



**Project ST 98/009:
Commercialisation of Seaweed Production in the
Solomon Islands**



Technical report 1

**Development of seaweed marketing
and licensing arrangements**

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Acronyms and abbreviations

ATC	Alkali treated chip
CEMA	Commodities Export Marketing Authority.
CoSPSI	Commercialisation of Seaweed Production in the Solomon Islands
DFMR	Department of Fisheries and Marine Resources
EDF	European Development Fund
EU	European Union
GOSI	Government of the Solomon Islands
GPA	Gillett Preston and Associates
NPM	National Project Manager
PSC	Project Steering Committee
RAMSI	Regional Assistance Mission to the Solomon Islands
SRC	Semi-refined carrageenan
SSDA	Senior Seaweed Development Adviser

Table of contents

1.	Introduction	1
2.	Marketing	1
2.1.	Market characteristics	1
2.2.	Buyers and processors	2
2.3.	Trading arrangements	2
3.	Licensing arrangements	3
3.1.	Current status	3
3.2.	Licensing considerations.....	4
3.3.	Eligibility criteria.....	5
3.4.	Proposed licensing system	6
Appendix 1:	Prospective seaweed buyers.....	8
a)	Manufacturers of refined carrageenan	8
b)	Chip and Powder Manufacturers.....	8
c)	Carrageenan blenders	9

1. Introduction

The Commercialisation of Seaweed Production in Solomon Islands (COSPSI) project aims to increase seaweed production in Solomon Islands, in a manner that brings benefits not only to the country's economy and balance of payments but also to individuals and communities in remote parts of the country.

In support of this aim, the project assists potential exporters to establish contacts with overseas buyers and processors, and provides technical advice, information and training. Business development and marketing support is currently being provided to the members of the seaweed industry. Discussions are also taking place with the private sector and concerned Solomon Islands Government departments in regard to the promotion of seaweed exports, and in particular the licensing of companies or individuals who may wish to buy direct from farmers and export the production.

This report has been prepared by Michael Tinne, COSPSI Project Director/ Business Development and Marketing Adviser, with inputs from GPA Director Garry Preston and Project Manager Gideon Tiroba. The report is intended to act as a discussion document that will ultimately assist the development of national seaweed export marketing and licensing policies as the industry grows in production volume and economic significance.

2. Marketing

2.1. *Market characteristics*

World production of Cottonii seaweed, the variety now being developed and cultivated in the Solomon Islands, is currently around 125,000 metric tonnes (t) per annum¹. Wet product is harvested and dried by farmers, and sold on to a local buyer who may further clean and dry the seaweed before packing it in bags or compressed bales and selling it on to an overseas buyer. Overseas buyers process the product to produce gels that are used as thickeners and stabilisers in the food, cosmetics, pharmaceutical and other industries.

The international market for carrageenan-bearing seaweeds is defined as oligopsonistic, meaning that a large number of raw material producers supply relatively few processors. Consequently, primary producers have little market power since the quantities they supply individually to an exporter are in themselves insignificant. This is particularly true for small Pacific Island producers such as Solomon Islands.

Consumption and usage of carrageenan in the long term is likely to rise and this should tend to keep prices at levels pertaining today with marginal upward increases in future. There is, however, likely to be a point beyond which the price is unlikely to rise and that is when alternative raw materials such as vegetable gums, with similar properties to seaweed gels, become economic (or less expensive) and cost effective to produce and harvest².

The market is very sensitive to changes in supply and demand. When there is a strong demand for the product, the result is normally a price rise. Because of its short production cycle (around six weeks from planting to harvesting, depending on local conditions) seaweed is a crop that can respond to this demand quickly. A production increase triggered by rising prices can result in a rapid shift from under-production to over-production, with a consequent price drop following the initial price increase once demand has been satisfied.

¹ Precise figures are difficult to obtain as much Cottonii is traded internally in the Philippines and Indonesia.

