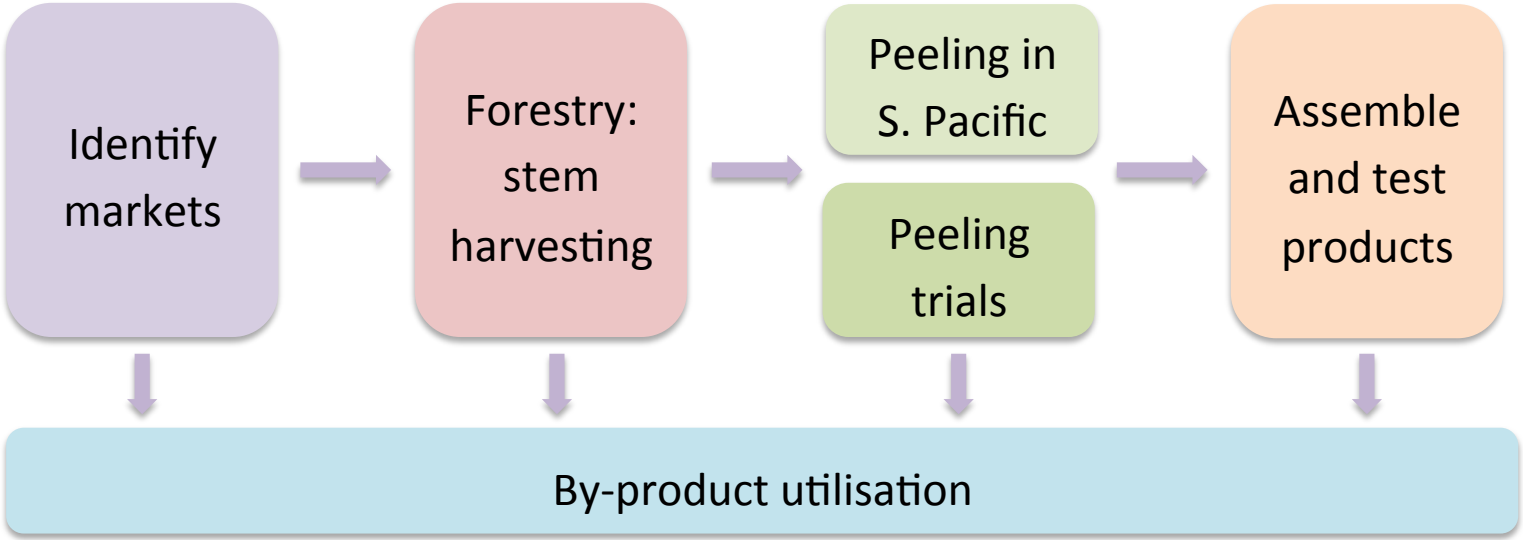
Objective 1

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

Identify markets

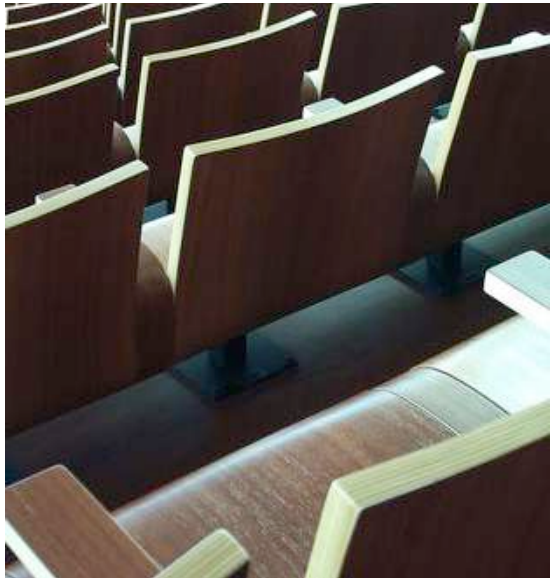
1.1 – Market assessment and product development

- 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

Objective 1 -1.1 Product development

Harvested coconut logs, Savusavu, Vanua Levu. June 2015

Peeled coconut veneer Valebasoga Tropikboards Limited in Labasa. June 2015



Potential joinery or structural applications.

