

# TEEBAGRIFOOD CHINA : POLICY BRIEF

*This Policy Brief provides an overview of the TEEB for Agriculture and Food project in China which is funded by the European Union. It outlines the rationale for and history of the TEEB Initiative and its latest application: TEEBAgriFood. The geographic and thematic scope of technical work for TEEBAgriFood China – development of multifunctional ecological landscapes in Tengchong, Yunnan – is described in the context of links to key regional, national, European Union, and international policy initiatives.*



International Ecosystem Management Partnership  
国际生态系统管理伙伴计划



# 1 The Economics of Ecosystems and Biodiversity (TEEB)

[The Economics of Ecosystems and Biodiversity \(TEEB\)](#) is a UNEP-hosted global initiative launched at the G8+5 Potsdam Meeting of Environment Ministers in 2007, focused on “making nature’s values visible”. Since its inception it has aimed to recognize, demonstrate, and capture the values of nature and biodiversity in decision-making. It seeks to make the case in economic terms to give nature a seat at the decision-making table. It aims to achieve this goal by following a structured approach to valuation that helps decision-makers recognize the wide range of benefits provided by ecosystems and biodiversity, demonstrate their values in economic terms and, where appropriate, capture those values in decision-making.

Between 2007 and 2012, UNEP developed a [suite of reports](#) making the case for the economic valuation of nature to different audiences (national government, sub-national decision-makers, the business community, international policymakers) economy-wide, i.e., across multiple economic sectors. The application to policy depends on country context and the demand from national and regional policymakers and could cover a range of areas such as land-use planning, protected area management, ecosystem restoration, tax and subsidy reform, infrastructure investments, consumer product certification schemes, natural resource management, climate change mitigation and adaptation. The essence is to provide public and private sector decision-making with a means to fully account for the impacts on nature when evaluating their choices.

UNEP has had considerable success to date in mainstreaming economic valuation to support pro-nature, pro-livelihood outcomes. To highlight one of many successful cases, the application of TEEB in land management and regulation supported an initiative to protect the critical biodiversity systems in Manila achieved the great outcome of Philippines President’s Moratorium on Reclamation of Land in Manila Bay in 2019 (see [TEEB Philippines video](#)). The TEEB Approach to economic valuation has been adopted by a host of other agencies, please visit here for more [‘TEEB-inspired’ country studies](#).

# 2 TEEB for Agriculture and Food (TEEBAgriFood)

In 2014, with the guidance of the [TEEB Advisory Board](#), UNEP launched TEEB for Agriculture and Food (‘TEEBAgriFood’) with the aim of applying TEEB principles and methods specifically to one economic sector - agriculture – given the impacts and dependencies of this sector on nature and human livelihoods.

