



IRRI

Cambodia and IRRI

Advancing rice productivity and national food security

Rice in Cambodia

- A rice-based farming system forms the backbone of Cambodia's agricultural sector.
- Rice is grown on four different ecosystems: rainfed lowland, rainfed upland, deepwater, and irrigated land.
- Rice is mainly produced during the wet season, which accounts for more than 75% of total paddy output per year.
- Dry season paddy cultivation remains an important component of rice cultivation, particularly for consumers with a preference for dry season varieties.
- Cambodian farmers have recently shifted to direct seeded rice.
- Productivity for dry season crops is higher than wet season crops, mainly due to the use of higher-yield seeds and better water management.
- As of 2016, 17 IRRI-bred lines have been released as varieties in Cambodia. This includes Sen Pidao, IR66, Chul'sa, CAR14, CAR15 and CAR16 that are still being widely grown.

IRRI and Cambodia have been partners in building a strong agricultural system in the country for more than 30 years. The partnership was formalized through a memorandum of understanding in 1986, but IRRI's support to the country started much earlier.

Six Cambodian scientists were trained in IRRI between 1960 and 1973. IRRI collected different types of rice in Cambodia between December 1972 and January 1973 and conserved duplicates of the country's rice diversity in the International Rice Genebank. As a result of food shortages in the late 1970s, many Cambodian farmers were forced to eat their rice seed and traditional varieties were lost. In the 1980s, IRRI reintroduced more than 750 traditional Cambodian rice varieties into the country.

The Cambodia-IRRI-Australia Project (CIAP) began in 1987 with the aim of increasing the country's rice production and productivity of its rice-based production systems. CIAP embarked on breeding programs to develop improved rice varieties for the country's varied ecosystems. Due in part to the introduction of high-yielding varieties and the adoption of CIAP technologies, Cambodia exported rice for the first time in 1995.

A famous Cambodian rice, Phka Rumduol, was chosen as the "World's Best Rice" at three consecutive The Rice Trader World Rice Conferences— Bali in 2012, Hong Kong in 2013, Phnom Penh in 2014, and Hanoi in 2018. Phka Rumduol is premium fragrant rice and was developed through support from the Cambodia-IRRI-Australia project and was released as a variety by the Cambodian Agricultural Research and Development Institute (CARDI) in 1999.

In May 2020, the Ministry of Agriculture, Forestry and Fisheries (MAFF) signed with IRRI a Collaborative Work Plan 2020 – 2023. This document sets a roadmap for enhancing an strengthening Cambodia-IRRI collaboration in the rice-agri-food systems in the country.

Key achievements

Conservation of traditional varieties. As part of the repatriation process after the civil war, IRRI reintroduced 766 traditional Cambodian rice varieties to the country from the International Rice Genebank. By July 2016, 4,895 types of seeds from Cambodia are being held in trust at the Genebank.

Improving mechanization. IRRI and Cambodia's MAFF pilot-tested postharvest technologies and methods for improving rice mills. IRRI also helped introduce combine harvesters and flatbed dryers in Cambodia. In 2009-2013, ADB funded the pilot testing and outscaling of these technologies in six provinces. By the end of 2013, about 200 flatbed dryers have been installed by the private sector, about 5,000 combine harvesters were in use. The IRRI-led Direct Seeded Rice Consortium also supports improvements in mechanized direct seeding.

Capacity building. From 1963 to 2019, more than 340 Cambodian nationals participated in IRRI short courses and training programs and have, in turn, given training to farmers in 46 villages, reaching about 13,000 families. Nine Cambodian scholars (six doctoral, two masteral, and a baccalaureate) have completed their courses in partnership with IRRI, as have an intern and 35 on-the-job trainees. IRRI's projects in Cambodia, with support from ADB and the Swiss Agency for Development and Cooperation (SDC), enabled the training of 276 researchers, farmer intermediaries, and manufacturers of agricultural equipment by December 2014.

Laser leveling. In 1998, IRRI piloted laser-assisted land leveling in Cambodia under CIAP. By year 2000, around 200 fields had been leveled to demonstrate the technology. The agriculture sector at the time, however, was not ready to adopt the technology. In 2012, the ADB-funded IRRI postharvest project reintroduced the technology and, to date, eight units are in use around the country.

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Current collaborations

Cambodia-IRRI Collaborative Work Plan 2020-2023. The work plan is to boost collaboration to: (i) enhance the commercialization of the rice sector through value chain assessment; (ii) enhance productivity and resiliency through germplasm conservation and utilization, crop improvement, and seed system development; (iii) enhance sustainable management of agricultural land through climate-smart production techniques, optimization of diversified land management options, and landscape monitoring, modeling, and planning; and (iv) promote agricultural modernization through on-farm mechanization, post-harvest, and by-product management.

National seed strategy. IRRI is helping Cambodia develop its first national seed strategy, which will help modernize the predominantly informal seed sector by establishing regulatory bodies and promoting a more diverse and vibrant commercial seed industry.

Introduction of stress-tolerant and pest-resistant rice varieties. In collaboration with public and private partners, IRRI led the dissemination and promotion of high-yielding flood- and drought-tolerant rice varieties as well as the associated good management practices for these. IRRI with national partners has done systematic monitoring of diseases (<http://webapps.irri.org/pathotracer/>) and started to develop resistant varieties that can be deployed in specific locations.

Integrated pest management. Through various projects IRRI and partners developed a suite of ecologically-based pest management to minimize pest-related yield losses in Cambodia while protecting the health of rural communities and their environment. Through this the rice ecosystem is also more resilient to pests with natural pest regulation through beneficial organisms.

Remote sensing-based systems. IRRI and its partners are working to reduce the vulnerability of smallholder rice farmers through the use of remote sensing technologies to map and observe rice growth in the country. Information gathered through these technologies will help the government make provisions like addressing potential food shortages or crop insurance initiatives.

Rice straw management. Options for scalable management of rice straw as a means for farmers to earn added income, and adopt practices for low-carbon footprint and sustainable rice-based production systems, are being documented and studied, with the outlook of dissemination.

Climate change adaptation and mitigation. Efforts include breeding and development of varieties for climate change adaptation and resilience, exploring diversified systems, and development of supportive policies.

Improved farmers' livelihood. Integrated approach to helping rice farmers in irrigated and unfavorable environments reduce risks and improve farm productivity through generation, validation, and dissemination of new technologies.



International Rice
Research Institute

IRRI aims to improve livelihoods and nutrition, abolishing poverty, hunger, and malnutrition among those who depend on rice-based agri-food systems. In doing so, IRRI's work protects the health of rice farmers and consumers, and the environmental sustainability of rice farming in a world challenged by climate change. IRRI's work promotes the empowerment of women and supports opportunities for youth in an equitable agri-food system.

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