

Evidences

Study #4289

Contributing Projects:

- P1602 - GHG mitigation in rice: From evidence-based concepts to adoption at scale

Part I: Public communications

Type: OICR: Outcome Impact Case Report

Status: On-going

Year: 2021

Title: Thailand and Bangladesh taking policy-level actions to quantify Greenhouse Gas (GHG) emissions and mitigation ambitions in rice based on improved capacity and Measurement, Reporting, and Validation (MRV) supporting tools

Short outcome/impact statement:

Bangladesh and Thailand demonstrated considerable enhancement in planning and scaling rice-mitigation actions. IRRI-CCAFS's SECTOR tool played a central role in the design of Thailand's Rice NAMA which has reached 25,000 households so far, quantifying GHG reduction from rice practices and developing the MRV system. With improvements in GHG emission measurement and successful pilots in the recent years, Bangladesh updated their Nationally Determined Contribution (NDC) with more specifically quantified targets and financial needs for scaling out low-emission rice production practices.

Outcome story for communications use:

<Not Defined>

Links to any communications materials relating to this outcome:

- <https://ghgmitigation.irri.org/focus-countries2/thailand>
- <https://ghgmitigation.irri.org/knowledge-products/mrv-toolbox/spatial-data>
- <https://tinyurl.com/y363zvr2>

Part II: CGIAR system level reporting

Link to Common Results Reporting Indicator of Policies : Yes

Policies contribution:

- 814 - Bangladesh's updated Nationally Determined Contributions (NDCs) with quantified measures to reduce Greenhouse Gas (GHG) emissions in rice production (<https://tinyurl.com/2hct49v8>)

Stage of maturity of change reported: Stage 1

Links to the Strategic Results Framework:

Sub-IDs:

- Increased capacity for innovation in partner development organizations and in poor and vulnerable communities

Is this OICR linked to some SRF 2022/2030 target?: Too early to say

Description of activity / study: The reported outcomes contribute to scaling out mitigation actions in rice production and achieving national climate targets.

Geographic scope:

- Multi-national

Country(ies):

- Bangladesh
- Thailand

Comments: Bangladesh, Thailand

Key Contributors:

Contributing CRPs/Platforms:

- CCAFS - Climate Change, Agriculture and Food Security
- Rice - Rice

Contributing Flagships:

- FP3: Low emissions development

Contributing Regional programs:

- SEA: Southeast Asia

Contributing external partners:

- MOAC - Ministry of Agriculture and Cooperatives (Thailand)
- MONRE - Ministry of Natural Resources and Environment (Thailand)
- GIZ - Deutsche Gesellschaft für Internationale Zusammenarbeit / German Society for International Cooperation

CGIAR innovation(s) or findings that have resulted in this outcome or impact:

In 2019, IRRI-CCAFS introduced a new tool for calculating GHG emissions from cropland, with a focus on rice production, named SECTOR (Source-selective and Emission-adjusted GHG Calculator for Cropland). The tool was then employed to conduct the GHG calculations under the Thai Rice NAMA project with data from 2018 and 2019. In Bangladesh, IRRI-CCAFS provided emission data and scientific evidence on the effects of climate-smart technologies in reducing GHG emissions from rice production, including water management, variety development, and fertiliser management. In cooperation with the Northwest Focal Area Network (FAN), IRRI supported training and field demonstration to advance the knowledge and capacity of agriculture extension staff farmers to outscale of the AWD irrigation techniques.

Innovations:

- 1080 - SECTOR: Source-selective and Emission-adjusted Greenhouse Gas Calculator for Cropland (<https://tinyurl.com/2zvapcwe>)
- 1678 - Toolbox for data, tools, and guidelines for monitoring, reporting, and verification of Greenhouse Gas (GHG) calculation in rice (<https://tinyurl.com/2p63ap45>)
- 1252 - Training manual to train farmers on water-saving rice production practices (<https://tinyurl.com/2jsmekat>)

Elaboration of Outcome/Impact Statement:

Thailand has the 7th highest cost-effective mitigation potential in rice cultivation in the world(1). However, the country did not enumerate any ambition to reduce GHG emission from rice production in their Intended Nationally Determined Contribution (INDC) (2) and updated NDC(3); the latter document, however, specified the need for support in assessing mitigation potentials for NDC formulation and implementation.

