

TEEB AgriFood

Cambridge, 13-15 February 2016

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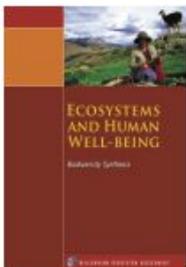
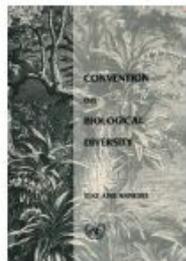
FORMER CHAPTER(S)			NEW CHAPTER		
1	TEEB: Genesis, Scope, Achievements & Evolution	Brief history of TEEB; Revisiting the TEEB approach and its relevance and application to agriculture and food. Documenting our evolving mandate: from evaluating ecosystems & biodiversity and their impacts and dependencies on policies, business practices and citizen choices to also evaluating adjacent systems with deep & multiple interactions with ecosystems & biodiversity, i.e., the 'eco-agri-food systems' complex.	1	<i>TEEB Agriculture and Food: An Introduction</i>	1.1 Genesis, Rationale, Scope and Achievements 1.2 Rationale & Objectives for TEEBAgriFood 1.3 Structure and Scope of 'Foundation'
2	Rationale & Objectives for TEEBAgriFood	The dominant discourse versus ground reality: significant yet unaccounted positive and negative implications of agriculture and food systems on food security, livelihoods, human health, ecosystem integrity and climate change, and why economics is central to the global agenda for change: especially removing poverty, hunger, malnutrition, and environmental degradation, and providing decent employment on a very large scale.			
4	Rationale, objectives & structure for 'Foundations'	The need for transparency, consistency, completeness and a robust scientific and economic underpinning for a holistic and more appropriate evaluation framework and discourse on food systems.			



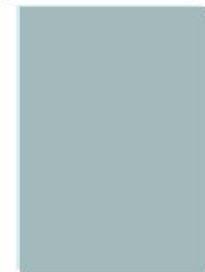
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TEEB initiative (2008-2012)



Ecol./Env. Economic literature



G8+5
Potsdam
2007

“Potsdam Initiative – Biological Diversity 2010”

The economic significance of the global loss of biological diversity....
Importance of recognising, demonstrating & responding to values of nature...



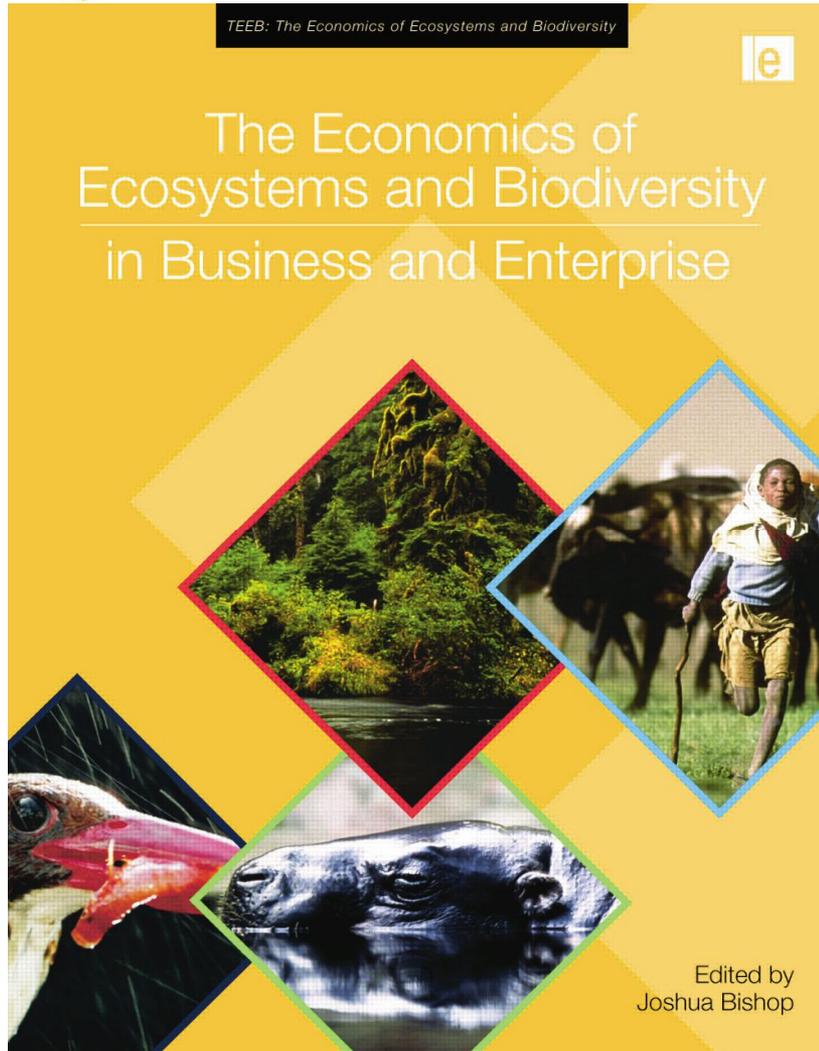
India, Brazil, Belgium,
Japan & South Africa
Sept. 2010



