



Costa Rica

Independent regional climate change assessment

Key opportunities for climate ambition and implementation



- » It is important to emphasize the high exposure and vulnerability of civil society and public infrastructure, such as roads, energy, drinking water and agricultural (irrigation) infrastructure, to the impacts of climate change.
- » Costa Rica should concentrate its efforts on taking advantage of development opportunities that favor synergies between mitigation and adaptation in climate action.
- » Costa Rica faces the challenge of advancing in the environmental field without significantly increasing in public investment. It has the opportunity to take advantage of climate financing by promoting energy efficiency in residential and industrial sectors, and through public and private investment in energy saving technologies.

Costa Rica has overlooked fundamental aspects in its path towards green growth, particularly in the management of solid waste and agrochemicals, controlling carbon emissions in the transportation sector, and planning territorial development. Climate variability and change exacerbate the weaknesses of the current growth and planning strategy, jeopardizing past achievements and hindering the fulfillment of new goals.



Climate Justice

Climate policy instruments

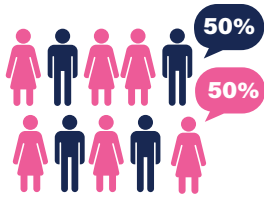
In compliance with the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, the countries parties have developed regulatory instruments, institutional and budgetary arrangements to address the effects of climate change at the national level. The following is a list of some of the instruments that frame climate action at the domestic level:

NDC	1st NDC (Updated submission), 2020 1st NDC, 2016
Target 2030 2050	Costa Rica commits to an absolute maximum of 9.11 MtCO ₂ e of net emissions in 2030. Costa Rica commits to an absolute maximum net emissions budget for the period 2021 to 2030 of 106.53 MtCO ₂ e.
BUR	2 BUR (2015, 2019)
LTS	LTS, 2019
NC	4 National Communications (2000, 2009, 2014, 2021)
NPA	National Climate Change Adaptation Plan of Costa Rica 2022 - 2026, 2022.
Laws relevant to climate change	-Law No. 9518 on incentives and promotion of electric transportation and application of Decrees 41092 and 42489. -Law No. 9366 on Railway Electrification -Regulation on the Efficient Use of Energy (Law No. 7447). -Forestry Law (Law No.7575) -Energy Law (Law No. 7200)



Costa Rica

Context



Population of **5.14 million** of inhabitants (2021).
Source: World Bank, 2022



2% of the population recognized as belonging to or descending from **Indigenous People**.
Source: ECLAC, 2021



Emissions per capita
3 tCO2e/capita.
Source: MINAE, 2021



SOCIOECONOMIC



Costa Rica

81.66%



Inhabitants in urban areas 2021
Source: ECLAC, 2022



Regional average
81.2%

0.81%

Human Development Index 2021
Source: UNDP, 2022



0.75%

12,509 USD\$



GDP per capita in 2021
Source: World Bank, 2022

8,340 USD\$

17.3%

Poverty 2021
Source: ECLAC 2022



32%

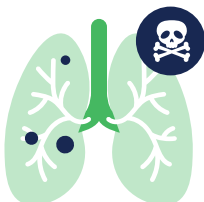
0.5



Gini index income inequality in 2021
Source: ECLAC, 2022

0.46

HABITAT AND ENVIRONMENT



Deaths attributed to **air pollution** **19** **23** per 100,000 inhabitants.
Source: IHME, 2020



Surface of **native forests** **16.6%** of the total area of Costa Rica. (**463,000 km²** in 2021)
Source: MINAE, 2022



Costa Rica

Adaptation and vulnerability

With the signing of the Paris Agreement, the parties committed to increase capacity to adapt to the adverse effects of climate change and build climate resilience, as well as to promote low-GHG development.



The current strategies recognize the lack of planning and its connection to environmental protection, emphasizing the inclusion of adaptation criteria in land use, marine and coastal planning at different scales, and the need to integrate environmental considerations in the planning process.



The NDCs define priority sectors based on an Ecosystem-based approach. In addition, it is proposed to implement a Green and Inclusive Development Strategy, to increase forest coverage, and consolidate the Payment for Environmental Services program (PES) and the National Biological Corridors and Wildlife Protected.

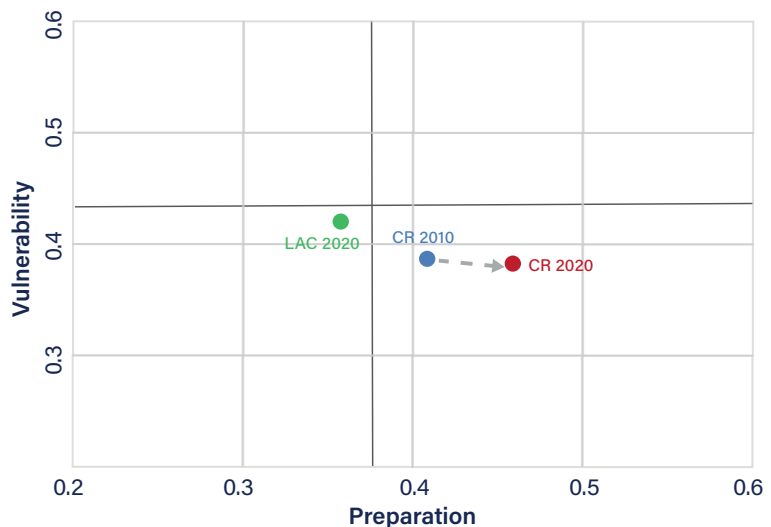
3.1 Vulnerability and preparedness

According to the methodology developed by the University of Notre Dame (ND-GAIN Country Index¹) to establish the degree of vulnerability of countries in relation to their degree of preparedness, Costa Rica shows intermediate levels for Vulnerability, but shows a certain degree of progress in its level of preparedness from 2010 to the present.

The dark blue dot represents the start year 2010, the red dot the final year 2020 and the green dot represents the regional average for 2020.

The vertical axis shows the vulnerability score, and the horizontal axis shows the readiness score for the count

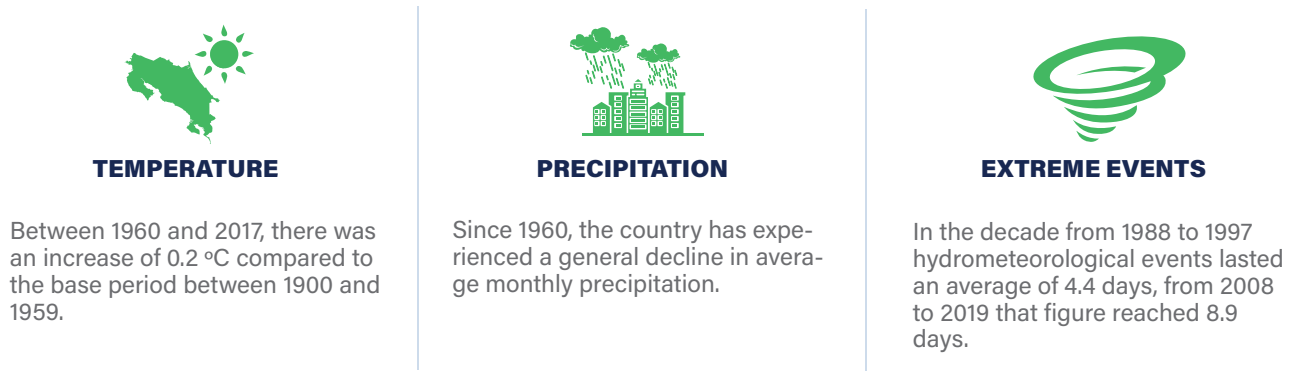
Figure 1. Comparative resilience 2010-2020.



Source: Prepared by the authors based on ND-GAIN, 2023.