Summary

This is the last year of a four-year, collaborative project with six specific objectives:

1. Identify the most promising product options for the veneer from coconut stem.
2. Develop protocols and capacity for sustainable low-impact coconut wood harvesting, plantation rehabilitation, and log grading, handling and transport.
3. Establish experimental veneer-peeling capacity in the South Pacific.
4. Determine the optimum processing parameters and protocols for peeling coconut stems and the properties of the recovered veneer.
5. Assemble the product suite and establish its characteristics and in-service performance. Characterisation would be to local and export performance standards.
6. Determine the costs and benefits of using the residual cortex and soft, central cores for bio-char and other agricultural products.

1.1 Market Assessment…

- UTAS and QDAFF conducted interviews with design professionals and wood products manufacturers.
- Additional assessment of veneer material properties.


Low density – light tone


Medium density – mid tone


High density – dark tone

1.1 – Markets and product ….

- The form and material properties of coconut palms significantly influences the potential functionality of recovered coconut wood and veneer products.
- This generates competitive advantages and disadvantages.

1.1 – Markets and product ….

Competitive advantages appear to include:

- The hardness/density of the outside of the stem, suitable for commercial floor traffic.
- The visual consistency of individual sheets, with a mottled, lively texture.
- A relatively narrow colour range with graduation from dark to light.
- The potential for reassembly into sizes larger than from sawing.
- Log supply is available, given the volume of standing senile stems.
- A clear environmental message.

1.1 – Markets and product ….

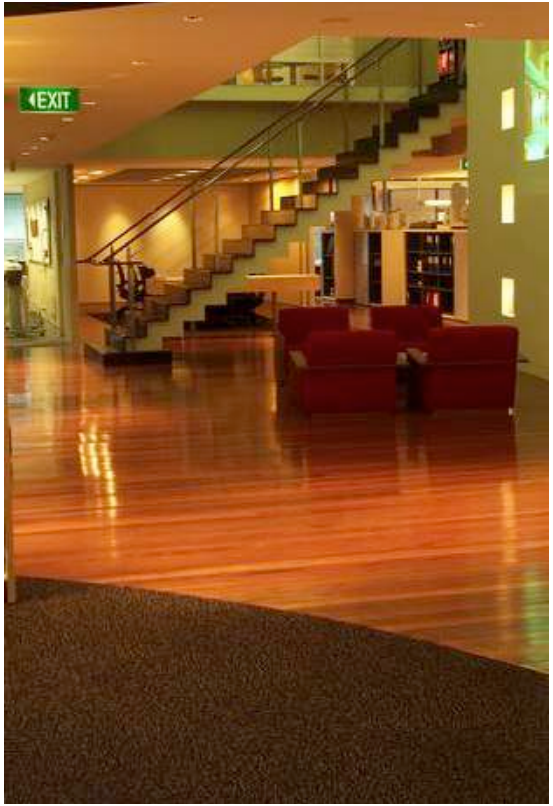
Competitive disadvantages appear to include:

- A narrow colour range and visual liveliness that limits design diversity.
- A tendency to split during handling needing a thick veneer.
- The increased thickness of veneer may create difficulties during assembly.
- A low average MOE compared to radiata.
- A low shear strength, given the longitudinal vascular bundles.
- The low density of the inside material: < 400 kg/m^3

1.1 – Markets and product ….

Likely high utility applications:

- Appearance applications with a visually active palette, especially where hardness is required.
- Architectural application with a strong environmental or tourist agenda.



1.1 – Markets and product ….

Likely medium utility applications

- Industrial applications where surface hardness is important.
- Inner bands and possibly surfaces of interior and furniture ply.

Likely low utility applications

- Structural applications due to MOE, MOR and shear constraints.

1.1 Market Assessment…

Proposed test product suite:

- An overlay product to simulate an overlay flooring or walling board.
- A nominal 35 mm LVL type product to deliver sizes larger than traditional coconut sawing.

