



## PROCEEDINGS OF THE TEEBAGRIFOOD INDIA NATIONAL STAKEHOLDER CONSULTATION

# TEEBAGRIFOOD INDIA National Stakeholder Consultation 9-10 November, 2022 New Delhi



December 2022

Full event documentation available at: <https://teebweb.org/our-work/agrifood/country-implementation-agrifood/eupi2019/india-eupi/national-stakeholder-consultation-workshop/>

## Executive Summary

A national consultation workshop for TEEB AgriFood project India was held on 9th and 10th November 2022, bringing together national and state level stakeholders to discuss the implementation of the TEEB for Agriculture and Food project in India. 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 of the TEEBAgriFood framework is a part of the European Union Partnership Instrument (EUPI) funded project running from 2019 to 2023 and being implemented in seven countries that includes Brazil, China, India, Indonesia, Malaysia, Mexico and Thailand.

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, namely under PKVY (Paramparagat Krishi Vikas Yojana), the National Programme on Organic Production (NPOP), 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. Besides engagement with the public sector, the project involves private sector players, business federations and agri-businesses, who are receptive to understanding how their actions impact biodiversity and ecosystem services. This private sector workstream is being managed by the Capitals Coalition in collaboration with local business federations.

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.

In furthering the objectives of the project, the national stakeholder consultation was held with the following objectives:

- Share the global, national and local context of agriculture and environmental policy to ensure policy relevance of TEEBAgriFood India
- Identify relevant requests for evidence of policymakers and identify opportunities for policy mainstreaming
- Update the TEEBAgriFood India stakeholders on progress of work in Uttarakhand and Uttar Pradesh and receive guidance
- Consider linkages to related projects and initiatives

- Update on progress of business applications of TEEBAgriFood and connections between public and private sector
- Discuss communications and opportunities for maximizing impact

The event brought together leading experts from the government and technical organizations working in the area of agriculture, economic valuation, environment and biodiversity and served the objective of refining scoping reports developed by research partners. Based on the discussions, key recommendations will be integrated into the TEEBAgriFood evaluation in India.

## Table of Contents

Opening and Special Remarks	1
Scene Setting and Workshop Objectives	3
High Level Opening Remarks	5
Scoping Reports of TEEBAgriFood application in Uttar Pradesh and Uttarakhand	11
Discussion on Scoping Reports	16
Business Engagement under the TEEBAgriFood project in India	21
TEEBAgriFood India related initiatives and interventions	24
Communicating TEEBAgriFood in India effectively	30
Closing Remarks	30
Annexure 1: Agenda of the National Consultation Workshop	31
Annexure 2: List of Participants	34
Annexure 3: Workshop Photographs	36

## TEEBAgriFood in India

### Proceedings of the 2-Day National Stakeholder Consultation Workshop held on 9-10 November, 2022

#### Session 1: Opening and Special Remarks

**Mr. Atul Bagai, Head of UN Environment Programme in India** welcomed all participants and in particular thanked high-level speakers for attending the workshop. In his remarks he thanked Mr. Franklin Khobung, Joint Secretary, MoAFW for joining the national consultation workshop and Dr. Alka Bhargava, former Additional Secretary, MoAFW for steering the implementation of the TEEB for Agriculture and Food (TEEBAgriFood) Initiative in India after its launch in 2019. He also acknowledged Dr. Pavan Sukhdev's thought leadership for setting the TEEB global programme. Furthermore, Mr. Bagai highlighted the following aspects:

- Collaborative and multi-ministerial approach taken under the TEEBAgriFood project with representation from both the Ministry of Agriculture and Farmer's Welfare (MoAFW) and the Ministry of Environment, Forest and Climate Change (MoEFCC). The need for further cooperation from other line ministries in transitioning to a food systems approach.
- The ongoing TEEBAgriFood assessments being undertaken by implementing partners Indian Council of Agricultural- Indian Institute of Farming Systems Research (ICAR-IIFSR) and GB Pant University of Agriculture and Technology (GBPUAT) are groundbreaking for the states of Uttar Pradesh and Uttarakhand and would provide much needed insight for scaling organic farming and agroforestry.
- TEEBAgriFood assessments can provide valuable knowledge towards Government of India's mission on Doubling Farmer's Income (DFI) and also benefit international processes and commitments such as G20 during India's presidency in 2023. Further it can also inform the implementation of the post-2020 Global Biodiversity Framework under negotiation at the 15<sup>th</sup> meeting of the Conference of Parties (CBD COP15.2) in December 2022.

**Dr. Michael Bucki, HOD-EEAS, EU Delegation to India** provided the rationale for EU funding of the TEEBAgriFood project and identified priority areas for EU cooperation in India. He highlighted the commitment of the President of the European Commission to global biodiversity conservation, mentioning that the EU is committed in supporting partners to deal with the socioeconomic concerns arising from Russia's war in Ukraine, and more widely supporting through the Global Gateway Strategy, through enhanced sustainable investment towards global biodiversity. He presented the following points:

- Increased commitment of the European Union towards global biodiversity: Increase in EU spending from €250 million a decade ago to €1 billion each year, quadrupling support for global biodiversity conservation. He added that the decision to increase spending towards biodiversity is not only because of ethical concerns but because of the critical danger of biodiversity collapse. He mentioned that Europe having immeasurably lost native

biodiversity, primarily through agriculture and industries is committed in supporting countries to prevent such mistakes.

- India stands as a megadiverse country with important biodiversity hotspots. He stressed that although there has been a lot done collectively to conserve global biodiversity, living in harmony with nature would require much more sustained effort globally.
- Although EU and Indian positions and priorities are well aligned on biodiversity conservation, there are important issues that EU and India can cooperate on under a new effective post-2020 Global Biodiversity Framework. As an example, he highlighted the increasing replacement of corn cultivation by sorghum in Europe, stating that Europe would benefit from India's experience among other developing countries on cultivation in semi-arid conditions.
- TEEBAgriFood Initiative is distinctive as it is focused on enabling better valuation and anticipation of nature and ecosystem services for decision making in the public and private sector. TEEBAgriFood assessments by the Indian research partners on the implementation of national organic farming and agroforestry schemes in addition to assessments under the EU-India Water Partnership would provide valuable demonstration of the benefits of valuation for decision-making.
- Importance of extending support to civil society and the private sector as they drive the transition to sustainable and resilient ecosystems.
- Commended the Uttarakhand state government for announcing the valuation of its natural resources in the form of 'Gross Environment Product' (GEP), as an alternative to Gross Domestic Product (GDP). He indicated that valuation studies such as the ongoing TEEBAgriFood assessments can contribute towards this effort.
- The process of valuation of ecosystem services should be inclusive and science based. Scoping reports presented during the workshop can benefit from constructive criticism from all participating stakeholders.

**Dr. Pavan Sukhdev, CEO, GIST Advisory** set the broad context, providing the background to the global TEEB programme. He mentioned that the genesis of TEEB followed a G8+5 meeting in 2007 where the assessment of the economic impact of the global loss to biodiversity was proposed. The proposal for the study drew inspiration from the Stern Review, which had presented a strong case for early action on climate change. In his remarks, he mentioned:

- The wealth of any nation consists of the four capitals, i.e. natural capital, produced capital, human capital and social capital. In this connection, he mentioned that economics is the currency for policy – if these values are not captured in economic terms, then policymaking will be less effective, especially in making the point for conservation.
- The centrality of food systems in addressing the Sustainable Development Goals. In furthering this message he seconded Mr. Atul Bagai's remarks on the need to work across organizational boundaries and enhance inter-ministerial coordination, in getting food systems right and in addressing economic, societal and environmental issues.
- Making the economic case for nature and conservation is complex because interlinkages between various elements needs much more collaboration and diverse representation; TEEB assessments are therefore multi-dimensional and comprehensive in design.

- The TEEB initiative does not develop new methods and techniques but attempts to synthesize the current state of knowledge in order to provide a basis for evaluating the stock of natural capital and the flow of ecosystem services, and to address the complexities entailed in applying economic valuation.
- TEEBAgriFood framework is comprehensive - it assesses all major impacts and flows, not merely per hectare productivity of a single crop, but the entire food value chain – from upstream impacts including the damages and the benefits in the farm, including climate, biodiversity, water, costs, labor benefits and the social benefits, and downstream impacts in terms of the consumer health, skills and competencies etc.
- TEEBAgriFood framework is universal and can enable decision making regardless of the viewpoint in the food system, whether it be the point of view of the policymaker, business analyst, food expert, health expert etc. He also stressed that better valuations in private sector are extremely important because the private sector, especially with regards to the manufacturing and distribution of inputs and food plays a critical role in the agri-food supply chain. Using economic frameworks to integrate multiple values and reveal hidden costs will support in enabling behavior change.
- Highlighted the TEEB study being conducted in southwest Andhra Pradesh, a semi-arid landscape, tribal farming areas in northeast Andhra Pradesh and the Krishna Godavari Delta Region where community managed natural farming (CMNF) across more than 450 households have been studied, indicating that the transition to CMNF has benefited farmers through higher yields and profits.

## Session 2: Scene Setting and Workshop Objectives

**Mr. William Speller, Programme Manager, UNEP-TEEB and Reuben Gergan, Project Officer, TEEBAgriFood India** presented the overview of the ongoing TEEBAgriFood assessment globally and in India, the policy context for the work, current status of the project and the expected outcomes. In the presentation, the following was highlighted:

### Overview of the TEEBAgriFood framework and its global application

- TEEB is a global initiative aimed at making nature's value visible through capturing, demonstrating and incorporating into decision making the value of nature and TEEBAgriFood applies that to the agricultural context, looking at how Food Systems Transformation can be achieved.
- Recalled the statement the Secretary General of the United Nations, Antonio Guterres, “Food systems hold the power to realize the shared vision for a better world” in highlighting that agriculture and food systems cut across all SDGs and is critical to achieving a world we want.
- Highlighted the importance of adopting a systems approach and the relevance of the TEEBAgriFood framework in addressing several global and national goals, targets and objectives including:
  - UNFCCC 2030 Agenda for Sustainable Development

- Convention on Biological Diversity – implementation of the Post-2020 Global Biodiversity Framework (GBF)
- UN Convention to Combat Desertification (UNCCD) and India’s commitment to Land Degradation Neutrality (LDN) and restoration of 26 million hectares of degraded land
- Objectives under the UN Decade on Ecosystem Restoration where restoring agricultural systems forms a critical component
- Objectives under India’s G20 Presidency for the year 2023 where discourse on agriculture and food systems is a key element
- Objectives of the One Health Initiative in promoting an integrated approach to human, animal and ecosystem health
- Currently the UNEP TEEB Unit is working in 12 countries, seven of which are funded by this project by the European Union Partnership Instrument (EUPI). Applications are ongoing in Africa, Latin America and Asia.
- The TEEBAgriFood framework can be applied to a variety of contexts – these can be crop specific or can also take on a landscape approach. Under the current project, in Mexico, the application is studying the coffee value chain and in Thailand, rice and its value chain. It can also take a landscape approach where in China, the TEEBAgriFood framework has been applied in the Tengchong province (southern China and Yunnan region) looking at the entire food production system and assessing policy interventions for transitioning towards sustainability. In Brazil, the framework has been applied to urban and peri-urban agricultural systems, highlighting the versatility of the framework in its application to urban settings.