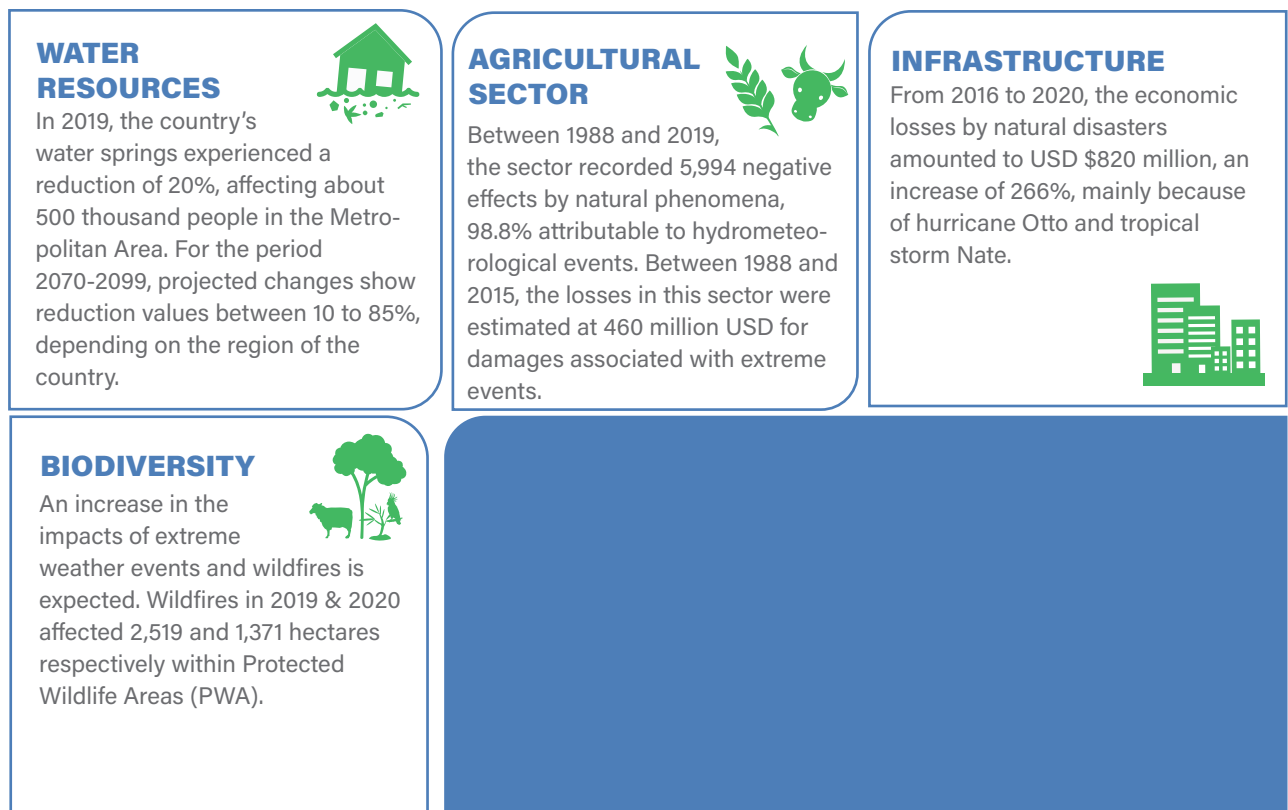
¹ The ND-GAIN country index summarizes a country's vulnerability to climate change and other global challenges combined with its preparedness to improve resilience. It aims to help governments, businesses and communities better prioritize investments for a more efficient response to the immediate global challenges ahead. According to this methodology, vulnerability measures a country's exposure, sensitivity and adaptive capacity to the negative effects of climate change, considering six life-supporting sectors: food, water, health, ecosystem services, human habitat and infrastructure. On the other hand, preparedness measures a country's capacity to leverage investments and turn them into adaptation actions, considering three components: economic preparedness, governance preparedness and social preparedness. <https://gain.nd.edu/our-work/country-index/>

Figure 2. Examples of changes observed in Costa Rica.



Sources: PEN, 2020; NDC, 2022.

Figure 3. Projected impacts.



Sources: PEN, 2020; PNACC, 2022; CNE, 2021.

3.2 Adaptation policies and measures



Costa Rica has a wide range of adaptation measures. According to the Registry of Climate Action Measures updated as of July 2023, the Costa Rican government has implemented 184 measures classified into plans (5), south-south cooperation programs (6), strategies (5), alliances (1), standards and certificates (2), offers (1),




academics (4), policies (6) and projects (155) for adaptation. Of the 184 measures, 79 are based on a cross-cutting approach involving planning and governance projects, research, education and capacity building. The rest of the measures have specific approaches in sectors or geographic areas.




To give granularity to the progress in the implementation of climate change measures, the following table details only the projects specific to the sectors that the Costa Rican government indicates as priorities in its NDC (2020).


Costa Rica's national monitoring and registry system makes it possible to know the current status of all policies implemented and to establish progress by subsector.

Table 1. Adaptation measures for priority sectors

Sectors	Measure	Degree of implementation (identified priorities / initiatives / flagship projects)
 <p>Agriculture</p>	<ul style="list-style-type: none"> Establishment of platforms to update and elaborate zoning scenarios Capacity building for producers to face climate challenges Implementation of soil conservation practices Promotion of crop diversification Efficient water management Promotion of resilient family farming Technical assistance and training Promotion of research and technology transfer 	<p>16 of the 17 policies have been finalized</p> <ul style="list-style-type: none"> -Creation of 12 zoning maps covering a total area of 60,346 hectares, including various crops. -Capacity building for technicians and producers in technological options for adaptation to climate change, especially in coffee production, agriculture and water management. -Emphasis on bringing back and valuing local knowledge in indigenous territories to face climate challenges. -Significant reduction of water consumption in rice crops, with 70% savings in irrigation water costs. -Production of online accessible material, disseminating good practices for adaptation to climate change for diverse crops and farming systems.
 <p>Livestock</p>	<ul style="list-style-type: none"> Implementation of forestry-pastoral techniques Introduction of sustainable technological alternatives Sustainable production of livestock and dairy farms Promotion of adaptation processes in communities Establishment of model farms with slurry fertigation techniques Efficient use of biofertilizer from biodigesters Technologies for the rational use of water Adaptation strategies in livestock production units 	<p>The 10 measures implemented have been completed</p> <ul style="list-style-type: none"> -Successful implementation of adaptation technologies on 63 livestock farms, improving the resilience of livestock to extreme weather events and ensuring the supply of forage during critical periods. -Training for producers in sustainable farm management. -Pilot farms dedicated to the fattening of bulls and milk production, to increase the availability of forage resources for cattle feeding during critical periods. -Dissemination of information through videos to promote the adoption of adaptation practices.

	<p>Ecosystems biodiversity</p>	<ul style="list-style-type: none"> Implementation of specific measures for adaptation to climate change in wetlands Pilot program for biological participatory monitoring and online platform for information exchange Forestry suitability study to strengthen connectivity Integrated management of marine-coastal resources to adapt artisanal fisheries to climate change Improved water management and resilience of coastal communities Coral reef restoration Implementation of priority actions for adaptation to climate change in Tortuguero National Park Ecosystem restoration and recovery processes and ecosystem services 	<p>Of the 13 measures, 6 are in the implementation stage</p> <ul style="list-style-type: none"> -Wetland restoration and public awareness. -Establishment of 17 participatory monitoring brigades to record wildlife species. -Increased connectivity in farms. -Generation of additional income options for families through diversification of activities and training on climate change. -Training of community members in climate change, water resource management, forest conservation and solid waste management. -Establishment of nurseries and restoration sites for corals. -Mangrove restoration in three protected areas. -Implementation of actions to strengthen adaptation to climate change, including the generation of information and capacities in the cultivation of species and structures.
	<p>Forests</p>	<ul style="list-style-type: none"> International campaign to promote green and sustainable recovery Risk mapping system to prevent forest fires Forest fire incident management system Landscape rehabilitation Forestry Support and Promotion Program (PPAF, Spanish acronym) for financing for forestry projects. 	<p>The 5 measures are in the implementation stage.</p> <p>Tracking the progress of most of these measures is challenging due to their recent implementation. The PPAF, during its pilot period between 2013 and 2017, financed the planting of 148,133 trees with an investment of 316,200,994,00 CRC in five years. The need to strengthen technical support was recognized. The pilot initiative was scaled up to consolidate a broader more permanent program.</p>
	<p>Water resources/ Water and sanitation</p>	<ul style="list-style-type: none"> Strengthening the infrastructure and technical capacity of the management associations to address the impacts of climate change on aquifers Integrate ecosystem-based adaptation measures into public and private sector policies and strategies Delimit and map protected areas, implement reforestation and infrastructure programs to reduce the use of fossil fuels 	<p>Of the 24 measures, 9 are in the implementation stage.</p> <ul style="list-style-type: none"> -148.94 hectares of forest have been delimited. -More infrastructure has been provided to aquifer management associations providing better service to users. -166 families have improved their living conditions thanks to infrastructure achievements. -Awareness-raising activities for communities, schools and government officials, strengthening capacities in water management and adaptation to climate change. -Design of tools to support service providers in the creation of resources for conservation of water. - Implementation of systems for collection, storage and distribution of rainwater in different areas.

