



**PAPUA NEW GUINEA
FOREST INDUSTRIES ASSOCIATION (INC)**

Sustained Forest Industry for Papua New Guinea



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**THE UTILIZATION
OF
PAPUA NEW GUINEA
TIMBERS**

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THE UTILIZATION OF PAPUA NEW GUINEA TIMBERS

INTRODUCTION

Tropical forests usually include a large number of timber species. Papua New Guinea is no exception, where a multitude of species make up the lowland rain forest complex. The lowland rain forest system is the major forest type in Papua New Guinea and contributes the major percentage of the commercial timber species both for the domestic and the export market.

The flora is somewhat similar in composition to that of the tropical rain forests of North Queensland in Australia and not unlike in species composition to parts of Africa. This similarity however does not extend into Malaysia where the species composition differs remarkably in that the flora there is dominated by the family Dipterocarpaceae. This family produces a number of well known timber species that have been widely accepted on the world export markets for many years.

Among these are the meranti, Lauan or Seraya groups (*Shorea* spp.), Balau (*Shorea* spp.), Kapur (*Dryobalanops* Spp.), Keruing (*Dipterocarpus* spp.), Chengal (*Balanocarpus* spp.), Giam and Merawan (*Hopea* spp.) and Mersawa (*Anisoptera* spp.). The main reason that these timbers have been in popular demand is nothing less than log quality, availability and continuity of supply. There is nothing unique in the quality or the end use of these timbers. Comparable (and better) species are available in Papua New Guinea, as detailed later in this paper.

The high value of Papua New Guinea timbers has already been recognized and accepted by discriminating importers and end users due to their many specialized and variable end uses. Timbers such as Taun, Calophyllum, Erima, Malas, Water Gum and Kamarere are now well established on overseas markets and the demand for these timbers and others is steadily increasing. It should be noted and appreciated, that any timber regardless of origin, will serve the purpose it was meant for providing that ignorance of the timbers' properties does not prevail, and that it is applied to its correct end use.

THE MAJOR COMMERCIAL TIMBER SPECIES OF PAPUA NEW GUINEA

The following list of timber species are those recognized as being the major exportable hardwood timbers harvested in Papua New Guinea. These timbers can be considered as being readily available in all sawn size specifications from the main timber areas.

STANDARD TRADE COMMON NAME	SCIENTIFIC NAME	FAMILY GROUP
Alstonia	<i>Alstcniā scholaris</i>	Apocynaceae
Amberoi	<i>Pterocymbiwn beccarii</i>	Sterculiaceae
Beech	<i>Nothofagus</i> spp.	Fagaceae
Calophyllum	<i>Calophyllum</i> spp.	Guttiferae
Cedar, pencil	<i>Palaquiun</i> spp.	Sapotaceae
Erima	<i>Octomeles sumatrana</i>	Tetramelaceae
Gum, water	<i>Suzygiun</i> spp.	Myrtaceae
Kamaxere	<i>Eucalyptus deglupta</i>	Myrtaceas
Kwila	<i>Intsia bjiuga, I. patanbanica</i>	Leguminosae
Labula	<i>Anthocephalus chinensis</i>	Naucleaceae
Malas	<i>Homaliun foetidun</i>	Flacourtiaceae
Mersawa	<i>Anrisoptera thurifera</i>	Dipterocarpaceae
Planchonella, red	<i>Planehonella</i> spp.	Sapotaceae
Planchonella, white	<i>Planehonella</i> spp.	Sapotaceae
Spondias	<i>Spondias cytherea</i>	Anacardiaceae
Terminalie, brown	<i>Terminalia braseii</i>	Combretaceae
Terminalia, pale brown	<i>Terminalia</i> spp.	Combretaceae
Terminalia, red brown	<i>Terminalia</i> spp.	Combretaceae
Terminalia, pale yellow	<i>Terminalia</i> spp.	Combretaceae
Terminalia, yellow brown	<i>Terminalia</i> spp.	Combretaceae
Taun	<i>Pometia pinnata</i>	Sapindaceae
Walnut	<i>Dracontomelon dao</i>	Anacardiaceae

In addition to the aforementioned group there are many other species that have export potential and have already found market acceptance. Species like Antiaris, Basswood, Burckella, Camnosperma, Canarium, Celtis, Dillenia, Litsea, Nutmeg, Pink Satinwood, Sloanea, Sterculia and Vitex have found high value end use in Australia, Japan and other countries. Although not available in large volumes steady supplies of logs and sawn parcels can be arranged.

DENSITY/COLOUR & OTHER GROUPINGS OF P.N.G. TIMBERS

Group 1

Soft - Density 300-450 kg/m³ @ 12% moisture content.

