

# NATURE-POSITIVE SOLUTIONS: VIETNAM



INITIATIVE ON  
Nature-Positive  
Solutions

CGIAR's Nature-Positive Solutions Initiative made substantial progress in Northern Vietnam, alongside rural, Indigenous communities who were the Initiative's main partners. The hilly landscapes are rich in threatened and understudied agrobiodiversity, which some communities still successfully cultivate. To help landholders address soil degradation and unsustainable agricultural intensification, NATURE+ and partners studied traditional crops, promoted their sustainable use and conservation through value chains, and supported circular bioeconomy practices. Additional work focused on true-cost accounting for food systems and landscape restoration. The Initiative's work in Vietnam is confidently positioned for continuity and growth as part of the CGIAR Research Program 2025-2030.



# Contents

- The NATURE+ vision ..... 2**
- The issues NATURE+ addresses ..... 2**
- Vietnam: specific challenges ..... 3**
- Key work package highlights ..... 3**
- Vietnam advances in agrobiodiversity and circular economy ..... 4**
- Vietnam: a positive outlook for nature ..... 5**
- Publications and further reading ..... 2**

# What is Nature-Positive Solutions' vision?

The CGIAR Nature-Positive Solutions Initiative (NATURE+) was established to reimagine and implement innovative, scalable, and locally relevant solutions that enhance biodiversity, regenerate landscapes, and ensure sustainable food production. Through five work packages – **CONSERVE, MANAGE, RESTORE, RECYCLE** and **ENGAGE**, uniquely designed to be simultaneously deployed at research sites – the Initiative aims to help shift agriculture from being a driver of environmental degradation to becoming a net-positive contributor to nature. Through cross-sectoral collaboration, research, and community-driven interventions, NATURE+ integrates conservation, restoration, circular bioeconomy practices and policy science to create resilient agri-food systems.

Across all five countries, the **NATURE+ Initiative is transforming food systems by promoting biodiversity, regenerative agriculture, and circular economy solutions**. Each country's activities are tailored to its **specific environmental, economic, and social challenges**, but together, they create a **global model for nature-positive agricultural transitions**. The initiative demonstrates that **agriculture does not have to come at the expense of nature**, but instead, can be a **force for ecosystem restoration, climate resilience, and sustainable livelihoods**.

At the heart of NATURE+ is a commitment to fostering equity and inclusivity by empowering local communities, Indigenous peoples, women, and youth to lead sustainable food system transformations. By leveraging both traditional knowledge and scientific advancements, NATURE+ is creating pathways for regenerative agriculture, soil health improvement, agrobiodiversity conservation, and sustainable livelihoods across diverse landscapes. NATURE+ had almost 300 partners and stellar collaboration between CGIAR centers – Alliance of Bioversity International and CIAT, International Water Management Institute, International Potato Center, International Center for Agricultural Research in the Dry Areas, and the International Food Policy Research Institute.

# What issues does NATURE+ address?

The global food system faces pressing challenges that threaten ecosystems, food security, and human well-being. NATURE+ worked to address the following key challenges:

- **Biodiversity Loss:** Agricultural expansion and monocultures have led to the loss of native species, reduced ecosystem resilience, and decreased agricultural productivity. The initiative promotes tree-based restoration and conservation of native crops to counteract this trend.
- **Land Degradation:** Unsustainable farming practices and climate change exacerbate soil erosion, loss of fertility, and desertification. NATURE+ focuses on soil health restoration and nature-positive farming methods to reverse degradation.
- **Food and Nutrition Insecurity:** While food production has increased, nutritional diversity has declined, leading to malnutrition and diet-related health issues. NATURE+ integrates neglected and underutilized species (NUS) into food systems to improve dietary diversity and resilience.
- **Climate Change:** Unpredictable weather patterns, prolonged droughts, and floods are affecting agricultural productivity. The initiative supports climate-resilient farming techniques, water management, and tree planting for carbon sequestration.