### India application of the TEEBAgriFood Framework

- In India, the Project Steering Committee chaired by the MoAFW and MoEFCC guided the application of the TEEBAgriFood in assessing the impact of Indian policy interventions on organic farming and agroforestry in two states, namely Uttarakhand and Uttar Pradesh. These include the programmatic interventions Paramparagat Krishi Vikas Yojana (PKVY), Rashtriya Krishi Vikas Yojana (RKVY), Namami Gange and interventions under the National Agroforestry Policy.
- The scoping report has been developed by the implementing research partners based on wide stakeholder consultations and review of secondary literature. These activities have led to the prioritization of ecosystem services and elements of produced, social and human capital for assessment. Given the completion of the scoping exercise, the draft results from assessments are expected in February 2023, which will be presented at both the state and national level for further consultations.

### Objectives of the workshop

- Share the global, national and local context of agriculture and environmental policy to ensure policy relevance of TEEBAgriFood India
- Identify relevant requests for evidence of policymakers and identify opportunities for policy mainstreaming

- Update the TEEBAgriFood India stakeholders on progress of work in Uttarakhand and Uttar Pradesh and receive guidance
- Consider linkages to related projects and initiatives
- Update on progress of business applications of TEEBAgriFood and connections between public and private sector
- Discuss communications and opportunities for maximizing impact

### Session 3: High Level Opening Remarks

**Dr. Alka Bhargava, former Additional Secretary, Ministry of Agriculture and Farmers' Welfare** highlighted the important role of the TEEBAgriFood framework in transitioning towards a landscape approach for agricultural planning, stating the need for moving away from traditional siloed approaches and procedures towards a multi-sectoral approach in food systems planning. She provided the following insights on state and national policies and opportunities for alignment of evidence on organic farming and agroforestry with national policy objectives:

- There is a need to balance conservation and development, particularly in the context of a developing country. The methods of promoting HYVs and providing input subsidies for agrochemical use during the Green Revolution of India was important in addressing food and nutritional security, however over the recent decades the negative impacts of the trade-off between soil chemistry and soil ecology has become increasingly evident.
- Over the last decade, sustainability in agriculture has become a priority for the Indian government with several initiatives being led by the Ministry of Agriculture and Farmers Welfare (MoAFW) including the strengthening of inter-ministerial consultations and cooperation. The stage is well set because organic farming and agroforestry has increasingly become important to discussions on natural resource management in the country. The Government of India launched the guidelines for the National Mission on Natural Farming in August 2022. The application of the TEEBAgriFood framework on organic farming and agroforestry can lead to more judicious use of land and natural resources.
- Traditionally timber and NTFP-based industries have relied on forests for material that also carries the risk of unsustainable harvesting. Scaling agroforestry interventions will reduce pressures on forests for timber and NTFP and therefore boost conservation. This will also benefit farmers, particularly tribal populations in the vicinity of forest lands. Scaling up interventions on agroforestry is also important in preventing further land use change, reducing incursions into forest areas, which should now be demarcated as no go areas. Further, with crop diversification becoming a priority for the MoAFW, agroforestry models are important to reduce the risk of failure of crop diversification and is important to the development of climate resilient agriculture models.
- Organic farming has been assisted under two major schemes of the Government of India, PKVY and the Mission Organic Value Chain Development for the Northeast Region (MOVCDNER). These missions were launched in 2015 alongside the Soil Health Card scheme underlining the recognition made by the Government of India on maintaining the productivity of the land. The introduction of the schemes in 2015 is also aligned to the objectives of the

International Year of Soils (2015) which stressed upon the inextricable link between forests and agriculture and places emphasis on the importance of forest soils as an essential contributor to agriculture function and global food security.

- The key issues for transition towards sustainable agriculture are conservation of soil and water. There is a need to focus on water productivity because the agriculture sector is amongst the highest users of water. Use of surface water and groundwater needs to be addressed through the promotion of rain-fed and dryland crops.
- ICAR-IIFSR has developed Integrated Farming System (IFS) models that are important in the Indian context where a large percentage of farmers have small land holdings. Although emphasis has been placed on Doubling Farmers Income, there is a further need to translate the models on ground along with multiple cropping systems.
- A collaborative and multi-ministerial planning process is required for optimum resource utilization and improving social and economic returns. Convergence and synchronization of government bodies working at the local level is required for holistic planning, and in reducing the burden on farmers to obtain necessary permits, clearances and access to information.
- Over the recent years, the Government of India has identified a strategic role for biofuels to add to the energy basket which includes agriculture and forest residue resources. Towards supporting biofuel development, there is a need to look at the cultivation of oil seeds as a part of agroforestry systems where agricultural land is used for food value chains as well as for biofuels. Bamboo offers potential for scaling of bioethanol production as has been demonstrated at the Numaligarh Refinery in Assam, India. Further, for scaling agroforestry, plantation of softwood species needs to be explored in order to ensure quicker return for farmers.
- The TEEB assessments in Uttar Pradesh and Uttarakhand should also consider the potential of organic farming and agroforestry to boost agriculture tourism as an additional layer of income for local communities over and above the income generated through farming activities.
- TEEB assessments should also align with the concept of 'Lifestyle for Environment' (LiFE), championed by India at UNFCCC COP27 which is also the umbrella theme for India's G20 Presidency; LiFE is a global movement based on three principles: nudging behaviors towards responsible consumption (demand), enabling markets to respond swiftly to changing needs (supply), and influencing government and industrial policy to support these policy initiatives.

**Dr. O.P Sharma, Additional Commissioner (NRM), MoAFW** provided insights on the Indian government's interventions on agroforestry. In his remarks he mentioned:

- The Ministry of Agriculture and Farmers Welfare's primary intervention on agroforestry has been the Sub-mission on Agroforestry (SMAF) which has seen good results during its implementation. Peripheral and boundary plantations, low density plantation on farmlands, high density block plantations, capacity building and demonstration of agroforestry models have been promoted under SMAF.
- Based on the experience of previous years, the scheme is being restructured to include additional components such as facilitating market linkages for farmers, establishment of

processing units and revival of existing nurseries for quality planting materials and is under the process of financial approval. Agroforestry is also being implemented as a subcomponent of the Rainfed Area Development Programme (RADP) of the MoAFW.

- In addressing the linkages between agriculture and biodiversity conservation, agroecosystem analysis based plant health management will be useful to consider under the ongoing TEEBAgriFood project. This will provide valuable and much needed insight on plant protection, use of pesticides and its impact on health and agrobiodiversity.

**Mr. P.K. Jha, Inspector General (Forests), MoEFCC** recognized that the promotion of agroforestry can significantly contribute towards enhancing income for farmers and discussed the challenges of scaling agroforestry interventions in India. He brought forward the following points for consideration:

- Timber transit permit (TT) permit is required for nearly all species including commercially important species like Mango, Teak, Mahua (*Madhuca longifolia*) and Indian Rosewood (*Dalbergia sissoo*) and barring few species such as Poplar, Eucalyptus and the Rain Tree. The absence of wood-based industries due to regulations in certain states further impedes the scaling of agroforestry interventions. States such as Haryana and Punjab have the highest wood-based industries due to the absence of a TT permit system. The TEEBAgriFood evaluation on agroforestry should analyze the impact of the TT permit on the uptake of plantation of relevant species of trees in study areas.
- Establishment of a certification and standardization organization for responsibly sourced and sustainably managed timber, keeping in view the requirements for international export is essential. Moreover, there is a need to keep in mind that small farmers can grow few trees on their land; the certification mechanism would need to ensure that small farmers benefit from adopting agroforestry on their farmlands including carbon offset benefits. Evaluation of the benefits from carbon sequestration should be evaluated under the ongoing TEEBAgriFood assessment.
- The Ministry of Environment, Forest and Climate Change launched the National Transit Pass System (NTPS) in 2020 that will ease the inter-state and intra-state transportation of timber, bamboo and other forest produce from private lands, government and private depots. The rules for NTPS are expected to be passed by the government in the near future.

**Dr. S.N. Bhaskar, Additional Director General (Agronomy, Agroforestry & Climate Change), Indian Council of Agricultural Research** recognized the close nexus between the SDGs and brought to light that alleviating poverty and hunger are of prime importance to a country's needs. He highlighted that with India having implemented high-input chemical farming practices that provided the much-needed boost for food production during the Green Revolution in India, there has been a gradual shift towards increasing practices of sustainable agriculture – considerations have been made to improve nutritional, health, soil, water security among others. He presented the several interventions made by the Government of India:

- Sustainable agriculture came to the forefront with the National Mission on Sustainable Agriculture (NMSA) in 2010, as part of the National Action Plan for Climate Change (NAPCC).

Many missions have been launched under NMSA in promoting the transition to sustainable agriculture. Although organic production has been promoted for approximately two decades in the country, schemes such as the National Programme for Organic Production (NPOP) and the PKVY have increased the uptake of organic farming practices. The Government of India has also launched the National Mission on Natural Farming (NMNF) in 2022 and strengthened budget allocation for promoting natural farming under the National Mission on Clean Ganga (NMCG).

