Climate change and deforestation

Reassessing Existing Policy Initiatives in Ecuador

BERGEN SUMMER RESEARCH SCHOOL
GLOBAL CHALLENGES

Bergen Summer Research School Policy Brief, 2025

Aim

This policy brief highlights the need for the Ecuadorian Ministry of Environment to reassess its existing policy initiatives addressing deforestation in Ecuador, in order to more effectively respond to ongoing challenges of forest and land degradation.

Key Points

- Despite existing policy initiatives and actions, deforestation and land degradation remain significant obstacles to Ecuador achieving its greenhouse gas reduction targets in the land use, land-use change, and forestry sector.
- If existing initiatives are not reassessed, they risk losing credibility in achieving their intended goals and may further exacerbate climate-related challenges already faced by local communities.
- A reassessment of existing policies and actions should strike a balance between Ecuador's socio-economic interests and the need for environmental protection and biodiversity conservation.

Introduction

Climate change is one of the most pressing challenges of our time, posing risks to all forms of life on Earth. It is primarily driven by human activities such as the burning of fossil fuels, livestock farming, and deforestation[1]. Among these drivers, deforestation is particularly critical, as it not only emits carbon but also weakens the planet's ability to absorb it. Forests act as vital carbon sinks, absorbing carbon dioxide (CO_2) into the atmosphere. However, widespread deforestation reduces this natural capacity, thereby increasing CO_2 emissions

Between 1990 and 2020, approximately 420 Mha of forest was lost globally[2]. In 2021, global carbon dioxide (CO_2) emissions reached a record high of 36.3 billion tons[3]. In response, ~140 countries committed to end deforestation by 2030 during the UN Conference of the Parties (COP26)[4]. Yet, while urgent change is long overdue, forest-dependent regions continue to face major challenges in forest protection, as land-use changes often underpin key economic activities. One such region is South America, where countries such as Ecuador overlap with the biodiversity-rich Amazon[2] (rf. Box 1).

Box 1: Main economic activities driving deforestation in Ecuador[5]

Agriculture	**Forestry and extractive**	**Infrastructure**
• palm oil, soy and rubber	• industrial logging	• urban expansion
• cattle	• mining, oil and gas	• energy
• small holder farming	• fuel wood	• transport

Between 2001 and 2020, more than 623 kha of the Ecuadorian Amazon were lost to deforestation[6]. In the subsequent section, key policy initiatives and actions undertaken by the Ecuadorian government to limit land use change and reduce forest loss are summarized (Figure 1).