² A similar position occurred when 'mad cow disease' forced carrageenan processors to find an alternative source of raw material to animal bone marrow (which was largely replaced by seaweed). This resulted in a considerable price rise at that time, which has now levelled off with perhaps a slight tendency to decrease, albeit fairly marginally and on an irregular basis and time scale.

As an agricultural commodity seaweed is subject to a range of natural variations, including short and long-term sea surface temperature changes, cyclones and storms, as well as fish grazing in certain areas. All of these factors can affect local and global patterns of supply and demand.

2.2. Buyers and processors

The main buyers and processors of seaweed are listed in appendix 1. The industry still tends to be dominated by five or six multinational conglomerates, mainly based in the United States of America and Europe. There is, however, a growing number of smaller importers based in the Philippines, Indonesia, Malaysia, Korea, Japan, Taiwan and Chile. The tendency in these countries seems to be for less raw seaweed to be imported by smaller buyers, due to the economic benefits of purchasing already semi-processed *Cottonii* and *Spinosum* products from the Philippines, Indonesia and Malaysia.

The main market development in the last year or so has been the emergence of China as a major player in the purchase of raw *Cottonii* and alkali treated chip (ATC)³, mainly from Indonesia and the Philippines. Chinese imports are said to have doubled (to 20,000 – 25,000 t of raw seaweed annually) over the last two years with a continually growing end-product carrageenan processing capacity. It is believed that China is producing some 5,000 t of mainly pet food and regular food grade carrageenan together with some gel-pressed carrageenan for the pharmaceutical and cosmetic industries. The pet food grade is mainly for the Mars Group (Pedigree Petfoods) and the food grade powder for export to Europe where it is probably cleaned up, processed further and blended with some other carrageenan. It seems that China has not yet managed to break fully into the food grade market in Europe and the USA but this is surely only a matter of time. There does of course exist a large internal market in China itself for home-produced food grade product.

The world market outside the large multi-nationals and China is still relatively small and unpredictable, partly due to the relatively large number of small producers in South-east and East Asia.

2.3. Trading arrangements

There is no world market price for seaweed such as exists for copra, tea, coffee, sugar, cocoa, and many other agricultural commodities. Prices for most of these are quoted on a daily basis in financial centres throughout the world. Seaweed is, however, marketed in most cases through direct bilateral contracts, company-to-company (suppliers/ producers and processors/ users) or country-to-country. Sales are normally made and contracts drawn up in US dollars but fluctuations in the US dollar value/ exchange rate in the last year or two have increasingly led to the use of other currencies, in particular the Euro.

It is down this bilateral track – privately negotiated contracts between the SI licensed exporter and the processor/ end-user – that the seaweed market in the Solomon Islands is developing. Sales are carried out or likely to be carried out in future on the basis of a willing seller (the exporter and primary buyer from the seaweed farmer) seeking out and negotiating a sales contract with a willing buyer⁴. It will be more beneficial for exporters to develop long-term sales agreements with a particular buyer than to set up a marketing department and communicate with numerous potential buyers.

³ The first stage in processing.

⁴ In Kiribati this system worked to the benefit of both parties and helped the small seaweed farmers in the widespread and more remote atolls, particularly in the early years of the industry's development. A long term relationship was developed with one of the major multi-national companies which guaranteed to purchase and process all the raw sun-dried seaweed that the Kiribati farmers could produce, up to an agreed tonnage. This meant there was a secure market for the total production, not subject to the vagaries of world supply and demand. Beneficial payment terms were agreed which assisted considerably in the nascent industry's financial development, particularly with regard to cash flow, and the buyer also provided technical support to the industry.

More and more the costs of shipping – freight, insurance and other costs such as transshipment – have entered into the equation with regard to pricing and this has brought about the setting up of ‘value added semi-processing’ plants (ATC plants) nearer to the source of the raw material. There has already been interest shown in producing semi-refined carrageenan in Solomon Islands, but this is unlikely to be viable until a quantity of 2,000 t of raw material can be produced annually.

