

AAACP Pacific Brief

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'Whole nut' processing of coconut – opportunities and challenges for the Pacific region

Key messages

- Reorienting coconut industries to produce multiple high-value products ('whole nut' processing) has the potential to stimulate economic growth in the Pacific region.
- Some high-value products can be made at the village level, directly addressing rural poverty.
- A new initiative aims to develop pilot multipurpose processing centres in six countries, to demonstrate technical and commercial viability of 'whole nut' processing.
- Success will depend on support from governments, the private sector, and regional research and development organisations.

Compared to other parts of the world, notably tropical Asia, coconut-based industries in the Pacific region are stagnating. Pacific island countries have mostly failed to invest in new developments, and copra and low-quality coconut oil continue to be the main products. Low global prices for these commodities create little incentive for producers, and failure to replant coconut palms has led to an overall picture of senile trees and declining production.

'Whole nut' processing – i.e. processing the different parts of the coconut to produce multiple high-value products – has the potential to revitalise coconut industries in the region. If opportunities can be created at the village level, and viable market chains developed for products, this will also contribute to reducing rural poverty.



Coconuts are currently mostly processed into copra and low-grade coconut oil.

Photo: Richard Markham



Shells and husks are going to waste, when they could be made into high-value products Photo: Anne Moorhead

The 'whole-nut' concept

- Changes the focus of coconut industries to higher value products
- By multipurpose processing, maximises the returns on each coconut

Products and markets

With the focus on copra and coconut oil, the parts of the coconut that are currently going to waste are the husks, shells and coconut water. Yet each of these can be processed into high-value products. There are also more valuable alternatives to copra and low-quality oil that can be made from the coconut flesh.

The box describes some of the high-value products that can be made from the different parts of the coconut. Some of these products have significant international markets and could be exported, for example rubberised coir, activated carbon and coconut water. Others, such as laundry soap and biofuel, could supply domestic markets and substitute for imports. And some, such as virgin coconut oil (VCO)-based skin care products, could find markets both in-country, for example in tourist hotels, and overseas.

Some high-value coconut products

From the flesh:

- Virgin coconut oil (VCO) – High-quality oil that can be used as a healthy cooking oil, or further processed into luxury soaps and skincare products.
- Bath and laundry soaps from lower quality VCO.
- Coconut flour – A high-fibre gluten-free flour made by milling the dry flesh after oil has been extracted.
- Biofuel – An alternative use for low-grade coconut oil.

From the water:

- Tender coconut water drink – There is a growing international market for coconut water as a natural isotonic health and sports drink.
- Coconut vinegar – This should find a national market as many Pacific island countries currently import all their vinegar.

From the shell:

- Charcoal – One of the best for barbecuing.
- Buttons and handicrafts.
- Ice cream packaging, using half shells.
- Coconut shell powder – This is used as a compound filler in plastics, resin glues and for specialised surface finishes.
- Activated carbon – Made by further processing of coconut charcoal, its uses include gas purification, metal extraction, water purification, sewage treatment and air filters in gas masks and respirators.

From the husk:

- Coir – A traditional product, used for matting, ropes, sacks etc. Also added to potting compost.
- Rubberised coir – First developed in the 1960s and now a multi-million dollar industry as luxury car upholstery; also being used in mattresses.
- Geotextile nets, and cocologs or biologs – Made by weaving coconut fibre into nets or twining into logs. Used in bioengineering projects, mainly to stabilise shorelines, riverbanks or slopes.
- Cocopeat – An environmentally friendly alternative to peat, made from coir waste.



Luxury skincare products made from VCO.

Photo: Anne Moorhead



Senile coconut palms are one of the challenges that will need to be addressed.

Photo: Richard Markham

Addressing rural poverty

To address rural poverty, there must be opportunities at the village level that provide income directly to communities. Several of the new products can, with relatively little investment and training, be wholly or partly produced at the village level.

VCO is an example. There is already small-scale village-based production of VCO in several Pacific island countries. However, current production systems usually do not make use of other parts of the coconut. Village-based multipurpose processing centres could address this, producing a range of products from the parts that are currently wasted. Products might include laundry and bath soaps, charcoal, and coconut vinegar.

For more sophisticated products that cannot be made at the village level, the relevant coconut parts could be collected at the village processing centres and sold on to larger regional processing centres. The more sophisticated products offer significant commercial potential for investors, and would benefit local economies by providing jobs.

Challenges to 'whole nut' processing in the Pacific region

Among the challenges likely to be encountered in setting up 'whole nut' processing of coconut are the following:

- Cost and reliability of transport for coconut products or coconut parts from remote islands to mainland markets or regional processing centres.
- Lack of dehusking skills. Manual dehusking is the most efficient way to separate the different parts of the coconut, but these skills are lacking in the Pacific where coconuts are usually simply split open to reach the flesh.
- Senile trees and low productivity. A planting program, and supply of good quality seedlings, would be necessary to support developing industries.
- Lack of appropriate technologies. However, technologies in use in Asia may be suitable for transfer and adaptation to the Pacific region.
- Start-up capital. Financial institutions may not be confident enough to invest in new coconut-based initiatives.



A village VCO mill in Fiji.

Photo: Anne Moorhead

- Targeting the right markets. The Pacific region may not be able to compete directly with the large Asian countries, so will need to carefully select its niche products to build successful markets.

Developing successful ‘whole-nut’ coconut processing industries will require significant support from governments, effective public–private partnerships, and regional efforts in coconut research and development. However, the potential benefits to national economies and rural development make this a worthwhile undertaking.

New initiatives

Several countries have begun laying the groundwork for developing new coconut industries. Solomon Islands is developing a coconut strategy, while in Vanuatu a pilot plant has been set up to demonstrate the use of coconut oil to generate electricity. In Fiji, a feasibility study has been carried out on setting up multipurpose processing centres. The next step is to develop pilot centres to demonstrate technical and commercial viability of different ‘whole nut’ processing options. Six pilot centres are planned, in Fiji, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu.

Further reading

Coconut revival: new possibilities for the ‘tree of life’. Proceedings of the International Coconut Forum held in Cairns, Australia, 22–24 November 2005, edited by S.W. Adkins, M. Foale and Y.M.S. Samosir. Published by ACIAR, 2006. Available at <http://aciarc.gov.au/files/node/748/PR125%20full%20text.pdf>

The following websites provide useful information on coconuts and coconut processing:

India’s Coconut Development Board: <http://coconutboard.nic.in/>

The Asian and Pacific Coconut Community: <http://www.apccsec.org/>

Further information

See the AAACP Pacific region website: http://www.spc.int/lrd/index.php?option=com_content&view=article&id=683&Itemid=427

Contact the LRD Help Desk at the SPC Suva Office: lrldesktop@spc.int or call +679-3370733

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