- The Indian Institute of Farming Systems Research is promoting organic farming through 20 centers, representing most agroecological zones in India. Technical backstopping is provided through ICAR-IIFSR on organic farming to state departments. Further, efforts have also been made to simplify and liberalize the certification process which has been an impediment to scaling organic farming in the country.
- Organic farming, integrated nutrient management and agroforestry schemes cannot be carried out in isolation; an integrated approach can greatly enhance the effectiveness of programmatic interventions.
- ICAR-IIFSR has developed 64 integrated farming system models of which 8 farming systems do not use chemical inputs. Pilots have shown that the Integrated Organic Farming System (IOFS) models have the potential to double farmer's income by at least twice the amount and over 85% of the raw materials can be recycled on the farm with a sustainability index value of 0.75. 31 IFS models implemented in various agroecological zones have been found to be carbon neutral. These models have are also being assessed by the National Bank for Agriculture and Rural Development (NABARD) to study their bankability.
- Given that India is a country with diverse agroecological zones that are also found across the globe, TEEBAgriFood assessments across 20 centers of ICAR-IIFSR across the country could greatly benefit in providing a comprehensive picture on the socioeconomic benefits of organic farming and in raising the profile of natural capital and the external impacts of various actions that are often forgotten.
- The National Mission on Natural Farming (NMNF) and interventions on crop diversification are potential policy interventions that can also be considered for evaluation using the TEEBAgriFood framework, especially in helping remove mental barriers on the effectiveness of natural farming methods. A 30-member High Level National Committee has been formed to steer NMNF.

**Mr. Anurag Yadav, Secretary (Agriculture), Uttar Pradesh** drew attention towards the interventions made by the state government of Uttar Pradesh on organic farming and further explained the challenges of scaling organic and natural farming in the state. He highlighted the following:

- Given the growing realization from across the value chain, from farmers to policymakers, interventions have been made to promote sustainable practices by the state government. Key interventions have been made with regards to water and energy efficiency and the promotion of biofertilizers.

- Behavior change is critical for the uptake of organic and natural farming practices, especially since practices of high input, chemical-intensive agriculture has been prevalent for several decades. The Government of Uttar Pradesh has put in place a support system for promotion of sustainable agriculture practices among farmers where capacity building measures are being implemented and required infrastructure is being provided.
- With the Ganga River being the most important river for the state and the country, a key objective has been the promotion of natural and organic farming through a landscape approach on both banks of the river. In 2022, the state government has approved the promotion of natural farming in a large area of the state through a cluster based approach. Further cluster based approach has also been adopted under the PKVY scheme to promote organic farming.
- Through the support of technical partners additional emphasis has been placed on the preparation of inputs for organic farming and disseminated through demonstrations by Krishi Vigyan Kendras (KVKs) and agriculture universities. Adoption of organic and natural farming practices can further be enhanced as they become an essential part of the academic curriculum in agricultural universities and colleges.
- The lack of processing, post-harvest and marketing infrastructure for organic produce has been amongst the greatest barriers to scaling organic and natural farming in the state. The Government of Uttar Pradesh has therefore placed emphasis on creating infrastructure support such as creating spaces for marketing organic produce and also facilitated branding and certification processes.
- An effort to establish a multi-sectoral and collaborative approach is being made by the Government of Uttar Pradesh in agricultural planning. Under the Agriculture Production Commissioner, all concerned departments including agriculture, horticulture, agriculture marketing, irrigation, minor irrigation, power etc. have been set up as a formalized structure for holistic planning.
- Although a large consumer base exists for organic produce with surveys continuously indicating a preference for organic produce, affordability remains a barrier. Further scaling organic production will also need to address farmer and consumer confidence at the local and state level on the quality of organic inputs and organically produced foods.

**Vinay Kumar, Chairman, Uttarakhand Organic Commodities Board (UOCB)** presented the interventions made by the Uttarakhand state government to promote organic farming. He highlighted the following:

- Government of Uttarakhand is a pioneer in the promotion of organic farming as the first state to set up an organic board and a certification agency in India. The UOCB supports farmers in three areas, namely in providing dedicated training on organic farming, certification and in marketing of organic produce. On-farm and residential training are provided to farmers besides facilitating certification of farmers under third-party certification and the Participatory Guarantee System (PGS) scheme. UOCB further creates market linkages for farmers including through buyer-seller meets organized by the board. UOCB supports the implementation of government schemes including RKVY, PKVY and Namami Gange.

- Uttarakhand has seen a substantial increase in the adoption of organic farming over the last five years – in 2015, the 2.3% of the net sown area was under organic cultivation which has risen to 34% (215,483 ha) in 2021. 465,350 farmers, 7027 PGS cluster and 381 NPOP Producer Groups are registered in the state.
- The PGS certification programme is applicable for local and domestic markets and cannot be exported to other countries, thereby impacting organic farmers from receiving a price premium. Facilitating export of PGS certified organic commodities can significantly boost organic production.
- The third-party organic certification system under NPOP has a 3 year gestation period after which renewal of the certification is required every year, proving to be expensive for individual farmers. Group certification for Farmer Producer Organizations (FPO) and cooperatives can reduce the costs of third-party certification.
- To promote the marketing of organic commodities, the UOCB supports farmers with branding and packaging, through the organization of farmer markets, radio messaging and media channels. The Uttarakhand government has also established selling points for organic commodities in important tourist locations. GI tags have been registered to enhance reputation of Uttarakhand organic produce with 11 new GI tags being registered in the past 6 months.
- UOCB facilitates a multi-sectoral approach to organic farming where the PKVY scheme is implemented through coordination between the agriculture, horticulture, sericulture and the forest departments.

**Mr. Franklin L. Khobung, Joint Secretary, MoAFW** highlighted that the country is at a crossroads where increase in agricultural production needs to take into consideration the mitigation of its negative impacts including climate change, soil degradation and declining soil health, water stress amongst other environmental impacts. In his remarks, he stated:

- The National Mission on Sustainable Agriculture is the overarching mission for the management of natural resources and directs policy on sustainable practices in agriculture in organic and natural farming, rain-fed area development, the National Bamboo Mission and micro-irrigation schemes.
- The value of ecosystem services and biodiversity have largely been overlooked and the success the TEEBAgriFood evaluation and demonstration of organic farming practices will in part be reflective of the extent to which stakeholders are convinced on the adoption of sustainable practices.
- Given that India is a very diverse country geographical, socio-politically and represents a large number of agro-ecological regions, there is potential to expand the scope of the assessments beyond the current study areas to provide a comprehensive outlook.

## Session 4: Presentation of Scoping Reports of TEEBAgriFood application in Uttar Pradesh and Uttarakhand

The scoping reports for the TEEBAgriFood evaluations in Uttar Pradesh and Uttarakhand were presented by research partners, ICAR-IIFSR and GBPUAT.

**Dr. N. Ravishankar, Principal Scientist, ICAR-IIFSR and Dr. Meraj Alam Ansari, Senior Scientist, Agronomy** presented the scoping report for Uttar Pradesh and highlighted the following points:

- **Policy Overview:** As per the guidance of the Project Steering Committee, co-chaired by the MoAFW and the MoEFCC, the TEEBAgriFood evaluation in Uttar Pradesh focuses on policy interventions on organic farming and agroforestry. These include operational national policies/schemes including NPOP, PKVY, National Mission on Clean Ganga (NMCG) and the National Agroforestry Policy.
- **Study Area:** The Indo-Gangetic Plains (IGP) region (Uttar Pradesh) was selected for the study as the region is highly fertile but losing its vitality, resources and productivity under the extensive/intensive use of chemical fertilizer based agricultural practices and climate change impact. Five districts were shortlisted for scenarios of upscaling organic farming and agroforestry, including Bulandshahr, Aligarh, Mirzapur, Hamirpur, and Meerut based on variations in agroclimatic zones, existing primary and secondary cropping systems, land use change and demographic factors.
- **Relevance of the study area:** Uttar Pradesh is the most populous and 4<sup>th</sup> largest state in the country with a population of 199.8 million (census, 2011), accounting for ~16.5% of the total population of India. The state covers a geographical area 240,928 km<sup>2</sup> and shares 7.33% of the total geographical area of the country. The economy of Uttar Pradesh is the 3<sup>rd</sup> largest among the states in India. Uttar Pradesh is also a major contributor to the national food grain stock. State produced 56 million tonnes of food grain in 2020, i.e., ~20% of the country's total production of the country.
- **Objectives of the study:** The proposed study aims at examining the positive and negative impacts of a transition to organic farming and agroforestry on natural, human, social, produced capital, as often these economically invisible impacts are unaccounted for in decision-making. Specifically the study will aim to:
  - Inform policy on the long-term impact on ecosystem services and various elements of produced, human and social capital
  - Inform policy, institutional and governance solutions that take a food systems approach, promoting coherence across different policy areas (e.g., agriculture, trade, food).
  - Support spatial planning of agricultural production to maximize ecosystem services
  - Evaluate the economic case for scaling organic farming and agroforestry
  - Inform sustainable food production policy interventions, such as policies related to pollution, pesticide and fertiliser use, sustainable value chains, market linkages and certification.

- **Scenarios for Uttar Pradesh:** The three policy scenarios to be modelled in five districts of Uttar Pradesh in combination with RCP4.5 and RCP8.5 climate scenarios are as under:

Business-as-Usual (BAU) Scenario	Pessimistic Scenario	Optimistic Scenario
<ul style="list-style-type: none"> <li>• Builds on existing policies and initiatives (as of 2021) and Government of India’s Vision Document for Organic Agriculture</li> <li>• <b>Organic Agriculture:</b> 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</li> <li>• <b>Agroforestry:</b> 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)</li> </ul>	<ul style="list-style-type: none"> <li>• Assumes the emergence of unforeseen factors that may possess a threat to current goals and hamper the modernization and green transformation of Uttar Pradesh</li> <li>• <b>Organic Agriculture:</b> 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</li> <li>• <b>Agroforestry:</b> Area under agroforestry decreases to 1% of the total cropped area due to increasing land use change, especially contributed by growing urbanization</li> </ul>	<ul style="list-style-type: none"> <li>• Assumes progress in agricultural modernization by organic policies and initiatives implemented under India’s Vision Document for Organic Agriculture</li> <li>• <b>Organic Agriculture:</b> 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</li> <li>• <b>Agroforestry:</b> 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)</li> </ul>

- **Elements of four capitals to be evaluated and methodologies applied:** 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. 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 will be assessed using several econometric tools including the Sustainable Livelihood Security Index (SLSI).
- **Recommendations from state-level stakeholder consultation workshop:** State stakeholder consultations were held in on 20th September 2022 at Modipuram with wide participation including national and state government officials, scientists, health professionals, education institutions, progressive farmers, representatives of FPOs, NGOs and media. The key recommendations on the scoping report that emerged out of state-level consultations and have been taken into consideration include:
  - Need to consider horticulture produce in Uttar Pradesh both because of the substantial increase in horticulture production using organic practices and the higher amount of pesticide residue found in fruits and vegetables.
  - Investigation of human health aspects, particularly the risk of cancer in relation to chemical pesticide use in the state of Uttar Pradesh

- The burden of transition to sustainable agriculture practices should not fall on the farmer, especially as there is a substantial decrease in crop yield. Appropriate policy interventions are needed by the government through the transition phase including extending carbon credit benefits in lieu of adoption of organic farming practices.
- Need to raise awareness of the interlinkages between the impacts of chemical input agriculture and the impact on ecosystem services amongst students and include it as a part of school and college curricula.

