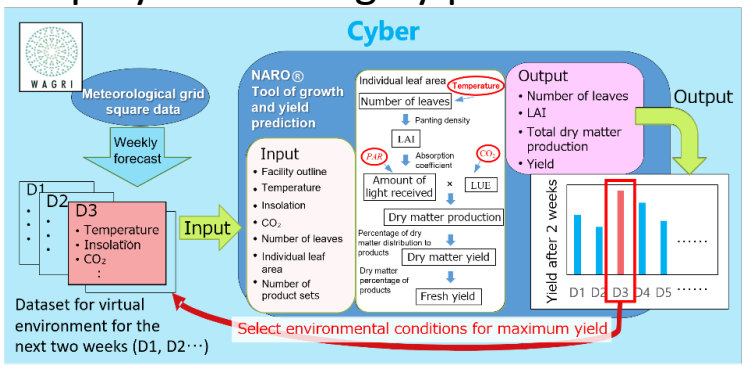
4. Other Projects started after the MIDORI Cooperation Plan

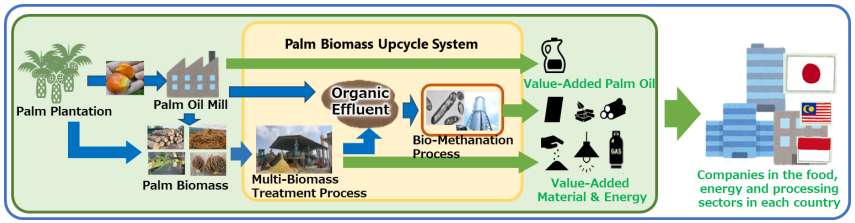
Development of smart greenhouse horticulture technology that enables the deployment of highly productive environmental control technology



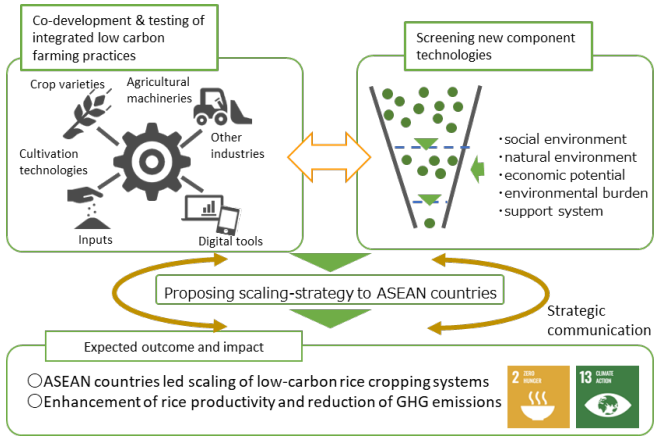
Transformation, Control

Research project on low-cost agricultural production systems utilising environmental control systems such as plant factories in ASEAN countries

Feasibility Study for worldwide expansion of the Next-Generation Biomass Upcycling Technology



Development of rice cropping systems toward carbon neutrality and food security in ASEAN countries



Cooperative projects under the MIDORI Feasibility Study Project

- To advance the objectives of the ASEAN-Japan MIDORI Cooperation Plan, the project has started this year with the aim of contributing to resilient and sustainable agriculture in the ASEAN region through mobilization of private technologies/finance.
- In collaboration with start-up companies, feasibility studies will be undertaken with respect to the introduction in the ASEAN member states of the following technologies.

Satellite + AI for MRV of AWD

- Improvement and verification of the "water detection model" that can monitor water-level of rice paddies with satellite data and AI analysis.
- AI determines the presence of water in rice paddies as well as water-level from satellite images.
- Potential application to measurement, reporting and verification (MRV) of Alternate Wetting and Drying (AWD) practices.

Cashew Nuts Shell Liquid (CNSL)

- Verification of the effect of Cashew Nuts Shell Liquid (CNSL) feed in terms of methane emission reductions from enteric fermentation.
- A joint research project in Viet Nam has demonstrated a 20% reduction in methane emissions.
- Examination of the applicability of the technology for potential deployment in the ASEAN region.

High-performance biochar

- Verification of effect of high-performance biochar utilizing local microorganisms and raw material.
- Contributing to the transition to a circular economy through the active utilization of organic fertilizers and biochar made from unutilized resources.
- Contributing to the promotion of organic fertilizers and increased soil carbon sequestration.

Agroforestry

- Agroforestry and biochar application in coffee production.
- Contributing to increasing agricultural production while preventing deforestation.
- Increased soil carbon sequestration through the application of biochar made from residues from coffee production.