Shipping costs also have a bearing on prices paid to seaweed farmers within Solomon Islands. Under present buying arrangements, differentials will occur in the price farmers receive for their seaweed depending on where the ‘farm gate’ is located. The price paid to farmers in, say, Ontong Java or the Reef Islands, is likely to be lower than that received by farmers in less remote locations or places served by a more regular shipping service due to the higher costs of transporting product from these locations. Early indications are that these have the potential to become major producing areas due to their good seaweed growing conditions. However the view has been expressed that remote-area producers will become discouraged if they receive a lower price than that paid to producers closer to Honiara, and that some sort of subsidy to the costs of transport would be appropriate.

At the present time it is not recommended that the government consider payment of direct subsidies of this kind. The licence rebate scheme, mentioned above, could ultimately become a tool for indirectly subsidising seaweed farming activities in remote areas, although at the present time it is suggested that the rebate be applied across the board. In the interim, DFMR and COSPSI should work with exporters to investigate the appropriateness of establishing a voluntary price equalisation method which would allow payment of the same farm-gate prices for the same grade of product irrespective of location. If exporters can come to some longer term arrangement with the overseas buyers/ processors they may, in turn, be able to give certain guarantees to the farmers on a longer term basis.

3. Licensing arrangements

3.1. Current status

Licences authorising the export of seaweed from Solomon Islands are issued by the Licensing Section of the Department of Fisheries and Marine Resources (DFMR) in the Ministry of Natural Resources. Apart from an annual licence fee of SBD 10,000, no other criteria have yet been developed to determine the eligibility or otherwise of seaweed export licence applicants, and no particular licence conditions are in place.

During 2005 seaweed export licences were issued to the following entities/ individuals:

- Solomon Seaweed
- Francis Chow
- BJS Agencies
- Tarzan (Auto Crash Repair)
- Western Seaweed
- Tongs Corporation

All of the above expired at the end of 2005 and the only one to be renewed (as at 31 March 2006) was that held by Solomon Seaweed.

The only two licence holders who have actually exported seaweed are Solomon Seaweed and Western Seaweed. The latter organisation has, in fact, only made one small shipment and this was through Solomon Seaweed which is by far the most active company in the industry and exports the bulk of the country’s seaweed production.

Divergent views have been expressed about the need for a seaweed export licensing system in Solomon Islands. One point of view is that there should be no licensing requirements, because this may place bureaucratic obstacles in the way of an industry the government is trying to promote, and because government capacity to manage the system

may currently be limited. Another viewpoint is that the industry should be regulated to ensure that only reliable operators are allowed to participate in it, and that licensed exporters have access to sufficient volumes of product to ensure financial viability. The following paragraphs are intended to explore the options available and, if it is determined that there is a need to regulate seaweed exports, contribute to the formulation of an appropriate licensing policy.

3.2. Licensing considerations

In considering future licensing arrangements for the seaweed industry, the following considerations need to be taken into account:

