Forestry

Coconut and other non-traditional forest resources for the manufacture of Engineered Wood Products.

Australian Government
Australian Centre for International Agricultural Research

Overview

Demand for wood products continues to rise with global population growth. Consumers increasingly prefer sustainable and low embodied energy products. Low embodied energy is beneficial to the environment as it contributes to a lower impact over the life of a product or material.

As native forest harvesting has become less accepted globally, traditional timber feedstocks have become less available. Forest product industries must use available natural resources ever more efficiently to meet growing demand. Mills in Fiji, Australia and elsewhere in the Indo-Pacific currently run under capacity, requiring additional feedstock to help ensure the viability of these businesses.

Creating a market pull for currently unused coconut stems will provide additional revenue to farmers. Removing and selling senile stems will facilitate and subsidise replanting, leading to enhanced coconut productivity. Supporting growers to remove senile palms will also implement effective waste management and sanitation at areas infested or at risk of infestation of a major pest that breeds in the coconut debris, the coconut rhinoceros beetle.

As the Pacific's hub for veneer and plywood production, this project will focus its research in Fiji. The vision is to expand coconut veneer production to other Pacific Islands when the central research questions are resolved.

KEY FACTS

ACIAR Project No. FST/2019/128
Duration: February 2021 to January 2026 (5 years)
Target areas: Fiji
Budget: A$2,780,000

Project Leader
Rob McGavin, Queensland Department of Agriculture and Fisheries

Key partners

- Pacific Community (SPC)
- Fiji Ministry of Forestry
- Fiji Veneer and Plywood Industry
- Tei Taveuni and Fiji Hardwood Board
- University of South Pacific
- Fiji National University
- Pacific Horticultural and Agricultural Market Access Program
- Big River Group
- Robertson Brothers Sawmills
- Jowat Adhesives
- Eco Cottages
- University of Queensland
- Griffith University

ACIAR Research Program Manager
Dr Nora Devoe

Objective

This research will deliver and validate wood processing technologies to transform coconut and other currently low-value forest resources, often treated as a waste-disposal cost, into high-value engineered wood products (EWPs).

The objectives are to:

- Determine the availability, accessibility and community readiness to supply non-traditional forest resources, including senile coconut palms and other small-diameter forest resources.
- Establish efficient conversion and profitable product manufacturing protocols aligned with market expectations.
- Identify product and market opportunities that will provide economic and social benefits throughout the value chain and for the wider community, linking farmers to manufacturers and manufacturers to markets in efficient and equitable value chains.
- Examine the potential for and promotion of gender-balanced participation in the Fiji forest products industry in the context of increasing the skilled labour pool to direct and staff new EWP manufacturing.

Expected scientific results

- Deliver and validate technologies that enable senile coconut palms and other currently low-value forest resources to be efficiently processed and profitably manufactured into high-value EWPs suitable for local and export markets.
- Identify suitable veneer grade sorting, drying, gluing, pressing and finishing methods for coconut-based EWPs.
- Identify specific markets, routes to entry, price points, product specifications and other commercial specifics.
- Develop the knowledge to make the products, profitably sell the products, and foster the enterprises that will carry the trade into the future.
- Investigate potential markets to drive a program of product design, manufacturing and performance testing.
- Investigate and develop resource requirements and processing strategies.
- Generate new scientific knowledge through post-graduate studies in gender topics, resource economics, labour force development and value-chain analysis.
- Understand women's integration in the Pacific engineered wood product value chain, including industry and research roles.
- Provide new information and guidance specifically for the forest and forest product sectors.

Expected impact/outcomes

- Build capacity along the forestry value chains through learning by doing while co-developing the technical solutions, training, and business support necessary to facilitate commercial adoption.
- Improve viability and profitability of the forest products sector with upskilling, boosting investment, locally employing women and men, and opening up domestic markets.
- Upskilling Pacific Islanders to run and work in businesses that supply and process logs, and manufacture and market new EWPs.
- Better enable Pacific Island countries and Australia to include coconut and other non-traditional forest resources into processing and manufacturing operations.
- Encourage young women to study in non-traditional areas by demonstrating meaningful employment in wood processing and engineered wood product manufacturing.
- Develop new skills and capabilities in gendered social relations in Fiji through post-graduate research with the University of the South Pacific.
- Improve understanding of the pathway and partnerships required to commercialise coconut and other non-traditional forest resources with the government, private resource managers and community groups.
- Develop technology and product innovations in EWP manufacturing.

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