	<p>Water resources/ Water and sanitation</p>	<p>Improve water management in beneficiary communities, protect water and biodiversity</p> <p>Conduct hydrogeological studies</p> <p>Train community leaders in climate change adaptation</p> <p>Promote water regulation and integrated management</p>	<p>Through the exchange of experiences, the capacity to adapt to climate change has been strengthened in Costa Rica and Peru.</p>
	<p>Cities / human settlements housing</p>	<p>Implementation of individual or collective wastewater treatment systems</p> <p>Inclusion of climate change in the process of land use planning</p> <p>Introduction of a protocol for assessing the impact of climate change on land use planning</p> <p>Promote sustainable construction and green buildings</p> <p>Evaluation of green infrastructure and ecological connectivity</p>	<p>Of the 9 measures, 4 are in the implementation stage. Although some of the measures have not yet shown progress, the following results have been recorded:</p> <ul style="list-style-type: none"> -Introduction of the SDG 6 Water and Sanitation Policy Support System to monitor progress in Costa Rica. -Development of technical capacity, planning and management tools. -Reduction of vulnerability of coastal communities and strengthening the adaptive capacity of local stakeholders and vulnerable ecosystems. -Identification of vulnerability to hydro-meteorological events related to climate change. -Strengthening of local capacity to prioritize investments and allocate budgets.
	<p>Risk</p>	<p>Facilitate community and socioeconomic conditions for the implementation of an inclusive and resilient recovery model</p> <p>Definition and creation of projects adapted to the needs of indigenous organizations in each territory</p> <p>Integration of climate change criteria in municipal processes, financial valuations and public knowledge</p> <p>Capacity building in water management and protection Reduce damages due to extreme weather events</p> <p>Systematization of good practices for government officials</p> <p>Establishment of a thematic network of public-private partnerships for risk management Inclusion of private sector as a stakeholder in the National Risk Management System.</p>	<p>Of the 10 measures, 6 are in the implementation stage. Although some of the measures are not yet showing progress, the following results have been recorded:</p> <ul style="list-style-type: none"> -A participatory process was established with indigenous communities to develop post-disaster recovery plans and actions, in collaboration with municipalities and government entities. -Weather stations have been installed to transmit information in real time, and an Early Warning System has been installed to provide greater security and preparedness for adverse weather events.

	<p>Health</p>	<p>Guarantee the capacity of the productive sectors to withstand and adapt to climate change, thus ensuring food availability and adequate nutrition.</p>	<p>Of the two measures, one is in the implementation stage. The Malaria elimination policy in Costa Rica was widely successful and internationally recognized.</p>
		<p>Improve health surveillance by monitoring diseases related to climate change impacts.</p>	

Source: Own elaboration based on Climate Action Measures Registry, 2021.



Costa Rica

Mitigation

With the signing of the Paris Agreement, the parties committed to keep the global average temperature increase well below 2°C above pre-industrial levels and to continue efforts to limit it to 1.5°C.



CONTEXT

Although the goal is to achieve 100% renewable electricity generation, climate action does not yet serve as comprehensive roadmap for development. For example, the operationalization of the NDCs remains in transition from being aspirational goals to a prioritized investment plans with a clearly defined timeline.



KEY OPPORTUNITIES

Mitigation strategies require addressing and taking advantage of opportunities to increase the adaptive capacity of the sectors through the implementation of better production practices, innovation and investment for eco-competitiveness, consumer awareness, and the development of new products and services.

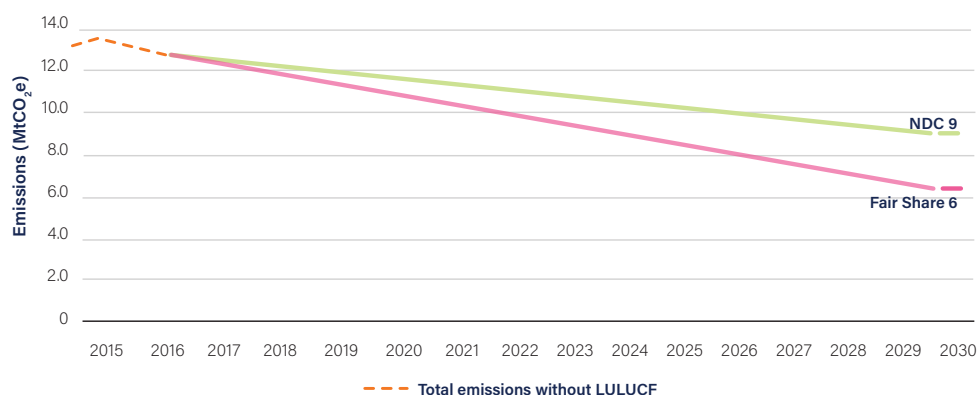
4.1 Country contribution to emissions

Costa Rica's latest total annual emissions reported were 14.2 MtCO₂e in 2016, and 12.8 MtCO₂e without considering emissions from land uses (LULUCF)(INGEI, 2021).

In the latest update of its NDC, Costa Rica committed to not exceeding 9 MtCO₂e annually by 2030, a 37% reduction in total emissions compared to 2016.

However, considering the fair contribution for Costa Rica (Fair Share)², according to the Stockholm Environment Institute Calculator (SEI, 2023), the country should reduce its emissions by 6 MtCO₂e by 2030 (without considering LULUCF). This implies a reduction of almost 58% compared to emissions in 2016 (Figure 4).

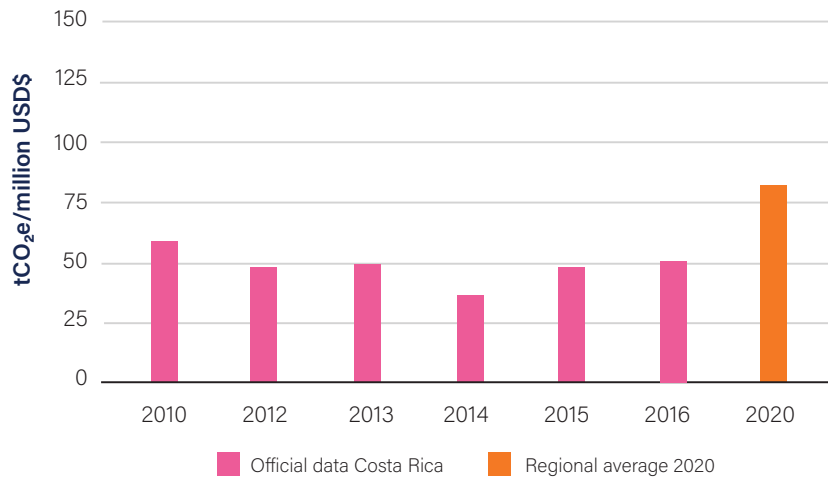
Figure 4. Costa Rica NDC target and fair share without LULUCF.



Source: Own elaboration based on INGEl, 2021; NDC, 2021; SEI, 2023.

The emissions intensity of the country's economy decreased by 14% between 2010 and 2016 (MINAE, 2021), lower than the regional average for the same year

Figure 5. Carbon intensity of the economy (tCO₂e / millionUSD\$).



Source: Own elaboration based on INGEI, 2021.

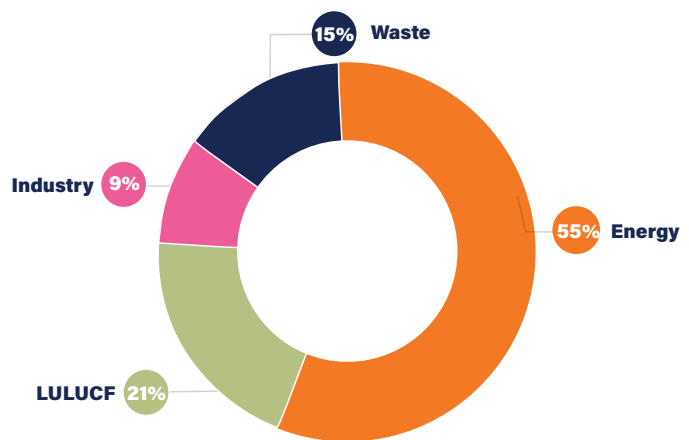
4.2 Emissions by sector

55% of the country's emissions come from the energy sector, while 21% come from the LULUCF sector (MINAE, 2021).

