Evidences

Study #3787

Contributing Projects:
- P1602 - GHG mitigation in rice: From evidence-based concepts to adoption at scale
- P264 - [Regional Program Leader] SEA: Regional and National synthesis, engagement and support

Part I: Public communications

Type: OICR: Outcome Impact Case Report

Status: Completed

Year: 2020

Title: Vietnam reduced additional 1.5MtCO2-eq/year through outscaling low-emission technologies in rice production with IRRI-CCAFS' contributions and increases Agriculture-Nationally Determined Contributions mitigation target by 16MtCO2-eq by 2030.

Short outcome/impact statement:
In its updated Nationally Determined Contributions, Vietnam raised the Agriculture-greenhouse gas mitigation target by 16MtCO2-eq; 100% of Ag-unconditional target will come from rice. With IRRI-CCAFS contributions, climate-smart rice production was introduced to 17,000 extension staff and 75,800 farmers within Vietnam's extension programs; while the Vietnam-Sustainable Agriculture Transformation project almost doubled the low-emission technology adoption area, reaching 163,418ha. Alternate Wetting and Drying and rice straw removal are outscaled in An Giang province. These expansions together saves additional 1.5MtCO20eq/year compared to 2019.

Outcome story for communications use:

The participatory approach for scaling low emission technologies (LET) in rice proposed by IRRI provided an effective methodology for developing a roadmap to implement LETs in An Giang province with focus on alternate wetting and drying (AWD) and straw management practices. In 2019, AWD adoption reached 53.3% (111,327ha) and 36.6% (76,446 ha) of rice area in Winter-Spring(W-S) and Summer-Autumn(S-A) seasons respectively, reducing additional 788KtCo2-eq/year compared with 2019's level; straw removal was practiced on about 28% (seasonal average) in An Giang province, further reducing GHG emissions. With the LET scaling roadmap, An Giang province planned to increase the adoption rates of AWD to 66.0% and 53.9% (W-S and S-A respectively) and that of straw removal practice to 35.9% by 2025. In 2020, the AWD suitability mapping methodology was recognised by the Minister of Agriculture and Rural Development as influential and effective for Vietnam's agriculture sector. Besides greenhouse gas mitigation effect, the outscaling of LETs in rice brings about health and other environmental benefits.

IRRI's assistance has contributed to expanding LETs in rice production in the Mekong River Delta(MRD) region within the Vietnam-Sustainable Agriculture Transformation project. By 2020, the project has enhanced the capacity of 929,067 farmers in eight MRD provinces on climate-smart rice production and outscaled LETs on 163,418ha. Combined with LET scaling in An Giang province, a total of additional 1.5MtCO2-eq has been reduced.

On a national scale, knowledge and capacity for applying climate-smart techniques in rice farming was disseminated in 30 provinces across Vietnam within agricultural extension training programs using the training materials on Climate-smart Rice production adapting to climate change. A study in 13 provinces reports that training materials were used in over 12,000 training events to train 17,000 extension staff and 75,800 farmers (60% female) on LETs in rice cultivation by the end of 2020. With IRRI's technical support, these training materials were developed to provide a comprehensive understanding of low-emission rice production while giving detailed technical instructions for adoption of LETs, thus were highly appreciated by local extension staff and farmers. The extension system plans to expand the training activity in 2021 to build capacity of more extension staff and farmers and outscale LETs in rice.

IRRI-CCAFS' work in developing and promoting LETs contribute strongly to transforming Vietnam's rice sector towards higher sustainability and resilience. Vietnam recently revised its Nationally Determined Contributions, raising its agriculture mitigation target by 16MtCO2-eq towards 2030 compared with the previous commitment.

Links to any communications materials relating to this outcome:

Part II: CGIAR system level reporting

Link to Common Results Reporting Indicator of Policies : Yes

Policies contribution:
 ● 585 - Decision of Vietnam's Minister of Agriculture acknowledging Alternate Wetting and Drying (AWD) suitability mapping methodology as one of the ministerial-level initiatives
 ● 317 - Considered the first of its kind, Vietnam's National Agriculture Extension Center adopted the manual, developed by IRRI and CCAFS, as official training material for Ministry officials on climate-smart rice production.
 ● 309 - Upon MARD's request, IRRI's scientists provided technical inputs to the draft Circular. In November 2019, MARD officially issued Circular No. 19/2019/TT-BNNPTNT, incorporating IRRI's inputs regarding rice straw collecting and utilization.
 ● 310 - The National Agricultural Extension Center (MARD) developed a set of training materials on climate-smart crop production, including one module on climate change and greenhouse gas (GHG) emissions in rice production.
 ● 313 - IRRI provided a model roadmap for adoption of low-emission technologies in rice production in An Giang province with implications for scaling plans in other provinces in the Mekong River Delta.
 ● 586 - Vietnam's updated Nationally Determined Contributions to the Paris Agreement, including new targets in agriculture

