TEEBAgriFood Project

Project Brief – National Stakeholder Consultation

9-10 November, 2022

Key Points:

- TEEB, The Economics of Ecosystems and Biodiversity, is a global initiative that seeks to recognize, demonstrate and capture the values of ecosystems and biodiversity in both monetary and non-monetary terms.
- The Economics of Ecosystems and Biodiversity for Agriculture and Food (TEEBAgriFood) project is currently being implemented in twelve countries; the India application runs from 2019 to the end of 2023.
- In India, the project focuses on organic farming and agroforestry in the Ganga basin region of India, namely in the two states of Uttar Pradesh and Uttarakhand with the aim to support the promotion of organic farming through two national schemes PKVY (Paramparagat Krishi Vikas Yojana) and NMCG (National Mission for Clean Ganga). The project also aligns with the National Agroforestry Policy for which customized solutions are needed in different states.
- The purpose of the project is to inform decision-making in both public and private sector engaged in the agri-food sector about the impacts of decisions on natural, social, human and produced capital, by making visible the invisible benefits of nature and highlighting associated trade-offs of policy choices through scientific evidence.
- The TEEBAgriFood project in India has benefited from wide stakeholder consultations at the state and national level and is guided by the Project Steering Committee, co-chaired by the Ministry of Agriculture and Farmers' Welfare and Ministry of Environment, Forest and Climate Change.
- The Indian Institute of Farming Systems Research- Indian Council for Agricultural Research (IIFSR-ICAR), Uttar Pradesh and GB Pant University of Agriculture and Technology, Uttarakhand were selected by the Project Steering Committee as research partners for the assessment.
- The research institutes, in partnership with the UNEP-TEEB Office have submitted the scoping and scenario setting report which will be shared and discussed at the national stakeholder workshop in November 2022 and with the Project Steering Committee for further guidance.

What is TEEB?

- TEEB, The Economics of Ecosystems and Biodiversity, is a global initiative that seeks to recognize, demonstrate and capture the values of ecosystems and biodiversity in both monetary and non-monetary terms. It was launched as a biodiversity-equivalent to the Stern Review of Climate Change, which was led by Nicholas Stern, then Head of the UK Government Economic Service.

- After the launch of the international TEEB report in 2008, a project 'The Economics of Ecosystems and Biodiversity – The India initiative (TII)' was led by the Ministry of Environment and Forests, Government of India and the report released in 2015. The report through 14 case studies for three ecosystems, forests, inland wetlands, coastal and marine ecosystems, tried to demonstrate practical approaches for applying ecosystem services economics to improve conservation planning and policy making.

- TEEB has provided inputs to both international and national policy work. See www.teebweb.org for more information.

What is TEEBAgriFood and why is it important?

- Agri-food policies are often evaluated in silos using narrow lens such as 'productivity per hectare' to measure success. This partial assessment leads to an imperfect understanding of the inter linkages and impacts of agriculture and food systems on environmental and human health.

- 'Eco-agri-food' systems is a collective term encompassing the vast and interacting complex of ecosystems, agricultural lands, pastures, farmer livelihoods, infrastructure, technology, policies, culture, and institutions that are variously involved in growing, processing, distributing, and consuming food. It is important to examine the components of this eco-agri-food system such as role of social, human, produced and natural capital.