- seaweed is unlike many of the other resources for which the DFMR issues licenses, because it is an agricultural commodity, not a fishery resource. Since it is farmed rather than being harvested from the wild, many of the considerations that apply to other fishing or seafood product export licences are not relevant to the export of seaweed. In particular, there are no concerns over resource sustainability or over-harvesting, and no biological reasons to impose quotas, limits, closed seasons or other restrictions on seaweed exports. Indeed, the purpose of COSPSI is to maximise seaweed production and export as quickly as possible. Licensing arrangements should support this goal;
- it is desirable to have a number of seaweed exporters operating, for several reasons. Multiple exporters are more likely to compete with each other for product, resulting in higher prices to the primary producers. Having several exporters gives some degree of protection to primary producers in that, if one exporter goes out of business, others will still provide a market for the farmer's product. The operation of multiple exporters is likely to result in a greater geographic expansion of seaweed farming, as exporters diversify geographically in order to achieve their production targets;
- it is nevertheless desirable to ensure that those entering the industry are serious players, with the financial and organisational resources needed to effectively conduct the business, and a long-term perspective. Licensing arrangements should encourage such players in the industry, while discouraging speculative, casual or short-term ventures whose activities may undermine or disrupt those of more reputable operations;
- overseas buyers are likely to only want to deal with exporters able to supply substantial volumes of product, and are unlikely to be interested in taking very small quantities from numerous smaller exporters;
- at least in the near future, most seaweed exporters are likely to have other business interests. This is both necessary (as seaweed production in Solomon Islands is not yet at the level where exporters can expect to rely solely on this business) and desirable (in that other business activities are likely to provide the cash flow needed to finance initial seaweed purchases from farmers). Over the longer term it may be expected that seaweed exporting will become the primary business activity of some licensed operators, but in the short term it is likely to be secondary;
- a key value of licensing is the opportunity it presents to gather data on the performance of the industry. Specifically, licence conditions can and should include a requirement for operators to provide information on their buying and exporting activities which will permit DFMR or the COSPSI project to assess aspects of industry performance and take corrective action where problems are identified;
- an objective, non-discretionary mechanism for the issuance of licences needs to be established. The process for issuing a seaweed export licence should be similar to that for a driving licence: if the test is passed and the fee is paid, the licence is automatically issued with no reliance on the discretion of any individual, and as long

as the holder does not breach the conditions of the licence, then it is eligible for renewal indefinitely;

- licensing procedures should not be an impediment or deterrent to those wanting to enter the business. They should be as simple, smooth and transparent as possible, consistent with ensuring that licences are only issued to those with a genuine interest in the industry and capacity to participate in it;
- a one-year licence is often insufficient to provide security for an operator who needs to obtain financing from a bank or other credit institution. In order to facilitate investment in the industry, consideration should be given to issuing longer-term licences (five years is suggested) with a renewal fee paid annually;
- while licensing of commercial activities is a legitimate way for governments to raise revenue, this should not be the main objective in the case of a primary industry that the Government itself is actively trying to promote. Licence fees should be structured in a way that discourages speculative or casual operators, but which does not deter bona fide applicants.

As a general principle, licensing should not interfere with or restrict decisions that should be made by the operator based on his own assessment of what is best for his business. For instance, licence conditions should not dictate how much a licence holder should pay or receive for his product, what transportation methods he should use, etc. Licensing the seaweed industry should allow the Government to gather information on the industry and manage it judiciously without interfering in the competitive business process.

3.3. Eligibility criteria

The most important criterion that should be met by any new licence applicant is to demonstrate financial strength and viability. This is because seaweed must be bought for cash from the farmers, and significant cash flow is needed for an exporter to be able to accumulate container loads of seaweed prior to export. Even then the exporter may himself have to wait some time for payment, during which period he would be expected to keep on purchasing from the farmers. It is important to avoid situations where exporters try to receive product from farmers on consignment, as any ultimate failure by buyers to pay the farmers will demoralise them and severely undermine the COSPSI project's attempts to increase production.

Unfortunately it can be difficult to objectively judge an applicant's financial capabilities. Submission of audited accounts or demonstration of available finances through bank records as part of the application procedure would be useful where these are available. Where not, a written explanation of the extent and source of operating finances needs to be included by the applicant in the licence application documentation.

Once the seaweed is purchased at the 'farm gate' it becomes the property of the exporter, who needs to have the capability to carry out the successful export. The exporter must therefore be able to arrange shipping and pay the freight charges from the farming area to an 'export' port (most likely Honiara); thereafter having the infrastructural set-up to organise the transport of the seaweed from the dock where it has been discharged from the inter-island vessel to a warehouse for bailing, cleaning, further drying (if necessary), the carrying out of any other inspections that may be required and finally an adequate storage facility until export. This will all be prior to transporting the now bailed seaweed (loaded into a container) to the docks for transfer on to an ocean going vessel for export. The application procedure should include a description of the applicants infrastructure, manpower and other capabilities relevant to these tasks.

