

*International Workshop “Mainstreaming Biodiversity in Production Landscapes: Integrated Approaches in Design and Implementation of National Biodiversity Strategies and Action Plans (NBSAPs)”, 16-17 January 2018, Tokyo, Japan*



*Consejo comunitario del Río Rosario. Municipio de Tumaco – Departamento de Nariño  
Foto Héctor Tavera*



# *Mangrove Ecosystems in Colombia: Current status of the ecosystem and actions for its conservation and management*

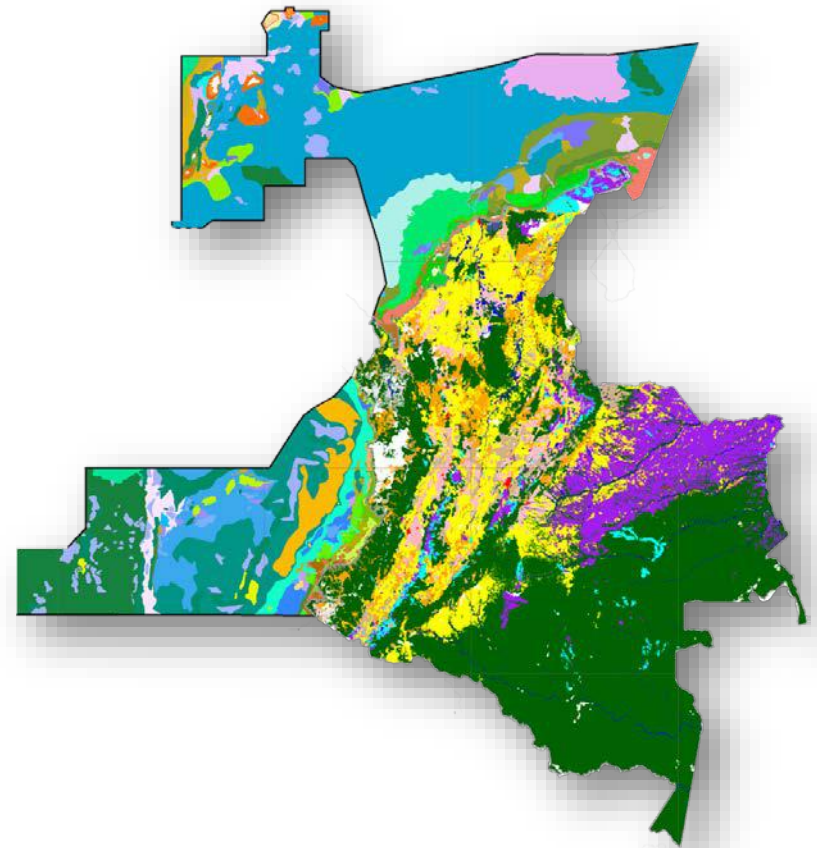
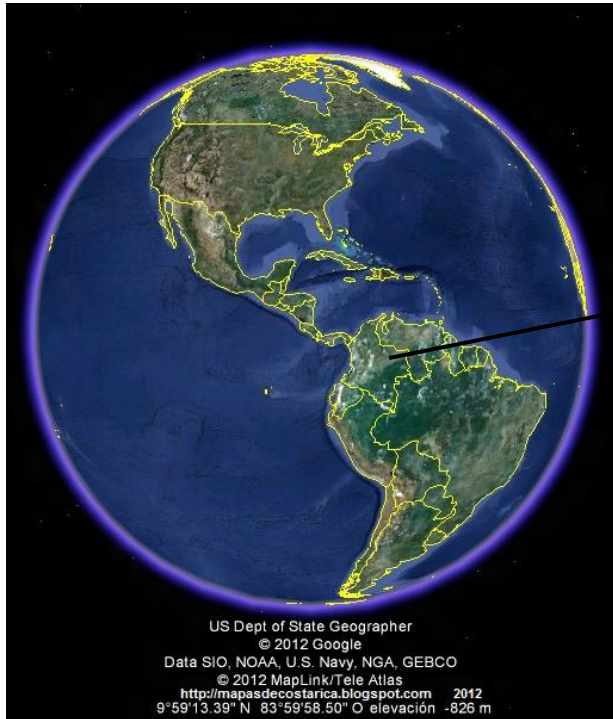