Energy

Costa Rica's fossil fuel reserves (natural gas, oil and coal) represent an insignificant percentage of the total reserves of Latin America and the Caribbean in terms of energy (OLADE, 2022; BP, 2022; Our World in Data, 2022).

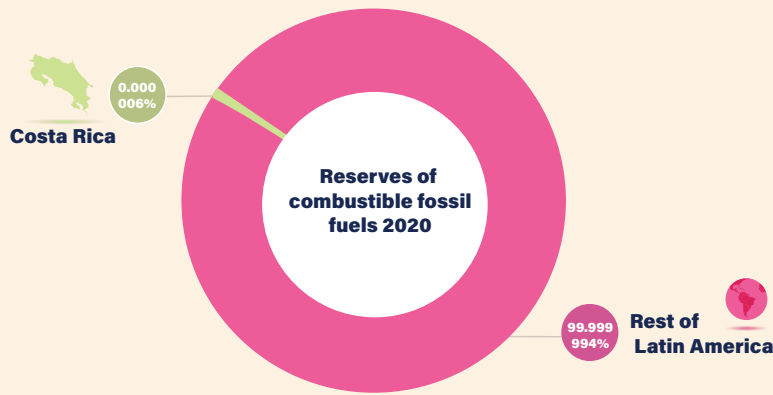
Figura 6. Total emissions by sector 2018.



Source: Own elaboration based on INGEI, 2021.

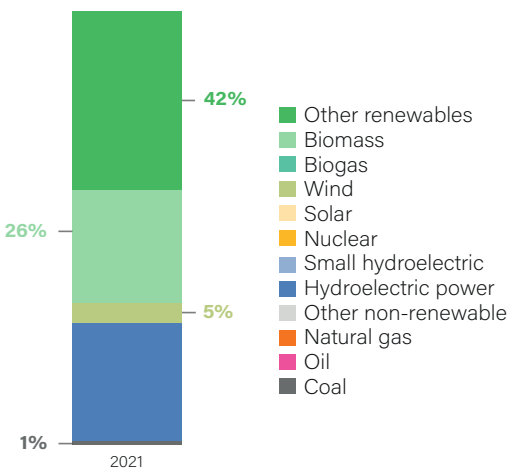
2 The Fair Share represents the fraction of emissions that each country should emit at most (in this case by 2030) in order not to exceed the 1.5°C average global temperature increase. There are various methodologies for calculating the fair share, the following is used here developed by the SEI, because it provides information for all Latin American and Caribbean countries. Considerations used for the calculation (SEI): Historical responsibility: since 1850, Mitigation path: 1.5°C standard (excl USCUS), Capacity: 0% development threshold, 50% Responsibility - 50% Capacity.

Figura 7. Costa Rica's fossil fuel reserves and its share of total LAC reserves³



Source: Prepared by the authors based on OLADE, 2022; British Petroleum, 2022; Our World in Data, 2022.

Figura 8. Primary energy matrix 2021.

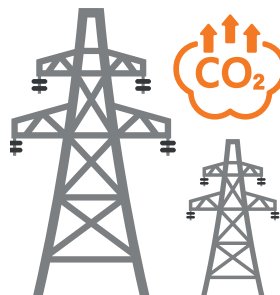


The primary energy matrix presents, historically, a low dependence on fossil fuels (1% in 2021), a value considerably lower than the regional average obtained in 2021 of 66% (OLADE 2022; IEA 2022). In turn, renewable energies such as biomass and geothermal energy are strongly predominant, reaching a share of 69% in 2021 (OLADE, 2022).

Source: Own elaboration based on BEN, 2021. This matrix shows primary energy resources. In this sense, it should be considered that if the country imports secondary fuels, these will be reflected in the sector's emissions, but not in this primary energy matrix.

Figura 9. Carbon intensity of Costa Rica.

The carbon intensity of the primary matrix is 2.76 tCO₂e/toe in 2021, which is above the regional average of 2.25 tCO₂e/toe for the same year.



Costa Rica issues

2.76
tCO₂e / toe

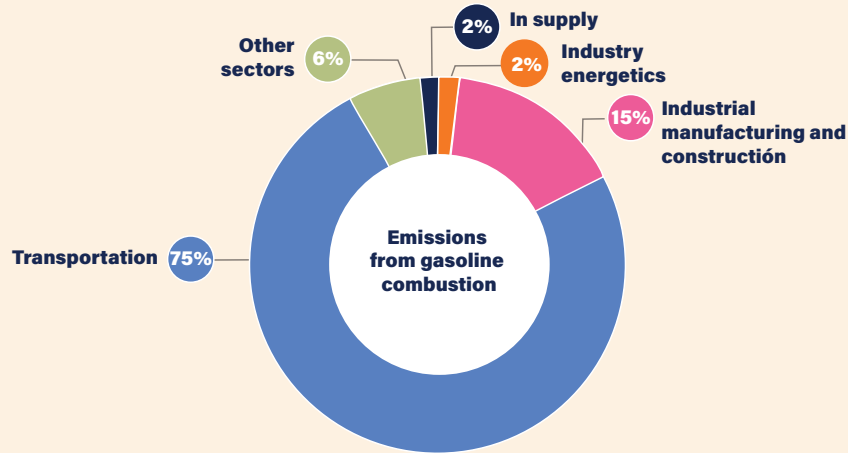
per unit of energy supply.

Source: OLADE, 2022; EDGAR, 2022.

³ For the conversion to energy units of fossil fuel reserves, the lower calorific values given by OLADE as a reference in its publication Manual De Estadísticas Energéticas, OLADE 2011 were used.

Emissions from the energy sector have shown a slight increase between 2010 and 2019, with Transport being the subsector that contributes the most to the emissions of this sector with a 75% share in 2021, followed by the Manufacturing and Industrial Construction subsector with 15% (INGEI, 2021).

Figura 10. Energy sector emissions by subsector.



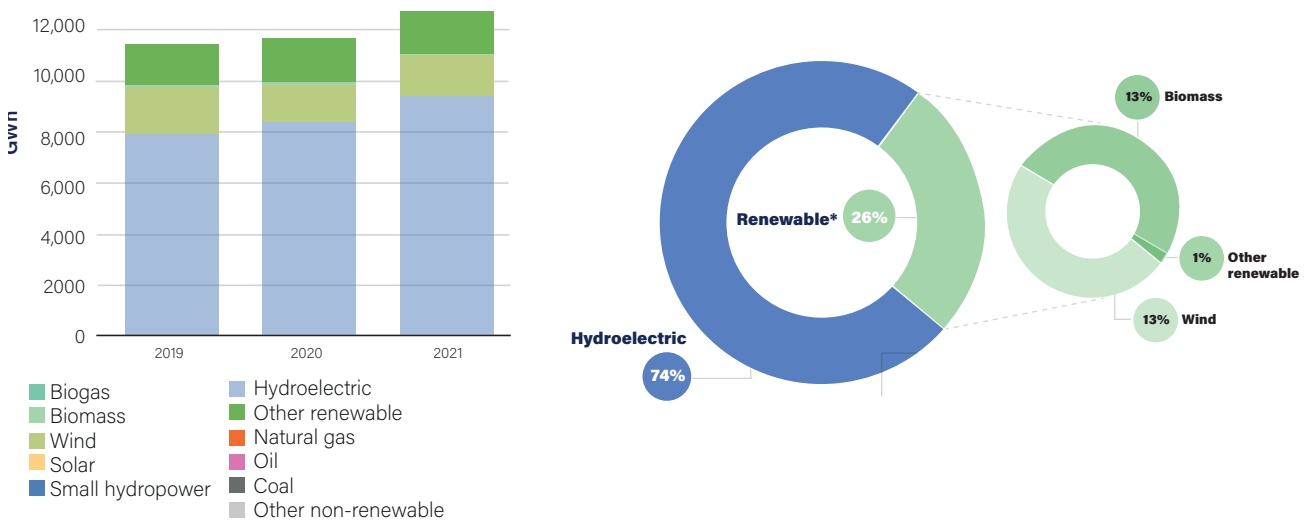
Source: Prepared by the authors based on INGEI,

Power generation

Large-scale hydroelectric power (>50MW) is the main source in Costa Rica's electric power matrix, reaching a 74% share in 2020. On the other hand, the share of renewable energies has been increasing over the last decade from 5% in 2011 to 26% in 2021.

