

CAMBODIAN AGRICULTURAL RESEARCH FUND (CARF) PROJECTS

Round 1

Project ID: CARDI 11 Reduction of losses of rice grain after harvest in Cambodia

Lead Organisation: Cambodian Agricultural Research and Development Institute (CARDI)

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Collaborating Institutions:

- AusAID Agricultural Quality Improvement Project (AQIP)
- International Rice Research Institute (IRRI)

Project Budget: USD\$19,000.00

Project Duration: October 2002 – December 2004

Project Overview:

Post harvest and milling losses in the Cambodian rice industry are high and variable. Most rural farmers are forced to sell their excess grain immediately after harvest as they lack the facilities and expertise for timely and efficient threshing, handling, drying, storage and processing of the crop. Local estimates of grain losses, from harvest to storage range from 20 – 50 %, and are as high as 30% during milling. Local research has shown that the potential value of one ton of rice is reduced by up to \$60 through excessive breakage and loss during the milling process. Studies have also shown that poor storage facilities reduce the germination of rice seed and expected storage life to less than 8 months after harvest. Better threshing, drying, storing and milling techniques will reduce grain losses, enhancing the farmers' incomes as well as improve crop security. The objective of this project is to quantify the amount and causes of rice grain losses from crop harvest through to milling and develop guidelines to reduce these losses. The beneficiaries from this project were farmers and extension agents.

Project ID: CARDI 24 Enhancement of knowledge and national skills base for ecologically-based rodent management in diverse Cambodian agro-ecosystems

Lead Organisation: Cambodian Agricultural Research and Development Institution (CARDI)

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Collaborating Institutions:

- Ministry of Agriculture, Forestry and Fisheries (MAFF), Cambodia
- School of Animal Studies, University of Queensland
- CSIRO Sustainable Ecosystems, Canberra

Project Budget: USD\$20,000.00

Project Duration: January 2003 – March 2005

Project Overview:

Rodents pose serious threats to Cambodian agriculture causing significant pre and post-harvest losses. However, research in the area of rodent management is currently hindered by a lack of information on species identification, distribution and rodent ecology. This poor state of knowledge was highlighted during an ACIAR-funded rodent management project, which identified widespread common species which had not previously been recorded in Cambodia. The effectiveness of future rodent research and management projects in Cambodia will be greatly enhanced if this basic information can be acquired, and if a foundation of rodent expertise can be built in the process. The objective of this project is to collect species data and develop a series of reference materials. These reference materials will provide basic species information, and management techniques and strategies. Cambodian MAFF staff will also be trained on rodent identification, problem assessment and basic management principles, and they will be able to assist and train farmers for rodent management.

Project ID: DAPH 15 Field trial with thermostable Newcastle Diseases vaccine, strain I₂, in village chickens in Pursat Province, Cambodia

Lead Organisation: Department of Animal Health and Production (DAHP)

Project Leader:

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Collaborating Institutions:

- Provincial Animal Health and Production office, Pursat
- National Animal Health and Production Investigation Centre, Pursat

Project Budget: USD\$15,000.00

Project Duration: October 2002 – October 2004

Project Overview:

Newcastle Disease is a contagious viral poultry infection that affects the respiratory and nervous system and causes high mortality, particularly amongst chickens. The objective of this project is to determine the effectiveness of the I₂ vaccine under Cambodian village conditions and assess the feasibility of delivering the vaccine via newly trained village animal health workers at an affordable cost. This trial will be carried out in four villages in Pursat Province using imported heat tolerant I₂ vaccine. The results should assist relevant authorities for future decisions on vaccine production and implementation of vaccination programs.

Project ID: RUA 4 Preliminary Study on the Potential of Aquaculture Development in Svay Chor Cheb Commune, Borset District, Kampong Speu Province (Student Project)

Lead Organisation: Royal University of Agriculture (RUA)

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Collaborating Institutions:

- Southeast Asian Outreach (SOA) Cambodian Aquaculture Low Expenditure (SCALE)
- The Parks Society of Cambodia Organization

Project Budget: USD\$500.00

Project Duration: September 2002 – November 2002

Project Overview:

Small-scale aquaculture appears to be increasing in Cambodia to fulfill the growing demand for fish. Historically fish production has primarily occurred in inland water sources, for example the Tonle Sap and the Mekong River. In the Svay Chor Cheb province the land is infertile and it floods most years. This makes alternatives for provision of household income to crop growing attractive. Unproductive land has driven farmers to fish in local waterways and cut down local forest to provide for their families. The development of small-scale aquaculture systems on free land would provide food and income for households and improve the general standard of living.

