



Food and Agriculture
Organization of the
United Nations

Making the economic case for scaling up investments in sustainable food systems and nature-based solutions (based on lessons from TEEBAgriFood)

Dr. Salman Hussain

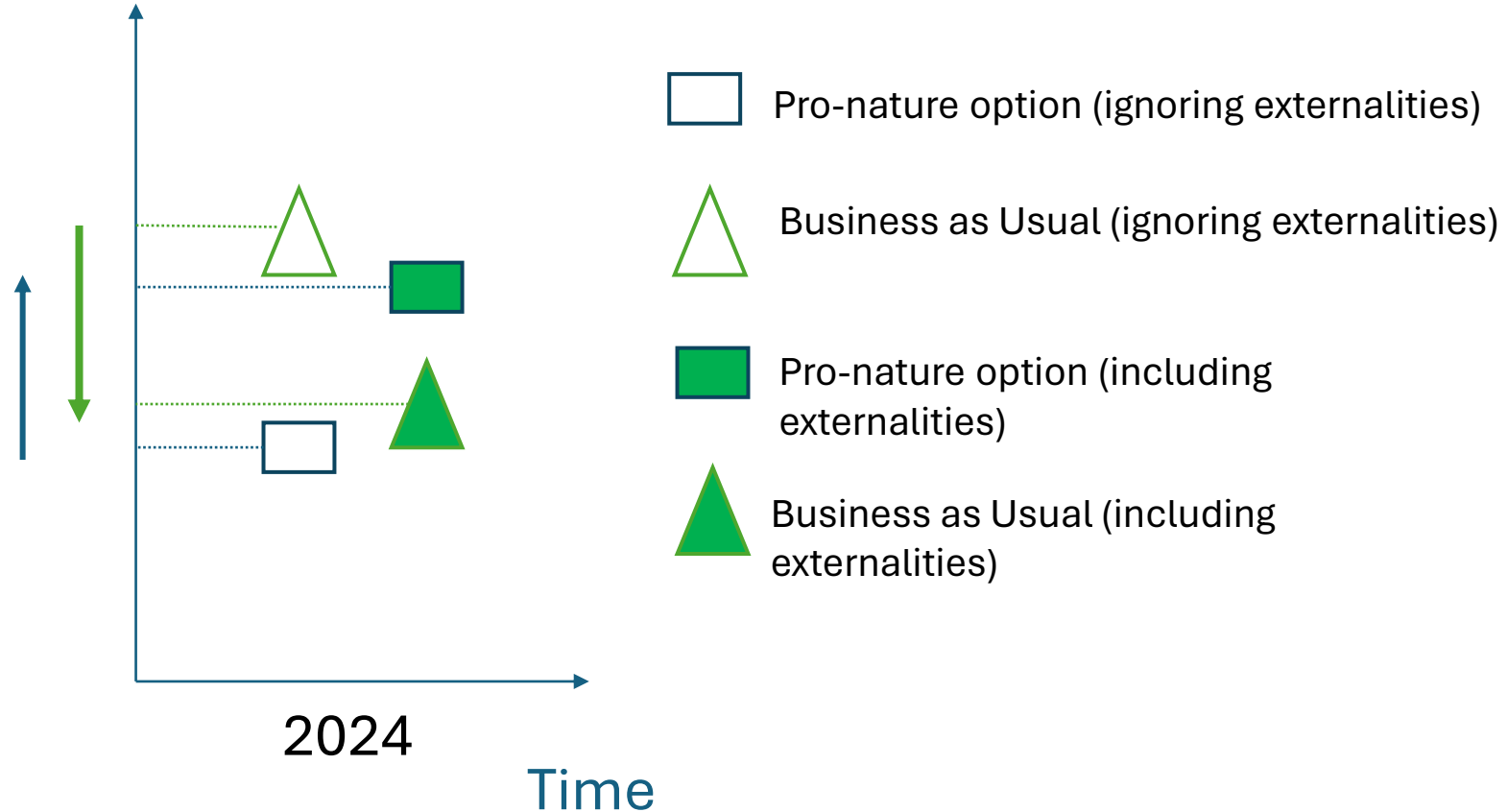
Head a.i., Economics of Nature Unit | Biodiversity and Land Branch
Ecosystems Division | UN Environment Programme (UNEP)
e: salman.hussain@un.org | t: (+41) 229178200 | Geneva,
Switzerland