**Dr. Anil Sharma, Director, Extension Services, GBPUAT** presented the scoping report for Uttarakhand and highlighted the following points:

- **Policy Overview:** TEEBAgriFood evaluation in Uttarakhand focuses on policy interventions on organic farming and agroforestry that include operational national policies/schemes including NPOP, PKVY, RKVY and National Mission on Clean Ganga (NMCG) and the National Agroforestry Policy.
- **Study Area:** The districts of Nainital and Udham Singh Nagar have been identified for the TEEBAgriFood evaluation, covering a combination of sites that include both plain and hilly areas. Given the vast altitudinal range in the state, from 187 masl to 7000 masl the districts covered under the study captures variation in the agroecological zones and demographic factors. For biophysical modelling and scenario analysis the Kosi and Kailash watersheds have been finalized.
- **Relevance of the study area:** The state of Uttarakhand is spread across a total area of 53,484 km<sup>2</sup>. Geographically it covers 15.5 percent of the Western Himalayas and 1.63 percent of the total area of India with a population of 8.5 million people. Out of the total area of Uttarakhand, 86 percent falls under hilly terrain and 14 percent is under the plain region. Due to the significant variation in terrain, the state is amongst the most biodiverse states in the country. With respect to agrobiodiversity the state is home to many crop species and major commercial food crops including 6 cereals, 5 pseudocereals, 6 types of millets, 16 types of pulses, and 4 oilseeds among others. Other popular crops include about 170 varieties of kidney beans, 100 varieties of paddy, eight varieties of wheat, four varieties of barley, and a dozen varieties of pulses and oilseeds that are cultivated through traditional and mixed farming practices. Although Uttarakhand is primarily an agricultural state, over the recent years the agriculture sector shows decline due to changes in climatic factors and high rural-urban migration.
- **Types of studies under the TEEBAgriFood project in Uttarakhand:** Two types of studies were finalized for Uttarakhand, a field assessment using data from demonstration plots 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. Field assessments will aid in capturing data gaps for TEEBAgriFood assessments and also works towards demonstration of organic farming package of practices (PoP) developed by GBPUAT for small farmers in Uttarakhand.
- **Objectives of the scenario analysis under the TEEBAgriFood framework** are consistent with those for Uttar Pradesh

- **Objectives of field assessments and demonstration plots:** The aim of the demonstration plots is to complement the scenario 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 and further demonstrate and build confidence of small farmers on organic farming.
- **Scenarios for Uttarakhand:** Six policy scenarios (three for hill region and three for plain region) will be modelled in the study area in combination with RCP4.5 and RCP8.5 climate scenarios are as under:

*Scenarios for the Hill Region of Uttarakhand:*

Business-as-Usual (BAU) Scenario	Pessimistic Scenario	Optimistic Scenario
<ul style="list-style-type: none"> <li>• Builds on existing policies and initiatives (as of 2021) and SDGs implemented by the Uttarakhand Vision 2030</li> <li>• <b>Organic Agriculture:</b> Organic farming increases from the current 36% of total cultivated area to 65% of the total cultivated area as per the scaling potential</li> <li>• <b>Agroforestry:</b> Area under agroforestry continues to be maintained at 12% of the cropped area in the study area</li> </ul>	<ul style="list-style-type: none"> <li>• Assumes the emergence of unforeseen factors that may possess a threat to current goals and hamper the modernization and green transformation of Uttarakhand</li> <li>• <b>Organic Agriculture:</b> Organic farming continues to cover 36% of the total cultivated area due to low yields and weak post-harvest processing infrastructure</li> <li>• <b>Agroforestry:</b> Area under agroforestry reduces to 6% of the cropped area in the study area due to growing urbanization and commercialization</li> </ul>	<ul style="list-style-type: none"> <li>• Assumes progress in agricultural modernization by organic policies and initiatives implemented under UK Vision 2030</li> <li>• <b>Organic Agriculture:</b> 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</li> <li>• <b>Agroforestry:</b> Area under agroforestry grows at 3.5% per annum as per growth trends for agroforestry in the study area</li> </ul>

*Scenarios for the Plain Region of Uttarakhand*

Business-as-Usual (BAU) Scenario	Pessimistic Scenario	Optimistic Scenario
<ul style="list-style-type: none"> <li>• Builds on existing policies and initiatives (as of 2021) and SDGs implemented by the Uttarakhand Vision 2030</li> <li>• <b>Organic Agriculture:</b> Organic farming increases to cover 38% of the state’s total cultivated area (250,000 ha out of 647788 ha)</li> <li>• <b>Agroforestry:</b> Area under agroforestry continues to be maintained at 12% of the cropped area in the study area</li> </ul>	<ul style="list-style-type: none"> <li>• Assumes the emergence of unforeseen factors that may possess a threat to current goals and hamper the modernization and green transformation of Uttarakhand</li> <li>• <b>Organic Agriculture:</b> Organic farming continues to cover 4% of the total cultivated area (current status)</li> <li>• <b>Agroforestry:</b> Area under agroforestry reduces to 6% of the cropped area in the study area due to increasing urbanization and land-use change</li> </ul>	<ul style="list-style-type: none"> <li>• Assumes progress in agricultural modernization by organic policies and initiatives implemented under UK Vision 2030</li> <li>• <b>Organic Agriculture:</b> Organic farming increases to cover 75% of the total cultivated area based on the scaling potential in the study area</li> <li>• <b>Agroforestry:</b> Area under agroforestry grows at 3.5% per annum as per growth trends for agroforestry in the study area</li> </ul>

- **Elements of four capitals to be evaluated and methodologies applied:** Ecosystem services in the Kosi and Kailash watersheds (Nainital and Udham Singh Nagar districts) 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.

- **Recommendations from state stakeholder consultations and review:** State-level stakeholder consultations were held on the 27<sup>th</sup> of September, 2022 with wide participation of state and national actors. The key recommendations provided during state level consultations and considered in the evaluation include:
  - Need to assess the quality and timely provision of organic inputs including seeds, biopesticides and biofertilizers and its impacts on the uptake of organic farming practices
  - Assessment of the increase in pests and diseases on crops and the need to strengthen plant health management in the state given the increasingly evident impacts of climate change
  - Livestock population in Uttarakhand is on a decline because of the lack of fodder development. Promotion of forage crops will play importantly in the availability of inputs for organic farming practices and contribute towards reducing soil erosion, particularly given the hilly terrain of the state.
  - Migration from the hill areas of Uttarakhand is a concerning issue with significant increase in the number of ghost villages. This is predominantly driven by the lack of livelihood opportunities. The promotion of organic farming in creating opportunities for rural communities and reducing rural-urban migration rates needs to be assessed under the project.
  - Surveys carried out by the state health department shows a high proportion of non-communicable diseases in Uttarakhand, responsible for almost 56 percent of the total disease burden in the state. Implication of the scaling of organic farming and agroforestry in Uttarakhand was recommended as a study.
  - International Year of Millets 2023 (IYM) provides an opportunity for promotion of millets as a major component of the food basket. The TEEBAgriFood project can provide useful inputs for the promotion of millets and the sub-mission on National Food Security.

## Session 5: Discussion on Scoping Reports

Discussions on the scoping reports were moderated by **Dr. Divya Datt, Programme Management Officer, UNEP** and **Mr. William Speller, Programme Manager, UNEP-TEEB**. The following questions were placed before participants at the meet for the open discussion:

- What are the key **linkages to state, national, and international policy** from the proposed scope? How can the analytical findings feed into policy discussions?
- What **barriers exist to the uptake of organic and agroforestry** and how can policy alleviate those?
- Does the scoping proposed cover the right **dimensions of natural, social, human and produced capital**?
- Do the **scenarios for expansion of organic and agroforestry** seem plausible and ambitious? What are the major **push and pull factors** that will influence such expansion?
- Are the **methodologies** adopted for the **valuation of the capitals** appropriate in the context?

### Discussion Points:

- In reflecting on the linkages of the TEEBAgriFood project to international policy, **Dr. Michael Bucki** briefed the meet of:
  - The Free Trade Agreement under negotiation between the European Union and India, highlighting that it would be of interest to both EU and India to examine the provisions that can be supportive of actions on trade and sustainable development.
  - Fairtrade products, an arrangement designed to assist producers in developing countries achieve sustainable and equitable trade relationships occupies a relatively small slice in India
  - Linkages between the TEEBAgriFood assessment and the Farm to Fork policy which considers the entire value chain between quality production to the use and consumption can be made.
  - Competition between different organic development schemes in demonstrating the authenticity of organic produce can prove harmful by impacting consumer trust in organic commodities as has been observed in EU countries. As such, he reasoned that organic production in India could also be impacted by harmful competition between schemes. Strengthening cooperation on technology transfer such as the establishment of a robust testing facilities network and technology to increase traceability of supply chains can help avoid harmful competition.
- **Dr. O.P Sharma, MoAFW** highlighted that a primary barrier to the uptake of agroforestry practices in Uttarakhand is the strict enforcement of tree felling and transit regulations. Without reforms to tree felling and transit regulations in Uttarakhand, agroforestry interventions will be impacted.
- **Dr. Alka Bhargava** highlighted the potential of bamboo cultivation and the highly developed bamboo industry in India in linking with the EU-India Free Trade Agreement. She also

mentioned the need to assess the linkages to voluntary carbon markets as either a part of the study in Uttarakhand or Uttar Pradesh.