BD COP 10 Nagoya, Oct 2010

- CBD COP11 India
- National TEEB Work
- Sectoral TEEB Work
- Business Externalities Work
- Rio+20 Brazil

TEEB for Business



NATURAL CAPITAL AT RISK: THE TOP 100 EXTERNALITIES OF BUSINESS



Show next page (Right Arrow)

APRIL 2013



Why select the Agriculture sector?

7.1.2 THE GLOBAL 20 REGION-SECTORS

Ranking of the 20 region-sectors with the greatest total impact across the 6 EKPIs when measured in monetary terms.

RANK	SECTOR	REGION	NATURAL CAPITAL COST, US\$ BN	REVENUE, US\$ BN	IMPACT RATIO
1	COAL POWER GENERATION	EASTERN ASIA	452.8	443.1	1.0
2	CATTLE RANCHING AND FARMING	SOUTH AMERICA	353.8	16.6	18.8
3	COAL POWER GENERATION	NORTHERN AMERICA	316.8	246.7	1.3
4	WHEAT FARMING	SOUTHERN ASIA	266.6	31.8	8.4
5	RICE FARMING	SOUTHERN ASIA	235.6	65.8	3.6
6	IRON AND STEEL MILLS	EASTERN ASIA	225.6	604.7	0.4
7	CATTLE RANCHING AND FARMING	SOUTHERN ASIA	163.0	174.0	0.8
8	CEMENT MANUFACTURING	EASTERN ASIA	147.0	5.8	23.0
9	WATER SUPPLY	SOUTHERN ASIA	111.7	14.1	7.9
10	WHEAT FARMING	NORTHERN AFRICA	100.1	7.4	13.6
11	RICE FARMING	EASTERN ASIA	99.3	91.2	1.1
12	WATER SUPPLY	WESTERN ASIA	86.7	18.4	4.7
13	FISHING]	GLOBAL	86.1	136.0	0.6
14	RICE FARMING	NORTHERN AFRICA	84.2	1.2	69.6
15	CORN FARMING	NORTHERN AFRICA	80.4	1.7	47.8
16	RICE FARMING	SOUTH-EASTERN ASIA	79.7	41.0	1.9
17	WATER SUPPLY	NORTHERN AFRICA	76.4	3.4	22.2
18	SUGARCANE	SOUTHERN ASIA	75.6	6.0	12.5
19	PETROLEUM AND NATURAL GAS EXTRACTION (excludes water and land use)	EASTERN EUROPE	72.6	371.6	0.2
20	NATURAL GAS POWER GENERATION	NORTHERN AMERICA	69.4	122.7	1.0



‘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.

