

Timor-Leste Agricultural Rehabilitation,  
Economic Growth and Natural Resource  
Management Project

Quarterly Report  
October to December 2004

University of Hawaii at Manoa  
Honolulu, Hawaii USA  
Soil Management Collaborative Research Support Program  
SM CRSP  
LAG-G-00-97-00002-00

## Executive Summary

Major activities during this quarter focused on

- ✍ Harvesting of fertilizer application rates from soil tests trial with rice in Seical;
- ✍ Planting of fertilizer application rates from soil tests trial with maize in Gariuai, Bubu Ana Cala, Buburaga, and Fatumaca;
- ✍ Land use trials for income generation now include agroforestry components and added participants;
- ✍ GDA for candlenut receives boost through small grants program with CRS and Oils of Aloha;
- ✍ Training workshops in agroforestry and pasture management completed.

Rice yields from the *fertilizer rate trials* on farmer's fields (Duarte and Martinho) in Seical were doubled from the past year's yield. The N-P-K rates were determined from diagnostic tests from the soil test kit. Modifying the timing and splitting the application of N improved grain yield at no added cost for fertilizer N.

On farm fertilizer rate trials for maize were expanded to include a fourth location. Buburaga was added to sites at Gariuai, Fatumaca, and Bubu Ana Cala. The second year of these trials are set to (1) define fertilizer recommendation rates for N, P, and K, (2) show the effects of compost as a nutrient supplier, and (3) confirm possible micro-nutrient deficiencies based on observations in the previous trial.

**Training Workshops.** Agroforestry trees as animal fodder was the principal topic of training sessions at the MAFF Baucau District office for MAFF staff followed by 3 sessions with community groups in Fatulia, Vermasse, and Gariuai. Each of these groups are participants in the land use trials. Pascoal Belo of MAFF/Baucau, J.B. Friday and John Powley of UH were discussion leaders for these sessions.

**Income generation** continues to be one of the primary goals of farmers and villagers involved in the land use trials. Eighteen farmer groups were added to the list of participants. Each of these sites were geo-referenced and identified relative to their location in the Baucau watershed. Trees were considered and included in several of these sites as either live fences or as fodder for animals.

**Candlenut and the GDA.** The Catholic Relief Service submitted a proposal to USAID's small grants program in September to do an assessment of candlenut sources in Baucau to support a oil extraction facility. As described in the past quarter's report, Oils of Aloha, a U.S. company based in Hawaii, is prepared to serve as the private sector partner in a GDA (Global Development Alliance) with communities in the Baucau District, the Catholic Relief Services, USAID and the University of Hawaii. The purpose of the GDA is to establish a candlenut industry as a sustainable income source in Timor-Leste.

The proposal was approved in October and activities were initiated in November and completed by the end of December. A meeting involving the assessment team and members of the steering committee is planned for late January 2005.

## **Highlights**

### **Eighteen new farmer groups agree to be partners**

Eighteen farmer groups from Bersua, Waikana, Samalari, Oskeli, Bersuadar, Buruma, Moris Foun/Atelari, Radical/Fatulia, Uaicana, Gariuai (women group), Badumuri, Triloko, Osowala, and Baucau. The latter is a group with access to fishponds adjacent to the swimming pool for guests at the Pousada Baucau (also known as the pink hotel). Each of these farmer groups have joined in agricultural-based business enterprises that are site specific and are identified as geo-referenced locations in the watershed.

Each enterprise is linked to the participatory development research approach introduced by Dr. Andre du Toit and is based on the fundamentals of the Ricardian model that predicts groups will select their business activities to get a comparative advantage within their own social economic environment. We hope to also examine these activities in relationship of goods and products produced to each respective biophysical environment

With the addition of 18 farmer groups, the total number individuals involved in the land use study is nearly 200.

A para-veterinary program to support farmer groups involved in the land use trials may be a possibility after John Powley's meeting with MAFF/Dili staff and Steve Dunn, MAFF livestock advisor.