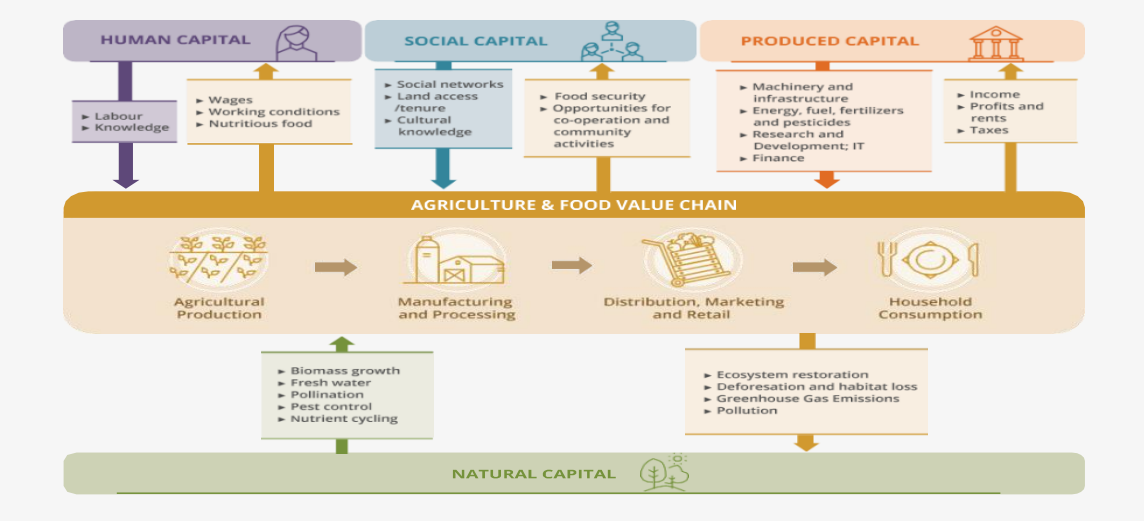

Figure 1: Capital Stocks and value flows in eco-agri-food systems

- Besides the evaluation of the components of the eco-agri-food system, examining the negative and positive impacts of agriculture and food sector becomes essential as some of these are often economically invisible impacts, hence unaccounted for in public and private decision-making. For instance, while agriculture provides positive benefits such as food for humans, feed for animals, fibre for artisanal and industrial production, raw material for fuel etc, it also is a leading driver of ecosystem degradation, biodiversity loss, health externalities, and GHG emissions.

- The United Nations Environment Programme is leading The Economics of Ecosystems and Biodiversity for Agriculture and Food (TEEBAgrifood), which has developed a TEEBAgrifood evaluation framework to capture positive and negative impacts and externalities across the entire agri- food value chain as well assess its impacts on human, social, produced and natural capital.

- TEEBAgriFood is currently being applied in twelve countries. In general, each TEEB Agrifood case study asks questions such as what are the costs / benefits of scenarios of policy inaction compared to the costs/ benefits of scenarios of policy action for conserving biodiversity and ecosystems.

