




LATIN AMERICA IN FOCUS:  
**Regional brief  
on National  
Adaptation Plans**



*With a growing percentage of the population living in conditions of extreme poverty (ECLAC, 2019) and facing situations that limit the environment, the development agendas of Latin American countries require an urgent turn of their growth approach towards sustainability and resilience in case they intend to increase the capacity to adapt to climate change.*

## Introduction

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Climate change is manifesting in Latin America in a different but vigorous way. Thus, the chapter on Central and South America of the Fifth Assessment Report of the IPCC (Magrin, GO et al., 2014) indicates that annual rainfall averages in southeastern South America have been increasing, while in Central America and south-central Chile they have tended to decrease. Meanwhile, temperatures have increased throughout the region since the mid-1970s.

**The future outlook is severe;** climate projections for 2100 show steady trends, presenting temperature increases up to 6.7 ° C for Central and South America and significant changes in rains up to -22% in Central America and northeastern Brazil; as well as + 25% in southeastern South America and increasing dry periods in the tropical zone east of the Andes (Magrin, GO et al., 2014). These projections present future values that

can change the hydrological dynamics of Latin America dramatically, as well as affect the water supply for cities, hydroelectric generation, agriculture and health.

**It is estimated that in thirty years, the socioeconomic impacts associated with the river flows decrease could reach between 957 and 3.589 billion dollars in losses due to changes in the provision of environmental services** (Lapola et al., 2018). In parallel, ECLAC estimates that with a 2.5 °C increase, economic losses would reach 2.2% of regional GDP (ECLAC, 2018; IADB, 2013).

In addition to the above, **the frequency and intensity of extreme phenomena associated with climatic variability could vary**, such it could be the case of the El Niño Southern Oscillation (ENSO) phenomenon. The 2015-2016 phenomenon - one of the strongest since 1950 according to CIIFEN (2017) - generated heavy

rains, floods and landslides that devastated civilian crops and infrastructure in southern South America. On the other hand, in the Dry Corridor of Central America and arid areas of the Dominican Republic, the drought impacted the basic grains agriculture and food security of 1.2 million people and threatened the transport of goods through the Panama Canal. The Canal situation has become recurrent: although torrential rains occurred between August and November 2018, the drought of the first half of 2019 - again related to El Niño - forced the restriction of the weight of the ships crossing this road (NY Times, 2019). In addition, drought in northern South America affected crops and energy production in Colombia and Venezuela.

In the northeast of the Amazon region, due to the El Niño 2015-2016 phenomenon, the temperature reached its highest levels (Jiménez-Muñoz, JC et al., 2016) and the affected area due to extreme drought had never been so great: 13% of the forests suffered drought between February-March 2016, favoring the conditions for fires over an area of about 800 thousand km<sup>2</sup>. Areas of the Central Amazon, which had barely been hit by fire in the past, were affected (Aragão et al., 2018). **If this extreme climate experienced due to El Niño becomes the “standard” in the future under the current climate change landscape (IPCC, 2012), countries must adapt, adjust their agendas under a climate-resilient development model.**

Thus, they will reaffirm their determination to move towards the Sustainable Development Goals (SDGs) and avoid global warming greater than 1.5 °C. Irreversible impacts would be limited, such as transformation, degradation and loss of ecosystems that, at the same time, would contribute and accelerate the pace of global warming (IPCC, 2018).

The impacts of extreme weather are diverse; for example, the retreat of the Andean glaciers (Schoolmeester, T. et al., 2018) on the Amazonian ecosystem is currently reflected in alterations of the river's hydrological pulse (Junk, W. et al., 2013), lower flows and lower sediment contributions, reducing the fertility of the floodplains and their ability to store carbon (Barros and Albernaz,

2014; Honorio Coronado and Drapper, 2017). In addition to the above, after many years of drought, glacier meltwater represents a fundamental source of water for the Andean highland populations: 85% of the water supply of the city of La Paz, Bolivia, and 91% for the city of Huaraz in Peru. The rise of the snow line in the southern Andes further increases the risk of flash floods downstream (Schoolmeester, T. et al., 2018). Hence, there is an urgent need to move forward in adapting to climate change and increase the resilience of social and productive sectors under conditions of greater risk.