Additional material properties results and option assembly is needed before further product suite refinement.

Objective 1 – Identify Markets

Identify markets

1.2 – Value-chain analysis

- Analysis performed in consultation with ACIAR's PARDI 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.

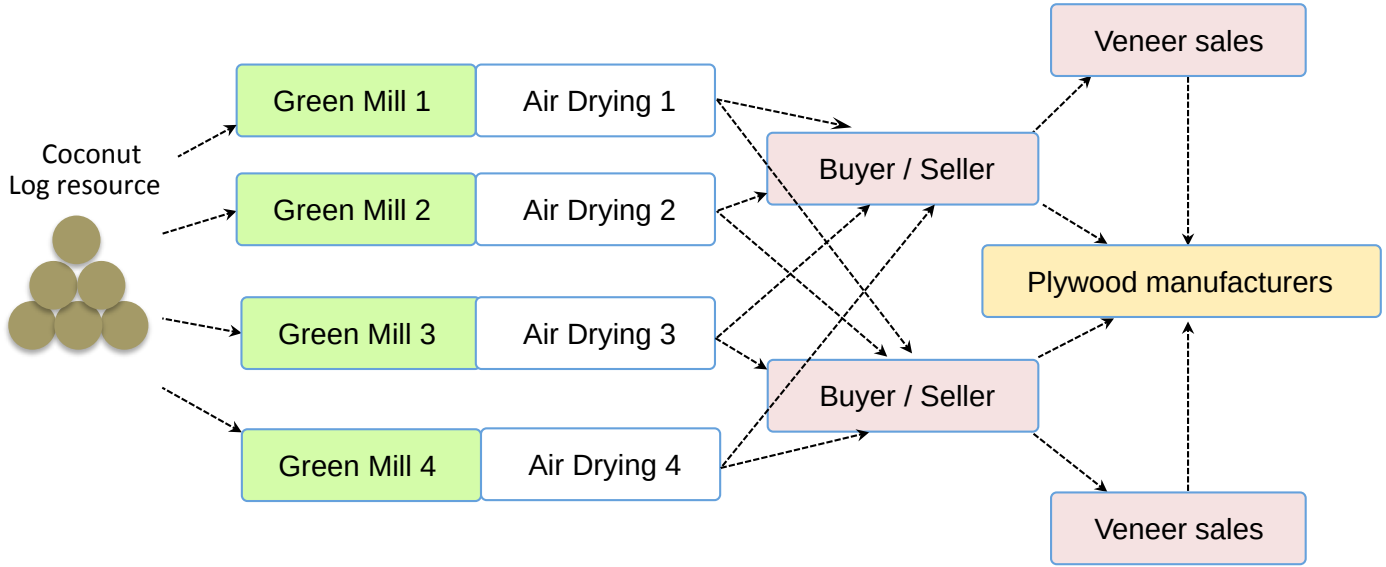
Objective 1 -1.2 Value chain analysis

Upgrading the coconut wood product value chain -

- Determine the coconut wood products manufactured from senile coconut stems that will contribute positively to the value chain
- Examine potential operation models
- Establish the costs of each production stage
- Examine the potential market rates of return

