

# Marine Studies

TECHNICAL REPORT

**REPORT ON THE OUTCOMES  
OF THE TRAIN-THE -TRAINERS  
WORKSHOP ON KAPPAPHYCUS  
SEAWEED FARMING IN  
PACIFIC ISLAND COUNTRIES**

by

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M A R I N E S T U D I E S P R O G R A M M E



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SEAWEED FARMING WORKSHOP

KIUVA VILLAGE 4 – 8 AUGUST 2003

*Report on the Outcomes  
of the Train-the-Trainers Workshop  
on Kappaphycus Seaweed Farming  
in Pacific island countries.*

Edited by Tim Pickering  
with contributions from Filimone Mate,  
Merekeleni Namudu and Ferral Lasi

MARINE STUDIES PROGRAMME  
THE UNIVERSITY OF THE SOUTH PACIFIC

DEPARTMENT OF FISHERIES  
GOVERNMENT OF FIJI

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## Contents

Executive Summary .....	2
Contents .....	2
Workshop Objectives:.....	4
Workshop Programme .....	5
Fiji Government policies for seaweed farming, and role of Extension officers .....	7
Some independent observations about seaweed farming in Fiji.....	17
Outcomes of Panel Discussion on seaweed farming and marketing .....	19
Participant feedback.....	23
Workshop budget summary .....	25
Acknowledgements.....	26

## Executive Summary

This Workshop on farming of the seaweed *Kappaphycus alvarezii* in Pacific island countries was held primarily at the request of Government of Fiji in order to enhance the capacity of government employees holding the posts of seaweed project field-men, and extension officers involved in seaweed projects. Some of these employees had not previously received any formal training on seaweed farming techniques, yet are being expected to guide farmers in correct farming practice. Some had been recruited from various villages without having previously worked in government, yet are expected to be the link between government and farmers and a source of advice on government policy and government assistance available to farmers. Some had never met any of their counterparts based in other parts of the Fiji Group

Solomon Islands and Papua New Guinea are now also beginning seaweed farming projects, so this Workshop was given a regional focus and invitations extended to these countries to send two people each. PNG was unable to accept the offer owing to staff being already committed elsewhere, however Solomon Islands Fisheries sent two staff.

The workshop had a heavy hands-on focus, with the bulk of participants' time spent on the reef putting seaweed farming techniques into practice. They appreciated and responded positively to this practical approach. Time was also allocated for sharing of information and problems in both seaweed farming, marketing, and delivery of government support for the industry in Fiji. A panel discussion was held with high-level representation by Fiji Department of Fisheries officials, from which the following key issues emerged:

- The main stumbling block to continued industry expansion in Fiji is long delay in payments to farmers for seaweed they have grown and made available for collection;
- There was satisfaction with the external marketing arrangements from Fiji to FMC Corporation, and appreciation for the support FMC has given to the Fiji industry;
- There was dissatisfaction with the internal Fiji marketing arrangements, and a feeling that, as a long-term strategy, these should be reviewed to allow other players to also purchase seaweed and on-sell it to FMC;
- As a short-term strategy to re-vitalize the industry, government should consider becoming a seaweed buyer again for the whole Fiji group, using mechanisms such as accountable advances or a new revolving fund;
- Government policy on boats and engines issued to farmers in the past should be to treat this as a "closed chapter" whereby boats, etc. already issued should not be re-possessed, however it should be acknowledged that assistance to farmers in this form is counter-productive and should not be repeated in future;
- Other forms of assistance potentially available to farmers include SCARF, 2/3-1/3 scheme, PDF, Te Kakano Fund, Social Welfare, and Micro-finance ("Start-your-business");
- Extension agents need to be innovative to overcome logistical and transport constraints in order to make more frequent visits to farmers, for example more communication at district level between departments to share transport infrastructure.

**Workshop Objectives :**

- 1) To increase the technical capacity of fieldmen and extension agents in seaweed aquaculture;
- 2) To increase awareness about the roles and expectations placed upon fieldmen and extension agents in seaweed aquaculture;
- 3) To enable networking, sharing of experiences and “team-building” among fieldmen from different and isolated parts of the country.

