

# The Economics of Ecosystems and Biodiversity for Agriculture and Food (TEEBAgriFood) Latin America & Caribbean Regional Symposium

## Brazil, Colombia, and Mexico

7-8<sup>th</sup> June 2022, Virtual Platform



## Day 1 (June 7<sup>th</sup>)

### Opening and Welcome Remarks

**Dr. Salman Hussain** (Coordinator, UNEP-TEEB) formally welcomed participants to the TEEB for Agriculture and Food (TEEBAgriFood) Regional Symposium for Latin America and the Caribbean, hosted by the UN Environment Programme. Dr. Hussain noted that this event is the third TEEBAgriFood symposium to take place, and that this year, it is the first symposium of two - the following will be the Africa, Asia, Europe Symposium to take place virtually on the 21-23 June (see the TEEB website for further details on this event).

### Background on TEEB and the Country Projects

Dr. Salman Hussain began by thanking the funders of the project i.e. the European Union Partnership Instrument (EU-PI) and the German International Climate Initiative (IKI) program, continuing to introduce TEEBAgriFood and describing its development since its inception in 2014. The principal objective of TEEBAgriFood therefore is to 'fix food metrics' by convincing senior decision makers in various ministries around the world that there is a need to shift from a singular focus on yield per hectare, to instead taking a broader stance through alternative metrics taking into consideration the invisible impacts and dependencies that our food systems have on livelihoods, climate, biodiversity, and pollution, which can then be fully taken into account in decision-making. A community of practice

is being developed in partner countries around the world so that the work being conducted in one country study can feed into others for an improved establishment of the TEEBAgriFood Framework.

Dr. Hussain briefly explained the TEEBAgriFood Evaluation Framework and how it has evolved into an integrated approach looking into ecosystem services as well as other services that tend to be invisible and are not typically taken into consideration in the marketplace. The framework looks at human, social, natural and produced capital – where emphasis is also equally placed on the social networks within the farming and agribusiness communities as well as the human capital aspect involving labour and knowledge etc.

The launch of the United Nations Food Systems Summit (UNFSS) in September 2021, has led to a shift in national dialogues on sustainable food systems as well as the development of initiatives including the UN Food Systems Hub on sustainable food systems which is chaired by FAO with significant input from UNEP. The work that TEEBAgriFood put together in 2014 very closely aligns with the working hypothesis for the UNFSS and has thus given the TEEBAgriFood approach further impetus. The True Value of Food initiative arose from the UNFSS and aims to include the values of the ecosystem services and capitals in decision making. The aim is to embed this in UN processes while also engaging the private sector to stimulate lasting change. As a result of the UNFSS and increasing awareness of the need for a food systems transformation, a multitude of events are taking place which are pushing the agenda forwards. A follow-on from previous work on True Cost Accounting, is for instance that UNEP along with the Indonesian research entity IPB Bogor University and BAPPENAS, have recently submitted a T20 policy proposal to harmonize True Value Accounting approaches, to make the economic case for nature-positive food systems.

Dr. Hussain highlighted the key role of stakeholders such as those present at the Symposium, involved in creating an understanding of the benefits of True Value Accounting, to avoid the commodification of nature, and to understand that nature and society provide critical inputs to our production systems. In addition, it is critical to grasp that livelihoods are typically improved when decisions are made that account for the four capitals.

## High-Level Panel Discussion

**Dr. Salman Hussain** remarked that the TEEBAgriFood approach tends to be seen as highly technical and complex, but that the aim of the approach has always been to drive policy change, and it is therefore important to hear the perspectives from high-level speakers in the region, on what their country priorities are. Dr. Hussain introduced the speakers by asking them to present their country's perspectives on food systems transformation and how making nature's values visible in food systems might contribute towards this aim.

**Ms. Leticia Manzanera Herrera y Cairo** (Director of Sector Policy Integration, Secretariat of Environment and Natural Resources SEMARNAT, Mexico) began by stating that the Mexico maize and coffee TEEBAgriFood studies have come to very valuable conclusions, thus highlighting the importance of the studies and their potential to help ministries take long-term decisions that contribute towards the achievement of various agendas such as the Agenda 2030, rather than focusing solely on short-term economic aspects and market values. As it is known that the biodiversity crisis which we find ourselves in is directly associated with the invisibility of ecosystem services in the context of political and economic decisions that are made in the short-term, Ms. Manzanera underlined the importance

of incorporating the results of the studies into the design of public policies. The challenge, however, is to sufficiently internalize the values arising from different ecosystem services during decision-making, so that not only economic agendas are prioritized.

The Mexico TEEB studies focused on local groups in decision making in order to generate information about natural resources, common wellbeing and the strengthening of production methods in relation to biodiversity and social cohesion. The studies argued that using the yield per hectare measurement neither promotes long-term policies nor reflects national priorities or accounts for risks. Integrating nature's values into decision making therefore can contribute to the development of political instruments that support sustainable development which is an opportunity that is not currently reflected in existing policies.

By taking a landscapes approach, the studies incorporated analyses from various standpoints which allowed for a broad understanding of the context and highlighted the need for decision makers to take all the different capitals into consideration. Ms. Manzanera reiterated the importance of looking at the real values of the four capitals, rather than solely the monetary values, as when these values are incorporated into policymaking, critical contributions can be made that will not only benefit the environment, but also communities and economies.

**Ms. Olga Lucia García Giraldo** (Sustainable Agrifood Systems Workstream, Office of Green and Sustainable Businesses, Ministry of Environment and Sustainable Development of Colombia) noted that the IKI-funded study is now finishing in Colombia. During the course of the study, certain criteria have been set up to assess the impact of green businesses through CSR, environmental- and other lenses including from a social and customer perspective, to develop green businesses. Alongside the Ministry of Agriculture, a roadmap is being developed to strengthen these organic and agroecological systems, focusing on the development of territorial areas that have been affected by conflicts in Colombia e.g. the Amazon and San Andrés Island where climate change risks are a major threat, while decreasing the dependency on fertilizers, controlling deforestation, reducing biodiversity loss and instead re-establishing new credible and inclusive approaches.

