ASEAN Key Policy Considerations for Reducing Crop Burning in the Region

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Crop Burning continues to raise environmental, human, and economic concerns in the region due to the scale of its impacts

HUMAN HEALTH

- 660 million people in Southeast Asia live in areas where particulate PM2.5 pollution exceeds the World Health Organization (WHO) guideline of 5 micrograms per meter.
- This pollution can cut short the life expectancy of an average Southeast Asian person by 1.5 years, relative to what it would be if the WHO guideline were met.
- The largest sources of PM2.5 exposure in the region are open burning of agricultural residues, forest clearance fires, and peatland fires, particularly during burning seasons

ENVIRONMENTAL HEALTH

- Open biomass burning is a major threat to soil health as it fundamentally alters the biological processes and leads to ecological impacts that prohibit recovery and restoration capacity
- Unhealthy soil contributes to the loss of beneficial topsoil microbes makes soil and its crops susceptible to pests, diseases, and abiotic stressors

ASEAN developed a concept note for a project on “incentivizing low carbon emission in agriculture through the reduction of crop burning in ASEAN by piloting private sector partnerships in selected areas and exploring opportunities from the carbon market”

ASEAN-German SSF- Piloting Sustainable Uses of Rice Straw Project

Country: ASEAN, with pilot activities in Thailand

Project partners:

- ASEAN Sectoral Working Group on Crops (ASWGC), ASEAN Secretariat
- Urmatt Ltd.

Overall Term: 01/2023 – 05/2025

https://www.asean-agrifood.org/

Objective

Contribute to a regional shift away from burning agricultural residue in the rice sector through piloting and demonstrating methods for rice straw valorisation, with pilot activities focusing on Northern Thailand and through a public-private-partnership.

Background

A significant amount of rice straw and stubble in the ASEAN region is still burned by farmers after harvest. This contributes to global warming and regional pollution. There are insufficient **business models and valorization options** for farmers available, and **local markets for rice straw** are often not developed or operating at low capacity.

ASEAN is currently developing the **ASEAN Guidelines to Stop Crop Burning** under the leadership of the Lao PDR Chairmanship. The project results will support and inform this process.

Approach

- Output 1: Assess innovative uses of rice straw circular uses and recycling
- Output 2: Facilitate business models and demonstrate viability on a pilot scale
- Output 3: Regional knowledge exchange and scaling in ASEAN

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ASEAN recognised the need for sustainable alternatives to Crop Burning, including the adoption of Innovative and Environmentally-friendly Agricultural Practices

DURING 44TH AMAF MEETING

- ASEAN recognised the importance of ensuring a more resilient and circular food production system
- The ASEAN Regional Guidelines for Sustainable Agriculture in ASEAN: Developing Food Security and Food Productivity in ASEAN with Sustainable and Circular Agriculture was then adopted
- Agreed to develop an Action Plan for the Implementation of the ASEAN Guideline on Sustainable Agriculture

DURING 45TH AMAF MEETING

- ASEAN agreed to develop the ASEAN Guidelines on the Reduction of Crop Burning and implement educational campaigns and training programmes that promote sustainable agricultural practices
- The programmes will provide technical guidance on alternative methods for land clearing and residue management
- This will require collective efforts, sustained commitment, and collaboration among AMS, farmers, local communities, and relevant stakeholders

ASEAN proposed the development of the ASEAN Guidelines on the Reduction of Crop Burning