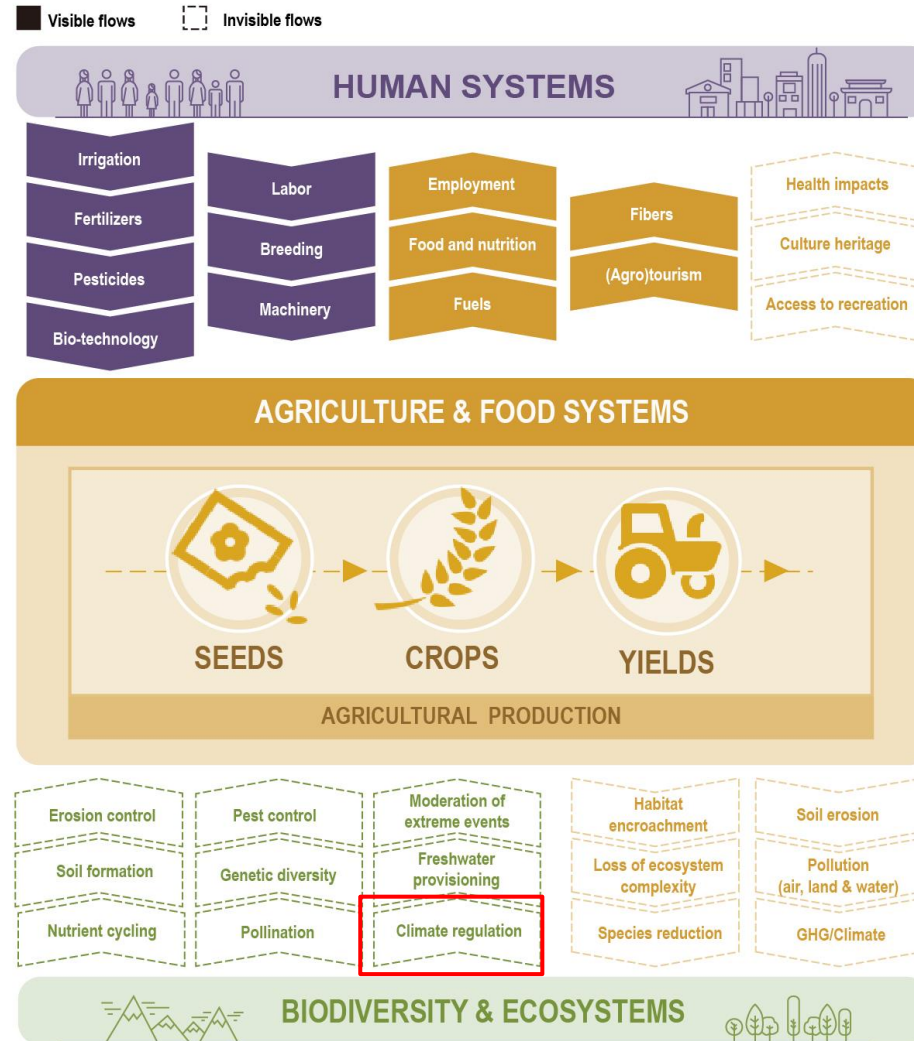
Background and Context – ‘Pro-nature’ tackles the *triple planetary crisis*