Other criteria might include:

- the applicant's administrative and office back-up to support buying and selling operations:

- a demonstrated ability to manage buying agents in the field, supported by adequate communications and training so they are able to pass on knowledge as would an extension worker in this field. (Assistance with these functions could be provided through the COSPSI project);
- ability to test and verify product quality and maximise export value.

Once the broad criteria have been agreed, it will be necessary to articulate these in an application form which can be used by licence applicants and reviewed by the appropriate authority.

3.4. Proposed licensing system

Based on the above, the following revised seaweed export licensing system is proposed for introduction on January 1 2007, when current licences have expired.

Initial application

- licence applicants to complete an application form under which they declare conformity with the licence criteria described above, provide information on previous involvement in the seaweed industry, attach required documentation, etc.;
- applications to be considered by a small committee comprising: DFMR Secretary; DFMR Licensing Officer; COSPSI Project Manager; and other relevant government nominees;
- where approved, licences to be issued on a five-year basis, with the licence to be renewed annually subject to the payment of an annual licence fee at the beginning of each year;
- licence fee to be set at SBD 25,000 per year, with a rebate in the second and subsequent years of SBD 100/ tonne of seaweed exported in the preceding year;
- licence conditions to include the submission of monthly records of seaweed purchases and seaweed exports in a format to be prescribed.

Renewal

Annual renewal of licences is automatic, provided that:

- the licence holder has exported some seaweed in the preceding year. (If not, a new application has to be submitted);
- monthly data returns on product purchases and product exports have been submitted as required by the licence conditions;
- no breaches of other licence conditions have taken place;
- the annual renewal fee is paid. The renewal fees is calculated at SBD 25,000 less the rebate of SBD 100/ tonne of seaweed exported in the previous year.

The rebate system is designed both to encourage full reporting of buyer and export data, and to reward those licence holders who maximise their exports, while penalising those who export little or nothing. A licence holder who exports 150 tonnes in year 1 of his licence will receive a rebate of SBD 15,000 on his second year licence fee. If he exports 250 tonnes or more in year 2 then he will have no fee to pay in year 3, etc. A licence holder who exports nothing will find himself liable for the full SBD 25,000 each year. It may be desirable to include a provision for reducing or cancelling any rebate for a licence holder who has breached his licence conditions, including through failure to submit monthly data returns.

If the above system is agreed to in principle, it will be necessary to develop appropriate application forms, data reporting forms, and licence certificates. It will also be necessary to put in place a computerised record-keeping system for licence management and analysis of

buyer and export data. This could be done by COSPSI project staff or contractors working in conjunction with relevant DFMR personnel.

It is suggested that the number of export licences be restricted to four in the first instance. This provides for a sufficient number of buyers/ exporters to provide internal price competition, while still ensuring that exporters are potentially able to secure sufficient volumes of product to interest overseas buyers. Only applicants who satisfy the financial and other criteria outlined above should be approved, even if this will result in less than four licences being issued. Licence holders who have exported little or no seaweed in the previous year should be given low priority if they re-apply.

The licence committee should meet quarterly, or as required, so that there are no undue delays in the consideration of licence applications. Licences could cover a calendar year, or an annual period commencing from the time of approval. In the former case, the first year's fee should be pro-rated downwards if the licence is approved after the year has commenced.

The operation of the new licence system should be reviewed after five years, or earlier if deemed necessary by DFMR. The review should cover in particular:

- the rebate system, which ideally should ultimately be reduced or eliminated. However there may be intermediate stages through which the system might pass. For instance, it may be desirable to limit the rebate to product sourced from remote or new production areas where the government is actively promoting the development of seaweed farming; and
- the cap on the number of licences, which should ultimately be increased. Once national seaweed production reaches 1,000 t annually, the number of available licences should be set at one licence per 200 tonnes of production.

The idea has been floated that export licences could be linked to specific areas or provinces. However such a system has the potential to stifle internal competition among buyers by allowing some exporters to gain a monopolistic position in some areas. It may be appropriate to consider an area-based licensing system at some time in the future, but this is not recommended at the present time.