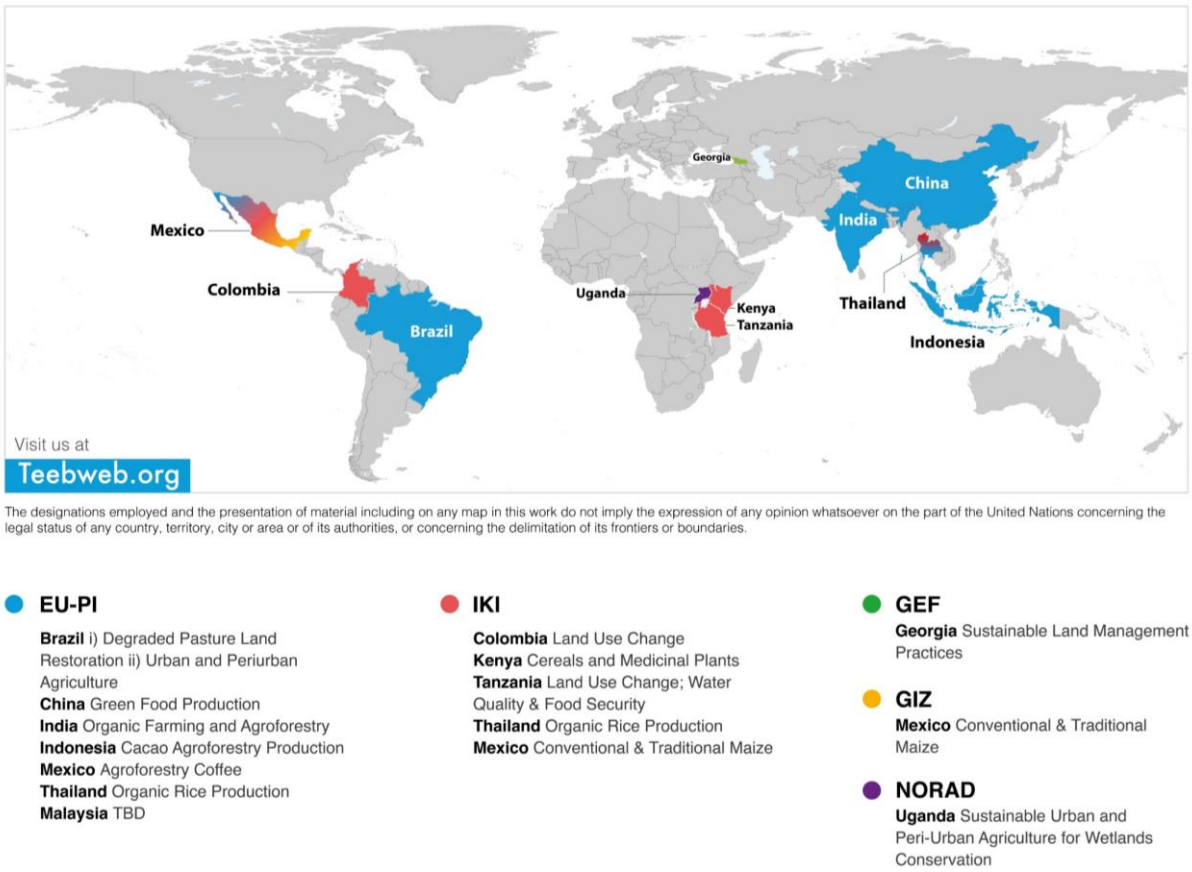

Figure 2: Implementation of TEEBAgriFood in 12 countries

- The India application is part of the EUPI TEEB Agri-food project that is an €8.5 million project funded by the EU Partnership Instrument.

- Along with involving the public sector, the project in parallel also involves private sector players, business federations and agri- businesses, who are receptive to understanding how their actions impact biodiversity and ecosystem services. This workstream is being managed by the Capitals Coalition in collaboration with the local business federations.

TEEBAgriFood in India

- The project in India focuses on organic farming and agroforestry in the Ganga basin region of India, in the two states of Uttar Pradesh and Uttarakhand. The region was selected by the Steering Committee co-chaired by the Ministry of Agriculture and Farmers' Welfare (MoAFW) and the Ministry of Environment, Forest and Climate Change (MoEFCC) in line with key policy priorities and area of implementation. For each state, after bilateral meetings with nodal officers, the scope of work was identified.

- Two institutes were selected to undertake the implementation of the TEEB AgriFood project in India by the state and central government at the Project Steering Committee meetings. G.B.

Pant University of Agriculture and Technology is undertaking the work in Uttarakhand and ICAR-Indian Institute of Farming Systems Research (IIFSR) in Uttar Pradesh.

- For Uttarakhand, districts of Nainital, Almora and Udham Singh Nagar in the Kosi and Kailash watersheds, covering a combination of sites that include both plain and hilly areas have been selected. A scope of two studies were agreed for the assessment: a field assessment using data from the field to examine the impact of organic farming over time; and a scenario analysis study that uses alternative future scenarios of upscaling organic farming and agroforestry. For Uttar Pradesh, five districts have been finalized for the assessment and includes Bulandshahr, Aligarh, Hamirpur, Meerut and Mirzapur. The study will involve scenario analysis using biophysical modelling that explores upscaling of organic farming and agroforestry.

- The UNEP-TEEB office having worked with the nominated institutes to finalize budgets and draft funding agreements for each state has worked to provide guidance on the technical and policy requirements of the project. The research institutes have submitted Scoping and Scenario Setting Reports for the study area and have received extensive guidance and feedback from the UNEP-TEEB office.

- State-level stakeholder consultations in partnership with were held in September 2022 where the draft scoping report was presented to a wide range of stakeholders including senior government officials, scientists, farmer organizations and NGOs working on agriculture in Uttar Pradesh and Uttarakhand. Inputs provided were taken into account in finalizing the scenarios for organic farming and agroforestry expansion in the study area, and the prioritization of ecosystem services and elements of social and human capital being taken up for modelling and valuation.