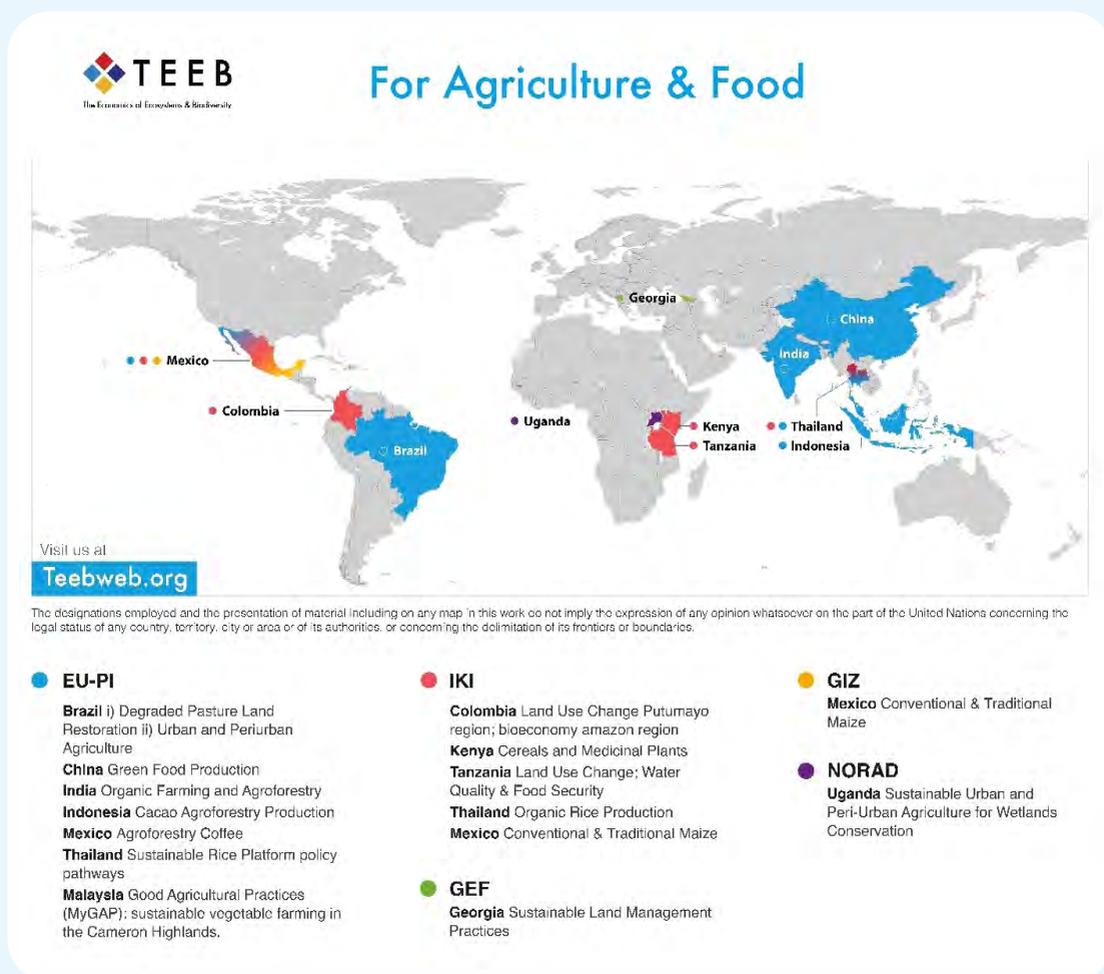
Agriculture is highly dependent on nature, and specifically on well-functioning ecosystems. Globally, food systems are now the source of 60% of terrestrial biodiversity loss, 24% of greenhouse gas emissions, 33% of soil degradation, overfishing of 29 % commercial fish populations and over-exploitation of 20% of the world’s aquifers. Moreover, agriculture is a significant source of jobs, livelihoods, social and cultural identities, as well as determining the health and nutrition of populations. Sustainable food production systems should be recognized as an essential solution to these existing challenges. It is possible to feed a growing global population while protecting our planet.

Transforming food systems to be more sustainable requiring consideration of a range of impacts. However, social and environmental impacts along value-chains are not sufficiently considered or valued, especially if they are economically invisible. Decision-makers tend to focus only on those pieces that can be readily identified, traded, and monetized. Even so-called evidence-based decision-making often considers only some of the pieces of this vast systems puzzle that are well researched, generally ignoring linkages and feedback loops. This leads to an increasing number of policies, programs and strategies designed to address specific problems with ‘silo’ solutions but with consequences, trade-offs and impacts far beyond their intended effects.

