SDG 6 Country Acceleration Case Studies 2022

Costa Rica

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Water Resource Protection Tariff In Costa Rica – A Case Study Of A Mechanism To Accelerate Achievement Of Sustainable Development Goal 6

Country context

Costa Rica has been an independent republic since 1821. It is located in Central America and has a population of 5,094,362, a land area of 51,179 km² and a maritime area of approximately 589,000 km². It has a tropical climate with relatively distinct dry and rainy seasons. However, the country's wide range of valleys, mountains and plains means that it is topographically complex, creating a heterogeneous climate. The water network is extensive and covers practically the entire country. Costa Rica represents just 0.03% of the world's land surface but approximately 6% of the planet's biodiversity. In 2013, 52.4% of the country's total land area was covered by forests and jungles, showing a 12% increase in forest cover recovery over the previous 17 years. Approximately 25% of the country's territory is protected. Between 2005 and 2010 the country's deforestation rate decreased and, in 2019, forest cover increased reaching 60.91% as per the definition of "forest" set out in the REDD+ strategy.

The country is recognized as a world leader in sustainability. In 2019, it produced more than 99% of its electricity from renewable resources and, according to the National Centre for Energy Control, more than 98% of the country's energy has been renewable since 2014. It has achieved a series of historical milestones in the field of conservation, developing integrated regulations, environmental institutions and protection and conservation resources over the last 30 years. Thanks to these steps and the collaborative efforts of public institutions, the private sector and civil society, it has been possible, for instance, to achieve 97.8% water coverage for human use and consumption in a country with a population of 5,059,730.

But this major progress is not free from challenges and contradictions, as it has been constantly threatened by "persistent and

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unsustainable patterns of land and natural resource use", poor waste management and water contamination, and the pressure of urban growth, intensive and water-intensive production practices and other activities that undermine conservation efforts. In addition, institutions that protect and preserve the environment have faced financial difficulties. The country has also encountered significant development challenges due to its large fiscal deficit and a decline in the sustainability and efficiency of State structures. This, in turn, has affected social programmes aimed at combatting poverty and has deepened inequality, with the country's Gini coefficient reaching a record 0.524 points per person in 2021.

This situation has hampered environmental protection efforts, which are often put behind other priorities that are considered more urgent. It has even led to regressive resource exploration practices through activities that are extremely harmful to the environment, such as extractive practices and intensive exploitation of natural resources.

For these reasons, it is important to have tools in place to safeguard the progress made thus far, such as the water resource protection tariff, which dates back to the late 1990s. The tariff enables water service operators to obtain from their users additional funds used to finance activities to protect, restore, preserve and improve aquifer-related ecosystems, as well as to promote a new approach to water management in the communities they supply.

Acceleration achievement

DRINKING WATER SUPPLY AND SANITATION SERVICE ENTITIES

In Costa Rica, 97.8% of the population benefits from household water supply, with 92.4% receiving drinking water supplied through 2,145 aqueducts; there remain 557 aqueducts that supply non-drinking water. 1.8% of the population receives piped water in the yard and 0.4% collect water from unprotected wells and springs. These services are provided by various operators with different characteristics and capabilities, as described below.

The **Costa Rican Aqueduct and Sewage Institute (AYA)** is a public entity that supplies the greater metropolitan area and other urban areas inland (50.7%) and serves as the country's governing body for water and sanitation services.

Municipal aqueducts supply urban areas in 28 districts (13.8%). Due to the autonomy regime that governs municipalities, the aqueducts' rates are not set by the Public Services Regulatory Authority (ARESEP), but they are subject to AYA's technical standards.

Empresa de Servicios Públicos de Heredia S.A. (ESPH) is a public utility corporation covering the municipalities of Heredia, San Rafael and San Isidro de Heredia. It currently provides electricity, public lighting, drinking water and sewage services to 66,000 users (5%).

Associations managing community aqueduct and sewage systems (known as ASADAs) manage rural water supply and sewage systems under a management delegation scheme agreed with AYA. There are about 1,498 ASADAs supplying around 25.5% of the country's population mainly in rural and semi-urban areas. These non-profit community-based organizations operate under the legal framework of the national act governing associations, and their organization and operation are regulated by AYA.

Other **community organizations** also provide such services, albeit not necessarily compliantly as they generally lack a delegation agreement as required by AYA (5%).

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THE WATER RESOURCE PROTECTION TARIFF

The aim of the tariff is to enable water service operators to generate additional financial resources to invest in projects that help enhance water sustainability, availability and quality by restoring and protecting aquifer recharge areas and the ecosystems that sustain them, and to promote climate change adaptation. ESPH was a pioneer, as it published the first study on tariffs that assessed the environmental costs of drinking water provision in order to request the charging of the tariff, which was approved in 2000 and has been applied ever since. The areas protected by ESPH are of extreme importance in terms of water and they also supply other operators such as ASADAs, municipalities and AYA itself. In 2013, ARESEP made the improvement and expansion of this scheme into an institutional priority and designed a methodology for all drinking water service operators to opt for this tariff, which was made official in 2018.