Stage of maturity of change reported: Stage 3

Links to the Strategic Results Framework:
Sub-IDOs:
 ● Reduced net greenhouse gas emissions from agriculture, forests and other forms of land-use (Mitigation and adaptation achieved)
 ● Increased capacity for innovation in partner development organizations and in poor and vulnerable communities

Is this OICR linked to some SRF 2022/2030 target?: Yes

SRF 2022/2030 targets:
 ● Reduce agriculturally related greenhouse gas emissions compared to business-as-usual scenario 2022

Description of activity / study: <Not Defined>

Geographic scope:
 ● National

Country(ies):
 ● The Socialist Republic of Viet Nam

Comments: <Not Defined>

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:
- MARD - Ministry of Agriculture and Rural Development (Vietnam)
- NAEC - National Agricultural Extension Center

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

In 2019, IRRI worked with the Department of Crop Production (DCP) and the Department of Agriculture and Rural Development in An Giang province to develop the alternate wetting and drying (AWD) suitability mapping methodology, which was high appreciated by DCP and local agriculture offices in An Giang as well as neighbouring provinces in the Mekong River Delta region. In 2020, IRRI further developed this methodology and built a digital tool named MapAWD for mapping areas suitable for applying AWD, applicable at different scales (national, regional, and provincial). The MapAWD tool was introduced to a large group of agriculture officials (national and local levels), researchers, and other stakeholders at a training workshop in November 2020. IRRI's technical assistance to the National Agricultural Extension Center (NAEC) contributed to the development of the training materials in Climate-smart rice cultivation adapting to climate change. After successful pilots NAEC implemented capacity building activities using the training materials in rice production provinces from late of 2019 to the end of 2020, advancing the knowledge and capacity of a large number of extension staff and rice farmers. Within the VnSAT project, IRRI delivered capacity building and demonstrations on low-emission rice cultivation practices and to farmers in eight provinces in the Mekong River Delta region. At the same time, IRRI compiled data for rice in the Mekong Delta and provided technical assistance in GHG emission estimation and analysis. IRRI's scientists also supported farmers' organisations in improving products' quality and building sustainable/premium rice brands. IRRI's empirical research and analysis on the environmental impacts of straw management options have provided scientific evidences for improved rice straw management, building awareness on rice straw management to reduce GHG emission. The knowledge and best practices of straw management have been introduced and disseminated widely to farmers and local agricultural officials in Vietnam.

Innovations:
- 1235 - Participatory development of scaling plan as a part of low emission roadmap in rice production of Mekong River Delta
- 1251 - Training materials on climate-smart crop production by National Agricultural Extension Center

Elaboration of Outcome/Impact Statement:

In 2020, Vietnam updated its Nationally Determined Contributions(NDC) to the UNFCCC, raising the total emission mitigation target by 2030 by 16MtCO2-eq compared to the (intended) NDC submitted in 2016; 100% of unconditional target will come from rice production, with contributions from different components including crop production and by-products management(1-2-3). In rice cultivation, AWD is one of the key technologies to reduced GHG emissions. The Minister of Agriculture and Rural Development acknowledged the AWD suitability mapping methodology as influential and effective for Vietnam's agriculture sector planning(4). In practice, AWD was widely adopted in rice planting areas. For instance, information provided by agricultural officials in An Giang province in November 2019(4) revealed that AWD was adopted on 53.3% and 36.6% of the province' rice land in Winter-Spring(W-S) and Summer-Autumn(S-A) seasons respectively(5); covering 208,870ha, an additional 113,870ha compared to 2019's OICR(6). This translates into additional 778KtCO2-eq saved. An Giang province formulated the plan to expand these seasonal adoption rates to 66.0% and 53.9% respectively for W-S and S-A in the following five years(5). Regarding by-products management, the adoption of straw removal practice reached almost 28% of rice land in An Giang province in 2019 (about 174,478ha), reducing straw burning and saving GHG emissions further. This rate would reach 35.9% by 2025 through reduced burning which provides additional health benefits(4-6-7).