The TEEBAgrifood projects also include private businesses, taking a gender sensitive approach with the inclusion of communities as a priority as the commodities in question are closely associated with family economies. As such, TEEBAgrifood takes a landscape level approach through a cross-cutting systems lens, focusing on food security and nutritious food also from traditional aspect, which will help to improve the production systems and be integrated into the development of the National Agribusiness Plan. Further research must be conducted to improve knowledge on improving consumption and production systems for more value to be added to the national economy, generate more jobs, and improve community livelihoods.

**Mr. Luis Claudio Romaguera Pontes** (Director, Department of Public Equipment Structuring, National Secretariat for Social and Productive Inclusion, Ministry of Citizenship, Brazil) highlighted the vulnerability of nations being reliant on essential products from external vendors, noting that all countries should have a system preventing the possibility of a lack of supply of imported essential products. Brazil is one of the world's biggest food exporters but is at the same time reliant on the import of fertilizers, which is why reducing the risk of massive external dependencies has become a priority in recent years. Brazil's natural biomes vary hugely throughout the country, creating logistical challenges in terms of distributing food to all corners of the nation as many Brazilians live in urban

areas. As such, the federal government through the Ministry of Citizenship, has set up a social assistance program whereby the federal government collaborates with municipalities and different ministries to make urban and peri-urban food production more sustainable, whilst being culturally respectful and taking vulnerable populations into consideration. The results thus far have been promising, as alliances have been created between many different stakeholders working towards strengthening food security, in alignment with urban planning and economic security agendas.

The Ministry of Citizenship is currently engaged in a partnership with UNEP through FGV with a focus on producing more environmentally friendly, high-quality, nutritious food, while making community involvement a priority as the initiative is present in almost every state in Brazil. The initiative therefore strengthens community ties, helps vulnerable communities and stimulates job opportunities in urban and peri-urban areas.

### TEEBAgriFood Colombia: Land-Use Planning

**Mr. Tomas Declercq** (Programme Officer, UNEP-TEEB) introduced the next session on land-use planning through the adoption of a landscapes approach. Technical experts are leading the TEEBAgriFood project in collaboration with Humboldt institute in Colombia, while the process is under the political lead of the Ministry of Environment and Sustainable Development.

**Dr. Johan Manuel Redondo and Mr. Camilo Garzón** (Lead authors of TEEBAgriFood Colombia; Agrosavia) shared an overview of the TEEBAgriFood Colombia project that took place in Southern Colombia in Putumayo, in the Sibundoy Valley in the Andes mountain range, aiming towards developing innovative and improved production not only in term of yields but also in terms of improved livelihoods, ecosystems, animal health etc. Mr. Redondo underlined the importance of taking local contexts into account within the various landscapes, for a high-quality study. The background context on the project was described, explaining that due to the high food insecurity in the area, the study was initiated, looking into different transformation opportunities. The methodology, lessons learned, and results of the study were explained, highlighting a particular strength of the analytical work which concerned the incorporation of complex landscape dynamics and a wide range of socio-economic and environmental data into policy recommendations. Each landscape was individually evaluated based on a mathematical model that allows us to understand its digital footprint which then helps derive recommendations for the specific landscape in question. For further information on the Colombia TEEBAgriFood study, please see the PowerPoint presentation [here](#).

**Mr. Angelo Gurgel** (Professor, Fundação Getúlio Vargas) provided a brief intervention, underlining the increasing importance of taking a landscapes approach especially in terms of incorporating external factors into the management of value chains. Farmers are looking to produce high yields for increased economic gains, but it is critical that they also reduce their dependency on the use of fertilizers and chemicals while also controlling soil health. As such, it is important to consider the externalities across the system by taking a landscapes approach. The TEEB approach offers the opportunity to look at private and public policies to internalize externalities by taking a landscapes approach for a system wide understanding of the positive and negative externalities.

### Q&A session

#### Q1. How were the 62 landscape units defined?

We initially obtained more than 5,000 units using the landscape methodology. To concentrate on a subgroup that would allow us to carry out a more precise analysis, we applied 3 filters: 1) areas with high anthropic threat, 2) areas with high conservation interest, 3) area representativeness (greater coverage). With these criteria, we obtained the 62 units.

**Q2. What will happen to the results of the studied area? How long does this process take?**

We share the data with the municipalities. The process for the first time takes time, at least 6 months, especially in the collection of information. But once the model is built, periodic observations can be made updating the data and it can be a much shorter process, a matter of weeks. The important thing is to be able to automate it, for example, on a platform.

**Q3. The municipalities of the Sibundoy Valley (Colon, Santiago, Sibundoy, San Francisco) must update their Territorial Planning Instruments - Territorial Ordinance Schemes, how important it would be that this information produced by the TEEBAgriFood team be shared with each municipality in order to draw a strategic line for the conservation and maintenance of ecosystem services?**

Yes, we identified that the EOTs were outdated and that they planned to change them. We share the information and results with the mayors in the hope that they take them into account.

**Q4. How were models parameterized and tested? To what degree were field data used versus literature and expert opinion?**

We use approximately 60% primary data collected in the field and 40% data from secondary sources.

**Q5. Would you expect less variability and more general recommendations in landscapes dominated by particular crops like coffee?**

It depends on their socioecological complexity.

For further information on the full analytical project report including concepts, methodologies and results, please click [here](#).

**Additional links with details on the TEEBAgriFood Colombia project:**

- A microworld that has been developed: <https://forio.com/app/dannyibarra/humboldt-teeb60/index.html#introduction.html>
- Publications:
  - o J M Redondo *et al* (2019), Landscape sustainability analysis: Methodological approach from dynamical systems, *J. Phys.: Conf. Ser.* 1414 012010, <https://iopscience.iop.org/article/10.1088/1742-6596/1414/1/012010>
  - o J. A. Amador, J. M. Redondo, G. Olivar-Tost, C. Erazo, Cooperation-Based Modeling of Sustainable Development: An Approach from Filippov's Systems (2021), *Complexity*, vol. 2021, Article ID 4249106, 16 pages. <https://doi.org/10.1155/2021/4249106>
  - o J. M. Redondo and C Bustamante-Zamudio (2020), Making decisions with implications networks: Methodology and examples, *J. Phys.: Conf. Ser.* 1514 012017 <https://iopscience.iop.org/article/10.1088/1742-6596/1514/1/012017>
  - o Bustamante-Zamudio, C., García, J., Redondo, J.M. y Camacho, E.D., Garzón C.A. Hernández-Manrique O.L. (2019). Propuesta metodológica para la evaluación de sostenibilidad multiescala en paisajes productivos, aplicada en al menos un paisaje colombiano. Informe técnico. Bogotá: Instituto de Investigación de Recursos Biológicos Alexander von Humboldt.