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MINISTRY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

# Colombia



Location	South America
<u>Area (continental):</u>	1.141.748 km <sup>2</sup>
<u>Population:</u>	48,65 millions (2016)
Marine-coastal territory	908,231.4 km <sup>2</sup>
<u>Two coasts</u>	Caribbean Sea and Pacific Ocean
<u>Marine and coastal ecosystems</u>	Mangroves, coral reefs, seagrasses.



The mangrove is a marine-coastal ecosystem located in the tropics and subtropics of the planet, in which the fundamental species is the mangrove.

Mangroves constitute an irreplaceable and unique ecosystem, which is home to an incredible biodiversity, which is why they are considered as one of the five most productive ecological units in the world, with primary productivity levels that surpass that of many agricultural systems.

Economically, the mangrove has been the subsistence base of many communities along the Colombian coast, who have used their **wood** on a small scale and for local use, like match sticks for instance. Also from the mangrove, **alcohol** is obtained, **paper** is made to wrap cigarettes, **dyes**, **synthetic fibers**, **incense**, **glues**, and the bark of some species has been used in the extraction of **tannins**, which are chemicals that facilitate the tanning process.

Culturally, the importance of the mangrove ecosystem lies in the fact that thousands of families are involved, dedicated to **artisanal fishing** activities, **collection of mollusks**, **crustaceans**, **wood and medicinal plants**, activities that supported the **diet of all the ancient cultures of the Coast**, which later commercialized their resources towards other regions of the country.