SUPPORT IMPLEMENTATION OF THE ASEAN STRATEGY ON CARBON NEUTRALITY

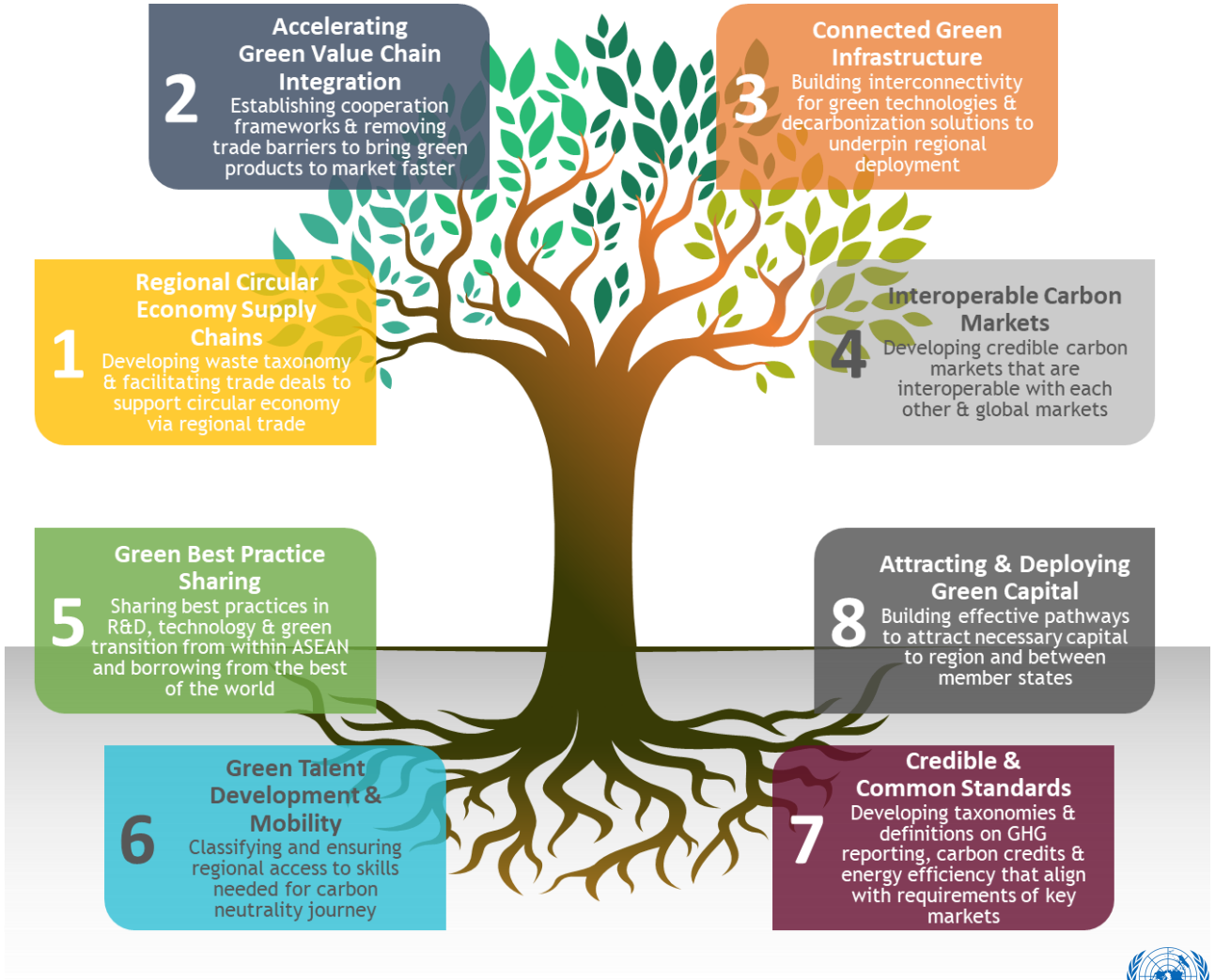
- A carbon-neutral future for ASEAN could unleash between US$3.0 and US$5.3 trillion GDP value-add by 2050, attracting a substantial US$3.7 to US$6.7 trillion green investment and unlocking between 49 and 66 million additional jobs for the ASEAN region.
- The strategy will complement the AMS' Nationally Determined Contributions and SDG targets.

PROMOTE IMPLEMENTATION OF THE REGIONAL GUIDELINES ON SUSTAINABLE AGRICULTURE

- Promote practical implementation through the adoption of precision farming, climate-smart agriculture, and agroecology to optimise resource use, reduce greenhouse gas emissions, and enhance the resilience of farming systems.
- Emphasise the need to establish a conducive policy environment that incentivizes sustainable agricultural practices and ensures regulatory compliance through the development of the Action Plan for the Implementation of the ASEAN Guidelines.

