

## **Indicative priorities**

### ***ACIAR – Lao PDR program on research to underpin food security from rice-based systems in southern provinces***

Priorities for collaborative research for development between Australia and Laos on this topic were discussed on 27-28 August 2009 at a consultation workshop in Vientiane. The aim was to explore priorities for research collaboration to link with planned research with other major donor and government programs, and to build upon the outcomes of ACIAR's earlier investment on this subject in Laos and elsewhere in the region.

The consultation was attended by the Lao Minister for Agriculture and Forestry, the Australian Ambassador to Lao PDR and the ACIAR delegation was led by the Deputy Chief Executive Officer. Participants included representatives of Multilateral donors (World Bank, Asian Development Bank, International Fund for Agricultural Development), International Agricultural Research Centers (International Rice Research Institute, International Centre for Tropical Agriculture, International Water Management Institute), Central Government ministries and agencies (Ministry of Agriculture and Forestry and line Departments of Planning and Irrigation and; Water Resources and Environment Administration, Department of Meteorology and Hydrology; centre for Land and Natural Resource Research and Information; National Agricultural and Forestry Research Institute, National Agriculture and Forestry Extension Service), the National University of Laos, Provincial Governments (Savannakhet and Champasack), Non-Government Organisations and AusAID.

ACIAR will use the priorities as a framework to develop a collaborative research for development program, subject to further advice and information from Lao PDR and alignment with the Australia-Laos development cooperation strategy and the Vientiane Declaration on Aid Effectiveness. These indicative priorities are identified by participants at the consultation at a particular point in time and are not to be considered as officially-sanctioned priorities of the Lao PDR.

Participants confirmed that food security remains central to agricultural development in Laos. Despite overall national self-sufficiency, seasonal rice shortages occur regularly in several provinces, including those of southern Laos. The importance of research to improve food security from rice based and other farming systems in both lowland and upland districts was confirmed along with the need for technical an agribusiness research collaboration to understand and develop domestic and export market opportunities for rice, cattle and other agricultural products. A driving principle is that for rice and other crop and livestock activities to provide a vehicle for economic growth, and be competitive with alternative sources of income generation, improvements to farming systems are essential to improve returns to labour and land from rice and other farming. Gender aspects must be taken into consideration and risk must also be minimized for widespread adoption of new technologies or farming practices.

There was also strong emphasis on assisting with capacity development for the research and extension systems. Where appropriate, research interventions are tailored to complement larger donor programs. In 2009-13 ACIAR will partner with a joint program of the International Fund for Agricultural Development and the Asian Development Bank, and a World Bank program to underpin biophysical, socioeconomic and agribusiness development of rice-based and other farming systems in Southern Laos. This would enable ACIAR to work with these development partners – for example, to use research results to underpin capacity building (training of trainers) at the village level; produce and disseminate extension materials and develop learning alliances with communities and NGOs, and provide research support to their demonstration plots and seed multiplication activities. Collaboration with these partners will involve working closely with line ministries and other donors to align with the principles of the Vientiane Declaration.

It was agreed that while it was important to extend the results of research to address agricultural productivity across the range of southern provinces, research activities would focus on rainfed lowland and upland systems in Savannakhet, Champassak and Attapeu. Specific areas of potential research collaboration relating to southern Laos include:

### **Rice and other field crops**

- Research to support the spread of intensive rice production practices that require less labour, including management of weeds in direct-seeded rice systems
- Mechanisation of sowing and harvesting, and opportunities for conservation agriculture (no-tillage, residue management, rotations) to reduce labour requirements, retain soil carbon and moisture, and increase cropping intensity
- Improvement and stabilization (risk reduction) of lowland rice systems production (agronomy and soil water management)
- Rice variety improvement including
  - improved non-glutinous varieties for export, urban and niche markets
  - rice gall midge and brown planthopper and neck and leaf blast resistance
  - drought tolerance.
- Rice variety recommendation mapping, combining agroecological suitability analysis and farmer participatory assessment in development of varietal recommendations for specific areas
- Assessment of site-specific management practices for rice systems production (variety, rotations with cash and forage crops, management, residue, tillage, drought, pests)
- Land use suitability mapping of potential areas for crop diversification, including use of crop modeling and assessment of livestock production options
- Soil fertility management practices including better matching of nutrients (including micronutrients) to soil series and use of green manures
- Integrated production packages addressing soil improvement, pest and weed management
- Agricultural water resource management

- Assessment of farmer decision-making processes behind the choice to utilise or not utilise large scale irrigation infrastructure for crop production in areas where irrigation is available
- Assessment of the economic use (marginal value) of supplementary irrigation to reduce risk in production of rainfed rice and other crops for both the wet seasons; Marginal value of water (what is value of first supply of water, more supplies)
- Simple techniques for quantifying the water status of crops (when to irrigate, how much) produced on different soil types
- Optimisation of field water application for irrigated crops, including
  - soil suitability for dry season rice (subsoil hydraulic conductivity) and for non-rice field crops (water holding capacity, hardpan)
  - interaction between variety, nutrients, planting system and pest and disease management for rice
  - Systems for improving non-rice cropping management (scheduling, crop choice, rotations, soil suitability).
- Assessment of spatial and temporal availability, quality and sustainability of surface and groundwater resources and options for multi-use on-farm water storage
- Understand drivers for successful use of pumped surface water irrigation systems and physical, social and economic factors constraining their greater use.

## **Livestock**

- Assessment of options for diversification of incomes and income improvement through livestock production within rice-based farming systems
- Assessment of options for the intensification of cattle production for the premium (export) and provincial market segments, through improvement of the quality and quantity of feed, including forage banks, utilization of byproducts, crop residues, tree legumes, grasses in tree plantations, including an assessment of the impact of feed strategies on seasonal household labour requirements
- Forage species and production system assessment for both flooded and non-flooded areas.

## **Agribusiness, marketing, policy and social issues**

- Analysis and development of export marketing opportunities for glutinous and non-glutinous rice and other crops including beef cattle
- Determine institutional conditions that foster farmer cooperatives and private sector involvement in the marketing of Lao rice
- Economic analysis of non-rice rotations, including potential use of supplementary-irrigated dry-season crops and forages, and how they fit into farming/livelihood systems
- Determination of quality requirements for specific markets and integration of improved postharvest technologies along the rice value chain
- Establishment of household typologies to determine sociological factors affecting uptake of new technologies and opportunities for diversification into other crops and livestock

- in different production environments (Mekong plain, rain fed lowlands and upland shifting) and under a range of land tenure systems
  - including decision making roles at household level, gender roles and collective action at the group level
  - including incentives to produce, dry and trade marketable surpluses of rice
  - in the immediate and medium term future.
- Determine impacts of regional trade environment on household livelihood strategies, including equity of returns from contract farming and impacts of land concessions and labour availability
- Analysis of value chains for rice, cattle and selected crops, to better align technical research with market needs
  - mapping flows of product, information, and funds
  - opportunities for value addition and identification of new markets
  - potential impact of policy and regulatory environment improvements.
- Analysis of rice self-sufficiency, internal seasonal self-sufficiency policies, price stabilisation and domestic and export trading policies - at the national and provincial level.