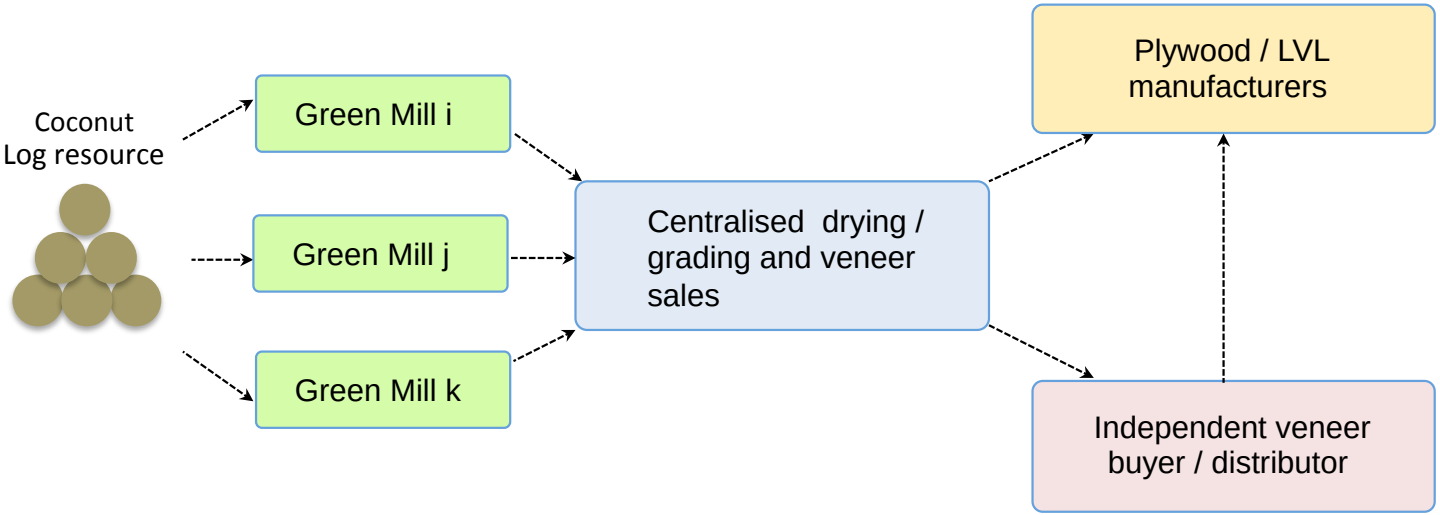
Objective 1 -1.2 Value chain analysis

Operation Model 1 – Smaller scale firms making veneer for sale, possibly smaller island locations



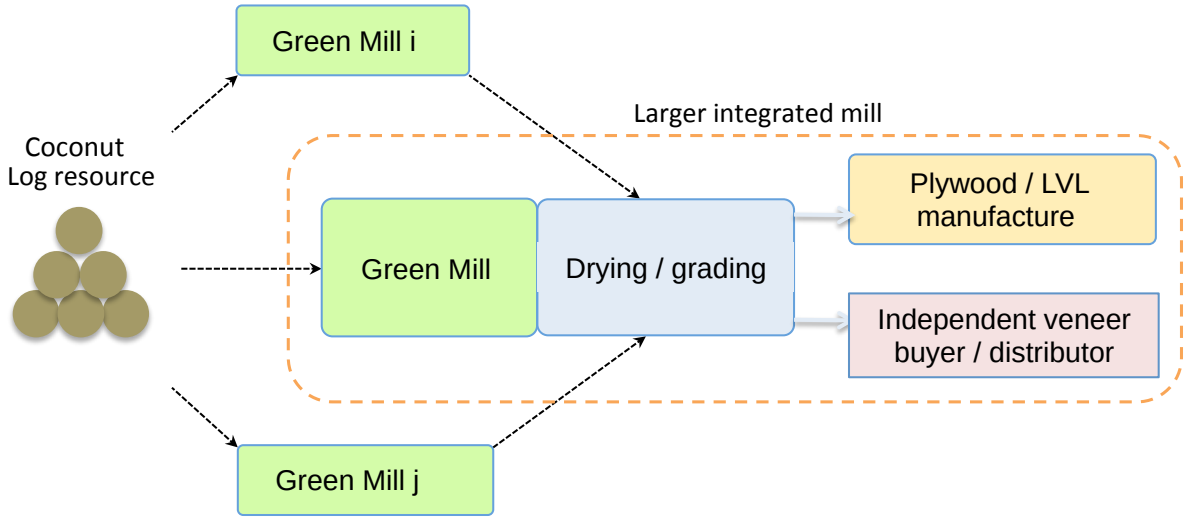
Objective 1 -1.2 Value chain analysis

Operation Model 2 – Small-medium scale firms supplying a central drying and grading facility



