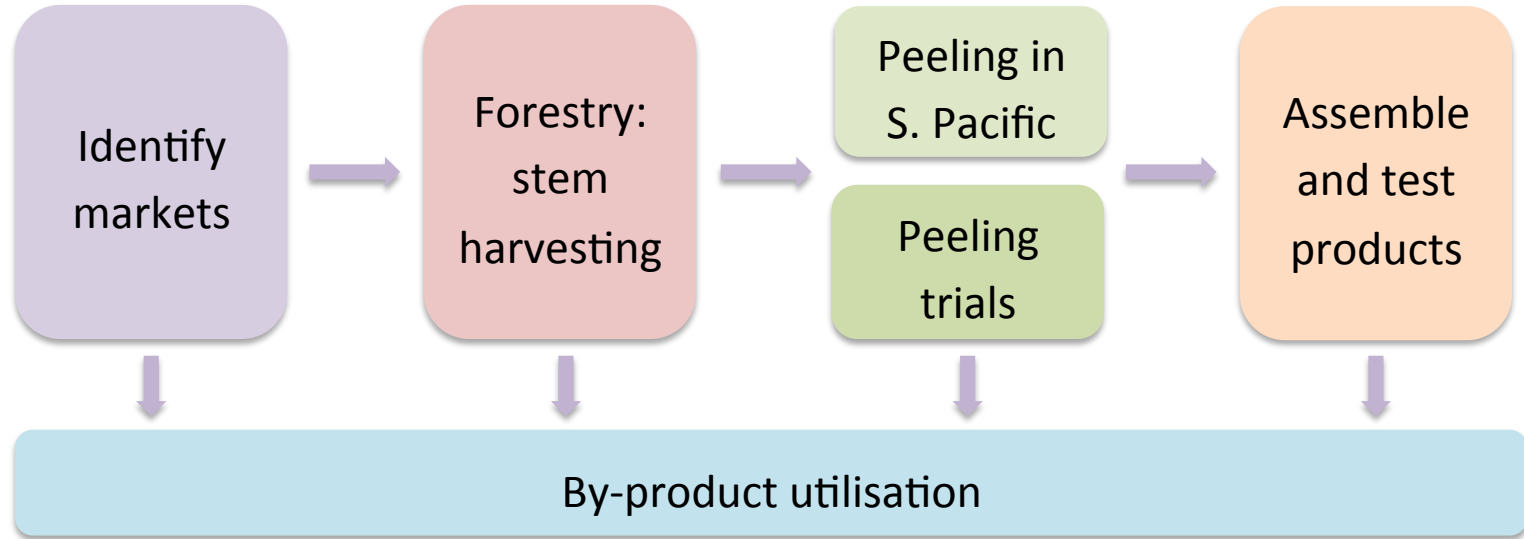


# Objective 1



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
- Interviews conducted



Low density – light tone



Medium density – mid tone



High density – dark tone

# 1.1 Designer feedback/comments





# 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/m<sup>3</sup>

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/m<sup>3</sup>

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

## APPEARANCE PRODUCT

- ✓ Pleasing, exotic appearance is an asset
- ✓ Green/environmental credentials should be emphasized; certified cocoveneer would be good substitute for rainforest veneers
- ✓ Good potential for niche markets
- ✓ 18 mm LVB for Japanese furniture market may be a viable option

# 1.1 Designer market assessment

## APPEARANCE PRODUCT

- ✗ Current fashion for plain veneer or melamine
- ✗ Market acceptance for 'thin' veneer (0.4 to 1.0mm). Unlikely to be achievable in cocowood
- ✗ Niche markets will not be high volumes

# 1.1 Designer market assessment

## APPEARANCE PRODUCT

- Fire retardance performance useful
- Grading to include bundle frequency as well as colour
- Performance data for screws needed for joinery
- On-site gluing performance needed
- Moisture movement information needed

# 1.1 Structural market assessment

## STRUCTURAL PRODUCT

- ✓ Form-ply face veneer a huge potential market
- ✓ Low density light plywood a possible product
- ✓ Veneer could work well laid onto other core material



# 1.1 Structural market assessment

## STRUCTURAL PRODUCT

- ✘ Form-ply face veneer currently 1.0 to 1.5mm thick
- ✘ New species/products are slow to be accepted into construction

# 1.1 Structural market assessment

## STRUCTURAL PRODUCT

- Plywood of 1.2m wide and 2.4, 2.7, and 3.0m long
- Approx. plywood prices

|                    |                              |
|--------------------|------------------------------|
| General structural | AUD\$500/m <sup>3</sup>      |
| Bracing plywood    | AUD\$650/m <sup>3</sup>      |
| Formply            | AUD\$500-1000/m <sup>3</sup> |
- Performance of cocoveneer on alternatives EWPs should be tested

# 1.1 Product development

## Proposed products:

- Cocoveneer on blockboard LVB 18mm (appearance)
- Cocoveneer on softwood ply substrate 17mm (app/structural)
- Cocoveneer on hardwood veneer ply substrate 17mm (app/structural)
- Cocoveneer plywood 17mm (app/structural)
- Cocoveneer formply 17mm (structural)
  
- Products proposed to be confirmed once veneer peeling has been successfully undertaken on sufficient scale