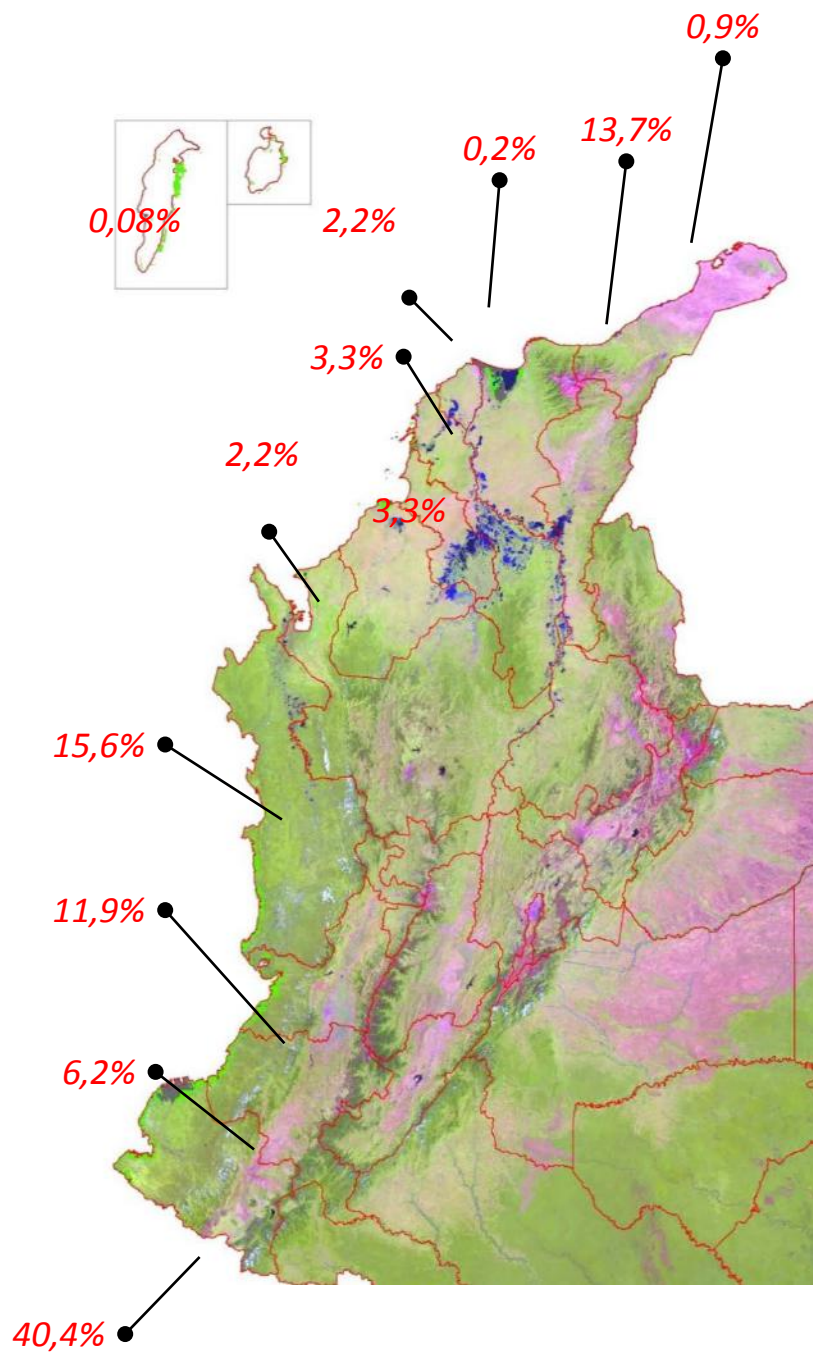
## Mangrove Ecosystems



# Generalities

About 273 thousand hectares of mangrove ecosystems in the country

201,178	hectares	74% in the Pacific
71,742	hectares	26% in the continental Caribbean
211	hectares	<0.1% in the insular Caribbean

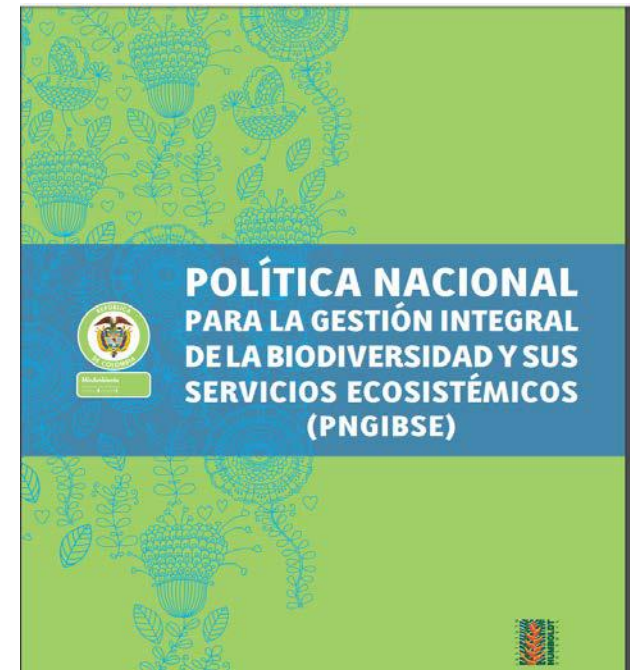




## *Process of incorporation of the target policies/projects into the NBSAP, including success factors and challenges*

Our NBSAP focuses on our National Policy for the Integral Management of Biodiversity and Ecosystem Services (PNGIBSE) through the execution of concrete actions that are coordinated between sectors on a regional level that allow the reduction of direct and indirect pressures on our biodiversity and ecosystem services, maintaining follow-up and periodic evaluations on the progress towards attaining national objectives. In this same way, it promotes the incorporation of biodiversity and ecosystem services in the sectorial participation with short, medium and long term actions, so that productivity and competitiveness take into account the resilience of socio-ecosystems as a referent for growth.

