plans with regard to biodiversity, responding to the specificities and particularities of each place.

3. Impacts and effects from the implementation of these strategies, plans and programs

The impacts from strategies, plans and programs reviewed in this study have been very different among countries. A common effect in each country - maybe not just as a result of these instruments but also from the CBD itself - has been the need to organize and produce national reports detailing the way in which the different provisions of the CBD are being implemented and applied.⁵⁹ These reports act as incentives to take internal commitments seriously and implement and comply with the CBD obligations accordingly. Secondly, countries do show important and considerable progress in the consolidation of processes related to legislative and institutional development, biodiversity planning and citizen participation in these processes. In perspective, it is remarkable that the majority of these advances respond initially to provisions and work programs of the CBD itself, propelled throughout the 1990's and part of 2000, although it cannot be affirmed conclusively that the CBD was the main or exclusive trigger. There is a convergence of processes and dynamics at different levels.

Andean Community

As shown previously in Section 2, there are at the very least ninety (90) different types of planning instruments at different levels (regional/Andean-Amazon, national and regional). It is a considerable number of instruments that reflects, at the very least, an evident concern to improve biodiversity conservation and management. Below is a description of the effects and impacts of these instruments over time.

Within the CAN framework and based on the policy/normative process of Decision 391 on ABS initiated at the end of 1993, the presence and action of CAN was strengthened on issues related to biodiversity conservation.⁶⁰

59 Bolivia, Brazil, Colombia and Peru have complied with sending to the CBD Secretariat, their Fifth National Report to the CBD. These are available at: <https://www.cbd.int/reports/search/>. The report from Bolivia is available at: <https://www.cbd.int/doc/world/bo/bo-nr-05-es.pdf>. In the case of Colombia, see: <http://www.undp.org/content/dam/colombia/docs/MedioAmbiente/undp-co-informebiodiversidad-2014.pdf>. The report from Brazil can reviewed at: <https://www.cbd.int/doc/world/br/br-nr-05-en.pdf>. Finally, in the case of Peru, the report is available at: <https://www.cbd.int/doc/world/pe/pe-nr-05-p1-es.pdf>

60 See: Caillaux, J; Ruiz,M; Tobin, B (1999) Andean Regime on Access to Genetic Resources: Lessons and Experiences. SPDA, WRI. Lima, Peru. Available at: http://www.spda.org.pe/wpfb-file/20060109112354_regimenandino_mini-jpg/

Between 1993 and 2010, CAN went from no rules or environmental instruments related to biodiversity, to developing nine (9) legal instruments addressing issue such as access to genetic resources, biodiversity planning and management, regional environmental policies, tradition knowledge, among others (See Box No. 2).

In the case of Andean Decisions, their binding nature has also contributed to the adoption by Bolivia, Colombia and Peru of laws and regulations for their implementation. An important effect of Decisions 391 and 523, has been the formation of expert teams in each country, that to date, represent the region and each country in negotiations related to biodiversity, under the CBD and other forums.

The CAN has also had an impact never seen before 1992; civil society participation as well as of representatives of indigenous peoples in all Andean environmental processes linked to biodiversity have become common place and accepted as the rule. The formation of the Andean Council of Indigenous Peoples is a clear reflection of this new participatory trend in CAN.

As part of the implementation process of these different tools, a multiplicity of publications, documents and technical reports have been produced, as well of databases and platforms with data and information on Andean Amazon biodiversity.

Finally, between 1992 and 2010, the CAN became an attractive and important receptor of international cooperation funds, for the implementation of different activities and programs derived from the instruments and Decisions adopted.⁶¹

Bolivia

Strategies on the environment, conservation of natural resources and biodiversity started to develop at the beginning of the 1990's, particularly once the CBD was adopted. Bolivia started to incorporate in its legislation, strategic lines to develop specific activities for the conservation and sustainable use of biodiversity. At first, these lines were centered on very protectionist aspects, sidelining the human element and how biodiversity contributes to development and social well-being, including through institutional strengthening, recognition of the provision of ecosystem services and improvement in production and productivity, mainly locally.

The implementation of the National Biodiversity Strategy (2002), has had systemic type limitations, linked to the structure and practices of the Bolivian State. These include institutional weaknesses, uncoordinated action among sectors, and poor integration of the Strategy into different plans and national development strategies. Administrative decentralization implies responsibilities that have not been met at the regional and local levels. Ultimately, public and private financial resources to encourage biodiversity conservation activities have been scarce. An important element has been the limited articulation of the Strategy with land-use planning processes. However, progress has been made in the field of strengthening the capacity of SERNAP, the attraction of investments for BioTrade value chains, and establishment of a legal framework for different aspects of biodiversity conservation (e.g. wildlife, motherland or "Pachamama", genetic resources, etc.).

