

CocoVeneer: Equipment suite



Peeling coconut –
Equipment suite

Content



Base equipment suite.

- Log heating unit
- Spindle-less lathe
- Handling equipment
- Veneer drying
- Support infrastructure
 - Electrical supply
 - Log and veneer handling and storage

Regional trial costings

Log heating unit



- To ensure high-quality CocoVeneer, logs pre-conditioning is required.
 - A temperature $\sim 70 - 80^{\circ} \text{C}$ should ideally occur through the log.
 - This requires prolonged exposure to high temperatures and moisture.

Log heating unit



Gas-fired hot water bath: TUD Suva
Experimental volume unit only



Boiler-driven steam chambers: VTB Labasa

Log delivery in the lathe



Log deck: TUD Suva



Log deck: VTB Labasa

Spindle-less lathe

The project selected a robust 4 ft. Malaysian lathe, designed for palm. Unit specification focused on peeling coconut

- Drive rollers are grooved to increase log grip.
- Pressure drive is hydraulic allowing more direct control.



Spindle-less lathe

- The base unit was upgraded to increase safety and control.
- Programmable control equipment was installed.



Spindle-less Lathe

- Guards, electrics, stop switches, and other safety equipment were upgraded.



Veneer handling

- Veneer must be drawn away from the lathe on conveyors as it is peeled.
- The veneer ribbon is then clipped to the required size.



Veneer handling



Basic production suite in place



Drying the veneer



- Peeled veneer has a high moisture content and must be dried before further processing.
 - Material stored or transported green is prone to fungal infection.
- Industrial veneer operations invariably use large, boiler-driven jet box dryers.
- Smaller operations may air or kiln dry the material.

Industrial veneer dryers



Large commercial jet box dryer



Jet box dryer: VTB Labasa

Smaller scale air drying



Veneer racked for air drying



Container solar-assisted kiln: TUD Suva

Support infrastructure



Lathe lines need support infrastructure:

- Forklifts and log handling equipment.
- Log yard
- Electricity supply
 - sufficient to drive the equipment.
- Heat source
- Veneer storage areas.

Regional trial costing

- Project objective 3.2 was *Assessing the potential of a regional trial and demonstration program*
- Three regional trial locations and four sites in rural Fiji, Samoa and the Solomon Islands were assessed for their potential to operate a lathe.
- Costs for acquiring lathe equipment suite for regional demonstration were established.



Estimated total cost

Project cost summary (\$)	Option 1	Option 2	Option 3
• Personnel	• \$100,997	• \$102,636	• \$105,534
• Supplies and services	• \$34,093	• \$29,193	• \$23,217
• Travel	• \$48,293	• \$47,337	• \$47,337
• Capital items	• \$39,898	• \$153,398	• \$378,148
• Contingency	• \$50,238	• \$74,827	• \$124,703
• Total	• \$273,519	• \$407,391	• \$678,939

A report detailing capital and other costs is available
at: www.cocowood.net.

Costs do not include full log preconditioning capacity.

Summary

- The base components of a lathe equipment suite for peeling coconut regionally and general costs have been established and are available.
- Equipment capital costs will vary considerably with the intended scale of the facility.
 - Large scale operations need major capital items such as a boiler and veneer dryer.

Questions