### **Candlenut Oil Offers Prospects for Improved Income Generation from Forest Product**

A small grants award from USAID was granted to the Catholic Relief Service's (CRS) office in Dili to undertake a 3-month study to assess the feasibility of establishing a candlenut oil extraction plant in Baucau. The CRS was invited by UH and Oils of Aloha after a visit to Timor-Leste by Goro Uehara (UH) and Matthew Papania (Oils of Aloha) in September. Together with USAID, the partnership of these entities constituted a Global Development Alliance as defined by USAID.

As a locally-based NGO, the CRS qualified to receive a small grants award from USAID. That award was made in the latter part of October and CRS employed a consultant to serve as team leader of the research team to be composed of UH, USAID, and Oils of Aloha representatives. The steering committee was also established with representatives from each of the alliance partners.

The timing of the award created many challenges. The first was the many holidays already planned by individuals for both CRS and UH. In spite of their absence, USAID/Washington sent a consultant to their WID (Women in Development) program in December to conduct a participatory rural appraisal in the Baucau district. At the same time, the UH and Oils of Aloha representatives traveled from Hawaii to accompany the

team leader to West Timor and Flores Islands to assess candlenut production and trade in Indonesia.

The team leader will present the research team's report to the steering committee in January. That meeting is planned for Honolulu, Hawaii at the University of Hawaii.

### **Capacity Building: Short Courses on Agroforestry. Trees for Animal Fodder and Pasture Management.**

“Forage banks and forage gardens” is a compilation of a series of photographs and reports used by Dr. J.B. Friday in the conduct of training courses for both MAFF staff in Baucau and with 3 farmer groups in Fatulia, Gariuai, and Fatumaca. The report is written in Tetun and was well received by MAFF. Posters were used for the training program with farmer groups. The Tetun script for the posters generated much interest followed by discussions with farmer groups in the 3 communities.

The forage tree workshops followed in a logical sequence from the needs assessed during the PRA and the nursery workshops presented in June. We assessed the farmers' needs in January during the PRA, established nurseries in June, and planted trees in December. Pascoal Belo made many improvements to his nursery since participating in the nursery workshop in June. Most of the seedlings for the demonstrations were produced by Belo in the MAFF nursery in Triloka, Baucau and some were donated by Shane McCarthy of CCT in Dili. Six species of forage trees will be tested at each site.

While foresters in Timor-Leste have been producing seedlings for decades, very few of them have survived the dry seasons, fires, and livestock. What has been lacking is community outreach and improvement in tree planting. By linking MAFF foresters directly with community groups, seedlings are provided to people who want and value them and then teach the people about protecting their trees. The trees become the people's trees, not the government's. The USAID/UH program has provided instructions and instructional materials to allow individuals to make choices on tree species. The greater impact, however, of the USAID/UH program will be the long term relationships developed between MAFF and the communities.

### **Doubling Rice Yields in Seical**

Rice is the principal crop grown in the low elevations of Seical. Fertilizer demonstration trials were established on two farm sites of Mr. Duarte and Mr. Martinho in Seical. Using fertilizer application rates based on soil test results and modifying both farmers' existing fertilizer practice, rice yields on these trial paddy more than doubled production from their previous year's harvest and from adjacent areas this past planting season. Farmers normally apply the entire nitrogen fertilizer at planting. When the fertilizer was split applied (one-third at transplanting, one-third 4 weeks after transplanting and one-third 7 weeks after transplanting), the crop was able to take up more of the nutrient and grain yield improved.



**du Toit shows off the higher rice yields with split application of nitrogen fertilizer.**

Maize is not commonly grown in Seical and, as a result, was not part of the fertilizer demonstration trials conducted in the upper elevations in the watershed.

### **Fertilizer demonstration trials with maize and dryland rice**

The second round of maize demonstration trials was expanded from three to four sites in the Baucau district. The trials are located in farmers fields at Bubu Ana Cala, Buburaga, Fatumaca, and Gariuai. The trials are designed to define the fertilizer recommendation rates for nitrogen, phosphorus, and potassium, show the effects of compost as nutrient supplier, and confirm suspected micronutrient deficiency in the soil. Furthermore, at the request of farmer groups, dryland rice demonstration trials were established at Buburaga and Bubu Ana Cala. The dryland rice treatments are the same as the maize demonstration trials.

Fernando Sousa, Andre du Toit and Richard Ogoshi of UH planned these trials in consultation with Antoinio Lopes of MAFF/Baucau and Claudino Ninas Nabais of MAFF/Dili.

