



# TEEB for Agriculture & Food

## Scientific & Economic Foundations report

### PROMOTIONAL TOOLKIT

The purpose of this toolkit is to provide our partners with a repository of information and communications materials related to the 'TEEB for Agriculture & Food' **Scientific and Economic Foundations** report, as well as its shorter **Synthesis** report.

This document will be of interest to anyone engaged in the general science-policy interface of '[eco-agri-food systems](#)', and interested in offering their networks information on a new report that advocates for a holistic, systems-based and inclusive approach to evaluating agriculture and food systems.

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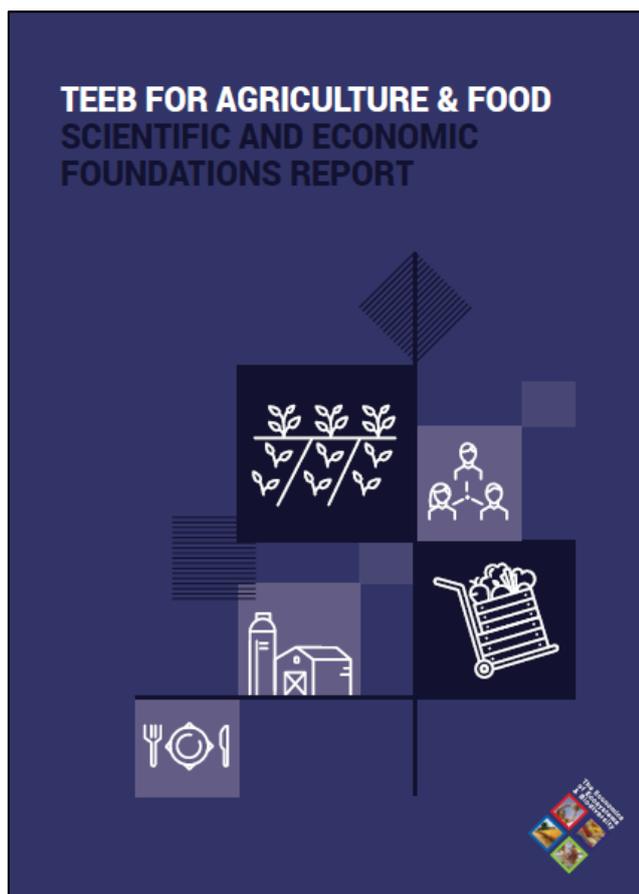
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[www.teebweb.org](http://www.teebweb.org)  
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TEEB Office: Geneva, Switzerland

# THE REPORTS



## TEEB for Agriculture & Food: Scientific and Economic Foundations report

The 'Scientific and Economic Foundations' report addresses the core theoretical issues and controversies underpinning the evaluation of the nexus between the agri-food sector, biodiversity and ecosystem services and externalities including human health impacts from agriculture on a global scale. It argues the need for a ['systems thinking'](#) approach, draws out issues related to health, nutrition, equity and livelihoods, presents a [Framework for evaluation](#) and describes how it can be applied, and identifies theories and pathways for transformational change.

