

LEGATO: RICE ECOSYSTEM SERVICES

Locations	Philippines, Thailand, Vietnam
Dates	01/03/2011 - 29/02/2016

Summary

As a staple food crop in South East Asia, rice is a key driver of the countries' economies and essential to the diets and livelihoods of the billions of people who live here. We are involved in a five-year project that aims to measure the interdependence of ecosystem functions and services generated by long-term, intensive, irrigated rice fields here.

The problem

Rice is one of the most important staple foods for more than half of the world's population and influences the livelihoods and economies of several billion people. In 2010, 48 million hectares (31% of the global rice harvest) were harvested in Southeast Asia alone.

Rice has been the mainstay of peoples' diets here for 4,000 years but the effects of long-term, intensive production are poorly understood and there is a need to diversify.

What we are doing

LEGATO is a five year project that aims to measure the interdependence, or mutual reliance, of ecosystem functions and services generated in long-term, intensive, irrigated rice fields in South East Asia.

The project aims to progress the long-term, sustainable development of irrigated rice fields against the multiple risks related to global change. The overall objective is to develop and test ecological engineering principles that farmers can apply. This emerging discipline is concerned with the design, monitoring and construction of ecosystems.

The project plans to quantify the dependence of ecosystem functions and the services they generate in agricultural systems in seven landscapes in South East Asia, namely: Laguna Province, Central-Luzon and Ifugao Province in Luzon island, Philippines, Hai Duong Province, Vinh Phuc Province and the Sapa area along the Red River Valley and Tien Giang Province in the Mekong Delta in Vietnam.

LEGATO will develop guidelines to optimize ecosystem functions and services for local conditions. It will also ensure they can withstand any future climate and land use change as there is a need for crop productivity increases and diversification. LEGATO will analyse the potential for ecological engineering to achieve this and test its implementation and transferability across regions.

Specifically, the CABI team are involved in five of the main work packages that cover three ecosystem service strands as defined by the Millennium Ecosystem Assessment.

The project objectives are to:

- investigate the interactions between rice crops and the landscape
- quantify the dependencies of ecosystem functions and services on land use intensity and its driving forces, biodiversity and climate
- study the impacts of land use intensity on the three ecosystem services (provisionary, regulatory and cultural)
- develop indicators to work out the value and how integrative the ecosystems are using monetary and non-monetary methods
- test and further improve existing ecosystem services and ecosystem function indicators
- develop indicator based assessment of risks and opportunities
- develop guidelines and test their implementation through ecological engineering
- develop socio-economic analytical frameworks and tools for promotion of advanced land management practices
- build a basic framework for motivating laymen to assist gathering of biodiversity data for pest control and support for the risks and opportunities assessment

Results so far

Please see the project website.

Donors

Federal Ministry of Education and Research (BMBF)

Partners



https://www.cabi.org/what-we-do/cabi-projects/