For Colombia, our NBSAP serves as the Action Plan for the Implementation of the PNGIBSE, and is known locally as Colombia's 'PAB' or '*Plan de Acción de Biodiversidad*'.







## *Process of incorporation of the target policies/projects into the NBSAP, including success factors and challenges*

The process that was applied for the construction of our NBSAP began in 2014 and was made possible through consultations with different authorities that make up our **National Environmental System - SINA** (Directorates and Offices from the Ministry of Environment and Sustainable Development, Autonomous Regional Corporations, Research Institutes, National Natural Parks, and academic and scientific sectors on national and regional level), as well as having done several workshops and creating working groups with specific productive sectors, such as Mining, Energy and Hydrocarbons, Agriculture and Infrastructure in the framework of existing inter-institutional work plans.

The goal was to have environmental authorities, scientists, academics, different ministries and productive sector representatives work in a coordinated and articulated manner in order to promote joint responsibilities in actions regarding knowledge, conservations, use and restoration in a way that improves and increases participation and the recognition of biodiversity and its ecosystem services as a public value.





## *Process of incorporation of the target policies/projects into the NBSAP, including success factors and challenges*

In the year 2012, the Ministry of Environment and Sustainable Development, with the support of the National Department for Planning and the Alexander von Humboldt Institute, presented the **National Policy for the Integral Management of Biodiversity and Ecosystem Services - PNGIBSE**, formulated based on the articulation between plans and strategies from different sectors in a national level, and as a result of the revision and update of the 1996 National Policy for Biodiversity.

This policy of State has as an objective the promotion of the Integral Management of Biodiversity and its Ecosystem Services in a way that the resilience of socio-ecological systems is maintained and improved on a national, regional, local and cross-boundary level, taking into account joint efforts between the State, the productive sectors and civil society. In this same way, it establishes the relationship between the strategic framework of the Policy and the fulfillment of the Aichi Targets. For this purpose, it proposes six main axis: (i) Biodiversity, conservation and protection of the environment; (ii) Biodiversity, governance and creation of public value; (iii) Biodiversity, economic development and quality of life; (iv) Biodiversity, knowledge, technology and information management; (v) Biodiversity, risk management and provision of ecosystem services; and (vi) Biodiversity, shared responsibility and global commitments.

These are further divided in 33 strategic lines, looking to target underlying causes and motors for loss and transformation of biodiversity.





## *Process of incorporation of the target policies/projects into the NBSAP, including success factors and challenges*

Regarding resource mobilization for our NBSAP, it is currently in the process of being constructed and is supported by BIOFIN.

Regarding costs for short, medium and long term targets of the NBSAP, initial calculations indicate that in order to be able to implement them, Colombia will require around USD 4.813 million.

Within the targets of our NBSAP, on a productive level, we have contemplated **actions that involve economic sectors**, such as agriculture, that will have indicators regarding sustainability, follow-up and verification mechanisms for compliance, and others that promote local development in a sustainable manner, and in territories high in biodiversity and those affected by the internal armed conflict.

In that same line, we have taken into consideration **existing reconversion plans** with indicators related to sustainability, green business, and the formulation and implementation of the National Strategy for Bioprospecting, amongst others.

# Implementation status, challenges and future considerations of the target policies/projects

The image shows the cover of a report titled "PROGRAMA PARA EL USO SOSTENIBLE, MANEJO Y CONSERVACIÓN DE LOS ECOSISTEMAS DE MANGLAR EN COLOMBIA" (National Program for the Sustainable Use, Management and Conservation of Mangrove Ecosystems in Colombia), dated 2002. The cover features a green header with the title and a logo for "MANGLARES DEL NOROCCIDENTE" (Northwest Mangroves) with the slogan "CAMBIAR PARA CONSTRUIR LA PAZ" (Change to Build Peace). Below the header, the text "PROGRAMA PARA EL USO SOSTENIBLE, MANEJO Y CONSERVACIÓN DE LOS ECOSISTEMAS DE MANGLAR EN COLOMBIA" is on the left, "2002" is in the center, and "PROGRAMA NACIONAL" is on the right. The main body of the cover is dark blue and contains a collage of four small images showing mangrove landscapes and a large image on the right showing a mangrove riverbank. At the bottom left is the logo for "SINA" (Sistema Nacional de Información Ambiental) and at the bottom center is the text "DIRECCIÓN GENERAL DE ECOSISTEMAS".