- The UNEP-TEEB office has prepared a range of documents that will aid with policy mainstreaming in due course. These include: a stakeholder mapping exercise for both states; a TEEBAgriFood policy mainstreaming strategy for both states; a policy mainstreaming strategy at the Indian Federal level. These documents will be refined and integrated with the findings from research components of the project as they become available.

Overview of the scope reports for TEEBAgriFood assessments in India

Uttarakhand

- The stakeholders and Steering Committee identified the districts of Nainital and Udham Singh Nagar, covering a combination of sites that include both plain and hilly areas. Two types of studies were finalized, a field assessment using data from the field to examine the impact of organic farming over time and a scenario analysis study that uses alternative future scenarios of up scaling organic farming and agroforestry.

- The Kosi and Kailash watersheds were finalized as representative sites for biophysical modelling and scenario analysis using the TEEBAgriFood framework. Ecosystem services in the Kosi and Kailash watersheds are to be valued in economic terms – namely for water yield and water quality amelioration, soil erosion and sediment yield, soil health, crop provisioning (based on the primary and secondary cropping systems in the study area), fuelwood and fodder, carbon sequestration, and climate change regulation services. Elements of human and social capital that have been prioritized for assessment include human health (nutrition and reduction in the burden of disease), women empowerment, education and skill development, livelihoods and enhancement of income of farmers. The Soil and Water Assessment Tool (SWAT), TerrSet, QGIS and InVEST modelling methodologies will be used for the biophysical modelling and valuation of ecosystem services.

- Moreover, following the refinement of the scope with G.B. Pant University of Agriculture and Technology, Pantnagar, two demonstration plots in the villages of Bidaura and Sunkiya in the districts of Udham Singh Nagar and Naintal were selected to examine the impact of organic farming in both hilly regions and in the plains. The tool for the primary data collection has been developed and the assessment is currently ongoing. The demonstration plots will complement this analysis by allowing assessment of farmers' challenges in upscaling organic and agroforestry (such as access to inputs, markets and certification) as well as contribute to the analysis of social and human capital factors such as health, employment and livelihoods.

- The three scenarios in the plain and hill region of Uttarakhand to be modelled in combination with RCP4.5 and RCP8.5 climate scenarios are presented below:

Scenarios for the Hill Region of Uttarakhand:

Business-as-Usual (BAU) Scenario	Pessimistic Scenario	Optimistic Scenario
• Builds on existing policies and initiatives (as of 2021) and SDGs implemented by the Uttarakhand Vision 2030 • **Organic Agriculture:** Organic farming increases from the current 36% of total cultivated area to 65% of the total cultivated area as per the scaling potential • **Agroforestry:** Area under agroforestry continues to be maintained at 12% of the cropped area in the study area	• Assumes the emergence of unforeseen factors that may possess a threat to current goals and hamper the modernization and green transformation of Uttarakhand • **Organic Agriculture:** Organic farming continues to cover 36% of the total cultivated area due to low yields and weak post-harvest processing infrastructure • **Agroforestry:** Area under agroforestry reduces to 6% of the cropped area in the study area due to growing urbanization and commercialization	• Assumes progress in agricultural modernization by organic policies and initiatives implemented under UK Vision 2030 • **Organic Agriculture:** Organic farming increases to cover 95% of the total cultivated area based on Uttarakhand's vision to establish the entire state as an organic state • **Agroforestry:** Area under agroforestry grows at 3.5% per annum as per growth trends for agroforestry in the study area

Scenarios for the Plain Region of Uttarakhand:

