

LEARNING TO RISE FROM THE ASHES

DESTROYED IN 1999, THE AGRICULTURAL SCIENCE FACULTY AT EAST TIMOR'S NATIONAL UNIVERSITY HAS BEEN BROUGHT BACK TO LIFE.
CAROLINE GILL REPORTS.



Making a comeback: Students have returned with enthusiasm to the Hera experimental farm. Pictured from left are Sipriano Martins, Eusebio Gomes, and Lucio Soares.

PHOTOS: BRAD COLLIS

When Associate Professor John Janes and a team of Australian colleagues arrived in East Timor to help rebuild the agricultural science faculty at the new country's National University they faced a bleak scene.

The faculty's buildings were a charred mess, destroyed during the bloody unrest that engulfed the island in 1999 after its citizens voted for independence from Indonesia.

The library had been torched, thousands of books were burnt, and all of the faculty's equipment had vanished. Computers, furniture and laboratory equipment were either destroyed, looted or loaded on to trucks and driven off.

Out at the faculty's experimental farm, at Hera, 20 kilometres east from Dili, pages of student dissertations lay torn and scattered on the ground. The farm's piggery, the supervisor's office and even the fences had been destroyed.

Almost all of the faculty's Indonesian lecturers returned home to Indonesia. Only three teaching staff remained.

Given what the East Timorese staff had endured, Associate Professor Janes thought they might have felt overwhelmed by the task of rebuilding. He was wrong. However they were daunted by a more urgent, unexpected problem.

"The staff wanted to rebuild and through the leadership of the dean (Flavian Soares) they were

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► FROM PAGE 17 confident about developing the faculty," Associate Professor Janes says. "They were faced with huge problems, not only from lack of equipment and training but from over 1,200 people who just turned up wanting to enrol. The staff had not had time to set up any rules of admission. But they couldn't afford not to let the prospective students in because there could have been rioting."

The eager students included 800 who had been enrolled at the former Indonesian University of Timor and about 400 graduates from secondary schools and some agricultural colleges, most of whose academic records had been destroyed in the violent unrest in 1999. Nevertheless most applicants were accepted into the university and began attending classes at the university's main building in Dili, the first to be restored and repainted by USAID.

While the university began recruiting more faculty staff, the original staff members set to work, teaching between 200 to 300 students per class in bare rooms, without blackboards or furniture. The exhausted staff held repeat lectures throughout the day to cater for the influx of students.

As the fledgling classes began, Associate Professor Janes, the project manager of a \$1.31 million project to help rehabilitate the university's agriculture faculty, started to rebuild the faculty's resources, buying textbook catalogues from Indonesia and then ordering hundreds of book titles for use in the faculty's classrooms, library and to build staff capacity in teaching and research. The five-year rehabilitation project is funded by ACIAR and receives support from four Australian universities – Curtin University of Technology, Charles Darwin University, the University of Queensland and the University of Sydney – and from East Timor's university itself, which reopened in November 2000 as the National University of Timor Loro Sae. The University of Melbourne and the University of New England have also contributed collaborators to help develop units.

Now into its fourth year, the project is playing a crucial role in East Timor's future economic aspirations, given agriculture's fundamental role in the life of the new nation. The agricultural sector employs more than 80 percent of East Timor's population, contributing 40 percent of GDP and 90 percent of foreign exchange.

The project has supported various activities within the faculty, such as staff training, help with curriculum design, rehabilitation of the faculty's experimental farm and laboratory facilities, the redevelopment of the agriculture library and assistance with information technology.

The faculty's staff undertook study trips to Australian universities, where they received training in curriculum development and assessment.

In 2002 the faculty introduced a new curriculum, shifting from the former Indonesian curriculum to one that more closely suited the needs of East Timor. The project team members helped the faculty's 25 new lecturers develop the curriculum, moving it away from the information-driven, rote learning of

the previous system to a system that focused on developing skills and identifying and solving problems. As they worked with the East Timorese staff to rebuild the faculty, Associate Professor Janes's team were mindful about the sensitivities of authority and decision-making. They did not want to be de facto colonialists, creating an Australian version of an agriculture department in East Timor.