### **Notes:**

Both Andre and Carin du Toit and their two children took vacation leave from their post during the month of December to return to their home in South Africa. During this period, Fernando Sousa, associate country coordinator, was charged with responsibilities for the project activities and administration.

## Objectives and Performance Indicators

The following lists the three project objectives with the respective estimated performance indicators as described in the action plan. Activities are noted under each of the indicators reflect those accomplished during the reporting period July 1, 2004 to September 30, 2004.

### **Objective 1. Increase Agricultural Productivity and Food Security**

*Estimated performance indicator:* maize and rice yields doubled in participating farmer's fields relative to yields in non-participating farmer's fields employing traditional farming practices.

- a. Rice demonstration trials in Seical (Duarte and Martinho) showed that modifying fertilization practices can double yield. Farmers normally apply the entire nitrogen fertilizer at planting. When the fertilizer was split applied (one-third at transplanting, one-third 4 weeks after transplanting and one-third 7 weeks after transplanting), the crop was able to take up more of the nutrient and grain yield improved.
- b. The new round of maize demonstration trials was expanded from three to four sites in the Baucau district. The trials are located in farmers fields at Bubu Ana Cala, Buburaga, Fatumaca, and Gariuai. The trials are to define the fertilizer recommendation rates for nitrogen, phosphorus, and potassium, show the effects of compost as nutrient supplier, and confirm suspected micronutrient deficiency in the soil.
- c. Dryland rice demonstration trials were established at Buburaga and Bubu Ana Cala. The dryland rice treatments are the same as the maize demonstration (b).

*Estimated performance indicator:* Participating farmers produce rice equal in quality to imported rice.

- a. N.A.

*Estimated performance indicator:* Lessons learned in first and second cropping season transferred to new watersheds and districts by MAFF personnel.

- a. After learning to produce compost at a UH workshop in August, MAFF personnel trained 160 farmers to produce compost in Lautem, Manatuto, and Baucau districts.

### **Objective 2. Diversify and Intensify Crop Production to Generate New Income and Employment Opportunities**

*Estimated performance indicator:* Income of participating households increase relative to non-participating households.

- a. Eighteen farmer groups were added to land use trials in the Baucau district. These additional farmer groups are located in Bersua, Waikana, Samalari, Osokeli, Bersuadara/Buruma, Moris Foun/Atelari, Radical/Fatulia, Uaicana, Gariuai, Badumuri, Triloko, Osowala, and Baucau. One of the groups in Gariuai is composed of women only.
- b. UH contributed data and expertise to a candlenut feasibility study conducted by Catholic Relief Services. USAID funded this study to assess the feasibility of establishing a candlenut-based industry in Timor-Leste.

### **Objective 3. Improved Watershed Productivity and Sustainability Through the Adoption of Sound Natural Resource Management Practice**

*Estimated performance indicator:* Fodder and fuel wood banks established in three villages in Seical watershed.

- a. UH personnel trained eight MAFF staff (including the Viqueque district forester) and four representatives from Fatulia, Gariuai, and Vemasse to produce and use forage trees, and introduced them to principles of animal digestive systems at the MAFF Baucau office on Dec. 6, 2004.
- b. Forage tree demonstration trials were established in three villages: Fatulia, Gariuai, and Vemasse. Six forage tree species were planted to find trees that are adapted to the local climate and palatable to local animals. The healthy seedlings were produced by the MAFF Baucau forester who was trained on nursery methods by UH personnel in prior months. Additional seedlings were obtained from Coffee Cooperative Timor (CCT).
- c. Training material on forage tree species and forage tree production were developed by UH personnel and given to MAFF district forester to train additional farmers in agroforestry.
- d. UH personnel taught 12 MAFF and village representatives to propagate bamboo at the Triloko station on Dec. 6, 2004. The bamboo may be used as a building material, cooking utensil, or sold for income.

*Estimated performance indicator:* Fodder banks result in healthier livestock and reduced overgrazing of grassland.

N.A.

*Estimated performance indicator:* Fuel wood banks result in less unlawful cutting of trees.

N.A.