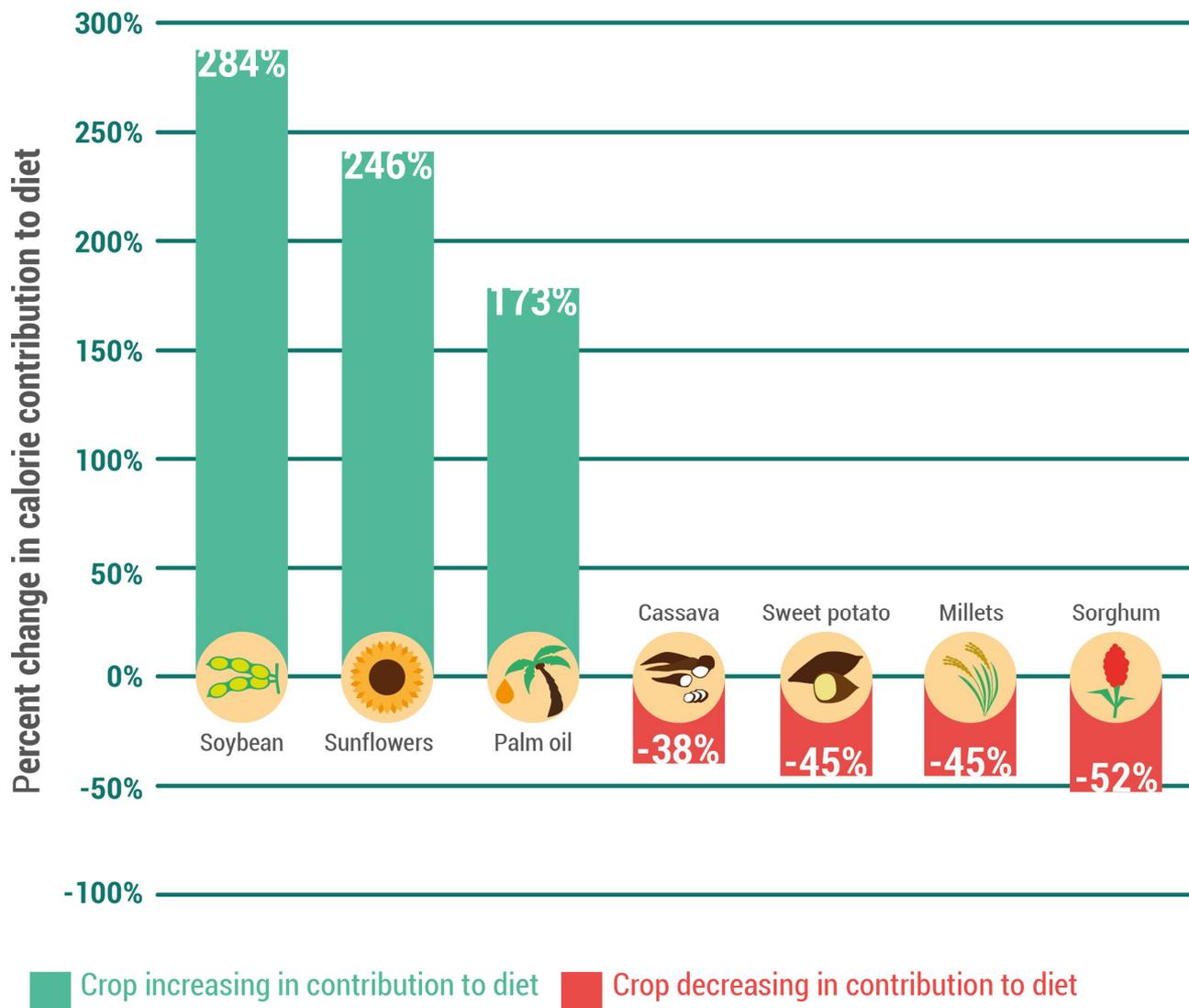


‘The Bad’

- **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 CO₂-equivalent in greenhouse gas (GHG) emissions each year, mostly in developing countries where the agricultural sector has expanded in recent years.**
- **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.**

