REIMAGINE PLANET RIE

How to Find the Best-fit Solution? - Sustainable Agriculture & Food Systems in Japan:

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The OECD Co-operative Research Programme: Sustainable Agricultural and Food Systems

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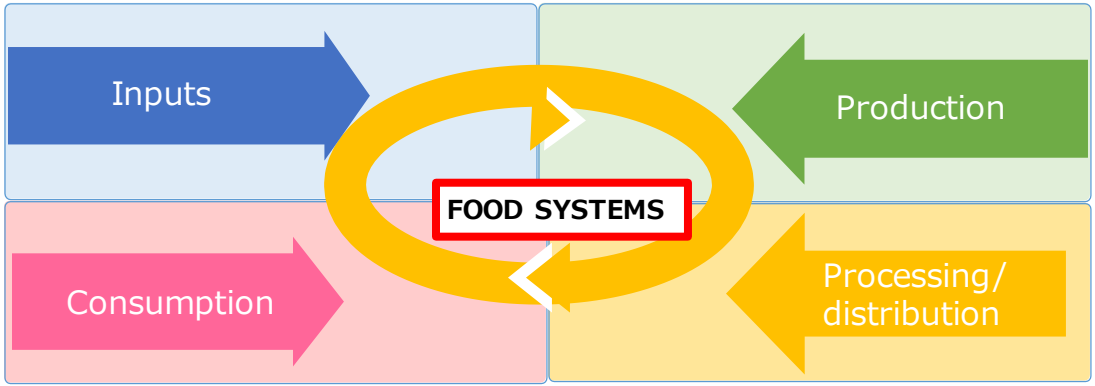
BETTER POLICIES FOR BETTER LIVES

Global Conference on
Sustainability in Agriculture & Food Systems
Innovation, Indicators & Implementation

What is “Sustainable Food Systems” ?

- Japan conceptualize food systems from four stages;
  1) Inputs 2) production 3) processing/distribution
  4) consumption.



MIDORI strategy

- A strategy to achieve sustainable food systems (2021)
- Relevant law was entry into force in 2022

- Aiming to,
  - Enhance circular economy with use of local resources
  - Improve livelihood/ job opportunities
  - contribute to carbon neutral
  - disseminate energy saving/precision technologies

KPIs- Numerical Goals for 2050

- ✓ **ZERO CO_2 EMSSION from fossil fuels combustion in agriculture, forestry and fisheries sectors**
- ✓ **50% ↓ in risk-weighted use of chemical pesticides**
- ✓ **30% ↓ in chemical fertilizer use**
- ✓ **Organic farming ↑ to 25% of farmlands（1million ha）**
- ✓ **30% ↑ in labor productivity in food manufacturing industries**

…and others

- ➢ INNOVATION is the KEY
- ➢ Choose the BEST technologies, need to LOCALIZE

International Contexts

OECD Declaration on Transformative Solutions for Sustainable Agriculture and Food Systems
(at OECD Meeting of Agriculture Ministers 2022)

We commit;

6. To take action to achieve sustainable productivity growth consistent with SDG 2.4.
20. To invest in research, innovation and extension services that can facilitate sustainable productivity growth and offer climate change mitigation and adaptation solutions.

International Contexts (cont.)

G7 Miyazaki Agriculture Ministers' Communique

(April 23, 2023)

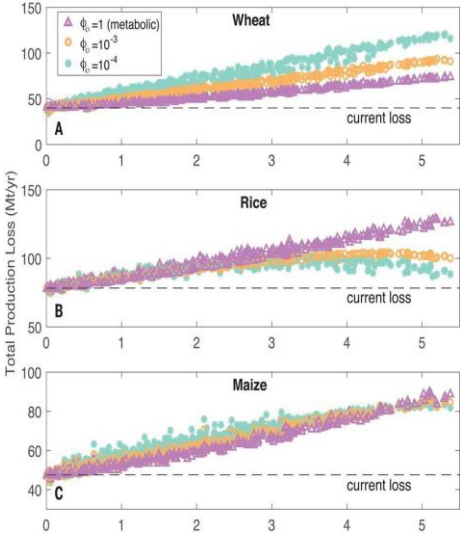
10. As one way to achieve resilient and sustainable agricultural and food systems, we commit to promote policies that support sustainable productivity growth.

20. …We emphasize that all people, whether in developed or developing countries, small or large farmers, young or old, men or women, should benefit from the fruit of innovation.

Discussions in KMGBF

	Objectives	Discussion
Target 7	Reduce excess nutrient to the environment	Fertilizer use does not capture nutrient loss
	Reduce overall risk of pesticides	Data availability of risk of pesticide use
Target 10	Area under sustainable agriculture	SDGs2.4.1 indicators are still under consideration
Target 16	Halving food waste	Processing/ household level waste is still not effectively measured
Target 18	Identify/reform harmful subsidies	Harmfulness depends on local conditions

Indicators and Objectives - Pesticides



- In regions with high temperature and humidity, pests and diseases control is top priority.
- If we focus only on “amount” of pesticide use, it may lead to use “more toxic” ones.