- **Circular Bioeconomy Gaps:** Agricultural waste is often underutilized, leading to environmental pollution. NATURE+ promotes bio-based solutions such as composting, biochar production, and biogas generation to close resource loops and enhance sustainability.
- **Lack of Inclusive Policy Support:** Many countries lack enabling policies for sustainable agriculture and nature-positive solutions. The initiative works with governments and stakeholders to integrate nature-positive strategies into national policies and action plans.

## Vietnam: specific challenges

Vietnam's hilly northern provinces experience **soil degradation**, **loss of native crops**, and **unsustainable agricultural intensification**. Moreover, many **local stakeholders lack the agency or resources** needed to confront these trends, which threaten traditional ways of living. Fortunately, national authorities and international actors such as the United Nations Development Programme (UNDP) support a strong **government commitment to conservation**, including the promotion of **nature-positive practices** such as **circular bioeconomy** rural waste management and **agro-ecotourism** (the latter which is quickly growing in the region). With these partners and others, NATURE+ supported the **research and conservation of traditional crops, landscape restoration** and the development of **sustainable food value chains**. Yet challenges remain – NATURE+ found food production has high, unpaid costs on nature and tourism growth may become unsustainable.

## Key work package highlights

**CONSERVE:** Worked with schools, local governments, and smallholder groups to incentivize biodiversity education, conservation and citizen science; conducted extensive research on local traditional neglected and underutilized species (NUS) to understand their conservation status, genetic traits and uses; developed conservation strategies with stakeholders.

**MANAGE:** Worked toward developing value chains for NUS and provided training for farmers on value chains and seed systems for vegetables, and trees for restoration; a research project with women who conducted field studies with different pumpkin varieties.

**RESTORE:** Integrated native tree species into restoration efforts and advanced the use of digital tools to guide and incentivize farmers to use these species; worked with farmers who identified preferred nature-positive practices; applied five practices with Indigenous farmers on 52 hectares.

**RECYCLE:** Held training programs on circular models for the coffee and rice value chains; established circular bioeconomy innovation hub; + created training manuals to build the knowledge needed for circular economy growth.

**ENGAGE:** Policy development for circular bioeconomy; research on ecosystem services and gender-specific uptake of nature-positive solutions; true-cost accounting research in the food system.



Vietnam's engagement in the NATURE+ Initiative has focused on biodiversity conservation, sustainable agriculture, and circular economy development. **CONSERVE** collaborated with schools, local governments, and smallholder groups to raise awareness and incentivize biodiversity conservation. It also spearheaded research on neglected and underutilized crops in the study area. **MANAGE** played a crucial role in developing value chains for NUS and providing farmers with training on sustainable seed systems for vegetables and trees used in restoration, and conducted field trials on NUS with women's groups. **RESTORE** integrated native tree species into restoration projects, ensuring that reforestation efforts align with both local environmental needs and national climate resilience strategies. Additionally, it field tested preferred nature-positive farming strategies with farmers, and surveyed stakeholders as part of the growing database on Diversity for Restoration (D4R). **RECYCLE** launched training programs on circular economy models tailored to the coffee and rice value chains, helping to reduce waste and improve resource efficiency. **ENGAGE** contributed to policy development for the circular bioeconomy, ensuring sustainability in waste management and agricultural production.

Its scientists pinned down the **true cost of food production** in the research areas – **15% of output value, and that 75% of externalities were environmental** – and found that **forests in Vietnam conservatively provide 35.60 billion** in Vietnam annually in 2022 US dollars. Across Initiative research activities, **166 farmers received training** on sustainable farm management, researchers **surveyed 240 rural households** for D4R. Some **1,150 agricultural households and 330 farmworkers** participated in a baseline assessment of nature-positive activities.