**Trainers:**

Mr Sam Mario	Fiji Fisheries Seaweed Project, Lami
Dr Tim Pickering	Lecturer in Aquaculture, USP

**Logistics:**

Ferral Lasi	USP
Merekeleni Namudu	USP
Maika Tunisa	Fiji Fisheries, Lami
Asivorosi Tora	Kiuva Village

**Participant List :**

1. Ms Tavenisa Vereivalu	Fiji Fisheries, Labasa
2. Mr Ilaisa Matanakilagi	Fiji Fisheries, Labasa
3. Mr Maleli Dawai	Fiji Fisheries, Labasa
4. Mr Tomasi Cama	Fiji Fisheries, Lakeba
5. Mr Kulinio Rakaka	Fiji Fisheries, Levuka
6. Mr Nacanieli Soderberg	Fiji Fisheries, Savusavu
7. Mr Jovesa Naceva	Fiji Fisheries, Savusavu
8. Mr Asaeli Bale	Fiji Fisheries, Ono-I-Lau
9. Mr Maika Tunisa	Fiji Fisheries, Lami
10. Ms Rosalie Masu	Solomon Islands Fisheries
11. Mr Alex Melloti	Solomon Islands Fisheries

**Panelists for Panel Discussion:**

1. Mr Suresh Chand	Acting Principal Fisheries Officer for Capture & Development
2. Mr Ram Lakhan	Senior Fisheries Officer (SFO)- Central
3. Mr Eroni Talemaikanacea	Senior Fisheries Officer (SFO)- Maritime Provinces
4. Mr Apisai Sesewa	Senior Fisheries Officer (SFO)- Northern
5. Mr Filimone Mate	Principal Fisheries Officer (PFO)- Aquaculture

## Workshop Programme

### Monday 4<sup>th</sup>

- 9.00am      Arrival at Kiuva Village from Suva  
*Sevusevu*  
Introduction of participants to billets  
Opening of Workshop
- 10.30        Morning tea
- First classroom session:*  
“Four steps to farming seaweed”  
Seaweed farming video
- LUNCH
- First field session:*  
Collect plants from farm, line preparation

### Tuesday 5<sup>th</sup>

- 9.00am      *Second classroom session:*  
Seaweed biology  
Breeding  
Growth
- Second field session:*  
Site selection  
Farm layout and construction  
Planting the seaweed lines

### Wednesday 6<sup>th</sup>

- 9.00am      *Third classroom session:*  
Post-harvest handling of seaweed  
Drying of seaweed  
Packing for sale  
Marketing options

*Third field session:*  
Farm maintenance  
Checking on growth  
Recognising diseases, grazing or dieback problems

**Thursday 7<sup>th</sup>**

9.00am *Fourth classroom session:*  
Presentation by Filimone Mate (PFO Aquaculture) on Government policy for seaweed:  
(1) role of field men,  
(2) available assistance to farmers  
(3) role of government and REL Fisheries in seaweed buying

Presentation by Merekeleni Namudu (FMC-sponsored MSc student, USP) on independent observations about seaweed farming in Fiji

*Fourth field session:*  
Visit to “bad” farm sites  
Harvesting  
Culling  
Handling seaweeds while fresh  
Spreading seaweeds to be dried

**Friday 8<sup>th</sup>**

9.00am *Fifth classroom session:*  
Panel discussion on seaweed farming and marketing

LUNCH

Presentation of Certificates by Roko Tui Kiuva  
Closing of Workshop  
*I-tatau*

Depart Kiuva bound for Suva

Training materials presented to participants:

USP Training video “Seaweed farming in Pacific island countries”  
FMC Biopolymer “Cottonii and spinosum cultivation handbook”  
Sea-test salinity tester  
Thermometer

## **Fiji Government policies for seaweed farming, and role of Extension officers**

**Filimone Mate**  
**Principal Fisheries Officer Aquaculture**  
**Fiji Department of Fisheries**

Fiji's National Vision, Mission and Goals are for **“A peaceful and prosperous Fiji”** and to do so, we must be able to **“rebuild confidence, stability and economic growth”**.

