

NATURE+ in India



INITIATIVE ON
Nature-Positive
Solutions

Report 2023 & Outlook 2024

In India, the CGIAR Initiative on Nature-Positive Solutions works in remote parts of Western India's Maharashtra State. NATURE+ and its partners selected several sites (called clusters) for their high potential for implementing nature-positive activities to improve nutrition, climate resilience, food security and to conserve nature. People in these tribal areas also have rich traditional knowledge that is key to natural solutions.



What is NATURE+?

The CGIAR Initiative on Nature-Positive Solutions aims to re-imagine, collaboratively create and implement nature-positive solutions for agri-food systems that equitably support food and livelihoods and ensure that agriculture is a net-positive contributor to biodiversity and nature.

Recent highlights

- Launched Circular Bio-economy Innovation Hub (CBE-IH) with Indian Council for Agricultural Research (ICAR).
- Preliminary launch of a NATURE+ documentary for India.
- Establishment of 14 on-farm soil and water conservation centers.
- Completion of geohydrological study for all NATURE+ research sites (clusters), including a micro-watershed of 100 hectares in one cluster.
- Establishment, monitoring and data collection at 60 demonstration plots for nutrient management.
- Community-led restoration drive that planted 4,000 trees on 35 hectares of communal land.
- Mapping and priority listing of trees for restoration, including database compilation of 237 species and suitability modeling completed for 177.
- Farmer training on organic farming, food systems and conservation of traditional knowledge for more than 300 farmers at clusters.
- Farmer training on livestock waste management for more than 80 farmers.
- Collected household and community data as baseline; 1,227 household surveys; 27 community surveys; 20 focus group discussions on seasonal calendars, resource mapping and nature-positive solutions; 20 key informant interviews.

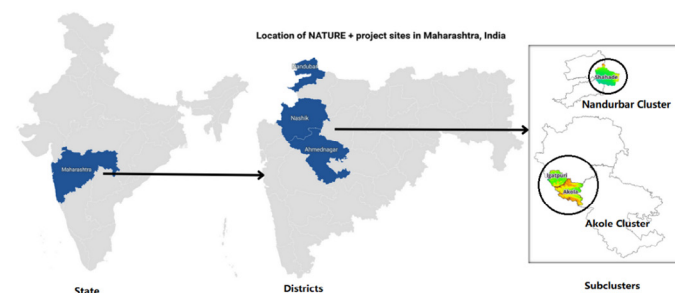
Outlook 2024

- Development of Nature-Positive Solutions Composite Index: A framework or set of indicators for land, soil, water (including water quality) and agrobiodiversity to measure and assess nature-positive interventions. Socioeconomic indicators will also be included.
- Launch of NATURE+ Integrated Farming Systems (IFS) model farms with research including farm-level monitoring, data collection, and comparative assessments between farms.
- Completion of the Diversity for Restoration web portal to include information on 237 assessed trees.
- Research on impact of restoration on ecosystems and livelihoods.
- Continued farmer training across work areas, including usage of digital solutions in tree-based restoration activities.
- Identification of key actors and groups for training and research for the Circular Bioeconomy Innovation Hub, with a focus on development of training materials and implementation of circular bioeconomy activities at research clusters.

- Collaborative design and implementation of pilot business models based on surveys and data collection, technology identification, and awareness-generation workshops for circular bioeconomy activity.

Where NATURE+ works

In India, the CGIAR Initiative on Nature-Positive Solutions works in two clusters, Akole and Nandurbar, Maharashtra.



NATURE+ study areas in India (represented in terms of administrative boundaries).

The opportunities

To provide strong institutional support in India for a transition to nature-based solutions, NATURE+ works to enhance income opportunities (particularly for women, youth and indigenous peoples) through value chains related to seeds, crops, fruit trees, waste, payment for ecosystem services, and public procurement. Improved restoration and soil management efforts, as well as improved recycling value chains, will create highly valued carbon sinks and reduce greenhouse gas emissions.

The challenges

There are several challenges to a nature-positive transition in India. There is limited local-level data on available resources and their utilization for nature-positive land use. There is a general lack of awareness on the efficient use of resources. There is little to no market for sustainable circular economy business models. Financing for nature-based solutions at the individual or farm level remains low.

The NATURE+ approach

The Initiative works in collaboration with highly capable partner organizations that specialize in activities related to agricultural management and production. In addition, NATURE+ collaborates with relevant on-the-ground stakeholders to assess, develop, implement, and sustain nature-positive solutions in agri-food systems to ensure income generation, improve biodiversity, and deliver a net-positive impact of agriculture on nature. The Initiative creates opportunities to access the broader food basket through more nutrient-rich crop varieties to help develop more resilient and adaptable farming and seed systems.

How NATURE+ works in India

Initiative activities include work on the conservation, management, and restoration of traditional and local plant species (through sustainable agricultural systems called WADIs that integrate agriculture, horticulture and forestry) for improved livelihoods and optimal use of local resources. Research training, capacity building, and assessment of interventions are also key to strengthening stakeholder engagement and capacity development, focused on nature-positive interventions. The Initiative has five work packages: CONSERVE, MANAGE, RESTORE, RECYCLE, and ENGAGE.

CONSERVE and MANAGE to date

NATURE+ established 14 on-farm conservation centers focused on Kharif ("autumn") crops, which include dozens of varieties ranging from staple cereals (corn and rice) to a plethora of fruits, vegetables, and legumes. The Initiative established community-level seed production and seed banks for many of these crops to reduce dependency on expensive seeds. To address water scarcity issues, NATURE+ identified and studied three micro-sheds per cluster for soil and water conservation research and interventions. Management trials on Kharif rice were completed for 60 demonstration plots. A 100-hectare watershed was selected for the implementation of climate-smart and nature-positive watershed management strategies.