## Vietnam advances in agrobiodiversity and circular economy

Vietnam's nature-positive solutions are crucial for safeguarding agrobiodiversity, improving soil health, and promoting nature-based economies. The conservation of native crops and traditional farming knowledge is critical given the risk of losing biodiversity due to industrial agriculture and land degradation. Through genebank research and farmer training, NATURE+ and partners are preserving native plant species while enhancing climate-resilient food production. Additionally, the circular bioeconomy partnership with UNDP and Vietnam's Ministry of Natural Resources and Environment sets a precedent for waste valorization and sustainable food systems. This makes Vietnam a key player in transforming food production through policy engagement and data-driven sustainability solutions.

During its work, NATURE+ scientists pinned down the **true cost of food production** in the research areas – **15% of output value, and that 75% of externalities were environmental** – and found that **forests in Vietnam conservatively provide 35.60 billion** in Vietnam annually in 2022 US dollars. Across Initiative research activities, **166 farmers received training** on sustainable farm management, researchers **surveyed 240 rural households** for D4R. Some **1,150 agricultural households and 330 farmworkers** participated in a baseline assessment of nature-positive activities. Additionally, scientists conducted genetic gap analyses (for detecting unique landraces of traditional crops) for populations of taro, banana and potato, both in situ and ex situ, with a strong emphasis on citizen science for fieldwork.

## Key significances of results

- Strengthens **native agrobiodiversity conservation and use** in **high-risk landscapes**, for both the benefit of landholders and nature.
- Advances **true-cost accounting in food systems**, helping shape **national sustainability policies** that can pinpoint externalities and align appropriate responses.
- Promotes **circular bioeconomy innovations**, reducing **waste and environmental degradation**, while creating economic opportunities for farmers and reducing their reliance on potentially harmful agrochemicals.
- **Creates citizen scientists**, many of whom are from economically challenged backgrounds, including women and schoolchildren, demonstrating that **they can meaningfully contribute to complex research** by geneticists, data scientists and conservation researchers.
- Demonstrates the **economic harm of business-as-usual activities** – such as deforestation, overuse of agrochemicals, and environmental degradation – showing that food system transformation is also good for the bottom line.

## Vietnam: a positive outlook for nature

The NATURE+ experience demonstrates that Vietnam is putting a strong focus on biodiversity conservation, sustainable value chains, and circular economy growth. Schools, communities, officials and farmers collaborate on conservation education, while circular bioeconomy action enhances the sustainability of commodity crops like coffee and rice – as well as neglected and underutilized species. Value chains for neglected species are being developed, and reforestation integrates native trees into restoration projects. NATURE+ scientists expect to see several positive trends continue under the CGIAR Research Program 2025-2030. These include continued research into nature-positive action, particularly at the landscape scale. Education and awareness of the importance of biodiversity and agrobiodiversity should increase, with the support of citizen scientists, researchers for development, and government institutions. Digital tools to support nature-positive activity will continue to grow in popularity and adoption, and more businesses will integrate bioeconomy models. These efforts will support sustainable food systems, growth and climate resilience.

## Publications and further reading

The following is a brief list of key published highlights from NATURE+. For comprehensive lists, please view the work package reports [CONSERVE](#), [MANAGE](#), [RESTORE](#), [RECYCLE](#) and [ENGAGE](#).

Additionally, readers can review the majority of NATURE+'s 370 outputs, outcomes and other advances between 2022-2024 on the [CGIAR Results Dashboard](#).

Also, the [NATURE+ repository on CGSpace](#) contains more than 300 items.

## Publications

Nature-Positive Solutions Initiative baseline evaluation survey report: Vietnam - [Read here](#)

Ecosystem services may provide large economic values in Kenya and Vietnam: A value transfer application based on results from a systematic literature review - [Read here](#)

The true costs of food production in Kenya and Viet Nam - [Read here](#)

Healthy planet, healthy people: Nature-positive contributions to food and nutrition security in Viet Nam - [Read here](#)

The road to recovery: a synthesis of outcomes from ecosystem restoration in tropical and sub-tropical Asian forests - [Read here](#)

Diversity for Restoration (D4R) tool for Northern Vietnam: online catalogue and spatially-explicit decision-support tool for selecting suitable tree species for nature-positive production systems - [Read here](#)