80pp. <http://repository.humboldt.org.co/bitstream/handle/20.500.11761/35535/Bustamante-Clarita.pdf?sequence=1&isAllowed=y>

## Thematic Breakout Groups

### i) Lessons learned on developing biodiversity-based value chains in the Amazon region (Colombia – Fundación Natura)

This breakout room looked into various products with bioeconomy potential such as fruits and oils, also covering the fact that agricultural border expansion and livestock is a major driver of deforestation. **Mr. Mauro Reyes** (TEEBAgriFood project lead Fundación Natura) presented pathways towards a holistic perspective on the bioeconomy in the Colombian Amazon region, which protects biodiversity and ecosystem services and also has the potential to improve local livelihoods. Mr. Reyes explained that the TEEBAgriFood project has focused on looking into whether the sustainable productive landscapes based in the value chains of the Amazonian palm could be an option for the development of the bioeconomy in the region. Click [here](#) to see Mr. Reyes presentation.

**Ms. Pamela Cartagena** (Centro de Investigación de y Promoción Campesinado, CIPCA Bolivia), shared experiences of the bioeconomy in the Amazon in Northern Bolivia, which was followed by a brief intervention from **Dr. Peter May** (member of the TEEB advisory board, and former professor at the Federal Rural University of Rio de Janeiro-UFRRJ). Presenters discussed opportunities and risks of bioeconomy development in the Amazon region (from a natural, social and human capital perspective). Additionally, policy objectives and targets in terms of bioeconomy were presented, and alternative policy options that could lead to a holistic vision of the bioeconomy (environmental, social and economic component) were identified.

### ii) Mainstreaming urban and peri-urban agriculture: multi-attribute agroecosystems boosting sustainable food systems transitions (Brazil – Ministry of Citizenship, FGVces and INECOL)

**Mr. Jay Amstel** (Programme Officer, UNEP-TEEB) introduced the second breakout room focused on how urban and peri-urban agriculture can promote multi-benefits to society, while feeding a growing population without incurring in more negative environmental and social impacts. A broad variety of urban and peri-urban typologies are emerging as viable alternatives to strengthen the resilience of urban areas, mitigate negative impacts and prevent biodiversity loss. Through the collaboration of governments, civil society, academia, multilateral organizations and social movements however, the urban and peri-urban agenda has gained space in political discourses, but still lacks systematization and mainstreaming strategies, and as such, many challenges exist in terms of mainstreaming them into current day decision-making processes.

Firstly, **Ms. Fuscaldi Kelliane** (Ministry of Citizenship in Brazil) shared what the Brazilian government is doing to push forward the national program on urban and peri-urban agriculture to guarantee food security (PowerPoint presentation available [here](#)). Secondly, **Ms. Jessica Chrystafidis** from Fundação Getulio Vargas (FGVces) in Mexico, explained the current municipal urban and peri-urban agriculture agendas – integrating agriculture into urban planning processes. A handbook is being developed to incentivize this work, which stemmed from various municipalities reaching out in need of assistance

to develop policies that fully integrate agriculture into their urban planning agendas. The handbook, that will likely be launched in October 2022, aims to support municipalities in strengthening agriculture in cities while promoting food security and nutritious food, combating hunger and generating income. (Please find the presentation available [here](#)).

**Dr. Robert Manson** (Researcher at INECOL) pointed out that the expansion of cities is affecting surrounding agricultural areas where coffee, avocados, sugarcane etc. is grown. In addition, the central focus on exploitation has meant that the production of food for local communities has become an afterthought. Diversifying coffee production could alleviate food insecurity and simultaneously generate alternative value chains for the coffee growers to increase their financial security.

The challenge in multiple attribute systems is being able to quantify all the ecosystem services that are provided. However, the INVEST models that are used in the TEEBAgriFood studies analyze the ecosystem service changes in provisioning over time in the different scenarios which offers a valuable overview. INECOL is considering promoting efforts to look into ecological zoning, wherein the economic and ecological pressure of converting land to intense uses such as housing, cattle pastures etc. are understood broadly i.e. these agroecosystems would be treated as key land uses that should be conserved in land use planning, given the multiple positive attributes they provide to local communities. To do so, INECOL is following literature used in PES as well as a concept called “bundling” where when the economic value of ecosystem services is unknown, all the ecosystem services are combined, and the argument is made that they should all be conserved. Dr. Manson concluded by highlighting the importance of close coordination and cooperation between the local, state and federal government in conserving these ecosystem services, to be able to maximize the benefits from the systems in a holistic way for all.

**Mr. Romildo** (Municipality of Maricá, Brazil) intervened by reiterating the importance of developing a policy to incentivize urban agriculture. The municipality of Maricá is working on a different concept tackling the root of the problem, which is to focus on the inclusion of improved education in primary and intermediary schools to generate more employment and thus boost income and the economy. In addition, policies need to be strengthened for more decisive action, which requires increased discussion between all the different groups of society, including from the peripheral areas. Mr. Romildo explained that they are looking to collaborate with the Secretariat of Culture as well as the Federal Government, to be able to strengthen the national economy as well.

Through a joint study between TEEBAgriFood and Escolhas Institute, strategic benefits of ecologically based agriculture for urban management was explored, looking into amongst other things food and nutrition security, flood prevention and the guaranteeing of water quality. The challenge now therefore is how to mainstream this evidence into decision making, which brings the challenge of how to achieve capillarity. Breakout room participants added their perceptions on what type of challenges and opportunities exist to transform food systems by means of urban and peri-urban agriculture, and also what challenges and opportunities exist to mainstream urban and peri-urban agriculture into decision making. Click [here](#) to access the Jamboard.