- **Dr. Madhu Verma, Chief Economist, World Resources Institute-India (WRI-India)** highlighted the WRI-India work on Doubling Farmers Income which has applied the TEEB calculus of valuation to varied geographies and documentation of influential interventions across the country. Drawing from the study she highlighted the following:
  - Although policies are designed to prove successful, weak institutions such as extension services in agriculture can make policies fail. She mentioned that the study shows a lack of knowledge with extension centres for the promotion of organic and integrated farming systems.
  - The need for convergence of multiple schemes and the adoption of an integrated approach that includes agriculture, horticulture, livestock, fisheries, piggeries among others.
  - Although the state of Sikkim was declared as the first organic state in the country, lengthy certification processes and the lack of a price premium are proving to be disincentives. This is compounded by the price advantage of non-organic options available in bordering states. Reorganization of the incentive system and the restructuring of markets and institutions is necessary to boost organic production.
  - In addressing the coverage of the dimensions of capitals in the scoping reports, she pointed out the need to assess the various elements of produced capital including machines, buildings, road infrastructure, and water systems. She also highlighted that for the assessment of crop production there is a need to incorporate agriculture cost and purchased inputs and assess residuals (waste water, greenhouse gases etc.)
  
- **Dr. Gitika Goswami, Associate Vice President and Lead (Policy Research & Planning), Development Alternatives** briefed the meet on:
  - The certification scheme for agroforestry commodities developed by the Network for Certification and Conservation of Forests (NCCF) which includes certification for Trees Outside Forests.
  - Indicated the need to incentivize organic farming practices for compensating loss of yield during the transitional phase as delineated in the NbS guidelines.
  - In addressing the coverage of the dimensions of capitals in the scoping reports, she pointed out the need to assess the local community institutions in Uttar Pradesh and Uttarakhand that lend support to organic farming and agroforestry.
  
- **Dr. Seema Bhatt, National Biodiversity Expert, FAO** placed emphasis on the need to focus on interventions for conserving and restoring agrobiodiversity. She mentioned that:
  - Policy support for organic farming would need to also consider transition from monocropping to multiple cropping systems if agrobiodiversity is to be conserved.
  - Community and social forestry models need to be revisited as agroforestry interventions being promoted are predominantly monoculture block plantations.

- A primary barrier for the scaling of organic is that it has remained a niche market
- Studies from Punjab can prove useful for linking the impacts of chemical agriculture with cancer. In particular, the research showed that establishing a direct causal link was extremely difficult, and this research should be considered before replicating this in the other states.
- **Mr. Santosh Gupta, Director, Ecociate** highlighted the promotion of natural farming can act as a deterrent for the adoption of organic farming. He also placed importance on the role of FPOs in scaling organic farming. In his remarks, he mentioned:
  - Observation of the discontinuing support to farmers for PGS certification and the promotion of natural farming among farmers in the states of Madhya Pradesh and Karnataka instead. There is a need to assess how both natural farming and organic farming practices can be promoted together.
  - The observed increase in the uptake of sustainable agriculture practices by large FPOs representing 10,000 farmers such as the Samaj Pragati Sahyog. He suggested that the role of community-based organizations (CBOs) should be considered in the TEEBAgriFood assessments
  - There is a need to develop self-sustaining models for organic farming, without which changes will only take place at the margins.
- **Dr. N. Ravishankar, ICAR-IIFSR** addressed barriers to the adoption of organic farming and agroforestry practices, highlighting the following:
  - A policy disincentive for the adoption of organic farming is the subsidies available to conventional farmers on pesticide-based management practices where ₹9400 per hectare is received by the farmer. No provision for subsidies on pesticide-based management practices are available to organic farmers thereby acting as a deterrent for organic expansion. Incentivizing sustainable Integrated Pest Management (IPM) practices can provide a boost to organic production.
  - A major barrier to scaling organic farming is the availability of quality input material, both for nutrient management and pest and disease management. Although several options are available to farmers, quality with regards to the recommended level of nutrient in biofertilizer and active ingredient in biopesticides cannot be ascertained in the market.
  - A national committee set up in 2015 on organic farming recommended the Payment for Ecosystem Services (PES) of ₹4000 per hectare for increase in soil organic carbon by .1%; implementation of the recommendation can provide a push to the uptake of organic farming.
  - A ICAR scientific committee set up to assess the Sikkim Organic Mission found that although certification and price premium have been disincentives for organic production, the implementation of the organic mission has importantly contributed to crop diversification in the state which has importantly resulted in the conservation of natural resources. The assessment also found that area under rice and cereal crop

cultivation has decreased with area under high-value horticulture crops seeing significant increase. Productivity of crops that have been continued using organic farming methods has also improved in the state while a reduction in pests and diseases was also observed. Further, the assessment found that deficiencies in quality of inputs (organic fertilizers and biopesticides) promoted by the state has been an issue.

- With respect to agroforestry in western Uttar Pradesh (Meerut, Saharanpur districts) where sugarcane based is predominant, farmers have adopted poplar-based bund plantations; however, poplar trees act as hosts for pests that infest sugarcane. There is a need to maintain complementarity and develop technologies while promoting poplar-based plantations in Uttar Pradesh
- **Dr. Anil Sharma, GBPUAT** also addressed additional barriers to the uptake of organic farming. These include:
  - Limited regulatory measures for maintaining the quality of biofertilizers and the lack of regulatory measures for maintaining the quality of biopesticides.
  - Insufficient cold chain infrastructure results in the degradation of the quality of organic inputs during transport.
  - Agroforestry interventions need to move beyond the plantation of poplar and eucalyptus species and also explore options of species that can prove more effective for conservation of natural resources including water consumption and carbon sequestration. For instance, research at GBPUAT has shown that the Laurel tree (*Terminalia alata*) found in Uttarakhand has the capacity to convert atmospheric carbon into inorganic forms of carbon.
- **Mr. Sarang Vaidya, Cofounder, Go4Fresh** addressed the challenges in the uptake of organic farming and also upheld the argument that policy orientation on organic farming should take into consideration the conservation of agrobiodiversity. He explained that:
  - Multiple norms and standards being introduced on sustainable agriculture practices have the tendency to create confusion at the farm level thereby taking away from the intended objectives of various schemes launched.
  - In moving towards sustainable agriculture practices there is a need to mimic natural ecosystems and policy reorientation towards promoting multi-cropping practices.
- **Ms. Chhaya Bhandi, Founder, Vetiver** highlighted the important role of behavior change on sustainable agriculture. Through Vetiver's experience on working at the field level she brought forward the following points:
  - Cost benefit of organic or natural farming is still poorly understood by various stakeholders including farmers. As such, even though there is a reduction in input costs with the adoption of organic farming and natural farming practices, the farmer still expects a price premium of organically produced crops. The TEEBAgriFood assessments should prioritize documenting the costs and benefits across the value

chain including at the farm-level such that farmers are able to realize their expenditures and savings. This is critical information required to scaling regenerative farming practices.

- Need for convergence on guidelines and package of practices for agroforestry and organic farming, whether these be from the government, NGOs and development agencies in boosting impact of interventions.
- **Ms. Martine van Weelden, Director, Capitals Coalition** highlighted the gender imbalances presented by Uttarakhand places emphasis on the need to assess gender issues and its linkages with the uptake of organic and agroforestry practices. Multiple studies have shown that women adopt practices sooner.
- **Mr. Rijit Sengupta, CEO, Centre for Responsible Business** discussed the push and pull factors to that will influence expansion of organic and agroforestry from a market perspective. The following points were brought forward:
  - From the demand side there is need to create the value proposition for consumers and a pull in the market. Consumers cannot be perceived as a monolith and there is a need to recognize the spectrum of consumers that are willing to pay for various goods and services. The problem is that the intent and the action gap is large.
  - The analysis should also place emphasis on analyzing the consumption of organic goods as current discussions and the scoping report focus heavily on production.
  - Proliferation of standards and the need to move away from the notion of 'voluntary versus mandatory' standards to a notion where voluntary and mandatory standards can coexist for organic production and there is greater mutual respect and trust among standards.
- **Dr. Bhaskar Mitra, Associate Director, Tata Cornell Institute**, reflected on why organic farming and agroforestry have not been scaled up over the last 30-40 years. He provided a background that the Green Revolution and the subsequent economic liberalization moved India in a certain direction where few states went far ahead in development paradigms while other regions lagged behind. With regards to this context, he explained that:
  - Use of fertilizers and pesticides have also grown in sync with agriculture growth in the states of Punjab, Uttar Pradesh and Haryana while fertilizer and pesticides use in states like West Bengal, Bihar and Jharkhand have been far lower. He conveyed the point that the choice of geography is a major factor in distinguishing the strategies required for organic development in different regions. For instance, if Uttarakhand is already organic, there is a need to adopt a strategy where the state is incentivized to operate in the organic paradigm, whereas the strategy would differ for Uttar Pradesh.
  - Behavioral aspects of the farmer needs to be well understood in designing interventions on organic farming and agroforestry. Understanding the multiple connected factors to why a farmer chooses or rejects the adoption of organic farming, such as the use of pesticides, the prevalence of pest and diseases, market pull factors

play importantly in decision making at the farm level. In terms of agroforestry, he highlighted issues from the social forestry interventions in the 1970s where the barrier to plantation of teak and sissoo, although remunerative crops was the fear that the forest department would take over the land.

- Political context in which organic farming and agroforestry interventions take place should be considered along with ecology and economics.
- Policies on Minimum Support Price (MSP) and free energy should be considered as a part of the study on produced capital, particularly looking at those areas where rice is the predominant crop.

## Session 6: Business Engagement under the TEEBAgriFood project in India

**Ms. Martine van Weelden, Director, Capitals Coalition** opened the session on business engagement under the TEEBAgriFood project in India. She explained that in India, Capitals Coalition is partnering with the Centre for Responsible Business to train businesses on the application of the TEEB framework and in conducting pilots to demonstrate how its application can prove useful for decision-making. In her presentation she highlighted the following points:

- Capitals Coalition is a global collaboration that transforms the way decisions are being made by including the value of people provided by people and nature into decision making. The aim of the Capitals Coalition is that by 2030, the majority of businesses, financial institutions and government will include the value of all capitals in their decision making in delivering a fairer, just, and more sustainable world.
- Established in 2012 as the TEEB for Business Coalition, Capitals Coalition evolved in the Natural Capital Coalition with the development of the natural capital protocol that helps businesses assess their impacts and dependencies on natural capital. Following this, Capitals Coalition also drafted the social and human capital protocol. As such in 2020, the coalition was established with its current name. As a part of the EUPI TEEBAgriFood project, Capitals Coalition has drafted the TEEBAgriFood guidelines for business, particularly targeting the agricultural sector.
- Capitals Coalition has been working on the standardization and convergence of methodologies under an overarching framework that allows businesses to assess, commit, transform and disclose their impacts on the capitals. In building momentum on this initiative among businesses, Capitals Coalition has developed a campaign to make the capitals assessment mandatory, which will also be taken forward at CBD COP15 in Montreal, Canada.
- Public-private sector engagement workshops on the TEEBAgriFood operational guidelines have been conducted in seven countries including Brazil, China, India, Indonesia, Malaysia, Mexico and Thailand. Operational guidelines have been supplemented by simple user templates to build confidence in businesses to conduct an assessment themselves. Capitals Coalition has been working with both larger and small businesses. A business case study from India that was presented was of Arvind Limited and the upstream natural and human capital impacts associated with Better Cotton Initiative (BCI) principles. The self-assessment carried out by Arvind Limited found a 49% reduction on the damage to human health and ecosystem

quality with the adoption of BCI principles as compared to conventional practices, thereby helping the company to realize the business benefits, and further making the case to expand sustainable sourcing and extend studies to other cotton portfolios.

