

lion. However, beginning with the major afforestation project in the Philippines in 1988, it is MERT policy that all major new projects are put out for competitive tender.

At present MOF provides an "on demand" forestry service to MERT for minor forestry problems, as well as competing with other outside consultants in providing forest management services, technical assistance and team members for appraisal, evaluation and sectoral study exercises.

Current development in the delivery of New Zealand's ODA include increasing emphasis on the use of non-MERT expertise and services in the implementation and management of ODA projects including forestry. Management contracts detailing responsibility and accountability are to be further developed. Examples are the three-year contract awarded to CITEC (the commercial arm of the Central Institute of Technology in Wellington) to take responsibility for the organisation and management of all short-term training courses (including forestry and wood related courses), and the award of a two-and-a-half year contract to manage the Tonga forestry project to MOF.

The administration of New Zealand's ODA will continue to change in response to internal experience, and the current review by the Parliamentary Select Committee on Foreign Affairs and Defence which amongst other things has commissioned a value for money audit of New Zealand's ODA.

A summary of New Zealand's ODA forestry expenditure forecasts made in April 1987 for the 1988/89 financial year follows:

Cook Islands	- support forestry projects	\$ 180,000
Fiji	- Fiji pine scheme	\$1,200,000
	- hardwood afforestation	\$1,000,000
Kiribati	- portable sawmills	\$ 110,000
Papua New Guinea	- demonstration reforestation	\$1,115,000
	- training support	\$ 88,700
Solomon Islands	- reforestation	\$ 100,000
Tonga	- institutional support	\$ 295,000
	- coconut sawn timber	\$ 242,000
Tuvalu	- charcoal production	\$ undecided
Vanuatu	- forestry plantations	\$ 143,000
W. Samoa	- plantation management	\$1,700,000
ASEAN	- timber end use study	\$ 50,000
Philippines	- plantation forests	\$1,000,000
	- social forestry planning	\$ 100,000
Kenya	- FAD/UNDP/NZ joint project	\$ 80,000
		\$7,403,700

The total ODA vote for the 1988/89 financial year is about \$140 million, which is about 0.24% of GNP. The Government plans to increase this as the fiscal situation improves. It can be expected that forestry-related activities will increase correspondingly.

## Expanding role for Forest Research Institute's Wood Technology Division in tropical forest utilisation

Tony Haslett

The Wood Technology Division of the Forest Research Institute has expanded its work in tropical forest utilisation and associated activities. In the past 12 months, division staff have completed assignments in Western Samoa, Tonga, Fiji, Vanuatu, the Solomon Islands and Malaysia. In the near future further assignments in South East Asia and the Indian sub-continent are anticipated.

The bulk of the work carried out by the division has involved evaluating the wood properties and processing characteristics of exotic plantation-grown tropical species. Work of this type commenced in the 1970s. Some of the most comprehensive data anywhere in the world for several of these species is now available from the Wood Technology Division. The division has also been involved in the fields of timber engineering, sawmilling studies, reforestation project evaluation and timber dryer

design. Some of this work is described below.

### Wood property evaluation of plantation hardwoods

Faced with declining availability of indigenous logs and plantation forests nearing utilisable age, many tropical countries now require advice on the wood properties of plantation species. In the past, species choice was often made on the basis of tree form and growth rate, and little thought was given to wood properties. Thus species like *Octomeles sumatrana* (erima) and *Anthocephalus chinensis* (cadamba) were widely planted, but wood from these plantations has only been used to a limited extent.

The Wood Technology Division has comprehensively evaluated over 12 different tropical plantation species, including *Pinus caribaea*, *Eucalyptus deglupta*, *Tectona grandis* (teak) and *Swietenia macrophylla* (mahogany). A comprehensive data bank on physical

and mechanical properties, as well as on the sawing, drying, treatment, working, gluing, finishing, peeling and pulping properties of these, and several other tropical plantation species is now available.

### Sawn timber production

The combination of small logs and growth stress makes the choice of correct sawing equipment and strategies critical if acceptable recoveries of plantation grown tropical hardwoods are to be achieved.

Using similar techniques to those applied to softwood sawmill simulation by the recent Conversion Planning Project Team, Wood Technology staff have been able to provide advice on sawing patterns, machine demand calculations, mill optimisation and sawmill dynamics. As well as conducting numerous sawing studies in the course of species evaluation, the division has also worked in Fiji determining the effect of log quality and sawing strategy on *Swietenia* sawn timber recoveries.

The author, Tony Haslett, is a scientist with the Wood Technology Division of the Forest Research Institute in Rotorua.

### Kiln and energy plant design

With increased emphasis on the importance of added value, drying facilities are becoming a key area in sawmilling. Assistance in the design of several timber dryers has been provided. A current project involves the design and supervision of the construction of a 12 cubic metre capacity kiln in Western Samoa. This facility will enable Western Samoa to attain export standards, which will yield the sawmiller double the return compared with timber sold on the local market.

