

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.

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.
- 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.

“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.

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