### TEEBAgriFood Mexico: Maize and Milpa

**Mr. Jacob Salcone** (Programme Officer, UNEP-TEEB), introduced the Mexico session, explaining that social capital is often difficult to see and quantify, and its value is therefore easily overlooked. Mr. Salcone introduced the speakers to cover the cultural value of maize in Mexico.

**Dr. Carolina Camacho Villa** (Lincoln University, United Kingdom) shared perspectives on the valuation of social capital of traditional vs conventional maize and milpa systems in Mexico, highlighting that maize is not only an important factor within the nation's agricultural sphere, but also within its cultural sphere as national and state laws consider it to be a cultural heritage. Traditional maize cultivation is important in the Mayan culture as it is considered to be part of their identity and also a way to connect to their ancestors, whereas modernized mechanical agricultural cultivation methods do not necessarily provide this opportunity in the same way. The study explored milpa and maize cultivation in the regions of Yaxunah and Santa Elena, and discovered that there are different factors influencing the communities' choices in terms of their respective maize cultivation systems, such as generational differences and the ongoing process of rethinking Mayan identity by separating it from maize cultivation in its totality. Please find Dr. Camacho's PowerPoint presentation [here](#).

**Dr. Robert Mason** pointed out that despite the fact that maize has been cultivated much longer in Mexico than coffee has, there are certain similarities within the diversity of production systems, both culturally and genetically in terms of the conservation of crop varieties as well as the biodiversity associated with them. In the coffee sector, focus lies on the denominations of origin, emphasizing the different social, cultural and environmental contexts present within the different regions as a selling point in the markets.

Dr. Camacho added that some farmers cultivate maize, milpa as well as coffee, and that many people are beginning to use mechanisms to sell more native maize while also trying to conserve native species. Many farmers will produce maize either to sell or to use for their own consumption, or they sell their own maize and then buy cheaper low-quality maize for their own use. She also pointed out the limiting aspects of economic valuation due to the difficulty of quantifying the cultural aspects of maize. Therefore, many aspects need to be taken into account in terms of decision making in relation to maize cultivation, and it is ultimately up to communities to decide which path they choose.

### Closing Remarks for Day 1

To close the first day of the TEEBAgriFood Latin American and Caribbean Regional Symposium, **Dr. Salman Hussain** thanked the presenters and panellists for their speeches. Dr. Hussain remarked that the presentations as well as the Breakout Rooms were enlightening, as we are beginning to see discernible impact and how the analyses are beginning to be directly policy relevant. As such, it has been motivating to see that decision-makers and politicians interpreting and using the findings from the TEEBAgriFood studies that talk directly to country commitments in a robust and coherent way.

Dr. Hussain briefly outlined the agenda for the second day, featuring country studies and their thematic work in the LAC region, bringing forward a communality between the country applications, which is where the TEEB Office has an important role to play. In the second day, considerations on how to make further improvements in terms of being increasingly policy relevant will be explored.

### Zoom Poll Overview

In response to the first day of the Latin American and Caribbean TEEBAgriFood Regional Symposium, the following questions were posed to the participants to gain an understanding of the people that participated in the event as well as the national contexts where TEEBAgriFood has been applied:



- *When did you hear about the TEEBAgriFood Initiative?*  
Of the 35 respondents, 13 had heard about the initiative very recently (37%), 8 respondents had heard of it 5+ years ago (23%), 6 had heard about it 3-5 years ago (17%), 5 had heard about it last year (23%) and finally 3 had heard about the initiative 2 years ago (9%).
- *What type of institution do you belong to?*  
Of the 35 respondents, 14 belonged to a research institution/academia (40%), 13 were from the government (37%), 2 were from the private sector (6%), while 6 were from other sectors including among others the European Commission DG Environment, international organizations such as GIZ, UNEP and WCMC (17%).
- *Which part of the value chain are you most involved with?*  
Of the 28 participants who answered, 20 of them were most involved with academia and research (71%), 14 were most involved with agricultural production (50%), 5 were involved with manufacturing and processing (18%), 3 with household consumption (11%), and finally 2 with distribution, marketing and retail (7%).
- *Why have nature's values largely remained invisible in your country?*  
Of the 15 respondents, 9 respondents found that the reason for the invisibility of nature's values in their countries was attributed to the fact that accounting for Natural Capital is not a development priority (60%), followed by a lack of awareness (4 respondents, 27%) and data (2 respondents, 13%).
- *Where will the work of the TEEBAgriFood Evaluation Framework be the most useful in your country?*  
Of the 15 respondents, 15 replied that the use of the framework will be most useful in mainstreaming valuation in decision-making (60%), followed by 6 respondents voting that it will be most useful in generating discussion among stakeholders (40%), 4 arguing for producing more scientific results in addition to 4 also arguing to understand the implicit trade-offs in decision-making (27%).

## Day 2 (June 8<sup>th</sup>)

**Dr. Salman Hussain** (Coordinator, UNEP-TEEB) welcomed participants to the second day of the TEEBAgriFood Regional LAC Symposium, recapping the previous day and laying out the agenda for the day covering additional study results, linked to the outcomes of the UNFSS, as well as including a communications aspect and a focus on the private sector component.

### Communications: Elevator Pitches

**Ms. Anna Hellge** (Communications Expert, UNEP-TEEB) guided symposium participants through the process of developing so called elevator pitches, to clearly and concisely be able to communicate a project to anyone. These are short pitches to make people understand who you are, what it is you are doing, and why, in order to earn a more detailed conversation, or exchange contact details, or invite people to meetings etc. Elevator pitches also help to communicate the value of the scientific work, in a simple way. For further information, please find Ms. Hellge's presentation [here](#).

In breakout rooms, meeting members practiced developing their own pitches by i) introducing themselves, ii) presenting the problem, iii) presenting the solution, iv) sharing the value proposition and v) adding a call to action. Each country group produced pitches in their respective groups and will continue to work on them in due course.