USO SOSTENIBLE, MANEJO Y CONSERVACIÓN DE LOS ECOSISTEMAS DE MANGLAR

PROGRAMA PARA EL USO SOSTENIBLE, MANEJO Y CONSERVACIÓN DE LOS ECOSISTEMAS DE MANGLAR EN COLOMBIA

2002

PROGRAMA NACIONAL

SINA

DIRECCIÓN GENERAL DE ECOSISTEMAS



# Subprograms of the National Program



Institutional Strengthening



Zoning



Planning



Information Systems



Protected Areas



Legal and Normative Aspects



Research



Productive Projects

Restoration



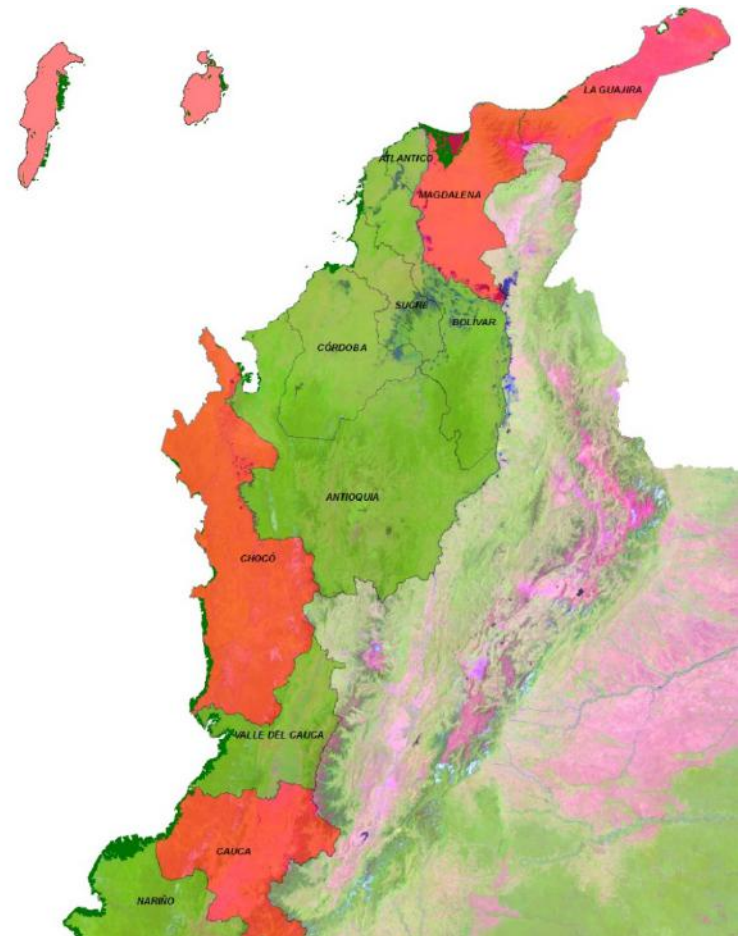
Participation, Education and Capacity Building



## Zoning:

Zoning of ecosystems exist on a scale of 1:25.000 with categories and regimen use.

This work is currently not being done on a national level, but there are important activities that have been carried out by Regional Environmental Agencies since the year 2000.







An aerial photograph showing a coastal town with several buildings and a large area of mangrove forest. The water is a muddy brown color, and there is a green overlay at the bottom of the image.

# Protected Areas

## Protected Areas:

Declaring protected areas, on a regional and national level, in order to attain Aichi Target 11.