1.1 White species.

Alstonia, Amberoi, Basswood, Labula, Sterculia, Magnolia, Quandong, White Albizia, Bulolo Ash, Chrysophyllum, Euodia, White Siris, Grey Milkwood.

1.2 Pale coloured species. (Pink, Pale Brown, etc.)

Erima, Spondias, Antiaris, Camptosperma, Litsea, Nutmeg, Pink Satinwood, Tetrameles, Fig, Cananga, Duabanga, Hernandia, Lophopetalum.

Group 2

Moderately Soft - Density 450-600 kg/m³ @ 12% moisture content.

2.1 White or Pale coloured.

White Planchonella, Grey Canarium, Celtis, Sloanea, Wau Beech, White Beech, Silver Ash, Heavy Euodia, Pimeleodendron, Polyalthia, Yellow Cheesewood, Candlenut.

2.2 Pink - Red - Red Brown.

Amoora, Calophyllum, Pencil Cedar, Red Planchonella, Terminalia, Dillenia, Kiso, Mango, Vatica, Pink Birch, Cryptocarya.

Group 3

Moderately Hard - Density over 600 kg/m³ @ 12% moisture content.

3.1 Pale coloured.

Mersawa, Heavy Celtis, Vitex, Oak, Garo Garo, Yellow Hardwood, Kandis, White Tulip Oak, Scaly Ash, Heavy Alstonia, Boxwood, Drypetes, Neoscortechinia, Saffron Heart, Green Satinheart, Hickory Ash.

3.2 Dark coloured - Reds.

Aglaiia, Beech, Kamarere, Taun, Burckella, Heritiera, Kempas, Malaha, Manilkara, Planchonia, Java Cedar, Red Dysox, Tulip Plum, Tea Tree, Tristiropsis, Gordonia, Galip.

3.3 Dark coloured - Browns.

Water Gum, Malas, Hopea, Kwila, Kasi Kasi, Black Mangrove, Red Mangrove, Maniltoa, Busu Plum, Swamp Box.

Specialty Timbers

Walnut, Ebony, Rosewood, Red Cedar, Mangrove Cedar, *Coachwood*, Hekakoro, Scented Maple, Silkwood Maple, Pink Silky *Oak*, *Silky Oak*, Pericopsis, Island Walnut, Wattle.

Conifers

Dacrydium, Kauri Pine, Klinki Pine, Hoop Pine, Celery-Top Pine, Libocedrus, Podocarp.

Note:

Outside of the major commercial species most of the other species listed are in limited supply.

P.N.G. TIMBERS AS SUBSTITUTES FOR MALAYSIAN AND AFRICAN SPECIES

As previously indicated in the introduction of this paper, tubers become established on foreign markets due to availability and continuity of supply. Once a specific timber has been introduced and accepted in a country, it is difficult to introduce a new species as the consumer is wary and reluctant to change from a timber that he knows and on which he has established his product.

This line of thinking is well understood and appreciated. However, if a substitute species can be offered, the offer is supported by a guarantee of supply, and technical information is available which indicates that the substitute species is similar in all respects to the established species, then the consumer can be more confident and less reluctant in his acceptance of the substitute species.

It is well known that a number of established timbers that have graced the world markets for many years are now in increasingly short supply and in the very near future supplies of these once accepted species will no longer be as readily available as in the past. The importer and the end user who is prepared to act now, investigate alternative substitutes and test the current market will be a long step ahead of his competitors and must benefit in the future from having established his own market outlets with the new species.

It is realised that the acceptance of some of the established timber species is due to the grain quality or highly decorative figure which is sought for aesthetic appeal. In many cases the suggested P.N.G. substitute is equivalent to its well known counterpart and in some cases is considered as being superior.

Where timbers are not sought for appearance or decorative values (covered/painted work etc.) the P.N.G. substitute listed has in most cases better machining and finishing qualities. It is considered that many timber species are suitable for most end products but their acceptance into sophisticated markets must be pioneered by the importer and marketed into their correct end use.

Many timbers suffer through lack of promotion and proper marketing and P.N.G. timbers are no exception. The blame for certain P.N.G. timbers not being widely acceptable in the past is for a number of reasons.

1. Difficulty in identifying the species in the bush.
2. Irregular supplies.
3. Incorrect marketing into the wrong end use.
4. No supporting data on the timbers physical or mechanical properties.
5. Poor sawing and grading.

These problems among others are recognised and accordingly are being ratified. However, it must be realised that to enable full utilisation of the forest resource a great deal of knowledge, expertise, and appreciation of marketing problems is required.

The following is a short list of some of the better known world timbers with the recommended PNG timber species which can be used confidently as a substitute.

