

Info Note

Scenario-guided participatory enhancement of Costa Rica's Nationally Determined Contribution

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Key messages

- Planning for climate change is complex, and major uncertainty about future developments can hold countries back from setting ambitious goals.
- Nationally Determined Contribution (NDC) enhancement processes need to include collective moments to imagine how the transformations needed for ambitious emission reduction might take place and set in motion climate action among stakeholders that participate.
- Anticipating future scenarios based on contextual drivers of change can increase the achievement of climate goals by identifying future challenges and opportunities and thereby robust climate plans and policies.
- Countries vulnerable to climate change need capacities to anticipate futures under different socioeconomic and climate scenarios.

Countries need to enhance the ambition of their Nationally Determined Contributions (NDCs) in order to prevent catastrophic effects of temperature increase over 2 degrees Celsius. More frequent and severe weather events across the globe have shown us the urgency of this matter. To limit global warming to 1.5 degrees Celsius, economies will need to go through deep transformations. However, planning for societal changes of this magnitude is complex, and major uncertainty about future developments can hold countries back from setting ambitious goals. NDC enhancement processes, which should take place at least every five years, need to include segments where stakeholders of different backgrounds and sectors collectively imagine how those transformations could take place, and what could make or

break the transcendental emission reduction and climate change resilience that is needed.

In this Info Note we exemplify how this can be done by mapping out how Costa Rica used a highly participatory approach to anticipate possible futures, increase ambitions and robust climate action, resulting in an NDC with enhanced climate ambitions.

What needs to change in NDC enhancement processes

Current guidelines for NDC enhancement are focused on technological solutions to mitigate and adapt to climate change, while we should also look at the societal changes that are needed. In order to reduce emissions drastically and increase resilience to climate change, we need to imagine the pathways to transform our economies. We also need to anticipate what might happen that can complicate the road ahead, and what interactions in society might enhance the possibilities of radically changing the way we do things. When this process takes place in a collective way, stakeholders, playing a leading role in increasing or reducing emissions in key sectors such as agriculture and transport come into play. They imagine how to make these changes possible, as well as how to avoid or tackle major challenges. This reinforces their collective process of social learning and change in a desired direction towards emission reduction and climate change resilience.

METHODOLOGY

How did the anticipation of futures support the enhancement of Costa Rica's NDC?

The NDC enhancement process combined quantitative elements of climate action [models](#) and qualitative elements developed through a planning process based on exploratory future scenarios. This Info Note focuses on the latter. In this process, multiple sets of scenarios based on multiple drivers of change developed together with key stakeholders from all NDC sectors were used to test and improve climate action measures.

Considering the health restrictions during the pandemic, all workshops took place online, allowing more than 350 stakeholders to participate. Virtual sessions were organized in clusters to enable working in smaller groups, and by uniting sectors with a systemic relationship to be explored together, such as agriculture, livestock and forests as well as transport and urban development. Figure 1 shows the clusters in which the NDC consultation took place.



Figure 1: Phase 2 of the NDC consultation process was organized in clusters.

The scenario workshops to support the NDC enhancement took place in 2 phases. In the first phase, stakeholders developed scenarios that explored contextual uncertainties that might change the future of Costa Rica. In the second phase, participants imagined what consequences each scenario would have for the climate sectors included in the NDC, and used the scenarios to test the effectiveness of planned climate actions and give recommendations of improvement to make them more robust. Figure 2 illustrates the scenario guided NDC enhancement, step by step.

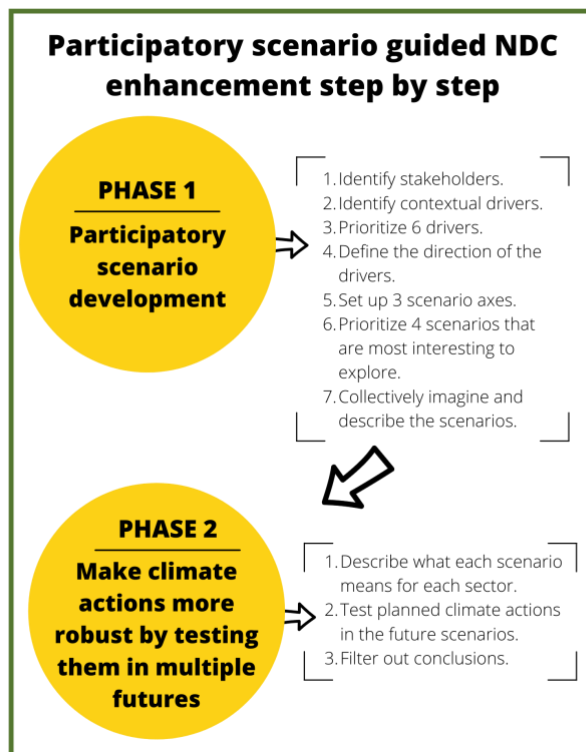


Figure 2: Participatory scenario guided NDC enhancement step by step.