- Capitals Coalition has partnered with the Centre for Responsible Business (CRB) to launch the India Capitals Hub, which will building momentum on the existing work and act as a center to curate knowledge and assist businesses and policymakers to implement assessments of the capitals.

**Mr. Sarang Vaidya, Cofounder, Go4Fresh**, amongst the several businesses that Capitals Coalition has engaged with presented their work on organic farming and the application of the TEEBAgriFood guidelines as a part of the ESG reporting. He highlighted the following points:

- Fresh fruits and vegetables is a major industry in India with a market value of \$30 billion. It is also one of the fastest growing markets in comparison to other products. However, being highly fragmented and unorganized with a lack of access to market and finance for farmers, Go4Fresh found that technological interventions can be an important solution in the uptake of organic farming in India.
- Go4Fresh provides end to end post-harvest supply chain digital interventions, primarily through connecting stakeholders, from farmers, FPOs and CBOs, to transporters and consumers for organic products. Various modules are offered by Go4Fresh on their platform, including tools for farmers for crop planning, updates on harvest status, and post-harvest linkage to transporters and buyers. The platform provides a solution for organic supply chain management including traceability of the produce and can therefore integrate carbon credit benefits in the future.
- A key area on work for Go4Fresh is making organic production affordable for both farmers and consumers, keeping in mind the dynamic nature of demand. The company has been working with large retailers, kitchens including cloud kitchens and have now initiated development of solutions for supply chain support for small retailers and kitchens with an aim to provide comprehensive solutions for the organic network.
- Go4Fresh internally developed 8-point ESG metrics to support decision making, taking into account socially responsible actions and assessments of water, waste, capital, energy, chemicals, labor, transport and packaging. In strengthening the ESG metrics, Go4Fresh has benefited from the collaboration with Capitals Coalition and CRB in informing the metrics and applying the template developed for business under the TEEBAgriFood project. The template provides flexibility in integrating various prevailing standards on organic farming.
- Pilots applying the template with NPOP farmers in Pune, Maharashtra on food loss/food waste has shown a reduction in above 10% in food loss and waste by moving to sustainable agriculture practices. Furthermore, an assessment on livelihood and income enhancement has also resulted in disclosing a cost reduction by approximately 19%, higher market realization by 7.5% and reduction in production costs by 14.4%.
- Communication of the resultant outputs from the assessments to direct stakeholders including farmers, CBOs, FPOs and buyers and indirect stakeholders including policymakers,

development agencies and finance institutions is essential for furthering the integration of such assessments into decision-making.

**Mr. Santosh Gupta, Director, Ecociate** presented the business case developed in collaboration with the Apollo Tires Foundation in Baroda, Gujarat using the TEEBAgriFood business guidelines. He presented the following points:

- There are a large number of FPOs which have adopted sustainable agriculture however do not possess the required reporting framework which does not allow them to showcase the impact created by their interventions.
- The case study was carried out with Apollo Tires Foundation where the sustainable agriculture interventions of a FPO with 2000 small and marginal women farmers spread over 20 villages in Gujarat was assessed. The application of the TEEBAgriFood guidelines was identified keeping in mind that although women farmers play an important part in agricultural work in India, trainings on organic practices are largely imparted to men thereby impacting the translation of activities on ground.
- Ecociate supported the FPO in developing market linkages, accessing finance, providing knowledge on the adoption of organic farming production practices, creating a value proposition for their products. The study assessed three scenarios, namely the persistence of chemical-based agriculture as the BAU scenario, the opportunity scenario as the transition to organic farming with supporting incentives and policy and the risk scenario as the transition to organic farming with a lack of policy support. The elements assessed improvement in soil health, water yield, gender empowerment, income enhancement, access to markets for the FPO among others.
- Few results from the assessment indicate that the adoption of sustainable agriculture practices by the FPO contributed towards the reduction of 30% in the cost of cultivation, a steady supply chain for organic produce and the receipt of 20-30% premium on produced crops.
- Challenges and opportunities that the private sector has in applying the TEEBAgriFood business guidelines include:
  - Lack of technical skills among members of FPOs or businesses to conduct impact measurements.
  - Lack of adequate data generation to arrive at valuation studies. For instance while baseline data may be present, the quantity of fertilizer reduced is not captured by farmers
  - The need to create buy-in within businesses and FPOs to adopt such guidelines
  - Multiple prevailing standards and frameworks
  - Remedial steps after measurement and valuation remains unclear to the FPO or business
- Government trainings and interventions need to be customized trainings for FPOs depending on where an FPO is in their growth stage.

**Mr. Rijit Sengupta, CEO, Centre for Responsible Business** concluded the session on the private sector engagement under the TEEBAgriFood project in India. He mentioned that CRB works on six thematic areas including private sector's contribution to sustainable landscapes, biodiversity and climate change. Among several activities, CRB is working on integrating the 'capitals approach' in business decision-making with an aim to improve the capacities of business of different sizes to incorporate nature and people related risks and opportunities into their strategies and actions. The following points were presented and discussed:

- Over the last decade, the matter of responsible sourcing and responsible business practices have become more prominent with the introduction of the National Voluntary Guidelines and the National Guidelines of Responsible Business Conduct (NGRBC), however the issue has remained on how businesses take steps to address the concerns.
- There is a need to shift from a binary notion of sustainability, recognizing that businesses and organizations are at different stages of the journey towards sustainable practices. As such, there is a need to create an enabling ecosystem, supporting the intent of businesses or organizations to move towards sustainable practices; as such, businesses and organizations require different inputs at different stages of the journey.
- A combination of risk mitigation + value creation can help involve a wider community of businesses in biodiversity protection, restoration and regeneration. Highlighting that sustainable agriculture practices that promote biodiversity conservation creates positive impacts for communities and livelihoods is a key message to create value.
- The top 1000 listed business entities (by market capitalization) have been mandated by the Securities and Exchange Board of India (SEBI) to disclose nature risk mitigation measures and innovative solutions in the annual Business Responsibility and Sustainability Reporting (BRSR) under Principle 6 and presents an opportunity to popularize the capitals valuation approach.
- Certain regions/areas with strong community based institutions need greater attention such as the ecologically rich northeastern states of India to achieve long term positive outcomes for nature.
- Reliability of data is a matter that concern for decision-makers, whether this is the public or private sector. There is a need to support businesses in their application to improve their checks and balances of data and the assumptions that have been made in the process of assessment.

## **SESSIONS ON DAY 2**

Day 2 of the workshop focused on related initiatives and interventions of the Indian Government closely linked to the TEEBAgriFood project. Presentations were made on certification and standards on organic and natural farming, agroforestry initiatives in India, WRI-India study on transforming agricultural systems in India, and cold-chain development followed by discussions.

### **Session 7: Presentations on TEEBAgriFood India related initiatives and interventions**

#### **Certification and Standards for Organic and Natural Farming:**

**Dr. S. Bhaskar, Additional Director General, ICAR** elaborated on certification and standards for organic and natural farming in India. He highlighted the following points in his talk:

- Two certification systems are in place for organic farming in India which includes:
  - **Third-party evaluation system** based on National Standards and recognized by the Agricultural and Processed Food Products Export Development Authority (APEDA). The certification is accepted for international trade and in line with EU standards. Third party certification can be leveraged by individuals, grower groups, processing facilities, traders and exporters and is applicable for crops, wild harvest, livestock, mushrooms, aquaculture, honey and food and feed processing. Approximately two-thirds of the current area under organic is from wild harvest. The verification process is conducted by a third-party with APEDA as the controlling agency for the certification. A majority of organic growers in India have found that the certification system is stringent and cost intensive which cannot be afforded by many small and marginal farmers.
  - **Participatory Guarantee System (PGS):** To overcome the drawbacks and the cost burden on farmers for certification under the third-party evaluation system, the Participatory Guarantee System (PGS) of certification was introduced alongside the PKVY scheme on organic farming. The certification is accredited by the Food Safety and Standards Authority of India (FSSAI), however is applicable only for domestic trade. PGS is directed towards individuals, grower groups and processing facilities and is applicable for crops with limited certification for food processing and handling. Livestock is yet to be included as a part of PGS. Verification under PGS is conducted by state governments with a council established at the national level to facilitate the verification process. The regulating agency for PGS is the National Centre on Organic and Natural Farming (NCONF), earlier known as the National Programme on Organic Production (NPOP) and housed within the Department of Agriculture and Farmer's Welfare (DoAFW).
  - Traceability has been ensured in both the certification systems.
  - The conversion period for organic farming certification is three years, however has been brought down to two years, particularly for PGS to boost the uptake of organic farming by farmers.
  - The Government of India has also introduced the concept of large area certification, where an entire landscape or state such as Uttarakhand can be certified.
- **Certification under the National Mission on Natural Farming:**
  - In view of the launch of the National Mission on Natural Farming, a prerequisite for the mission is the introduction of the Natural Farming Certification System (NFCs) currently under the process of approval.
  - Coordinated by the Integrated Nutrient Management (INM) division of the DoAFW, a national committee formed on NMNF and crop diversification have largely agreed on the guidelines to be rolled out on natural farming certification. The following aspects have been considered in the draft guidelines for certification:

- Relevant for local trade at the village and block level and differentiated from domestic trade
- Minimum requirement of documentation, less rigorous than the PGS certification, in order to support local farmers in adopting local practices for agriculture and food production. This will aid in improving nutritional security which is an issue for the country. NCFS will be applicable to individuals and grower groups (FPOs and SHGs) for crop production, processing and handling. Livestock is yet to be considered under the draft certification process. Certification authorities have been proposed as local executive committees or growers. Quality controlling authorities will operate at the sub-district level supported by 6 regional centres under NCONF.
- Cost for certification under natural farming will be negligible with a provision made for certification documents to be uploaded via a mobile application.
- Conversion period to natural farming has been recommended as 6 months to promote
  - The national steering committee on NMNF has decided to earmark the formation of 500 FPOs from the targeted 10,000 FPOs for exclusively promoting natural farming practices.
- With regards to research on organic farming, ICAR has been conducting multi-location trials since 2004 in 16 states (20 locations). Research over two decades has allowed the development of package of practices for 68 cropping systems. Furthermore, PoPs have been developed for 8 integrated organic farming systems (IOFS) which can also be considered as natural farming given its high sustainability score. The IOFS systems are remunerative for the farmer with pilots showing income enhancement by up to three times. Research has also led to the identification of 104 crop varieties that are suitable for organic farming conditions. There is also a growing demand for organic seeds which will need the establishment of dedicated centers.
- Multi-location trials have also been initiated on natural farming for 8 major cropping systems from the year 2021 across 20 locations. ICAR is also characterizing the various concoctions prepared as inputs for natural farming systems, studying pesticidal and herbicidal character.

