

## Building capacity worldwide in monitoring and managing forest and terrestrial carbon

### What is SilvaCarbon?

Tropical forests absorb and store vast amounts of carbon. When forests are destroyed or degraded, stored carbon is released into the atmosphere as heat-trapping gas, contributing to global climate change. Deforestation and forest degradation cause more greenhouse gas (GHG) emissions than the entire global transportation sector and are the second leading source of human-induced GHG emissions after the global energy sector. To address this challenge, many countries are developing comprehensive systems for tracking and reporting forest change and terrestrial GHG emissions. Such systems are essential for advancing low emission development strategies and climate change mitigation initiatives, including Reducing Emissions from Deforestation and Forest Degradation (REDD+).

**SilvaCarbon** is a US technical cooperation program to enhance the capacity of selected tropical countries to design and implement credible landscape monitoring systems and terrestrial GHG inventories that can provide input to international reporting frameworks such as the United Nations Framework Convention on Climate Change (UNFCCC). SilvaCarbon draws on the expertise of eight US government (USG) agencies and other partners to support a variety of capacity building activities, including technical assistance and hands-on training, workshops at country and regional levels, international study tours, South-South cooperation, and applied research.

### Where does SilvaCarbon work?

SilvaCarbon is global in geographic scope with a focus on high priority tropical forests in the Andean Amazon, Central Africa, Central America, and South and Southeast Asia. To date, the program has worked with 14 countries on a bilateral basis and an additional 11 countries through regional activities.



### How does SilvaCarbon work?

**SilvaCarbon** functions as a **science delivery tool**, channeling technical knowledge and resources from a global network of forest and terrestrial carbon experts to meet country-specific needs. The program is unique among similar capacity building efforts and has been cited by partners as an exemplary model for international cooperation. SilvaCarbon's small size and decentralized structure make it highly **flexible and adaptable**, and its **collaborative, demand-driven approach** fosters productive partnerships that go beyond typical donor-beneficiary relationships.

In addition to contributing to key **products and deliverables** such as forest change maps, forest carbon inventories, and national reports to the UNFCCC, SilvaCarbon helps countries develop the **sustainable institutional capacity** to generate new products independently and integrate different forest and terrestrial carbon monitoring tools, techniques, and technologies.

SilvaCarbon capacity building activities address technical carbon measurement and monitoring issues including:

- Sampling protocols and design;
- Data capture, processing, archiving, and distribution;
- Collection and analysis of *in situ* data;
- Integration of remotely sensed and *in situ* data;
- Classification and mapping of forest cover;
- Carbon stock and flux estimation; and
- Design of monitoring systems for multiple uses.

**Cooperation and coordination** are central to the program. SilvaCarbon works closely with nearly 50 organizations around the world, including universities, local NGOs, and international institutions such as the Food and Agriculture Organization of the United Nations (FAO) and the United Nations REDD Program (UN-REDD). Numerous SilvaCarbon activities are leveraged with other USG programs.

## Program Objectives

1. Demonstrate and compare forest and terrestrial carbon measurement and monitoring methodologies;
2. Build the capacity of selected developing countries to use forest and terrestrial carbon monitoring and management methodologies and technologies;
3. Facilitate the coordinated collection and dissemination of Earth observation data related to forest and terrestrial carbon monitoring and management, in cooperation with the Committee on Earth Observation Satellites (CEOS) and the Global Forest Observations Initiative (GFOI);
4. Strengthen the community of forest and terrestrial carbon technical experts; and
5. Enhance interagency cooperation and collaboration.

## Accomplishments

SilvaCarbon countries are at different stages in the development of their monitoring systems and seek support for different reasons. Some are building foundational capacity, while others are working to integrate various efforts underway or overcome specific technical challenges. SilvaCarbon has achieved a number of notable accomplishments in a diversity of contexts.



Recent examples of SilvaCarbon successes include:

- Helping Peru produce a national-scale forest change map that can be used to estimate forest cover and deforestation rates and support Measurement, Reporting, and Verification (MRV) activities for REDD+;
- Supporting Gabon's first nationwide forest carbon assessment, which included the establishment of a network of forest inventory plots that has been adopted as the National Natural Resource Inventory;
- Co-conducting nine regional workshops in South and Southeast Asia that brought together forestry departments, mapping authorities, and space data agencies from eight countries to identify forest monitoring needs, assess different monitoring approaches, and share lessons learned;
- Organizing a series of study tours for Central American forest practitioners to learn alongside US experts about below-ground carbon measurement and forest inventory information systems;
- Funding eleven innovative research proposals addressing critical carbon measurement challenges; and
- With GFOI, disseminating vital Earth observation data to 21 countries and supporting national data acquisition strategies.

## ORGANIZATION

SilvaCarbon is jointly managed by the US Agency for International Development (USAID), US Department of State, US Forest Service (USFS), US Geological Survey (USGS), Environmental Protection Agency (EPA), National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), and Smithsonian Institution. Funding is provided primarily through USAID and the Department of State, with other member agencies and partners providing additional support. SilvaCarbon is also a US contribution to GFOI, leading its capacity building component.

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