Financial/Economic flows

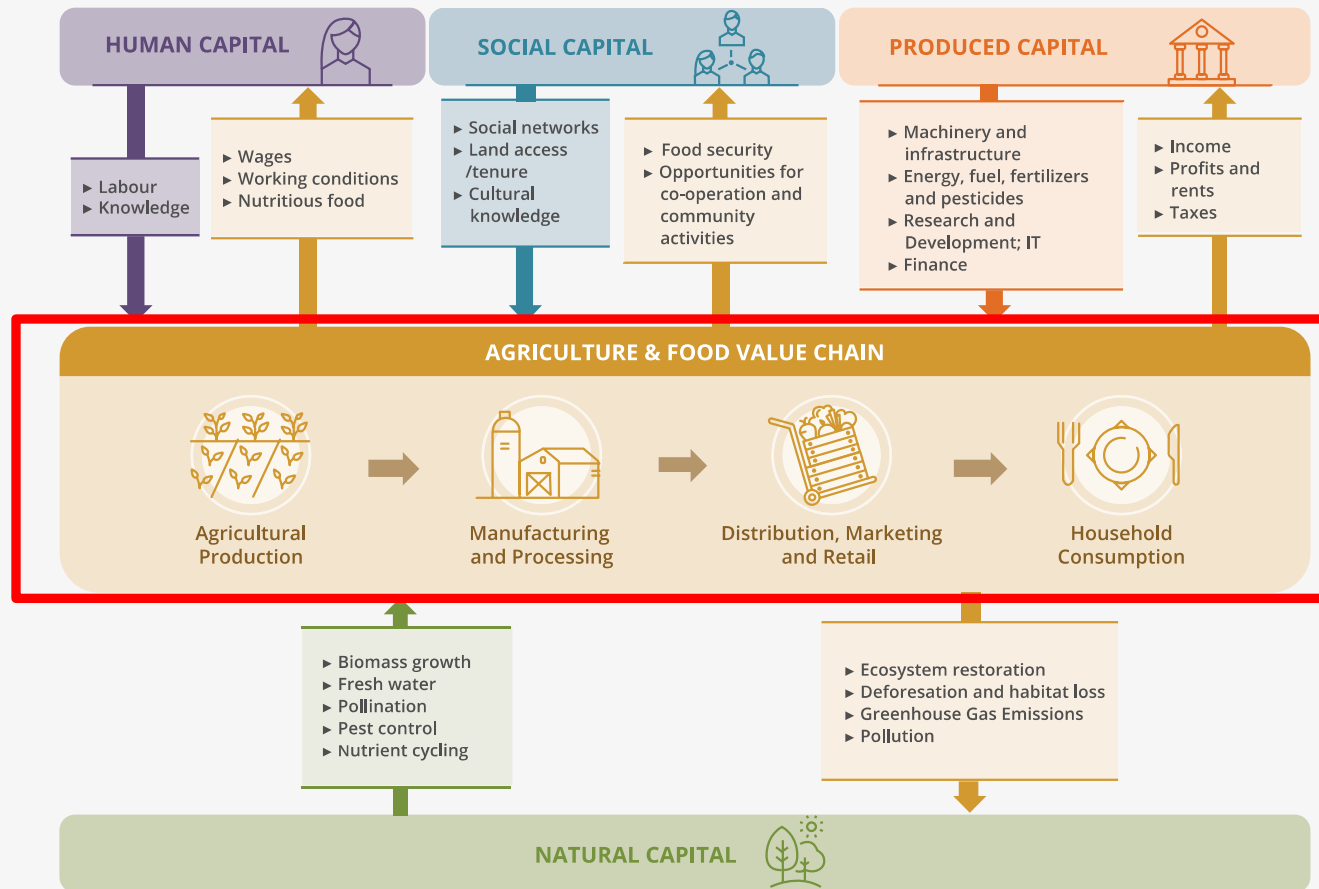


The visible and invisible flows of agricultural production

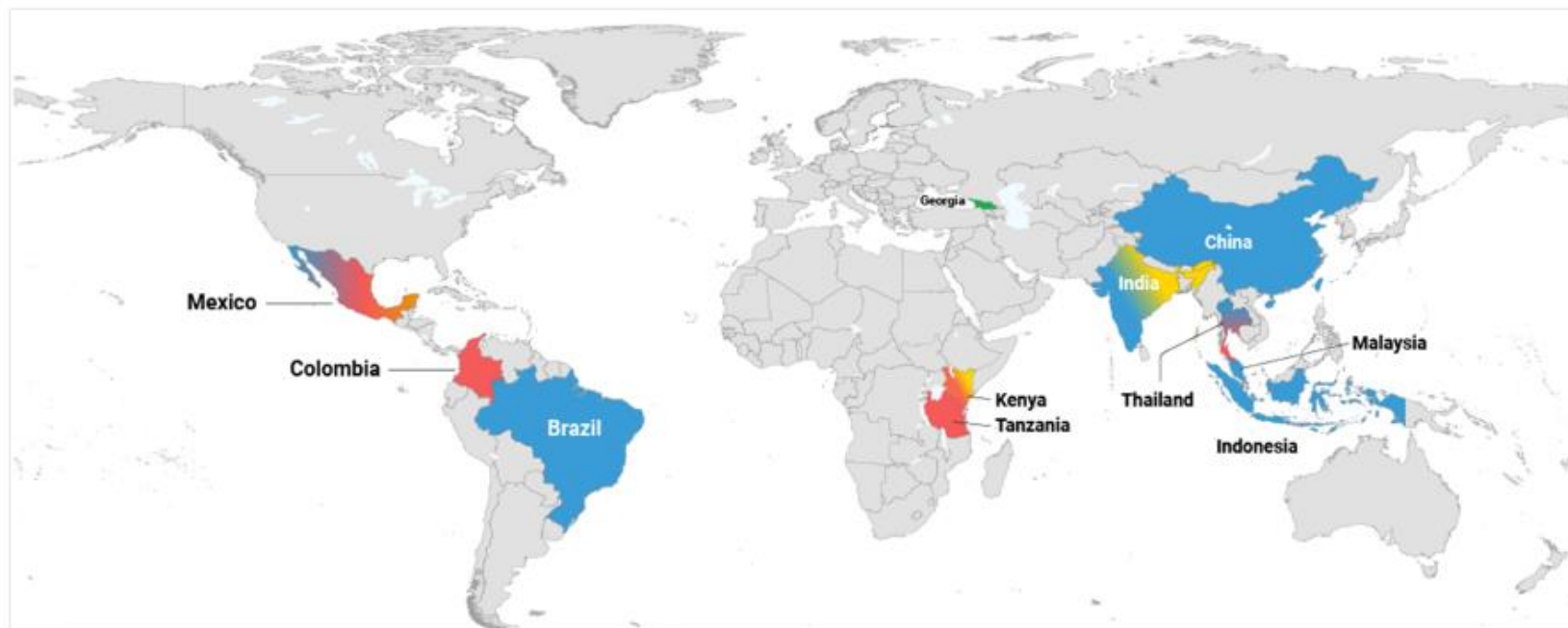


The visible and invisible flows of agricultural production

Figure 2.1 Capital stocks and value flows in eco-agri-food systems (Source: Hussain and Vause 2018)