ASEAN STRATEGY ON CARBON NEUTRALITY

- The ASEAN Strategy for Carbon Neutrality aims to accelerate an inclusive transition towards a green economy, fostering sustainable growth and complementing national efforts as part of a regional collective effort
- Presents outcomes that ensure ASEAN's competitiveness on the global stage and readiness for the transition
- Consists of eight strategies that can accelerate decarbonization across sectors and address key obstacles to accelerating the journey toward carbon neutrality



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ASEAN GUIDELINES ON SUSTAINABLE AGRICULTURE

Five principles that balance the social, economic, and environmental dimensions of sustainability

- Improving efficiency in the use of our **resources**
- Conserving, protecting, enhancing **natural ecosystems**, and promoting and enhancing **natural resources and communities**
- Protecting and improving rural **livelihoods and social well-being**
- Enhancing the **resilience** of people, communities and ecosystems
- Promoting **good governance** of both natural and human systems

Some key strategies outlined in the Guidelines for Sustainable Agriculture in ASEAN

- Improving soil health
- Reducing GHG from agriculture
- Valorizing agriculture and food waste
- Improving biodiversity
- Promoting the use of smart and precision agriculture
- Encouraging diversification
- Developing and promoting urban agriculture
- Building farmers knowledge base and capacity
- Supporting research and development/ facilitating funding support
- Encouraging private sector participation in modern and smart technologies
- Improving participation of marginalized communities, women and youth
- Reducing antimicrobial resistance

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To develop the Guidelines, ASEAN assessed the prevailing factors that influence the reasons for Crop Burning practices

FACTORS	REASONS FOR CROP BURNING
Cultural practices, and limited resources	• Burning to kill weeds and pests • Behavior changes of farmers, • Resource constraints: labor scarcity, financial constraint
Crop cycle, crop type and harvesting season	• Very short time interval (10-20 days) and resource for sowing of next crop • Easiest and cheapest methods for quick disposal of crop residues
Potential utilization of residues and awareness	• Lack of awareness about negative effects of agricultural residue burning • Limited awareness of conservation agriculture practices • Paddy straw is less preferred for ruminant feed
Feasibility of on-farm residue collection, storage and transformation	• Labor scarcity and high cost of collection and storage of straw • Lack of storage facilities and market opportunities • Collection problems in wet season/wet field • High cost of transportation
Agricultural mechanization	• Use of combine harvesters and lack of straw management machinery • Low level of skills and knowledge about crop residue management machinery or innovative technology
Profitability of alternative solutions	• High cost to plough back stubbles mechanically • High cost of collection, low market price for rice straw • Limited incentives/subsidies provided to manage crop residue management in alternative ways

Due to the increasing volume of crop residues, the usual practice is to burn but in the end, this contributes to climate change

ASEAN is vulnerable to climate change

- According to the 2020 Global Climate Risk Index (CRI), Myanmar, the Philippines, Vietnam, and Thailand were in the top 10 countries of the world affected by extreme climate events from 1999 to 2018.
- Myanmar is the highest ranked by CRI score (10.3), followed by the Philippines (17.67), Vietnam (29.83) and Thailand (31.00).

COP 28 Outcomes Considerations

- The need for sustained reductions in greenhouse gas emissions by transitioning away from fossil fuels in energy systems to achieve net zero by 2050
- Commitment to align and implement nature and climate strategies together towards a nature-positive economy by 2030
- Produce enough food for the global population but decouple growth in agriculture and food from harming the environment
- Emphasized the importance of building resilience in vulnerable communities worldwide
- Push for concrete and practical solutions by fostering technological innovation, public-private partnerships, and knowledge-sharing

It is imperative for ASEAN to adopt sustainable agricultural practices for managing crop burning from land preparation to residue management

IN-SITU AND EX-SITU APPROACHES

- **Composting** of paddy straw
- **Biogas plants** for paddy straw at domestic/community level
- **Biomass pellets** from crop residues for use as fuel in power plants
- **Briquetting** of crop residues as an industrial fuel supplement
- **Power generation** from biomass
- **Bio-CNG production** from paddy straw
- **Ethanol** production from crop residues