### Thematic Breakout Group – Challenges measuring and mainstreaming multi-attribute agroecosystems, the case of coffee agroforestry systems

**Mr. Jacob Salcone** introduced the concept of multi-attribute systems, explaining how it is an agrofood system producing other benefits in addition to the food product in question, such as water filtration benefits or carbon sequestration benefits. Mr. Salcone emphasized the importance of recognizing and demonstrating the value of these externalities and being able to clearly describe and justify them in order for them to be fully understood at the decision-making level and thus lead to improved social and environmental outcomes.

**Dr. Robert Manson** (INECOL, Mexico) shared their findings from the coffee sector as an example of a large multifunctional ecosystem that can deliver a range of attributes and benefits in addition to tons of coffee beans per hectare, such as e.g. controlling draughts and erosion, benefits in terms of pollination and biodiversity, as well as water quality. As such, Dr. Manson presented measurement challenges in terms of integrating multi-attribute agroecosystems in the case of shade-grown coffee, and covered challenges encountered including the importance of integrating social and human capital, intra- and intersectoral coordination including the three levels of government, monitoring and evaluating the programs and public policies, as well as coordinating between the different regions. For further details, please find Dr. Manson's presentation [here](#).

**Ms. Jessica Chryssafidis** (Fundação Getulio Vargas, FGVces) shared their experience from Brazil, underlining that urban agriculture increases resilience in cities, also from a social and cultural aspect, and that there is a pressing need to strengthen sustainable agricultural systems in urban and peri-urban areas, to reinforce the value chain to be able to produce more multi-benefits from the system. For this reason, the urban and peri-urban areas need to be planned in a way that integrates rural and urban spaces, as the two sectors are both interconnected.

When asked to highlight the different challenging elements across the agroforestry systems and the interdependency with the indigenous populations as well as the relation to ecosystem benefits for the beneficiaries, **Dr. Manson** explained that in terms of urban and peri-urban agriculture, the challenge has been to assess, appraise the services and models across the coffee growing regions, and to collect information. However, in terms of quantifying and valuing ecosystem services, there are models available to use such as INVEST and others, there is also a large program on PES for hydrological services in the region. In addition, the government has been promoting local programs with current funds which has resulted in each city taking responsibility for their water basins. **Dr. Manson** highlighted that if it is not possible to economically quantify and value all the ecosystem services, then focus needs to lie on the many benefits derived from multi-attribute systems, to convince decision-makers of the importance of these agroforestry systems that are more sustainable in the long-term.

The breakout room participants discussed three topics, the first being which different attributes of coffee growing that exist that are unrecognized or invisible to the growers, secondly, which attributes of coffee agroforestry systems are unrecognized to the community, region or the world, and finally

the principal challenges of measurement of the multiple benefits/costs, time decisions, uncertainty or generalizability. Please find the link to the Jamboard with further details [here](#).

## The challenges and opportunities for social inclusion under the expansion of sustainable technologies and intensification

**Ms. Helena Pinto** (Programme Officer, UNEP-TEEB), introduced the session focusing on the expansion of sustainable agricultural practices in relation to challenges connected to social inclusion, taking all capitals into consideration.

**Dr. Alberto Barreto** (Geotechnology coordinator, Public Policy Group – Esalq) remarked that Brazil is one of the biggest exporters of meat today, and as 80% of emissions from the agricultural sector can be attributed to livestock farming, the environmental agenda in the nation is constantly being debated. The TEEBAgriFood study in Brazil has been investigating changes in livestock production in terms of an increasingly globalized agricultural sector, taking trends from an economic, environmental and social aspect into consideration. The study has been looking into possible sustainable intensification pathways that the livestock sector could pursue. Participants asked details about what kind of animal production the study was considering, and Alberto made it clear that cattle (both for meat and dairy) represent the main part of economic activities for small farmers. Participants also mentioned the importance of integrated systems as a sustainable technology. For further details on Dr. Barreto's presentation, please see [here](#).

Breakout room participants discussed two questions and added their perspectives to a Jamboard (available [here](#)), regarding i) How to overcome the challenge for social inclusion under the expansion of sustainable technologies, and ii) how to foster/strengthen the opportunities for social inclusion under the expansion of sustainable technologies/intensification? The answers to the first question were: promote policies to support small producers; promote the integration of the community with local development strategies; Increase technical assistance to small producers; and education and training in all levels. Some of the suggestions to strengthen the opportunities were: promote the diversification of food production; associate food production with demand; and increase education initiatives related to agricultural production.

## Private Sector and Capitals Coalition Pilot Applications

**Ms. Monica Lopez** (Programme Officer, UNEP-TEEB) introduced the session focusing on the business component of the TEEB initiative, where experiences and perspectives from the pilot applications of the TEEBAgriFood for business were shared. The aim is to make the business case for the inclusion of the capitals in businesses decision-making, to encourage governments to alter existing regulations in order to incentivize firms, farmers and other stakeholders to consider their impacts and dependencies, and understand them as a business risk, threat as well as an opportunity.

**Ms. Martine van Weelden** (Senior Manager, Capitals Coalition) briefly set the scene explaining that UNEP-TEEB runs the public sector component of the initiative, while the Capitals Coalition supports that work by engaging with the private sector engagement. The Capitals Coalition has developed the [TEEB Operational Guidelines for Business](#) so that businesses can understand their impacts and dependencies on the capitals, and act upon them. They have also been organizing roundtables and trainings to business representatives, based on the operational guidelines. Through the training

sessions, they have been able to support pilot applications, to show the evidence of the work conducted. Please find Ms. van Weelden's PowerPoint presentation [here](#).

**Mr. Juan Elvira** (Environmental Advisor, Association of Avocado Exporting Producers and Packers of Mexico, APEAM), an expert on environmental agricultural best practices, works to bring together and raise awareness among avocado producers and exporters around the importance of creating a balance between natural capital, biodiversity, soil etc. for climate change adaptation, for the protection of both incomes and cultural heritage. The association brings together over 30,000 avocado producers in the region, which is primarily made up of indigenous communities, who are working towards integrating environmental approaches to protect the ecosystems from the negative impacts of climate change including hurricanes, droughts and forest fires which are massively impacting yields. As such, APEAM has been involved with the Capitals Coalition since the very first phase. See [here](#) for further details on the PowerPoint presentation.