Business-as-Usual (BAU) Scenario	Pessimistic Scenario	Optimistic Scenario
• Builds on existing policies and initiatives (as of 2021) and SDGs implemented by the Uttarakhand Vision 2030 • **Organic Agriculture:** Organic farming increases to cover 38% of the state's total cultivated area (250,000 ha out of 647788 ha) • **Agroforestry:** Area under agroforestry continues to be maintained at 12% of the cropped area in the study area	• Assumes the emergence of unforeseen factors that may possess a threat to current goals and hamper the modernization and green transformation of Uttarakhand • **Organic Agriculture:** Organic farming continues to cover 4% of the total cultivated area (current status) • **Agroforestry:** Area under agroforestry reduces to 6% of the cropped area in the study area due to increasing urbanization and land-use change	• Assumes progress in agricultural modernization by organic policies and initiatives implemented under UK Vision 2030 • **Organic Agriculture:** Organic farming increases to cover 75% of the total cultivated area based on the scaling potential in the study area • **Agroforestry:** Area under agroforestry grows at 3.5% per annum as per growth trends for agroforestry in the study area

Uttar Pradesh

- In Uttar Pradesh, five districts have been shortlisted for scenarios of upscaling organic farming and agroforestry, including Bulandshahr, Aligarh, Mirzapur, Hamirpur, and Meerut. Stakeholders and the Steering Committee identified the five districts based on variations in agroclimatic zones, existing primary and secondary cropping systems, land use change and demographic factors.

- Given the unique scenarios presented in each of the five districts of Uttar Pradesh, ecosystem services that have been identified for valuation in economic terms include water quantity and quality amelioration, soil health, carbon sequestration, climate change regulation services and

agrobiodiversity. Like Uttarakhand, SWAT, TerrSet and InVEST platforms will be used for biophysical modelling and valuation. Elements of social and human capital prioritized for assessment in the study include human health (assessment of nutrition and of malaria infestation), employment generation, women empowerment, livelihood security and income enhancement.

- The three scenarios in Uttar Pradesh to be modelled in combination with RCP4.5 and RCP8.5 climate scenarios are presented below:

Scenarios for Uttar Pradesh:

Business-as-Usual (BAU) Scenario	Pessimistic Scenario	Optimistic Scenario
• Builds on existing policies and initiatives (as of 2021) and Government of India's Vision Document for Organic Agriculture • **Organic Agriculture:** Area under organic farming increases from the current 0.4% (67,442 ha) of the total cultivated area to 6.5% (1,069,848 ha) at a growth rate of 10% per year as per currently observed trends • **Agroforestry:** Area under agroforestry remains at 3% of the geographical area of the state (as per trends on Tree Cover in the India State of Forest Reports)	• Assumes the emergence of unforeseen factors that may possess a threat to current goals and hamper the modernization and green transformation of Uttar Pradesh • **Organic Agriculture:** Area under organic farming increases from 0.4% to 1% of the total cultivated area in the state due to low yields and weak policy support • **Agroforestry:** Area under agroforestry decreases to 1% of the total cropped area due to increasing land use change, especially contributed by growing urbanization	• Assumes progress in agricultural modernization by organic policies and initiatives implemented under India's Vision Document for Organic Agriculture • **Organic Agriculture:** Area under organic farming grows at 22% per year from the current 0.4% (67,442 ha) to 87% (14,476,019 ha) of the total cultivated area in the state • **Agroforestry:** Area under agroforestry covers 12% percent of the geographical area of the state (contributing to the attainment of National Forest Policy targets of 33% Forest and Tree Cover)

- Full details of progress on the project can be viewed at: http://teebweb.org/our-work/agrifood/country-implementation/eupi2019/india/

Project Timelines

- The timeline of activities under the EUPI funded TEEBAgriFood Initiative for the ongoing work in Uttarakhand and Uttar Pradesh is as under:

Forward looking key meetings, consultations and outputs for the EU-funded TEEBAgriFood India project

September 2022	State-level consultations in Uttar Pradesh and Uttarakhand to discuss project scoping reports
November 2022	National Stakeholder consultation workshop to discuss project scoping reports and policy mainstreaming
November 2022	National Project Steering Committee meeting
December 2022	Release of communications materials for outreach based on finalized scope reports
February 2023	Draft results from policy scenario analysis
March 2023	Final results from policy scenario analysis
July 2023	Final Synthesis report, including policy mainstreaming strategy
August 2023	Communications materials outreach
October 2023	High-level event and presentation of results
October 2023	Project Steering Committee meeting to discuss policy mainstreaming