# An overview on forests, agroforestry and trees in national adaptation plans (NAPs)

RESEARCH PROGRAM ON Forests, Trees and Agroforestry
CGIAR

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The objective of this presentation is to give some preliminary insights on how forests, trees and agroforestry are considered in the current NAPs. It will successively consider the way forests and trees are integrated in the institutional process, the main vulnerabilities identified for forests and trees and the measures aimed at their adaptation, and how agriculture and other sectors integrate forests and trees for their own adaptation.

*The national adaptation plan (NAP) process was established under the UNFCCC in 2010 for least developed and other developing countries to identify and address their medium- and long-term adaptation needs. Most developing countries had initiated the process and to date 20 have shared their first NAPs on the UNFCCC website. Some developed countries have prepared similar documents.*

## Forests in the NAPs

Most of the NAPs are organized by sectors, generally chosen because of their particular vulnerability to climate change and/or their role for the overall adaptation of the country, with a cross cutting section. The sectors and their precise delineation generally correspond to specific line ministries to facilitate preparation and implementation of the plan. Forests are often included in the biodiversity/ecosystem sector of the NAP, as in many countries it is the ministry of environment that is responsible for forestry. For **Chile** for instance, forests are included in biodiversity, except for planted forests that are part of the sylvoagropastoral plan. Some NAPs are organized by subnational areas. In addition, most NAPs integrate the possibility of having actions that are subnational.

**Main risks** identified for forests and trees in the NAPs

Increased climate variability, increased heat and drought, increased risk of extreme events, salinity in coastal areas forest fires, pests and invasive species

**Main measures** promoted for forests and trees in the NAPs

Sustainable forest management, biodiversity conservation, monitoring and risk management systems, conservation and sustainable management of genetic resources and to anticipate future changes; for instance, planting seeds from hotter or drier areas to get adult trees more adapted to the future climate.

**Sri Lanka**'s NAP identifies adaptation options for export (plantation) crops (tea, rubber, coconut, spices, cashew, sugar canne): germplasm improvement, improvement of farm and nursery management practices, initiate research studies to assess climate impacts, monitoring and surveillance of pests and diseases, sectoral capacity development.

*Tea between hevea raws, double spaced, trial in industrial plantation, Sri Lanka (photo: Eric Penot)*

In **Uruguay**, as part of the NAP process were held adaptation dialogues to identify vulnerabilities and adaptation options. The Forestry Adaptation Dialogue was held with the support of the Uruguayan Association of Forestry Producers (Sociedad de productores forestales). The Dialogue analysed the risks and vulnerabilities associated with different climate events, such as the rise of drought conditions leading to increased temperatures that can result in an increase in plant diseases and pests, production losses, and increased fire risk. Another key risk identified was the excess of water due to abundant rainfall that can cause a combination of economic and productive knock-on effects. Production losses were also identified as being a potential result of plant health problems, soil erosion and logistical difficulties for harvest that may result in a loss of timber quality. It was agreed that global warming and the projections for the increased intensity of weather events in Uruguay would lead to an increase in the risk factors mentioned.

*Example of Araucaria angustifolia en Sierra de Ríos, departamento de Cerro Largo, Uruguay (photo: Wikimedia)*

## Agroforestry in the NAPs

**In most cases, agroforestry is covered in the agriculture section of NAPs.** The word "agroforestry" is mentioned in about two thirds of the NAPs, 3 countries mention it more than twice. There are only few mentions of the need to adapt agroforestry systems or planted trees (Sri Lanka, Cameroon and Chile). In some cases, agroforestry is mentioned (Togo) or broad measures like increase the proportion of perennial plants and forest farming or planting 10% of agricultural land with forest trees (Sudan). In some countries broad measures or orientations implicitly include agroforestry like: design farming systems to reduce termal stress, plant shade trees (Chile), identify and manage ecosystems that provide ecosystem services that sustain agriculture systems, to prevent soil erosion, regulate nutrient cycles, pollinate plants, control pests and regulate water in quantity and quality (Colombia).

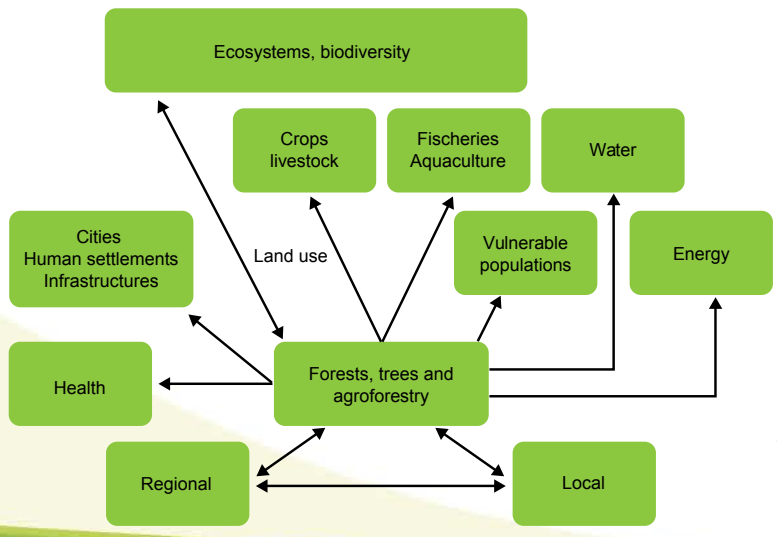
## Almost all sectors contain measures that use forests and trees as an adaptation mean

A **first group** concerns natural resources management, to restore degraded land, reduce soil erosion, restore water catchments, protect water tanks and rivers as well as coastal planting to reduce shoreline erosion and protect against storms.

A **second group** concerns agriculture, with wind breaks, shade trees and agroforestry in general, focused on biophysical rather than economic resilience.

A **third one** regards the protection and greening of cities to reduce the urban heat island effect, while taking into account increased fire risks.

## Potential contributions of forests, trees and agroforestry to the adaptation of other sectors/systems




These arrows represent **physical**, **biological** and/or **economic** contributions. Each sector can also be considered as a system, with its own actors and institutions. As summarized in the figure these sectors generally correspond to the perimeters of line ministries, to which regional and local institutions should be added and can be either emanations of national administrations or of local governments, depending on the countries. In the organizational reading of the figure, the **arrows represent links to be constructed between systems, actors and institutions, as part of the NAP**, to strengthen potential contributions of forests, trees and agroforestry to the adaptation of other sectors and ultimately of the whole country.

Trees and forest-related measures generally focus on a single biophysical adaptation benefit but often lacking specificities on implementation details ("how") or on the needed enabling environment, showing a lack of concertation with forest and tree specialists. This is consistent with broader findings that the weakest components of the plans submitted to the UNFCCC are "Coordination and Participation". It calls for greater involvement of forests and tree researchers and stakeholders.

### References

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