Social capital and labor integration is in the people working in the farms, operating the machinery, managing fertilizers etc., while another sector is responsible for the harvest and another is dedicated exclusively to packaging, which heavily relies upon female workers. As such, around 400 000 families make a living from the sector, and APEAM highly values the continuation of integrating families, stopping migration to the US and offering a decent salary and improved livelihoods to incentivize workers to remain in the system. Evidence shows the standard of living is typically higher in avocado producing municipalities, than other regions, due to a high standard of services, schools, private land and water systems etc.

**Dr. Gracie Verde Selva** (Executive Sustainability Manager, Renove, Minerva Foods) explained that Minerva Foods is the largest meat exporter in South America, operating in Brazil, Bolivia and Paraguay. The organization works with vendors to implement low carbon emission activities and aims to become a net-zero corporation by 2025. The Renove program is built up of three components i) green finances in which they collaborate with national and international banks to create funds for cattle ranchers, as well as providing and promoting practices such as access to loans, ii) training in which the implementation of low carbon emission technologies is supported through the program in a profitable and sustainable way, iii) technical and institutional alliances by providing assistance in the field through partnerships with R&D institutions making use of credible, international methodologies, research, and development techniques for a self-sustaining system. See [here](#) for the PowerPoint presentation.

The work is currently being developed by the Brazilian Agricultural Research Corporation (EMBRAPA) through different programs such as creating carbon equilibrium in farms, which involves the perfecting of protocols for national carbon production, in addition to a farm certification process that measures carbon and works with farmers to reduce emissions, generating carbon bonuses which yield financial returns for farmers implementing good practices. Multiple benefits from this program can already be seen in terms of reduced negative impacts, improved farmer livelihoods and added value in terms of farm credit creation amongst others. When asked about the link between the work carried out by Minerva Foods, and the political scene in Brazil in relation to climate change and degraded pastures, Dr. Verde Selva explained that during COP26, Brazil committed to reducing carbon emissions. Among the most efficient ways to achieve this is to reduce carbon emissions from livestock processes, as well as achieving the goals of ABC+.

**Ms. Nina von Lachmann** (Technical Analyst, Conselho Empresarial Brasileiro para o Desenvolvimento Sustentável CEBDS, Brazil) clarified that CEBDS functions as the operational arm of the Capitals Coalition in Brazil, who reaches out to companies in the agricultural and food sector. In terms of challenges and difficulties that companies may face when trying to become more sustainable, Ms. Lachmann highlighted that despite the demand for sustainable products, market willingness as well as a lack of knowledge among consumers makes it challenging to capitalize the values of the capitals. In addition to the monetary value, there are other, equally important factors to consider such as the non-tangible, spiritual aspects that may be equally or more important to consumers. Ms. Von Lachmann gave equal value to all four capitals, but noted that CEBDS is working primarily with natural and human capital, especially in terms of the current focus on deforestation. Consumer-, market demand, and PES are also mechanisms that are helping to justify the importance of e.g. the human and social capital.

**Ms. Mei Crespo** (Senior Manager of Corporate Affairs, Unilever) emphasized that Unilever is not only aiming towards creating an improved food system by reducing impacts on the environment but is also working with ecosystems by transforming supply chains into more sustainable and regenerative systems alongside a broad variety of stakeholders. Unilever is in charge of coordinating the Ecosystems and Biodiversity working group created by WBCSD Mexico to accelerate sustainable development following the 2030 Agenda. Unilever is developing implementation guides on best practices focusing on forests, regenerative agriculture, and sustainable fishing in Mexico to share lessons learned with SMEs and small-scale producers in the productive sectors within food systems, to put solutions into practice. Challenges in this process are linked to coordination, maintaining momentum, budgets and ensuring the inclusion of all voices, in addition to ensuring the credible applicability and replicability of the manuals to different contexts. In addition, Unilever Mexico is developing a guidance manual on plant-based foods with the local communities, that are both nutritious and sustainable, as well as being involved in various other initiatives towards a sustainable food sector. Finally, Ms. Crespo added that in case of any potential synergies with the TEEBAgriFood Mexico coffee or maize project, or in terms of work being conducted in the municipalities, she will be glad to discuss possible collaboration further.

**Mr. Daniel Sanchez y Sanchez** (Private Sector Engagement Director, Reforestamos Mexico, Mexican Alliance for Businesses and Biodiversity, AMEBIN) argued that one of the things that motivates large, powerful companies to take action to find solutions and transform their strategies, is hearing stories such as those mentioned by Ms. Crespo, from smaller transnational companies that generate much employment and thus GDP to the nation, as well as hearing about technological advances and solutions arising in the market place and reputational risks and potential impacts that could impact their operations. Frontrunners in the food sector need to be kept up to date and aware of developments, especially as the stakeholder pool is becoming increasingly diverse.

### Final Closing Remarks

**Dr. Salman Hussain** emphasized that over the course of the symposium, the shift from hypothetical propositions to actual change in term of increasing positive policy shifts as a result from the TEEBAgriFood work, has been made visible. Dr. Hussain also noted the high level of interest in the business sector work and underlined its importance in terms of encouraging businesses to push governments to create a level playing field and create change from the private sector angle. The TEEBAgriFood Colombia project, funded by IKI, will be finalized very shortly, whereas the Mexico and

Brazil projects, funded by the EU, will continue until late 2023 and all include the business sector component.

A TEEBAgriFood symposium focusing on the Africa, Asia and Europe region will take place before long that all participants are encouraged to participate in. Dr. Hussain finally thanked the speakers and participants for their active engagement in the symposium, noting that he hopes they gained valuable insights and that future synergies and cross-country interactions will take place going forward.