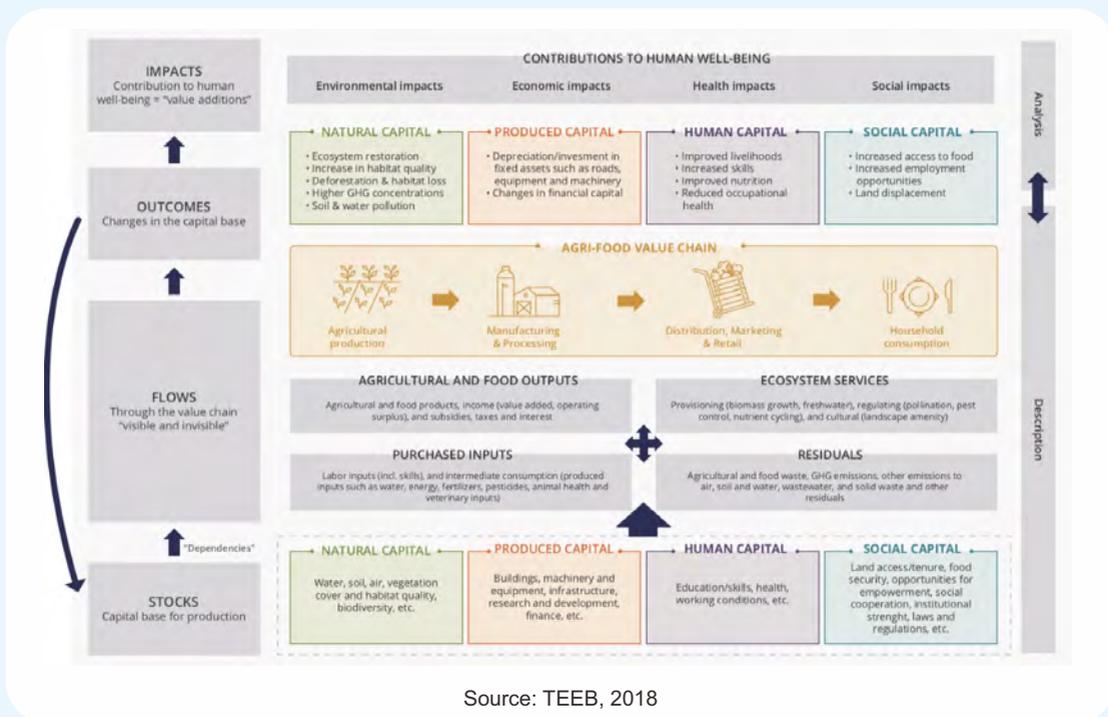
The [TEEB for Agriculture and Food programme \(TEEBAgriFood\)](#) was developed to apply whole systems thinking to the economics of agriculture, which is concerned with complex and extensive eco-agri-food value chains - from supporting ecosystems, to productive farms, to intermediaries such as aggregators, wholesalers and retailers, to food and beverage manufacturers, to distributors and consumers. The initiative seeks to provide a comprehensive economic evaluation of the “eco-agri-food systems” complex, and demonstrate that the economic environment in which

farmers operate is distorted by significant externalities, both negative and positive, and a lack of awareness of dependency on natural, human and social capital. TEEBAgriFood, based on systems thinking, can provide new and better insights into a complex reality and thus provides improved guidance for decision making.

In October 2018, the TEEBAgriFood Evaluation Framework was awarded the [Future Policy Vision Award](#) for its comprehensive approach providing opportunities to contribute to the majority of the Sustainable Development Goals (SDGs) and offering an effective system of 'true cost accounting', and its respect for the Future Just Lawmaking Principles and Elements of Agroecology. The prize was awarded by the World Future Council in partnership with FAO and IFOAM – Organics International.



The [TEEBAgriFood Evaluation Framework](#) was developed through collaboration with over 150 scholars from 33 countries representing a wide range of disciplines, backgrounds and perspectives, to guide the evaluation of food systems and their complex linkages to the environment, society and human health. To create real change, this scientific framework of analysis is being applied at the ground level, aiming to influence current policies and practices. UNEP is currently supporting the implementation of TEEBAgriFood initiatives in over 10 countries around the world, in collaboration with national and local government agencies, local research institutions and private sector businesses and networks. The TEEBAgriFood Evaluation Framework was developed with the objective to create a common language to describe the range of diverse and complex food and agriculture systems coherently and comparably across spatial scales (national, regional, farm), accounting for the negative and positive externalities of these systems.



In Indonesia, the TEEBAgriFood assessment was sent to the President's Office and was used to support the inclusion (for the first time) of agroforestry goals in the Medium-Term Development Plan (Executive Order 18/2020; see [TEEB Indonesia website](#)). In Brazil, TEEBAgriFood found that transition of unproductive pastureland into a sustainable urban food system in São Paulo can supply 13 million people with fresh and healthy vegetables, cool urban temperatures, enhance water infiltration and avoid siltation and a decline in water quality. This evidence contributed to Sao Paulo State policies to include urban and peri-urban agriculture modalities in June 2021 (see [TEEB AgriFood Sao Paolo page](#)).

### 3 The TEEBAgriFood China Project

China uses only 9% of the world's arable land to meet the basic needs of 22% of the world's population. The agricultural production model oriented to quantitative security and high yield has consumed a large number of resources, negatively impacted the agricultural landscapes, and restricted the sustainable security of the agri-food systems. In recent years, China's national strategy on 'ecological civilization' has been prioritizing harmonious coexistence between humans and nature, through low-carbon green development, increased ecological conservation, restoration initiatives and the green transformation of agricultural systems, such as through the [Integrated Reform Plan for Promoting Ecological Progress](#).