Joint-ventures may ultimately be set up between foreign buyers and national entrepreneurs. This could benefit the local industry through better technical and financial support, and may pave the way for locally-based processing. The licensing system may eventually need to be amended to cater for such arrangements, which are likely to require assured long-term access to significant volumes of product.

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Appendix 1: Prospective seaweed buyers

a) *Manufacturers of refined carrageenan*

United States of America

FMC Biopolymer, refinery Rockland, Maine. www.fmcbiopolymer.com

Denmark

C.P. Kelco, USA. Refineries Lille Skensved, Denmark and Sibonga, Cebu, (CP Kelco Phils Inc. Philippines) also 40% shareholder in Genu Philippines. www.cpkelco.com

France

Degussa Textured Systems of Germany. Refineries Baupte, France and Manila, Philippines (had acquired French processing company SKW Systems – previously Sanofi Bio-Industries). www.texturantsystems.com

Philippines

Shemberg Marketing Corp. Cebu. Refinery – Cebu. www.philexport.org/shemberg

Philippines Bio- Industries (PBI) Manila, subsidiary of Degussa textures Systems (see above) and joint venture with Marcel Trading Corp (see Annex 10). Reportedly the largest refinery in Asia.

Ireland

Quest International Nederland BV. Refinery Cork, Ireland. www.questinti.com

Indonesia

P. T. Gumindo Penkasa Industries. Refinery Jakarta. www.indogum.com

Spain

CEAMSA. Refinery - Vigo. www.ceamsa.com

HISPANAGAR. Refinery – Burgos. www.hispanagar.net

South Korea.

MSC Co Ltd Kyeongam. www.msckorea.com

Korean Carragheen Co Ltd, Seoul

Taiwan

Rico Industrial Corp – a joint venture company with Marcel Trading Corp in the Philippines.(see above)

Chile

Gelymar Co, subsidiary of Algina S.A. www.gelymar.com

b) *Chip and Powder Manufacturers.*

Philippines

Shemberg Marketing Corporation, Cebu and Zamboanga. www.philexport.org/shemberg

FMC Marine Colloids, Cebu. www.bmcbiopolymer.com

Genu Philippines Inc, Cebu. www.cpkelco.com

Marcel Trading Corp. Manila and Zamboanga. www.marcel.com.ph
(Philippine Manufacturing Corporation)

MPCI Corporation, Cebu. Fax + 63 32 3480138

Biocon Philippines/Deltagen Inc. Cebu. Quest Co. owned by ICI.
www.questinti.com

Geltech Hayco. Inc. Cebu. Fax + 63 32 310 103

King-Agro Marine International Inc. Manila. Fax + 63 2 842 5238

Indonesia

P. T. Galic Artabahari Jakarta. Fax + 62 21 4881236

P. T. Bantimurung Indah. Ujungpandang, Sulawesi. www.bosowa.co.id

P. T. Seamatec. Surabaya. Fax + 62 31 353 4082

P. T. Gumindo Penkasa Industri. Jakarta. www.indogum.com

P. T. Cahaya Cemerlang. Ujungpandang, Sulawesi. Fax + 62 411 315 358

Malaysia

Tacara SDN. BHD. Sabah, Malaysia. E-mail: tacara@tm.net.my

Omniwealth SDN. BHD. Sabah, Malaysia

China

Andi-Johnson Konjac Co. www.konjac.info

Hong Kong Sheli Ltd. Processing facility in Guangdong. www.sheli.com.cn

A number of smaller operators including Panyu and Hui Xiang in Guangdong Province and also others in Fujian and Hainan provinces.

**c) Carrageenan blenders
(who may at times purchase raw Cottonii or chips for co-operative processing with refining companies)**

Danisco of Denmark, who own Danalg, a processor in Chile.
www.danisco.com

Rhodia Food of France. www.rhodiafood.com

Colloids Naturels International (CNI) of France. www.cniworld.com

P. L. Thomas Distributors of Hydrocolloids of United Kingdom.
www.plthomas.com/Hydrocolloids.htm