With regard to the Strategic Plan for Biodiversity 2011-2020 – Living in Harmony with Nature, associated to the implementation of the Aichi Targets, its drive has been to promote the conservation of ecosystems and habitats, mainly through SERNAP, whereby 22 million hectares are being protected. This is 20% of national territory. This includes the declaration of 8 RAMSAR sites (7.8 million hectares).

In terms of promoting the biodiversity of species at the sectorial level, a National Program for the Conservation and the Sustainable Use of Vicuñas has been implemented, with a 300% increase of the number of vicuñas throughout the country between 1996 and 2009.

There is also a National Program for the Conservation and Sustainable Use of Lizards, with a baseline. Likewise, with respect to sustainable consumption, prohibitions have been established to improve the management of

⁶¹ Between 1992 and 2009, CAN received approximately US\$ 15 million, from donors such as the Andean Development Corporation (CAF), Inter-American Development Bank (IDB), International Union for Conservation of Nature (IUCN), United Nations Conference on Trade and Development (UNCTAD), y collaborations from Germany, Spain, Finland, Netherlands, Japan, among others.

threatened species due to excessive consumption (e.g. Indefinite General Ban), until the implementation of the corresponding management plans.

Regarding the challenges of climate change for biodiversity, as part of the National Climate Change Program and actions of the Interinstitutional Climate Change Council (CICC), an inventory on emissions, two national communications on climate change, a strategy for education and communication, among others, have been produced and implemented.

Finally, with a view to maintain the capacity of ecosystems to provide services and improve livelihoods, a Binational Master Plan for the Integral Development of Lake Titicaca, Rio Desaguadero, Poopó and Salar de Coipasa has been implemented.

With regard to the CBD Strategic Plan, Bolivia has undertaken various actions, including the promotion at different international forums of the Rights of Mother Earth and the paradigm "Live Well"; in 2002 the National Biological Diversity Strategy was published; numerous communication and dissemination activities on biodiversity issues have taken place, through institutions, museums and others (e.g. National Museum of Natural History, Noel Kempff Natural History Museum); debate and discussion spaces have been generated within communities and indigenous people for the elaboration of specific projects oriented to the conservation of agrobiodiversity (e.g. GEF Project on In Situ Conservation of Crop Wild Relatives through Enhanced Information Management and Field Application).

The National Sustainable BioTrade Program has been important for the generation of 15 value chains related to native biodiversity products of Bolivia, in many cases certified with environment and sustainability standards. It is calculated that at least 280 communities in different regions of Bolivia have benefitted from this type of venture.

Various NGOs in Bolivia have implemented important programs and specific projects for the conservation of biodiversity. One of these important projects is the Amboró-Madidi Corridor and the Conservation and Development Plan for Bosque Seco Chiquitano, coordinated by FAN, and which complement a series of national actions, which directly impact the conservation of biodiversity.

Some elements to highlight in the case of Bolivia refer to the increased participation of civil society, especially locally, in the management of protected areas within SNAP. Likewise, the management capacities and the sustainable use of biodiversity in protected areas have improved. The concept of "shared management" appears to have been put into practice. The increase of protected areas coverage is of central importance, as Bolivia is an exceptional case where coverage has increased 120%. It has gone from 1.3 million hectares in 1992 to nearly 17 million hectares in 2016. A multiplicity of sectorial management plans for specific species (e.g. vicuña, lizard) have been implemented. In Bolivia it is significant the way in which different socio/economic development plans (e.g. Patriotic Agenda 2015, National Development Plan 2016-2020, General Economic and Social Development Plan 1997-2002

Brazil

In the case of Brazil, as a result of UNCED and the CBD, and national biodiversity planning instruments themselves, progress has been made in the development of specific measures focused on conservation and sustainable use at different levels: ecosystems, species and genetic resources.

PROBIO (phases 1 and 2) has had significant repercussions in terms of results and the processes generated, including the enactment by decree of Protected Areas for Conservation, Sustainable Use and Benefit Sharing (2004).⁶² This norm seeks to provide guidance in the formulation and implementation of public policies, programs, projects and activities of the Federal Government with regard to *in situ* conservation, research, recovery of degraded areas, benefit sharing from the access to genetic resources, and biodiversity valuation.

