

Gender-responsive Ecosystem-based Adaptation

A case study from El Salvador

Photo credit: davidjoviera

The United Nations Environment Programme (UNEP) is helping cities in Latin America and the Caribbean to adapt to climate change with a project titled *Building climate resilience of urban systems through Ecosystem-based Adaptation (EbA) in Latin America and the Caribbean*. Funded by the Global Environment Facility, the project aims to reduce the vulnerability of communities to climate change in three cities - Xalapa (Mexico), Kingston (Jamaica), and San Salvador (El Salvador) using a practice known as 'Ecosystem-based Adaptation.'

El Salvador is Central America's smallest and most densely populated country, bordered by the Pacific Ocean, Guatemala, and Honduras. Located along the Central American volcanic axis, El Salvador is a mountainous country with 23 active volcanoes, a central plateau and narrow coastal belt.

Over recent years, El Salvador has experienced more frequent extreme weather events, impacting people, ecosystems, infrastructure and the economy. 90% of the country is either moderately, highly or very highly susceptible to flooding and landslides (Kattán *et al.* 2017). Climate models predict that temperatures in El Salvador will increase by between 1.4 °C and 3.7 °C by the end of the century and that average rainfall will drop by between 18% and 25% (El Salvador, Ministerio de Medio Ambiente y Recursos Naturales 2021).

About 70% of El Salvador's population lives in urban areas. In the capital city of San Salvador, rapid urbanization has led to green spaces and coffee farms being swallowed by urban developments. The loss of forests and healthy ecosystems has made the city and surrounding areas more vulnerable to flooding, drought and landslides. Parts of the population face precarity caused by lack of water, unemployment and insecurity. Women in particular are affected by higher levels of unemployment and domestic violence.

Coffee represents the backbone of the economy in El Salvador, with the vast majority produced by small-scale farmers. Almost 80% farmers



Project Title

CityAdapt: Building climate resilience of urban systems through Ecosystem-based Adaptation in Latin America and the Caribbean

Executing Agencies

The Ministry of Environment and Natural Resources (MARN), El Salvador

Project Timeframe

2017-2023

Key Figures

1,150	55km	20,000
Hectares of coffee farms restored	Infiltration ditches created	People (10,200 women and 9,800 men) with higher climate resilience

Funding

USD 6,000,000

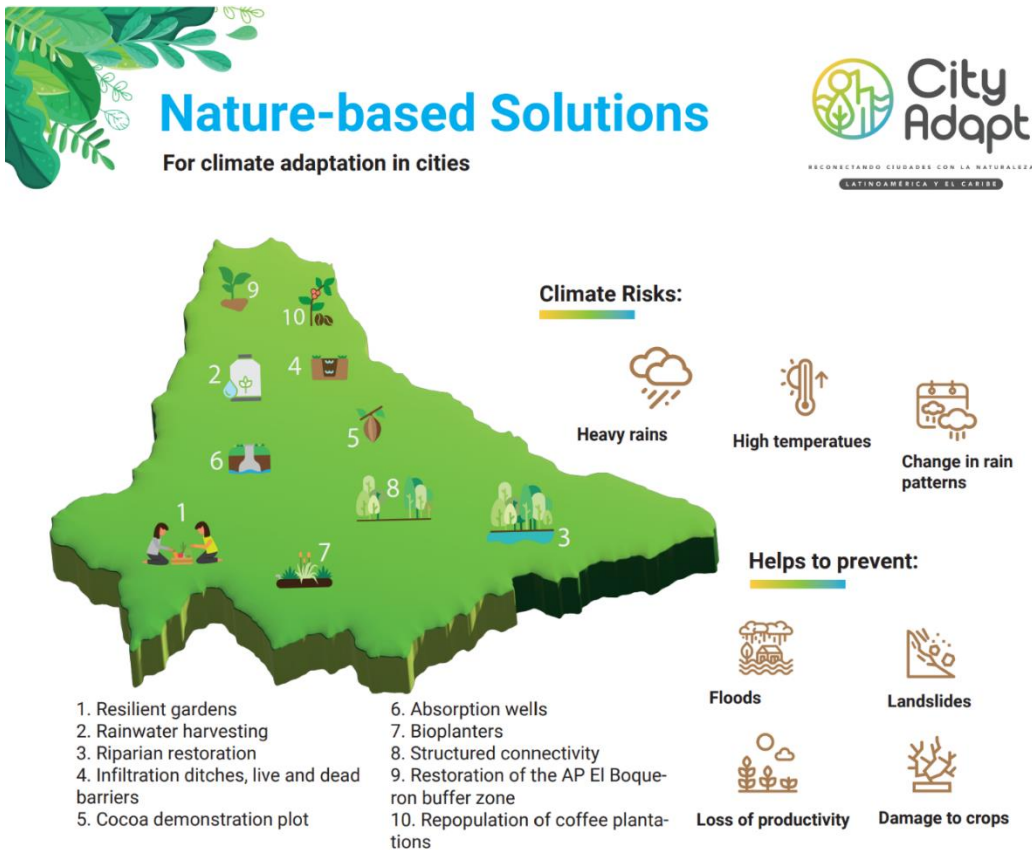
Supported by the Global Environment Facility's Special Climate Change Fund