*Estimated performance indicator:* Lesson learned from establishing fodder and fuel banks transferred to other watersheds and districts by MAFF personnel.



N.A.

## **All Objectives**

***Estimated performance indicator:*** Local NGO's adopt and spread project methodology throughout the country.

- ✍ CCT personnel were given informational material on forage trees produced by UH personnel. CCT will use this material in their outreach program across the country. Discussion on developing material on trees for firewood, timber, and coffee shade trees is in progress.

***Estimated performance indicator:*** Peace Corps volunteers contribute to attainment of project objectives and voice support for continued participation in project.

- ✍ Peace Corps volunteers Michael Jones and Aracely Leiva assisted with translation in the agroforestry workshop held on Dec. 6, 2004.

***Estimated performance indicator:*** Participating National University faculty adopts and incorporates lessons learned from project into the University's teaching, research, and outreach programs.

N.A.

***Estimated performance indicator:*** High demand for returning East West Center students to fill key private sector and government positions after graduating from the University of Hawaii.

N.A.

**Fiscal Reports**  
**A. Accrual Report**  
**Accrual Calculator**

(1) Jul 07 2003 to Jun 30, 2005 = 24 months

**Period of Performance(P):** 24  
**Months to date (M):** 18  
**Quarters remaining (Q):** 2

**Obligated Total (A)** \$ 2,400,000.00

**Vouchered Total (B)** \$ 1,306,966.00

**Encumbrance Total (B1)** \$ 75,000.00

(as of Sep 30, 2004)

**Unliquidated Total©** \$ 1,018,034.00

**Estimated Accrual (D)** \$ 493,034.00

**Modified Accrual (E)** \$ 653,483.00

Calculations for Estimated Accrual

A/P \$ 100,000.00

A/P x M (used) \$ 1,800,000.00

Calculations for Modified Accrual

m1=Actual project to date expenditures: 1,306,966  
 (Sep 30, 2004)

t1=Quarters remaining: 2

m1/t1= 653483

Estimated Project to Date Expenditures: 1,960,449

Vouchered amount 1,306,966

## B. Expenditure Report

### Timor-Leste Agricultural Rehabilitation, Economic Growth & Natural Resource Management Project

Expenditure Report for October - December 2004

DESCRIPTION	On campus	Off campus	TOTAL
			4th Qtr. 2004 (Oct - Dec)
Salaries & Wages	\$12,057.00	\$32,288.64	\$44,345.64
Fringe Benefits	\$3,159.47	\$3,893.67	\$7,053.14
Services		\$20,439.00	\$20,439.00
Materials & Supplies		\$17,643.44	\$17,643.44
Travel - Domestic	\$18.00	\$3,002.64	\$3,020.64
Travel - International	\$24,092.73	\$21,309.05	\$45,401.78
Print & Publications		\$12.35	\$12.35
Util & Communication		\$985.23	\$985.23
Rentals		\$4,681.00	\$4,681.00
Equipment			\$0.00
Others		\$8,568.29	\$8,568.29
Admin Fee	\$12,977.25	\$20,390.61	\$33,367.86
Direct costs subtotal	\$52,304.45	\$133,213.92	\$185,518.37
Indirect costs	\$18,986.52	\$27,442.07	\$46,428.58
Total costs	\$123,595.42	\$293,869.91	<b>\$417,465.32</b>

### Written Reports, News Articles or Other Material

- ✍ Travel reports of UH faculty and staff are available at the project's URL, <http://tpss.hawaii.edu/tl>. Included with these reports are digital photos recorded by travelers. These photos can be viewed under "gallery".
- ✍ Training and technical reports and links to USAID, UH, SM CRSP, and the government of Timor-Leste are also available at the project's URL.

## **Implementation Issues/Constraints**

Transmittal of documents remains an issue. Essential documents and project receipts continue to be exchanged through courier, i.e., DHL. Other printed materials are mailed to the PO Box established in Becora. Fax transmissions can now be accomplished by contacting Mrs. Carin du Toit. Otherwise, documents are scanned and transmitted as attached files to email.

Shipments of non-documents have encountered delays in clearing customs. These are supplies and products to be used in the conduct our project efforts. Examples include the soil test kits, replacement solutions and indicators for the test kits, micronutrient fertilizers, and so on.