62 Approved by Federal Decree No. 5.092 of May 21, 2004. Available at: http://www.planalto.gov.br/CCIVIL_03/_Ato2015--2018/2016/Decreto/D8772.htm

The Plan for the Prevention and Control of Deforestation in the Amazon (2004)⁶³ - at present part of the National Climate Change Plan – is aimed to encourage land-use planning and define ownership, monitor the environment, promote sustainable productive activities, and thereby reduce greenhouse gas emissions.

Through the Amazon Region Protected Areas Program (ARPA, 2002),⁶⁴ the objective is to protect 60 million hectares of Amazon biodiversity, by means of a progressive investment of nearly US \$300 million until the year 2039, under FUNBIO. It is important to emphasize that between 1992 until now, federal protected areas or conservation units (379 at present) that add up more than 73 million hectares have triplicated. In all, protected areas in Brazil (state, federal and municipal) add up to more than 151 million hectares.

At the sectorial level, CONABIO approved the National Strategy for Invasive Alien Species (2009).⁶⁵

The Plan for Prevention and Control of Deforestation and Burning in Cerrado (2010), is oriented specifically towards preventing the loss of vegetation and forest coverage in the Cerrado biome. This plan has also been recognized in the National Plan on Climate Change.

The National Plan for Agroecology and Organic Production (PLANAPO, 2013) is an implementing instrument of the National Policy for Agroecology and Organic Production (PNAPO); both significant in terms of conservation of agrobiodiversity and agricultural genetic resources, and for the revaluation of associated TK.

The National Conservation Program for Threatened and Endangered Species (PROESPECIES, 2014)⁶⁶ aims to promote the adoption of preventive, conservation, and management measures to reduce threats and risks due to the extinction of species. To do so, Official Lists of Species, National Action Plans (for species and threatened habitats/ environments), Databases and Information Systems have been implemented. To implement these plans and lists, joint work is conducted between the MMA, IUCN, the Chico Mendes Institute for Biodiversity Conservation and the Rios de Janeiro Botanical Garden, among other scientific/academic profile organizations. There are 587 threatened wildlife species, including 54 National Plans continuously being updated. However, at present, the total number of threatened fauna species in the country is 1.173.

In institutional terms, it is important to mention the creation of the MMA (1992) (the Secretariat for Biodiversity and Forests, as the maximum public authority on biodiversity) and CONABIO (2003), as the body responsible for coordinating PRONABIO, develop and implement the National Biodiversity Policy, promote the integration of sectorial policies, promote debate and public consultation on significant issues for biodiversity conservation, among others. The creation of the Chico Mendes Institute for Biodiversity Conservation (2007),⁶⁷ responsible for ensuring conservation units, promote research programs, elaborate actions plans for threatened species, etc., and the Genetic Heritage Council (CGEN, 2000),⁶⁸ responsible for ensuring the National Regime on Access to the Genetic Heritage of Brazil, are two significant landmarks in institutional developments of Brazil, as a result of the CBD and national policies, programs and plans regarding biodiversity and the environment.

Since 1992, the Government has improved its organizational administrative capacity to work on the biodiversity agenda at different levels. The participation of civil society actors is now expected in strategies and instruments, although practices in informed and active involvement still need to be improved. The budget of the MMA is still a lesser percentage of the total assigned to the ministries (0.25%).

63 There is no formal act for the approval of this Plan. There is approval for its inclusion in the National Plan on Climate Change – Federal Decree No. 7.390 of December 9, 2010.

64 Created by Federal Decree 4.326 of August 8th 2001. At present, the ARPA Program is regulated by Federal Decree No. 8.505 of August 20, 2015. Available at: http://www.planalto.gov.br/ccivil_03/_Ato2015-2018/2015/Decreto/D8505.htm#art7

65 Resolution No. 5 of October 21, 2009. Available at: http://www.mma.gov.br/estruturas/conabio/_arquivos/anexo_resoluconabio05_estrategia_nacional_especies_invasoras_anexo-resoluconabio05_15.pdf

66 Approved by means of Portaria MMA No. 43 of January 31, 2014.

67 Created by Federal Law No. 11.516 of August 28, 2007.

68 Created by Provisional Measure No. 2.052/2000 of June 29th 2000. At present, the CGEN is governed by Law 13.123 of May 20, 2015 and by Federal Decree 8.772 of May 11, 2016.