Of the 26% of electricity generation from renewable sources, 46% was from wind energy, with a smaller share of solar energy, biogas and biomass.

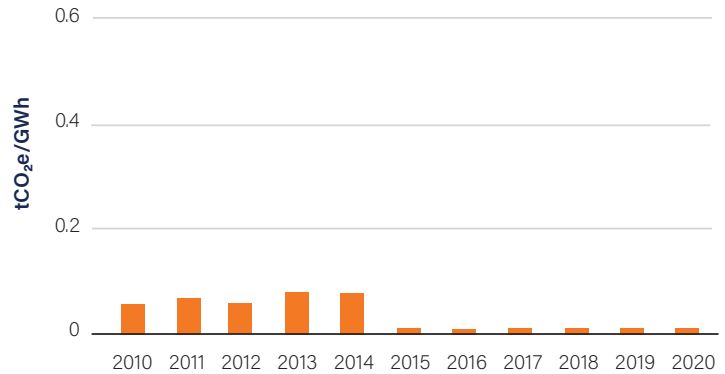
Figure 11. Electricity generation matrix and percentage share of each technology in 2021.



Source: Own elaboration based on CENCE, 2022.

Figure 12. Carbon intensity of electric power generation (ktCO₂e/GWh).

The emissions intensity of electricity generation has decreased in recent years due to the gradual incorporation of renewable energies into the matrix. It is the lowest in the region (0.01 tCO₂e/GWh) (EDGAR, 2022; IRENA, 2022).

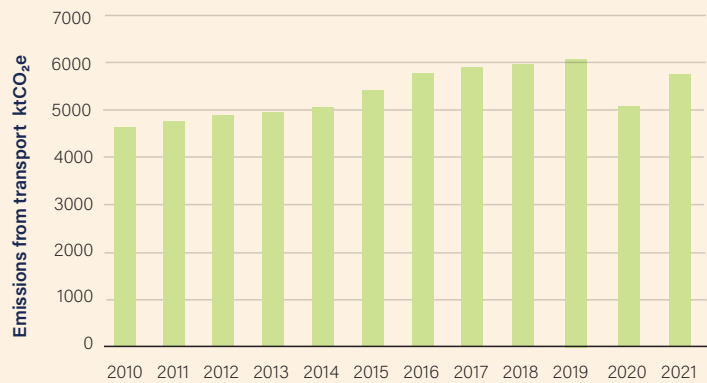


Source: Own elaboration based on EDGAR, 2022; IRENA, 2022.

Transportation

Emissions from the transportation sector increased by 60% between 2010 and 2019, then decreased in 2020 due to the COVID-19 pandemic, only to rise again in 2021.

Figure 13. Transportation Emissions 2010-2021.

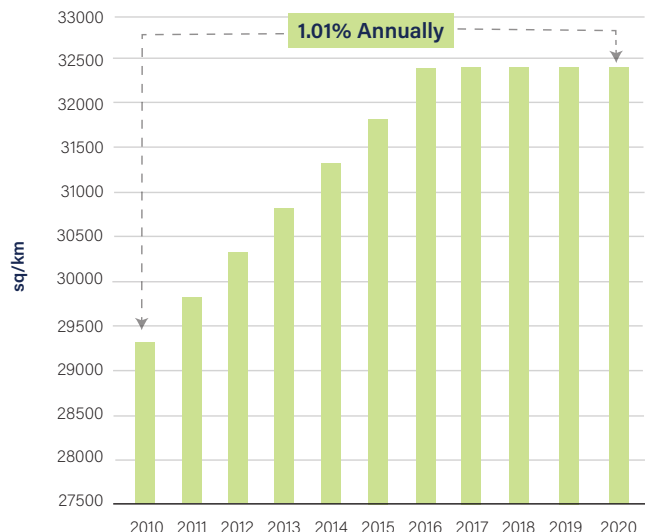


Source: Own elaboration based on EDGAR, 2022.

Agriculture, forestry and other land uses (AFOLU)

Forest land in Costa Rica experienced a continuous increase in the first part of the decade 2010-2020, and then remained constant until 2020. The average annual rate of recovery was 1.01% (approximately 15 thousand hectares per year) as opposed to the region (LAC) which presented an average annual loss of 0.3% (World Bank, 2022).

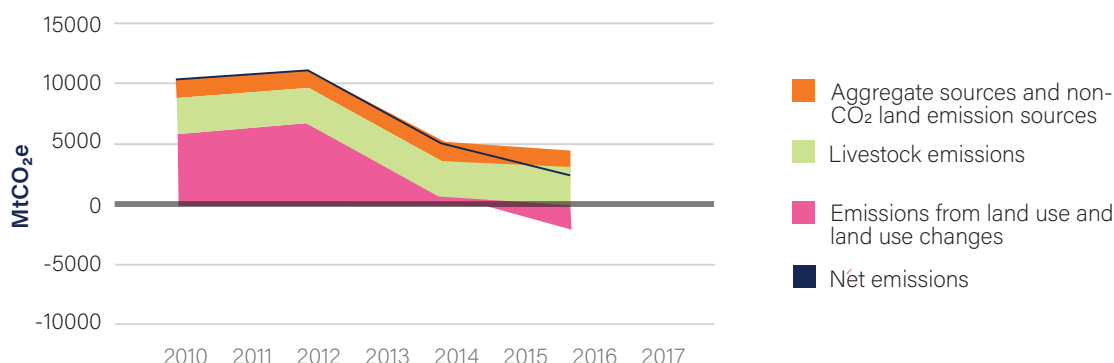
Figure 14. Area of native forests in Costa Rica and average annual loss rates.



Source: Own elaboration based on World Bank, 2022.

Considering the emissions officially reported by Costa Rica, the AFOLU sector presents positive net emissions, which decrease from 2012, reaching a minimum in 2016, the last year reported by Costa Rica, where they reach 1.5 MtCO₂e.

Figure 15. AFOLU emissions by subsector.




Source: Own elaboration based on INGEI, 2021.

4.3 Mitigation policies and measures



The National Decarbonization Plan (NDP) presented at the beginning of 2019 outlines specific sectoral actions that maintain preponderance in terms of mitigation policy implementation. Subsequent NDP progress reports in 2019 and 2021 detail the implementation status of each of the goals outlined in the plan.

Table 2. Mitigation measures and progress in implementation

Sector	Measure	Degree of implementation (identified priorities / initiatives / flagship projects)
 Transportation	Modernizing public transportation and create an Integrated and intermodal system integrating electronic payment system and electric train	In implementation stage: - The pilot project for electronic payment in public bus transportation started in April 2022 ⁴ . -The electric passenger train was replaced by a Passenger Rapid Train ⁵ .
	Achieving the decarbonization of the public transport sector by electrification and adoption of zero-emission technologies	In implementation stage: -Since 2021, 2 pilot electric bus route programs have been implemented and one route is expected to be expanded ⁶ . -Costa Rica designed and formalized a Roadmap for the creation of a cluster of hydrogen; however, there is still a need for implementation and creation of a regulatory legal framework ⁷ .

4 "Costa Rica Inicia Piloto de Pago Electrónico En Servicio Público de Autobuses." Presidency of The Republic of Costa Rica, April 29, 2022, www.presidencia.go.cr/comunicados/2022/04/costa-rica-inicia-piloto-de-pago-electronico-en-servicio-publico-de-autobuses/. Accessed July 15, 2023.