The present government is placing greater emphasis on the principle of equitable sharing of the national wealth through the implementation of the Government Blue Print and Affirmative Action.

The government, with good governance, also considers achieving national security and stability very important.

With all this in place, the government will remain to look to the private sector as the main driving force of the economy.

The expansion of the private sector will create further employment and increasing income for economic growth.

It has been also identified and established that there is sufficient indigenous skills available that could be further developed to foster and contribute to the target economic growth, (and the conducting of training workshop such as this is one sure way of moving towards this end).

### **A. MISSION**

The Ministry of Fisheries and Forests is a newly established Government Ministry. It was established with the aim to enhance both sectors' visibility, and streamline decision-making so that it is more responsive and proactive in facilitating the sustainable development of the fisheries and forests sectors.

Government believe that this can only be accomplished through strengthening its capacity building, institutional and infrastructure development. We hope that in your group discussion, you can bring these up amongst yourself – How can we fast-track this strengthening process.

Government is putting greater emphasis on value adding of fisheries products, and effective participation of resource owners in the industry.



Government will expand and strengthen its activities within the fisheries sector, as personnel and finances are adequate and opportunities arise, so that our overall goal growth targets are realized.

**B. VISION**

“To be the best in the Pacific Island Countries in adding value to its Fish Resources”.

This vision is based on the potential the Fisheries Sector has to contribute to the National Vision. (Seaweed Farming has potential to contribute to the vision). Fisheries Sector has been given high expectation and is anticipated to rise to the occasion to provide solutions to a peaceful, united Fiji.

**C. GOAL**

The overall strategic target of the MFF is to promote and facilitate the sustainable development of both sectors to contribute \$1 billion to the national GDP within the next 10 years.

**MINISTRY POLICIES AND STRATEGIES (2003-2006)**

<b>Policies</b>	<b>Strategies</b>	<b>Indicators</b>
To promote sustainable Development of Fisheries Resources through relevant (2005) Appropriate, and effective Institutional strengthening	Set up NFC  Develop Aquaculture Centre & Mariculture Research	Establishment NFC (2003)  Establish NFR Centre
To promote equitable share to indigenous communities through active participation and ownership in the fisheries Commercial business ventures	Provision of financial assistance to assist indigenous communities into fisheries business ventures (Affirmative Action)  Provision of appropriate Training to indigenous Communities	SCARF to assist the direct ownership for indigenous Fijian and Rotuman
To continue to explore market and fishing access thru bi-lateral and multi-lateral agreements	Undertake market research and product price inventory	Market access Arrangement with Pacific Island Countries  New markets for existing Product

		<p>Publication of fish and other Marine products for the Industry</p> <p>Fisheries products export Earning increase to 10% (2005)</p>
To develop a HRDP for the Sector	<p>Develop HRD for fishery sector</p> <p>Provision of training and skill development to staff</p>	<p>HRD Plan</p> <p>Fisheries Training Centre (2004)</p>
To promote the use of Appropriate technologies for Development in the sector	<p>Keep abreast with latest technology development in Applied Fisheries Res. And development</p> <p>Mariculture Develop</p> <p>Aquaculture Develop.</p>	<p>Improve stock genetic and stock enhancement by 35%</p> <p>Culturing technology to improve stock performance by 35% and marketability</p>
To provide adequate Infrastructure to support the various development in the sector	<p>Infrastructure development thru: Establishment of rural fish centers</p>	<p>Complete Galoa Hatchery (2003)</p> <p>Establishment of rural centers. Lau, Vanua Levu, Western</p>
To promote and develop new Commodities.	<p>Provide specific capital Inputs and infrastructure Support for the development of proven existing and Commodity to industry level</p>	<p>Pearl Oyster Farms (2003) North</p> <p>Seaweed Expansion (2003)</p> <p>Freshwater aquaculture (2003)</p> <p>Brackishwater Aquaculture</p>
To encourage local value adding and Put down stream processing	<p>Review existing legislation and put in new ones</p> <p>Provide physical incentive and specific infrastructure support</p>	<p>Amend resource conservation legislation to include processing Factory and product certification by 2003</p> <p>Extension of tax subsidy to establishment of</p>

