Objective 3

Establish experimental veneer-peeling capacity in the South Pacific
Project objectives

Identify markets ➔ Forestry: stem harvesting ➔ Peeling in S. Pacific ➔ Assemble and test products

By-product utilisation

Advanced veneer and other product from coconut wood
Objective 3 – South Pacific veneer peeling capacity

Identify markets → Forestry: stem harvesting → Peeling in S. Pacific

By-product utilisation

Assemble and test products

Peeling trials
Objective 3 – South Pacific veneer peeling capacity

- Peeling in S. Pacific
- Peeling trials
Objective 3 – Establish experimental veneer-peeling capacity in the South Pacific

3.1 – Commissioning a spindleless lathe equipment

3.2 – Assessing the potential of a regional trial and demonstration program
3.1 – Commissioning a spindleless lathe equipment

- Lathe equipment suite procured and commissioned at QDAFF
- Lathe modifications carried out at QDAFF
- Peeling facility then established in Fiji
3.1 Commissioning Spindleless Lathe

- Overall equipment suite required
  - Pre-conditioner
  - In-feed
  - Lathe
  - Out-feed/clipper
  - Veneer handling
  - Drier
  - Blade sharpener
3.1 Commissioning Spindleless Lathe

Pre-conditioner

*Heating the stem to soften fibres to simplify peeling*

- Boiler driven steam chamber or fire bath
- Optimum solution depends on technical requirements infrastructure present

Stem in-feed

*Delivers the conditioned stem to the lathe*

- Manufactured locally
3.1 Commissioning Spindleless Lathe

Lathe

Peels the stem into veneers
Out-feed/clipper

*Receives the veneer from the lathe and clips to desired sheet size*

- Rotary clipper
- Clips at set time intervals
- Purchased
3.1 Commissioning Spindleless Lathe

Sprayers
Apply fungicide to the veneers
- Manufactured locally from off the shelf components

Veneer handling
Moving, packing and processing veneer
- Scissor lift procured locally
- Manual handling
3.1 Commissioning Spindleless Lathe

Veneer drier
- Has significant affect on veneer quality
- Large heat source typically required
- Preferred solution depends on infrastructure present and technical requirements - TBC

Blade sharpener
- Commercial operations change blades several times daily
- Blade sharpening by local industry partner under agreement (VTB)
3.1 Commissioning Spindleless Lathe

<table>
<thead>
<tr>
<th></th>
<th>Adapted/locally assembled</th>
<th>Specification TBC</th>
<th>Ordered (May ’13)</th>
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<tbody>
<tr>
<td>1.</td>
<td>Stem conditioning</td>
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<tr>
<td>2.</td>
<td>Stem in-feed</td>
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<td>3.</td>
<td>Lathe</td>
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<td>4.</td>
<td>Veneer out-feed and clippers</td>
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<td>5.</td>
<td>Sprayers</td>
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<td>6.</td>
<td>Veneer handling equipment</td>
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<td>7.</td>
<td>Veneer dryer</td>
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<tr>
<td>8.</td>
<td>Blade sharpener</td>
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</tbody>
</table>
Lathe procurement

- 11 lathe manufacturers researched
- Potential manufacturers identified in China and Malaysia
- Shanghai WoodExpo 2013 visited
- Manufacturers visited in
  - China (BSY, Jhine, Raute)
  - Malaysia (Tajamas)
3.1 Commissioning Spindleless Lathe

- Tajamas preferred manufacturer:
  - Robust lathe construction
  - Hydraulic peeling progression allows robust modification for senile coconut
  - Manufacturer has experience with coconut
  - English-speaking merchant in Australia

6-7 year old lathe peeling coconut
3.1 Commissioning Spindleless Lathe

- Lathe ordered to be delivered to QDAFF August 2013
- Lathe modifications to commence immediately once delivered
- Peeling trial 2 to be completed on newly modified lathe by February 2014
- Lathe decommissioned in QDAFF and moved to Fiji Forestry Research Centre (commissioned by July ‘14)
Objective 3 – Experimental regional peeling

3.2 – Assessing the potential of a regional trial and demonstration program

- Feasibility of transporting the lathe suite between regional centres will be assessed
  - Technical
  - Economic
  - Physical
3.2 Regional trial program assessment

- Contact has been made with potential regional collaborators in Taveuni, Samoa, and the Solomon Islands
- Some potential sites visited
- Precedents for remote lathe operations gathered
- Assessment for infrastructure requirement commenced
3.2 Regional trial program assessment

Key infrastructure requirements

- Organisational
- Transport (road and sea)
- Stem resource
- Electrical power
- Heating/drying
3.2 Regional trial program assessment

Overall peeling line requirements

• Peeling line requires various individual pieces of equipment
• Specification for each piece of equipment noted
• Either purchase/modify/source locally

<table>
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<th>Specification</th>
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</table>

- Spindleless lathe
- Name/spec: (example) BSY SL1350/4
- Weight: 7000kg
- Shelter: Rain protection but not necessarily enclosure
- Space in transit: 3300x1900x1600 (LWH)
- Space in use: 3500x2000x1600 (LWH)
- Heat: N/A
- Power: 35kW
Remote lathe operation
- Precedents of remote, regional peeling operations
- ‘Low-tech’ spindleless lathes in rural locations
- Pre-conditioning and drying requirements for cocoveneer in regional locations will be more onerous than for logs peeled typically
3.2 Regional trial program assessment

Spindleless lathe peeling on temporary set-up at Shanghai wood Expo
Summary

• Lathe suppliers researched and visited
• Lathe ordered for delivery to QDAFF in August 2013
• Veneer clipper ordered
• Veneer production support equipment researched and specification being developed as technical requirements established
• Precedents exist for lathes operating in regional locations
• Specification for overall equipment suite and likely options for regional trials being developed
• Possible regional trial partners identified and key infrastructure requirements for possible site being developed
Summary

- Precedents exist for lathes operating in regional locations
- Specification for overall equipment suite and likely options for regional trials being developed
- Possible regional trial partners identified and key infrastructure requirements for possible site being developed
### Key completion dates –

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<tr>
<th>Activity</th>
<th>Planned</th>
<th>Actual</th>
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<tbody>
<tr>
<td>Lathe procured and commissioned at QDAFF</td>
<td>August 2013</td>
<td>Nov 2013*</td>
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<tr>
<td>Lathe suite relocated to Fiji</td>
<td>January 2014</td>
<td>June 2014*</td>
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<tr>
<td>Assessment of potential regional peeling program</td>
<td>July 2014</td>
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* Revised proposal
### Objective 3 – South Pacific veneer peeling capacity

#### Key activities next 12 months –

<table>
<thead>
<tr>
<th>Activity</th>
<th>Anticipated completion</th>
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<tbody>
<tr>
<td>Installation and modification of new lathe at QDAFF</td>
<td>November 2013</td>
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<tr>
<td>Complete specification for ancillary peeling equipment</td>
<td>January 2014</td>
</tr>
<tr>
<td>Report on assessment of regional peeling trial program</td>
<td>July 2014</td>
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