cultivate on small plots of less than 3.5 hectares. However, changing temperatures make growing coffee more difficult, while dependence on coffee alone leaves producers vulnerable to fluctuating prices on the global market. Increasing temperatures across coffee-growing regions in El Salvador have led to a loss of both the quantity and quality of coffee (Bravo-Ureta *et al.* 2022). Women represent about a third of all coffee producers in El

Salvador¹. Women coffee producers have less access to land, resources and credit than men, limiting their capacity to earn a living and leaving them more vulnerable to the impacts of climate change. On the other hand, women have a unique relationship with nature, possessing local ecological knowledge and skills critical for climate change adaptation.

Figure 1: Graphic Representation of the Microwatershed Arenal Montserrat, San Salvador



Gender-responsive Ecosystem-based Adaptation in San Salvador

El Salvador has made progress towards gender equity in policy with several legal frameworks that promote, enforce and monitor gender equality (UN Women 2023), including integrating gender considerations into its Nationally Determined Contributions (NDC). The Coalition of Women and Climate Change promotes climate action with a gender approach in El Salvador and highlights women and girls' vital role as change-makers to achieve climate mitigation and adaptation.

To guide the integration of gender across the CityAdapt project's EbA interventions, UNEP partnered with UN Women to create a gender action plan for El Salvador and Mexico (UN Women, United Nations Development Programme and

United Nations Environment Programme 2020). Through the project, a range of gender-specific activities were implemented in urban and peri-urban areas of San Salvador to increase women's resilience.

Mobilizing gender-responsive adaptation actions

As part of the initial stages of the EbA project leading to the elaboration of a climate-risk vulnerability assessment, focus groups were held in 23 communities within the Arenal Montserrat micro-watershed, one of San Salvador City's micro-watersheds. Part of the consultation process sought to understand the gender dimensions and experiences of climate risks and perceived impacts, helping to identify

¹Based on 2013 estimates from the Consejo Salvadoreño del Café, cited in International Women's Coffee Alliance (IWCA) Research Alliance (2018). IWCA Research Alliance Data: <https://www.womenincoffee.org/research>.

gender-responsive adaptation actions. 70% of participants perceived a general temperature increase and identified flooding and landslides as the key climate risks.