With a growing percentage of the population living in conditions of extreme poverty (ECLAC, 2019) and facing situations that limit the environment, the development agendas of Latin American countries require an urgent turn of their growth approach towards sustainability and resilience in case they intend to increase the capacity to adapt to climate change. It should be recognized that land use change accelerates climate change and reduces the ability of ecosystems to provide environmental services essential to achieve the SDGs, this is a good starting point. This change in land use can be contained by strengthening the role of the State and harmonizing a number of its policies. One way is to incorporate adaptation into government policies that have not traditionally considered climate change, such as fiscal policy and land use regulations (based on Le Polain, et al., 2018). This opportunity opens a series of challenges as well as a range of possibilities of action to contribute to adaptation.

**The purpose of this document is to answer questions such as: How is adaptation operationalized within public policies? How to integrate adaptation in sectors that have not traditionally taken it into account?** How to integrate adaptation at the local level? To operationalize adaptation within public policies -and within a sectorial and intersectoral planning framework-, the strategies proposed in the National Adaptation Plans (NAPs) to reduce vulnerability to the negative effects of climate change, strengthen climate resilience and increase adaptive capacity, should contribute to orient the economic goals of countries towards sustainability.

1 The Dry Corridor extends along the Pacific side of Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and Panama.

2 See: <https://reliefweb.int/report/panama/natural-disasters-monitoring-august-6-2018>

**In recent years, progress has been made in recognizing the importance of adaptation as a priority for countries.**

Through the establishment of a global adaptation goal included in the Paris Agreement, its importance has been made visible and consensus has been reached on the need for urgent action and planning. This clarity about the need for strategic planning is being reflected in the Nationally Determined Contributions (NDC). Most Latin American countries include adaptation goals and actions in their NDCs that can generate feedback processes with the NAP processes, providing coherence and sustainability to the economic agendas of the countries and in light of future climate scenarios. The implementation of the NAP should allow progress in the SDGs in all sectors, as well as the country's progress in the Sendai Framework for Action and the fulfillment of the commitments of the Rio Conventions (CBD, UNFCCC, UNCCD).

This advance in the recognition of the importance of adaptation will require efforts in the light of the NAPs to:

- Create an enabling environment for the generation of scientific and socio-economic evidence to identify adaptation solutions based on current and future contexts of territories from a risk and exposure, vulnerability and adaptive capacity approach.
- Align the country's sectoral agendas and development policies in the medium and long term based on future climate projections and socio-economic scenarios.
- Land this guideline at the local level and considering the effects of these scenarios on the vulnerability of the various economic and social actors.

Davis and Díaz (2014) also propose the need to increase the articulation and coherence between development policies (investment promotion, job creation, etc.), with food security, risk reduction and territorial development policies. These science-based decisions will enable optimization in the use of limited resources and reduction of future vulnerability.

**In order to become operational, the NAP guidelines should be mainstreamed into public policy instruments related to development planning, both at the governmental, sectoral and state levels, as well as municipal and local governments. It is**

**necessary to promote adaptation based on a detailed territorial understanding of climate risk and future economic trends.** It will also be necessary to include the timely forecast about the interference of capital and international markets on national and regional economic agendas, considering the vulnerability of local actors to their respective scales, prioritizing those most exposed to climate change.

Therefore, the capacities for generating and implementing informed policies at the central government level and considering territorial management at the regional, municipal and local levels should be strengthened:

- Facilitating access to knowledge and data on climate, environment and economy generated by public institutions, academic and private sectors.
- Providing state and municipal-local technical bodies with knowledge about tools for prospective climate risk management.
- Creating spaces and figures that allow progress towards a culture of teamwork and inter-institutional coordination.
- Placing the dialogue on adaptation at the highest political level, so that it is included in the presidential agenda, in the budget lines of all sectors and at different levels, and the generation of sustainable financing is accelerated.
- Establishing indicators that allow monitoring and evaluation in terms of adaptation progress.

Additionally, some NAPs in Latin America seek to integrate adaptation into the agendas of women's and vulnerable populations ministries and institutions.