		processing factory and fishing boats, gear and equipment.
To improve food security thru Availability, and accessibility	Govt intervention to strengthen aquaculture, inshore and offshore mgt.  Provision of specific capital inputs and support services	Subsidy schemes to fish farmers and fishermen  Strengthening of the extension support services  Estb of NFC facilitate ownership and participation of resource owners in the industry.

#### PROPOSED PUBLIC SECTOR INVESTMENT PROGRAMME 2003-2006

FISHERIES DEPARTMENT	-	\$252.75 MILLION
SEAWEED DEVELOPMENT	-	\$2.0 MILLION
SHRIMP PROJECT	-	\$3.15 MILLION
FRESHWATER AQUACULTURE	-	\$3.3 MILLION
PEARL OYSTER PROJECT	-	\$2.8 MILLION

#### KEY RESULT AREAS

MFF has identified a number of major KEY RESULT AREAS on which all development activities will be focused on, so as to ensure the provision of quality and timely services to all stakeholders.

One of these KRA is "*Extension and Support Services*"

The Aquaculture Extension falls under this major KRA. And the Seaweed Project is one of these KRA activities.

KRA	OBJECTIVES	STRATEGIES	PERFORMANCE INDICATORS
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Seaweed Farm Development support	Consolidate and Strengthen existing Production capacity	Provide planting and Extension Support Services	360 lines/farmers, 3t/farmer/yr
Advisory Services	Expansion of seaweed Farming to new Sites.  Facilitate and strengthen farm expansion efforts and increase production.  To ensure that technology and best farming practice are transferred to farmers and problems and constraints are communicated back to government	Shifting of existing Infrastructure support to new sites, and provision of Extension support services.  Provision of specific farm inputs, raft etc	50 active farmers/site operating by end 2003.  Establish 200 new farmers

## TRANSPORT SUBSIDY IN SEAWEED INDUSTRY

The Seaweed Transport Subsidy was agreed by Cabinet in its 7<sup>th</sup> Meeting last year (09/04/02).

Preliminary discussion with TPU on the scope of activities envisaged to be covered under the STS was conducted.

Additional information required by TPU include the initial Cabinet Submission and the need to establish the current structure of the seaweed development including the level of participation of both government and the private sector in the seaweed industry.

By having the above information on board, the TPU would be in better position to determine the appropriate structure and framework together with its related specifics on which the seaweed subsidy should be managed in line with its intended objectives set by government.

Government is committed to support the seaweed industry under the existing inter-island shipping franchise scheme currently managed by the Fiji Islands Maritime Safety Administration (FIMSA).

Under such seaweed franchises arrangement, government defines and grants specific rights to private company (shipowners) to provide services (transporting seaweed) that are fully specified by the franchising authority (Services Supplies Board and FIMSA).

The Services Supplies Board (on behalf of government) retains control over the financial responsibility for the provision of such franchise services.

FIMSA is responsible for the management and administration of the services.

Fund allocated for franchise - \$240,000.

## **WHAT IS EXTENSION?**

Fisheries extension services in the Pacific Islands exist largely because of the desire of government to develop natural resources and increase food supply and production, generate income for the communities.

In many Pacific countries work on fisheries is tied in with agriculture (Fiji adopted this system until 2001), while in others it is the major national resource.

Most food supplies in the region come from the rural communities where fishermen live. Therefore increases in food production and supply to meet the rising demand will only occur with appropriate changes in the behaviour of fishing communities. Changes in attitude, knowledge and skills are necessary for the rural people to accept and adopt more efficient and effective methods of producing food.