CONSERVE and MANAGE 2024

NATURE+ model farms will be created using the integrated farming system approach at selected sites. The Initiative will develop a composite index to study nature-positive indicators for land, soil, water, and agrobiodiversity. Support for an existing seed bank in Akole cluster will continue, and a new seed bank will be developed. The Initiative will support the establishment of an on-farm conservation center for Rabi (or "winter" crops, which include wheat). Research trials will assess drought-tolerant microorganisms, biochar, and hydrogel impact on the growth and yield of gram (chickpea) under drought stress on research plots. The Initiative will do measurements of hydro-meteorological parameters and installation of equipment at clusters for climate-smart watershed strategies. Furthermore, 50,000 cactus cladodes (cactus shoots) will be planted.

RESTORE to date

NATURE+ completed a community-led planting drive on communal land, which included local species selected by the community. Some 35 hectares and 4,000 saplings were planted. NATURE+ built a priority species list of 237 tree species ideal for restoration and full trait and suitability modeling was completed for 177.

RESTORE 2024

The 237 priority tree species will be fully added to the Diversity for Restoration tool, and forest restoration activities will continue in the clusters. NATURE+ and partners will complete a comparative study on biodiversity and ecosystem services under grazed and

non-grazed forests. Researchers will assess restoration impacts on ecosystem services and livelihoods. Additionally, the impact of a biogas unit – which supplants tree-based energy – on forest conservation will be assessed and reported. A national restoration workshop will discuss current restoration initiatives and gaps with scientists, practitioners, and stakeholders.

RECYCLE to date

A circular bio-economy innovation hub was launched with an accompanying website and the first meeting of the hub was conducted with new stakeholders in India. Agricultural and livestock waste was identified in micro-watersheds to explore potential for circular bioeconomy activities. The Initiative conducted capacity building on agri-livestock waste management in local languages and farmers; 80 farmers were trained on management strategies.

RECYCLE 2024

The Initiative will continue the development of the circular bioeconomy innovation hub and develop a technical brief on the hub, along with a training manual for biogas. NATURE+ will continue the identification of potential stakeholders for the hub. In the selected sites, researchers will identify the gaps in the existing bioeconomy interventions and will help address these gaps through appropriate business models.

ENGAGE to date

NATURE+ collected cross-cutting data for all work packages and conducted 1,227 quantitative household surveys related to crop area, livestock, income source, food, energy, fuel and waste management, along with 27 community surveys for land use and other services. Furthermore, qualitative data collection were collected using 20 key informant interviews and 20 focus group discussions with men and women farmers and results were reported to the NATURE+ Pause and Reflect meeting at the end of the year. Natural resource mapping for nature-positive solutions was completed.

ENGAGE 2024

The Initiative will complete a preliminary analysis of the survey data and a technical report on the quantitative results will be prepared. Qualitative results will be reported in a discussion paper and journal article focused on gender and nature-positive solutions. A journal article has been prepared based on mapping above-ground carbon storage and sequestration using the Integrated Valuation of Ecosystem Services and Tradeoffs model in a separate watershed that will have implications for the NATURE+ sites.



Communication activities in India for 2024

- Video: Documentary video on NATURE+ in India
- Photo essay
- Print media engagement
- Podcast episode – contributing to IWMI India series

Blogs, publications, reports, and tools

- Blog: [Protecting and promoting traditional foods one woman at a time](#) – IWMI.
- Blog: [NATURE+: Moving toward a cyan and sustainable future in India!](#) – IWMI & CGIAR.
- Journal article: [Genetic variability, characters association and principal component study for morphological and fodder quality of Opuntia and Nopalea sp. in India.](#)
- Report on the scoping study for the project “Nature positive solutions For Shifting Agrifood Systems to More Resilient and Sustainable Pathways.”
- Report on “Aquifer Mapping And Hydrological Modelling For Water Resource Development For Villages Located In Akole Block Of Ahmednagar District, Maharashtra.”
- Website: [Circular Bioeconomy Innovation Hub India.](#)

Partners

NATURE+ would like to thank the Indian Council of Agricultural Research (ICAR) and the BAIF Development Research Foundation (BAIF) for their collaboration in planning and promotion of the Initiative, as well as the implementation and scaling of NATURE+ in India.

- IMPLEMENTING PARTNER - BAIF Development Research Foundation (BAIF).

- RESEARCH PARTNER - ICAR - National Institute of Abiotic Stress Management (ICAR-NIASM).
- RESEARCH PARTNER - ICAR - National Bureau of Plant Genetic Resources (ICAR-NBPGR).
- RESEARCH PARTNER - Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri.

“Through Nature-Positive, I became employed and got a job as a Community Resource Person in my own village. This has benefitted me a lot and I am happy to be associated with the project.”
– Jitendra, Rampur, District Nandurbar

Please contact us for more information:

Carlo Fadda, Initiative Lead
Solomie Gebrezgabher, Initiative Co-Lead

CGIAR is a global research partnership for a food-secure future dedicated to transforming food, land, and water systems in a climate crisis.

We would like to thank all funders who support this research through their contributions to the [CGIAR Trust Fund](#).

Learn more about this Initiative [here](#).
Learn more about the CGIAR Research Portfolio [here](#).

© 2024 CGIAR System Organization.
Some rights reserved. (CC BY-NC 4.0)



Field activities at NATURE+ research sites in India