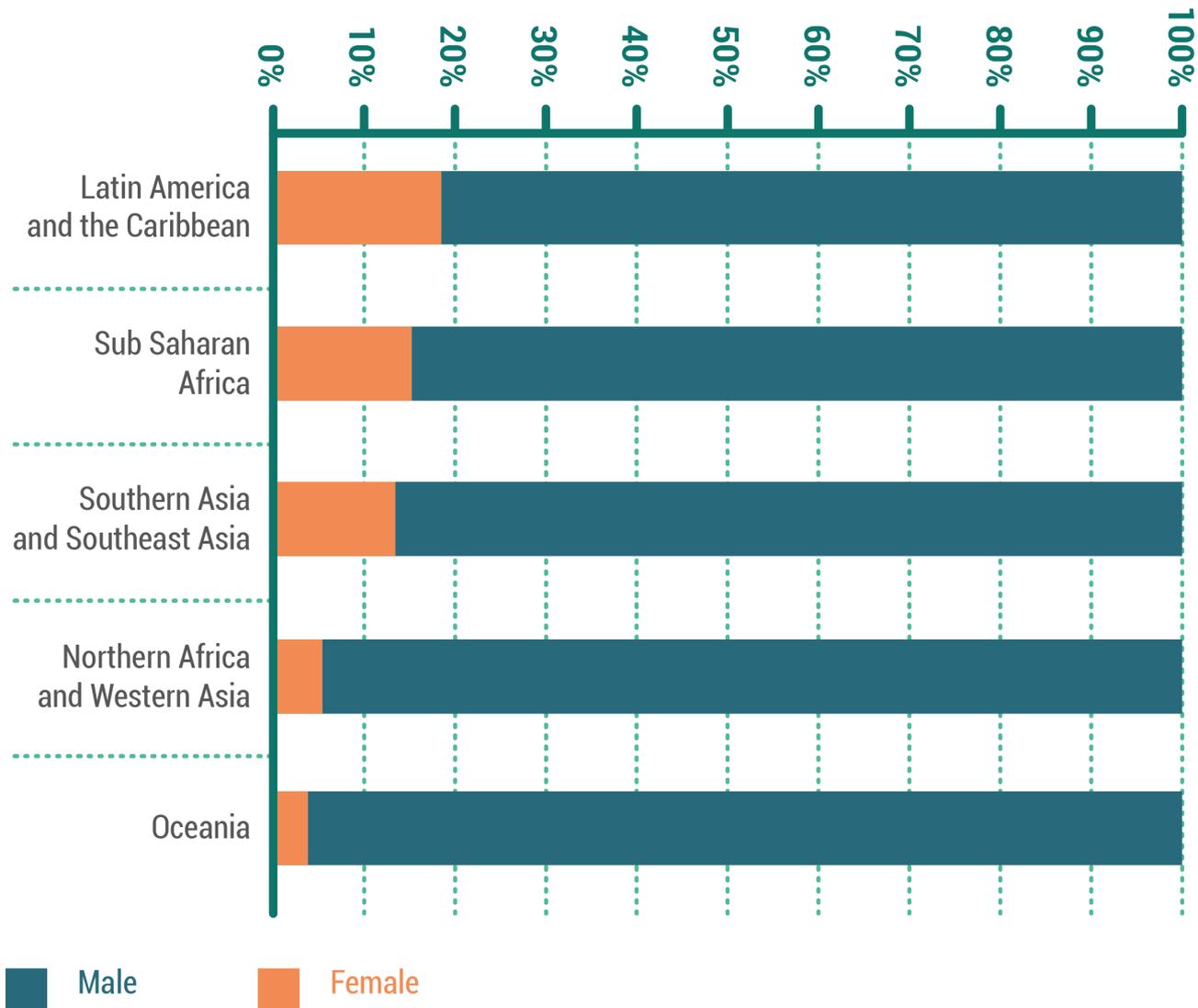


Average change in the calories from crops in national diets worldwide (1961-2009)