Women, men, and young people from Colonia IVU, one of San Salvador's most climate-vulnerable neighbourhoods, took part in focus groups on ecosystem services, climate impacts and possible adaptation solutions. Of the participants, women and young people demonstrated broader knowledge of the services provided by their local ecosystems and of potential measures to adapt to climate risks. They identified ecosystem services such as water regulation, food provision and erosion protection, as well as the impacts of climate change on health and livelihoods. The men's group identified two potential measures and two groups of key actors who they felt should be involved in addressing climate change (the Community Board of Directors and the Mayor's Office), while the women's group proposed six climate adaptation measures and six groups of key actors, including women, young people, law enforcement and others. They also identified solutions to prevent landslides (e.g. constructing live and dead barriers around the ravine) and floods (e.g. cleaning campaigns and raising awareness on solid waste, as urban floods are often linked to poor waste management). These findings reflect women's lived experiences in the city in a changing climate. With a more active role in caring for their communities and the environment, women possess important ecological knowledge and social relationships needed for ecosystem-based adaptation.

Climate-resilient coffee and agroforestry in El Espino

Based on the climate risk assessment, the project started implementing EbA interventions in different areas of San Salvador. Urban flooding had been identified as one of the key climate change impacts to be addressed, leading to the piloting of EbA measures to reduce water runoff and erosion and increase infiltration in the upper area of the volcano.

Families in El Espino Ecopark and forest reserve on the San Salvador volcano have a long tradition of growing coffee under the shade of native trees. The coffee forests host biodiversity, act as a lung for San Salvador, and provide a recreation space for urban residents. However, changing climatic conditions have brought more disease to coffee crops in El Espino. At the same time, deforestation and long periods of drought have left the soils degraded and the area vulnerable to fires.

While women play an essential role in coffee production, from farming to roasting and brewing, El Salvador's coffee industry is dominated by men: only 36% of coffee farmers are women (CSC 2022). The key barriers, which increase women's socio-economic vulnerability, relate to their lack of agency, participation, finance and access to organizations that support coffee farmers. The CityAdapt project helped to promote women's economic empowerment alongside adaptation. EbA measures included planting different

varieties of coffee plants and fruit trees and creating infiltration ditches and absorption wells on coffee farms that imitate the natural drainage of streams and rivers.

The CityAdapt team carried out gender training with the coffee producers, involving men and women. "At the beginning, when we talked about gender training, only women arrived. When we began to involve men in the training, it was very successful because the directors of the cooperatives started to participate. It wasn't just about the number of women or men, but how they got involved in the different roles", said Leyla Zelaya Alegría, National Coordinator for CityAdapt El Salvador. Cooperative associations provide collective access to means of production to their members, of which 52% are women in the case of El Salvador (Instituto Salvadoreño de Fomento Cooperativo 2022), promoting equality and equity. Female and male farmers were trained in agroecological practices and learned how to diversify their produce with complementary crops, such as cocoa and mango, vital to increasing income, food security and nutrition in coffee-growing regions of Latin America.

In El Espino coffee growers' cooperative, the women's group *Ahorradoras* ("Savers") is a community savings group that gives small loans to its members, empowering rural women excluded from the traditional financial system. Inspired by the CityAdapt training sessions on climate change and EbA, the women's group established a community garden, *Cantón Finca El Espino*. Together with the project team, the women implemented ecologically friendly agricultural practices in the garden, such as drip irrigation and rainwater harvesting. The community garden was inaugurated in April 2021; it has 16 varieties of vegetables and aromatic herbs and is maintained entirely by women and young people from the community.

"What we want to do is not only a concept of a garden as it is normally known, but a *resilient* garden, a garden capable of tolerating or being compatible with a changing climate. It's about integrating the basic needs of a community concerning the new threats or conditions of vulnerability due to climate change," said Georgina Mariona, Technical Assistant for CityAdapt El Salvador.

The garden supplies the community with produce and provides additional income for the women, helping them become more self-sufficient. "The garden allows us to help ourselves because we sow vegetables, we sow chili, and that helps us a lot... Now we don't go to the market to buy them; instead, we grow them ourselves," said Dolores Pérez, CityAdapt project participant.