The many island states, villages, communities and tribes of the Pacific have their own cultures. Societies throughout the Pacific are diverse and complex, but there are also many similarities between islands. Our forefathers structured life to achieve peace in society and through peace, individual and group needs can be satisfied. In relation to fisheries, these include:

- Customary ownership rights to a coastal fishing area;
- The customary wealth of possessing a fishing boat/canoe/craft;
- Prohibition of certain fishing techniques and closed fish areas.

The changes which are necessary to affect food production will also affect rural development and the life-style of the people. These changes are directly influenced by the complexity of the society, as well as by political, economic and technological factors.

In order to achieve the aims and goals of such societies, it is important to understand the cultures, needs and problems of our rural communities. Changes in these communities can be achieved or accomplished by education through extension services, with the support of governments, institutions and agencies.

### **Concepts of fisheries extension from a development perspective**

To achieve an increase in food production (standard of living, wealth) by an increase in the use of marine resources, the attitudes and values of rural fishermen/farmers have to be changed. Such changes will have implications for the traditional life-styles which may not always be acceptable to the village community.

The benefits of changes must therefore clearly outweigh any problems within the rural community before new ideas will be accepted.

Extension can be defined as a means of spreading and enlarging useful knowledge and skills to people in a context of achieving national goals within a local situation.

An extension service plays a vital role as:

- an informal method of education
- an agent of change
- an agent for improvement in fishing/farming techniques
- a contributor towards raising living standards

One unifying factor in all extension work is that extension workers are **working with people**, they are **people persons**.

### **The purpose of fisheries extension services**

The broad purpose of fisheries extension services can be stated as a need to increase food production, wealth, improve living standard, by improving the use of marine resources.

This purpose is modified by considerations of:

- the society in the broad sense
- the needs and problems of villagers
- the particular technology and knowledge of subject
- the society and culture of local communities

### **The society and culture**

In the Pacific, most activities and tasks are achieved through group and community participation. In this respect, it is essential that extension workers understand individual

fishermen's/farmer's relationships with other fishermen/farmers, as well as the relationship of the group of farmers with the local community and with others outside the local community or group.

Two forms of social interaction can lead to goals being achieved.

1) Competition and 2) Cooperation.

In competing there may be an increase in catch. However the competition may also lead to disunity and disruption in the local community.

Cooperation encourages people to combine their efforts to meet their own goals and objectives in a harmonious way.

Therefore the goal of extension services in the Pacific region to encourage the spirit of cooperation amongst fishermen/farmers.

### **Needs and problems of villagers**

Rural fishermen/farmers in most under-developed countries generally have a low level of income. Consequently they are slow to adopt new technology.

Before setting objectives and goals for a national extension programme in the use of marine resources, extension workers and other government agencies must make a constructive effort to identify fishermen/farmers problems and needs.

This deeper understanding will lead to achievable goals set on a national basis.

### **Technology and knowledge of subject**

Any extension material must relate closely to farming and farmers needs. When goals are being set with farmers, whatever the long-term purpose of the extension programme, they must reflect the background and experience of the farmers/fisherman themselves.

The goals set must also be relevant to the farmers/fishermen and be seen by them as relevant.

### **The society and culture of local communities**

Extension workers must also work at village level. To effect real change the fisheries extension officer requires an understanding of the fishermen in rural areas. Past experience has shown that fishermen do not change quickly if the extension programme is introduced

from outside. With a good knowledge of farmers/fishermen at the village level, more can be achieved.

By becoming aware of the local people's problems, gaining their confidence and making friends with them, the extension workers will become a respected member of the community.

To gain the farmers' confidence the extension worker must:

- ensure that the advice and recommendations given are accurate and relevant,
- provide information which will assist the farmers achieve the goals,
- be involved in their activities,
- admit, when necessary, that he/she does not know something, or is wrong, make an effort to find out the correct facts.