Share of male and female agricultural holders in main developing regions





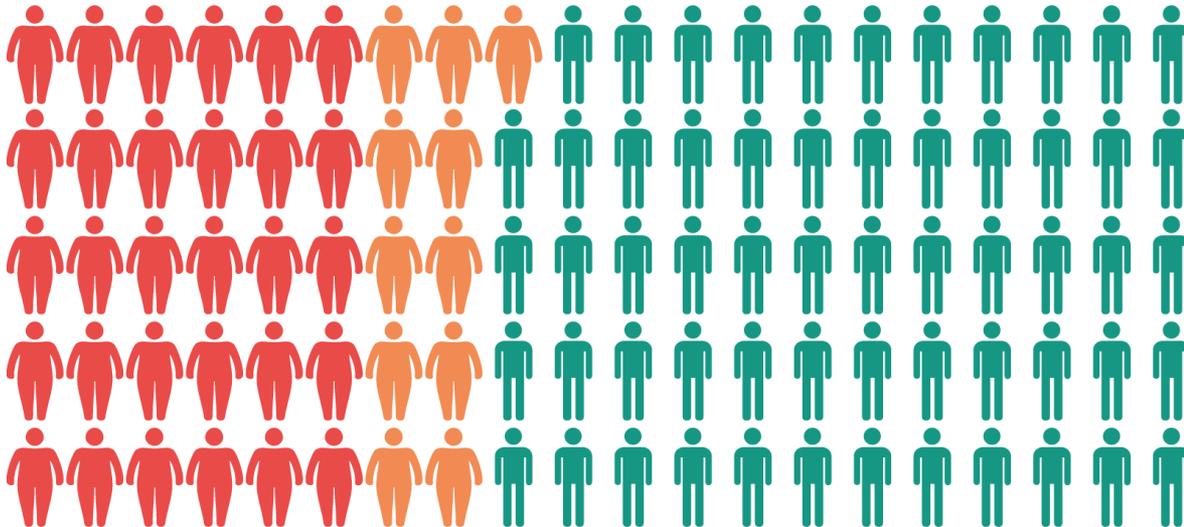
Percentage of global population that is overweight or obese (today and in 2030) and its economic impact

Today:

30%

In 2030:

41%



Obesity has roughly the same economic impact as smoking or armed conflict



\$2.0
trillion



\$2.1
trillion



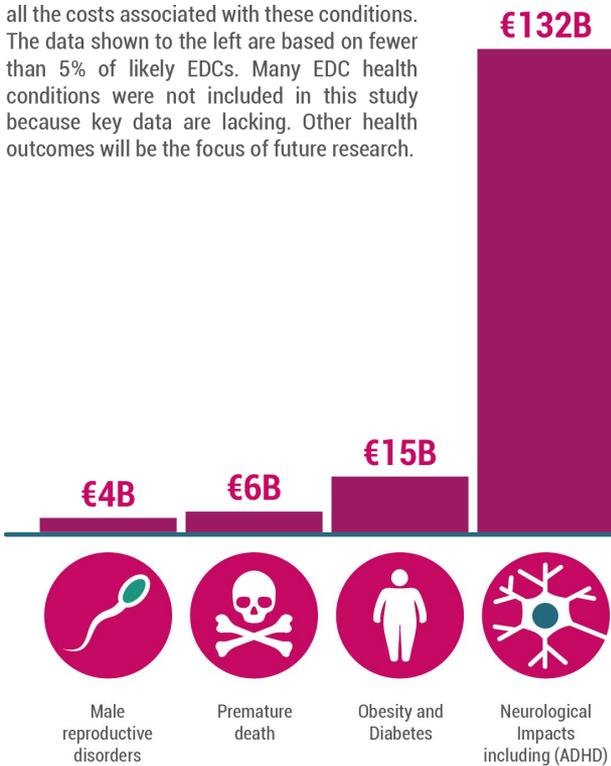
\$2.1
trillion



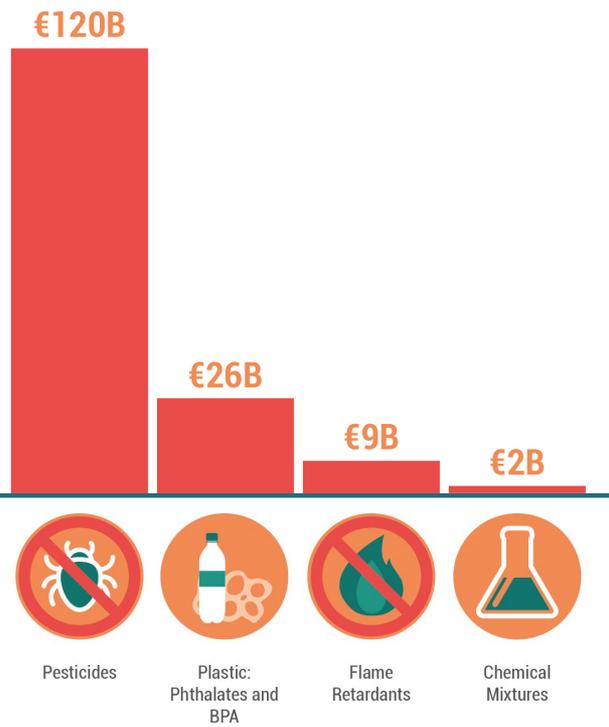
Health effects from endocrine disrupting chemicals cost the US \$ 167 billions each year

€157B Cost by Health Effect

Note: The economic estimates do not include all the costs associated with these conditions. The data shown to the left are based on fewer than 5% of likely EDCs. Many EDC health conditions were not included in this study because key data are lacking. Other health outcomes will be the focus of future research.



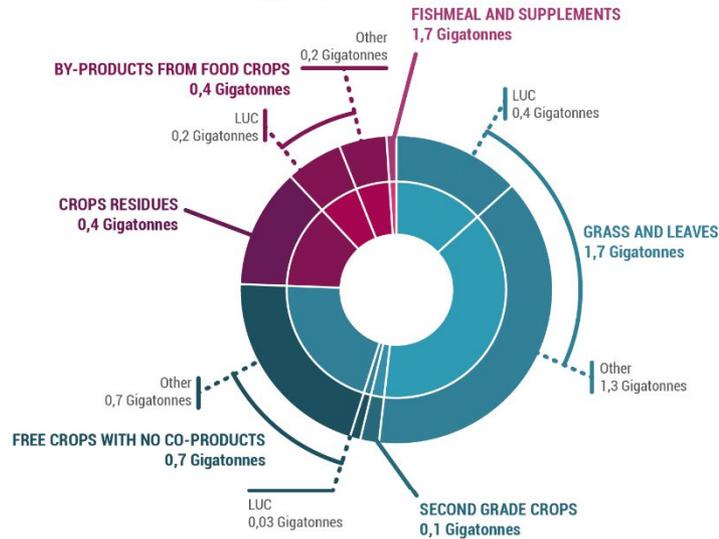
€157B Cost by EDC Type



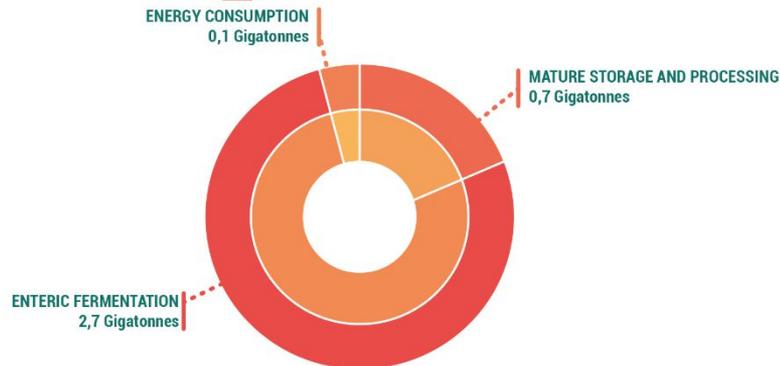


GHG emissions from global livestock supply chains, by production activities and products

A FEED PRODUCTION



A LIVESTOCK PRODUCTION





TEEBAgFood Phase II

2	Rationale & Objectives for TEEBAgriFood	The dominant discourse versus ground reality: significant yet unaccounted positive and negative implications of agriculture and food systems on food security, livelihoods, human health, ecosystem integrity and climate change, and why economics is central to the global agenda for change: especially removing poverty, hunger, malnutrition, and environmental degradation, and providing decent employment on a very large scale.
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Summary statement

The **TEEBAgriFood** study is designed 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 capital





Drying red chilis under the sun provides one of the few sources of employment for women in an area of Bangladesh.

