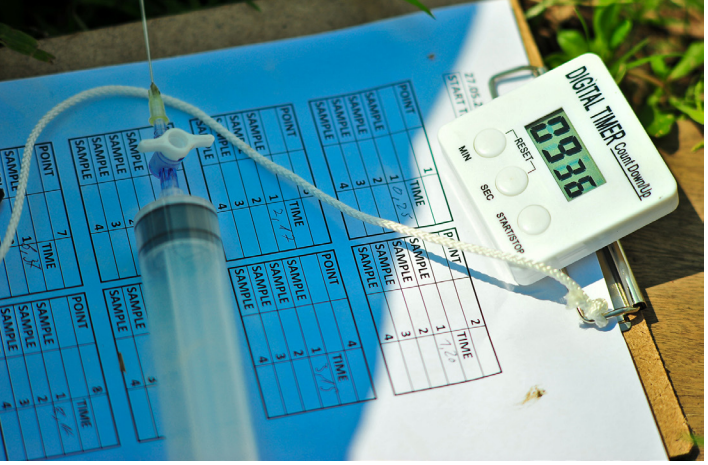

IRRI and CIAT will also help national partners in forming policy working groups in Vietnam, Bangladesh, and Colombia. These working groups will identify areas with high mitigation potential and design agricultural development interventions for the upscaling of mitigation practices in those areas.

Major outputs of Phase I will be a central information kiosk at IRRI Headquarters and three country-led proposals for Phase II, each with clearly articulated action plans and deliverables.

Better information for decision-making. At a central kiosk at IRRI, national decision-makers will have comprehensive, high-quality information, and consistent metrics on rice management practices, GHG mitigation and food security impact of each, and opportunities and barriers to implementation. GIS maps will be developed for each country to show the biophysical and socioeconomic suitability of different paddy rice locations for mitigation and guide prioritization of locations for AWD+.

National networks and capacity. Policy networks in the three countries will be established to raise awareness of paddy rice mitigation options, identify mitigation priorities, and design initiatives. IRRI, CIAT, and regional partners will work with policymakers to build capacity.

Country-specific proposals for national initiatives. Multistakeholder working groups in each country will use information to design agricultural development programs that scale up mitigation in paddy rice systems while maintaining or improving food security and farmers' livelihoods.

Partnership

IRRI and CIAT will lead the implementation of the component, in collaboration with national partners in Vietnam, Bangladesh, and Colombia. Several members of the CCAC, such as the Government of Japan, as well as international organizations such as the Global Research Alliance for Agricultural Greenhouse Gases, have been involved in the development of this mitigation program. Program activities are aligned with the CGIAR Research Program on Climate Change, Agriculture, and Food Security (CCAFS).

This work is supported by the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants.

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Methane Mitigation in Rice Paddies:

A new CCAC component

CCAC Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants
IRRI
CIAT
CGIAR
Research Program on Climate Change, Agriculture and Food Security
CCAFS

Mitigation in paddy rice: a new CCAC component

Rice is a staple crop in more than 100 countries. Asia contributes 90% (650 million tons) of the global supply, followed by Latin America (25 million tons).

While rice production contributes greatly to securing the world's food, it exacerbates climate change because it emits methane, a potent greenhouse gas (GHG). Methane is produced by anaerobic bacteria in the soil when rice fields are flooded. Although estimates vary and have high uncertainty, flooded rice fields contribute about 20–40 Tg CH4/year, or 15% of total GHG emission from agriculture globally (IPCC, 2007).

Scientists and policymakers are aiming to develop and deploy strategies for growing rice with less methane emission and without compromising yield. Although some technical options have been identified, generic approaches have not been applied at scale.

About the paddy rice component

The *Mitigation Options to Reduce Methane Emission in Paddy Rice*—the paddy rice component, in short—forms part of the Agriculture Initiative of the Climate and Clean Air Coalition or CCAC hosted by the United Nations Environment Programme (UNEP). A goal of the CCAC is to disseminate best practices for minimizing emission of short-lived climate pollutants (SLCPs) from agriculture while enhancing productivity, ensuring food security, and improving livelihoods.

The paddy rice component aims to provide technical and policy guidance for national governments to implement GHG mitigation options without yield penalty. In particular, it seeks to address major constraints to mitigation in paddy rice by identifying:

- Best management practices tailored to specific biophysical and socioeconomic settings found in different countries; and
- Incentives, technical support mechanisms, and enabling conditions to overcome barriers that men and women farmers face in using the new practices.

AWD technology

The paddy rice component will focus on the most promising technology for mitigating methane emission in rice systems—specifically, irrigated—through **alternate wetting and drying (AWD)**.

AWD technology involves the practice of periodically drying rice fields and re-flooding these at optimum water level. Long years of research have shown that AWD could reduce methane emission by 30–50%. It also presents other benefits, such as reduced water use and production cost and improved rice yields. It is complemented by planting systems, nutrient management, and rice straw management to avoid open burning—forming a technology package that we call AWD+.

The use of AWD requires a secure and controllable water supply, as farmers must be able to drain the field and access water again after drainage. As such, AWD is not recommended for rainfed rice production (about 25% of the global rice area) where water supply is unpredictable; or for deepwater rice (about 10% of the global rice area), which lacks drainage capacity.

Adoption of AWD is most attractive to farmers who have to pump irrigation water into the fields, as optimized water use will reduce the cost of pumping.

Target countries

The paddy rice component will focus on three rice-producing countries—Vietnam, Bangladesh, and Colombia, representing Southeast Asia, South Asia, and Latin America, respectively—which were selected because of:

- high mitigation potential
- national interest in and capacity for implementation, scaling-up, and monitoring
- availability of implementing partner(s) and information; and
- potential as regional learning site

Other countries in the regions will be engaged as associate program participants to facilitate regional learning and provide South-South exchange.

Expected results

Phase I will last 18 months (October 2014-March 2015). IRRI and CIAT, the lead institutions, will help compile information from each region and assess opportunities and barriers to large-scale implementation. Information, which will be web-based and accessible to the public, will include current rice management practices, data on biophysical and socioeconomic suitability for AWD, and current policy actions for each region.