### Project evaluation

Wood Technology has also linked its knowledge of wood and wood proces-

sing with economics in the evaluation of forestry projects. Work undertaken in Tonga on coconut sawmilling and forestry development is a recent example. This work was carried out for the New Zealand Official Development Assistance programme. This type of project evaluation work, coupled with specialist knowledge of wood and processing, should prove to be of wide interest.

### Timber engineering

In addition to their traditional activities such as determining the strength properties of timber, the engineering group of the division is able to give advice on timber grading, and the use of timber in light frame construction. Assistance has

been provided to the Malaysian Forest Research Institute to commission a stress grading machine and to derive stress grading programmes for tropical timbers. A contribution has also been made to a United Nations Industrial Development Organisation project on light timber framing codes for developing countries.

There is now a growing awareness that the knowledge and expertise developed by the Wood Technology Division of the Forest Research Institute are of value to international forestry. The role for the division in tropical countries is expected to expand as services available are increasingly used by consultants and government agencies.

## NZ consultancy firms assist Philippines

Peter Clark

Representatives of the NZ and Philippines Governments signed an Exchange of Notes on February 2, covering the initial five years of the Bukidnon Industrial Tree Plantation Reafforestation Project. The project was initially discussed at a meeting between President Aquino and the New Zealand Prime Minister, Right Hon. David Lange, when he visited the Philippines in March 1986. Noting that the destruction of forests was a major economic, social and environmental problem in the Philippines, President Aquino asked for help in this area of development. This request matched well with New Zealand's established expertise in forestry.

The Bukidnon project aims to address the economic, social and ecological crisis which the Philippines faces from forest denudation. It is an innovative project which will establish an industrial tree plantation to be managed on commercial lines.

The New Zealand Ambassador said that she hoped the Bukidnon project would prove a model of its kind. It would thereby be the seed from which the Philippines could establish managed plantation forests on a wide scale to meet the country's timber requirements and reduce the pressure for logging or virgin forest and other upland areas. This would generate significant economic and environmental benefits as the destruction of the upland forest has caused widespread soil erosion. A recent estimate suggested that around one billion cubic metres of material is being eroded

from the hills annually. Much of this material is being deposited in water channels, rivers and reservoirs rendering vast areas of land unsuitable for agriculture. In addition, waterways are silting up to such an extent that water supplies for agriculture, industry, power generation, and town use are threatened. The Bukidnon project concept aims therefore to have a major impact in promoting long-term Philippine growth, particularly in the agriculture sector.

The project will be located in the four municipalities around Malyabalay, the capital of Bukidnon province. It will cover an area of about 14,000 hectares. The Philippines expects to commit p 35 million for the first five years of the project and New Zealand up to \$NZ one million (p 13 million) annually. The Bukidnon project will be the major element in New Zealand's development assistance programme in the Philippines for the period ahead. There will be two New Zealand advisers based in Bukidnon. New Zealand also expects to fund other, smaller projects, to supplement the Bukidnon Industrial Tree Plantation Project. New Zealand, for example, is working with the Philippine National Oil Company (PNOC) on a social forestry project in its goethermal sites in the Visayas, and the Embassy expects to be able to fund a number of small projects in Bukidnon province directly from its Small Projects Fund. The Bukidnon project is a continuation of a major thrust of New Zealand's previous aid to the Philippines through the ASEAN-New Zealand Afforestation Project (ANZA) which was established in Northern Tarlac in 1979. The Bukidnon project will translate the lessons learnt from Tarlac to a commercial plantation forest.

New Zealand and the Philippines recognise that the project's success will hinge on "people acceptance". The appraisal report for the project therefore recommends extensive community participation programmes, including priority to employment, cash cropping of the land as it is developed, stewardship for families currently living in the project area, the development of an agricultural component in the project area, selected social programmes such as clinics, and the possibility of workers sharing in the return from growing the trees. There are also substantial financial, economic, and social benefits arising from the project for the immediate local community and for the province as a whole. When in full production industrial wood volume from the project will be about 420,000 tonnes per annum and the cash flow from the sale and logging of the trees is estimated at P 198 million per annum. When the forest is established, the project will provide permanent employment for 465 people with further work for 3700 people in utilisation operations.

Forenco Consultants Ltd and the Ministry of Forestry have combined forces to provide technical assistance to the project. This involves staff placements over the next five years covering the positions of: Senior Forestry Adviser, Management Systems Specialist, Nursery Specialist, Fire Control Officer, Training Officer, Utilisation Officer and Research Officer.

Mr Warren Ellis and Mr Gordon Moyle of Forenco have been appointed the first Senior Forestry Adviser and Management Systems Adviser respectively. Mr Paul Schroeder of MOF will shortly travel to the Philippines to set up the nursery.

*Peter Clark is a forest consultant with P.F. Olsen & Co. Ltd, Rotorua.*