From a promising start in terms of actions, CONABIO, the evaluation of National Biodiversity Goals, and the National Biodiversity Strategy have become weakened, due to different factors including limited resources, political will, etc. The indicators of deforestation rates have improved, as well as the increase of protected areas coverage; however, in the field, the pressure on ecosystems is continuous and permanent, and also tensions and conflicts due to land use and claims over resources. This is associated to the recognition of indigenous land – a pending and very sensible issue in Brazil. Finally, the adequate integration and articulation among different planning tools and instruments, and among different government levels are essential for a substantial improvement in the implementation and application of the different existing strategies, programs and plans.

Colombia

Colombia has been a pioneer in South America with regards to the development implementation of environmental and biodiversity policies, norms and strategies, even before 1992.

In terms of biodiversity strategies, programs and plans, their implementation has been varied throughout the different governments. The National Biodiversity Policy (1996) and CONPES SINAP 3680, have been fundamental to strengthen SINAP (including through a budget of US \$31.000.000 for the implementation of the CONPES action plan), the generation of a biodiversity information system, the elaboration of regional biodiversity action plans and specific management plans for some species. The latter has also been supported by the Environmental Policy for Wildlife Management (1997).

Various types of ecosystems (e.g. mangroves, high mountains, wetlands, dry zones) have been favored due to different planning instruments adopted from 1992 onwards. Likewise, various species (e.g. Andean bears, felines, snakes, zalias, caoba, orchids, etc.) have specific management programs and plans, derived from the mandates of the National Biodiversity Policy (1997). In addition, regional biodiversity action plans have multiplied throughout Colombia.

In parallel to these policy instruments and the diversity of strategies, programs and plans, the national legal structure on biodiversity is being implemented, through a number of international cooperation projects that have consolidated the legal and institutional structure of biodiversity in Colombia.

A visible aspect as a result of the processes for the implementation of strategies and programs (and norms), has been the creation of an institutional structure dedicated to different aspects of biodiversity conservation. Prior consultation has become an enforceable right of indigenous peoples based on jurisprudence established by the Constitutional Court.⁶⁹ COLCIENCIAS, for its part, recognizes Research, Development, Technology and Innovation Groups, and calculates the existence of approximately 359 dedicated to biological sciences in Colombia. The National Environmental Forum launched in 1996, has become an important space for public reflection on environmental policies and actions, and biodiversity. The Inter-institutional Working Group on Private Conservation Tools (G5) is a public and civil society space, to discuss private participation in conservation, including territorial planning and natural resources management. The National Environmental Council was created to ensure inter-sectorial coordination at the public level of policies, plans and actions.⁷⁰ It has not operated constantly nor effectively over time. Finally, the creation of the Alexander von Humboldt Institute, as a support institute for MADS and a scientific/investigative branch for SINA, and the other four research institutes, have been an important contribution to the generation of information and knowledge on biodiversity.

In national development plans (e.g. Change for Peace 1998-2002; Towards a Communal State 2002-2006; Prosperity for All 2010-2014; Development Plan 2014-2018) the references to biodiversity and the environment are rather weak. In general, the key problem Colombia faces involves the integration of different measures/actions proposed in biodiversity strategies, programs and norms in national development plans, and recognition of the role biodiversity plays and natural capital as a support for economic development. Although policy instruments and biodiversity strategies have had an effect at the level of processes, resources mobilization and awareness, the internalization of their content in productive, industrial, infrastructure activities, utilization of non-renewable resources (mining – that has grown sustainably during the last years), etc., has been limited. Increased efforts are

69 Sentence T 576; T849/14; T661/15. Available at: <http://www.corteconstitucional.gov.co/?bAD>

70 Created by Law 99 of 1993. This is a body whose composition is multisectorial, with the participation of civil society.

required and a more effective participation by civil society to streamline their content. Despite the safeguards for the protection and conservation of forests (more than 50% of the territory) and the strengthening of SINAP, evidence indicates that the pressure on these spaces is increasing steadily.

Peru

The UNCED and CBD set a significant mark in Peru in terms of the efforts and drive to develop measures for biodiversity conservation. In the 1990's, the foundations were laid for the construction of the legal architecture that gave rise to different efforts for biodiversity planning and the first strategies.

The National Strategy for Biological Diversity (ENB, 2001), was the first effort to think about biodiversity strategically. The Strategy is directly linked and implements each one of the CBD Articles. An important element of the ENB development process was the active participation of CONADIB (1993), as the body that brings together a group of institutions (public and private) and national experts on biodiversity. This process was lead at the time by the National Environmental Council (CONAM). With the creation of MINAM, CONADIB became a part of the organizational structure.