PHASE 1: Participatory scenario development

1. Identify stakeholders.
2. Identify contextual drivers that can change the future of the country.
3. Prioritize 6 drivers most relevant for climate change, most uncertain and least discussed.
4. Define in what direction these drivers could change in the future.
5. Set up 3 scenario axes, each based on 2 drivers
6. Prioritize 4 scenarios that are most interesting to explore. Which are challenging, can give us new insights and show us futures not yet considered?
7. Collectively imagine and describe the scenarios.

PHASE 2: Make climate actions more robust by testing them in multiple futures

1. Describe what each scenario means for each sector or cluster. (What implications do they have for the future of transport, energy, agriculture and livestock, etc?)
2. Test planned climate actions in the future scenarios and give recommendations to increase robustness. (Will this climate action be successful in the context of this scenario? If not, why, and how should it be adapted?)
3. Filter out conclusions: What are the most vulnerable climate measures? What are red flags and opportunities explored in several scenarios? What insights resulted from the exercise? What should we start doing differently?

Results

The following scenarios were developed to explore future uncertainties and systemic complexities that might enhance or inhibit the achievement of Costa Rica’s climate goals.

<p>Future scenarios used to test and make Costa Rica’s NDC climate measures more robust</p>
<p>Essential Costa Rica?</p> <ul style="list-style-type: none"> ■ Economic model based on private sector use of natural resources ■ Land use based on integrating nature and biodiversity in human spaces <p>In the Costa Rica of 2050, the privatization of common goods has caused for major inequalities. Those able to afford it have access to water and live in lush green private residential areas, while housing and public areas managed by the government remain grey and underdeveloped. Public transport is in terrible shape due to a lack of investment interest. Protected areas have shrunk to give place for expanded farming areas which are less intensive and more integrated with nature. This has changed the dynamic of tourism.</p>
<p>Protection and exploitation</p> <ul style="list-style-type: none"> ■ Economic model based on public sector use of natural resources ■ Land use based on safeguarding nature and biodiversity from human spaces <p>Costa Rica achieved a new social and economic pact for economic development and innovation based on public investments while strictly respecting its natural resources in protected areas. However, what happens</p>

<p>outside these areas is not necessarily regulated from an ecological point of view. In order to expand areas under conservation, urban and agricultural land is now more compact, and highly dependent on inputs to increase the agri-food demand of a growing population. The country takes advantage of its clean energy production capacity from various sources. The income generated by biotechnological development and tourism linked to the biodiversity are used to provide society with high quality health, education, transportation, among other services.</p>
<p>Costa Rica: technological leader?</p> <ul style="list-style-type: none"> ■ Technology development on a national level ■ Cooperation between countries in the region <p>In the year 2050, Costa Rica leads the research and development of new technologies in the region. Due to regional treaties, Central America has positioned itself as a solid block in economic, social and environmental matters. In Costa Rica, the raw material necessary to develop technologies is imported and good cooperation in the region allows sales to other countries. There is an interesting market in the region for tech companies and Costa Ricans with tech skills. Unfortunately, the existing social gap since 2020 inhibits accessibility of new technologies that generate innovation and development to all people and sectors equally, leaving informal sectors behind.</p>
<p>Where we don’t want to end up</p> <ul style="list-style-type: none"> ■ High inequality ■ Water resource management based on demand <p>In this scenario, the majority of the population lives in extreme poverty. In the past, no mechanisms were established to benefit from knowledge and innovation, and social investments were put to an end. Political decisions are made for the benefit of specific groups. These groups have access to water, and it is now privatized. The high cost of water causes food insecurity and health issues.</p>
<p>Costa Rica Green Plus</p> <ul style="list-style-type: none"> ■ Economic model based on public sector use of natural resources ■ Land use based on integrating nature and biodiversity in human spaces <p>The State makes efficient use of natural resources and has integrated natural spaces into human spaces and activities. Agriculture is more harmonious with nature, although it expanded into protected areas to produce enough food. Communities that depended on these areas for</p>

their local economy have found other types of income. Society and its institutions have evolved and loss of forest biodiversity is compensated with other land uses centered on nature-based solutions.