Capacity building on low-emission technologies(LETs) in rice has been implemented on a broad scale. By the end of 2020, the training materials on climate-smart rice production developed by the National Agricultural Extension Center(NAEC) together with IRRI was used in 30 provinces to promote sustainable rice cultivation(8). A survey conducted by NAEC in 13 selected provinces reports 12,960 training events at different administrative levels, introducing LETs to 17,000 extension staff and 75,800 farmers (60% female)(8-9-10). These provinces plan to train more extension staff and farmers in 2021(8-9-10). Under the Vietnam-Sustainable Agriculture Transformation(VnSAT) project in which Dr. Ole Sander is responsible for the GHG mitigation component, 929,067 farmers in the Mekong River Delta enhanced knowledge on LETs in rice production(11).

The VnSAT project reports an increased adoption of climate-smart technologies from 82,027ha by December 2019(12) to 163,418ha by November 2020, reducing 1,37MtCO2-eq, an increase of 755ktCO2-eq(11). The outscale of LETs in An Giang and VnSAT provinces contributed to reducing additional 1.5MtCO2-eq/year compared to 2019's OICR. Farmers participating in the project reported an increase in net income by 28.3% per ha compared to that of non-project farmers(11).

References cited:

1. Vietnam's revised NDC in 2020 (https://tinyurl.com/2ydanmje)
2. Vietnam's Action Plan for Implementing Greenhouse Gas Emission Reduction in Agriculture Sector: Document No 7028/BNN-KHCN dated 25/8/2016 - original document (http://demo.lcasp.org.vn/Upload/files/VN_04_Ke%20hoach%20INDC.doc) and translation (https://drive.google.com/open?id=13OySL8Kbp9pYWvZl8Yd4lBDUqXJeNe5Q)
3. Mai, VT (2020). Updated NDC, opportunities and challenges for agriculture. Presentation at Kick-off workshop of the project. Support to Vietnam for the implementation of the Paris Agreement. Hanoi, 22 October 2020. (https://drive.google.com/file/d/1i56g8pWtIE1nsAWBk3DqHodOo_2_CU-S/view)
4. Decision No. 2559 QD/ BNN-TCCB dated 7 July 2020 by the Minister of Agriculture and Rural Development and Annex: original Vietnamese version (https://drive.google.com/file/d/1a-J8vqzIyIhNBGhkakTA_fss1SOzj38N/view) and English translation (https://drive.google.com/file/d/1fSuH-ait3wijreq_-3DlhS53sKKgA0Am/view)
AWD Suitability mapping workshop in An Giang province - Workshop report including participation list and discussion notes (https://drive.google.com/file/d/18mRtnv-bxVX7TiwD-_nkb__5H9Rx5seu/view)
5. Data on adoption rates of water-saving practices in An Giang (https://drive.google.com/file/d/1BEmbnx7tzAtZmn6mUTfB1ssxR_VkJiik/view)
6. Calculation of land area based on MARD's monthly reports: (https://drive.google.com/file/d/1BVvI92WsCToy6l8VBGx6fa82xA50AkfC/view)
7. Data on adoption rates of straw management practices in An Giang: (https://drive.google.com/file/d/10tPECjXoZFNlAOoQtCm6H9HzS_Ya1zw6/view)
8. Survey report of the National Agricultural Extension Center (https://drive.google.com/file/d/1Nk0UYUyoqSHQrv-gstXGD2j12YcSizns/view)
9. Filled questionnaires in NAEC's survey (https://drive.google.com/file/d/1EsrJOs-m5vGKNadeu5rNbFoCTn7itDgY/view)
10. Data table from NAEC's survey (https://drive.google.com/file/d/1ZUW-zY3IEtC9Gol1idmXY6neK9rofZ1b/view)
11. Report of World Bank's 10th Mission to support the implementation of VnSAT project, December 2020 (https://drive.google.com/file/d/1TJMqdVoVr8Mb49YEYLCTTj0ZYEr3otv3/view)
12. VnSAT project 2019 report (https://drive.google.com/open?id=1Yep7ZQ0Zeg0KU00SdIe57nxlkF0_WviK - downloaded from http://mic.mard.gov.vn/General/ProjectDetail/Default.aspx?p=2559)
*Folder with all evidences: https://drive.google.com/drive/folders/1EtDrOEJXBDOJ4CC8HOvUWiO429JQnoz6