Adaptation strategies should consider that there is a differentiated impact by gender and dependence on livelihoods of vulnerable populations, including ethnic minorities. This is due to the different use of resources and the perception associated to the risk of climate change among different groups. The inclusion of the institutional and the recognition of the differentiated impacts between the different social groups will facilitate the advance in the integration of gender in the adaptation initiatives, as well as the respect for the diversity of the multiple ethnic groups that inhabit and exercise their rights over territories of high cultural sensitivity and biodiversity.

# Message 1

## Integration of adaptation in non-traditional sectors is required



The sectors that have received the most attention from adaptation plans and strategies have been agriculture, water resources management and disaster risk management. However, **scientific evidence has increased in relation to (i) the link between climate change and the exacerbation of health problems and (ii) the rampant urbanization process in the region that, in addition to social and environmental problems, can sharpen the vulnerability of broad sectors of the population to climate change** (Magrin, GO et al., 2014). The NAP processes open up an opportunity for these issues, as well as those of land use management and the strengthening of institutional and governance capacities -among others- (UN-Habitat, 2017), to be carefully analyzed. Although these issues are common concerns for Latin America, in some cases they have not had very clear responses to climate change (CAF, 2013).

### Health

In the case of health in Latin America, **heat-related mortality in older people can almost triple between 2030 and 2050** (UNEP, 2018). Vector diseases are projected to be more frequent, leading to additional costs in public health spending. In Argentina and Colombia, it is estimated that both the population exposed to dengue and malaria, as well as the estimated costs of economic losses due to the care of these diseases, would increase significantly

between 2020 and 2100 (ECLAC, 2013; ECLAC, 2014). These projections -which may be representative of what the region will face in the future- urge countries to develop health adaptation strategies, with strong links with other relevant sectors, given the intersectoral nature of the health sector (UN-Environment, 2018b).

Costa Rica, for example, in the draft of its NAP, proposes to address the prevention and care of climate-sensitive diseases and complements the National Health Plan 2016-2020, which includes the scope of Comprehensive Risk Management and Adaptation to Climate Change (Ministry of Health of Costa Rica, 2016). Ecuador, for its part, proposes for the NAP to group related priority sectors, such as "health" and "vulnerable human groups", to facilitate the management of comprehensive adaptation programs. Meanwhile, Chile, in its Adaptation Plan for Health, proposes adaptation measures for eight axes of action, two of them linked to the response to emergencies caused by climate change and vulnerability reduction (MINSAL, 2018), with a clear intersectoral approach. **The adaptation of health implies making changes in the planning of the sector; promote alliances among organizations and sectors and ensure that health protection and promotion occupy a place in the policies of adaptation and mitigation of climate change at national and regional levels** (UN-Environment, 2018a).

## Planificación urbana

Regarding the urbanization process in Latin America, the projections indicate that many urban centers will continue to grow until they concentrate in 2020 about 82% of the total population, which translates into an increasing pressure towards ecosystem services, public services and natural resources available. Urban cities and centers are "critical areas" where the population's vulnerability to floods, heat waves and other context-related threats is expected to increase due to the negative effects of climate change. In addition, one of the possible responses of the inhabitants of rural areas to climate change is the migration to urban centers. As the frequency and intensity of extreme weather events increase, these will be an increasingly important factor in migration (Hallegate et al., 2014).

Several NDCs gather advances in the integration of adaptation in cities. For example, El Salvador proposes updating the Urban Planning and Construction Law to

integrate adaptation into urban development planning and infrastructure, and pays special attention to Ecosystem based Adaptation (EbA) (MARN, 2015). In line with the above, the UN Environment leads a project funded by the Global Environment Facility (GEF) on urban climate resilience, which seeks to boost EbA actions in cities of El Salvador, Mexico and Jamaica<sup>3</sup>.