"We never said, 'We want you to do this or that,' because after 25 years of Indonesian occupation and 600 years of Portuguese occupation the people had had inadequate opportunities to express what they needed," Associate Professor Janes says. "So we ran workshops and asked the staff where they wanted their graduates working, what attributes and skills they wanted their graduates to have. They found that a refreshing approach: to be asked what they wanted and thought.

"They knew they were going to have a lean, mean public service, unlike the old days of the Indonesian regime, and that brought up issues of entrepreneurship and agribusiness skills."

In the future it is expected that agriculture in East Timor will be driven mainly by the private sector and therefore graduates will need different skills, such as greater self-reliance, from those required under the previous Indonesian administration.

The new curriculum has incorporated useful aspects of the former curriculum and added new, more relevant subjects that reflect local farming practices, such as units on pig production and pig husbandry. The project has also helped to establish about 70 small final-year student projects and several staff projects. These include research into which types of legumes flourish best using manure as fertiliser and an investigation into finding the maize variety best suited to East Timor's climate and storage capabilities. About 1,200 students are studying agriculture at the university and the faculty now limits its intake to 400 enrolments each year.

The project's financial resources have helped re-equip the faculty with computers and laboratory equipment such as incubators, drying ovens and soil testing equipment. The faculty has been refurbished into individual sections, including a biology laboratory, an animal nutrition laboratory, a soils laboratory, a post-harvest laboratory and a general science laboratory, along with expanded office space. It has developed the only functioning agriculture laboratory in East Timor.

Associate Professor Janes says the enthusiasm and dedication of the East Timorese staff and students has been incredible to behold and so too has the generosity of the many volunteers, including those from Australian universities and government departments who have donated books and computers to the burgeoning faculty.

Some of the Australian volunteers included a group of former librarians from the national broadcaster (the ABC), who travelled to Dili to offer their expertise to the devastated university and its staff. The librarians sorted through thousands of donated books sent from charity and community organisations in Australia, but their task was made more difficult not speaking the local language. Associate Professor Janes, who speaks Bahasa, was able to help by acting as an interpreter.

The faculty, its laboratory and experimental farm were officially reopened by East Timor's president, Xanana Gusmao and the Australian Ambassador, Mr Paul Foley, in February 2003.

A crucial role in East Timor's economy:

agricultural faculty staff (below, from left) Mateus Gomes, Agostinho Moniz, Flavian Soares, Dean of the faculty, and Armando Afonso; and (bottom, from left) Flavian Soares and Robert Williams, project collaborator (agronomy) with students Lucio Soares, Eusebio Gomes, Sipriano Martins and Reinato Babo.



A GREAT REPORT CARD

RETURNING STUDENTS ARE EMBRACING A NEW APPROACH TO CHANGE, REPORTS BRAD COLLIS

The rebuilding of the agriculture sector in East Timor took a significant step forward in October 2003 with the first graduations. Ninety graduation awards were presented, the first group that will take their learning and skills back to the villages and towns from which they came.

A key part of the skills these and future graduates are learning come from student practicals in the Hera Laboratory. Science students are now also getting benefits from the laboratory, with the Education Faculty of the University using it to conduct practical sessions. As the only working agricultural laboratory it is also used by the Australian Quarantine and Inspection Service and NGOs on occasion.

Such close collaboration also extends to University staff and their Australian project partners, who are combining to develop and refine curriculums and student project work.

Much of this work is tailored to ensure the practical delivery of results extends to villagers and others working in agriculture. The Dean of the Agriculture Faculty, Flavian Soares, sees this as being the main focus of the work. "We started by looking at what type of graduates were going to be most needed back in the villages," says Soares. "So the curriculums are 30 percent practical and 70 percent theory."

"After graduation, these students' main role will be to train farmers, to lift our farming systems to a higher level."

For Flavian Soares the students embody the country's circumstance: "We are facing the need, and the opportunity, to think differently. Before, everything we did was controlled. When many of these students started university their motivation was political change. Now their motivation is economic change. Science and economic competition are worlds in which we now have to think and work."

It is a dramatic shift for many to make, but one that is moving ahead through the involvement and dedication of students, lecturers and Australian partners, all working together to rebuild a vital part of East Timor's future.

From teacher to student

Life is about to change for Flavian Soares. He will be undertaking a John Allwright Fellowship to study for a Master's degree in Australia in 2005. It is quite a change, moving from standing before classes to attending them as a student.

