



Forestry

# Development of durable engineered wood products in Papua New Guinea and Australia

## Overview

Papua New Guinea (PNG) has abundant forest resources. Harvesting from these forests and subsequent processing activities generate significant social and economic benefits to landowners, communities and local economies.

Traditionally the PNG forestry industry has been a major log exporter to markets in Japan, Korea and China, with a smaller proportion of value-adding enterprises operating in the country. Recent government policies are encouraging the development of processing and manufacturing in order to create more value in-country and realise the associated socio-economic benefits. Engineered wood products (EWPs) offer a significant opportunity for increasing downstream processing and value adding in both PNG and Australia. EWPs are manufactured composites that provide consistent and reliable building products with improved structural characteristics and allow the most efficient use of forest resources.

The project presents an opportunity to work more directly with private sector businesses to develop EWPs and improve the capacity, skills and knowledge within this important industry. Additionally, the project will work directly with a cluster of Australian processors on the development of new durable EWPs and will also provide the scientific background for new and improved technologies across different EWP streams. Moreover, the research data generated by the Public Private Partnership (PPP) program component will provide evidence on how and if a PPP could be managed in the PNG wood processing sector and insights for the wider PPP community.



## KEY FACTS

**ACIAR Project No.** FST/2014/065

**Duration:** February 2016 to June 2019 (3 years)

**Target areas:** Papua New Guinea (PNG) and Australia

**Budget:** AU\$1,058,880

### Project leader

Henri Bailleres, Department of Agriculture and Fisheries (Queensland Government)

### Key partners

- Environmental Futures Research Institute, Griffith University
- Engineered Wood Products Association of Australasia
- ProAnd Associates Australia
- SEE4D
- PNG Forest Authority
- PNG Forest Research Institute
- PNG Forest Industries Association
- Pacific Island Projects Limited

### ACIAR Research Program Manager

Dr Nora Devoe

## Research/Objective

**The project aimed to work with the private sector to accelerate the development of novel EWPs in both PNG and Australia.**

**The specific objectives were to:**

- Develop and evaluate the use of an industry cluster to accelerate the development of EWPs.
- Develop EWPs appropriate to the timber resources and potential markets.
- Understand how public-private partnerships can operate to promote expansion of value-adding wood processing in PNG.

## Scientific results

- Knowledge and understanding of the characteristics and processes required to successfully utilise PNG and Australian species in EWPs.
- Research on best combination of species and adhesives matched to product requirements, ensuring the efficient use of these production resources.
- Knowledge of appropriate adhesive and preservative systems to produce a range of durable EWPs in PNG and Australia.
- Research results published in scientific journals and conference proceedings and made available to the research community, the industry and the public.

## Project outcomes

- Designed, manufactured and exhibited prototype school furniture from short lengths and prepared engineering designs for a demonstration 'solar carpark'
- Produced fire retardant plywood for wall paneling
- Developed floor panels for rail carriages from plantation hoop pine with aluminum sheeting or basalt fibre cloth
- Developed and tested lightweight construction panels
- Developed and tested innovative I-beams using finger-jointed laminated veneer-lumber (LVL) for flange components
- Designed multilaminar wood mouldings for high-value window and door joinery
- Developed products from waste and residues such as shavings, sawdust and offcuts
- Developed a practical application to estimate log volume.



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