Composting

Bio-gas plant

Power plant

Straw Reaper

Combine with Straw Reaper Attachment

Straw Rake

Straw Baler-Round

Straw Baler - Rectangular

- **Help in collection of straw for different uses**

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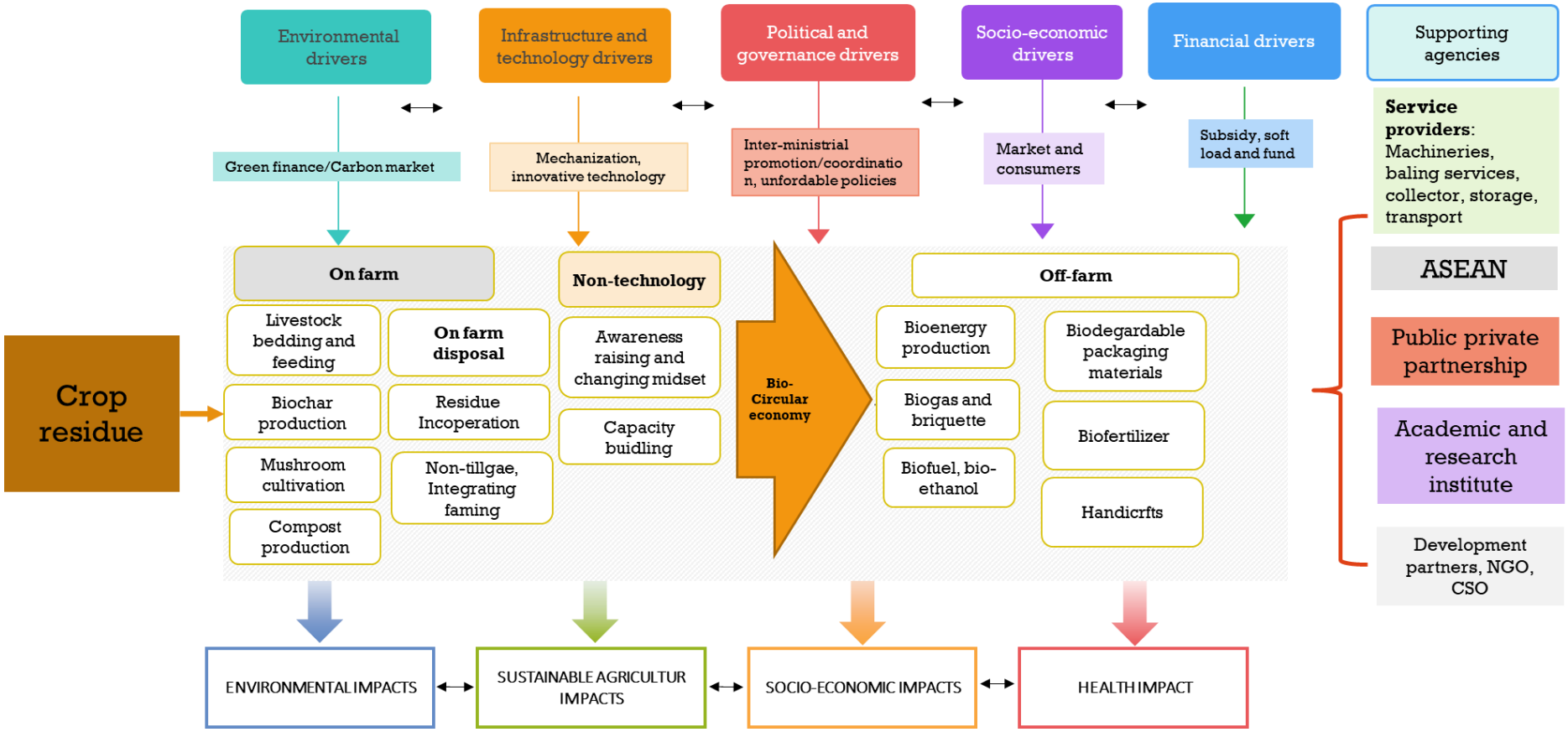
ASEAN will consider a transdisciplinary impact pathway for crop residue management



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ASEAN's experiences in reducing crop burning should be considered in developing the ASEAN Guidelines

- A holistic approach from land preparation to residue management (rice straws and stalks) should be considered to reduce crop burning in the broader context of sustainable agriculture
- Markets for crop residue products are underdeveloped – supply is high and demand is low.
- There is a need for incentives and market-driven approaches. The high costs of collecting, transporting, and storing straw residues are a major bottleneck for rice straw management.
- There are proven technical solutions available, which are both low-hanging fruits (e.g., composting, mushroom production) and opportunities requiring higher investment (biomass to energy, pulping, bioethanol production)
- We need location-specific solutions. There is no "one-size-fits-all". Successful solutions need to involve the private sector.
- There is a need to manage the complex coordination problem to deal efficiently with multiple stakeholders to drive the common objectives (policy, social, economic, and environment).

Thank you

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