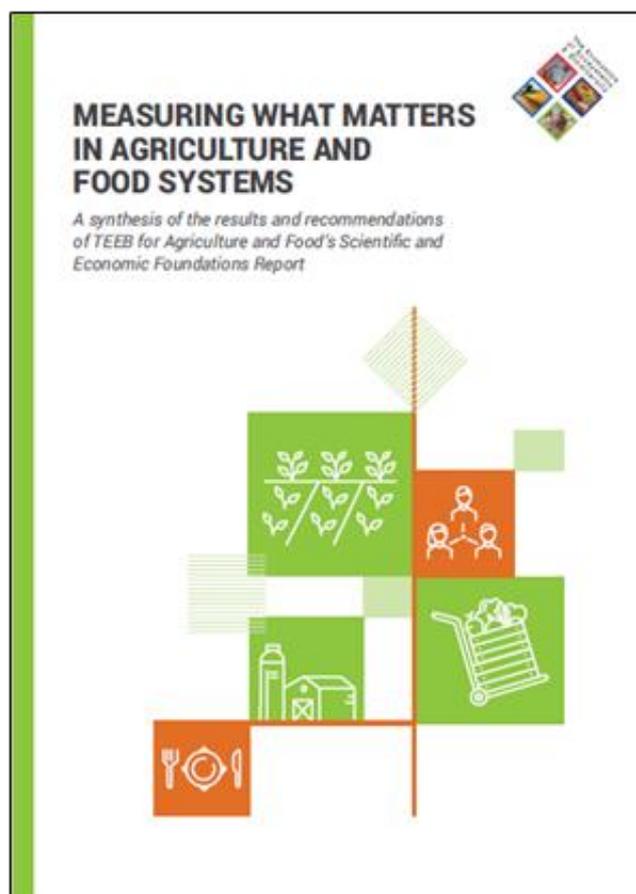
Suggested citation: TEEB (2018). TEEB for Agriculture & Food: Scientific and Economic Foundations. Geneva: UN Environment.

ISBN: 978-92-807-3702-8

## Measuring what matters in agriculture and food systems: a synthesis of the results and recommendations of TEEB for Agriculture and Food's Scientific and Economic Foundations Report

The 'Synthesis' report features insights from the *TEEBAgriFood Study Leader*, Alexander Müller, and *Special Adviser*, Pavan Sukhdev. It also offers an overview of the work developed by nearly 150 experts from over 30 countries and representing a wide range of backgrounds and disciplines in bringing together the ten chapters of the 'Foundations' report.

Suggested citation: TEEB (2018). Measuring what matters in agriculture and food systems: a synthesis of the results and recommendations of TEEB for Agriculture and Food's Scientific and Economic Foundations report. Geneva: UN Environment.



# LAUNCH EVENT(S)

A series of launch events are being planned throughout 2018-19 to showcase and promote the key messages, findings and recommendations of the TEEBAgriFood reports. We are seeking strategic promotional and partnership opportunities to disseminate the reports and, more importantly, to build the TEEBAgriFood network into a community of practice and change.

The official report launch is taking place on the occasion of World Environment Day 2018, hosted by UN Environment and the Government of India.



**Monday, 4 June 2018**  
**Vigyan Bhavan, New Delhi, INDIA**

<b>Dialogue Series -2</b> <b>11.15 – 12.45</b>	<b>Launch Event for TEEB for Agriculture and Food Report</b>
<b>Framing the Issues</b>	<b>Mr. Erik Solheim</b> , Executive Director, UN Environment
<b>Panel Discussion</b>	<b>Moderator:</b> <b>Mr. Alexander Mueller</b> , Study Leader, TEEB for Agriculture & Food  <b>Panelists:</b> <b>Mr. Pavan Sukhdev</b> , President, WWF International <b>Mr. S.K. Pattanayak</b> , Secretary, Ministry of Agriculture and Farmers' Welfare, Govt. of India <b>H.E. Dr. Kuntoro Mangkusubroto</b> , Former Minister and Head of the President's Delivery Unit, Republic of Indonesia <b>Dr. Kanchan Chopra</b> , Former Director, Institute of Economic Growth, University of Delhi <b>Dr. Anandi Subramanian</b> , Senior Economic Advisor, MoEFCC
<b>12.45 – 13.30</b>	<b>Lunch Break</b>

## HIGH-LEVEL DIALOGUE SESSION

This dialogue session will witness the launch of the TEEBAgriFood 'Scientific and Economic Foundations Report' and sharing of key findings including: a) Discussing the role of the Evaluation Framework in contributing to a new more holistic, multi-dimensional, systems-thinking paradigm, and b) Exploring the potential impact for decision-makers in policy, business and farming, and in contributing to the 2030 Agenda and Sustainable Development Goals. Panelists will highlight best-practices from India on natural farming emerging in smallholder agricultural landscapes that can be replicated and scaled in additional geographies to reduce vulnerability to climate change impacts.