Cities such as Panama, Quito, Santa Fe (Argentina) and Santiago de Chile participate in the Global Covenant of Mayors for Climate and Energy<sup>4</sup> and Urban Resilience Strategies<sup>5</sup> (ERU). In addition to the above, the city of Cali, Colombia, has one of the Territorial Adaptation Plans that have been developed in the country (CVC, 2015). This series of efforts demonstrates that adaptation in cities must incorporate disaster risk management instruments on a regular basis -zonation, building codes-, in line with SDG 11 of sustainable cities and communities<sup>6</sup> and the New Urban Agenda<sup>7</sup>.



3 See: <https://www.thegef.org/project/building-climate-resilience-urban-systems-through-ecosystem-based-adaptation-eba-latin>

4 See: <http://pactodealcaldes-la.eu/>

5 See: <https://www.100resilientcities.org/panama-presenta-su-estrategia-de-resiliencia/>

6 See: <https://www.worldbank.org/en/news/feature/2017/10/05/ciudades-del-futuro-en-america-latina>

7 ONU-Habitat has developed eight guidelines for the formulation of urban climate plans: <https://es.unhabitat.org/>

# Message 2

## Interinstitutional coordination and the NAP development process are required as an opportunity to establish and consolidate these mechanisms.

**Strategically, interinstitutional coordination is an efficient and effective mechanism to implement climate change adaptation plans.** At various scales, each institution can provide information to:

- Understand the territory.
- Understand the factors that may threaten the resilience of environmental and social actors.
- Contribute to the design of solutions.

**The implementation of the NAPs can generate collaboration between State institutions, public-private organizations, academia and NGOs, and thus consolidate a culture of inter-institutional and intersectoral work.**

El Salvador's work seems to advance along this line, since it has identified the need to develop intersectoral adaptation plans for food and water security and is underpinned by its National Water Resources Management Plan, in which water is the main thread for the inter-institutional coordination of multiple sectors (tourism, agriculture, health, biodiversity, risk management). Also, the Interinstitutional Committee on Climate Change of Ecuador is committed to an adaptation agenda for the priority sectors of the country -water resources, hydroelectric generation and agriculture-, considering the EbA and focusing the analysis on basin units (UN-Environment, 2016).

Moving towards the figure of "Inter-institutional Committees" has been important in Ecuador, as well as in Honduras - or in Guatemala, where it has helped to include the issue of indigenous peoples in the NAP. However, in addition to inter-institutional coordination, adaptation will be more effective in society by combining participatory approaches in the planning process. In Peru, for example, adaptation planning with a bottom-up orientation is based on the adaptation approach established in the communities through the

Concerted Local Development Plans (PDLC). These plans have been key to include specific adaptation measures in local planning, also developing policies that establish the basis for coordination among sectors.

An expected result of the inter-institutional coordination is translated into adaptation measures formulated for the priority sectors of the country generating synergies and co-benefits in the other sectors -as proposed by the NDC of El Salvador- (MARN, 2015). This will make it possible to:

- Mainstream adaptation.
- Better measure progress in climate resilience, cross-information between institutions and validated by actors, including networks of experts that exchange information fluently
- Move forward in the use of a common language, which improves the communication required for inter-institutional coordination (UN-Environment, 2018b).

**Institutional agreements, information exchange and capacity development allow the horizontal and vertical integration of adaptation, help to ensure that local realities are reflected in the NAP and that the NAP facilitates adaptation at the subnational level** (Dazé et al., 2016).

Similarly, the articulation of adaptation plans with the policies of sectors, such as agriculture, can facilitate a transformation towards the promotion of diversified agricultural landscapes that provide multiple economic, social and environmental benefits resilient to climate change (UN-Environment, 2018a). Politically, it will incorporate agriculture planning in disaster prevention, rural development, water management plans and will facilitate resource mobilization and research to promote cost-effective adaptation (UN-Environment, 2018a).

# Message 3

## Consideration of the use of climate-based science information in decision-making processes makes the difference between development and climate-resilient development.

Climate scenarios together with risk, vulnerability and adaptive capacity analysis are essential planning tools to address adaptation. The changes in frequency and intensity of extreme phenomena, the calculation of regional and local climate risk index, as well as the generation of future socio-economic and environmental scenarios, based on climate and economic projections, are part of the information to be taken into account to plan climate-resilient development. This information should be clearly communicated to:

- Guide decision makers in the formulation of public policies, economic strategies and investments that do not increase vulnerability or lead to processes of maladaptation.
- Guide government institutions and municipal authorities in regulations to reduce the risk in all public and private investments.
- Educate the population in a culture oriented towards resilience and prevention.
- Integrate adaptation as one of the basis for achieving the SDGs.