## Zoom Poll Overview

In response to the final day of the Latin American and Caribbean TEEBAgriFood Regional Symposium, the following questions were posed to the participants:

- *What do you perceive as the main threat to biodiversity and ecosystems in your country?*  
Of the 18 participants, 4 attributed this to soil erosion and land degradation (33%), 3 voted for unsustainable consumption patterns (25%), 2 for habitat encroachment (17%) and 1 person voted for pollution, another for anthropogenic climate change and a final one for financial incentives/market systems.
- *What do you perceive as the main threat to food security in your country?*  
Of the 18 participants, 45% voted for production practices (5 people), 3 voted for financial incentives/market systems (27%), 2 for ecosystem degradation (18%) and finally 1 for manufacturing (9%).
- *How would you respond to the statement: "I have gained a deeper understanding of the TEEBAgriFood initiative in my country and its approach to generating policy changes"?*  
The majority of the 12 respondents, i.e., 8 people agreed (67%), while 3 strongly agreed (25%) to have gained a deeper understanding of the initiative, and 1 person already had a strong understanding of the approach (8%).
- *After the sessions today, do you have a better understanding of the role of the private sector in food system transformation?*  
Of the 12 participants, 9 agreed (75%) whilst 3 people strongly agreed (25%).
- *Have the other in-country presentations presented scenario modelling best practices that you may take forward in your own TEEBAgriFood country projects?*  
Half of the participants (4, 50%), believed there were methods and approaches which they can learn from and apply, and the other half felt there were methods and approaches they could consider.
- *Do you think that the four capitals (human, natural, social, and economic) have been holistically and appropriately represented in the methods and approaches used in your in-country TEEBAgriFood project?*  
6 of the 8 participants agreed with this statement (75%), while 2 people (25%) strongly agreed.
- *What knowledge and opportunities did you gain from participating in the Symposium?*

Of the 12 respondents, 4 gained an increased understanding of TEEBAgriFood initiatives in other countries in the region (57%), while 4 gained an increased understanding of the role of the private sector in food systems transformations, 3 gained an increased understanding of the TEEBAgriFood initiative in their country of focus, and 1 gained an increased understanding of how to develop their communications further.

- *What elements would you liked to have seen more of throughout the Symposium event?*  
Of the 12 respondents, 2 would have liked to have seen more thematic presentations (33%), 2 others would have preferred more breakout group discussions (33%), 1 voted for more panel discussions (17%), and 1 other would have liked to have seen more Q&A sessions (17%).
- *Overall, how would you rate the LHC symposium event?*  
Of the 12 respondents, 71% of them found it very useful and relevant (5 people), whilst 2 people found it to be both useful and relevant (29%).

## Appendices

### Related Links and Resources

- Recordings for all three days (YouTube):
  - o Day 1: [Day 1 TEEBAgriFood Latin America Symposium 2022 - YouTube](#)
  - o Day 2: [Day 2 TEEBAgriFood Latin America Symposium 2022 - YouTube](#)
  - o Additional TEEBAgriFood Symposium recordings:  
<https://www.youtube.com/playlist?list=PLC2gARKM6UvSJTvov3Vd5eaxmhBOH9qYJ>
- Presentations displayed over the three days:  
<https://drive.google.com/drive/folders/1oUpRYBK2SxicDqHDxYfRkMnWGO586hkC>
- The Economics of Ecosystem and Biodiversity (TEEB) <http://teebweb.org/>
- UN Food Systems Summit 2021 [Website](#)
- Capitals Coalition Website: [The Capitals Coalition – redefining value to transform decision making](#)





<b>TEEBAgriFood Latin America and the Caribbean, Regional Symposium Agenda (7-8<sup>th</sup> June 2022)</b> <i>Simultaneous translation into English, Spanish and Portuguese will be provided</i>		
Time (Mexico)	Day 2 Agenda - Wednesday 8 <sup>th</sup>	Moderator
08:00-08:10	Welcome Remarks	Dr. Salman Hussain, Coordinator, UNEP-TEEB
08:10-09:00	<b>Communications: Elevator Pitches</b>  Guidance by Communications Expert on developing elevator pitches after which participants will work on their own pitches in breakout groups	Ms. Anna Hellge, Communications Expert, UNEP-TEEB
09:00-10:00	<b>Thematic Breakout Groups</b>  1) Challenges measuring and mainstreaming multi-attribute agro-ecosystems – the case of coffee agroforestry systems (Mexico – INECOL)  2) Challenges and opportunities for social inclusion under the expansion of sustainable technologies/intensification (Brazil - GPP)	Mr. Jacob Salcone, Programme Management Officer, UNEP-TEEB  Dr. Helena Alves Pinto, Project Manager, UNEP-TEEB, Brazil
10:00-10:05	5 min break	
10:05-10:55	<b>Private Sector and Capitals Coalition Pilot Applications</b>  Presentations from the pilot applications of the TEEBAgriFood for business  Capitals Coalition, Brazil, Mexico	Ms. Monica Lopez, Programme Management Officer, UNEP-TEEB
10:55-11:00	Closing Remarks	Dr. Salman Hussain, Coordinator, UNEP-TEEB

## Registration List

	First Name	Last Name	Organization	Country
1.	Jacqueline	Alvarez	United Nations Environment Programme	Panama
2.	Lukas	Hach		Germany
3.	Semíramis	Rabelo Ramalho Ramos	EMBRAPA	Brazil
4.	Rogério Lucio	Vianna Junior	EMATER-DF	Brazil
5.	João Flávio	Bomfim Gomes	Embrapa	Brazil
6.	Cristina	Carvalho	Delegation of the EU in Brazil	Brazil
7.	MARGARIDA	GORGA	Embrapa Hortaliças	Brazil
8.	Alcilene	Cardoso	Instituto de Pesquisa Ambiental da Amazônia/ Universidade Federal do Oeste do Pará	Brazil
9.	Regina	Cavini	UNEP Brazil Office	Brazil
10.	Yara Maria	Chagas de carvalho	Reserva da Biosfera do Cinturão Verde de São Paulo/Instituto de Economia Agrícola	Brazil
11.	Alexandre	Martins	SENAR-MG	Brazil
12.	Stefan	Agne	EU Delegation to Brazil	Brazil
13.	Elcio	Magalhães	Ministério da Cidadania	Brazil
14.	Angelo	Gurgel		United States
15.	Lucas	Ribeiro	Abag	Brazil
16.	Olivo	Dambros	Unicafes	Brazil
17.	Adriana	Figueira	Prefeitura do Revife	Brazil
18.	ZILMA	BORGES	Getulio Vargas Foundation	Brazil
19.	Nelson	Ananias Filho	CNA	Brazil
20.	Lucia	Stephen	True Cost Accounting Accelerator	United States
21.	Kelliane	Fuscaldi	Ministry of Citizenship	Brazil
22.	Pedro	Guzman		Germany
23.	Sebastian	Sunderhaus	GIZ	Colombia
24.	Juliana	Montenegro Calvo	GIZ	Colombia
25.	Catalina	Rodriguez	GIZ	Colombia
26.	Mulheres do Gau (SP)		Associação Mulheres do Gau	Brazil
27.	Fabien Monteils		UNEP	Haiti
28.	Gracie	Verde Selva	Minerva Foods	Brazil
29.	Gabriela	López Haro	UNEP México	Mexico