5 Arrieta, Esteban. "Tren Rápido de Pasajeros Entre Paraíso Y San José Costaría \$650 Millones Y Estaría Listo Antes de Terminar Gobierno." Larepublica.net, La República, July 22, 2022, www.larepublica.net/noticia/tren-rapido-de-pasajeros-entre-paraiso-y-san-jose-costaria-650-millones-y-estaria-listo-ante-de-terminar-gobierno#:~:text=demanda%20avalan%20proyecto-,Tren%20r%C3%A1pido%20de%20pasajeros%20entre%20Para%C3%ADso%20y%20San%20Jos%C3%A9%20costar%C3%ADa,lista%20antes%20de%20terminar%20gobierno&text=Siempre%20y%20cuando%20se%20confirmen,el%20gobierno%20de%20

 <p>Transportation</p>	<p>Integrate "transport-oriented development" perspective into land-use planning and management instruments</p>	<p>In advanced implementation:</p> <ul style="list-style-type: none"> -In 2020, municipalities promoted development practices to reduce emissions from the transportation sector. -14 municipalities are added to the 6 that had already participated in the Carbon Neutral Country program in previous years, bringing the total to 20 municipalities committed to the decarbonization of their territories.⁸
	<p>Accelerate the transition of the vehicle fleet to zero-emission technology</p>	<p>Under implementation:</p> <ul style="list-style-type: none"> -The National Electric Transportation Plan was published in 2020 and contains regulations. -In 2021, thirty-seven institutions began to transform their fleet (the Costa Rican Institute of Electricity, ICE purchased 100 automobiles, and 18 other institutions added another 109 vehicles). -The Electromaps website provides a list of 267 charging stations for electric vehicles.⁹
	<p>Improve combustion fleet efficiency</p>	<p>Planning stage:</p> <ul style="list-style-type: none"> -The Costa Rican government aims to implement a new fuel mix starting in 2024 to reach 8% ethanol by 2026.¹⁰ -As of 2023, there is no roadmap for biodiesel production and use. -Until 2023, there is no eco-labeling of vehicles in operation.
	<p>Consolidate freight logistics program to reduce emissions</p>	<p>Planning stage:</p> <ul style="list-style-type: none"> -A low-emission pilot cargo project financed by a German agency is set to analyze the cost of replacing internal combustion vehicles with electric vehicles in three Costa Rican companies. -In 2020, feasibility studies and planning of a first logistics pipeline for the train Eléctrico Limonense de Carga (TELCA) began as part of a partnership between two private sector companies. However, as of 2023, there is no information indicating that TELCA has started operations.
	<p>Promote technological efficiency in the heavy and light cargo transportation sector</p>	<p>Planning stage:</p> <ul style="list-style-type: none"> -There is no information on the development of the plan for efficiency and emissions reduction in freight transportation. -On the pilot project to improve the efficiency of freight transportation, CEMEX and FIFCO-FEMSA are carrying out a freight compensation project to prevent trucks from traveling empty.
 <p>Energy</p>	<p>Promote the modernization of the electrical system to confront the challenges raising from decarbonization digitalization, and decentralization of the electricity production.</p>	<p>At an advanced stage of implementation:</p> <ul style="list-style-type: none"> -In 2021, hydrocarbons had a 1% share in the national's energy matrix. -In addition to the National Plan for Electric Transportation, the Costa Rican government has published the National Plan for Intelligent Electricity Networks and the directory of sustainable mobility guideline in the public sector. -In 2021, the installation of 608,583 intelligent meters was recorded. There are no data for the following years. -There is no information on the elaboration of a Climate investment improvement plan.
	<p>Promote energy efficiency</p>	<p>In planning stage:</p> <ul style="list-style-type: none"> -There is a draft proposal for the implementation of the Energy Efficiency Law that has not yet been approved. -28 public macro-consumers have energy efficiency improvement measures in place.

- BNamericas. "Costa Rica Inaugurará Su Primera Ruta Pública Con Autobuses Eléctricos." BNamericas.com, BNamericas, November 10, 2022, www.bnamericas.com/es/noticias/costa-rica-inaugurara-su-primera-ruta-publica-con-autobuses-electricos. Accessed July 15, 2023.
- Singh, Nanda. "Roadmap And Legal Framework: Two Pending Issues for Green Hydrogen In Costa Rica - Strategic Energy." Strategic Energy, September 12, 2022, www.energiaestrategica.com/hoja-de-ruta-y-marco-juridico-dos-pendientes-para-el-hidrogeno-verde-en-costa-rica/. Accessed July 15, 2023.
- "14 Municipalities Add Actions Towards the Decarbonization Of Their Territories." El Mundo CR, June 15, 2020, elmundo.cr/municipalidades/14-municipalidades-suman-acciones-hacia-la-la-descarbonizacion-de-sus-territorios/. Accessed July 15, 2023.
- "Recharging points in Costa Rica." Electromaps.com, 2023, www.electromaps.com/es/puntos-carga/costa-rica. Accessed July 15, 2023.





 <p>Construction, industry and waste</p>	<p>Strengthen norms, standards and incentives for the effective implementation of sustainable construction practices in buildings and other infrastructure</p>	<p>In Implementation:</p> <ul style="list-style-type: none"> -There are about 130 buildings certified under the LEED certification system or sustainable buildings, which encourages the incorporation of sustainable strategies, such as energy efficiency and water consumption methods, resource use, and energy efficiency alternatives and improvement of the interior quality of the space¹⁰. -By 2021, according to the NDP progress report, 995 existing buildings implemented at least one action to reduce GHG emissions in their operation within the framework of one of the recognized voluntary mechanisms.
	<p>Improve the operating practices of existing buildings and other infrastructure in a manner that significantly reduces their impact on GHG emissions</p>	
	<p>Promote the process of low-emission technological transformation of the industrial sector</p>	<p>In advanced implementation stage:</p> <ul style="list-style-type: none"> -There is a roadmap under development for decarbonization in the industrial sector. -2 pilot projects for the substitution of natural refrigerants in the food manufacturing industry
	<p>Promote the development and consumption of products and services under circular economy models</p>	<p>In implementation stage:</p> <ul style="list-style-type: none"> -In 2020, pilot projects were conducted to certify carbon-neutral products in different areas. As a result, the private sector will have the opportunity to access more favorable markets through green certifications. In 2021, two products applied for environmental labeling and are currently in the process of evaluation and authorization. -Two circular economy pilot projects focused on packaging were implemented.
	<p>Policies that promote integrated low-emission waste management and circular economy</p>	<p>In early implementation stage:</p> <ul style="list-style-type: none"> -Creation of the Action Plan for Integrated Waste Management and the National Composting Plan by 2020. -NAMA designed with a goal of 64% reduction of GHG emissions from ordinary solid waste. -4 circular economy pilot projects in the waste sector.
	<p>Improve effective wastewater management</p>	<p>In early implementation stage:</p> <p>The Sewerage Investment Plan 2022-2026 was published, which contemplates investment projects in priority sectors established in the National Decarbonization Plan.</p>
	<p>Create enabling conditions to improve the integrated management of solid and liquid waste at both the residential and business levels</p>	<p>In advanced implementation stage:</p> <ul style="list-style-type: none"> -According to the third NDP Progress Report, 3 waste management awareness campaigns have been implemented by 2021. -As of 2021, 5 municipal capacity building processes on ISWM were documented. -3 pilot projects on circular economy in waste management implemented.

Table 3. Sectors with mitigation measures for the Agriculture, Forestry and other land use sector

Sector	Measure	Degree of implementation (identified priorities / initiatives / flagship projects)
 <p>Agriculture</p>	<p>Develop innovation processes in the value chain of priority products that facilitate the generation of decarbonized agricultural goods</p>	<p>In advanced implementation stage:</p> <ul style="list-style-type: none"> -In 2021, three decarbonization agreements for sugar, rice and bananas have been signed with different Boards of Directors. -In 2021, the NAMA proposal documents for rice, Musaceae and sugarcane were in process (60% developed).

¹⁰ "Costa Rica Aims to Blend Fuel With 8 % Ethanol By 2026." SWI Swissinfo.ch, March 31, 2023, www.swissinfo.ch/spa/costa-rica-combustibles_costa-rica-apunta-a-mezclar-combustible-con-un-8---de-etanol-en-2026/48410096. Accessed July 15, 2023.