TEEBAgriFood Country Map



LEGEND

IKEA FOUNDATION ●

India: Organic Farming and Agroforestry

Kenya: Water towers, carbon sequestration and farming

EU-PI ●

Brazil: 1) Low carbon agriculture 2) Urban and periurban agriculture

China: "Green is Gold", and Soya production

India: Organic farming and agroforestry

Indonesia: Coffee and Cacao Agroforestry Systems

Malaysia: Good Agricultural Practices in Vegetable Farming

Mexico: Agroforestry coffee

Thailand: Sustainable Rice Platform

IKI ●

Colombia: Land Use Change

Kenya: Livelihoods based on reforestation and carbon farming

Mexico: Conventional & Traditional Maize

Tanzania: Land Use Change; Water Quality & Food Security

Thailand: Organic Rice Production

GEF ●

Georgia: Sustainable Land Management Practices

GIZ ●

Mexico: Conventional & Traditional Maize

The designations employed and the presentation of material including on any map in this work do not imply the expression of any opinion whatsoever on the part of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Organics Study



INTEGRATING THE VALUE OF ECOSYSTEMS AND BIODIVERSITY IN RICE SYSTEMS IN THAILAND



คณะเศรษฐศาสตร์ มหาวิทยาลัยขอนแก่น
FACULTY OF ECONOMICS, KHON KAEN UNIVERSITY



Funded by
the European Union

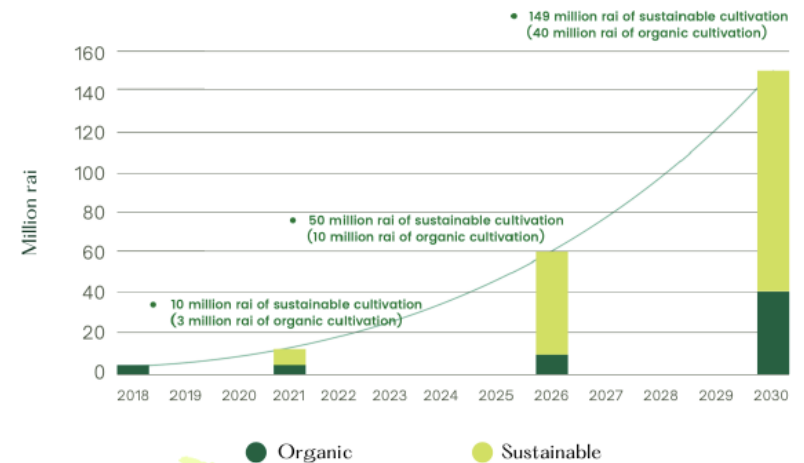
Scenario development

- Scenarios were developed to understand potential future impacts of government policies, including the **One Million Rai Organic Rice** promotion policy,
- **Parliamentary targets for achieving sustainable agriculture by 2030**, and the aims of the **Bio, Circular, and Green Economy model** in Thailand.

- The One Million Rai Organic Rice Farming pilot project.



The extraordinary committee to consider studying the guidelines for controlling the use of chemicals



Scenario 1 : Organic rice expansion in BAU scenario. (One million rai)

Year/ Organic area (Rai).



2019/ 0.58 million rai.



2035/ 1 million rai.

Scenario 2 : Accelerated organic rice promotion. (One million rai every 5 years)

Year/ Organic area (Rai).



2019/ 0.58 million rai.



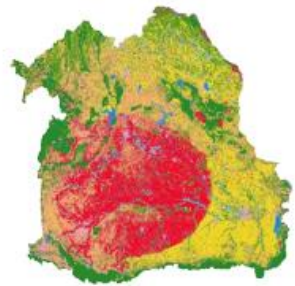
2035/ 4 million rai.

Scenario 3 : Enhanced organic rice promotion. (One million rai every year)

Year/ Organic area (Rai).



2019/ 0.58 million rai.



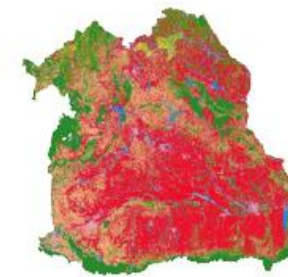
2035/ 15 million rai.

Scenario 4 : Transformational change towards sustainability. (Thai parliamentary)

Year/ Organic area (Rai).



2019/ 0.58 million rai.