TIMER (TRADE NAME)	SCIENTIFIC NAME	RECO PNG SUBSTITUTE OR EQUIVALENT (TRADE NAME)	SCIENTIFIC NAME
Afara/Limba	<i>Terminalia suberba</i>	Yellow-brown, Terminalia	<i>Terminalia calamansanai</i> <i>Terminalia megalocarpa</i>
Afrormosia	<i>Afrormosia elata</i>	Vitex	<i>Vitex cofassus</i>
Balau	<i>Shorea app.</i>	Hopea	<i>Hopea spp.</i>
Giam/Merawan	<i>Hopea spp.</i>	Malas	<i>Homalium foetidum</i>
Kapur	<i>DryobaZanopa spp.</i>	Water Gum	<i>Syzygium spp.</i>
Keruing	<i>Dipterocarpus spp.</i>		
Banak	<i>ViroZa spp.</i>	Nutmeg	<i>Myristica spp.</i>
Bintangor	<i>CaZophyZZwn spp.</i>	Calophyllum	<i>Calophyllum spp.</i>
Bubinga .	<i>Guibourtia pellegriniana</i>	Walnut	<i>Draconromelon dao</i>
Dao	<i>Dracontomelon dao</i>	Walnut	<i>Dracontomelon dao</i>
Idigbo	<i>Terminalia ivorensis</i>	Pale yellow, Terminalia	<i>Terminalia complanata</i> <i>Terminalia longespicata</i>
Jelutong	<i>Dyera costulata</i>	Alstonia	<i>Alstonia schoZaris</i>
Kedondong	<i>Canarium spp.</i>	Grey Canarium	<i>Canarium spp.</i>
Matoa	<i>Fometia acwninata</i>	Taun	<i>Pometia pinnata</i>
Meranti/ Lauan/Seraya	<i>Shorea spp.</i>	Calophyllum talip Taun Terminalia	<i>Calophyllum spp.</i> <i>Canarium indicum</i> <i>Fometia oinnata</i> <i>Terminalia spp.</i>
Mersawa	<i>Anisoptera spp.</i>	Mersawa	<i>Anisoptera thurifera</i>
Mutenye	<i>Guibourtia arnoldiana</i>	walnut	<i>Dracontomelon dao</i>
Nyatoh	<i>Caporaceae</i>	Burckella Pencil Cedar" Red Planchonella	<i>Burckella spp.</i> <i>Palaquium spp.</i> <i>Planchonella spp.</i>
Obeche/Mawa	<i>Triplochiton scleroxylon</i>	Amberoi Basswood Labula	<i>Pterocymbium beccarii</i> <i>Endospermon spp.</i> <i>Anthocephalus chinensis</i>
Okoume	<i>Aucoumea klaineana</i>	Erima	<i>Octomeles sumatrana</i>
Ramin	<i>Gonystylus spp.</i>	Basswood Labula Mersawa white Planchonella	<i>Endospermum spp.</i> <i>Anthocephalus chinensis</i> <i>Anisoptera thurifera</i> <i>Planchonella kaernbachiana</i>
Sapele	<i>Entandrophragma Zinaricum</i>	Kamarere	<i>Eucalyptus deglupta</i>
Simpoh	<i>Dillenia spp.</i>	Dillenia	<i>Dillenia spp.</i>
Taluto	<i>Fterocymbium tinctorium</i>	Amberoi Sterculia	<i>Pterocumbium beecarii</i> <i>Sterculia spp.</i>

P.N.G. TIMBERS FOR SPECIFIC USES

The selection of timbers for specific uses is governed by a number of factors and combinations applicable to the end use. Factors such as strength, density, shrinkage, colour, hardness, durability, ease of working, seasoning properties, resistance to insect attack, permeability to pressure treatment and availability and cost have to be considered in determining the species most suitable for any and-use.

The following lists of uses and recommended species are by no means exhaustive. The desirable characteristics for the various uses are described and the timbers considered suitable for these uses are given.

BEARINGS, SLIDES

Hardness and even wear. An oily or greasy texture is an advantage.

garo garo
green satinheart
kandis
kasi kasi
manilkara
saffron heart
vitex
yellow hardwood

BEEHIVES

Lightness and hardness. Availability in wide boards

kauri pine
klinki pine
hoop pine
labula
podocarp (all species)
white planchonella

BLOCKBOARD

Low density, good gluing and machining properties, stability in service. Available in large volumes and cheapness.

alstonia
amberoi
antiaris
basswood
camptosperma
erima
labula
litsea
nutmeg
quandong
spondias
sterculia
white siris

BOXES (including fruit cases)

Pale colour, low density, printability, good nailing properties. Availability and cheapness.

antiaris
basswood
euodia fig
grey milkwood
hoop pine
kauri pine
klinki pine
labula
litsea
magnolia
podocarp (all species)
polyalthia

BOXES BEE

light easily worked timbers, non tainting.

hoop pine
kauri pine
klinki pine
labula
quandong
white planchonella

BRIDGE & WHARF SUPERSTRUCTURE

Density, mechanical strength, availability of suitable sizes. High natural durability or permeable to vacuum pressure treatment.