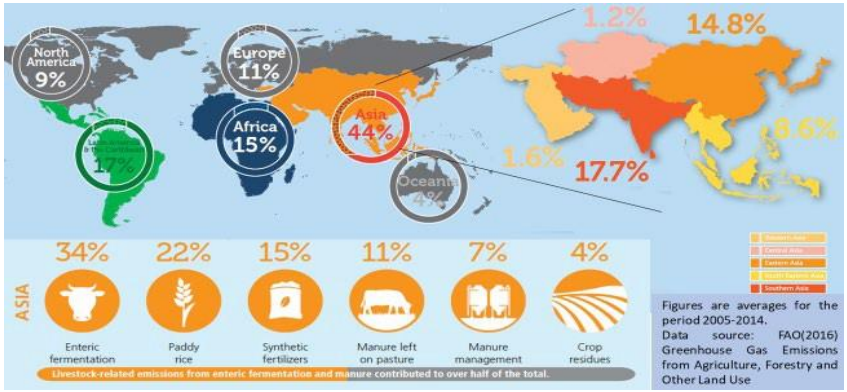
How to measure “risk?”

⇦ 10-25% increase of yield loss of the crops due to insect pests is estimated, per degree Celsius of warming.

“Increase in crop losses to insect pests in a warming climate”, Science, 2018

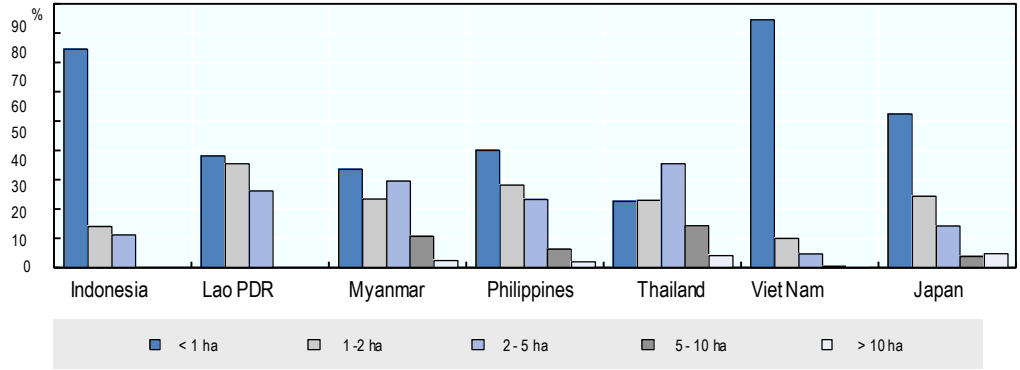
Indicators and Farming Style

- Asia, where paddy field farming is prevalent, accounts for about 44% of the GHG emissions from the world agricultural field.
- Aside by upland crops, indicators for paddy field should be developed.



Indicators and Farm Structure

- Measuring methods/indicators needs to be operable/applicable for small farmers which constitute a vast majority in Asia.



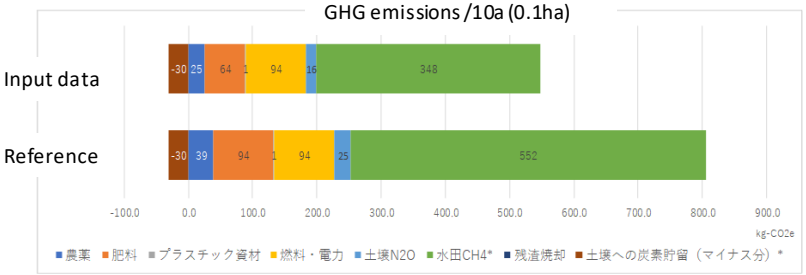
Date source:
Southeast Asia: OECD-FAO Agricultural Outlook 2017-2026 - © OECD 2017 Japan: Agricultural Census, 2015

Visualize GHG Emission

- To calculate GHG reduction, MAFF sets reference Value of the GHG emission on each activity of customary faming practice, based on existing data,
  - by regions
  - by crops (rice, vegetables..)

- MAFF developed a software with which farmers can calculate how much they reduced GHG emissions, by entering which activity they did

Calculation result- visual image



入力したデータに基づくGHG排出量（農地10aあたり）			標準値（農地10aあたり）	
10aあたりGHG排出量	517.24 kg-CO_2e/10a	割合	774.82 kg-CO_2e/10a	割合
農薬	25.1 kg-CO_2e/10a	4.6%	39.0 kg-CO_2e/10a	4.8%
肥料	63.6 kg-CO_2e/10a	11.6%	93.7 kg-CO_2e/10a	11.6%
プラスチック資材	0.8 kg-CO_2e/10a	0.1%	0.8 kg-CO_2e/10a	0.1%
燃料・電力	94.0 kg-CO_2e/10a	17.2%	94.0 kg-CO_2e/10a	11.7%
土壌N_2O	16.1 kg-CO_2e/10a	2.9%	25.4 kg-CO_2e/10a	3.2%
水田CH_4*	347.8 kg-CO_2e/10a	63.5%	552.0 kg-CO_2e/10a	68.6%
残渣焼却	0.0 kg-CO_2e/10a	0.0%	0.0 kg-CO_2e/10a	0.0%
土壌への炭素貯留（マイナス分）*	-30.1 kg-CO_2e/10a	-5.5%	-30.1 kg-CO_2e/10a	-3.7%

*水田由来CH4は生のみに反映される項目で、その他の農作物では「0」になります。

Indicators and Farm Structure

- **"there is No One-size-fits-all solution"**
  it becomes a common understanding

- **Indicators are the tools for checking improvement, need to be consistent to "what we want to achieve"**

- **It might be a good approach to develop different indicators in different local context**

Thank you for your attention.

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