Fix food metrics

For sustainable, equitable nutrition we must count the true global costs and benefits of food production, urge **Pavan Sukhdev, Peter May and Alexander Müller**.

Current patterns of crop and livestock production and of processing, transport and consumption, are not delivering healthy, nutritious food to society. They are generating large and unacceptable impacts on the environment and on vulnerable populations.

Food systems are now the source of 60% of terrestrial biodiversity loss, 24% of greenhouse gas emissions, 33% of soil degradation and 61% of the depletion of commercial fish stocks¹. And the increasing farm organization of food sources worldwide is narrowing the genetic diversity in animals and plants that is crucial to secure human nutritional needs against climatic and other changes.

Food systems are undermining human health all over the world, by permitting, or even promoting, inappropriate diets or unsafe foods. As the *Global Nutrition Report*, released this September puts it: "Diet is now the number-one risk factor for the global burden of disease"².

Around 800 million people in developing countries consume less than the 2,100 kilocalories per day recommended by the World Food Programme³ because of failures in access and distribution. At the same time, 1.9 billion people in the developed world take in more than 3,000 kilocalories per day⁴. As processed foods high in fat and carbohydrates come to dominate, even in developing nations, "the number of children under 5 who are overweight is approaching the number who suffer from wasting"⁵.

Yet agriculture employs around 1.3 billion people. Around 1 billion work on small farms⁶ (less than 2 hectares). Admittedly, their working conditions could mostly not be rated as 'decent' by the International Labor Organization's definition, but what are the chances that society could provide alternative employment to these people if their 500 million small farms gave way to concentrated, large-scale and highly mechanized agribusiness? The world is already short of about 200

million jobs⁷, and major industries such as steel and car making employ only 6 million and 9 million people worldwide, respectively.

Small-scale agriculture provides subsistence, employment and most of the food directly consumed by urban residents throughout the developing world. It also ensures that rural landscapes are conserved as a touchstone for cultural identity.

Current metrics for agricultural performance do not recognize or account for any of these costs or benefits. The emphasis on yields or profits per hectare is as reductive and distorting as is gross domestic product, with its disregard for social and natural capital. Food metrics must be urgently overhauled or the United Nations' Sustainable Development Goals will never be achieved.

