TEEBAgFood

The Economics of Ecosystems & Biodiversity

International Expert Workshop on Biodiversity Mainstreaming

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Summary statement

The **TEEBAgFood** study is designed to provide:

- a *comprehensive valuation (incl.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 capital.

‘The Good’

+ Agriculture employs 1 in 3 people of the world’s economically active labour force, or about 1.3 billion people. For the 70 per cent of the world's poor living in rural areas, agriculture is the main source of income and employment.

+ Smallholder farms (i.e. less than 2 hectares) represent over 475 million of the world’s 570 million farms and, in much of the developing world, they produce over 80 per cent of the food consumed.

+ Food production systems produce approximately 2,800 calories per person per day which is enough to feed the world population today.

‘The Bad’

- Eighty per cent of new agricultural lands have replaced tropical forests since the 1980s, a trend resulting in significant biodiversity loss and ecosystem degradation.

- Crop and livestock farming produce between five and six billion tons of CO_2-equivalent in greenhouse gas (GHG) emissions each year, the agricultural sector is still expanding.

- The agricultural sector utilizes 70 per cent of the water resources we withdraw from rivers, lakes and aquifers, raising serious concerns in terms of sustainability and security.

- **Still 825 Mill. people are hungry.**

GDP of the Poor

Traditional measures of national income (GDP) measure the flow of goods and services. Could be misleading as indicators of societal progress because of the "**invisibility" of many of nature's values**.

TEEB reports present 'GDP of the Poor' as a new metric that integrates economic, environmental and social aspects, thereby indicating the vulnerability of the rural poor if valuable natural resources are lost.

Ist has been estimated that biodiversity and ecosystem services account for between 40 to 90 per cent of the GDP of the Poor.

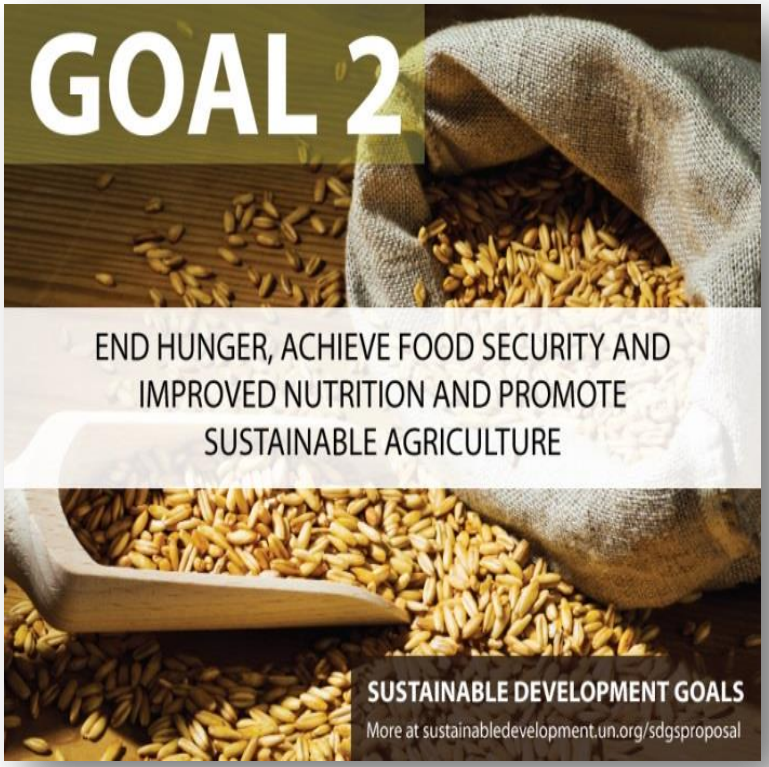
TEEB
approach has three different levels of action:

1. Recognizing value – identifying the wide range of benefits in ecosystems, landscapes and biodiversity, such as provisioning, regulating, habitat/supporting and cultural services

2. **Demonstrating value** – using economic tools and methods to make nature's services economically visible in order to support decision-makers wishing to assess the full costs and benefits of land-use change

3. **Capturing value** – incorporating ecosystem and biodiversity benefits into decision-making through incentives and price signals