It is therefore necessary to consider all these tools within the actions aimed at fulfilling the SDGs, setting goals in the NDCs and proposing medium and long-term actions (UN-Environment, 2018b).

At both national and local levels, socioeconomic and risk and vulnerability scenarios can be generated in a participatory manner involving the main actors, including those most vulnerable to the negative effects of climate change. The results should be communicated clearly and at an appropriate scale. In this way, local populations can be empowered and contribute to the approach of adaptation measures that respond to the needs of the territories.

Most countries have carried out vulnerability studies and climate scenarios, including at sub-national and

sectoral levels (UN-Environment, 2017). Colombia also has a Cross-cutting Green Growth Strategy, which aims at sustainable development considering climate change scenarios and development dynamics (UN-Environment, 2016).

Similarly, it is clear that the contribution of private financial sectors to national adaptation agendas should be promoted based on viable climate information, which reflects specific economic activities such as agriculture and livestock. Therefore, the incorporation of modeling of future scenarios would help to address one of the barriers of the financial sectors and support sustainable financing guidelines and protocols (UN-Environment, 2018a).





# Message 4

## It is necessary to develop enabling conditions for the private sector to prioritize resilient options. It is about contributing to make the adaptation profitable.

The global adaptation costs calculated by the IPCC are between 70 and 100 billion per year (UNEP, 2014, cited in UNEP, 2018). However, these figures could be underestimated by not considering factors (UNEP, 2018: 23) such as:

- The costs of adapting biodiversity and ecosystem services.
- Impacts of extreme weather events.
- Differences according to emission scenarios.

For example, **it is estimated that the costs of adaptation towards the end of the 21st century in a scenario without mitigation (> 4° C) would be five times higher than with a 2° C scenario (Hof et al., 2014, cited in UNEP, 2018), which reaffirms the need to act immediately to move towards the decarbonization of the economy. Therefore, adaptation financing that includes non-traditional sectors is necessary.**

The Development Bank of Latin America<sup>8</sup> estimates that the cumulative flow of climate finance available<sup>9</sup> for adaptation in the region barely covers 1.5% of financing needs. This leaves the remaining 98.5% under the responsibility of the countries. Based on these figures, possibly conservative, the countries and municipalities of the region will be forced to generate sufficient funds in other ways to progress in adaptation. Private sector financing therefore becomes fundamental, given the nature and scale of the challenges posed by a changing climate (UNEP, 2018: 24).

Many countries in their NAP processes work to include the private sector in generating national funds for adaptation and explore innovative mechanisms to finance climate resilience initiatives. For example:

- Chile and Costa Rica work so that adaptation is duly integrated into the public financial portfolio and national funds are created through fiscal instruments.
- Colombia, in addition to external funds, has state investment and local-municipal investment for adaptation: governors and mayors include climate change in their local plans based on local investment. In addition, the MEbA project is opening microcredit lines to small producers for the implementation of EbA measures at farm level in the Andean region of Colombia and Peru.
- Ecuador is formulating financial strategies such as charging a fee for the use of raw water and payment for environmental services; it is also exploring microfinance strategies and revolving funds (UN-Environment, 2016).

**While these efforts are important, the next step for most countries in the region is to involve the private sector through innovative financing mechanisms, in order to leverage additional resources and reduce the financing gap for adaptation in the region (UN-Environment, 2018b).** Some of the challenges to overcome to incentivize private sector investment in adaptation are:

- The private sector has different financing processes from those of the public sector, so it is necessary to achieve understanding between the two.
- The public sector must integrate the private sector into adaptation planning and ensure that it understands the need to invest in adaptive measures.

<sup>8</sup> CAF, 2013 op.cit.

<sup>9</sup> This flow refers to the financing of the main multilateral funds and the main bilateral sources that work in adaptation.

