



**Vanuatu**  
**Department of Climate Change**



**FOREST**  
**AS A**  
**CLIMATE**  
**SOLUTION**



## GHG Emissions

The increasing Greenhouse Gas (GHG) emissions globally is driven by activities involving burning Fossil Fuels, Deforestation and Forest Degradation, land use, Industrial Processes and Product Use (IPPU) and Wastes. Domestically, Vanuatu's GHG emissions stands at 0.0016% according to 2007 to 2015 GHG Inventory Analysis.



*Round logs in a shipping yard of Palekula, Santo. [Photo Credit: Hilaire Bule]*

Forests are a natural solution to climate change because they remove carbon dioxide (CO<sub>2</sub>) - a potent greenhouse gas (GHG) - from the atmosphere and store the carbon in trees, other plants and soil. This increases the amount of carbon stored in forests and harvested wood products and reduces atmospheric CO<sub>2</sub> from human-caused carbon emissions<sup>1</sup>, mitigating the effects of climate change while sustaining the other critical ecological, social, and economic services that forests provides<sup>2</sup>.

## Forests can act as either carbon sources or carbon sinks

- A forest is considered to be a carbon source if it releases more carbon than it absorbs. Forest carbon is released when trees burn or when they decay after dying (as a result of old age or of fire, insect attack or other disturbance).
- A forest is considered to be a carbon sink if it absorbs more carbon from the atmosphere than it releases. Carbon is absorbed from the atmosphere through photosynthesis. It then becomes deposited in forest biomass (that is, trunks, branches, roots and leaves), in dead organic matter (litter and dead wood) and in soils. This process of carbon absorption and deposition is known as carbon sequestration<sup>3</sup>.



## **Forest and Climate in Vanuatu**

Much of Vanuatu is expected to experience warmer and drier weather, according to the findings of climate scenario models and historical and observational patterns (National Advisory Committee on Climate Change, 2008). Over the course of the twenty-first century, it is predicted that both the surface air temperature and the sea surface temperature would rise (with very high confidence). According to models, the annual and seasonal mean temperature will rise by 1.5°C by 2030 and by more than 2.5°C by 2090. With extremely high confidence, it is predicted that the mean sea level would rise further, rising by about 5 to 15 cm by 2030 and by 20 to 60 cm by 2090 (Pacific Climate Change Program, PccsP, 2012).

The effects of climate change on the people and islands of Vanuatu vary as well as cross-sectoral. These include the bleaching of coral reefs, which reduces the availability of fish and crustaceans; inundation of low-lying agricultural land; increased pest and disease incidence; extended periods of drought and flood conditions; an increase in the frequency and intensity of extreme weather events; and the salinization of agricultural land near the coasts, which degrades the quality and availability of drinking water. The productivity of agricultural land may be impacted by shifting temperature and precipitation patterns, necessitating the introduction or adaptation of new crops and agricultural production methods.

The pressure to convert Vanuatu's remaining lowland forests to agricultural land will increase over time due to the combined effects of population growth, soil fertility reductions, and climate change. An urgently needed land use policy that emphasizes balance and trade-offs between various land-use options is needed to address these competing demands on land.

Mitigating deforestation and forest degradation is crucial as a component of the global climate change resolution. Because they are a source and a sink of carbon emissions, forests are essential to the fight against climate change. The greatest carbon storage areas on Earth are forests and oceans, with tropical forests alone taking up to 1.8 gigatons of carbon annually from the atmosphere. However, about 25% of all greenhouse gas emissions caused by humans are caused by forestry, agriculture, and other land uses. As far as carbon-capture technology goes, forests and other natural ecosystems remain the best and most economical option. We need to keep coming up with new and innovative ways to safeguard vital forest landscapes as nations and businesses search for ways to achieve their climate commitments and transition to more sustainable growth paths. More than one-third of world emissions might be avoided by halting forest conversion, protecting the forest carbon sink, and reforesting areas.