 <p>Agriculture</p>	<p>Encourage the livestock sector to contribute to decarbonization with efficient practices and carbon sequestration on farms, the protection of ecosystem services and the generation of resilience</p>	<p>In advanced implementation stage:</p> <ul style="list-style-type: none"> -In 2022, the Sustainable Livestock Policy of Costa Rica was published, which serves as the main guideline for the decarbonization of the livestock sector. -By 2021, 1,652 livestock farms have implemented NAMA technologies. -The Information System of the National Directorate of Agricultural Extension (SDNEA) provides technical support to livestock farms. -An organic agricultural waste education campaign is registered as of 2021. -2 pilot waste utilization projects were implemented
 <p>Forests and natural ecosystems</p>	<p>Design and improve a system of metrics productivas ganaderas.</p>	<p>In advanced implementation stage:</p> <ul style="list-style-type: none"> -Document with Warsaw Framework and safeguards completed (100%) -As of 2021, the Payment for Environmental Services (PES) 2.0 document was in the process of being formalized. No information is available after this date. -By 2021, a total of 5.52 km² were intervened.
	<p>Implement the REDD+ Strategy to promote the reduction of emissions from deforestation, avoided degradation and conservation of forests and ecosystems in both rural and urban areas.</p>	<p>In advanced implementation stage:</p> <ul style="list-style-type: none"> -Document with Warsaw Framework and safeguards completed (100%) -As of 2021, the Payment for Environmental Services (PES) 2.0 document was in the process of being formalized. No information is available after this date. -By 2021, a total of 5.52 km² were intervened.
	<p>Promote the protection, restoration and management of other high carbon ecosystems</p>	<p>In advanced implementation stage:</p> <ul style="list-style-type: none"> -As of 2021, three pilot mangrove management projects have been implemented. -The document 'Guía de Buenas Prácticas en Conservación y Restauración de Humedales Altoandinos' analyzes the Ramsar Site Turberas de Talamanca and its importance as a high carbon ecosystem.

Source: Own elaboration based on National Adaptation Plan, 2019, PND: Implementation Progress Report to 2021, "Principales Avances Del Plan Nacional de Descarbonización", 2020.

11 "LEED Certification in Costa Rica," SPHERA, 2014, www.spherasostenible.com/certificacion-lead-costa-rica#:~:text=It%20is%20about%20a%20system,the%20quality%20interior%20of%20the%20space. Accessed July 15, 2023.



Costa Rica

Financing

Under the Paris Agreement, the Parties committed that financial flows will be consistent with a scenario towards low GHG emissions and resilient climate development.



CONTEXT

The country's current economic situation, marked by a high and persistent fiscal deficit, is a challenge for the pursuit of climate-responsible alternatives.



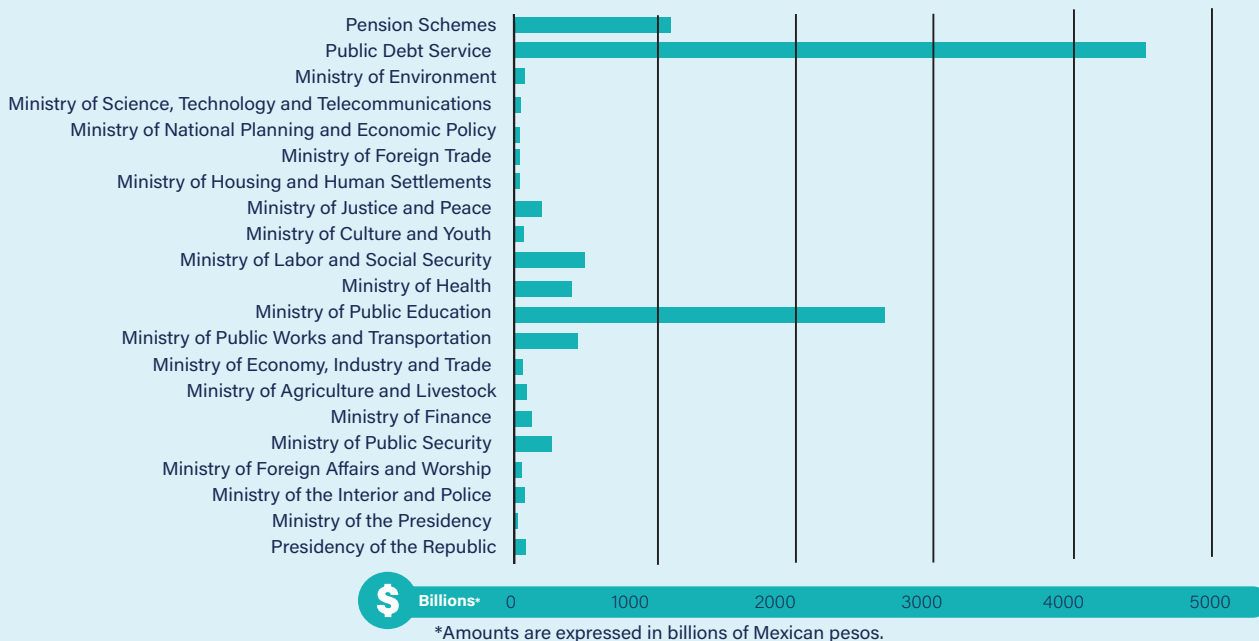
KEY OPPORTUNITIES

Pay-for-performance schemes and other financial mechanisms are needed to incentivize up-front emission reduction investments while ensuring financial sustainability post international cooperation.

5.1 The role of the public sector

The distribution of the federal budget makes it possible to identify government priorities in the development planning of Latin American and Caribbean countries.

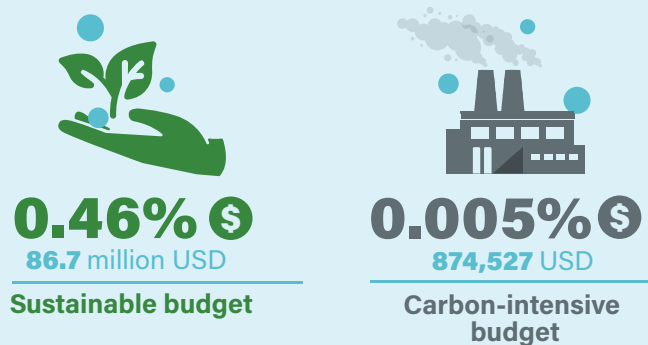
Figure 16. Budget allocation for strategic sectors in Costa Rica.



Source: Own elaboration with information from GFLAC, 2021.

In 2019, the budget allocated to hydrocarbons represented 0.005% of the total budget of the Republic, 92 times less than the country's pre-supposed sustainable budget, which consists of labeled spending for climate change, energy efficiency, renewable energy and natural disasters.

Figure 17. Comparison of sustainable budget versus carbon-intensive budget.

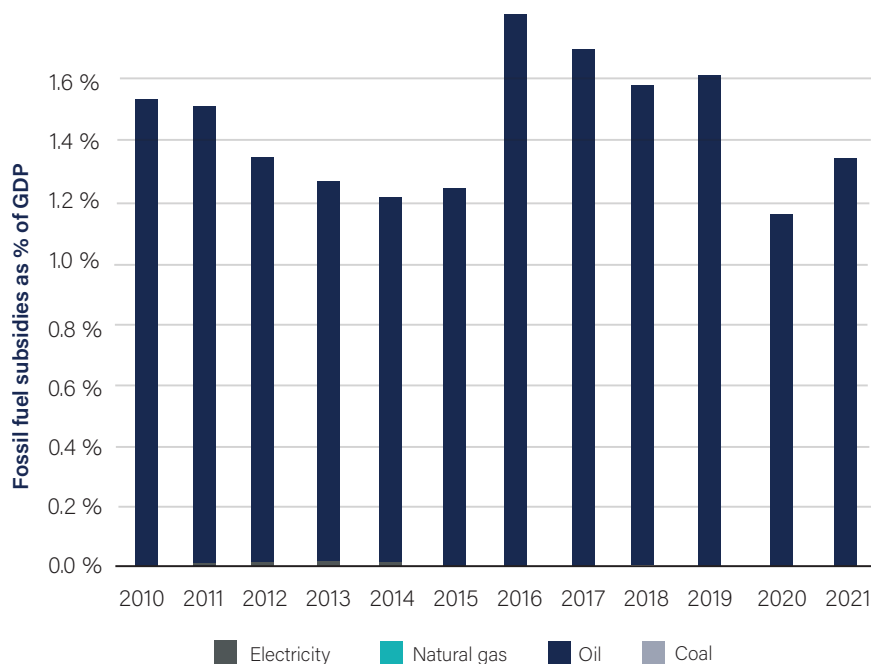


Source: Prepared by the authors with information from GFLAC, 2021.

Costa Rica does not have a carbon tax. On the contrary, fossil fuel subsidies continue, although these subsidies have decreased in the last years of the 2010-2020 decade, reaching a value of less than 0.4% of GDP in the period 2010-2020.

This means more than US\$257 million considering the GDP reported by the World Bank for Costa Rica (World Bank, Open Data), in 2021.

Figure 18. Fossil fuel subsidies as a percentage of GDP.



Source: Own elaboration based on FossilFuelSubsidyTracker.org, 2022.

