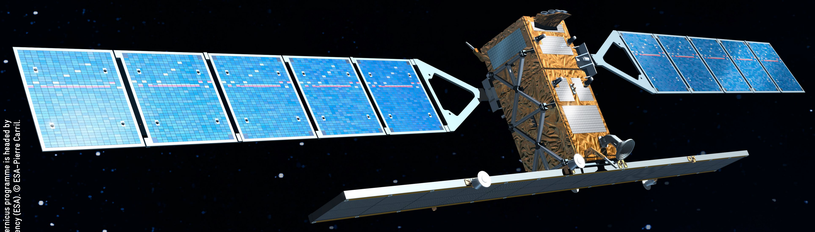



# Improving food security through satellite information

RIICE

**RIICE supports partner countries in satellite-based rice crop monitoring to make reliable forecasts of their country's rice production. Governments can also use the data to assess very effectively the impact of natural disasters and the related extent of rice crop damages. Such information can be a useful resource for decision-making, targeting of resources, crop insurance and disaster response.**

## Assess. Decide. Act.

Rice is Asia's most important staple crop. If the rice season is good, poor families will have enough to eat. If not, they will go hungry.

RIICE works with data supplied by the Sentinel-1 space mission which is carried out by the European Space Agency (ESA). Sentinel-1 provides free radar images of the earth's surface at 12-day intervals. RIICE partners have developed a specialised software and automated processing chains to perform regular large-scale monitoring of rice production. In cooperation with several partner organisations in Asia, RIICE produces accurate rice crop maps and yield forecasts, and quantifies production damage caused by natural disasters.

The ESA satellites use radar sensors to scan the earth's surface. Unlike optical systems, radar sensors can generate reliable data even at night and in cloudy conditions – a crucial advantage at times of persistent heavy rain, e.g. during the Monsoon period.

Governments can use the data provided by RIICE to offer their farmers sound advice on crop management during the planting season and provide protection in the event of a natural disaster. In this way RIICE helps to strengthen resilience and improve food security.

## Tamil Nadu: RIICE plays key role in disaster response.

The heavy rain that struck Tamil Nadu in November 2015 lasted for several weeks, causing over 300 fatalities and leaving airports under water and entire stretches of land cut off. The authorities urgently needed to find out who had been worst hit in order to act immediately.

Help was at hand from Tamil Nadu Agricultural University (TNAU), RIICE's implementation partner. TNAU supplied vital information on who had been affected in which areas and in what form, thus helping the authorities to provide carefully targeted assistance. Just a few days after the heavy rain started, TNAU drew up an initial disaster report for the Chief Secretary to the Government of Tamil Nadu based on high-resolution radar images. Thanks to this information, the government was able to take immediate action.

Farmers in Cuddalore received 50 metric tons of rice seed and 30,000 vegetable seedlings. According to the state government official responsible for coordinating the response, the RIICE report had been 'the main tool to rapidly decide on the provision of relief materials such as input, seeds and seedlings to 400 flood-affected farmers in the district'.

## A single project with numerous partners in five countries

RIICE stands for Remote Sensing-based Information and Insurance for Crops in Emerging Economies. RIICE is a public-private partnership between the Swiss Agency for Development and Cooperation (DEZA), the main funder of the project, the International Rice Research Institute (IRRI), the Swiss satellite company sarmap SA, GIZ (on behalf of BMZ), and the reinsurer Allianz Re. To date the project has established partnerships with the following institutions – Cambodia: Ministry of Agriculture, Forestry and Fisheries, Department of Planning and Statistics of the Ministry of Agriculture, Cambodia Agricultural Research and Development Institute, Royal University of Agriculture, India: Department of Agriculture at the Government of Tamil Nadu, Tamil Nadu Agricultural University, Agricultural Insurance Company of India, Philippines: Philippine Rice Research Institute, Philippine Insurers and Reinsurers Association, Thailand: Ministry of Agriculture and Cooperatives of Thailand, Thai Rice Department of the Ministry of Agriculture and Cooperatives, Fiscal Policy Office of the Ministry of Finance, Bank of Agriculture and Agricultural Cooperatives, Geo-Informatics Space Technology Development Agency, Vietnam: Ministry of Agriculture and Rural Development, National Institute of Agricultural Planning and Projection, Can Tho University, Bao Viet Insurance Corporation.

## Today rice – tomorrow wheat, soya and maize.

In addition to the processed radar imagery derived from the ESA Sentinel satellite, the RIICE project depends critically on the quality of cooperation with local implementation partners such as experts from governmental institutions or universities. While the satellite-based radar technology produces measurements of biomass and humidity, the national experts supply key ground-based and meteorological information. Together with the local experts, the job of the RIICE team is to estimate crop production volumes on the basis of all this data.

This method of monitoring and forecasting rice production by combining large-scale radar imagery and software-based automated processing of those images with the knowledge of local agricultural experts could be used in future to develop similar approaches to monitor other important crops, such as soya, maize and wheat.

## Insure. Assess. Pay out.

The data generated by RIICE provides a very effective information tool for use by decision-makers in case of natural disasters such as drought, flooding, typhoons and, in future, even pest damage. Satellite-based crop production monitoring can support a data revolution for crop insurance since the assessment of an insured event can be completed in an efficient and transparent manner shortly after a disaster takes place. Based on this data, insurers can process claims and make corresponding payments to those farmers who have suffered damage to their crops. Previously, it could take months for loss assessors to travel to the area and put a value on the damage. In this way, RIICE provides the means by which farmers can protect themselves very effectively against potential crop losses and ensures that they receive support quickly when it is needed.

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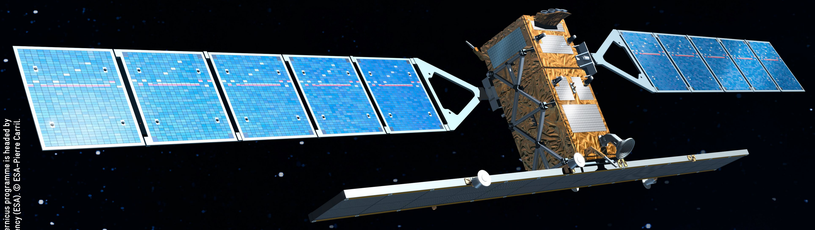



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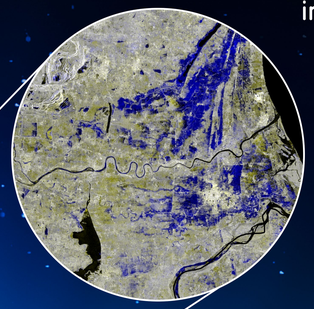

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