# KEY MESSAGES

## THE BIG PROBLEM: The food system is broken

- Today's food systems do not nourish and nurture people, society and the planet
- Diets have become the main risk for human health
- Almost one third of all people are undernourished
- 815 million people still go to bed hungry
- Close to 30% of all people are overweight or obese
- Close to 10% of all people are actually obese
- Without transforming food systems, climate change cannot be stopped!
- GHG emissions from the agri-food 'value chain' (including agriculture-related deforestation, farming, processing, packaging, transportation and waste) account for 43-57% of all human GHG emissions
- Half of all food is grown by a billion smallholder farmers, most of whom continue to live in poverty
- 'Food-insecure' regions are nevertheless able to grow up to 80% of their food requirements, and with appropriate support, they could bridge that deficit
- One third of all food produced is thrown away, one third of all land and water in agriculture is used to produce waste.

## WHAT CAN BE DONE: Fixing the metrics

- Eco-agri-food systems today are being viewed and evaluated through a narrow, incomplete and distorting lens called 'per-hectare-productivity'
- To fix our broken food system, we must first fix food metrics
- We need a robust & wide-angle lens to measure eco-agri-food system performance
- Navigating eco-agri-food systems with a yardstick of 'per hectare productivity' is like navigating deep space with a mariner's compass
- The true costs of food systems need not exceed their true benefits: we need better information to make better choices
- The market prices of food don't tell the truth – often we pay a second price for environmental degradation and food borne diseases
- Agriculture is the biggest employer in the world – we have to improve the livelihoods of 1 Billion people

## A WAY FORWARD: The role of TEEBAgriFood

- Complex problems of the eco-agri-food system require systemic solutions
- TEEBAgriFood has built a holistic set of metrics to evaluate true performance in eco-agri-food systems
- TEEBAgriFood's Evaluation Framework is universal, comprehensive and inclusive
- TEEBAgriFood's Evaluation Framework answers the question: What should we evaluate about food systems?
- TEEBAgriFood's methodologies answer the question: How should we do these evaluations?
- TEEBAgriFood illustrates five families of applications to compare: (a) different policy scenarios, (b) different farming typologies, (c) different food & beverage products, (d) different diets/ food plates (e) adjusted versus conventional national or sectoral accounts
- TEEBAgriFood gives ten examples showing how to apply our Framework and methodologies for various types of evaluations
- In New Zealand: a study of 15 conventional and 14 organic fields valued 12 ecosystem services and found both crops as well as other ecosystem services to be higher in the organic fields
- In Thailand: a study on pesticide subsidies found that farmer and consumer health was affected, and evaluated the impacts of a pesticide tax response combined with education about alternatives
- The TEEBAgriFood Framework supports the integrated implementation of many SDGs
- TEEBAgriFood provides guidance for transformational change towards sustainability.
- TEEBAgriFood is a neutral framework supporting health for people and planet

# PRESS RELEASE (FOR PUBLIC USE)

## Revealing Food's Hidden Costs: New Framework for Food and Agriculture

**New Delhi, INDIA - June 4, 2018:** A new report released today offers a ground-breaking platform to evaluate the real costs and benefits—including environmental, health, and social impacts—of our agriculture and food systems. This [Scientific and Economic Foundations Report](#) provides the basis for a major paradigm shift in how we view and manage our agriculture and food systems, demonstrating how to evaluate not just the visible but also the hidden costs and benefits. The timing is critical—with 10 billion people to feed by 2050 and 40 percent of available land already growing food—we need to consider new frameworks and models for how we grow, process, distribute, and consume food, and manage food waste.

The Economics of Ecosystems and Biodiversity ([TEEB](#)), known for its ground-breaking research on the economic values of nature in 2010, brings together more than 150 experts from 33 countries to deliver a strong and urgent message to the global community on the need for a transformation of our agriculture and food systems that is sustainable, equitable, and healthy. With this report, policymakers, researchers, and citizens now have more reliable and integrated information on the hidden (and unaccounted) costs and benefits—the “externalities”—of the whole system, not just parts of it.

