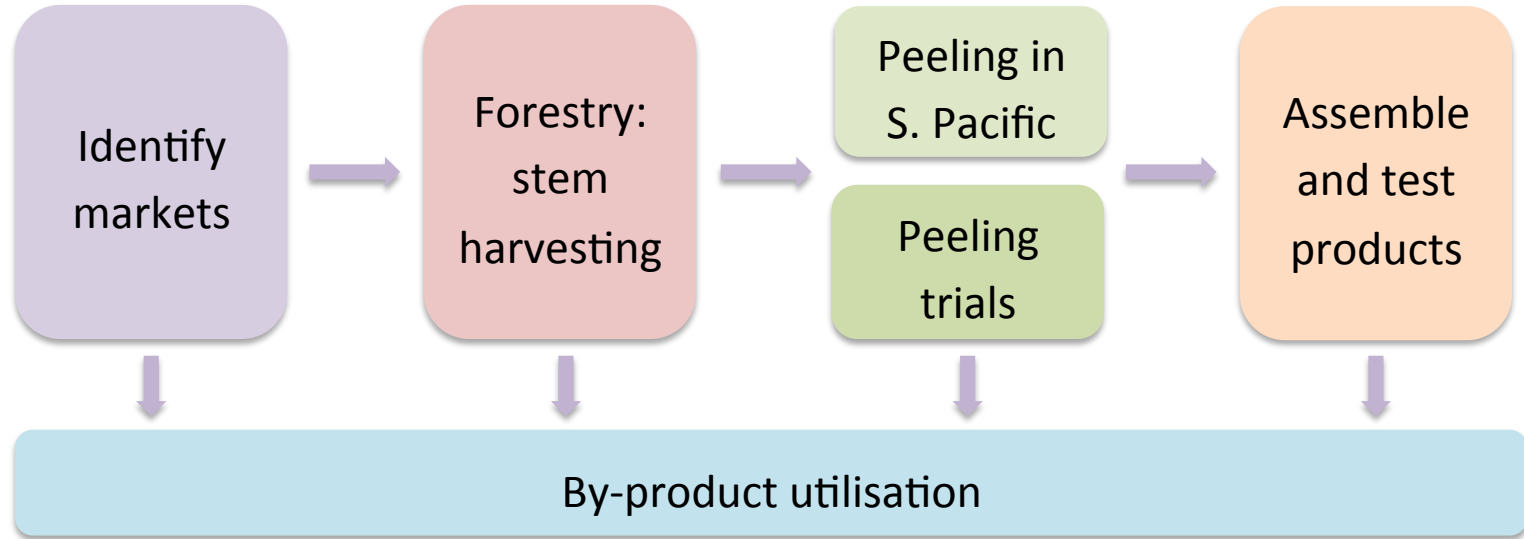


Objective 1



Identify the most promising
product options for the
veneer from coconut stem

Project Objectives



Objective 1 – Identify Markets

Identify
markets

Objective 1 – Identify the most promising product options for the veneer from coconut stem

1.1 – Market assessment and product development

1.2 – Value-chain analysis

1.3 – Stakeholder engagement

Objective 1 – Identify Markets



Objective 1 – Identify Markets

Identify
markets

1.1 – Market assessment and product development

- Engagement with building designers, builders, producers and industry bodies in local and export markets
- Determine suite of appearance and structural products to develop all-cocoveneer and composite products

1.1 Market Assessment...



1.1 Market Assessment...



- Cocoveneer samples 'graded'
- Samples sent to designers and EWP manufacturers
- Questionnaire accompanied samples



Low density – light tone



Medium density – mid tone



High density – dark tone

1.1 Market Assessment...



- Feedback received for interior products:
 - Architects
 - Interior designers
 - Joiner/furniture designer
- Feedback received for structural products: :
 - Wholesaler
 - Manufacturers
 - Industry association

1.1 Designer market assessment

ACIAR CocoVeneer project: Market assessment for appearance applications

Dear Colleague,

This questionnaire seeks to determine key market opportunities and requirements for coconut veneer in appearance applications in Australia.