### Agroforestry Initiatives in India:

**Dr. B.P. Bhatt, Director, NRM Division, ICAR** presented the ongoing agroforestry interventions in India. In his remarks he highlighted:

- Agroforestry has been an integral component of traditional Indian land use, especially in rain-fed agroecological zones across the country largely practiced as traditional or subsistence agroforestry which met the fuel, fodder, small timber, fruit and fiber requirements of households. With the emergence of state agriculture universities in the 1960s and the establishment of the National Agroforestry Research (NAR) system with support from ICAR, documentation of agroforestry has been promoted with an emphasis placed on survival of trees, its suitability for plantation and to assess growth rates.

- ICAR has a dedicated institution for agroforestry research in the country, namely the Central Agroforestry Research Institute (ICAR-CAFRI) in Jhansi, Uttar Pradesh with a network of 37 all-India coordinated research centers, primarily housed with State Agriculture Universities.
- 80 agroforestry models have been identified across the country which have been found ecologically and economically viable. He mentioned that CAFRI can support in sharing information on various agroforestry models for the TEEBAgriFood project.
- Research has been further expanded to study benefits of agroforestry systems for natural resource management. For instance, agroforestry research in India with regards to conservation of natural resources have found that:
  - **Soil Conservation:** In the Eastern Himalayan region soil erosion rates increase from 40-50 tons/ha.year to ~150 tons/ha.year from the first to third year after jhoom cultivation. Agroforestry interventions can bring soil loss down to 10-15 tons/ha.year.
  - **Reduction in surface runoff:** Agroforestry interventions in high rainfall zones can convert 90% of the surface runoff to subsurface flow in areas where the plantation density is above 400 trees per hectare.
  - **In-situ moisture conservation:** India has approximately 10 million hectares as rice fallow area under monocropping practices. Agroforestry interventions can conserve 15-20% in-situ moisture during the fallow period and can improve cropping intensity.
  - **Rehabilitation of water-logged areas through bio-drainage:** Approximately 36 million hectares in the country is prone to water-logging. Research has indicated that bio-drainage through agroforestry interventions provides a solution for the rehabilitation of water-logged areas. Fast growing tree species have been targeted in such ecologies.
- Awareness of the benefits of agroforestry in areas where shifting cultivation is practiced has led to a change in practices where felling of trees has been replaced by pollarding and coppicing practices. Success stories such as that of the agroforestry interventions of Nagaland Empowerment of People through Economic Development (NEPED) can be reviewed under the project.
- Activities of ICAR-CAFRI also include:
  - Research and development of agroforestry interventions in 37 model watersheds
  - Agroforestry components for integrated farming systems models developed by ICAR
  - Agroforestry interventions in home gardens
- ICAR-CAFRI has recently estimated that 28.427 million hectares are under agroforestry in India, 10.6% of the total geographical area of the country.
- Research on agroforestry systems and its benefits on different components of natural capital have been conducted, however there is a need for reports to capture and quantify the benefits of agroforestry interventions in a holistic manner, especially in making an economic case for agroforestry among farmers. The TEEBAgriFood assessments can prove to be highly beneficial in this regard.
- Although the SMAF has been implemented in 22 states of India, carbon credit benefits for farmers adopting agroforestry interventions is an important issue that needs to be resolved for the promotion of agroforestry.

## WRI Study - Transforming Agricultural Systems: Making the Hidden Visible:

**Dr. Madhu Verma, Chief Economist, World Resources Institute-India** provided a brief of the various studies carried out in India using the TEEB framework and highlighted the role of economic valuation techniques in transforming agriculture systems. Detailing the key recommendations of the inter-ministerial Dr. Ashok Dalwai committee report on Doubling Farmers' Income (DFI), she presented the WRI-India report on *Transforming Agricultural Systems: Making the Hidden Visible* that aims to provide a functional solutions to the implementation of the Dalwai committee report. The following points were presented:

- Agriculture is the largest source of livelihoods engaging more than half of the country's workforce. The agriculture sector contributes to less than 20% of India's GDP and agricultural growth has been stagnant at around 3.4% in Gross-Value Added. There is an identified need for transition in agriculture with more sustainable means of farming to improve economic, human and natural capital
- A key recommendation in the Dalwai committee report was to place special emphasis on developing agriculture production systems consistent with agroecological zones in the country and taking into account farmer empowerment, R&D and risk management. As such, five pillars essential to DFI include increasing productivity, reducing production cost, optimal monetization of produce, introduction of sustainable production technologies and risk mitigation along the value chain.
- The WRI study is an ongoing study for inclusion of landscape factors, i.e. ecological, social and cultural linkages and co-benefits from agri-food systems, aligning with the objectives of the NMSA. The study uses the TEEBAgriFood framework in combination with DFID's livelihood framework and aims to:
  - Identify means to increase farmers' income and support their livelihoods by accounting for visible and invisible flows of ecological-social-cultural values
  - Document the role of innovative agro-ecological practices to benefit farmers and map influential interventions across the country aimed at enhancing ecosystem resilience
  - Design suitable incentive mechanism to drive the flow of benefits back to farmers, along with recommendations on appropriate policy and market mechanisms.
- Pilot at the micro-level using the study tool was carried out in the Barkhedi Abdulla panchayat, Bhopal, Madhya Pradesh to obtain values of different capitals and flows. The pilot used surveys, FGDs and PRAs to capture livelihood, socioeconomic indicators and welfare aspects of farmers at a household level. Hidden elements captured through the study aimed at capturing invisible household costs that increase economic burden including costs for labor, animal labor, machine labor, rental value on owned land, depreciation on implements and farm buildings, and cost of insecticides.
- Apart from tangible benefits of crop yield, carbon sequestration benefits depending on crop mix and extent of stubble not burned, water retention, erosion prevention, maintenance of soil fertility, waste treatment, climate and air quality regulation and regulation of water flows

have been captured by the study. Social welfare indicators captured female literacy, levels of training and extension, access to health care facilities and health insurance, dietary intake and consumption patterns, direct employment, access to drinking water, paved roads and markets, institutional credit, education and ICT tools.

- The study has also documented influential interventions across the agri-food value chain in 11 agroclimatic zones. Thematic areas documented included fisheries, technology usage, agri-value chain, allied agricultural activities, livelihoods, agroforestry, climate resilience, agri-waste processing, high value crops and organic/natural farming practices. Influential interventions captured include organic farming in Sikkim, community-managed natural farming in Andhra Pradesh, millet farming in Uttarakhand, climate-smart agriculture in Haryana, organic cotton production in Madhya Pradesh, agroforestry interventions in Yamunanagar, Saudapatra digital agriculture solution, Araku coffee production, Aranyaani food forest and cold fisheries in Anantnag, Jammu and Kashmir among others.

### Scaling Investment in Clean and Efficient Cold Chain:

**Mr. Angshuman Siddhanta, Sustainable Cold Chain Expert, UNEP** presented insights on cold chain development in India under the UNEP project on 'Scaling Investment in Clean and Efficient Cold Chains'. The presentation shed light on the critical supply chain barriers in the uptake of organic farming. In his presentation he highlighted the following:

- UNEP has developed a Cold-Chain Support Programme in India (2021-2025) with the objective of accelerating development of sustainable and integrated cold-chains in support of the Indian Cooling Action Plan (ICAP) in consultation with the MoEFCC.
- This programme will address critical gaps in the cold-chain as identified by India Cooling Action Plan (ICAP) and the National Centre for Cold-chain Development (Packhouse: 99%; Reefer: 85%) and will help achieve India's target of Doubling Farmers Income by 2022, reduce greenhouse gas emissions, in line with the Paris Agreement and the Kigali Amendment, and support India to achieve the Sustainable Development Goals.
- The programme addresses the following gaps on cold-chains:
  - Lack of integration from farm to fork of cold-chain facilities and market linkages
  - Lack of capacity and awareness including on clean technologies and available public support
  - Lack of finance and technical capacity to bring projects and new cold chain businesses to investment
  - Need for policies and standards that target integrated cold chain and clean technologies.
- The Cold-chain Support Programme will support national government and selected states (Bihar & Haryana) to mainstream efficient, renewable and climate-friendly cold-chain infrastructure and services into rural areas, particularly focusing on packhouses and reefer transport as part of an integrated cold-chain.
- Emphasis has been placed on the development of horticultural cold-chains including assessment in two states on the current infrastructure and policy support; demonstration of innovative technologies and business models; reviewing financing for deployment of cold-

chain technology and building awareness among national, state governments, FPOs and local industries on the integration of cold-chain technology in the agri-food supply chain.

## Session 8: Communicating TEEBAgriFood in India

**Ms. Anna Hellge, Communications Specialist, UNEP-TEEB** led an interactive session in guiding workshop participants on communicating the TEEBAgriFood work effectively. The session brought forward the following points on communication of the TEEBAgriFood in India.