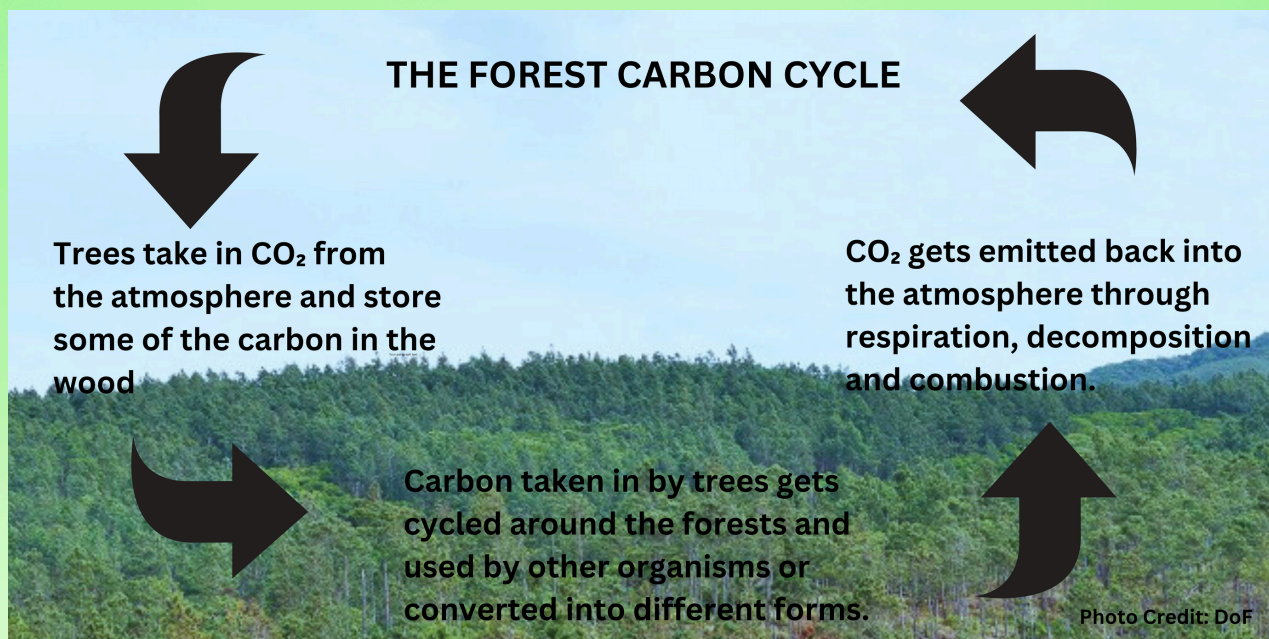
Numerous Ecosystem Services (ES) are produced by forests, the most important of which are improved water quality, biodiversity preservation, carbon storage and sequestration, and soil protection. These ecological services are typically given to society for free and taken for granted in the forest sector. In the past, money needed to preserve these ecological services was typically obtained through legal or public channels. Nonetheless, a greater variety of the non-tradeable benefits of forests are gradually being recognized by society. Interest in ecosystem services has grown as a result of the pressing need to enhance forests' role in combating climate change. Therefore, in addition to "normal" sustainable forest management, some initiatives have been made to generate payments for projects to protect or restore ecosystem services.

The two main services that forest managers are expected to focus on and for which compensation is increasing are carbon sequestration and biodiversity protection. But society does not value ecosystem services projects equally. Payments for ecosystem services (PES) programs that promote monoculture tree plantations for carbon sequestration, for instance, are more heavily criticized than those linked to carbon storage through the adoption of alternative silviculture practices that preserve biodiversity.

Although forests have many positive effects on the world at large, developing nations also contribute significantly to the global climate solution; without them, the climate issue cannot be addressed. The best chance we have of staying on the elusive 1.5 degrees track by 2030 and reaching net zero greenhouse gas emissions by 2050 is to combine an energy transition away from fossil fuels with the natural solutions found on Earth. REDD+ overcomes the financial incentives to destroy and degrade rainforests for agriculture, livestock grazing, and lumber by making rainforests more valuable when they are alive. Our greatest option for valuing this vital resource right now is to measure and price the carbon that is captured and stored. That is the purpose of the REDD+ Mechanism. The REDD+ Mechanism achieves its goals by establishing national initiatives, maintaining global records, and conducting stringent international measurement and verification.

## Rainforest: A Critical Climate Solution

Without the land and tropical rainforests that our countries provide to the world, achieving our climate targets will be impossible. Our best chance of lining up with the elusive 1.5 degrees Celsius pathway in time is when an energy transition is combined with the natural solutions found on our planet. One of the biggest and most affordable ways to reduce carbon emissions on Earth is through rainforests. Additionally, billions of acres of those rainforests and carbon reductions are represented by our coalition. We have rain forests all over the planet, from Papua New Guinea to the Congo Basin, which is home to the second-biggest rainforest in the world. These forests absorb and store greenhouse gases that are released into the atmosphere, preventing global warming from occurring.