<sup>10</sup> The cost of adaptation for different countries has been established based on estimates from the IDB, ECLAC and the GEF, which assess the cost of adaptation at 0.2% of the countries' GDP.

<sup>11</sup> See: <http://unepmeba.org/sobre-nosotros/soluciones-meba/>

- Integrate adaptation approaches through value chains and facilitate access to information for final consumers (UN-Environment, 2018a).
- Innovative finance as an area to explore: existing public policy instruments (incentives, water funds) and market (microcredits, green credits) must be consolidated, structuring effective regulatory frameworks.

**Parallel to this, access to adaptation financing must be improved, both for countries as well as for small agricultural producers that could access loans at low interest rates. In this way, vulnerable groups could access financial programs with a “differentiated approach”.** These would be designed to consider

traditional modes of land governance (eg. collective lands), the recognition of unconventional guarantees, open the PSA to different types of property, and the opening of guarantee funds to reduce the financial risk of the executing institutions (UN-Environment, 2018a).

**Another key factor is to have capacity building programs to access financing for adaptation.** Most countries have been promoting national training initiatives and some of them include financing. In fact, learning about financing programs and strategies remains a priority issue throughout Latin America (UN-Environment, 2018a).



# Recommendations to strengthen adaptation planning schemes

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- **Consolidate permanent and constantly evolving inter-institutional communication and coordination channels** until they become part of the institutional culture and budgetary programming of adaptation initiatives.
- **Facilitate the generation and access to scientific data and information** to inform technical, regulatory and executive instruments of adaptation at national and subnational levels and aligned with the national SDG work agenda.
- **Adjust existing legal frameworks** particularly those related to land use planning, natural resource management and urban development planning in order to ensure the incorporation of needs identified in local and national adaptation agendas.
- **Establish monitoring and evaluation mechanisms** to measure the progress of adaptation and effectively monitor and report. This requires a multilevel, multiactor and intersectoral contribution, in the concrete definition of appropriate ways, measures, deadlines and adaptation indicators.
- **Generate a key knowledge base for learning and dissemination**, which allows periodically updating national, local and sectoral adaptation strategies and redefining increasingly cross-cutting and ambitious goals.
- **Facilitate access to international financing sources, as well as to government, municipal and private funds budget lines**, to plan, promote and consolidate investment programs in adaptation.

# Final messages

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- 1.** It is necessary to strengthen cooperation schemes and exchange of good practices and lessons learned among countries.
- 2.** It is important to include multiple actors, in particular those most vulnerable to climate change, is essential to achieve the adaptation goals set by the countries and to advance in the fulfillment of the SDGs.
- 3.** It is key to increase the ambition of adaptation actions in countries in response to the reinforced transparency framework. This can be achieved by promoting policies that support participatory processes through which both local goals and institutional and economic arrangements are defined to advance regional and national adaptation agendas from multiple fronts.

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## About the NAP GSP

The joint UNDP-UN Environment National Adaptation Plan Global Support Programme (NAP-GSP) was launched in June 2013, following a decision at COP 17 in Durban, requesting UN organizations to support the National Adaptation Plan process. The programme is financed by the Global Environment Facility (GEF) Least Developed Countries Fund (LDCF), and the Special Climate Change Fund (SCCF). The NAP-GSP, together with partners, are assisting developing countries to identify technical, institutional and financial needs to integrate climate change adaptation into medium and long-term national planning and financing. The NAP-GSP provides technical expertise and guidance on country NAP processes and provides opportunities for knowledge exchange on NAPs.

**Website:** <http://globalsupportprogramme.org/nap-gsp>

## Regional Gateway for Technology Transfer and Climate Change Action in Latin America and the Caribbean (REGATTA)

REGATTA is regional knowledge management project funded by the Spanish Government and implemented by the UN Environment Regional Office for Latin America and the Caribbean. REGATTA provides regional expertise and opportunities for sharing knowledge and experiences on adaptation planning and NAPs through the implementation of face-face to workshops and online training through its Community of Practice on NAPs. REGATTA's overall objective is to strengthen capacities and promote and exchange knowledge on climate change technologies and experiences in the areas of mitigation and adaptation for the Latin American and Caribbean region.

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