*busu plum (in the round)
*drypetes
*garo garo
green satinheart
*heavy alstonia *heavy
celtis
hopea
kasi kasi
kwila
*malas
manilkara
saffron heart
tea tree
vitex
*white tulip oak
yellow hardwood

*Permeable to pressure treatment

BRUSHWARE

Fine texture, clean boring, non-splitting, good gluing, freedom from tannins, good appearance, good finishing properties.

beech
black ebony
coachwood
gordonia
hoop pine
kauri pine
kiso
klinki pine
labula
litsea
magnolia
nutmeg
pencil cedar
pink birch
pink silky oak
podocarp (all species)
polyalthia
quandong
red planchonella
silkwood maple
sloanea
white planchonella

FURNITURE

a) Production Line Furniture.

amoor
burckella
calophyllum
coachwood
galip
gordonia
grey canarium
kamarere
mersawa
pencil cedar
pink birch
red planchonella
taun
tristirops

b) Quality-Fine Finish

aglaia
beech
hekakoro
kwila
malaha
mangrove cedar
oak
pericopsis
pink silky oak
red cedar
red dysox
rosewood
scented maple
silkwood maple

silver ash
walnut
wattle
Wau beech

c) Plain & Kitchen Furniture.

Bulolo ash
candlenut
celery-top pine
chrysophyllum
duabanga
euodia
grey milkwood
hoop pine
kauri pine
klinki pine
labula
magnolia
Papuan silver ash
podocarp (all species)
terminalia (pale brown & pale yellow group)
white beech
white planchonella

d) Outdoor/Garden Furniture

beech
hopea
kempas
kwila
libocedrus
maniltoa
neoscortechinia
red cedar rosewood
vatica
vitex
Wau beech

CARVING including ARTIFACTS

Fine, even texture, smooth and easy cutting, low shrinkage and movement.

a) Natural finish

black ebony
hekakoro
island walnut
kwila
mangrove cedar
pencil cedar
red cedar
rosewood
vitex
walnut
Wau beech

b) Artificial finish (stains, dyes etc.)

alstonia
basswood

chrysophyllum
euodia
grey milkwood
labula
magnolia
quandong
white albizia
white planchonella
white siris

CLOG SOLES

Fine, texture, low density, ability to shape cleanly, good nailing properties, non-splitting in service.

cananga
euodia
grey milkwood
hernandia
labula
magnolia
milky mangrove
red cedar
white beech
white siris

DECKING, BRIDGE

Hardness, smooth wearing, high mechanical strength, non-splitting, high natural durability of permeable to vacuum pressure treatment.

beech
*drypetes
*garo garo
green satinheart
hickory ash
hopea
kempas
kwila
*malas
manilkara
maniltoa
saffron heart
swamp box
vitex
yellow hardwood

*Permeable to pressure treatment.

DOWELS

Straight grain, medium density, good machining qualities, stability in service

alstonia
basswood
chrysophyllum
coachwood
euodia
hoop pine
kauri pine
klinki pine
labula
magnolia
Papuan silver ash
pencil cedar

podocarp (all species)
red planchonella
silver ash
taun
white cheesewood
white planchonella

FLOORING

a) Heavy Industrial

Moderately high to high density, hardness, abrasion resistance, good wearing qualities

drypetes
green satinheart
hickory ash
hopea
malas
manilkara
saffron heart
swamp box
vitex

c) Exposed - Decorative (Interior)

Good appearance, good machining qualities, low shrinkage, stability in service.

beech
gordonia
hopea
kamarere
kwila
light hopea
malaha
maniltoa
mersawa
pink birch
red dysox
taun
terminalia (red-brown & yellow-brown group)
vitex
wattle
Wau beech
yellow hardwood

d) Exterior (patios etc.)

High natural durability or permeable to vacuum pressure treatment, good machining qualities, non-splintering.

*garo garo
*heavy alstonia
*heavy celtis
hopea
kwila
*malas
vitex
yellow hardwood

*Permeable to pressure treatment.

e) Squash courts

Pale coloured timbers, good machining qualities, low shrinkage, stability in service, good wearing qualities.

garo garo
heavy alstonia
heavy celtis
kandis
mersawa
Papuan silver ash
scaly ash
silver ash
yellow hardwood

f) Sub-Floors (Domestic)

Most species are suitable when a floor is to be over-laid with carpet or vinyl covering. However, density, strength, shrinkage and machining properties must still be taken into account.