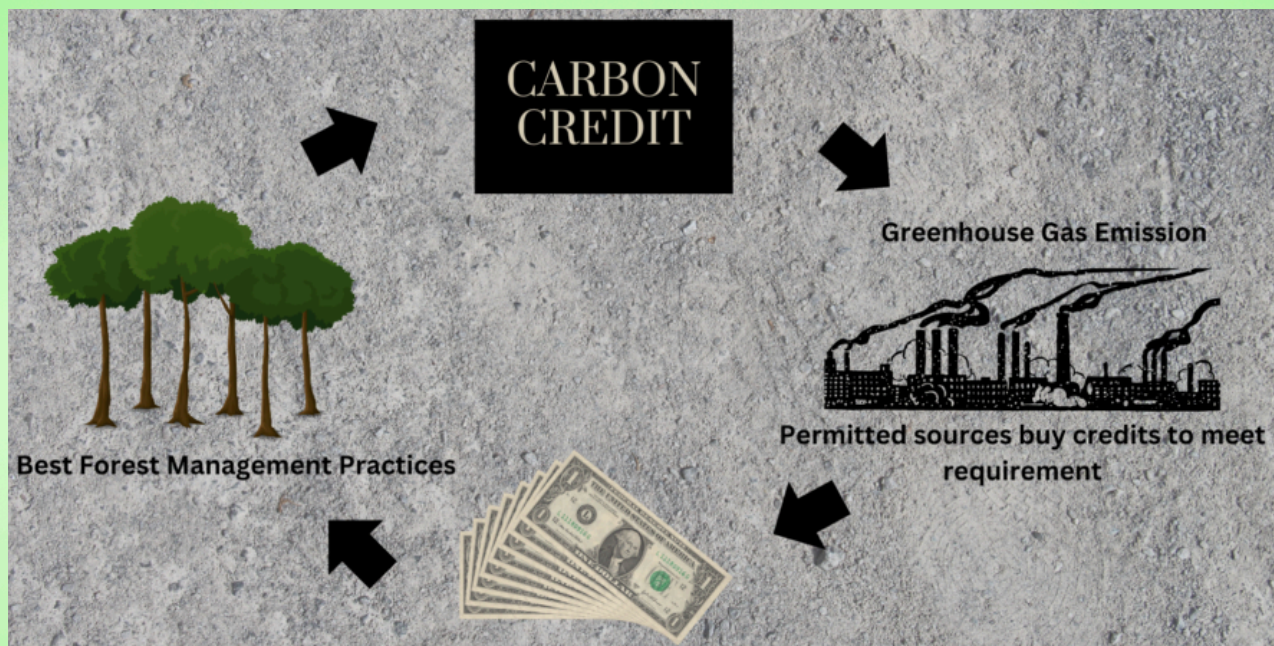
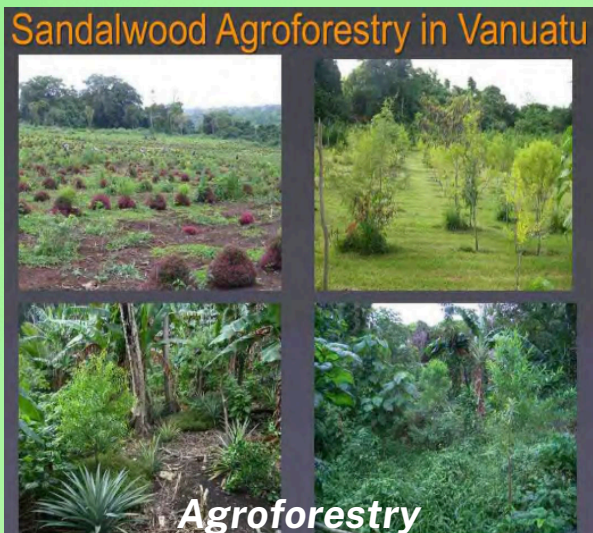


## **DOMESTIC ACTIONS THAT SUPPORT FOREST AS A CLIMATE SOLUTION**

- Reforestation – replanting back the degraded forests to enhance the natural carbon stock
- Forest Carbon Credit Programs
- Conservations areas
- Sustainable logging practices
- Integrated practices:
  - a. Agriculture – Agroforestry
  - b. Livestock – Silvopastural system
  - c. Urban beautification – replanting trees at urban areas to address increasing emission and urban heat island

Vanuatu's forestry offers opportunities for climate change mitigation through carbon conservation (SFM, protected areas, reducing of deforestation and forest degradation), carbon sequestration (afforestation and reforestation), and carbon substitution (replacement of carbon intensive products and fuels through wood products).

# Actions that support Forest as a Climate Solution



## Community message:

Replant 5 trees after cutting down 1 to enhance the carbon stock while at the same time safe the future of tomorrow against the adverse impacts of climate change.



*Tree Nursery. Photo Credit: Department of Forestry, Vanuatu*

<sup>1</sup> Vanuatu's Third National Communications (TNC's)

<sup>2</sup> <https://portal.ct.gov/-/media/DEEP/forestry/Forest-Carbon/NEFA-Securing-Forest-Carbon-fact-sheet.pdf>

<sup>3</sup> <https://www.nrcan.gc.ca/climate-change-adapting-impacts-and-reducing-emissions/climate-change-impacts-forests/forest-carbon/13085>



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