Quantification:

Type of quantification: a) Actual counts or estimates from a particular study (please provide reference)
Number: 1500000.00
Unit: tCO_2-eq
Comments: In 2019, The VnSAT project reported 609,714tCO_2-eq/yr reduced on 82,027ha covered. By November 2020, the 10th Mission of the World Bank reported 163,418ha, reducing 1,365,169tCO_2-eq, showing an increase by 755,455tCO_2-eq/yr. In An Giang province, we have estimated the GHG emission reduction using the recently calculated region-specific emission factors for Vietnam (see https://cgspace.cgiar.org/handle/10568/108490), the planted area according to MARD's monthly report (https://www.mard.gov.vn/Pages/bao-cao-thong-ke.aspx#) and the adoption rates of AWD and Mid-season Drainage (reported at workshop in An Giang province). The GHG emission saving from water-saving technologies including AWD (53.27% in W-S season and 36.64% in S-season) and Mid-season drainage (41% in W-S and 54% in S-A seasons) was 1,388,515tCO_2-eq, which is 778,120tCO_2-eq additional from the mitigation reported in out 2019's OICR (re-estimated using the updated emission factors developed in 2020 - see above). In total, the additional GHG emission reduction from both An Giang province and the VnSAT provinces compared to 2019's OICR was 1,533,575tCO_2-eq/yr. We assumed a double counting between the VnSAT program and An Giang province which is probably around 6.5% of the area reported by VnSAT and An Giang combined. We have reduced this potential double counting from our estimate.

Type of quantification: a) Actual counts or estimates from a particular study (please provide reference)
Number: 12960.00
Unit: training events
Comments: A survey conducted by the National Agricultural Extension Center in 13 selected provinces reports 12,960 training events, including: 10 training events at national level, 150 courses at provincial level, 800 courses at district level, and 12,000 courses at commune level.

Type of quantification: a) Actual counts or estimates from a particular study (please provide reference)
Number: 17000.00
Unit: extension staff
Comments: A survey conducted by the National Agricultural Extension Center reports 17,000 extension staff trained to deliver training on climate-smart rice production to farmers in 13 provinces, comprising of 300 national staff, 2,200 provincial staff, and 14,500 district staff. The district extension staff deliver training at both district and commune levels.

Type of quantification: a) Actual counts or estimates from a particular study (please provide reference)
Number: 75800.00
Unit: farmers
Comments: A survey conducted by the National Agricultural Extension Center reports 75,800 farmers trained on climate-smart rice production in 13 provinces, including 2,300 farmers trained at province-level courses, and 13,500 farmers trained at district-level courses, and 60,000 farmers trained at commune-level courses. 60% of these farmers (45,350) were female.

Gender, Youth, Capacity Development and Climate Change:
Gender relevance: 1 - Significant
Main achievements with specific **Gender** relevance: 60% of the farmers trained on low-emission rice cultivation by the agricultural extension system were female.
Youth relevance: 0 - Not Targeted
CapDev relevance: 1 - Significant
Main achievements with specific **CapDev** relevance: A study in 13 provinces reports that 17,000 extension staff and 75,800 farmers were trained on climate-smart rice production by the agricultural extension system by the end of 2020.
Under the Vietnam-Sustainable Agriculture Transformation (VnSAT) project, 929,067 farmers in the Mekong River Delta provinces enhanced knowledge on low-emission rice production.
Climate Change relevance: 2 - Principal
Describe main achievements with specific **Climate Change** relevance: In An Giang province, AWD was adopted on approximately 208,870ha, saving about _tCO2-eq annually; straw removal was practiced on about 174,478ha, saving additional _tCO2-eq per year.
By November 2020, the VnSAT project reports that climate-smart technologies was adopted on 163,418ha, reducing 1,365,169tCO2-eq.

Other cross-cutting dimensions: <Not Defined>

Other cross-cutting dimensions description: <Not Defined>

Outcome Impact Case Report link: Study #3787

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