Soares has played a key role in rebuilding agricultural facilities at the National University, overseeing much of the work and filling a strong leadership role. He was a key liaison point between the University and the ACIAR project team, including playing an active role in the development of the implementation plan for the project.

This also extended to the development and establishment of facilities at the Hera Field station and laboratory.

Flavian's field of expertise is pig production systems, which will be furthered by studies at the University of Queensland.



Making good progress:

Dean of the Agriculture Faculty, Flavian Soares.

Rebuilding: Students Reinato Babo (left) and Lucio Soares used money raised by their parents to build this shelter for running a livestock nutrition experiment.



PROJECT:
CTE/2000/164: Rehabilitation of the Agriculture Faculty of the National University of East Timor

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NEW MODELLING TOOL HELPS RESOURCE MANAGEMENT

CAPACITY BUILDING IS AN INTEGRAL PART OF ACIAR PROJECTS, SOMETIMES INFORMALLY THROUGH PROJECT ACTIVITIES AND AT OTHER TIMES THROUGH DIRECT TRAINING. IN MANY CASES PARTNER COUNTRY RESEARCH SCIENTISTS NOT ONLY INCREASE THEIR SKILLS, BUT ALSO BECOME EXPERTS IN A FIELD, OR SPECIFIC APPROACH, LEADING THE WAY IN FURTHERING CAPACITY IN THAT AREA IN THEIR HOME COUNTRY, REPORTS **ROBIN TAYLOR**

What happens to streamflow when forests are chopped down? How much will erosion increase, and what are the impacts on household income and subsistence production?

For land managers answering these and other questions requires negotiating a balance between a range of competing interests; of smallholders and commercial interests, between sustainability and income generation.

Helping Thailand's land managers and planners answer these questions is the goal of an ACIAR project involving the Integrated Catchment Assessment and Management Centre at the Australian National University and a working group under the umbrella of the Thai Royal Project Foundation.

Thailand is a country founded around water. Thai people settled along the banks of rivers, growing rice, vegetables and fruit as well as fishing. Pressure from increasing population, agriculture, mining and infrastructure – that has extended settlements well beyond water sources – is encroaching on forests. And with this comes a range of impacts on water, soils, climates and people.

Land managers are called upon to work through these complex interactions in developing sustainable land use strategies. Nowhere is this more intricate than in water catchments. All of which has left Thai land managers with a need for a tool to help understand the likely scenarios and integrate these into planning.

That tool already existed, developed by researchers at the Australian National University. The Integrated Water Resources Assessment and Management Decision Support System (IWRAM-DSS) is a computer-based decision support system to integrate the various aspects of planning and management in water catchments. It is made up of a number of components, each of which calculate or estimate likely scenarios, for example the crop module calculates crop yield and water-use for each crop and land unit combination.

The combination of modules allows IWRAM-DSS users to explore the impacts of policy, planning and regulatory options on soil erosion, water availability and the socioeconomic conditions of households and communities.

The key question that the ACIAR-supported research aimed to answer was whether an Australian decision support system could work in Thailand.

Coordinator of the project in Thailand Mrs Parisa Sanguantham of the Royal Project Foundation, was involved in bringing the IWRAM-DSS to Thailand to trial in water resource management and land use change.

"Another aim is to investigate situations of land use change

and land conversion that might happen in the catchment; to help prioritise and address the problems that should be managed and overcome and to recommend alternative crops and management practices for sustainable land management and income sustainability," she explains.

One of the challenges of taking this approach in Thailand is the need to localise the system.

The Thai researchers spent a lot of time developing their own approach. The researchers from Chiang Mai University collected social and economic data, including through a questionnaire asking local farmers, questions such as "Why do you grow this vegetable?" "Why plant at this time?" "What price do you receive?" and "How much labour is used on the farm?" The responses were included in the decision support system, to ensure knowledge about how farmers behave in a particular area, especially with regard to planting alternate crops.

The result of this work was the collection of all basic data about soil types, land uses, climatic data and the socioeconomic of villages and households for four river catchments in the Chiang Mai region of northern Thailand.

Next up came a trial of the Thai-version of IWRAM, in the Mae Chaem catchment in northern Thailand where agricultural activities are encroaching on important river catchments.

