



The Economics of Ecosystems and Biodiversity TEEB for Agriculture & Food Global Symposium, February 2019

WORKING GROUP: TEEBAgriFood in Africa

27 February 2019, Nairobi

Supported by:



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety



The Economics
of Ecosystems
& Biodiversity

based on a decision of the German Bundestag

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14:00 – 14:15	Project background and group objectives	Mr. Dustin Wenzel <i>UN Environment TEEB Office</i>
14:15 – 14:40	'TEEB AgriFood in Africa' report outline and policy landscape	Dr. Harpinder Sandhu <i>Flinders University</i>
14:40 – 15:00	Open discussion	

AGENDA (1)

15:00 – 15:15	CASE STUDY 1: rice in Senegal	Dr. Barbara Gemmill-Herren <i>World Agroforestry Centre</i>
15:15 – 15:30	Open discussion	
15:30 – 16:00	BREAK	

AGENDA (2)

16:00 – 16:15	CASE STUDY 2: agroforestry in Ghana and Ethiopia Dr. Priscilla Wainaina <i>World Agroforestry Centre</i>
16:15 – 16:35	Open discussion
16:35 – 16:50	CASE STUDY 3: livestock in Tanzania Mr. Pietro Galgani <i>True Price / Impact Institute</i>
16:50 – 17:10	Open discussion
17:10 – 17:20	Wrap-up Mr. Dustin Wenzel <i>UN Environment TEEB Office</i>

AGENDA (3)

TEEBAgriFood in Africa

assessing options to
improve livelihoods



- European Commission (DG International Cooperation and Development)
- End March 2019
- Contribute to the ACP Group's key objectives of sustainable development and poverty reduction by advancing the notion that environmental safeguards are a necessary precondition for achieving development goals, particularly in the agriculture and food context

TEEBAgriFood in Africa: the opportunity

Feeder studies on rice,
livestock, palm oil,
agroforestry, inland
fisheries, maize

Development and evolution of the TEEBAgriFood
Evaluation Framework

2014

2015

2016

2017

2018

Value chain	Agricultural production	Manufacturing and processing	Distribution, marketing and retail	Household consumption
Outcomes (change in capital)				
Natural capital	Impact on groundwater and surface water quantity and quality			
Produced capital				
Human capital	In disability adjusted life years (DALYs), Health costs related to pesticide use, Moderation of extreme events			Dietary variability
Social capital				
Flows				
Outputs				
Agricultural and food production	Rice yield			
Income / operating surplus	Income			
Purchased inputs to production				
Labour	Wages			
Intermediate inputs (fuel, fertilizer, etc.)	Fertilizers, fuel			
Ecosystem services				
Provisioning	Habitat provisions, energy from husk			
Regulating	Watershed management, Freshwater saving, Nutrient cycling, Soil fertility enhancement, Pest control, Groundwater recharge, Genetic diversity			
Cultural	Cultural Heritage, Maintenance of rice terraces, Tourism, Traditional rituals and spiritual experiences related to rice system, Traditional knowledge on rice cultivation			Access to and consumption of traditional rice varieties
Residual flows				
Food waste				
Pollution and emissions (excess N & P, GHG emissions, etc.)	Water pollution from pesticides, Water pollution from fertilizer			
	Eutrophication			

Rice study (FAO)

Bogdanski, A., ... **Gemmill-Herren, B.** (2016). Valuation of rice agro-ecosystems. TEEB Rice. Final report. UNEP/FAO.

(table)

Sandhu, H. *et al.* (2018) Application of the TEEBAgriFood Framework studies: case studies for decision-makers. In *TEEB for Agriculture & Food: Scientific and Economic Foundations*. Chapter 8, 297-331. Geneva: UN Environment.

Livestock study (Wageningen University, True Price)

Value chain stages Visible and invisible flows	Production (and associated waste)			Processing and Distribution (and associated waste)			Consumption (and associated waste)
Flows generated at the level of	Landscape	Infrastructure and Manufacturing	Farm	Wholesale	Food and Beverage	Retail	Industry/ Household/ Hospitality
Value Captured by System of National Accounts (SNA)			Income from livestock production				
Provisioning Services (Materials, Energy, etc.)			Water consumption				
			Non-timber forest products				
			Raw materials				
			Medicinal herbs				
			Wild food				
			Food provisioning				
			Manure production				
Regulation and Maintenance Services (Soil, Water, Habitat for biodiversity, etc.)	Habitat services		Genetic diversity				
	Biodiversity						
	Nutrient cycling						
	Prevention of erosion						
Cultural Services (Heritage, Recreation, etc.)	Cultural services						
	Recreation services						
Health Impacts (Nutrition, Lifestyle diseases, Antibiotic resistance, etc.)			Zoonosis				Zoonosis
							Nutrition/ protein
Pollution Impacts (Nitrates, Pesticides, Heavy metals, etc.)			Water quality impacts of eutrophication				
			Soil quality impacts (from pesticides)				
GHG Emissions (CO2, CH4, etc.)		GHG emissions	GHG emissions				
Social values (Food security, Gender equality, etc.)							
Risks and uncertainties (Resilience, Health, etc.)							Antimicrobial resistance due to antibiotic use

Agroforestry study (ICRAF)

Value chain stages Visible and invisible flows	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
Flows generated at the level of							
Value Captured by System of National Accounts (SNA)			Income from yield				
Provisioning Services (Materials, Energy, etc.)			Yield				
			Fresh water				
			Timber, fuelwood, honey				
			Medicinal plants				
Regulation and Maintenance Services (Soil, Water, Habitat for biodiversity, etc.)			Freshwater quality				
			Carbon storage and sequestration				
			Soil erosion				
			Soil fertility				
			Biodiversity				
			Pollination				
			Pest control				
Cultural Services (Heritage, Recreation, etc.)							
Health Impacts (Nutrition, Lifestyle diseases, Antibiotic resistance, etc.)							
Pollution Impacts (Nitrates, Pesticides, Heavy metals, etc.)							
GHG Emissions (CO2, CH4, etc.)							
Social values (Food security, Gender equality, etc.)			Food security/access				
Risks and uncertainties (Resilience, Health, etc.)							

TEEBAgriFood in Africa: the opportunity

Framework hindsight

- Four capitals approach (produced, social, human, natural)
- All value chain stages
- Systems thinking / interactions
- Transparency (what can and *cannot* be assessed)

Case studies in Africa

- Livestock in Tanzania
- Rice in Senegal
- Agroforestry in Ghana (cocoa) and Ethiopia (coffee)

Policy mainstreaming



Questions for discussion

regional report & case studies

- What are the policy implications of the research findings? How can findings facilitate policy change?
- How can we better substantiate the agriculture and food / development policy context, both at a regional level in Sub-Saharan Africa and at a national level in the three case study countries?
- What policy opportunities exist at regional/ international as well as local/national level to improve the environmental and social sustainability of agri-food systems?



TEEBAgriFood in Africa:

Call for Evidence



- Research findings on both positive and negative impacts and externalities of agriculture and food systems across social, human (including health) and environmental dimensions
- Policy opportunities for improving livelihoods and sustainability through agri-food value chains
- *Deadline: 10 March*



THANK YOU!

Dustin M. Wenzel
UN Environment, TEEB Office

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