It is a voluntary scheme, and to obtain approval, interested operators must submit to ARESEP a five-year strategy and tariff study including a portfolio of projects to be financed with the funds obtained through the tariff. The projects should seek to protect public, private or mixed areas that are strategically important in terms of water recharge, drainage or catchment for aqueducts, while also contributing to climate

change adaptation and water sustainability. Items that can be funded include:

- **Basic studies** (hydrological, hydrogeological, socioeconomic, resource and climate monitoring) to identify areas requiring protection; these studies are a minimum requirement
- **The purchase of land to protect water supply sources and recharge areas,** which have been technically identified as areas of interest in basic studies
- **Projects to protect and preserve** primary forests, secondary forests and restoration areas relating to water availability
- **Restoration projects related to environmental services** in degraded or deforested areas that, according to the basic studies carried out, can make a key contribution to improving water supply quality and quantity
- **Agrosilvopastoral systems and related practices** that protect water supply sources and recharge areas
- **Sustainable agricultural practices in areas close to water sources or having an impact on the balance of aquifers**, including management of agrochemicals, solid waste, soil conservation, minimal water use, biodigesters, fertilization with waste, composting, etc.
- **Promotion of a new water culture** through formal and non-formal education, promotion of good practices and communities' involvement in participatory management to guarantee the human right to drinking water
- **Infrastructure** to facilitate the infiltration and recharge of aquifers

To date, in addition to being applied by the ESPH, the tariff is applied by AYA to protect the upper basin of the Barranca River and the subbasin of the La Paz River in Alajuela. Studies are carried out to determine the watersheds' areas of influence as well as priority areas for intervention with new projects through ensuing tariff applications.

The tariff was also approved for use by one ASADA for the River Blanco (Province of Limón in the Caribbean) in 2022 in order to: carry out hydrogeological and socioeconomic studies of the River Blanco subbasin, which will also be of interest for local land-use planning; protect and preserve ecosystems through the payment of ecosystem services on private land[1]; restore ecosystems through reforestation; and organize educational and awareness raising activities in educational centres on water protection and contamination. The aquifer managed by this ASADA is classified as highly vulnerable.

ESPH uses the tariff funds for its PROCUENCAS programme for the restoration, conservation and protection of the microbasins of the Ciruelas, Segundo, Bermúdez, Tibás, Pará and Las Vueltas rivers, which are key areas in terms of water. It includes payment of environmental water services, acquisition of degraded land, participatory management, environmental education and creation of inter-institutional partnerships. The funds also finance a programme on research applied to integrated water resource management (PRIAGIRH), which generates scientific and technical input to better understand and monitor the behaviour of aquifers in the medium and long terms in a context of changing climate and supports science-based decision-making.

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The tariff is still in its early stages and is initially only being applied by three operators. As a result, the economic impact is still very low, but the value it brings in terms of the impact on water protection has been clearly demonstrated. In addition, ARESEP has teamed up with various organisations that support community water management to build the capacities of more than 50 ASADAs so that they can apply for and implement the tariff in their communities, which has led to a rapid increase in application efforts. Ensuring that the tariff is applied more sustainably requires for operators, especially smaller ones such as ASADAs, to overcome several challenges related to their organisational and business capacities and number of users. Furthermore, even though the additional amounts are not large, in the context of an economic crisis, it is very difficult for the ASADAs to obtain users' approval for an increase in tariffs, even if it is for a good cause. In fact, many of them already encounter difficulties in collecting regular tariffs because some users cannot meet their payment obligations. That is why it is important to communicate on, and raise public awareness of, the need to take collective responsibility for water protection and ensure greater participatory management of the resource. ARESEP takes the lead in promoting the use of the tariff by providing mechanisms to facilitate the submission of approval requests and thus ensure that more operators make use of this mechanism.

1 To support this project, the forestry financing fund (FONAFIFO) managed by the Environment Services Payment programme (known as PSA) considered a matching contribution of 50% for the amount provided per hectare.

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Obstacles and opportunities for achieving SDG 6

In meeting SDG 6, the challenge for Costa Rica is not so much to guarantee access to water but rather to ensure the sustainability of water resources in order to maintain current coverage levels.

Many efforts are made to ensure drinking water supply, but much remains to be done in terms of sustainable wastewater disposal and protection of water sources against contamination. Based on 2018 data, the use of septic tanks is predominant with a 75.4% coverage; sewage systems account for 22.9%, with only 14% treated; 1.4% use latrines and other systems; and 0.3% practice open defecation.

There is inequality between urban and rural areas in terms of both drinking water and sanitation services. Costa Rica is therefore implementing the National Programme for the Improvement and Sustainability of Drinking Water Services Quality (2017–2022 and 2023–2030) and its "National Policy for Wastewater Treatment" (2017–2030).

There is a risk that environmental achievements will be reversed as a result of the trend towards extractive practices used as a solution to fiscal problems and in the fight against poverty. In addition, the focus on the economy can divert attention away from the important role that nature plays in generating sustainable wealth. However, various initiatives geared towards creating a green, blue or circular economy and nature-based solutions are gaining momentum, demonstrating their potential as alternatives for more sustainable development that provide a better quality of life for people. Initiatives such as these have garnered widespread public support and attention, as the population is for the most part in favour of creating a more environmentally friendly country.

The Payment for Environmental Services programme has been running successfully for 25 years and its main source of financing is the fuel tax (92%). However, it may be weakened by current high fuel costs and recent calls for this tax to be cut. Paradoxically, the country's national decarbonisation plan, which was rolled out in 2019, includes a substantial reduction in the use of fossil fuels that would have a direct impact on these revenues. This should be seen as an opportunity to seek new sources of financing for the Payment of Environmental Services programme in the land and maritime carbon market, an area in which the country has little experience but great potential.

The tariff has made it possible to increase efforts to safeguard aquifer-related ecosystems and to promote participatory management and the involvement of the population. The tariff is also supported by other mechanisms and regulations in the country, such as the water use standards and the environmental standards for waste management, which can be used to obtain funding for environmental management and protection initiatives, particularly concerning water resources.

Moreover, Costa Rica is one of the world's largest consumers of agrochemicals, and their intensive use in increasing extensive farming activities presents a permanent risk of contamination for aquifers and water sources. Community complaints and recent studies are raising awareness and mobilising public opinion and forcing authorities to establish new mechanisms and regulations to reduce these impacts.

Sources

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