HOLISTIC EVALUATION

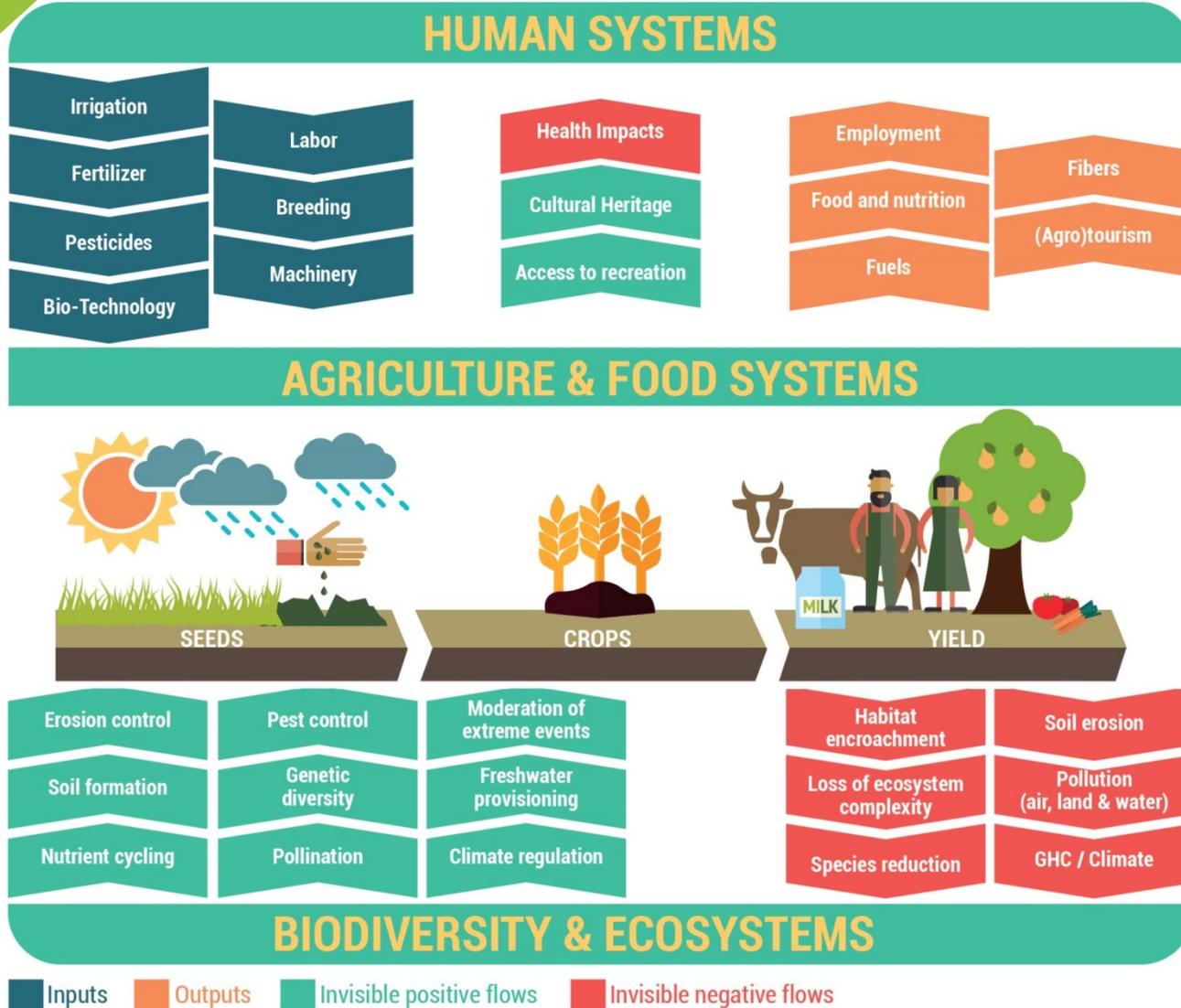
We contend that a sustainable food system has three key attributes. It should deliver adequate nutrition and health across all



Rationale and structure

4	Rationale, objectives & structure for 'Foundations'	The need for transparency, consistency, completeness and a robust scientific and economic underpinning for a holistic and more appropriate evaluation framework and discourse on food systems.
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Impacts and Dependencies arising within the farm gate





TEEB AgriFood Framework

Value-Chain Stages	Production (and associated waste)			Processing and Distribution (and associated waste)			Consumption (and associated waste)
	Landscape	Infrastructure and Manufacturing	Farm	Wholesale	Food and Beverage	Retail	Industry/Household/ Hospitality
Visible and Invisible flows							
Captured by System of National Accounts (SNA) (Profits, Wages, Taxes net of Subsidies, etc.)							
Provisioning (Materials, Energy, etc.)							
Regulation and maintenance (Soil, Water, Habitat for biodiversity, etc.)							
Cultural (Heritage, Recreation, etc.)							
Health (Nutrition, Diseases, Antibiotic resistance, etc.)							
Pollution (Nitrates, Pesticides, Heavy metals, etc.)							
Emissions (CO ₂ , CH ₄ , etc.)							
Social values (Food security, Gender equality, etc.)							
Risks and uncertainties (Resilience, Health, etc.)							



Foundations Structure

- Wireframe
- Why should you read on?
- How is this going to link to the *Policies* reports?



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