In China, multifunctional ecological landscapes support different types of but interrelated agricultural practices. Using systems thinking to assess important externalities along the value chain of agri-food systems and making nature's values visible can help people make decisions that are both economically rewarding and environmentally and socially sustainable. This coincides with the ecological civilization notion of "Green is Gold", and both aim to promote a profound shift in the concept and model of development.

The project is working with the Ministry of Ecology and Environment of China and the Chinese Academy of Sciences to conduct a TEEB pilot study of a national "Green is Gold" practice innovation base Tengchong City, Yunnan Province. Tengchong is rich in ecosystems: they include forests, grasslands and farmlands, and provide critical ecological functions such as biodiversity conservation and water provisioning. Tengchong's unique biological resources promote the cultivation of a variety of specialty



crops and strengthen a growing beef cattle industry while nurturing 90 leading agricultural industrialized enterprises and a local population of 642,500. With the opportunity brought by Yunnan's "Green Food Brand" programme, Tengchong is promoting the transformation of agriculture and food systems.

The study is to simulate and forecast the full costs and benefits on nature, economy and society of different agricultural pathways in Tengchong, toward the year 2025, 2035 and 2050. Such costs and benefits include impacts on human health, women's empowerment, quantity and quality of jobs, air, water and greenhouse gas emissions, and ecosystem services such as soil health, carbon sequestration, water quality and provisioning of agricultural inputs. The study considers combinations of different agricultural policies, such as chemicals use reduction, under-canopy plantation, combined planting-breeding, and greenhouse gas emissions reduction and control, taking into account both visible and invisible costs and benefits, and the interests of the present and future generations. By disclosing the interdependencies of the components of agri-food systems and balancing the trade-offs among them, the study results can reveal the paths of effective Green to Gold transformations, support the formulation of sustainable agriculture policies, and address the goals of the China Biodiversity Conservation Strategy and Action Plan (2011-2030) to reduce the impact of agriculture on biodiversity and promote the restoration of degraded landscapes. Relevant agricultural policy initiatives include the prevention and control of agricultural pollution, the promotion of a circular economy through straw and manure management systems as well as Yunnan's Green Food Program.

The Project Steering Committee (PSC) is chaired by the Chinese Research Academy of Environmental Sciences, Ministry of Ecology and Environment. Other PSC members are from organizations or governmental bodies at different levels including Rural Energy and Environment Agency, Ministry of Agriculture and Rural Affairs; Bureau of International Cooperation, Chinese Academy of Sciences; Department of Ecology and Environment of Yunnan Province; Bureau of Baoshan Ecological Environment; Tengchong Branch of Baoshan Ecological Environment Bureau; and International Ecosystem Management Partnership, United Nations Environment Programme (UNEP-IEMP). At the local level, a wide range of governmental bodies covering agriculture, development, natural resources, forestry and grassland, water and environment domains were consulted along the implementing process, so were the agricultural businesses, cooperatives and farmers. The work in China is coordinated by UNEP-IEMP and implemented by the Chinese Research Academy of Environmental Sciences and the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences with relevant teams in the country. The project in China is funded and supported by the European Union.

Video: <https://youtu.be/kmrOCcHlhQw>

# 4

## Business Component

As part of the project, the Capitals Coalition engages with businesses to adjust agri-business models by supporting them to understand and manage risks and dependencies on nature.

In 2020, [TEEBAgriFood Operational Guidelines](#) for business were launched, going beyond existing guidance for business by considering the interdependencies between nature and people in the food value chain. This an important stepping stone towards mainstreaming natural capital into decision-making in diversified value chains and geographies.

[Agri-Business roundtables and training sessions](#) pave the way for agri-business to measure and manage not just their impacts on produced capital (ie. shareholders), but also their impacts and dependencies on natural capital and the society at large. To support businesses in the application of the TEEBAgriFood Operational Guidelines, one-to-one support is provided to help businesses to complete a capitals assessment, in addition to the training sessions. As such, the evidence base to incorporate systems-thinking in business decision-making grows.