An important effects of the ENB, all subsequent policies, strategies and programs at the national level were inspired by its contents or part of them. In addition, it has been instrumental to inspire the content of (14) regional strategies implemented. This is very important due to the key role that the 26 Regional Governments in the country play as part of decentralization and assumption of competences.

The ENB and commitments of CONADIB and MINAM have allowed Peru to comply with providing reports to the CBD (application reports, special reports on the application of Article 8(j), etc.), and other international instruments such as the ITPGRFA and Convention on Climate Change.

As a product of the ENB and to move forward in the consolidation of CONADIB, fourteen (14) Technical Groups have been established, responsible of specific issues: forests, continental waters, marine zones, agrobiodiversity, *ex situ* network centers, invasive alien species, etc. These Technical Groups have in turn provided information, technical documents and proposals, including, for example, a publication on deep-sea fish of Peru, or a regulatory proposal on agrobiodiversity zones and a National Agrobiodiversity Program.

In recent years, biotrade activities and value chains have consolidated, concluding with the adoption of the National Bio Trade Strategy and Action Plan to 2015. This is due to growing exports of native products (e.g. sacha inchi, maca, cacao) that ascends to more than US \$430 million a year. These value chains involve a broad range of social actors who are conscious and responsible for the conservation and sustainable use of biodiversity.

No specific indicators have been developed to measure the real impact of the ENB and different related instruments. In the case of the most recent ENB and its Action Plan 2014-2018, it is still premature to evaluate the possible impacts, although it has the best indicators to evaluate its effectiveness in the near future.

Final reflections and recommendations

Before 1992, the 'environment' was a marginal issue in policy debates, but today is absolutely incorporated in discourses at all levels when poverty and development matters are addressed in each of the countries analyzed. In less than three decades, we have a great diversity of actors and institutions directly involved in biodiversity conservation and sustainable use matters. It could even be suggested that there is a "Biodiversity Law" with its own rules and principles.

Sections 2 and 3 clearly reflect a positive effect in terms of the *number* of policies, strategies, plans and programs generated in the region and in Bolivia, Brazil, Colombia and Peru, as a result of an international and internal dynamic, leading public and private actors to take on commitments in regulatory mandates (e.g. the CBD or sectorial environmental norms on natural resources and related to biodiversity).

In general terms, if CBD requirements are compared to the content in different strategies, plans and program related to biodiversity, there is significant correspondence between the requirements and proposals at the level of concrete measures and actions of these different instruments, adapted to national realities. For example, the CBD compels the development of biodiversity strategies and plans, and countries have complied by means of their national strategies and plans (or similar instruments). Subsequently, countries have developed more specific measures such as regional plans, programs and projects, awareness actions, capacity strengthening, creating institutionality related to biodiversity, promoting investments in biodiversity businesses, including legal norms to address and implement what is established in biodiversity plans and strategies. The four countries have shown undeniable progress in this context.

Furthermore, the impact from these different types of instruments in terms of processes and the participation of civil society and other actors such as indigenous peoples has been extremely positive, unthinkable during the 1970's and 1980's. Processes are not a minor issue, but are sometimes difficult to judge with regard to their impact. Thanks to many of these processes - at the level of central/federal, regional and local governments - networks, alliances, initiatives, investigations, endeavors and a multiplicity of personal and institutional relationships around actions and activities undertaken related to biodiversity and its different components have been consolidated.

There is also evidence that the coverage and protection of biodiversity in protected areas or similar figures has increased in the four countries. In Peru, the increase since the nineties to date is approximately 100%, 50% in Colombia, 120% in Bolivia and 300% in Brazil. Although it is not possible to attribute these increases to biodiversity strategies, plans and programs exclusively, they have enabled processes and initiatives (or has complimented them) that have directly or indirectly contributed to these results over time. Although the coverage "on paper" is important, the challenges and pressures the spaces face is also considerable. Informal mining infrastructures, agricultural expansion, illegal logging, among others, are a permanent threat.

In all countries subject to this investigation, strategies, programs and plans have been in turn the detonators and catalyzers of multiple processes and sub-processes at the national level, resulting in the generation of specific plans for the conservation of flora and fauna species, programs oriented to the conservation of ecosystems and projects directed to the management of forests, protected areas, among others.