- TEEBAgriFood activities often involve working with large sets of scientific data that is often not relatable for the general audience. Identifying elements of the assessments that can appeal to a larger audience plays importantly towards the overarching objectives of the project, i.e. the recognition of the hidden values and integrating these into decision-making at all levels.
- Scientific research is often understood by a limited group of people. On the contrary, the assessments seek to widely highlight the immense co-benefits of the transition to sustainable agriculture practices. Communicating effectively plays instrumentally in catalyzing a behavior shift to a wide audience and impact decision makers to act upon results.
- People connect with stories and personalities – elements that help tell a story of the benefits of change are important to identify for research partners and stakeholders working on TEEBAgriFood assessments.
- Identification of the target audience is critical in getting the messaging right. Moreover, the incorporation of culturally relatable elements into storytelling can greatly enhance the impact of a communication asset.
- A variety of communication assets can be developed bearing in mind the target audience including short films, radio messaging, animations, interactive maps, stakeholder engagement sessions, fairs and social media content. In illustrating effective communication techniques, TEEBAgriFood communication assets from Kenya, Mexico and Brazil were presented and discussed.
- The project should leverage the youth in India for outreach of project objectives and results.
- Kisan (Farmer) call-centers can be an effective mode for outreach of TEEBAgriFood results

## Closing Remarks

**Mr. William Speller** recognized the valuable contributions of all participants in the successful conduct of the workshop. He highlighted the significant amount of information gathered over the duration of the workshop and thanked participants for their active engagement in discussions, stating that the insights shared will prove useful for improving the assessments and in aligning with state, national and international priorities. He thanked the EU for funding of the project and implementing partners in facilitating the organization of the workshop. Mr. Speller invited participants to continue their engagement with TEEBAgriFood India.

## Annexure-I

### Agenda: TEEBAgriFood in India: National Stakeholder Consultation

<b>TEEBAgriFood in India: National Stakeholder Consultation</b> <b>Agenda (9-10<sup>th</sup> Nov 2022)</b> <b>Juniper Hall, India Habitat Centre, New Delhi</b>		
Time	Day 1 Agenda – Wednesday 9 <sup>th</sup> Nov	Moderator/Speaker
10:00-10:30	Registration	
10:30-10:35	Opening Remarks	<b>Mr. Atul Bagai</b> , Head, United Nations Environment Programme Country Office, India
10:35-10:40	Welcome Remarks	<b>Dr. Michael Bucki</b> , Head of Department – EEAS, EU Delegation to India
10:40-10:50	Special Presentation	<b>Dr. Pavan Sukhdev</b> Founder and CEO, GIST Advisory
10:50-11:00	Scene Setting and Workshop Objectives	<b>Mr. William Speller</b> , Programme Management Officer UNEP-TEEB  <b>Mr. Reuben Gergan</b> , Project Officer – TEEBAgriFood India, UNEP-TEEB
11:00-11:45	<b>High-Level Panel Discussion:</b> Representation from high-level speakers	<b>Dr. Alka Bhargava</b> , Former Additional Secretary, Ministry of Agriculture and Farmer’s Welfare  <b>Mr. Franklin Khobung</b> , Joint Secretary (NRM), Ministry of Agriculture and Farmers’ Welfare  <b>Mr. Anurag Yadav</b> , Secretary (Agriculture), Government of Uttar Pradesh  <b>Dr. S. Bhaskar</b> , Additional Director General, Indian Council of Agricultural Research  <b>Dr. O.P. Sharma</b> , Additional Commissioner (NRM), Ministry of Agriculture and Farmers’ Welfare  <b>Mr. PK Jha</b> , Inspector General (Forests), Ministry of Environment Forest and Climate Change  <b>Mr. Vinay Kumar</b> , Managing Director, Uttarakhand Organic Commodities Board

11:45-12:05	<b>Tea break &amp; group photo</b>	
12:05-12:15	TEEBAgriFood Evaluation Framework and the global EUPI TEEBAgriFood Project	<b>Mr. William Speller</b> , Programme Officer, UNEP-TEEB
12:15-12:30	TEEB Initiative in Uttar Pradesh: Scope report	<b>Dr. A.S Panwar</b> , Director, ICAR-IIFSR and <b>N. Ravisankar</b> , Principal Scientist & PI, ICAR-IIFSR
12:30-12:45	TEEB Initiative in Uttarakhand: Scope report	<b>Dr. Anil Sharma</b> , Director, Extension Services GB Pant University of Agriculture and Technology
12:45-13:30	<b>Lunch</b>	
13:30-15:00	Stakeholder discussion around the proposed scope in Uttar Pradesh and Uttarakhand	Open discussion led by <b>Mr. William Speller</b> , Programme Manager, UNEP-TEEB and <b>Dr. Divya Datt</b> , Programme Management Officer, UNEP
15:00-15:20	<b>Tea break</b>	
15:20-15:35	Private sector component of the TEEBAgriFood Initiative	<b>Ms. Martine van Weelden</b> , Director, Capitals Coalition
15:35-15:50	Business application of the capitals approach	<b>Mr. Sarang Vaidya</b> Co-Creator Go4Fresh
15:50-16:05	Working with Businesses for Positive Outcomes on Nature in India	<b>Mr. Rijit Sengupta</b> , Chief Executive Officer, Centre for Responsible Business
16:05-16:15	Business application of the capitals approach	<b>Mr. Santosh Gupta</b> Director, Ecociate
16:15-16:35	Group Discussion on private sector application of the capitals approach	Open discussion led by <b>Ms. Martine van Weelden</b> , Director, Capitals Coalition
16:35-16:40	Closing Remarks	<b>Mr. William Speller</b> , Programme Manager, UNEP-TEEB

## TEEBAgriFood in India: National Stakeholder Consultation

### Agenda (9-10<sup>th</sup> Nov 2022)

Juniper Hall, India Habitat Centre, New Delhi

Time	Day 2 Agenda – Thursday 10 <sup>th</sup> Nov	Moderator/Speaker
10:00-10:10	Welcome and Recap of Day 1	Mr. William Speller/Mr. Reuben Gergan UNEP-TEEB
10:10-10:20	Certification, standards and research on organic and natural farming	Dr. S. Bhaskar, Additional Director General (ADG), ICAR
10:20-10:30	Agroforestry Initiatives in India	Dr. B.P. Bhatt, Principal Scientist, NRM Division, ICAR
10:30-10:40	Transforming Agricultural Systems in India: Making the Hidden Visible	Dr. Madhu Verma Chief Economist, World Resources Institute, India
10:40-11:00	Scaling Investment in Clean and Efficient Cold-Chains	Mr. Angshuman Siddhanta, Sustainable Cold Chain Expert, UNEP
11:00-11:45	Discussion: Integrating TEEBAgriFood with national priorities on organic farming and agroforestry	Open Discussion
11:45-12:00	Tea break	
12:00-12:15	Communicating TEEBAgriFood effectively in the national and sub-national context	Ms. Anna Hellge, Communications Specialist, UNEP-TEEB
12:15-13:00	Discussion on communication channels for TEEBAgriFood	Open discussion
13:00-13:10	Closing Remarks	Mr. William Speller Programme Management Officer, UNEP
13:10-14:00	Lunch	
14:30-16:00	Project Steering Committee meeting	(by invitation only)
16:00-16:30	Tea break	

## Annexure-II

### List of Participants

S No.	Name	Designation	Organization
1	Michael Bucki	HOD-EEAS and Counsellor	EU Delegation to India
2	Pavan Sukhdev	Founder and CEO	GIST Advisory
3	Alka Bhargava	Additional Secretary (retd.)	Ministry of Agriculture and Farmers Welfare
4	Franklin L. Khobung	Joint Secretary (NRM)	Ministry of Agriculture and Farmers Welfare
5	Anurag Yadav	Secretary (Agriculture)	Government of Uttar Pradesh
6	Prem Kumar Jha	Inspector General (Forest)	Ministry of Environment, Forest and Climate Change
7	S. Bhaskar	Additional Director General	Indian Council of Agricultural Research
8	Om Prakash Sharma	Additional Commissioner (NRM)	Ministry of Agriculture and Farmers Welfare
9	Rakesh Kumar Maurya	Deputy Director General	Ministry of Statistics and Programme Implementation
10	Vinay Kumar	Managing Director	Uttarakhand Organic Commodities Board
11	B.P Bhatt	Director (NRM Division)	Indian Council of Agricultural Research
12	Seema Bhatt	National Biodiversity Expert	Food and Agriculture Organization of the UN
13	Advait Edgaonkar	Assistant Professor	Indian Institute of Forest Management
14	Sarang Vaidya	Cofounder	Go4Fresh
15	Gitika Goswami	Assistant Vice President and Lead Policy Development	Development Alternatives
16	Bhaskar Mitra	Associate Director	Tata Cornell Institute
17	Madhu Verma	Chief Economist	World Resources Institute India
18	Seema Yadav	Senior Project Associate	World Resources Institute India
19	Abhay Kumar	Head – Evidence and Results	World Food Programme
20	Archana Chatterjee	Programme Manager	IUCN India
21	Rajendra Ravi	Programme Coordinator	Peoples Resource Centre (PRC)
22	Asghar	Head of Programme – Aquatic Ecology	Wetlands International-South Asia
23	Dhruv Verma	Senior Technical Officer	Wetlands International-South Asia
24	Aparna Koodathingal		WWF India
25	Devisha Poddar	Senior Project Associate	FOLU Coalition India
26	Chhaya Bhanti	Founder	Vetiver
27	Santosh Gupta	Director	Ecociate
28	Angshuman Siddhanta	Cold Chain Expert	UNEP

29	Martine van Weelden	Director	Capitals Coalition
30	Lisa Heine	Engagement Officer	Capitals Coalition
31	Rijit Sengupta	CEO	Centre for Responsible Business
32	Panwar	Director	ICAR-IIFSR
33	N. Ravishankar	Principal Scientist and PI	ICAR-IIFSR
34	M.A Ansari	Senior Scientist	ICAR-IIFSR
35	M. Shamim	Senior Scientist	ICAR-IIFSR
36	A.K. Sharma	Director, Extension Services	GBPUAT
37	Suvigya Sharma	Post-Doctoral Fellow	GBPUAT
38	Yogesh Pandey	Project Fellow	GBPUAT
39	Tithi Dutta	Project Fellow	GBPUAT
40	Sanjay Chaudhary	Joint Director, Extension Services	GBPUAT
41	Atul Bagai	Country Head, India	UNEP
42	Divya Datt	Programme Management Officer	UNEP
43	Manisha Choudhary	National Coordinator - PAGE	UNEP
44	Rahul Agnihotri	RE Specialist	UNEP
45	William Speller	Programme Manager	UNEP-TEEB
46	Anna Hellge	Communications Specialist	UNEP-TEEB
47	Reuben Gergan	Project Officer	UNEP-TEEB

Annexure-III

Workshop Photographs