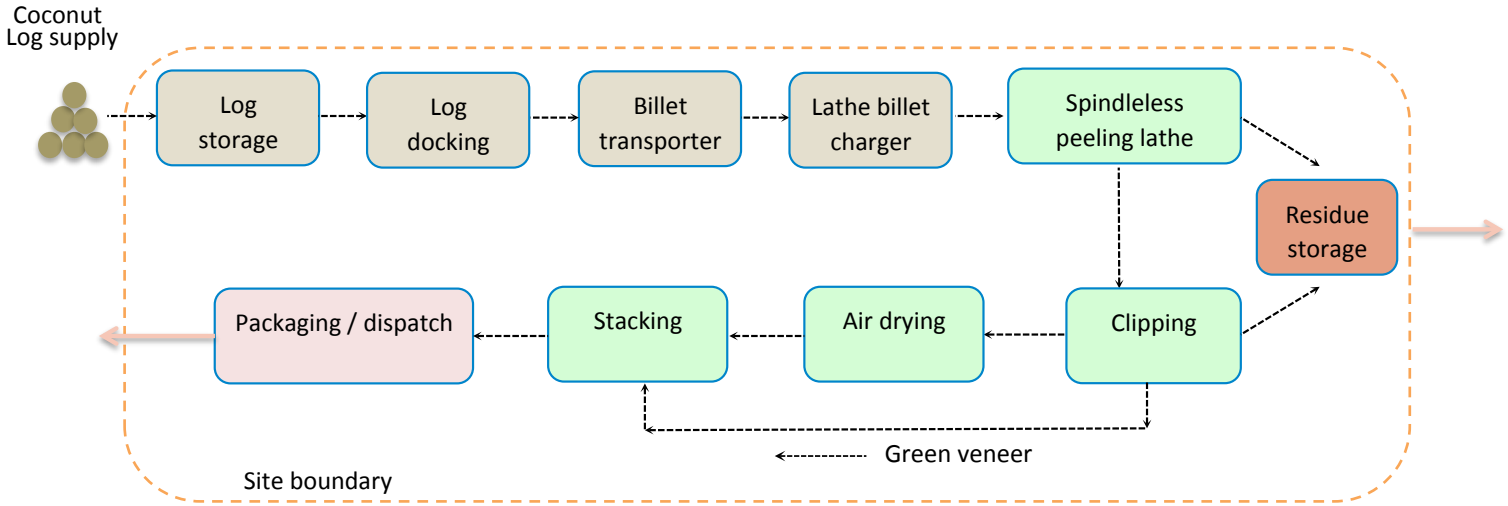
Objective 1 -1.2 Value chain analysis

Operation Model 3 – Larger scale firms, possibly in regional centre locations



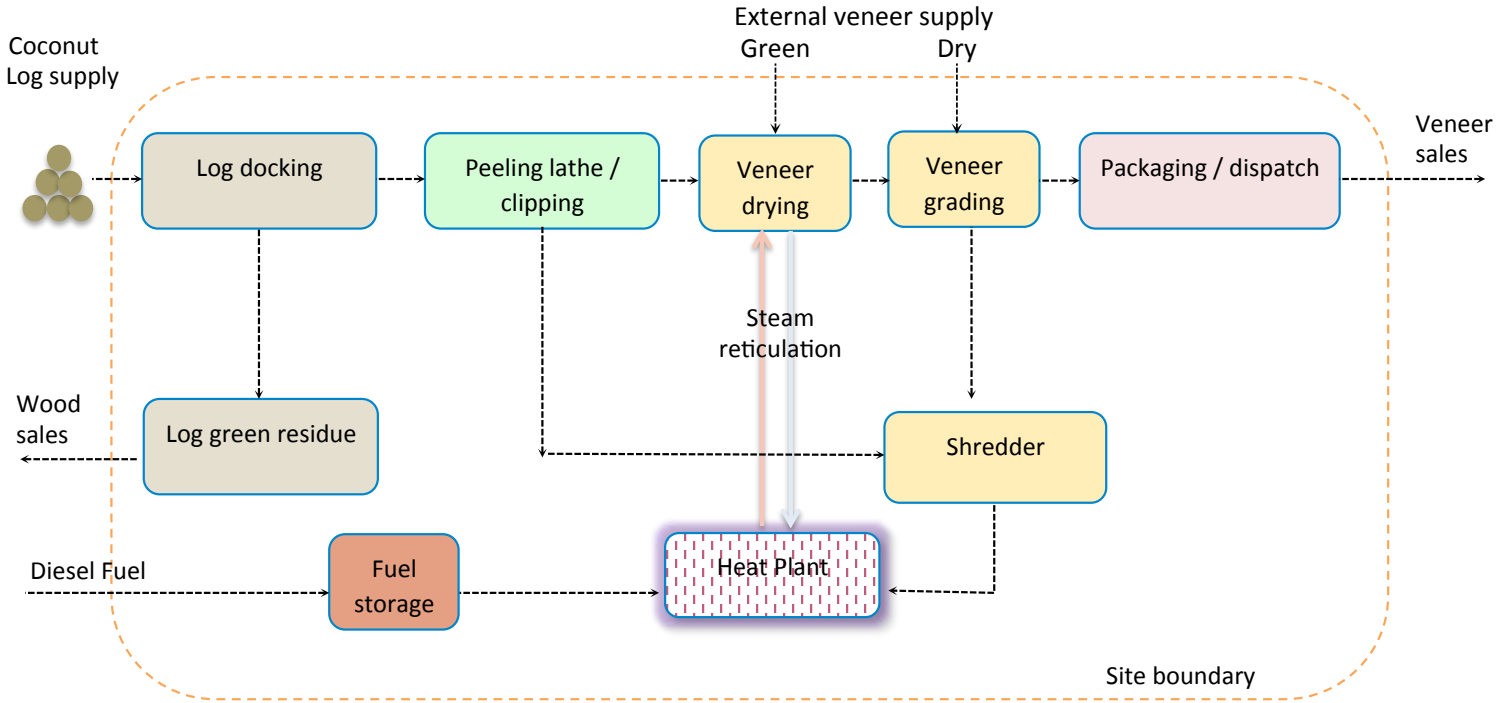
Objective 1 -1.2 Value chain analysis