A variable that has not been approached in the study is climate change. Most countries in the region are highly vulnerable to climate change and, in this respect, are at a relative early stage of the development and implementation of strategic and plans related to adaptation and mitigation. However, the climate change process implies a new institutional and programmatic challenge for countries as they must implement measures and increase their investments to guarantee food security, reconvert the energetic matrix and depend less on fossil fuels, create more sustainable cities, among others.

Bolivia, Brazil, Colombia and Peru are in debates over two tendencies that are often considered opposing. On the one hand, since the 1990's, with the processes for economic liberalization and structural adjustments imposed to a larger or lesser extent in each country, a number of development policies and plans have been promoted, to privilege economic growth by improving productivity, investing in infrastructure, generating energy, exploiting natural resources, among others. The examples in this regard are abundant. One only has to consider the IRSA

Initiatives for Amazon countries or agreements for the construction of more than a dozen hydroelectric dams in Peru to supply Brazil with energy; the plan to construct a bioceanic railway line that would involve Brazil, Peru or Bolivia with Chinese investment; private investment in palm and monocultures in Brazil, Colombia and Peru; or plans for agriculture and livestock in Brazil, all reflect this economic tendency. Private or public investment and growth are perceived in these countries -with different nuances- as the driving force for development. However, as shown in this analysis, since the 1990's these countries have responded to UNCED and the CBD with new frameworks and institutional structures or architectures that unequivocally aim towards biodiversity conservation, precisely to the component usually affected and compromised by tendencies driven from a perspective of economic growth.

The paradox is that biodiversity loss rates continue to be high and the threats have also increased notably in recent years, despite the best efforts of countries. Maybe the questions should be: where would we be without the implementation of biodiversity strategies, programs, plans and frameworks in general? It is clearly visible that extractive forces and all types of legal and illegal ventures haunt the tropical rainforest in the Amazon.

An emblematic example could be the case of the "Chepete-Bala" hydroelectric project in Bolivia, currently at the stage of a socio-environmental prefeasibility study, but according to biodiversity experts, it will directly impact 200,000 hectares (2,000 square kilometers) where two protected areas are located with the greatest biological diversity in the country: Parque Nacional Madidi and Reserva Biológica (RB) and Tierra Comunitaria de Origen (TCO) Pilón Lajas. A second example is the case of Madre de Dios in Peru, where one of the largest biodiversity zones on the planet has been declared a state of emergency due to mercury and lead found in river courses, as a product of the massive presence of informal and illegal gold miners at the margins of Reserva Nacional Tambopata and Candamo. Approximately 500 hectares of primary forests have been decertified in this protected zone. This occurs basically due to the demand for gold by both formal and informal industries.

In terms of recommendations, the following could be proposed:

- a. Implement and improve the follow-up mechanisms and monitoring of advances in the implementation of commitments undertaken under the CBD and in relation to the compliance of actions anticipated in different strategies, plans and programs with regard to biodiversity. This could take place by implementing the goals and indicators required as part of the exercise for biodiversity management and the mediation of impacts from actions and interventions undertaken.
- b. Enhance technological instruments to measure the levels of affectation and biodiversity loss, translating the results to a language that would allow adequate and informed decision-making.
- c. Consolidate and strengthen collaboration and cooperation mechanisms among responsible and competent public organizations in terms of the implementation of programs, plans and actions regarding biodiversity conservation, with actors of civil society such as NGOs, research institutions and, mainly, indigenous organizations that represent the actors directly linked and interested in biodiversity conservation.
- d. Demand and incorporate the reference of advances in biodiversity strategies, plans and programs, from mediations on the progress and development (economic, social) at the national level. This requires as a condition, that these instruments are integrated in the different development plans (and economic) that countries regularly implement and evaluate regularly.
- e. Incorporate references to biodiversity in different national surveys (e.g. of homes, cultural, agriculture, others) in order to measure the quantitative advances in relation to actions and attitudes displaced by citizens regarding the commitments and principles encouraged by strategies, programs and plans specifically referred to biodiversity.

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Regional Programme Energy
Security and Climate Change
in Latin America

Konrad-Adenauer-Stiftung e.V.

Contact: Dr. Christian Hübner

Regional Programme Energy Security and Climate Change
in Latin America

+51 1 320 2870

Calle Cantuarlas 160 Of. 202, Miraflores

Lima 18, Perú

www.kas.de/energie-klima-lateinamerika

Energie-Klima-La@kas.de

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