

Piloting Sustainable Uses of Rice Straw

Inception Workshop for the Pilot Project on Agricultural Mechanization for Sustainable Reduction of Rice Straw and Sugarcane Trash Burning in Thailand, 24-25 July 2025, Bangkok

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Introduction: ASEAN-German SFF Piloting Sustainable Uses of Rice Straw

Countries:

- Knowledge sharing: ASEAN
- National pilots in Thailand

Project partners:

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

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)
Duration: January 2023 – March 2026
Budget: 0.5m EUR



Overall objective

Contribute to a regional shift away from burning agricultural residue in the rice sector through piloting and demonstrating methods for rice straw valorization.

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.

Areas of Support

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

Project Approach

Facilitate methods to reduce open field burning

Output 1: Assess innovative uses of rice straw circular uses and recycling

1.1 Studies for biofertilizer formulas from rice straw, and silica extraction from rice husk conducted

1.2 Market analysis/research for biofertilizer and bio packaging conducted

Output 2: Facilitate business models and demonstrate viability on a pilot scale

2.1 Capacity building exercise to farmers conducted based on local needs assessment

2.2 Outreach and awareness raising conducted

Output 3: Regional knowledge exchange and scaling in ASEAN

3.1 Policy recommendations developed

3.2 Regional knowledge exchange activities conducted

3.3. Knowledge product(s) developed



Project Timeline



Q1 – Q2/2023

Setup of project team and ASEAN formalization, develop work plan and initialize PPP with Urmatt Ltd



Q3/2023

Consult stakeholders and initiative activities, set up pilot sites and facilities



Q4/2023

Conduct studies and initiative on-field extension activities



Q2/2024 – Q4/2024

Propose methods and results to ASEAN and support to formulation of ASEAN Guidelines to Stop Crop Burning



Q2/2024

Wrap up draft study results and methods for rice straw valorization, continue pilot trainings



Q1/2025-Q4/2025

Finalize reports and results, exit strategy and start potential follow-up initiatives

Highlighted activities

a) Feasibility Study development and Site Visits in Northern Thailand

- In January 2024, the project facilitated a **field visit** by experts and a representative from the ASEAN Secretariat to pilot areas in Northern Thailand. The visit included a visit of the PPP pilot project site and the research facilities at Mae Fah Luang University. In addition, the team engaged with the local **Department of Agricultural Extension** for information on the “Chiang Rai Zero Burn” Policy that is supported by the project
- Under its Output 1, the project is assessing innovative use of rice straw in partnership with contracted researchers and local universities. Results of the ongoing research were presented to AMS representatives in Bangkok on 2nd / 3rd May 2024.
- In addition, a broader, ASEAN – wide **feasibility study** on rice straw management options has been developed and is foreseen to be shared with the ASEAN audience in the form of a knowledge product under the project Output 3.



Visit to Chiang Rai Office of Agricultural Extension (Thailand) by ASEC and GIZ, January 2024

b) Farmer Training Activities in Northern Thailand

- In line with Output 2.1., **pilot training activities** with local communities on composting of rice straw have been implemented in Mae Prik District, Chiang Rai, in cooperation with the Thai Highland Research and Development Institute in order to reduce open field burning in highland areas in December 2023.
- A total of **83 members of the local community** were trained in the production of composting from rice straw



*Composting training in Mae Prik District,
Chiang Rai, Thailand, (December 2023)*

c) Regional Meeting on Sustainable Agricultural Practices and Initiatives for Managing Crop Burning in ASEAN

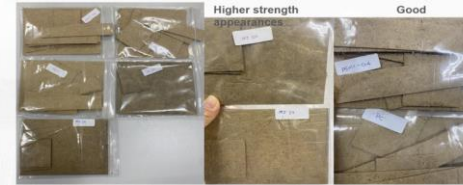
- Under Output 3 of the project, the project hosted a “**Regional Meeting on Sustainable Agricultural Practices and Initiatives for Managing Crop Burning in ASEAN**” in Bangkok, Thailand in cooperation with the ASEAN secretariat on 2-3 May 2024 including AMS representatives, experts from universities and development agencies as participants
- The objective of the meeting was **to facilitate knowledge sharing around the management of agricultural/crop residues**, particularly rice straw and stubbles by sharing best practices, successful interventions and approaches; and to engage in a structured exchange and group discussion to identify suitable options and both limiting and enabling factors that may contribute to the development of ASEAN Policy Guidelines for Crop Burning
- The results are intended to inform the development of **regional guidelines to stop crop burning** in the region.



Group picture of the regional knowledge exchange meeting in Bangkok, 2nd / 3rd May 2024

d) PPP model in Chiang Rai for paper and Pulp production

- The project has supported operationalization of a rice straw-to paper and pulp production in cooperation with Urmatt Ltd. and Maeh Fah Luang University, Chiang Rai, Thailand.
- As of July 2025, the installation of the **facility is concluded and the pilot is operational**, with ongoing optimization of the pulping process.



e) Feasibility Study Launch at ASEAN

- The Feasibility Study was officially launched at the 32th ASWGC (ASEAN Working Group on Crops) Meeting
- Main results of the study and research phase are compiled in a Feasibility Study **“Piloting Sustainable Uses of Rice Straw in ASEAN Countries”** which is available now with a foreword by AEC DSG H.E. Satvinder Singh.
- The study is intended as a handbook for practitioners to implement circular economy measures for rice straw management.
- The study is available as a physical copy or via the ASEAN German agrifood website - [Piloting Sustainable Use Cases of Rice Straw – A Feasibility Study](#)



Next Steps & Outlook

- The “**Piloting Sustainable Use Cases of Rice Straw**” is concluding and in its final phase as a project under the “Study And Expert Fund”
- Validation and feasibility analysis of piloting is largely concluded, with **promising results for further regional scaling and roll-out.**
- Guidance by ASEAN how pilots and results can be **best scaled across the region** and support the regional agenda to decrease agricultural burning and support the regional **decarbonization agenda** in potential future cooperation engagements.



Group picture of the regional knowledge exchange meeting in Bangkok, 2nd / 3rd May 2024



Thank you very much