It is part of an international and project to develop techniques to produce and supply veneer from coconut palm stems in the south Pacific. Potentially, the veneer could be used as veneer leaf or as the appearance face of a board.

The veneer from a palm stem can be sorted into three broad groups. A sample and image of each is provided. The groups are:

1. **High-density and dark tone veneer.** See Figure 1 and Sample 1.
2. **Medium-density and mid tone veneer.** See Figure 2 and Sample 2.
3. **Low-density and light tone veneer.** See Figure 3 and Sample 3.

Please inspect each sample carefully and consider the questions on the following pages.

Please e-mail us at timbo@arch.utas.edu.au when you have received this letter and the accompanying Coco Veneer samples.

Let us know a preferred day and time that would best suit you for us to ring you about your market assessment results.

If we do not hear from you shortly we will simply call you during office hours.

If you would prefer to complete this market assessment and return it via post, please mail it to: CSAR, Locked Bag 1324, Launceston, TAS, 7250.

Associate Professor Gregory Nolan
 Centre for Sustainable Architecture with Wood
 School of Architecture & Design
 University of Tasmania

Respondent information

Name: _____

Position: _____ Email: _____

Company: _____

Activities: _____

Sample No.1: High-density and dark tone veneer



Figure 1: High-density and dark tone veneer

After looking at Figure 1 and Sample 1, please rate each of the aspects below on a 1-5 scale where 1 is not useful or unimportant, and 5 is very useful and very important.

Aspect	Rating	1 low	2	3	4	5 high
Appearance						
Potential for design						
Suitability for general joinery						
Suitability for wall or ceiling lining						
Suitability for engineered flooring						
Availability of solids that match the veneer						

If this dark tone face material is used for joinery or lining, what is:

The acceptable hardness / density _____ kN / kg/m³

The acceptable thickness _____ mm

The preferred sheet sizes Width: _____ Length: _____

Nominal price range \$ _____

What other factors may be important for using this material in joinery or lining?

After looking at Figure 1 and Sample 1, please rate each of the aspects below on a 1-5 scale where 1 is not useful or unimportant, and 5 is very useful and very important.

Aspect	Rating	1 low	2	3	4	5 high
Appearance						
Potential for design						
Suitability for general joinery						
Suitability for wall or ceiling lining						
Suitability for engineered flooring						
Availability of solids that match the veneer						

If this dark tone face material is used for joinery or lining, what is:

The acceptable hardness / density _____ kN / kg/m³

The acceptable thickness _____ mm

The preferred sheet sizes Width: _____ Length: _____

Nominal price range \$ _____

What other factors may be important for using this material in joinery or lining?

1.1 Designer market assessment

Sample comparison - average

Appearance	Design potential	Joinery Suitability	Lining suitability	Engineered flooring suitability	Availability of solids that match the veneer
------------	------------------	---------------------	--------------------	---------------------------------	--



Sample 1-
dark

3.8

4.0

3.4

3.0

3.5

3.6



Sample 2-
mid

3.4

3.8

3.6

3.2

3.5

3.4



Sample 3-
light

3.6

3.6

3.6

3.4

3.6

3.6

1 = Low
5 = High

Data from
'designer'
feedback

1.1 Designer feedback/comments



High contrast may not be desirable
Consistent grain and colour is key

Cost equiv.
to AA grade
birch
plywood

0.6 to 1mm thick
Sheets > 1.2 x
2.4m



ALL – machining with traditional
tools (saws) if very difficult. Splinter,
bursting edges.

Cost equiv.
to AA grade
birch
plywood

0.6 to 1mm thick
Sheets > 1.2 x
2.4m



Suitable for large areas such as
ceilings and walls
Possible alternative to Tas Oak

Cost equiv.
to AA grade
birch
plywood

0.6 to 1mm thick
Sheets > 1.2 x
2.4m

1.1 Designer market assessment

Initial conclusions:

- Material base colour and tone needs to be consistent across a sheet
- High contrast 'flecking' may be an issue for some applications
- Veneer potentially equivalent to 'select' appearance grade which is high value
- Peeled veneer will be thicker than standard appearance veneers usually <1mm thick – products developed need to consider this. It may be that appearance board products are developed rather than individual veneers sold
- Dark, mid and light (high, medium and low density) equally desirable for different appearance products

1.1 Structural market assessment



THE SCHOOL OF
ARCHITECTURE & DESIGN



ACIAR CocoVeneer: Market assessment for structural applications

Introduction

This questionnaire seeks to determine key market opportunities and requirements for coconut veneer in structural markets in Australia. It is part of an international aid project to develop techniques to produce and supply veneer from coconut palm stems in the south Pacific. Your answers will help guide the research work in the project.