HANDLES, TOOLS

Select grade material, straight grain, strength, shock resistance, resilience, smooth working, non-splintering.

a) Impact (Axe, pick, hammer etc.)

drypetes
heavy hopea
heritiera
malas
manilkara
maniltoa
red mangrove
tulip plum

b) Non-impact (Spade, fork, rake etc.). as above and additionally:

beech
boxwood
garo garo
kamarere
kwila
marsawa
oak
planchona
red dysox
scaly ash
taun
tristiropsis
water gum
white tulip oak
yellow bardwood

MATCH BOXES

Soft, light, even texture. Good peeling qualities, ability to score clearly.

basswood
camptosperma
hoop pine
klinki pine

pink satinwood
podocarp (all species)

MATOP SPLINTS

Ability to peel smoothly, straight grain, pale colour, permeable, fairly soft but strong enough to be processed by automatic machinery.

alstonia
basswood
heavy eudia
hoop pine
klinki pine
podocarp (all species)
quandong
white albizia

MINING TIMBERS

High natural durability or permeable to vacuum pressure treatment, high strength properties.

*busu plum
green satinheart
hopea
kwila
*malas
manilkara
red mangrove
saffron heart
tulip plum
yellow hardwood

*Permeable to pressure treatment

MOULDINGS

Good machining properties, smooth working, fine texture, good quality, long lengths.

alstonia
basswood
chrysophyllum
cryptocarya
euodia
hoop pine
kauri pine
kiso
klinki pine
labula
libocedrus
litsea
nutmeg
pencil cedar
podocarp (all species)
quandong
red planchonella
sloanea
white beech
white planchonella

PATTERN MAKING

Fine uniform texture, soft, light, easy and smooth to work. Low shrinkage, stability after seasoning.

- alstonia
- basswood
- Bulolo ash
- Euodia
- red cedar
- white albizia
- white beech
- white siris

PILES

As there are no commercial quantities of timber species naturally resistant to marine wood borer attack in Papua New Guinea, it is essential that all timbers considered suitable undergo preservative treatment. Tests being carried out by the Forest Products Research Centre indicate the following timbers that were pressure impregnated to a retention of 48 kg/m³ of copper-chrome-arsenic (Tanalith C) show promise.

- beech
- busu plum
- celery-top pine
- celtis
- garo garo
- highland podocarp
- hoop pine
- hopea
- kamarere
- *kasi kasi
- klinki pine
- labula
- libocedrus
- malas
- yellow hardwood

*Has been used extensively for piling (untreated) throughout the Milne Bay, . area where it has a good reputation. However, life span is unpredictable and supplies are extremely limited.

SLEEPERS

High natural durability or permeable to vacuum pressure treatment, resistance to weathering and mechanical breakdown, ability to hold fastenings firmly, availability in large volumes.

- black mangrove
- *heavy celtis
- hopea
- kamarere
- *klinki & hoop pine thinnings
- kwila
- *malas
- manilkara
- mersawa
- red mangrove
- vatica
- vitex
- water gum

*Permeable to pressure treatment.

SPORTING GOODS

Archery - Bows

Stiffness, high strength, high elasticity, straight grain.

saffron heart
scaly ash

Archery - Arrows

lightness, stiffness, straight grain, easy workability.

black podocarp
Bulolo ash
chrysophyllum
hoop pine
klinki pine
labula
libocedrus
magnolia
quandong
white plaachonella

Billiard Cue Butts

High density, good appearance, dark colour, attractive grain, smooth texture. Ability to turn or machine well, good finishing characteristics

black or striped ebony
dysox
hopea
Java cedar
manilkara
pericopsis

Billiard Cue Shafts

light colour, medium density, stiffness, straight grain, smooth turning properties.

garo garo
heavy alstonia
mersawa
scaly ash
Wau beech

Rifle Butts

Medium density, mechanical properties necessary to absorb recoil, absence of brittleness or tendency to split, ease of seasoning to a stress free condition, freedom from warping, low-shrinkage, fine uniform texture, good figure, good machining and finishing properties.

aglaia
coachwood
mangrove cedar
red dysox rosewood
silkwood
maple

SHINGLES

High natural durability or permeable to vacuum pressure treatment, easy to nail without splitting, freedom from warping or cupping after fixing.

alstonia
antiaris

basswood
black podocarp
cananga
candlenut
erima
euodia
klinki & hoop pine thinnings
labula
libocedrus
lowland podocarp
quandong
red cedar
spondias
tetrameles
white albizia
white siris
yellow cheesewood

VENEER

Sliced: Pronounced figure, attractive appearance, good drying and gluing properties.

aglaia
beech
black or striped ebony
hekakoro
island walnut
kamarere
mangrove cedar
oak
pencil cedar
pericopsis
pink silky oak
red dysox
rosewood
walnut
wattle

Rotary: Log quality, freedom from felling shakes, ability to peel smoothly, non-checking, good drying and gluing properties. The following have been widely used as face, backs and core-stock material.

