Population and economic pressure has driven agricultural intensification in Southeast Asia. It has also increased the pressure on available land, inducing substantial degradation of natural resources. Conservation agriculture (CA) aims to enhance ecological processes, to preserve and restore soil fertility, mitigate climate change and foster farm sustainability. The major potential for dissemination of such climate-smart innovative systems is being supported by a wide range of stakeholders. CANSEA set out to structure these initiatives on a regional scale.

**Partners**
- Ministry of Agriculture, Forestry and Fisheries (MAFF) Cambodia
- Yunnan Academy of Agricultural Sciences (YAAS), China
- Indonesian Agency for Agricultural Research and Development (IAARD), Indonesia
- DALaM « Department of Agriculture and Land Management », Laos
- Kasetsart University (KU), Thailand
- Northern Mountainous Agriculture and Forestry Institute (NOMAFSI), Vietnam
- Soils and Fertilizers Research Institute (SFRI), Vietnam
- University of Queensland (UQ), Australia
- CIRAD, Internal research unit: AIDA, Joint research unit: C-EAU

**Beneficiaries**
The strategy is to pool relevant resources from member institutions to target the CA-related research, education/training and outreach constraints and challenges faced by resource-poor farmers and educators/policy-makers in Southeast Asia. These operations boost regional recognition of the network.

**Scientists** can build their knowledge and partnerships on conservation agriculture, centring on issues relating to ecological intensification.

**Students and future agronomists** have access to a wide-ranging education network (host universities and field facilities).

**Policy-makers** have a clearer idea of the issues linked to ecological intensification of agricultural practices and the conditions required to facilitate the dissemination of conservation agriculture.

**Producers** are better equipped to respond to environmental constraints [erosion, soil fertility, climate variability and climate change] and rapid socioeconomic change.

**Associates**

**Universities and national faculties of agriculture** > [eg: Nabong Faculty of Agriculture, Laos, Royal University of Agriculture and University of Battambang, Cambodia].

**Authorities, State services** > [eg: national and local extension and information services in Laos and Vietnam].

**Non-governmental organizations** > [eg: Sayabouri Development Fund, AgriSud, and GRET in Laos].

**Producers’ organizations** > [eg: maize groups in Laos and Cambodia].
Expertise and technical skills

- Design, assessment and steering of innovative cropping systems.
- Characterization of agricultural development strategies and analysis of innovation processes on farms.
- Recommendations for sustainable improvement of the productivity and quality of annual crop-based rainfed cropping systems.
- Integrated management of fertility and characterization of biological and geochemical dynamics, soil-plant transfers and mineral cycles.
- Integrated management of pests and diseases: characterization of dynamics, modification of their impact under the combined effect of various management practices.
- Adaptation of no-till planters based on interactions between stakeholders.
- Fodder resource use by animals, recycling of livestock production effluent to fertilize crops, modelling of interactions.
- Characterization of the spatial organization of landscape and activities through analyses of satellite images and databases.

Some current projects

**Agriculture and climate change in Laos • EFICAS (Eco-friendly Intensification and Climate-resilient Agricultural Systems)**
EU-AFD, 2014–2017, € 2.6M

This project fits in with a programme to develop the mountainous regions of northern Laos (NUDP). The aim is to engage village communities from five provinces in northern Laos in an innovation process including the adoption of agro-ecological practices through a territorial approach that would enable them to adapt better to climate change. Alternative practices are being proposed, implemented on a smallholder landscape scale, and assessed using participatory methods. In particular, the project will be promoting the results of previous pilot projects in Laos.

**Enhancing ecological intensification for resilient small-scale farming in Cambodia • CASC (Conservation Agriculture Service Centre), 2008–2014, € 1M**

Established in 2014, CASC stems from previous projects funded by AFD and SANREM CRSP (USAID). The aims are to co-design with local communities diversified CA systems in the raining and flooded agrosystems of central and northwestern Cambodia, and to fine-tune these systems through farmer feedback, assessing the evolution of technical and economic performance, and reviewing the constraints in order to suggest and test measures to facilitate and scale up the adoption process. Activities also include the conservation and propagation of the wide plant diversity required to design innovative cropping systems.

**Developing agro-ecology in mountainous zones in Vietnam • ADAM (AFD, CIRAD), 2009–2014, € 1.4M**

Following on from the SAM project (agrarian systems in mountain regions) and the project to develop the tea-growing sector Phu Tho province, the project aims to disseminate conservation agriculture in three mountainous provinces of northern Vietnam. Direct seeding, mulch-based cropping systems (DMC) are being developed and disseminated for annual crops grown on slopes. Agro-ecological innovations are being tested for tea plantations.

Working together for tomorrow’s agriculture

**CANSEA network, Conservation Agriculture in Southeast Asia**

- 20 researchers and teaching staff, 5 Masters and PhD students

Laos
Frank Enjalric, CIRAD, UPR AIDA
CANSEA Leader
frank.enjalric@cirad.fr
Tel.: +856 20 28237881

France
Régis Goebel, CIRAD, UPR AIDA
CANSEA Correspondent
regis.goebel@cirad.fr

For further information
Platform website: http://cansea.org.vn/
CIRAD Regional Office
http://asie-sud-est.cirad.fr/

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a set of partners keen to work together,
shared prospects and objectives,
a commitment in terms of human resources, equipment and funding, a shared research topic; a specific geographical field; a range of skills and activities.

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