The veneer from a palm stem can be sorted into three broad groups for structural application. A samples and image of each is provided. The groups are:

- **High-density veneer.**
This is potentially suitable for the face of form-ply. See Figure 1 and Sample 1.
- **Mid-density veneer.**
This is potentially suitable for the face of other ply products. See Figure 2 and Sample 2.
- **Low-density veneer.**
This is also potentially suitable for the face of other ply products. See Figure 3 and Sample 3.

Veneer from any of these groups could also be used core-grade material.

High density, face material for form ply



Figure 1: High density, dark veneer image

If the material is to be used as face material in form ply, what are the key requirements for:

The acceptable hardness / density _____ kN / kg/m³

The acceptable thickness _____ mm

The maximum acceptable thickness _____ mm

The preferred sheet sizes: Width: _____ Length: _____

Nominal price range \$ _____

What other factors are important for this application.

High density, face material for form ply



Figure 1: High density, dark veneer image

If the material is to be used as face material in form ply, what are the key requirements for:

The acceptable hardness / density _____ kN / kg/m³

The acceptable thickness _____ mm

The maximum acceptable thickness _____ mm

The preferred sheet sizes: Width: _____ Length: _____

Nominal price range \$ _____

What other factors are important for this application.

1.1 Structural market assessment

Summary

- Difficult to penetrate structural markets with 'new' product
- Environmental credentials could be advantage
- Need to determine other benefits through product trials:
 - Formply
 - Bracing ply
 - Lightweight ply

Upcoming activities

- Develop product suite in accordance with industry feedback
- Product manufacturing and testing
- Second market assessment based on full-sized panels

Objective 1 – Identify Markets

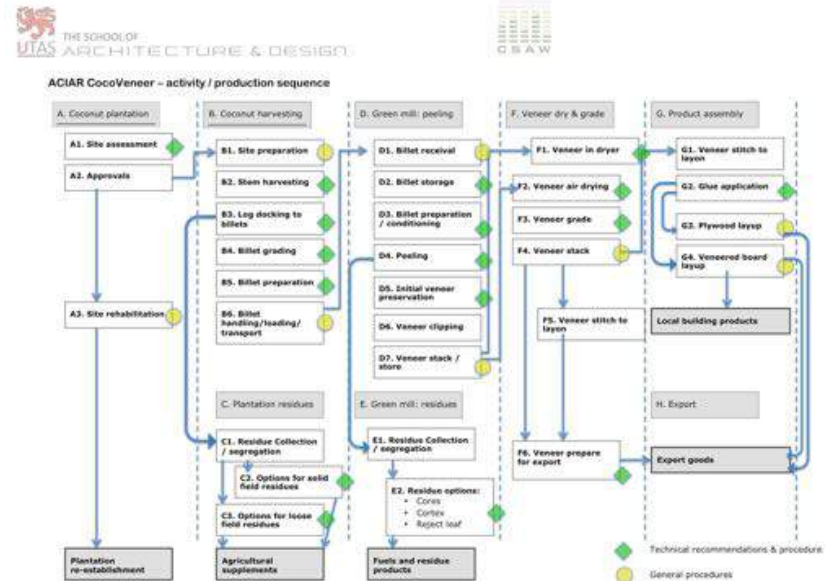
Identify
markets

1.2 – Value-chain analysis

- Analysis performed in association with ACIAR's PARDI network
- Costs and recoveries of each stage of production determined
 - This work runs in parallel with technical program
- Explore potential production models.