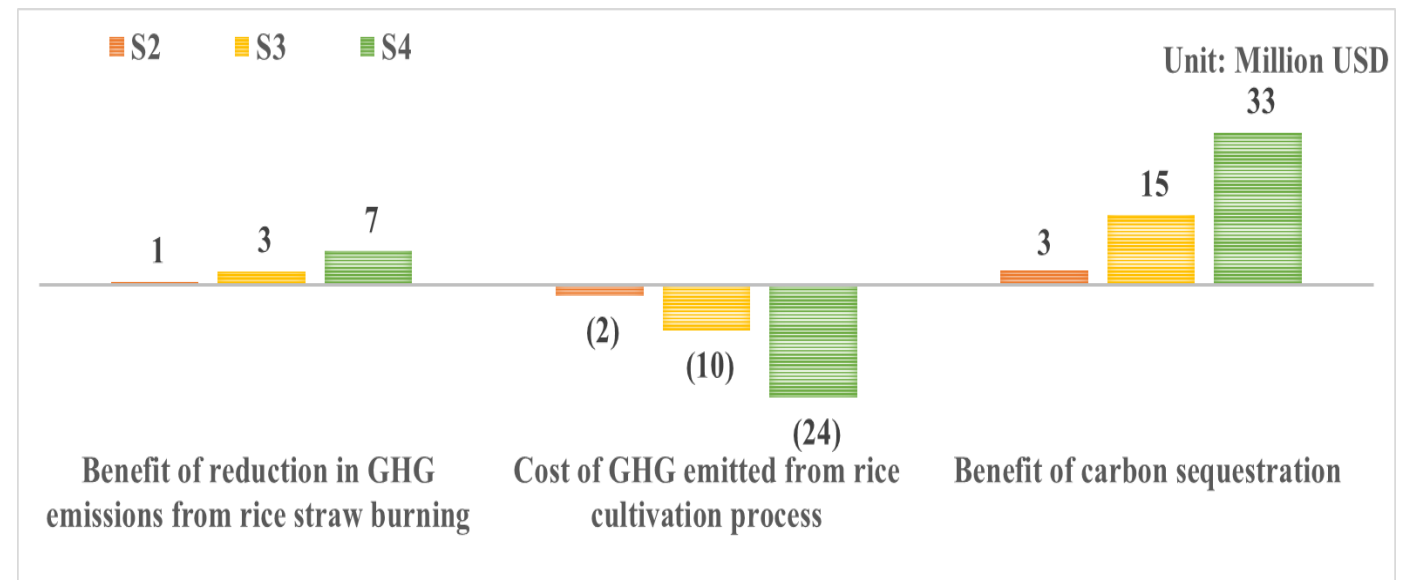


2035/ 32 million rai.



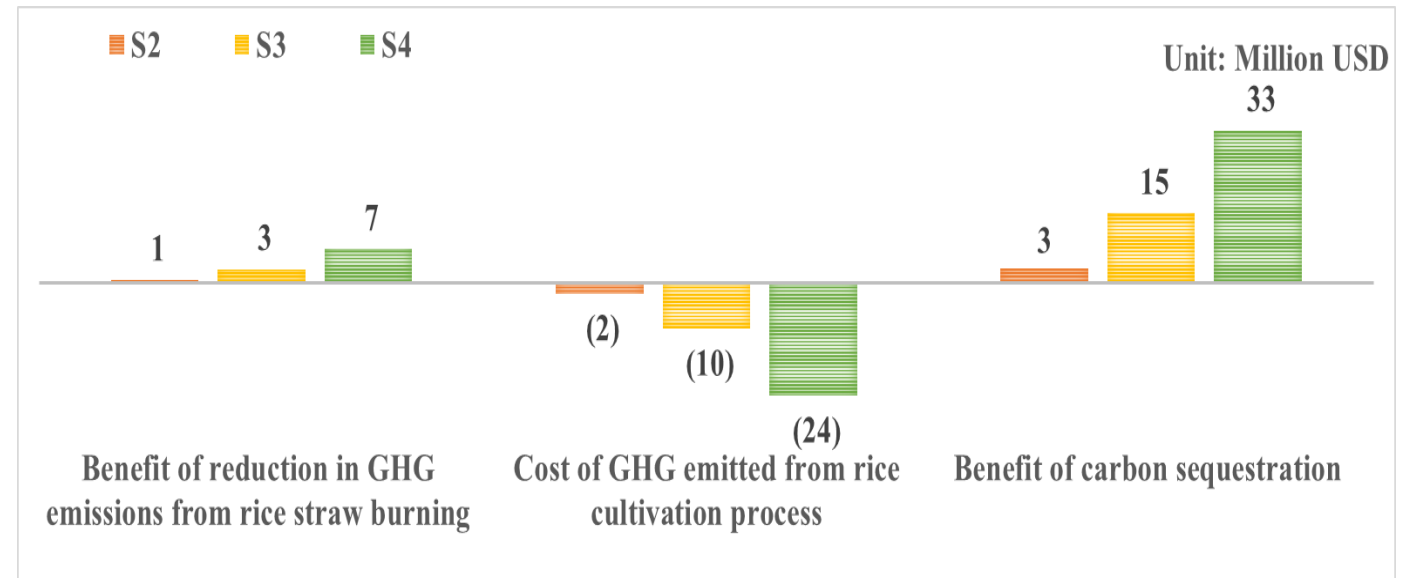
Lower greenhouse gas emissions

1. The expansion of organic rice area is projected to reduce overall GHG emissions from rice fields, **due to prohibition of stubble burning and higher soil carbon accumulation.**
- We estimate this as TEEBAgriFood is a full life cycle approach
 - A failure to do so means we would miss opportunities and threats