Project ID: RUA 9 Dissemination of knowledge on species preferences and aquaculture constraints between RUA and rural farmers in Ta Keo Province

Lead Organisation: Royal University of Agriculture (RUA)

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Collaborating Institutions:

- Ta Keo Province Fisheries Department

Project Budget: USD\$6,380.00

Project Duration: October 2002 – June 2004

Project Overview:

The level of undernutrition is high in much of rural Cambodia, and the fisheries industry has traditionally played a dominant role in providing nutritional protein to rural households. However, the decline in natural fisheries resources has led the government to increase conservation areas and promote the development of alternative options. One of these options is an increase in the role of aquaculture in fish production, as part of a more integrated approach to agricultural production. This project aims to identify production constraints and develop extension methodologies, which are capable of improving fisheries production in Ta Keo province.

The beneficiaries of this project are farmers and students of the Royal University of Agriculture, who can improve their research capacity. This study was done in collaboration with the Asian Institute of Technology, provincial fisheries office in Ta Keo Province, and extension agents.

Project ID: SAPL 12 Improvement of maize management and production through farmers participatory research

Lead Organisation: School of Agriculture Prek Leap (SAPL)

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Collaborating Institutions:

- Agricultural Development Denmark Asia (ADDA)

Project Budget: USD\$14,250.00

Project Duration: October 2002 – September 2004

Project Overview:

Maize is an important food source for humans and farm animals, and thus it is an important source of income for farmers in Cambodia. However, several factors limit maize production, including the small number of feed processing factories and limited farmer knowledge regarding maize plantation. Currently farmers use traditional cultivation techniques and these do not provide adequate income or produce. The objective of this project is to increase maize yield and farmer income, through development and application of improved cultivation techniques for dry season maize production. The work was based on farmer participatory research and included selection, evaluation, and adaptation of improved varieties, and improved cultivation techniques.

Project ID: SAPL 13 Silage production for small scale cattle keeping

Lead Organisation: School of Agriculture Prek Leap (SAPL)

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Collaborating Institutions:

- Agricultural Development Denmark Asia (ADDA)

Project Budget: USD\$3,234.00

Project Duration: October 2002 – October 2003

Project Overview:

During the wet season the land surrounding the main Cambodian waterways is flooded. This causes food shortages, particularly for stock, which also leads to increased susceptibility to disease outbreaks. Farmers are forced to travel large distances to find feed for their stock or use the household income to purchase it. The objective of this project is to test an improved method for conserving the surplus dry season fodder. The focus of this research is plant residues, for example the top leaves of corn, which can be used for silage. This project will adapt conservation strategies to local conditions, and should improve small-scale cattle production conditions for local farmers. The main beneficiaries of this project are farmers, who will be directly involved with this project and the students in Prek Leap School of Agriculture who will assist in implementation of the project as part of their practical training.

Project ID: UTA 18 Optimization of the role of tubular plastic biodigesters in integrated farming systems

Lead Organisation: University of Tropical Agriculture Foundation (UTA)

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Collaborating Institutions:

- Swine Research Institute, Punta Brava, La Habana, Cuba

Project Budget: USD\$13,992.00

Project Duration: July 2003 – December 2005

Project Overview:

In Cambodia most farmers raise cattle as draught animals and pigs as an alternative income source. Manure from both species is used as fertilizer for rice production however this is usually inadequate for an entire farm. Chemical fertilizers are seldom used and that is the reason why soil fertility decreases year by year. Biodigesters can be used for processing of animal manure to produce bio-fertilizer (the effluent) and gas for cooking. The effluent can be a good source of plant nutrients for growing vegetables, crops and water plants, and the gas produced is an alternative to firewood. When the gas is used the kitchen is cleaner, the workload of women and children is reduced and there is less pressure on the trees in the forest.

There are four main objectives of this project: to determine how to maximize the gas production in tubular plug-flow plastic film biodigesters, to evaluate supplementation with duckweed and water spinach of fish production in ponds charged with biodigester effluent, to measure the response of water spinach to fertilization with biodigester effluent, and to measure the impact of this technology with farmers using the biogas for cooking and the effluent for growing fish and crop or water plants.

Project ID: UTA 21 Mulberry (*Morus alba*) and pig production in integrated farming systems

Head Organisation: University of Tropical Agriculture Foundation (UTA)

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Collaborating Institutions:

- Maharishi Vedic University (MVU)
- Awareness Cambodia

Project Budget: USD\$14,510.00

Project Duration: August 2003 – February 2005

Project Overview:

Recent experiments have shown that mulberry leaves have a high nutritional value for pigs. The Mulberry tree is commonly cultivated in Cambodia for silkworm feeding but agronomic practices and the approach to feeding pigs with mulberry leaves are not entirely understood by Cambodian farmers. The objective of this project is to determine the optimum use level of pig manure for growing mulberry trees, to estimate the feeding value of mulberry foliage for pigs, and to establish integrated production systems involving crops, animals and recycling water in farm households. This project will increase household income for poor rural families through an improvement in pig feed and production costs.