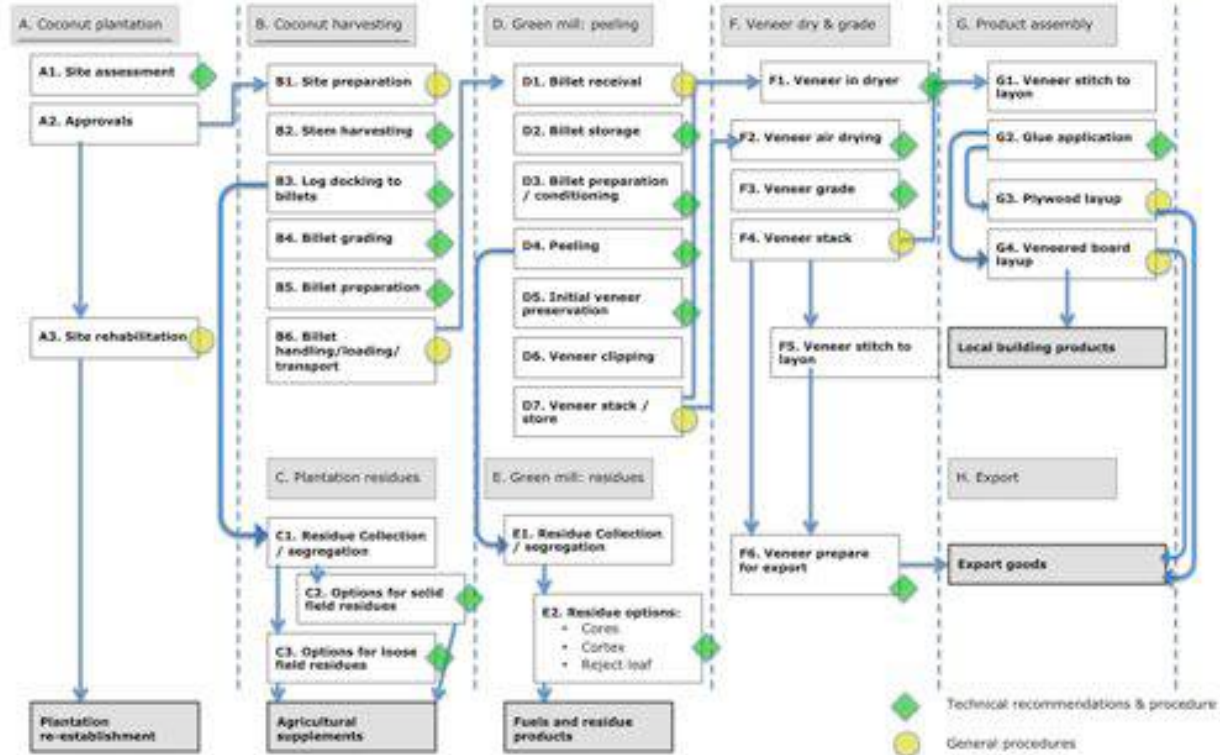
1.2 Value Chain Analysis

- Value chain mapped
- Critical procedures identified
- Detail of critical procedures collected as project progresses
- Project team met with PARDI and value chain mapping discussed



1.2 Value Chain Analysis

ACIAR CocoVeneer – activity / production sequence



1.2 Value Chain Analysis

C. Plantation residues

This is the handling and processing of residues on the plantation site into target products, ideally agricultural supplements.

C1. Residue Collection / segregation

Primary site residues, either leaf, bark or solids, are collected and sorted for processing. Stumps are cleaned up as far as possible prior to site rehabilitation.

In this discussion, *primary residues* are those in their original form collected from site. *Commodity residues* are those that have been processed in some way into a more saleable form. For example, an upper stem log is a primary residue. If processed into chips, these are commodity residues.

Value chain variables	Volume of residues by type per stand grade. General residue collection and processing costs.
Technical aspect	Determine the: <ul style="list-style-type: none">• Variation in primary characteristics between residues of varying types: leaf, bark, stumps, and upper stem sections.• Potential application for the material as a primary or commodity residue.
Procedures	Procedures for: <ul style="list-style-type: none">• Collection and separation of residues of different types, including ways to limit contamination.• Conversion of primary to commodity residues.