# Objective 1 – Identify Markets

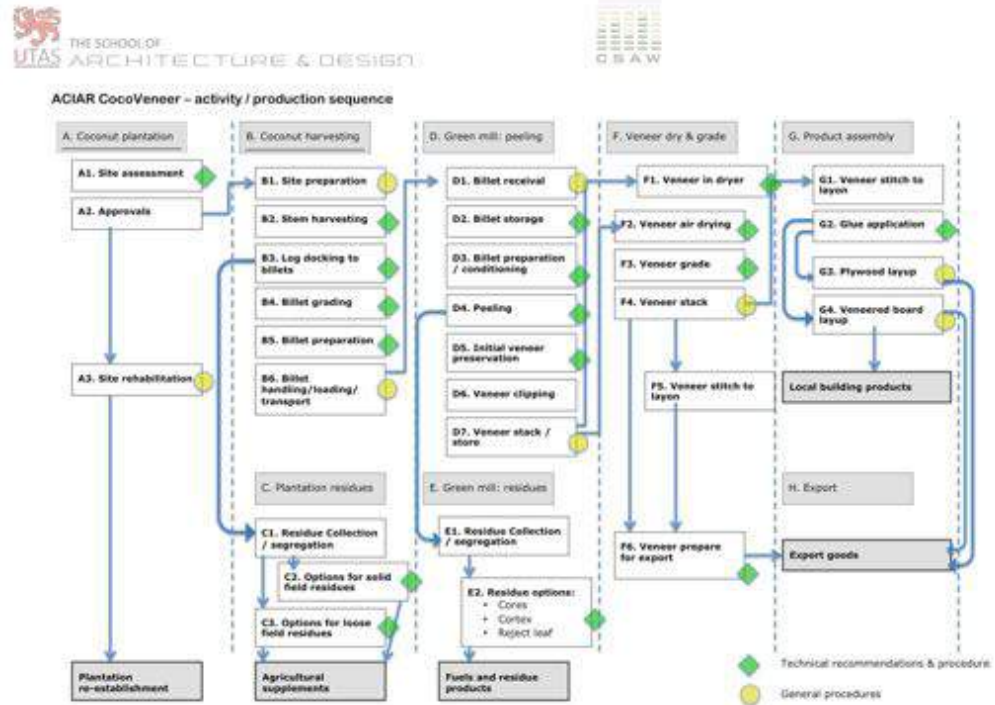
Identify  
markets

## 1.2 – Value-chain analysis

- Analysis performed in consultation with ACIAR's PARADI network
- Costs and recoveries of each stage of production determined
  - This work is to run in parallel with the technical program.
- Explore potential production models.

# 1.2 Value Chain Analysis

- Value chain mapped
  - Discussed with PARDI
- Critical procedures identified
- Critical procedures are being resolved as the project progresses.



# 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.

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

### 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.

|                              |   |
|------------------------------|---|
| <b>Value chain variables</b> | Recovery rates and value generated from particular use options. |
| <b>Technical aspect</b>      | Determine options for use of solid field residues.              |
| <b>Procedures</b>            | 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.

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

- Key variables for each point in the process identified
- Technical considerations/ issues highlighted
- Key procedures identified
- Information is being collected to populate the value chain document from:
  - Industry collaborators.
  - Service suppliers.
  - Technical results.

# 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
- Equipment installation 2014
- Annual meeting 2014





# 1.3 Stakeholder Engagement

## Website:

- Cocowood.net website updated and key news events posted
- SPC Land Resources Division article published.
- Initial project newsletter

The screenshot shows the Cocowood website homepage. At the top, the logo 'cocoWOOD' is displayed in a stylized font, with the tagline 'Exploring the potential of coconut wood' to its right. Below the header is a navigation menu with links: Home, About The Cocoveneer Project, Cocowood Information, Cocoveneer Processing Information, and Project partners and people. A 'Project Partners Links' section follows, featuring logos for ACIAR (Australian Centre for International Agricultural Research), Queensland Government, and CSAW (Secretariat of the Pacific Community). The main content area is titled 'Welcome to cocoveneer' and describes the project's goal: 'Development of advanced veneer and other product from coconut wood to enhance livelihoods in South Pacific communities'. It mentions that the ACIAR funded project aims to develop technologies, processes, and expertise to produce veneer and veneer-based products from senile coconut stems. A central image shows a man in a patterned shirt working with a large log. To the right, there is a video player titled 'ACIAR Cocoveneer' and a 'Latest News' section with two articles: 'Coconut palms – the timber of the future' and 'Cocowood processing manual available'. The footer of the page reads '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 completed 2 units of the GradCert.
  - Enrolled in a third unit.
- Funding opportunities for additional enrolments are being pursued.



# Summary

- Initial product suite has been defined.
- Final product suite definition has been delayed by lack of suitable veneer recovery.
- Value chain mapping.
  - Population is underway but currently limited.
- Veneer recovery values will be confirmed during Fijian peeling trials.
- Stakeholder engagement is ongoing.



# Objective 1 – Identify Markets

Identify  
markets

## ***Key completion dates –***

| <b>Activity</b>                | <b>Planned</b> | <b>Actual</b> |
|--------------------------------|----------------|---------------|
| Initial market demand assessed | October 2012   | October 2012  |
| Initial product suite defined  | February 2013  | August 2013   |
| Interim value chain analysis   | February 2014  | Commenced     |
| Final value chain analysis     | November 2015  |               |
| Cocowood website updated       | October 2012   | November 2012 |
| Stakeholder meetings           | July 2013      | August 2013   |
|                                | May 2014       | August 2014   |

# Objective 1 – Identify Markets

Identify  
markets

## ***Key activities next 12 months –***

| <b>Activity</b>                   | <b>Anticipated completion</b> |
|-----------------------------------|-------------------------------|
| Regular website updates           | ongoing                       |
| Refine product suite              | January 2015                  |
| Collect value chain recovery 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