The success of this trial confirmed the value of IWRAM,

PROJECT:
ASEM/2001/095 Institutional strengthening for integrated water resource management in Thailand.

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and of collecting the right localised data to include farmers in decision making.

"The link between the social (crop choice) and the economic impact model is really valuable," explains ANU researcher Susan Cuddy. "As well as looking at the impacts on soil erosion of a range of crops, we can see if farmers grow these crops already and if there is anything that would inhibit uptake," Ms Cuddy says.

The computer software that was developed in phase one of the project can examine the upstream and downstream impacts of various options, for example the impact of water being taken out for irrigation on downstream.

A training course was held in June 2004 to finalise the IWRAM-DSS case study and training materials required by the Thai IWRAM team to train others in how to use the model and apply it in planning. A group in the Thai Department of Land Development is already using it, for example when looking at changing crops, to model the likely impact on soil erosion.

Next year Mrs Sanguantham and her colleagues will collect data and apply it in the greater Mekong sub-region countries of Myanmar, Laos and Cambodia.

A strength of the project in Thailand has been the strong involvement by the Royal Project Foundation. It is difficult to pool resources from 11 organisations and is not something that would happen easily in Australia, but the influence of the Royal Project Foundation is such that it can attract high level researchers.

"Most of our Thai colleagues are very senior in their departments so it is a really powerful consortium to deliver this sort of work through," says Ms Cuddy.

The researchers get together once a month – they all work for other agencies. Many of them are volunteers who work on the project on their weekends.

Ms Cuddy believes as far as looking at catchment management in an integrated way, the Thai group is probably more advanced than groups of researchers in Australia. "You have hydrologists actually talking to economists before they go out and do their fieldwork to understand the characteristics of a catchment from the perspectives of social and economic, not hydrological modelling. They appreciate that they should be working together.

"That's quite an advance on what generally happens in Australia, where economists (and social scientists) still get dragged in at the last minute and may find that the survey area they can talk about doesn't match the boundaries of the area that has been modelled."

The group at ANU has a great deal of experience working on decision support systems for integrated assessments.

"Probably the most similar one would be the work that we have done in the Ben Chifley catchment near Bathurst," says Ms Cuddy. "It uses a more detailed style of modelling but addresses similar issues. We are looking at changes in land use and the effects of that on sediment transport, water quality and the cost of overlaying different management practices.

"So, it is a slightly different approach because we have different approaches to the collection of data and also our farmers work in a different way to the way they work in Thailand, and we think differently about management practices. But it is really the same combination of things – you are trying to assess the biophysical impact and also the impact on people."

In January 2005 the Thai project team will run their first workshop for their colleagues, in connection with an international conference. Instead of being on the receiving end they will be on the giving end, training their colleagues in IWRAM.

For the researchers involved, the major impact of the project is the new skills they have developed and the opportunity to work with a number of government departments, putting them in a position where they can play a pivotal role in the region.

Many stakeholders from a number of agencies took part in the working group. These included the Royal Forest Department, Royal Irrigation Department, Department of Agriculture, Royal Project Foundation, Chiangmai University and the Land Development Department.

BUILDING CAPACITY

Left: Coordinator of the project in Thailand, **Mrs Parisa Sanguantham** (second from left) with colleagues outside their workplace, Chiang Mai University.

THE ROYAL PROJECT FOUNDATION

The Royal Project Foundation was started by the King of Thailand, His Majesty King Bhumipol Adulyadej, to help the hill tribes of northern Thailand. Many of these farmers were earning their income from growing opium poppies, and in clearing the land for farming they were destroying forests, causing damage to the landscape and polluting watercourses. For more than 30 years the Foundation has focused on research and development to improve highland agricultural production, maintain water sources and generally improve the quality of life for the hill tribes. Through its four agricultural research stations, the Foundation has successfully introduced many new crops to provide an alternative source of income to the opium poppy.

Left: **Susan Cuddy** calls herself a science packager. With a BA in pure mathematics and a graduate diploma in computing, she started working at CSIRO as a programmer and has worked in environmental software development for 20 years. "I am most interested in how you capture peoples' knowledge and package it in a way that is useful."

PHOTO: BRAD COLLIS

Far left: Effective water management can prevent salinity and other problems.