During 2017, very important areas were declared in relation to mangrove ecosystems.

The *Regional District for Integral Management el Encanto* in the mangroves of Bajo Baudó with **314,000 hectares**, and the *National District for Integral Management Cabo Manglares* with **192,000 hectares**.

Both of these are located in the Colombian Pacific.





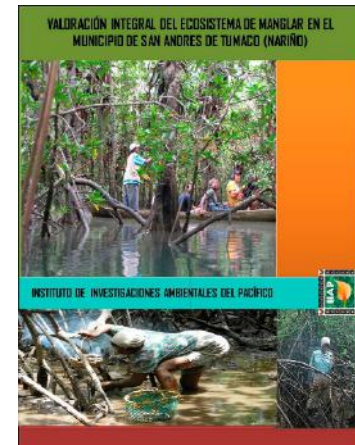
# Research:

## Research:

The zoning processes are the result of diagnostic studies and characterization of these ecosystems led by the Environmental Authorities with the support of the academic sector and some NGOs.

However, other studies exist that are very specific and go way before the year 2000, boarding topics, such as **productivity regarding fishery resources, associated fauna, accumulation of metals, and quality of sediments**, amongst others.

Currently, research on fixation of CO<sub>2</sub> is being undertaken.



# Participation, Education and Capacity Building

## Participation, Education and Capacity Building:

All the Environmental Authorities have specific plans and programs of environmental education. These are carried out with the communities and involve the productive sector.

In that same line, the Ministry of Environment and Sustainable Development takes on within its policy, the active relationship with the local communities, for example working on topics of restoration (with the own language) with the [\*Eperara Siapidara\*](#) indigenous population from the Colombian Pacific.

Additionally, there has been work done regarding education in ways of projects for awareness with WWF.





# Restoration

## Restoration:

Colombia has lines for restoration and monitoring for mangroves that were constructed in a participative manner (communities or environmental authorities), and has developed pilot projects for restoration in different regions of the country since 2015 with an investment of about 200 million pesos.







# Productive Projects

## Productive Projects:

Environmental authorities identify and implement different productive alternatives for the communities that depend directly or indirectly from mangrove resources, such as: **conservation and management of wild fauna**, **restoration of mangrove deteriorated areas**, **nature tourism**, **traditional productive systems**, **technologic alternatives** for the reduction of pressure over mangrove resources (efficient stoves, for instance).







## Legal and Normative Aspects:

### Legal and Normative Aspects:

We have normative instruments since 1995 targeting topics of ordinance, and currently we are working on updating these instruments.





# Information Systems:

**Information Systems:** Colombia has a geographical information system specific for mangroves (SIGMA). This system (<http://buritaca.invemar.org.co/SigmaGeoVisor/>) came about from the need to know, consolidate, organize and exchange available information in an efficient manner for the management of the mangrove ecosystems of the country.

- (i) **State module**, which supports data supplied by the National Protocol on Monitoring;
- (ii) **Pressure module** or look-out of mangroves;
- (iii) **Management module**, which visualizes actions developed by authorities in the framework of the Program for Sustainable Use, Management and Conservation of Mangrove Ecosystems in Colombia;
- and (iv) **Goods and Services module.**

The screenshot shows the SIGMA website interface. At the top, there are navigation links: Inicio, Avisos, Enviar un Informe, Recibir alertas, Contáctenos, Indicadores, and Ingresar. The main header reads "Egretta: Herramienta para el control y vigilancia de los manglares". Below this, a news article is displayed with the title "Realizan limpieza de manglares contaminados con petróleo tras atentado en Tumaco, Martes, julio 7, 2015". The article includes a description, a map of the location, and various metadata fields such as Departmento, Sectores, Persistencia, Frecuencia, Intensidad, Tendencia, Reversibilidad, and Extensión.