My Farm Trees: Digital platform with blockchain to incentivize farmer and community-led tree-based restoration of degraded landscapes: Vietnam country module - [Read here](#)

Assessing the investment climate to promote a circular bioeconomy: a comparison of 15 countries in the Global South\_(Includes Vietnam) - [Read here](#)

Desk review report on agrobiodiversity, agroecology/nature-positive practices, and circular economy in Vietnam - [Read here](#)

Circular bioeconomy business models - recovering food products to reduce agricultural waste: cases from Burkina Faso, India, Kenya and Vietnam - [Read here](#)

Training farmers in Northern Vietnam to enhance their capacity in vegetable value chains - [Read here](#)

Land degradation and restoration in Lao Cai and Son La Provinces, northern mountainous region of Vietnam. Scoping study for the One CGIAR Initiative on Nature-Positive Solutions - [Read here](#)

Nature+ Quantitative Baseline Household and Worker Survey, Viet Nam - [Read here](#)

Seek by i-Naturalist: A guide for teachers - [Read here](#)

Seek by i-Naturalist: An easy-to-use guide for students - [Read here](#)

The rich biodiversity of pumpkins, H'Mong mustard greens, bananas, and taro, in Mai Son District - Son La - [Read here](#)

The rich biodiversity of pumpkin, H'Mong mustard greens, banana and taro in Sa Pa - Lao Cai - [Read here](#)

Evaluation of improved forage varieties in Mai Son district, Son La province, Vietnam - [Read here](#)

Impact of improved forages on soil health in Mai Son district, Son La province, Vietnam - [Read here](#)

Sa Pa Cookbook: From Sa Pa to your table: A collection of traditional recipes of Pumpkin, H'Mong mustard greens, Musa, and Taro - [Read here](#)

Mai Son Cookbook: From Mai Son to your table: A collection of traditional recipes of Pumpkin, H'Mong mustard greens, Musa, and Taro - [Read here](#)

## **News and blogs**

News: Disseminating knowledge on biodiversity conservation in schools - [Read here](#)

Newsletter: [True costs of food production in Kenya and Vietnam](#)

Blog: Growing into pumpkin custodians: Women farmers in North Vietnam discover the power of participatory variety selection - [Read here](#)

Video guide: H'mong mustard seed production process - [Watch here](#)

Press release (UNDP): Joint initiative to upgrade agricultural circular businesses in Viet Nam - [Read here](#)

Blog (UNDP): Brewing change: Advancing the circular transition for Son La's coffee sector - [Read here](#)

Press release (UNDP): Training Program on Circular Economy & rice straw innovations in the Rice Value Chain - [Read here](#)

News: Bảo tồn đa dạng sinh học phải tránh 'phát triển nóng và chạy theo nông nghiệp sản lượng' - [Read here](#)



**Carlo Fadda, NATURE+ lead, [c.fadda@cgiar.org](mailto:c.fadda@cgiar.org)**

CGIAR is a global research partnership for a food-secure future. CGIAR science is dedicated to transforming food, land, and water systems in a climate crisis. Its research is carried out by 13 CGIAR Centers/Alliances in close collaboration with hundreds of partners, including national and regional research institutes, civil society organizations, academia, development organizations and the private sector. [www.cgiar.org](http://www.cgiar.org)

We would like to thank all funders who support this research through their contributions to the CGIAR Trust Fund: [www.cgiar.org/funders](http://www.cgiar.org/funders).

To learn more about this Initiative, please visit [this webpage](#).

To learn more about this and other Initiatives in the CGIAR Research Portfolio, please visit [www.cgiar.org/cgiar-portfolio](http://www.cgiar.org/cgiar-portfolio)

© 2025 Alliance of Bioversity International and CIAT. Some rights reserved.

This work is licensed under a Creative Commons Attribution-Noncommercial 4.0 International Licence ([CC by 4.0](https://creativecommons.org/licenses/by-nc/4.0/)).