Operation model 1: Small-scale green or air-dried veneer production



Objective 1 -1.2 Value chain analysis

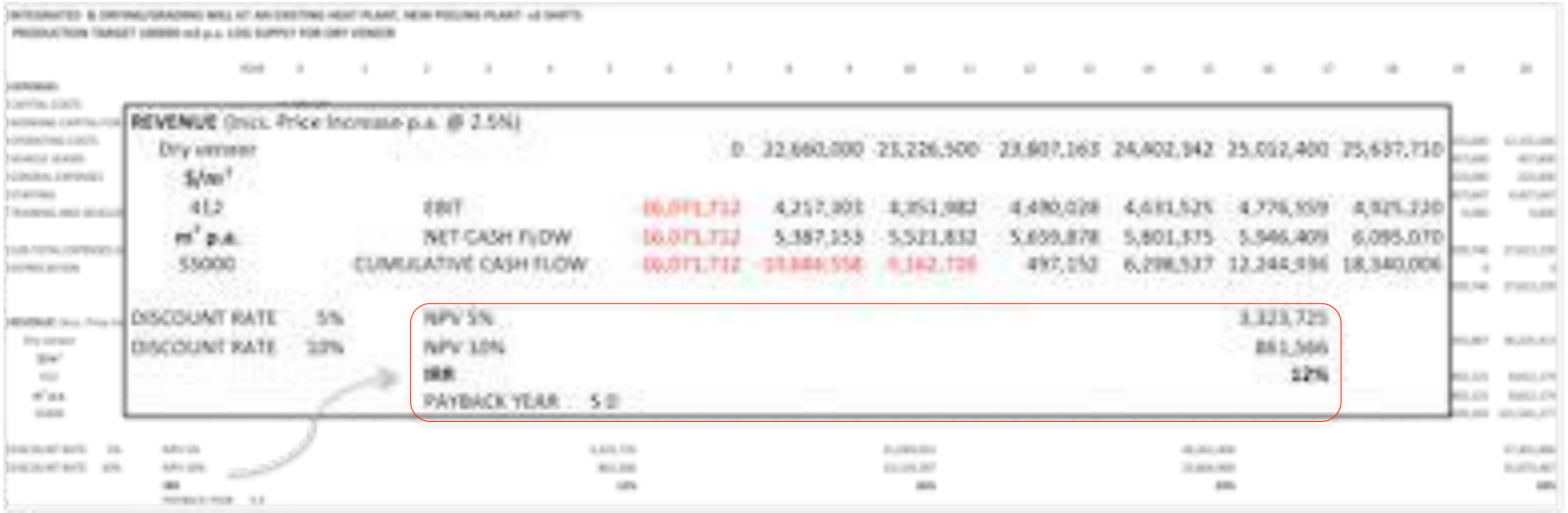
Operation Model 3 – Larger scale firms, possibly in regional centre locations