C2. Options for solid field residues

Solid coconut sections unsuitable for sawing or peeling such as undersized and curved pieces are processed into a useful form. This may take several stages.

Value chain variables	Recovery rates and value generated from particular use options.
Technical aspect	Determine options for use of solid field residues.
Procedures	Procedures for residue conversion and use.

C3. Options for loose field residues

Loose sections of the coconut stem such as fronds and bark are processed into a useful form.

Value chain variables	Recovery rates and value generated from particular use options.
Technical aspect	Determine options for use of loose field residues.
Procedures	Procedures for residue conversion and use.

- Key variables for each point in the process identified
- Technical considerations/ issues highlighted
- Key procedures identified
- Information collected to populate the value chain document

Objective 1 – Identify Markets

Identify
markets

1.3 – Stakeholder engagement

- Regular stakeholder engagement meetings.
 - Impact in partner countries is fundamental to the project
- Website and resource packages
- Training days organised

1.3 Stakeholder Engagement

Trips to PCs by Australian project team:

- Initial fact-finding visit to Fiji, Samoa, and Solomon Islands
- Inception meeting 2012
- Annual meeting in Fiji 2013
- Visit to Taveuni 2013



1.3 Stakeholder Engagement

Website:

- Cocowod.net redesigned to include cocoveneer project information
- Videos hosted from inception meeting
- Cocowood high value flooring project information remains available

The screenshot displays the Cocowood website interface. At the top, the 'cocowood' logo is prominently featured alongside the tagline 'Exploring the potential of coconut wood'. Below the header, a navigation menu lists various site sections. A central banner image shows a man in a patterned shirt working with a large coconut stem. To the right, a video player is embedded, showing a thumbnail for an ACIAR video. Below the main content, there is a 'Project Partners Links' section with logos for ACIAR, Queensland Government, and CSAW. A 'Welcome to cocoveneer' section provides an overview of the project's goals. The right sidebar features a 'Latest News' section with two articles, one dated 16 September 2012, and a 'More News...' link. The footer of the page states 'Powered by CSAW'.

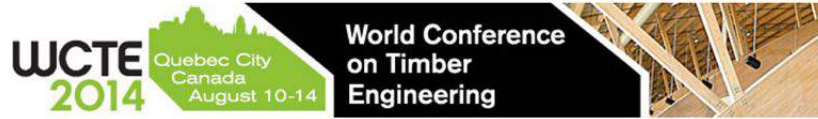
1.3 Stakeholder Engagement

Training:

- UTAS Graduate Certificate Timber (Processing and Building) is a four unit online course
- Ms. Moana Masau has enrolled on the GradCert
- There is opportunity for other enrollments



1.3 Stakeholder Engagement



Publications:

- Abstract submitted for World Conference on Timber Engineering 2014 co-authored by UTas, QDAFF, SPC
- If abstract accepted, presentation will be given in Quebec in 2014

Summary

- Veneer samples positively received and reviewed by designers
- Product development needs to carefully address designer's expectations for typical appearance veneer: thickness, handling etc.
- Value chain mapped and discussed with PARDI
- Key value chain points, processes and required information identified
- Cocowood.net website updated and feedback, questions and comments being addressed from website
- Enrollment on to the online GradCert Timber: Processing and Building. More enrollments in future.

Objective 1 – Identify Markets

Identify
markets

Key completion dates –

Activity	Planned	Actual
Initial markets and products defined	Jan 2013	August 2013
Interim value chain analysis	January 2014	Commenced
Final value chain analysis	October 2015	
Cocowood website updated	October 2012	November 2012
Stakeholder meetings	July 2013	August 2013
	May 2014	
	May 2015	

Objective 1 – Identify Markets

Identify
markets

Key activities next 12 months –

Activity	Anticipated completion
Complete market assessment	November 2013
Define initial product suite	January 2014
Write and deliver paper for WCTE event	July 2014
Collect value chain data	ongoing

Questions



Australian Government
Australian Centre for
International Agricultural Research



Queensland
Government



SPC
Secretariat
of the Pacific
Community



centre for sustainable
architecture with wood