Agricultural productivity is typically measured by yield per hectare, a simplistic metric that provides an incomplete picture of the true costs and benefits associated with agriculture and food value chains. Current patterns of production, processing, and consumption are generating large and unacceptable impacts on the health of the environment and humans, particularly on vulnerable populations. For example, take the cost of a tomato at a supermarket. The cost does not take into account how it was raised, such as the environmental damage from fertilizer and pesticide runoff, the regeneration of soil, or a fair wage payment to laborers. Applying the TEEBAgriFood framework shows that cheap food can be very expensive when we shine a light on all its hidden costs to our health, livelihoods, soils, water and climate.

The TEEB for Agriculture & Food (TEEBAgriFood) [Scientific and Economic Foundations report](#), a United Nations Environment Programme ([UNEP](#)) project, funded by the [Global Alliance for the Future of Food](#), is looking at all the impacts of the value chain, from farm to fork to disposal, including effects on livelihoods, the environment, and health. This framework can help tackle the challenges currently faced by our global agriculture and food systems in achieving universal food security and reducing large impacts on climate, ecosystems, and environments.

“If we want to bend the curve on biodiversity loss we must understand the true impacts of the food system on our planet,” says Joao Campari, World Wildlife Fund (WWF) Food Practice Leader. “WWF works across the full spectrum of the food system, from production to consumption, loss and waste, and we welcome TEEBAgriFood's research as it assesses a multitude of impacts on both people and planet, instead of trying to distill the complexities into one over-simplified metric. We look forward to seeing the evaluation framework be applied to real-world projects and hopefully contributing to transformational change.”

### **Some of the consequences of our current systems outlined in the report include:**

- Agricultural production contributes over one-fourth of greenhouse gas emissions (GHG).
- When considering land-use change and deforestation as well as processing, packaging, transport, sale, and the waste of agricultural products, 43 to 57 percent of GHG emissions are from food production.

## PRESS RELEASE (FOR PUBLIC USE)

- 70 to 90 percent of global deforestation is from agricultural expansion.
- An estimated 80 percent of food consumed in food-insecure regions is grown there, mainly by women, while agri-business is a marginal player in food security.
- According to the U.N. Food and Agriculture Organization, if women had the same access to resources (land, credits, education, etc.) as male farmers, they could raise yields by 20 to 30 percent and lift as many as 150 million people out of hunger.
- Approximately one-third of the food produced in the world for human consumption every year gets lost or wasted, enough to feed the world's hungry six times over.
- Around 40 percent of available land is used for growing food, a figure that would need to rise to an improbable 70 percent by 2050 under a "business-as-usual" scenario.
- 33 percent of the Earth's land surface is moderately to highly affected by some type of soil degradation mainly due to the erosion, salinization, compaction, acidification, or chemical pollution of soils.
- Six of the top eleven risk factors driving the global burden of disease are diet-related.
- The World Health Organization estimates the direct costs of diabetes at more than US\$827 billion per year, globally.
- Unsafe food containing harmful bacteria, viruses, parasites, or chemical substances causes more than 200 diseases, and an estimated 600 million people—almost 1 in 10 people in the world—fall ill after eating contaminated food, while 420,000 die every year.
- 61 percent of commercial fish populations are fully fished and 29 percent are overfished.
- In a "business-as-usual" scenario, the ocean will contain more plastic than fish (by weight) by 2050.

In order to demonstrate how real-world applications of such a comprehensive approach might take shape, a framework for evaluation has been developed to provide a solid basis from an economic and accounting perspective. The report also identifies theories and pathways for transformational change in government, business, farming, and consumer contexts.

"The overarching importance of this work is that we must link the health of people with the health of the planet, and we can only ensure long-term food security if our food systems don't destroy the basis of food production," says Alexander Müller, Study Leader of TEEBAgriFood. "If you look at food production only from a price perspective, and the old paradigm of the cheaper the better, you run into a trap because the long-term sustainability of our food production system is not a given and requires hard work."

"We are trying to pull together the latest scientific results on food systems," says Müller. "We tried to link together the latest findings of economists, environmentalists, agriculturalists, people looking at labor and trade, and science to fight poverty. If you bring these results together in a new way, you can see that the system is more than all the different parts of the disciplinary sciences working on it."