Appendix

Background

Challenges on Global Agriculture and Food System

✓Climate change : low quality due to high temperature, frequent and severe natural disasters
→ GHG emission reduction from agricultural activities

✓COVID-19 pandemic and conflict in Ukraine
→ shortage and soaring price of food supply and inputs

⇨ Concern of food security and sustainability

UN's Food Systems Summit and its Pre-Summit(2021)

✓Food Systems Summit: The concept of enhancing resilient and sustainable agriculture and food systems while reducing greenhouse gas (GHG) emissions has been positioned as a core concept in agricultural policy and government initiatives

✓Pre-Summit : The Joint Statement on Sustainable Agriculture Production and Food Systems was agreed and announced by Ministers in charge of agriculture from several ASEAN Member States(AMS) and Japan

Farm to Fork Strategy(2020)

✓ The Farm to Fork Strategy aims to accelerate EU's transition to a sustainable food system

✓ The strategy sets concrete targets to transform the EUs food system, including
- a reduction by 50% of the use and risk of pesticides by2030,
- a reduction by at least 20% of the use of fertilizers by2030,
- a reduction by 50% in sales of antimicrobials used for farmed animals and aquaculture by2030,
- and reaching 25% of agricultural land under organic farming by 2030

⇨ Does this strategy fit the Asia-Monsoon region's agriculture?

ASEAN's Strategy

ASEAN Regional Guidelines for Sustainable Agriculture in ASEAN

✓Guide AMS on the transition of their agriculture to highly productive, economically viable, and environmentally sound one

-Provide policymakers with a general outline of the importance and relevance of new sustainable and circular agriculture policies

-Provide a transition mechanism where policies can be translated into strategies

-Serve to guide and promote the increasing strategies in sustainable circular agriculture

ASEAN leaders' Declaration on Strengthening Food Security and Nutrition in Response to Crises

✓Highlight ASEAN leader's commitment to ensure rapid action on food security and nutrition in response to crises as well as strengthen preparedness for long-term resilience and sustainability of agri-food system

✓For Rapid Actions to Food Security and Nutrition in Response to Crises

-STRENGTHEN the overall productivity of agri-food systems

-STRENGTHEN existing ASEAN Plus Three Emergency Rice Reserves

✓Strengthen Preparedness for Long-Term Resilience and Sustainability of Agri-Food Systems

-STRENGTHEN national policy frameworks

-PROMOTE investment in agricultural research and development (R&D) and agricultural infrastructure

Japan's Strategy

"MIDORI," the medium-long term strategy will pave the way for the future.

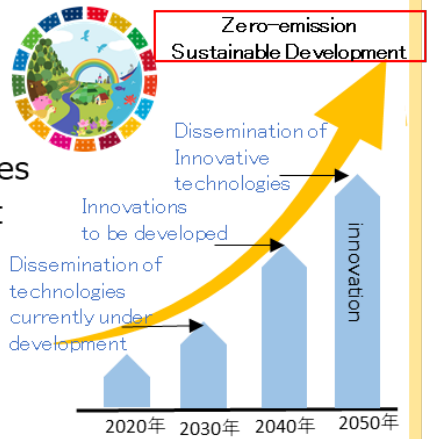
- **Enhancing engagement of stakeholders at each stage of food supply chains**
- **Promoting innovation to reduce environmental load**

Challenges

- Depopulation and aging of producers
- Stagnant rural communities
- Climate change and increasing natural disasters
- Disrupted supply chains due to the COVID-19
- Achievement of SDGs

By 2050, MAFF aims to achieve;

- Zero-emission from the agriculture, forestry and fisheries sectors
- Reduction in overall use and risk of chemical pesticides by dissemination of the Integrated Pest Management and newly-developed alternatives
- Reduction in chemical fertilizer use
- Increase in organic farming
- Enhancing productivity of food manufacturers
- Sustainable sourcing for import materials



which will be enabled through:

- development and dissemination of innovative technologies
- greening of MAFF's policy tools

MAFF endeavors to accomplish the triple wins of;

Economic sustainability

Ensure robust and resilient food industry

Social sustainability

Improve livelihood, promote balanced diet

Environmental sustainability

Save global environment for the future generation

ASEAN's Strategy and Japan's Strategy in Summary

ASEAN's Strategy

✓ASEAN Regional Guidelines for Sustainable Agriculture in ASEAN(2022)

- Guide AMS on the transition of their agriculture to highly productive, economically viable, and environmentally sound one

✓ASEAN Leaders' Declaration on Strengthening Food Security and Nutrition in Response to Crises(2023)

Japan's Strategy

✓Strategy for Sustainable Food Systems, MIDORI (2021)

- Realize increases in both productivity and sustainability in the food, agriculture, forestry and fisheries industries through innovation

Common approach of ASEAN and Japan＝
While increasing productivity,
increase the sustainability of agriculture and food systems