Amberoid
*amoor
antiaris
*calophyllum
camnosperma
erima
grey canarium
*hoop pine
*klinki pine
labula
litsea
*lophopetalum
*mango
mersawa
pink satinwood
red cedar
red & white planchonella
*silkwood maple
*silver ash
sloanea

spondias
taun
terminalia (all groups)
*Wau beech
white beech

*General reserved for face veneer.

JOINERY (Exterior)

High natural durability or permeable to vacuum pressure treatment. Good machining and working properties.

*garo garo
green satinheart
*heavy alstonia
*heavy celcis
hickory ash
hopea
kwila
*malas
Manilkara
*neoscortechiaia
*pimeleodendron
saffron heart
vitex
yellow hardwood

*Permeable to pressure treatment.

PANELLING

Figure, colour, good machining and finishing properties, stability in service.

amoora beach
Bulolo ash
hopea
lophopetalum
mangrove cedar
oak
pink birch
pink silky oak
red cedar
rosewood
scented maple
silkwood maple
walnut
wattle
Wau beech

BOAT BUILDING

The following is a general-, short list of suitable Papua New Guinea timbers for the main parts of small craft: -

Stems - Deadwoods - Keels - Keelsons - Stern posts - Horn timbers. Floors - Engine beds.

garo garo
hickory ash
hopea
kwila
malas

manilkara
vitex
yellow hardwood

Planking and Bulkhead Sheathing.

celery-top pine
dacrydium
hoop pine
kamarere
kauri pine
klinki pine
libocedrus
podocarp (all, species)
red cedar
silkwood maple
silver ash
taun
terminalia (red-brown group)
vitex
Wau beech
white beech

Ribs - Stringers - Clamps - Gunwales - Sponsons – Carling

*beech
celery-top pine
dacrydium
hopea
heritiera
kempas
kwila
pencil cedar
quandong
red & white planchonella
rosewood
silkwood maple
silver ash
taun
vitex
water gum
Wau beech
whithe beach

Decking - Covering boards - Hatch covers.

celery-top pine
dacrydium
hoop pine
kauri pine
klinki pine
kwila
libocedrus
pencil cedar
podocarp (all species)
red & white
planchonella
silkwood maple
silver ash
taun

vitex
Wau beech
white beech

Masts - Sparts – Booms

black podocarp
chrysophyllum
hoop pine
klinki pine
labula
magnolia
Papuan silver ash
pencil cedar
polyalthia
red & white planchonella
silkwood maple
silver ash

Mooring and Towing Bitts.

heavy hopea
hickory ash
kwila
manilkara
vitex
yellow hardwood

Internal fittings, Linings, Finishing.

aglaia
amoora
beech
burckella
calophyllum
hoop pine
kauri pine
klinki pine
libocedrus
pencil cedar
pink silky oak
podocarp (all species)
red cedar
red dysox
rosewood
silkwood maple
taun
walnut wattle
Wau beech

TRUCK, LORRY BODIES

Good quality hardwoods, high mechanical strength, high natural durability or permeable to vacuum pressure treatment.

*drypetes
*garo garo
green satinheart
*heavy celtis

hopea
kandis
kempas
kwila
*malas
manilkara
maniltoa
mersawa
saffron heart
yellow hardwood

*Permeable to pressure treatment.

INVESTIGATIONS OF THE MECHANICAL, PHYSICAL PROPERTIES AND WORKING PROPERTIES OF PAPUA NEW GUINEA TIMBERS

There is no reason why Importers today should not have the fullest confidence in timbers from P.N.G. A great deal of Research has been done on all the major timber species of P.N.G. and this information is readily available to all interest persons.

Tests on P.N.G. timbers have been carried out over the years by a number of Research Organisations and are still continuing. Such institutions are: -

Timber Research and Development Association (TRADA) England.

C.S.I.R.O. - Melbourne, Australia.

Forest Products Research Centre - Hohola, P.N.G.

Forest Research Institute - Rotorua, New Zealand.