To ensure the sustainability of agriculture and food systems, an important step is to account for externalities through market mechanisms. By creating a more comprehensive evaluation framework, decisionmakers can better compare different policies, programs, and strategies, while the market can more accurately value food. TEEBAgriFood hopes their new framework will help achieve their vision of a world where informed decisionmaking upholds public good and ensures nutrition and health for all humans so they can live in harmony with nature.

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"Our framework provides a holistic, ethical, wide-angle lens with which to really understand our food systems today," says Pavan Sukhdev, member of the TEEBAgriFood Steering Committee and Founder-CEO of GIST Advisory. "Because of its holistic approach, this framework is not as easy to apply as a single-lens approach—'per hectare productivity,' for example—but it is ethically, socially, economically, and environmentally much more appropriate, and can provide sustainable business models in the context of climate change, changing global demographics, local economies, and health. I want decisionmakers in governments and businesses to realize that they should support the use of this wide-angle lens applied to the full eco-agri-food system instead of the inadequate narrow lens of per-hectare productivity in farms."

**About TEEBAgriFood:** Lead by the U.N. Environment Programme, the TEEBAgriFood initiative brings together scientists, economists, policymakers, business leaders, and farmers' organizations in order to agree how to frame, undertake, and use holistic evaluations of agricultural systems, practices, products, and policy scenarios against a comprehensive range of impacts and dependencies across food value chains. It makes and illustrates the case for "[systems thinking](#)" instead of "silo thinking." TEEBAgriFood provides a comprehensive economic evaluation of the "eco-agri-food systems" complex, and demonstrates 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.

# MEDIA AND STORIES

## NEWS

**Nature, 7 June 2018**

[Smarter metrics will help fix our food system](#)

**Reuters, 7 June 2018**

[Why we need a holistic approach to improve our complex food system](#)

**Food Tank, 4 June 2018**

[Revealing food's hidden costs: new framework for food and agriculture](#)

**Reuters, 24 May 2018**

[To fight climate change, policymakers should turn to food](#)

**Nature, 30 November 2016**

[Fix food metrics](#)

## INTERVIEWS

**Alexander Müller || TMG – THINKTANK FOR SUSTAINABILITY**

[Linking the health of people with the health of the planet](#)

**Pavan Sukhdev || GIST ADVISORY & UN ENVIRONMENT**

[People care when they see the cost: evaluating food systems](#)

**Ruth Richardson || GLOBAL ALLIANCE FOR THE FUTURE OF FOOD**

[New report provides platform to fix broken food systems](#)

**Wei Zhang || INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE**

[We must "understand the 'entirety' of the \[food\] system](#)

**Jules Pretty || UNIVERSITY OF ESSEX**

[Sustainable agriculture and healthy food consumption behaviors go together](#)

**Salman Hussain || UN ENVIRONMENT – TEEB OFFICE**

[Health and nutrition experts should and must interact with plant scientists](#)

**Abdou Tenkouano || WEST & CENTRAL AFRICA COUNCIL FOR AGRIC. RES. AND DEVELOP.**

[The environment is our economy](#)

**Anil Markandya || BASQUE CENTRE FOR CLIMATE CHANGE (BC<sup>3</sup>)**

[New global report reveals... connections between food, the environment, and human health](#)

**Harpinder Sandhu || FLINDERS UNIVERSITY**

[Enhancing human and planetary health by improving agriculture](#)

**Kavita Sharma || UN ENVIRONMENT – TEEB OFFICE**

[Can new report bring transparency to the food system?](#)

**Peter May || FEDERAL RURAL UNIVERSITY OF RIO DE JANEIRO**

[Improving the food system one dollar at a time](#)

## SOCIAL MEDIA

The link below provides access to a public Google Drive folder with various images, memes and videos for use on Twitter, Facebook, Instagram, Pinterest and LinkedIn: <https://drive.google.com/drive/folders/1IEUlcckNMcfxAOuZD27ZDimCcTCXSDXB>.