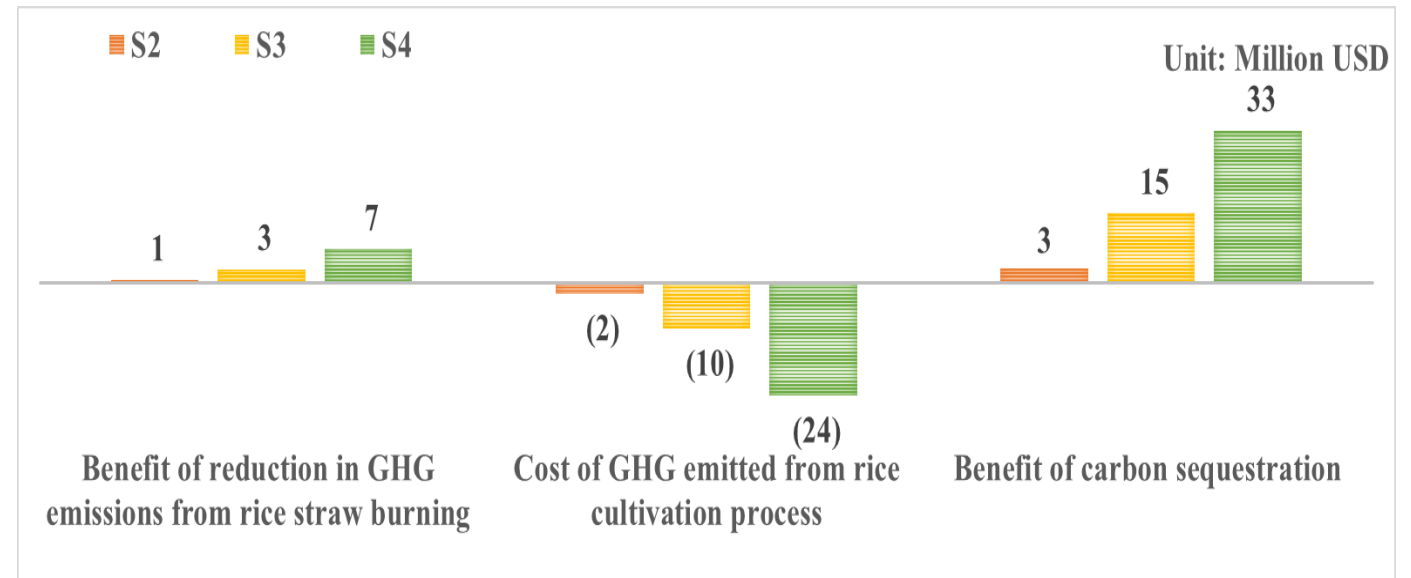
Lower greenhouse gas emissions

1. The expansion of organic rice area is projected to reduce overall GHG emissions from rice fields, due to prohibition of stubble burning and higher soil carbon accumulation.
2. Higher GHG emissions in cultivation process for organic rice production are roughly offset by the elimination of stubble burning and related GHG emissions.
 - There will be trade-offs. We present the science and economic evidence