RECOMMENDATIONS

As a result of the scenarios exercise, different series of recommendations were given for the NDC enhancement process:

1. Recommendations of improvement for each sector's specific climate measures
2. General recommendations for each sector, based on challenges and opportunities identified across a majority of scenarios.
3. General recommendations for the NDC as a whole with policy recommendations relevant for all sectors, presented in the following paragraph.

Scenario-guided policy recommendations relevant for all NDC sectors in Costa Rica

The following recommendations stood out in most sectors and therefore applied to the general conditions necessary for the achievement of NDC goals.

1. Provide the social conditions to promote a just transition: A transcendental issue in this process, from the very beginning when it comes to identifying context factors that will generate change in the future, is the concern of actors for an increase in social gaps and economics of the country. A fundamental element of the country's climate action agenda must be to strengthen the entities that promote an improvement in the wellbeing and social and economic conditions of the inhabitants. This will be key to ensuring a just transition to decarbonization.

2. Develop a shared vision of the future: Public and private entities from different sectors and geographic levels must develop a shared vision of the future. All efforts for decarbonized economic development must go in the same direction. Being able to imagine different ways to achieve this will be key.

3. Emphasis on strengthening capacities within municipalities: The emphasis of territorial planning and urban planning should be in the municipalities. It is there that capacities must be created and according to expert actors, there is still a long way to go. The 82 municipalities of the country must be aligned in the effort to use the instruments of territorial planning (regulatory

plans) to promote a vision of territorial development that enables the fulfillment of the goals.

4. Territorial approach to technological solutions: The methods and technologies proposed for climate action must not only be accessible, but must also be adequate and adapted for each territory and the people who use them.

5. Enhance the accelerating power of civil society: Citizens are a great ally of the state. Their participation in decision-making is key. Spaces in which citizens can support decision-making in urban area planning, among others, should be fostered. Citizens can also pressure the private sector to demand sustainable use of natural resources and ecosystems. In addition, they have great potential to change the customs of other citizens with their good practices.

6. The private sector as an ally of the state - climate action must make economic sense: One of the challenges encountered in the scenarios is that the private sector does not make environmentally responsible decisions, and does not consider the welfare of society. To avoid this, the state must give clear guidelines and monitor compliance with them. More importantly, climate action must have an economic sense that permeates development for the country. Finally, a concern about the future financial sustainability of the state is expressed on several occasions. Taking this into consideration, the active participation of private companies is crucial to achieve climate goals. Alliances based on the concepts of sustainability should be fostered.

7. Generate a culture of decarbonization through awareness and education: It is important to create a culture of decarbonization through the generation of awareness in consumers, and formal, non-formal and informal education. This formation must also permeate the legislative assembly of the country.

8. Inter-institutional public coordination: Coordination between public entities should be improved. There is a reasonable criticism about the inter-institutional disarticulation. Institutional capacities must be strengthened to be more efficient in the use of limited resources.

9. Promote the rational use of water: Legal mechanisms to ensure rational use of water are key to ensuring future food production.

10. Encourage dialogue between different types of knowledge: We must promote dialogue between different types of knowledge that exist in the country, for example, the cosmovision and more western forms of knowledge.

11. Encourage research: The country has an advantage in research, which includes processes focused on decarbonization. We have to make sure we don't lose that advantage in the public sector, and research in the private sector should be encouraged. The knowledge acquired in the research sector must be directly linked to an application in specific cases to support the decarbonized development of the country.

DISCUSSION

- Scenario development allows citizens and sectors to learn from the future and discuss the present. Countries should take enough time to conduct this process in a participatory way.
- Developing scenarios can be seen as a safe space for stakeholders with different worldviews to talk about complex or controversial issues in the present and future.
- This NDC process took place entirely online. This made it possible to involve a wide range of participants. Some stakeholder groups however have less access to virtual platforms. In these cases, face to face discussion meetings can complement online workshops.
- Scenario development in a virtual context requires significant preparation and knowledge of online collaboration tools. Working sessions should be shorter and since there is little space to improvise it is useful to have a detailed script and plan backup meetings.
- The exploratory scenarios approach presented in this brief can be complemented with a quantitative modeling approach that allows the calculation of social, economic and environmental benefits of climate measures included in the NDC. Costa Rica conducted a cost-benefit study of decarbonization, which was part of the NDC development process.

Further readings

- Pereira L, Sitas N, Ravera F, Jimenez-Aceituno A, Merrie A. 2019. Building capacities for transformative

change towards sustainability: Imagination in Intergovernmental Science-Policy Scenario Processes. *Elementa: Science of the Anthropocene* 7:35.

- Vervoort J, Gupta A. 2018. Anticipating climate futures in a 1.5 °C era: the link between foresight and governance. *Current Opinion in Environmental Sustainability* 31:104-111.

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