With greater decision-making power within their households and communities, the women have gained more independence and purchasing power. During the CityAdapt project, a woman was elected president of El Espino coffee cooperative, an encouraging role model for women and girls in the community.

The positive impact of the EbA measures is already visible in San Salvador. During a tropical storm, the infiltration ditches, absorption wells and dead barriers withstood the heavy rains, minimizing the impact of the storm. Twenty thousand people (53% women) living in the Arenal Monserrat micro-watershed

have directly benefited from the CityAdapt project, becoming more resilient to climate change impacts. The actions by farmers also reduce the vulnerability of urban populations in the lower part of the micro-watershed.

Lessons Learned

Lesson 1: Knowledge of the gender-differentiated impacts of climate change can help to shape EbA.

- The pilot focus groups in the Colonia IVU urban neighbourhood revealed the breadth of knowledge and unique perceptions of women and youths regarding their local environment and possible climate adaptation actions.
- In San Salvador, gender-specific actions were included during the implementation of the project, following the recommendations from UN Women. EbA initiatives should incorporate a comprehensive gender analysis throughout the project cycle. Understanding the specific vulnerabilities women and men face in the local context, as well as their different knowledge, capacities, power and resources that shape the ability of local communities to adapt to climate change, is crucial for designing tailored actions that can strengthen the adaptive capacity of both women and men.
- The El Salvador project also showed that with adaptive management, it is never too late to integrate gender perspectives into the project cycle. Identifying the funds to elaborate and execute the gender action plan was a challenge in San Salvador; implementing gender-specific activities necessitates a dedicated budget and staff. Incorporating a gender approach leads to climate change adaptation that is more effective, equitable and sustainable, and this needs to be clearly reflected in adaptation project budgets.

Lesson 2: Women leaders and eco-entrepreneurs are needed in EbA projects to address gender disparities in male-dominated sectors.

- While gender disparities still exist in the coffee industry in El Salvador, leveraging on the

Ahorradoras women's collaborative structure, gender-responsive EbA activities have strengthened women's collective knowledge, agency and economic empowerment. Although not part of the original project plan, the women's group spearheaded the creation of a women's community garden in El Espino. This highlights the importance of adaptive management and flexibility in EbA implementation that responds to the unique social vulnerabilities of men and women through eco-entrepreneurship. The community garden helped to strengthen women's agency through a diversified household income and greater purchasing and decision-making power. These actions can have a ripple effect through the community and wider society to address the inequalities faced by women and build resilience.

Lesson 3: Participatory processes and knowledge of community groups can help close the gender data gap and address climate justice.

- Gaps in data on the differentiated vulnerability of men and women to climate change make it difficult to develop targeted EbA solutions for women and girls. In San Salvador, the census data did not include gender-disaggregated data at the Arenal Montserrat micro-watershed level, only at the municipal level. To address the data gaps, the project developed a methodology to collect socio-economic and environmental data using gender-sensitive indicators tested in an urban community. The data generated will benefit future policies and programs. This shows how participatory engagement processes can help gather the knowledge and data needed to effectively target EbA solutions to men and women and advance climate justice.



Infiltration ditches were built by the CityAdapt project in coffee farms in San Salvador to reduce flooding. Credit: CityAdapt



A coffee farmer stands next to a landslide on his land. Credit: CityAdapt

Sustainable Development Goals



Contacts

UNEP Climate Change Adaptation Unit
UNEP-Cliiimate-Adaptation@un.org

Regional Project Manager
Marta Moneo
marta.moneo@un.org

Further Resources

Website:
<http://www.cityadapt.com>

Project Factsheet:
[Ecosystem-based Adaptation in El Salvador, Mexico & Jamaica 2017-2022](#)

Stories:
["Sponge city": San Salvador uses nature to fight floods](#)

Video:
[Regreening San Salvador to fight climate change](#)

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