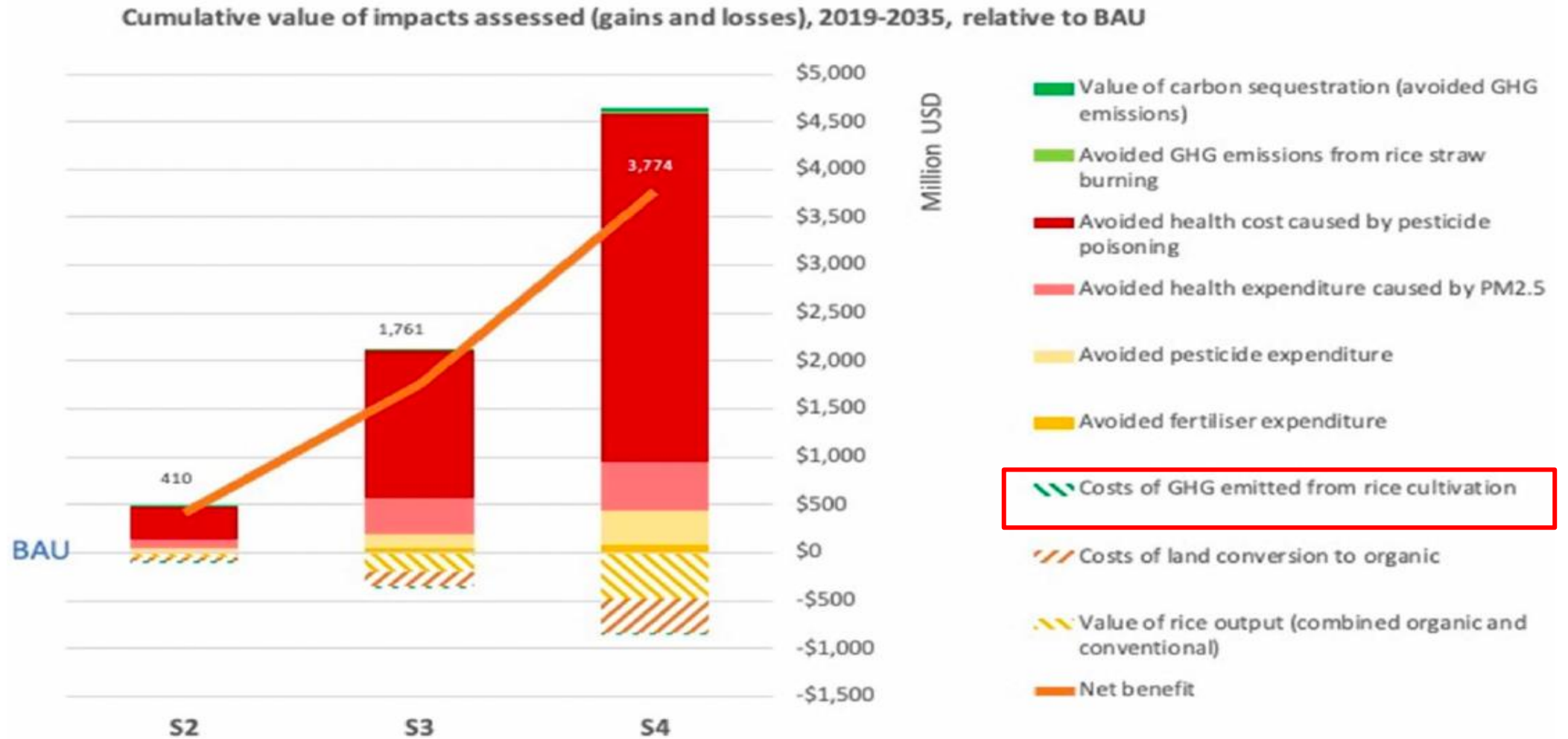


Lower greenhouse gas emissions

1. The expansion of organic rice area is projected to reduce overall GHG emissions from rice fields, due to prohibition of stubble burning and higher soil carbon accumulation.
2. Higher GHG emissions in cultivation process for organic rice production are roughly offset by the elimination of stubble burning and related GHG emissions.
3. In addition, soil organic carbon accumulation is higher under organic methods, **resulting in lower net emissions from organic rice overall.**



Overall net benefit from a shift to organic



TEEBAgriFood in Indonesia - *impact*

Impact: agroforestry included in the Five-Year Midterm Development Plan for the first time, with noted contribution of the TEEBAgriFood study



G20

- TEEB supported the Environment Working Group on the thematic area of land restoration
- TEEB framework included in the *G20 Compendium of Best Practices on Land Restoration*

UNSDCF

- UNEP to train civil servants at the premier Lal Bahadur Shastri National Academy of Administration (LBSNAA)
- TEEBAgriFood Initiative included in Outcome Group on Climate and Environment under UNSDCF 2023-2026 for India

ICAR

- Research Advisory Committee of IIFSR recommended application of TEEBAgriFood framework to assess the impacts of organic farming and agroforestry in other agroecological zones of India via the All-India Network on Organic Farming (AINOF)

Education

- TEEB included in the syllabus of undergraduate program on Natural Farming by Indian Council of Agriculture Research (ICAR)
- Expected to be included in 51 State Agriculture Universities by end 2024

Conclusions

1. Policies that *mitigate* GHG emissions in food systems tend to also contribute to tackling the triple planetary crisis, but we need to check for and acknowledge the existence of trade-offs
2. Climate change *adaptation* should be included in all scenario analyses
3. Applying True Cost Accounting/TEEBAgriFood allows us to systematically evaluate and value the full range of otherwise 'invisible' externalities and impacts
4. The application of TCA has been shown to have direct policy impacts