5.2 International cooperation

Costa Rica receives international cooperation for mitigation and adaptation projects from various international organizations. A distinction is made between non-reimbursable amounts and loans.

Table 4. List of projects and amounts approved for Costa Rica from different international cooperation agencies.

Agency / Institution	Scope of the project	Amount approved for the period 2016-2022 (Million US\$)			Approved projects period 2016-2022			
		Non refundable	Loan	Co-financing	Mitigation	Adaptation	Others	Preparation
Green Climate Fund (GCF)	Costa Rica only	25.1	304.1	1,602.0	2.0	--	--	3.0
	Multiple countries	25.9	51.4	166.8	3.0	2.0	2.0	4.0
Global Environment Facility (GEF)	Costa Rica only	24.9	--	152.9	--	--	9.0	--
	Multiple countries	21.3	--	238.5	--	--	5.0	--
UN Climate Technology Centre and Network (CTCN)	Costa Rica only	0.8	--	--	--	1.0	4.0	--
	Multiple countries	0.0	--	--	--	--	1.0	--
Inter-American Development Bank (IDB)	Costa Rica only	--	1,106.6	--	8.0	2.0	13.0	--
	Multiple countries	--	--	--	--	--	--	--

Source: Own elaboration based on CTCN, 2022; IDB, 2022; GEF, 2022; GCF, 2022.



Costa Rica

References

- BANCO MUNDIAL (2023).** Open Data (disponible en <https://data.worldbank.org/country/costa-rica>).
- BANCO INTERAMERICANO DE DESARROLLO (BID) (2022).** IDB'S OPEN DATA CATALOG (disponible en <https://data.iadb.org/DataCatalog/Dataset#>).
- BRITISH PETROLEUM (2022).** Bp Statistical Review of World Energy, 2022, 71 st Edition(disponible en <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2022-full-report.pdf>).
- CEIC (2022).** CEIC Data Number of Registered Vehicles (disponible en <https://www.ceicdata.com/en/indicador/number-of-registered-vehicles>).
- CLIMATE CHANGES LAW OF THE WORLD.(2022).** Climate Changes Law of the World Data base. (disponible en <https://climate-laws.org/>).
- COMISIÓN ECONÓMICA PARA LATINO AMÉRICA Y EL CARIBE. NACIONES UNIDAS (CEPAL) (2022).** Base de datos y Publicaciones Estadísticas.. (disponible en <https://statistics.cepal.org/portal/cepalstat/index.html>)
- CONVENCIÓN MARCO DE LAS NACIONES UNIDAS SOBRE EL CAMBIO CLIMÁTICO (UNFCCC) (2023).** Party-authored report.(disponible en <https://unfccc.int/reports>).
- FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (2022).** FAOSTAT. (disponible en <https://www.fao.org/faostat/en/#data/GT>)
- FOSSILFUELSUBSIDYTRACKER.ORG (2022).** (disponible en https://fossilfuelsubsidytracker.org/wp-content/uploads/2022/12/FossilFuelSubsidiesTracker_CountryData.xlsx).
- GLOBAL ENVIRONMENT FACILITY (GEF) (2022).**Projects and operations database (disponible en <https://www.thegef.org/projects-operations/database>).
- INSTITUTE FOR HEALTH METRICS AND EVALUATION (IHME) (2019).** I Global Burden of Disease (GBD) study. 2023 University of Washington.(disponible en <https://vizhub.healthdata.org/gbd-results/>)
- GREEN CLIMATE FUND (GCF) (2022).** Open Data Library. (disponible en <https://data.greenclimate.fund/public/data/projects>)
- INSTITUTO COSTARRICENSE DE ELECTRICIDAD (2022).** Informes Anuales DOCSE (disponible en <https://apps.grupoice.com/CenceWeb/CenceDescargaArchivos.jsf?init=true&categoria=3&codigoTipoArchivo=3008>).
- INGEI, 2021.** Inventario Nacional de gases de efecto invernadero y absorción de carbono 1990-2017. Primera Edición. Ministerio del Ambiente y Energía Costa Rica, 2021.
- INTERNATIONAL RENEWABLE ENERGY AGENCY STATISTICS (IRENA) (2022).**(disponible en <https://pxweb.irena.org/pxweb/en/IRENASTAT>).
- MINISTERIO DE AMBIENTE Y ENERGÍA DE COSTA RICA (2022).** Plan Nacional de Adaptación al Cambio Climático de Costa Rica . (disponible en https://cambioclimatico.go.cr/wp-content/uploads/2022/04/NAP_Documento-2022-2026_VC.pdf).
- NOTRE DAME GLOBAL ADAPTATION INITIATIVE (ND-GAIN) (2023).** The ND-GAIN Matrix University of Notre Dame. (disponible en <https://gain.nd.edu/our-work/country-index/matrix/>).
- ORGANIZACIÓN LATINOAMERICANA DE ENERGÍA (OLADE) (2022).** Sistema de Información Energética de Latinoamérica y el Caribe. (disponible en <https://sielac.olade.org/>).
- ORGANIZACIÓN DE LAS NACIONES UNIDAS PARA LA EDUCACIÓN, LA CIENCIA Y LA CULTURA. (UNESCO) (2021).** Institute for Statistics (UIS) Data Browser. (disponible en <http://data.uis.unesco.org/Index.aspx>).
- RITCHIE, HANNAH & ROSADO, PABLO (2022).** Which countries have put a price on carbon?. Published online at OurWorldInData.org. (disponible en'<https://ourworldindata.org/carbon-pricing>').
- SECRETARÍA EJECUTIVA DE PLANIFICACIÓN DEL SUBSECTOR ENERGÍA DE COSTA RICA. (2021).** Balance Energético Nacional de Costa Rica.
- STOCKHOLM ENVIRONMENT INSTITUTE (SEI) (2023).** Climate Equity Reference Calculator.(disponible en <https://calculator.climateequityreference.org/>).
- UN CLIMATE TECHNOLOGY CENTRE AND NETWORK (CTCN) (2022).** Active Technical Assistance.(disponible en <https://www.ctc-n.org/technical-assistance/data?page=5>)

UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)
(2022). Human Development Report 2021-22:
Uncertain Times, Unsettled Lives: Shaping our Future
in a Transforming World. New York.

WORLD INTEGRATED TRADE SOLUTION (WITS) (2020).
Database (disponible en <https://wits.worldbank.org/Default.aspx?lang=es>).



Costa Rica



Country profile April 2024

This profile contributes to iGST's independent Regional Climate Change Assessment for Latin America and the Caribbean. Find the Regional Assessment and other country profiles at [iniciativaclimatica.org](https://www.iniciativaclimatica.org)

Coordination of country profiles: Mexico Climate Initiative. Mariana Gutiérrez Grados, Analuz Presbítero García. Collaboration by Leonardo Casillas Rodríguez.

Data authoring and information generation: Gabriel Blanco and Daniela Keesler (Center for Environmental Technologies and Energy, School of Engineering, UNICEN, Argentina).

Co-authors: Florencia García Mora and Naín Martínez (Colegio de México, COLMEX).

The iGST is an international consortium of civil society organizations working together to support the Global Stocktake (GST). With the generous support of the Climate Works Foundation.



For more information about Costa Rica's country profile please contact:
Mariana Gutiérrez Grados.
mariana.gutierrez@iniciativaclimatica.org



Coordination of the Latin America and the Caribbean Hub, iGST: Mariana Gutiérrez Grados (Mexico Climate Initiative).

Organizations of the Latin America and the Caribbean Hub, iGST (in alphabetical order): Interamerican Association for Environmental Defense (AIDA); Caribbean Natural Resources Institute (CANARI); Climate Analytics (Caribbean); CDP Latin America; Fundación Ambiente y Recursos Naturales (FARN); AVINA Foundation; Grupo de Financiamiento Climático para América Latina y el Caribe (GFLAC); Global Initiative for Economic, Social and Cultural Rights (GI-ESCR); Iniciativa Climática de México (ICM); Instituto Clima e Sociedade (iCS); Observatorio Latinoamericano para la Acción Climática (OLAC); Red de Acción Climática A.C. (REACCIONA); Sustenta Honduras; Transforma Global; Transparencia Mexicana; World Resources Institute (WRI Mexico); World Wildlife Fund (WWF) Mexico.

Editorial design: Cristina Martínez Salazar.

Find more information in:



www.independentgst.org | www.iniciativaclimatica.org