Since August 2018, Thailand has been implementing the 'Thai Rice NAMA Project' to achieve significant adoption of low-emission rice production by 100,000 farm households, among other outputs. Under this project, the International Research Institute(IRRI) contributes to the calculation and verification of prospected emission reduction in rice cultivation. IRRI's technical assistance in conducting reliable quantification of net GHG reduction through adoption of low-emission, irrigated rice production by farm households in the central plan (CAPSAS) provinces using the SECTOR tool. SECTOR, fully named the Source-selective and Emission-adjusted GHG CalculaTOR for Rice, estimates the amount of emissions from different practices/packages based on the IPCC Tier 2 approach(4). Within the Thai Rice NAMA project, SECTOR is used to calculate daily and seasonal emissions of methane and nitrous oxide in 500 farms in 2018 and 300 farms in 2019. The results provided evidence for implementation of low-emission rice practices. More GHG field measurements were planned for the upcoming dry season in 2021-2022. The tool also played the central role in Thailand's MRV system for rice(5). The UN's Environment Program in Thailand launched an assignment "Landscape of digital MRV tools & Potential of Carbon Offsets to support upscaling of low emissions rice practices in Thailand" in November 2021, SECTOR was one of the technologies considered for the assessment of the rice MRV digital landscape in Thailand and GHG accounting(6).

Bangladesh, with the 5th largest mitigation potential in rice, was able to provide a more specific plan to outscale low-emission rice farming practices. Initially, Bangladesh included a target for the scaling of the alternate wetting and drying (AWD) technology in rice production as an estimated percentage of rice area in their INDC(7). In their updated NDC, Bangladesh included explicitly quantified targets for AWD in rice (150,000ha), rice varietal improvement (3,240,000ha), and fertiliser management (200,000ha). According to a recent analysis of CCAFS, Bangladesh was one of the only five countries that specified financial needs from domestic and international resources for rice actions(9). This demonstrates the improvement in GHG measurement and estimation of reduction potentials from low-carbon rice practices.

References cited:

- [1] 3. Thailand's updated NDC (<https://tinyurl.com/ybtup9y5>)
- [2] 8. Bangladesh's updated NDC (<https://tinyurl.com/y7rhme5>)
- [3] 6. Presentation: Landscape of digital MRV tools & Potential of Carbon Offsets to support upscaling of low emissions rice practices in Thailand, UNEP, kick-off meeting in Nov 2021 (<https://tinyurl.com/y8mka9bu>)
- [4] 1. Roe, S., Streck, C., Beach, R., Busch, J., Chapman, M., Daioglou, V., Deppermann, A., Doelman, J., Emmet-Booth, J., Engelmann, J., Fricko, O., Frischmann, C., Funk, J., Grassi, G., Griscom, B., Havlik, P., Hanssen, S., Humpenöder, F., Landholm, D., ... Lawrence, D. 2021. Land-based measures to mitigate climate change: Potential and feasibility by country. Global Change Biology, 00, 1– 34. <https://doi.org/10.1111/gcb.15873> (<https://onlinelibrary.wiley.com/doi/10.1111/gcb.15873>)
- [5] 2. Thailand's INDC (<https://tinyurl.com/s5t9uw9>)
- [6] 7. Bangladesh's INDC (<https://tinyurl.com/yck9pl4j>)
- [7] 9. Analysis: Rice cultivation ambition in the new and updated Nationally Determined Contributions: 2020-2021 (<https://hdl.handle.net/10568/116169>)
- [8] 5. Presentation: Status of MRV System for the Rice Sector, TGCP-Agriculture & IRRI (<https://tinyurl.com/ydbax9bo>)
- [9] 4. SECTOR tool (<https://ghgmitigation.irri.org/knowledge-products/mrv-toolbox/sector>)

Quantification: <Not Defined>

Gender, Youth, Capacity Development and Climate Change:

Gender relevance: 0 - Not Targeted

Youth relevance: 0 - Not Targeted

CapDev relevance: 1 - Significant

Main achievements with specific **CapDev** relevance: Thailand and Bangladesh demonstrated improved capacity in measuring GHG emissions and mitigation potential in rice production.

We conducted 8 training workshops on GHG calculation/analysis with SECTOR in Thailand with a total of 149 participants. More training workshops will be conducted in 2022.

Climate Change relevance: 2 - Principal

Describe main achievements with specific **Climate Change** relevance: Thailand and Bangladesh have achieved considerable progress in measuring GHG emissions and mitigation potential, and become able to make more specific commitments to reducing GHG emissions in rice production, contributing to realising their national climate targets.

Other cross-cutting dimensions: <Not Defined>

Other cross-cutting dimensions description: <Not Defined>

Outcome Impact Case Report link: [Study #4289](#)

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