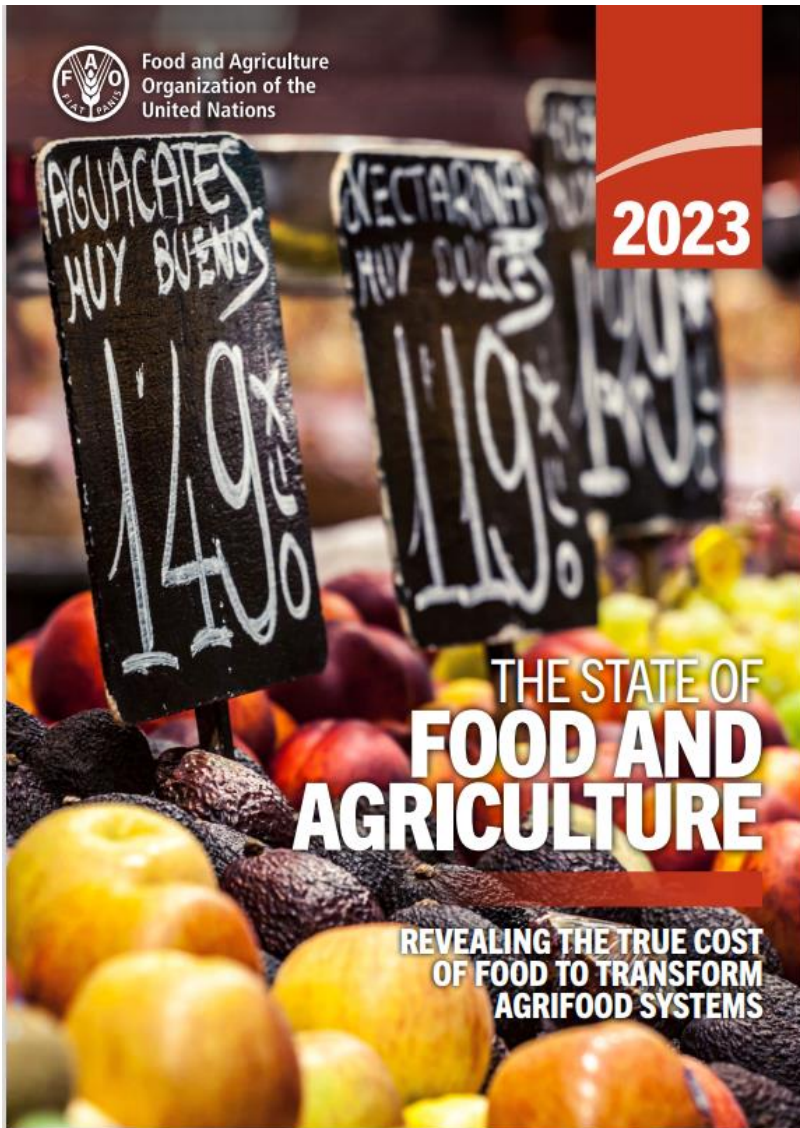


Policy Brief

THE HARMONIZATION OF TRUE
VALUE ACCOUNTING APPROACHES
TO MAKE THE ECONOMIC CASE
FOR NATURE-POSITIVE FOOD
SYSTEMS

Task Force 4
Food Security and Sustainable
Agriculture

Tomas Declercq (United Nations Environment Programme)
Salman Hussain (United Nations Environment Programme)
Suria Tarigan (IPB Bogor University)
R. Nunung Nuryartono (IPB Bogor University)



THE STATE OF **FOOD AND AGRICULTURE 2023**

CHAPTER 3

MOVING TOWARDS TARGETED TRUE COST ASSESSMENTS FOR INFORMED DECISIONS

BOX 11 TEEBAgriFood evaluation of rice production in northeastern Thailand

The TEEBAgriFood Evaluation Framework was used to identify and measure the diverse costs and benefits of expanding organic rice production in Thailand. The aim was to pinpoint options for promoting the long-term sustainability of production and management of rice landscapes. The analysis was concluded in June 2022 and considered hidden costs across all four capitals: natural (greenhouse gas [GHG] emissions and biodiversity), human (effects of air pollution and pesticides on health, happiness and well-being), social (cooperation, trust and pro-social or voluntary behaviour) and produced (revenues and expenditures of conventional versus organic rice).

Taking into account government policies and targets, as well as the views of local stakeholders – including local agricultural officers, farmers and banks – the analysis proposed four scenarios to demonstrate the potential synergies and trade-offs of different rice practices in Thailand over 2019–2035. One was the baseline business-as-usual (BAU) scenario (S1), while the other three scenarios (S2, S3 and S4) assumed the progressive adoption of organic rice production and other sustainable practices. Each scenario was measured over three time frames: short (2025), medium (2030) and long (2035).

Thank you



Dr. Salman Hussain

Coordinator, The Economics of Ecosystems and Biodiversity (TEEB) | www.teebweb.org
Head a.i., Economics of Nature Unit | Biodiversity and Land Branch
Ecosystems Division| UN Environment Programme (UNEP)
e: salman.hussain@un.org | t: (+41) 229178200 | Geneva, Switzerland

United Nations Avenue, Gigiri
PO Box 30552 – 00100 GPO Nairobi, Kenya

www.unep.org