TEEBAgFood > SDGs

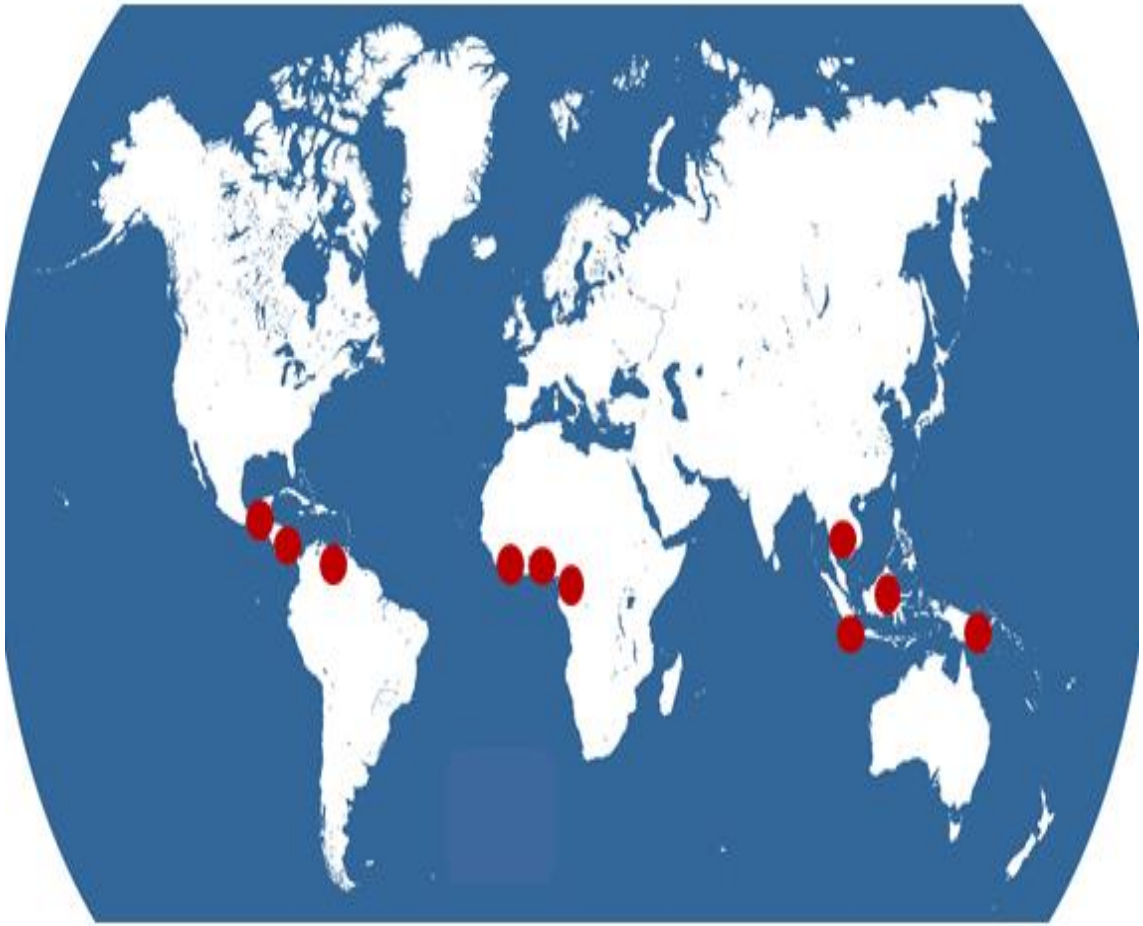


TEEBAgFood Strategic objectives

1. **Highlighting the role of natural capital accounting**: role of ecosystems & biodiversity is recognized in the food systems
2. **Developing an evidence base on health externalities:** impacts quantified and where possible monetized across the supply chain
3. **Providing coherence and transparency in assessments:** the TEEBAgFood framework
4. **Providing guidance on instruments that might be applied to capture these values across the supply chain:** these may include regulation, information-provision, market-based tools *etc*. These are to be targeted at different stakeholder groups, to include businesses and civil society as well as International Organizations
5. **Community building**: participation in the project has be inclusive and transparent in order to build a strong community of practice

TEEBAgFood Palm Oil Study

Countries included within the materiality assessment



Interim findings from the TEEBAgFood palm oil study

Trucost (2015) assessed **‘natural capital**’ and ‘**social capital**’ costs in the **top eleven palm oil producing coun**tries

These costs were determined by evaluating three main criteria:

(i) yield and conversion rate;

(ii) quantity and type of inputs; and

(iii) the monetary value per quantity of emissions.

Interim findings from the TEEBAgFood palm oil study

Palm oil is the world's most consumed vegetable oil with over 56 million metric tons in 2013.

Production expected to double over the next 40 years for use in food, cosmetics and biofuels.

Palm oil production generates the following natural and social capital costs:

- carbon emissions and their impact on global warming (58 per cent),
- fertilizer application (23 per cent);
- palm oil mill effluent emissions (12 per cent);
- manufacturing of inputs (4 per cent);
- and pesticide application (3 per cent).

Interim findings from the TEEBAgFood palm oil study

Interim valuation (not yet peer reviewed)

In total, palm oil production in the top 11 producer countries generates natural and social capital costs of US $44 billion/a, ranging between US $271 and US $1,300 per ton, depending on the practices used and the agro-ecological conditions.

Interim findings from the TEEBAgFood palm oil study

Top two producing countries contribute 66 and 26 per cent of the total costs (high production quantity and high intensity).

Palm oil production in countries with significantly lower rates of peatland drainage and forest conversion is significantly less costly (difference of $563 per ton).

Social capital costs in terms of human health, due to the high application of fertilizers coupled with poor access to safe drinking water, amount to roughly $533 per ton of palm oil produced.

Please note that the results are preliminary and not yet peer reviewed.

The 'eco-agri-food' system complex