Objective 1 -1.2 Value chain analysis

OPERATING COSTS p.a.		$cost/unit	units p.a.	$Total Cost p.a.
Log resource m3		90	100000	9000000
Packaging m3		1	55000	55000
Electricity MW.Hours		150	5300	795000
Diesel for Dryer Start-up Ltrs		1.2	40000	48000
Equip./ maintenance /hr		18	5700	102600
Rates Premises		1	40000	40000
Premises rental		1	175000	175000
Consumables /m3		2	55000	110000
Wrapping/Packaging /m3		5	55000	275000
Fuel		10	18000	180000
Freight to wharf /m3		25	55000	1375000
			$Total annual	12155600
Logs -Dry Veneer Recovery	55%			
REVENUE p.a.				
(cutting Av. 5 m3 /hour/lathe)				
Dry veneer sales		413	55000	22715000
GENERAL EXPENSES p.a.				
Auditing and Legal 0.5%				35000
Insurance				150000
Water Rates / Fees				29000
Office Equipment				5000
Phone / Communications				4000
			$Total annual	223000

Objective 1 -1.2 Value chain analysis



Objective 1 – Identify Markets

Identify markets

1.3 – Stakeholder engagement

- Stakeholder engagement meetings.
  - Impact in partner countries is fundamental to the project
- Website and resources
- Training

1.3 Stakeholder Engagement

Recent trips to PCs by Australian project team:

2014: Equipment installation and Annual meeting.

2015: Collaborator briefing in Fiji, Samoa, and Solomon Islands, harvesting and mill trials, equipment installation and Annual meeting.

1.3 Stakeholder Engagement

1.3 Stakeholder Engagement

- Broadened stakeholder engagement.
- Cocowood.net website updated with new videos.
- Regular project research notes to be circulated through:
  - the website,
  - contacts in the PCs and
  - Coconut newsgroup.

1.3 Stakeholder Engagement

Training

- Ms. Moana Masau has completed the UTAS Graduate Certificate Timber (Processing and Building).
- Crawford funding sought for 6-week placement of Moana Masau and Ilikimi Bokadi at QDAFF during Sept-Oct 2015.
- TUD process team peeling 30 logs next week after hands-on training this week.

Summary

- Initial product suite has been defined.
- Final product suite definition will be confirmed after initial assembly.
  - VTB material being delivered today.
- Value chain mapping.
  - Enterprise models have been identified
  - Product cost and returns data population is underway.
  - Veneer recovery values will be confirmed from assessment of Fijian peeling trials.
- Stakeholder engagement is being accelerated.

Objective 1 – Identify Markets

Identify markets

Key completion dates –

Activity	Planned	Actual
1.1 Initial market demand assessed	October 2012	October 2013
1.1 Initial product suite defined	February 2013	August 2015
1.2 Interim value chain analysis	February 2014	ongoing
1.3 Cocowood website updated	October 2012	November 2012
1.3 Stakeholder meetings	July 2013	August 2013
	May 2014	August 2014
	April 2015	August 2015

Questions