Forestry and Forest Products Research Institute - Ushiku, Ibaraki - Japan (formerly Government Forest Experiment Station)

The Wood Research Institute - Kyoto University - Kyoto, Japan.

From tests carried out by these institutions the following data is available on P.N.G. Timbers:-

- 1 The physical and mechanical properties of 90 timber species
- 2 Strength group classifications.
- 3 Air dry density and basic density evaluations
- 4 Shrinkage and movement figures
- 5 Seasoning and kiln drying schedules.
- 6 Pressure permeability
- 7 Lyctus susceptibility.
- 8 Marine biology.
- 9 Decay durability
- 10 Chemical characteristics.
- 11 Extractives
- 12 Sawing and machining properties.
- 13 Gluing - Painting and varnishing.
- 14 Pulp and paper investigations.
- 15 Peeling and slicing.
- 16 Manufacture of veneer and plywood.
- 17 Manufacture of particle board and hardboard.
- 18 Manufacture of charcoal.

THE P.N.G. SAWMILLING INDUSTRY TODAY AND TOMORROW

The P.N.G. sawmilling industry has gradually gained momentum over the years and is poised to make a significant contribution to meet the demands of overseas markets. The growth of the industry has been gradual, but has accelerated in recent years, and the experience gained, combined with the results of research studies and modern day technology, has lifted P.N.G. to the forefront as a potential major supplier of tropical hardwoods.

A significant step in endeavouring to co-ordinate the sawmilling industry in P.N.G. has been the establishment of the P.N.G. Forest Industries Council. Among the Council's aims are: -

1. To promote the interests of the members of the wood using industries in all practical ways.
2. To provide a liaison between the Timber Industry and the P.N.G. Government to discuss policy and other matters relevant to the development of the industry in P.N.G.
3. To promote and co-ordinate sales between the buyer and seller.
4. To seek to diversify overseas markets for P.N.G. Timbers and give technical advice where needed.
5. To improve the quality of sawn exports by encouraging grading to buyers' specification, and the institution and observation of satisfactory standards of marketing.
6. To improve shipping schedules and freight rates.

P.N.G. is a full member of the South East Asia lumber Producers' Association and the Forest Industries Council is actively engaged in the policies of this association together with representatives of the Office of Forests. All policy decisions made and technical matters discussed are aimed at reaching uniformity and standardisation of benefit to the producer and the buyer.

The P.N.G. Government through its Office of Forests is to set up and conduct a Timber Industry Training School in lae. The aim of this school will be to teach the fundamentals of sawing, saw sharpening and mill maintenance, and another course will be conducted on timber grading.

The Office of Forests and the Forest Industries Council is looking closely at all aspects of improving quality and presentation of sawn timber. Within the very near future sawn timber grading rules will be adopted and implemented in P.N.G. for the purpose of ensuring all timber parcels exported are at the grade specified by the buyer.

The establishment of drying kilns is now being pursued by the industry to meet the demands of importers. With the advent of grading rules and the operation of drying kilns the importer can look confidently to P.N.G. as a supplier of a high quality product.

REFERENCE: STANDARD TRADE NAMES AND SCIENTIFIC NAMES OF P.N.G. TIMBERS

STANDARD TRADE NAME	SPECIES
Aglaia	Aglaia spp.
Albizia, white	Albizia falcataria
Alstonia	Alstonia scholaris
Alstonia, heavy	Alstonia braasii, A. glabriflora, A. opectabilis
Amberoi	Pterocymbium beccarii
Amoora	Amoora cucullata
Antiaris	Antiaris toxicaria
Ash, Bulolo	Bibiscus papuodendron
Ash, scaly	Canophyllum fatcatwn
Ash, hickory	Flindersia iffllaina
Ash, Papuan, silver	Flindersia amboinenais
Ash, silver	Flindersia achottiana
Basswood	Endospemum medultosum
Beech	Nothofagus spp.
Beech, Wau	Elmerrillia papuana
Beech, white	Qnelina moluccana
Birch, pink	Schizomeria app.
Boxwood	Xanthophyllwn papuanwn
Box, swamp	Triatania spp.
Burckella	Burckella app.
Calophyllum	Calophyllum spp.
Camptosperma	Camptosperma brevipediatum, C. montana
Cananga	Cananga odorata
Canarium, grey	Canarium spp. incl. C. oleosum
Candlenut	Aleuritea moluccana
Cedar, Java	Bishofia javanica
Cedar, mangrove	Xylocarpus granaumr, X. moluccensis
Cedar, pencil	Palaquium spp.
Cedar, red	Toona sureni
Celtis	Celtis nymanii, C. kajewakii
:eltis, heavy	Celtis philippinensis, C. latifolia
Cheesewood, yellow	Xauclea orientalis, N.undulata
Chrysophyllum	Chrysophylwn roxburghii
Coachwood	Ceratopetatum succirubrwn
Cryptocarya	Cryptocarya spp.
Dacrydium	Dacrydium nidulum
Dillenia	Dillenia spp.
Drypetes	Drypetes spp.
Duabanga	Duabanga moluccana
Dysox, red	Dysoxylum spp.
Ebony, black	Diospyros ferrea
Erima	Octomeles sumatrara
Euodia	Euodia elleryana
Euodia, heavy	Euodia bonwickii
Fig	Ficus app.
Galip	Canarium indicwn
Garo Garo	Mastixiodendron pachyclados M. plectocarpum :. smithii M. stoddardii
Gordonia	Gordonia spp.
Gum, water	Syzygium spp.
Hardwood, yellow	Neonauclea spp.
Hekakoro	Gluta papuana
Heritiera	Heritiera littoralis
Hernandia	Hernandia papuana
Hopea	Hopea forbesii, c. papuana, H. similii H. celtidifolia
Hopea,- heavy	Hopea iriana, H. glabrifolia