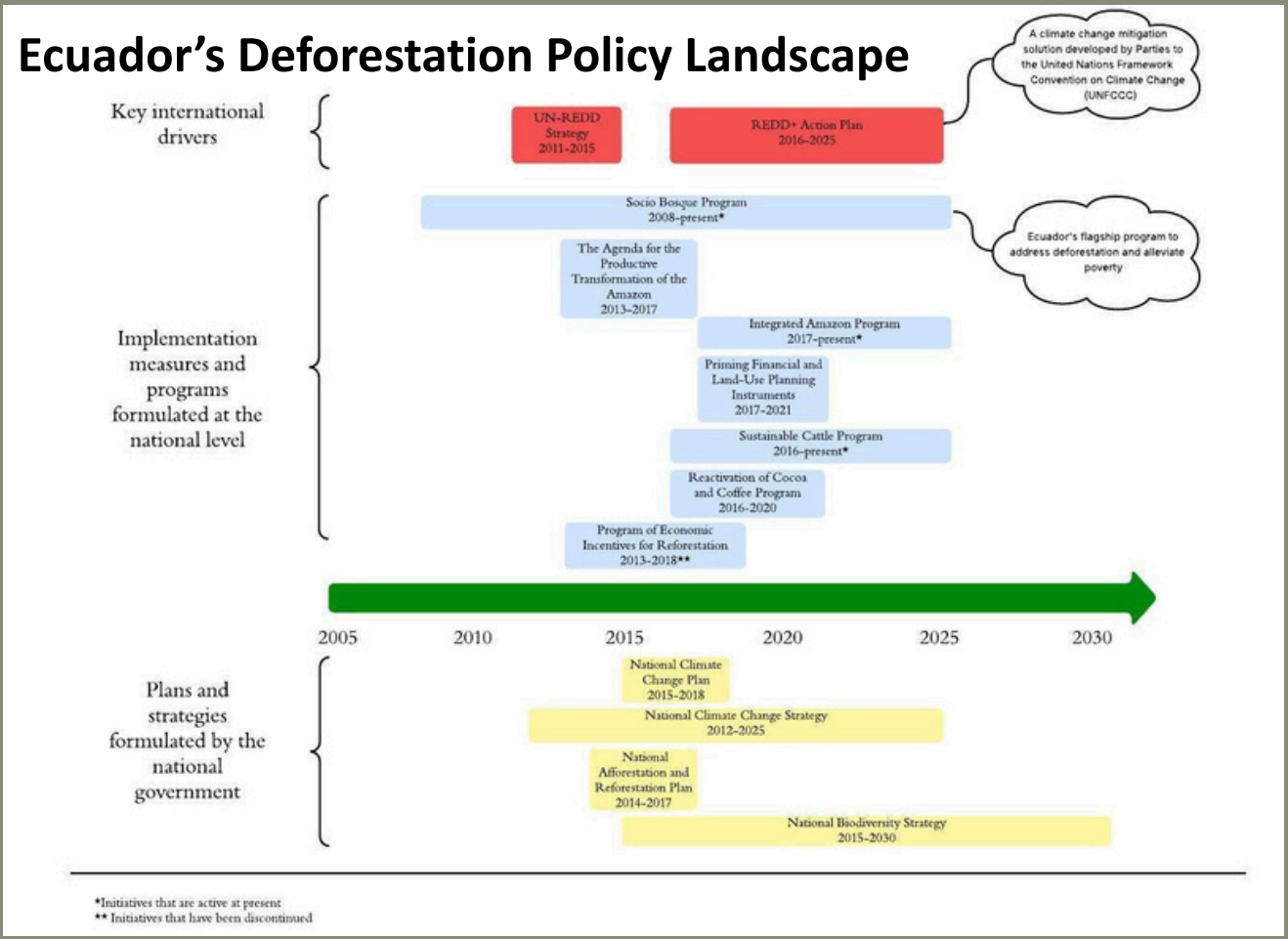

Figure 1: Timeline of Climate and Reforestation Policy Developments in Ecuador (adapted from Climate Focus, 2018[7]).

By actively addressing the issue of deforestation on a global level, Ecuador has secured significant forest conservation financing, including a USD 44 million contribution from Norway and Germany in 2022[8]. At the national level, Ecuador implements deforestation mitigation through initiatives such as the Socio Bosque Program[9].

This is a direct incentive-based conservation program, funded primarily by the national government, that:

- Provides annual financial transfers to individual landowners and collective beneficiaries (i.e. indigenous communities);
- Establishes legally binding conservation agreements that commit participants to avoid deforestation and land degradation;
- Supports sustainable livelihoods through complementary projects like ecotourism, agroforestry, and nature-derived artisanal crafts.

This program has contributed to the protection of over 1.5 mha of native forest across Ecuador's diverse ecosystem in recent years. Despite its promising framework, this program has not consistently achieved its intended outcomes, underscoring the need for revitalization and strategic investment. However, it remains a high-potential mechanism for transformative environmental governance in Ecuador. Its existing institutional infrastructure and established implementation networks offer a strong operational foundation, thereby reducing the financial and logistical barriers typically associated with launching new deforestation mitigation initiatives.

This creates a clear call for action to balance economic interest and environmental protection; a call reflected in the myriad of policies and initiatives implemented over the past few decades in Ecuador at the national and global level.

FRIDA Model Analysis

Land-use interventions, such as afforestation, sustainable forest management, and deforestation prevention, can contribute 4-20 % of global GHG mitigation needed to meet the Paris Agreement targets (i.e., +2 °C limit)[10]. These mitigation options in the land-use sector are important to retain global warming below 1.5 °C.

To analyze mitigation options, the FRIDA model, a global representation of climate change issues and mitigation impact, is leveraged for two strategies, within the limitations of the model and the scope of deforestation drivers within Ecuador. This analysis is conducted through the lens of Ecuadorian national initiatives and available data, reflecting (to the best of its ability) implementation and impact feasibility at a global scale. The results of the scenarios model, using a 20-year implementation period (i.e. enacted 2045), are shown in Table 1.

Table 1: Results of mitigation strategies using the FRIDA model[11]

Policy Experiment Options	Year 2045			Year 2100		
	Temperature Anomaly (˚C)	Real GDP per p ($1000/year)	Labour share of GDP (%)	Temperature Anomaly (˚C)	Real GDP per p ($1000/year)	Labour share of GDP (%)
No intervention (business as usual)	1.86	28	53	3.17	48	51
Baseline afforestation derived from PFNR (1 million Ha of forestation for a period of 20 years)	1.86	28	53	3.15	49	51
Moderate afforestation rate (4 million Ha for a period of 40 years)	1.86	28	53	3.15	49	51
Moderate afforestation rate (4 million Ha for a period of 40 years) + 40 % oil extraction tax	1.86	28	52	3.12	48	50

Recommendations

1. Revitalize & Expand the Socio Bosque Program
   - **Improving cost-benefit incentives**: Adjust financial rewards to compete with the economic returns from agriculture and extractive industries
   - **Strengthen Inclusive governance:** Ensure meaningful participation of Indigenous and local communities in future program design and administration to leverage traditional knowledge.
   - **Refine conditionalities:** Prevent climate-negative reinvestment (i.e. livestock industry) that negates the mitigation strategy.
2. Accelerate Reforestation*: Target 4 mHa over 40 years
3. Introduce Fiscal Instruments
   - Feed-in Tariffs (FiTs) for Sustainable Agriculture Value Chains
   - Environmental Tax on Oil Extraction*
4. Expand Protected Areas: Increase UNESCO biosphere reserves and other protected zones to safeguard forest resources.

* = tested with FRIDA

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