The screenshot shows the SIGMA GeoVisor interface. On the left, there is a sidebar with navigation options: Caracterización, Estado, Situación, Estado, Fisiología, Presiones, and Selección de tiempo. The main area displays a map of a mangrove area with a data chart overlaid. The chart is titled "ESTRUCTURA" and shows "Años Base (m2/ha)" on the y-axis (ranging from 0 to 30) and "Años" on the x-axis (ranging from 1995 to 2014). The chart shows a series of bars representing data points over time. A legend at the bottom identifies the data series: Avicennia germinans, Laguncularia racemosa, Rhizophora mangle, and Conocarpus erectus.





# Institutional Strengthening

## Institutional Strengthening:

Processes for the collective construction, such as:

- lines for monitoring and restoration;
- updating of norms in relation to mangroves;
- consolidation of a space for dialogue;
- pilots for monitoring and restoration of mangroves, and;
- the constructions and capacity building related to the SIGMA





**Contributions to achievement of relevant national biodiversity targets and Aichi Biodiversity Targets**

**Colombia focuses on Aichi Target 11:**

- **50%** of the mangroves in Colombia are protected under the mechanism of National or Regional Protected Areas.
- Regional Parks that have Objectives of Conservation dedicated to mangroves implemented by different Autonomous Regional Corporations:







**Contributions to achievement of relevant national biodiversity targets and Aichi Biodiversity Targets**

- ✓ Regional District for Integrated Management “La Caimanera” (CARSUCRE)
- ✓ Regional District for Integrated Management “Cispatá” (CVS)
- ✓ Regional District for Integrated Management “Tribugá – Cabo Corrientes” (CODECHOCO)
- ✓ Regional Natural Park and Regional District for Integrated Management “La Plata y La Sierpe” (CVC)
- ✓ Regional Natural Park “El Cuerval” (CRC)
- ✓ National Regional Park ‘Old Point’ in the Island of San Andrés – Archipelago of San Andrés, Providence and Santa Catalina (CORALINA)
- ✓ Regional District for the Integrated Management ‘el Encanto’ of the mangroves of Bajo Baudó (CODECHOCO)
- ✓ National District for Integral Management ‘Cabo Manglares’ (CORPONARIÑO)



## **Contributions to achievement of relevant national biodiversity targets and Aichi Biodiversity Targets**

For the construction of our NBSAP, there had to be an articulation between the Aichi Targets and the national priorities for conservation and the sustainable use of Biodiversity and the keeping of environmental services.

Some targets that were set, have a relation with the Aichi Targets, and others must be read in a more indirect way keeping in mind other global commitments.







Future steps including further policy development and review of implementation of existing policies, including lessons learned