30.	Lorena	Soto-Pinto	El Colegio de la Frontera Sur	Mexico
31.	Debora	Lithgow	Instituto de Ecología, A.C INECOL	Mexico
32.	ENRIQUE	VAZQUEZ	Universidad Veracruzana	Mexico
33.	Nancy	Vargas Tovar		
34.	Pedro	Cavalcante	IICA	Brazil
35.	Ednaldo	MICHELLON	UEM/CerAUP/PMO	Brazil
36.	Rafael Vivian -		Embrapa Recursos Genéticos e Biotecnologia	Brazil
37.	Betty	Rocha	UFRRJ	Brazil
38.	Ana Flavia	Borges Badue	Instituto Kairos	Brazil
39.	Mayra	de Souza Bonfim		Mexico
40.	Mauricio	Bedoya	UNEP	Colombia
41.	Ana	Coelho	Centro de Estudos em Sustentabilidade da Fundação Getulio Vargas	Brazil
42.	cassia augusta amaral	buani	FNDE/PNAE	Brazil
43.	Joaquim Bento	de Souza Ferreira Filho		Brazil
44.	Mariano	Vieira	IFCE	Brazil
45.	Carlos Vitoriano			Brazil
46.	Luisete	Bandeira	OPAS/OMS	Brazil
47.	Thaise	Sarmento	Sebrae	Brazil
48.	REGINA CELIA DA SILVA	OLIVEIRA	PREFEITURA DE MARICA	Brazil
49.	Rodrigo	Delphino	Instituto Federal de São Paulo	Brazil
50.	Rosana Aparecida	Valle	Ministério da Cidadania	Portugal
51.	VANESSA CARDOSO	DA CRUZ BARBOSA		Brazil
52.	Natalia	Fratta	Uem	Brazil
53.	Camila	Alves dos Santos		Brazil
54.	Bruna	Conti	Paraná Mais Orgânico	Brazil
55.	EIANE	BASILIO DE LIMA		Brazil
56.	Izabela	do Carmo Godart		Brazil
57.	Nathália	A.	Universidade Estadual de Maringá	Brazil
58.	Francisca Chaves	Marques dos Santos	Secretaria Municipal de Educação	Brazil
59.	cybelle françoise	Macedo de Freitas	CEPEAM	Brazil
60.	Marcus	Aurélio Pereira	Secretaria de Estado de Educação e Desporto	Brazil
61.	Andreza	Colatto	Ministério da Cidadania	Brazil

62.	Camilo	Garzón	Agrosavia	Colombia
63.	Lia	Palm	Coordenadoria de Agricultura, Secretaria de Desenvolvimento Econômico e Trabalho, Prefeitura de São Paulo	Brazil
64.	Rebeca	Biancardi	EU Commission	Belgium
65.	Simone	Ranieri	GPP/ESALQ	Brazil
66.	Javier	Becerril	Facultad de Economía UADY	Mexico
67.	Maria Enesia	da Silva Neta	Secretaria do Desenvolvimento Agrário	Brazil
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74.	EVAL MARIO	MARTINEZ		Colombia
75.	Jorge	Amador	Instituto Humboldt	Colombia
76.	Martin Emilio	Rodríguez	Agrosavia	Colombia
77.	Johan Manuel	Redondo PhD.	Agrosavia	Colombia
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79.	Claudia Luz	Rodríguez	Ministerio de Ambiente y Desarrollo Sostenible	Colombia
80.	Joselin	Quintana	MAATE	Ecuador
81.	Andres	Silva	Ministerio de Ambiente, Agua y Transición Ecológica	Ecuador
82.	Luis	Ramírez y Avilés	Universidad Autónoma de Yucatán	Mexico
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85.	LYDIA	MEADE OCARANZA	SEMARNAT	Mexico
86.	Claudia	Sánchez	SEMARNAT	Mexico
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88.	DAIANA	MARTIN	UNEP	Uruguay
89.	Laura	Piedrabuena		Uruguay
90.	Ana Maria	Thomaz Maya Martins		Brazil

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98.	Rosangela	Alvarenga Morassutti	Secretaria de Educação	Brazil
99.	Clara	Villegas		Colombia
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114.	Olgalu	Hernandez		Spain
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116.	ALAN MARTIN	HERNÁNDEZ SOLANO	UIA	Mexico
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118.	Peter	May	Federal Rural University of Rio de Janeiro	United States
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126.	Diana	Moreno	Instituto Humboldt	Colombia
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128.	Adriana del Socorro	Guerra Acosta	Instituto Tecnológico del Putumayo	Colombia
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130.	Carolina	Ramírez	Instituto Humboldt	Colombia
131.	Adrian Esteban	Rodriguez Alvarez	AR Oficina de Proyectos	Colombia
132.	Leidy Tatiana	Silva Ruíz	Instituto Humboldt	Colombia
133.	Roberto	Vallejo	Canopia	Mexico
134.	Stephanie	Haszczyn	FAIRR	United Kingdom
135.	Anna	Thostrup	Fazer	Finland
136.	GIORGIA	CHERUBINI	UNEP ROE	Belgium
137.	Mariangela	Costa Duarte	Prefeitura Municipal de João Pessoa	Brazil
138.	Rosita	Ueno		Brazil
139.	MATHEUS	COUTO	UNEP-WCMC	Brazil
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160.	Jose	Leiva EN/ES (Interpreter)		United States
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Jay	van Amstel	UNEP	Brazil
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Helena	Pinto	UNEP	Brazil