The TEEBAgriFood for business platform is led by Capitals Coalition, in collaboration with national business networks and, in China, [GoldenBee Consultancy](#). A Capitals China Hub has been established to work with 13 other Capital Coalition hubs across the globe to promote the valuation of produced capital, human capital, natural capital and social capital, and to facilitate a better understanding of the impact of nature and people among enterprises, financial institutions and governments.

# 5

## Links to EU Priorities

The present TEEBAgriFood application in China – together with India, Brazil, Mexico, Indonesia, Malaysia and Thailand – is funded by the European Union. As part of the EU's international cooperation strategy, through this project the EU aims to work with the selected partner countries to take joint action towards halting environmental degradation globally and make commitments on reducing biodiversity loss.

The objectives of the project are aligned with EU priorities and policies in the areas of environment, climate change and food systems transformation. The project is fully aligned with the [European Green Deal](#) with sets out ambition in the EU and globally to promote economically, socially and environmentally sustainable development and to address climate change. Biodiversity and ecosystems provide us with food, health and medicines, materials, recreation, and wellbeing. They help keep the climate in balance, fertilize crops and much more. Nature provides for businesses half of global GDP, 40 trillion euro depending on nature. The Green Deal is supported by three landmark strategies that are mutually reinforcing.

- [EU 2030 Biodiversity Strategy](#) which seeks to tackle the key drivers of biodiversity loss, including those linked to food systems; for example to restore degraded ecosystems across the whole of Europe by increasing organic farming and biodiversity rich landscape features on agricultural land.
- EU's [Farm to Fork Strategy](#) aims to accelerate transition to a sustainable food systems that: has a neutral or positive environmental impact, helps to mitigate climate change and adapt to its impacts; reverses biodiversity loss; ensures food security and access to sufficient, safe, nutritious and sustainable food; and preserves the affordability of food while generating fairer economic returns.
- [Food 2030](#) is the EU's research and innovation policy to transform food systems and ensure everyone has enough affordable, nutritious food to lead a healthy life.

In addition of relevance is the [Circular Economy Action Plan](#) emphasizes the importance of understanding environmental impacts across the full value chain of products, including food, in order to reduce waste and support a shift towards more sustainable consumption and production.

# 6

## Link to international policy

**Food Systems Transformation.** At the global level, TEEBAgriFood engages with the [True Value of Food Initiative](#) initiated at the 2021 [UN Food Systems Summit](#) at which member states showed a broad consensus for the need to account for the true value of food in order to transform how we produce, process, distribute, consume, and dispose of food is required to tackle the triple planetary crisis. The scientific evidence is summarized in the paper on the True cost and true price of food from the [Scientific Group of the UN Food Systems Summit](#).

**Post-2020 Biodiversity Agenda.** The TEEB and TEEBAgriFood approaches support the draft goals of the post-2020 Biodiversity Agenda, notably Goal B: “Nature’s contributions to people are valued, maintained or enhanced through conservation and sustainable use supporting the global development agenda for the benefit of all.” The Convention on Biological Diversity (CBD) has a page on its [website dedicated to TEEB](#).

**Ecosystem Restoration.** TEEBAgriFood supports approaches to food systems transformation – such as organic agriculture and agroforestry – which can reduce land degradation, enhance ecosystem services and contribute to the restoration of ecosystems. As such, it is in line with the goals on the United Nations Convention to Combat Desertification and the [UN Decade on Ecosystem Restoration](#).

**Sustainable Development Goals.** As a multidisciplinary and integrated framework, TEEBAgriFood can assess progress towards and trade-offs between a range of economic, social and environmental related SDGs, including, but not limited to: Zero Hunger, Good Health and Well-Being, Gender Equality, Decent Work and Economic Growth, Responsible Consumption and Production, Climate Action and Life on Land.

**Natural Capital Accounting.** The TEEB approach contributes to and draws upon work ongoing internationally to promote natural capital accounting as a tool to inform environmental policymaking, in particular through the [System of Environmental-Economic Accounting](#). UNEP has partnered with the United Nations Statistical Division in the EU-funded [Natural Capital Accounting and Valuation of Ecosystem Services](#) project to advance the theory and practice of environmental and ecosystem accounting in Brazil, China, India, Mexico and South Africa. Full results from the project in China are available [here](#).





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