STANDARD TRADE NAME

Kamarere
 Kasi Kasi
 Kempas
 Kiso
 Kwila
 Labula
 Libocedrus
 Litsea
 Lophopetalum
 Magnolia
 Malaha
 Malas
 Mango
 Mangrove. black
 Mangrove red
 manilkara
 Maniltoa
 Maple, scented
 Maple, silkwood
 Mersawa
 Milkwood grey
 Neoscortechinia
 Nutmeg
 Oak
 Oak
 Oak pink, silky
 Oak, white, tulip
 Pericopsis
 Pimeleodendron
 Fine, celery-top
 Pine hoop
 Pine, kauri
 Pine klinki
 Planchonella, red
 Planchonella, white
 Planchonia
 Plum, busu
 Plum tulip
 Podocarp

 Polyalthia
 Quandong
 Rosewood
 Saffronheart
 Satinheart, green
 Satinwood, pink
 Siris, white
 Sloanea
 Spondias
 Sterculia
 Taun

 Tea tree
 Terminalia, brown
 Terminalia, pale brown
 Terminalia, red-brown

 Terminalia, pale yellow

SPECIES

Eucalyptus deglupta
 Xanthostmon spp.
 Koompassis grandiflora
 Chisocheron spp.
 Intsia bijuga, I. palembanica
 Anthocephalus chinensis
 Libocedrus papuanus
 Litsea spp.
 lophopetalum torricellense
 Galbulimima belgraveana
 Eucalyptosis papuana
 Homlium foetidum
 Mangifera spp.
 Bruguiera gymtorrhisa, B parviflora
 Rhizophora apiculata, R. mucrowta
 Manilkara kanosiensis
 Maniltoa app.
 Flindersia laeviearpa
 Flindersia pimenteliana
 Anisoptera thurifera, A. costata
 Cerbera floribunda
 Neoscorteahinia forbesii
 Myriatica app.
 Castanopeis acwninatisaima
 Lithocarpus spp.
 Oreocallis wickhamii
 Pterygota horefieldii
 Pericopeis mooniana
 Pimeleodendron amboinicum
 Phyllocladus hypophyllus
 Araucaria cunninghamii
 Agathis dammara A. labiltardieri
 Araucaria hunateinii
 Planchonella torricellenais
 Planchonella kaernbachiana
 Planchonia papuana
 Maranthes corymbosa
 Pleiogyniun timorense
 Podocarpus spp., Decusaocarpus app., Da-
 crycarpus app.
 Polyalthia oblongifolia
 Elaeocarpus spp.
 Pterocarpus indicus
 Halfordia papuana
 Coijera salicifolia
 Buchanania spp.
 Ailanthus integrifolia
 Sloanea spp.
 Spondias Cytherea
 Sterculia spp.
 Pometia pinnata f. pinnata, Pometia pinnata f.
 glabra
 Melaleuca spp.,
 Ternrinalia brwsii
 Terminalia sepioana, T. solomonesis
 Terminalia arehipelagi, T. eddowesii, T.
 kaernbachii, T. mricocarpa
 Terminalia complanata, T. longespicata

STANDARD TRADE NAME

Terminalia, yellow-brown
Tetrameles
Tristiropsis
Vatica
Vitex
Walnut
Walnut, island
Wattle

SPECIES

Terminnalia calamansanai, T. megalocarpa
Tetrameles nudiflora
Tristiropsis acutangula
Vatica papuana
Vitex oofassus
Dracontomelon dao
Cordia subcordata
Acacia aulacoearpa, A. crassicarpa

For further information and other publications please contact:

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