**Main and most important challenges:**

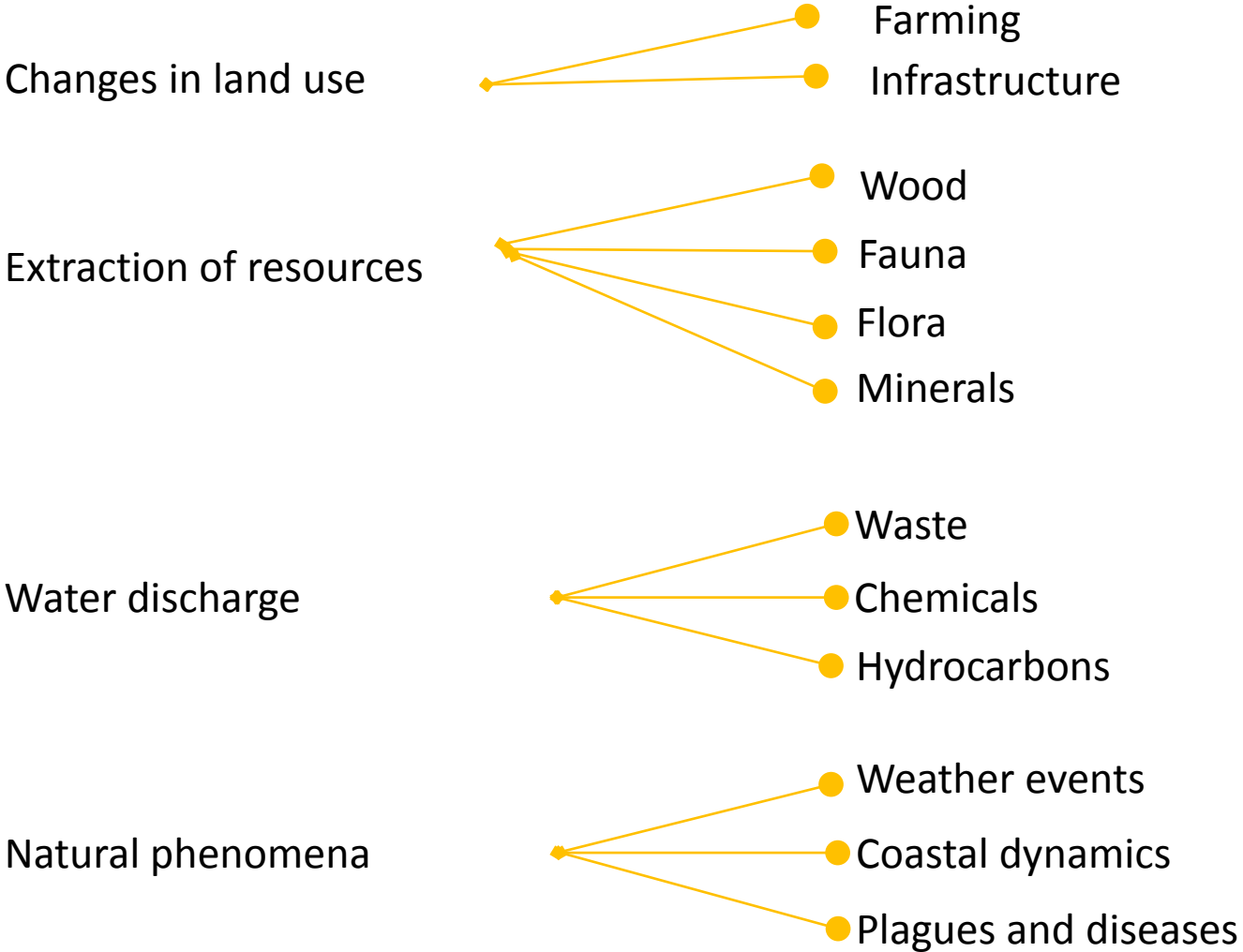
- **Specifying a vision** for sustainable development in the framework of construction and implementation of projects, works or activities for conservation and appropriate use of mangrove ecosystems.
- **Effective implementation** of economic and financial instruments for the conservation of these ecosystems.
- **Institutional strengthening** for the REAs.
- **Continuity** of productive projects with the communities that use the mangrove ecosystems in accordance to lines for conservation.
- Even though we have the reports from the REAs, which must have the necessary thoroughness and give a broad vision of the implementation of the PNGIBSE, it's important to **articulate** with processes for projects and works that somehow affect these ecosystems in regards of follow-up, control, mitigation of impacts and compensation.





Future steps including further policy development and review of implementation of existing policies, including lessons learned

**Prevention and Control**







Future steps including further policy development and review of implementation of existing policies, including lessons learned

- Work must be carried out and strengthened based on the **society and local communities** (fishermen, indigenous populations, afro populations, women, schooled population) and make them owners of these processes.
- Each vision from society must be respected in regards of **cultural, social, religious and biological values**.
- The vision towards marine, coastal and insular ecosystems is different from the vision and management needed for continental ecosystems, and therefore the **measures for Management must target these differences**.
- **Human resources** from the REAs must be strengthened in order to tackle the challenges that come with the administration of natural resources in each region.
- Colombia must **strengthen current and existing processes** in relation to the peace process (financial, human, social, and cultural).