Extension workers find themselves in many roles in trying to meet their client's goals and fulfill their own objectives. Four of these roles are:

- i. **the educational role;** Most extension workers' time is spent helping farmers/fishermen to develop new skills and changing attitudes to new ideas. This involves extension workers in many activities. Their educational role is to assist and motivate the farmers to make their own decisions; and extension officers should make themselves as resource people and not merely teachers; and must understand the farmers view of their own situation and problems and assist them achieve their goals through self-reliance. Must provide up-to-date information and skills in a variety of ways, to enable farmers to understand and use them.
- ii. **the problem-solving role;** extension officers should spend time finding out the client's problems and trying to solve them with the client; identifying the factors causing the problems; identifying solutions applicable to the situation with the farmers; evaluate these solutions occasionally to see if they continue to give satisfactory results.
- iii. **the communication role;** extension officers provide a link between the farmers, government agencies and other organizations by providing a channel for communication between parties. Everything the extension officer does from speaking, writing, demonstrating techniques, supervising to field days and organizing other activities involves communication. Extension officers should therefore be determined to talk to as many people as possible; be a good listener as well a talker; talk with farmers themselves (not at them, above them or down at them); know your audience and know their needs; know what to say it simply; be sensitive to feedback and be ready to act on it.
- iv. **the planning and evaluating role;** Effective extension officers plan extension programs properly; they consider the national needs and the local needs of the people. Extension officers needs to plan activities by finding out what the



problems are; establishing priorities; drawing up a plan of action – organizing the work; making provision for unexpected difficulties or delays; and evaluating and reviewing the activity or program

The Extension Service is therefore the means of spreading and enlarging of useful knowledge and skills to people. To achieve this aim, extension officers need to be aware of the social environment of their operational base and to adopt a suitable role to meet the changing situation (eg “vakatatabu vakavanua” etc). In essence the extension officers work is at village level (people level) and their ultimate objective is to achieve national goals by having people help themselves.

## Some independent observations about seaweed farming in Fiji

Miss Mere Namudu  
FMC-sponsored Masters in Marine Affairs candidate  
Marine Studies Programme  
The University of the South Pacific

### Summary of findings from research work and interviews undertaken in various parts of Fiji:

a) Advantages of seaweed farming for rural communities:

- able to pay for school fees
- able to build a home
- able to give church levies, village levies
- able to provide for the family's groceries

b) Problem areas (from various perspectives):

- Marketing*
- buyers not arriving on time (after six months) resulting in dried weeds not being picked up and late payments for farmers (major disincentive for involvement in seaweed, since copra results in same-time payment);
  - price paid for seaweed not in line with rising cost of living
- Administration*
- infrequent visits by officials namely extension officers; farmers feel disenchanted and unmotivated if projects are begun without further follow-up on progress
  - Extension officers or fieldman lack appropriate technical knowledge to be imparted to the people
  - evidence for lack of appropriate knowledge imparted can be seen in the incorrect farming patterns or structures that farmers use, not knowing when to harvest (weeds get too big), choice of farm sites, fieldmen unable to explain to farmers the biological aspects of things
  - setting up of seaweed farms in inappropriate places
- Natural hazards*
- Herbivorous fish (consuming weeds)
  - Placement of farms (farming structures) in rough seas, swift currents
  - Epiphytic Filamentous Algae (EFA) and ice-ice
  - Lack of seed-stock

- Farmers*
- Removal of equipment without farmers present
  - Farmers not motivated owing to lack of visits by fieldmen/extension agents
  - Re-planting of infected seedlings
  - Age group of interested farmers is quite old (50-70yrs of age)
  - Gender imbalance, seen in low participation by women and inequitable distribution of equipment and assistance to female farmers

*Tradition/Culture-* chiefs in an area not allowing other villages to take up the project

## **Outcomes of Panel Discussion on seaweed farming and marketing**

A panel discussion was held by participants with high-ranking Fisheries officials (listed on Page 4) to raise issues and seek policy guidance on matters that had arisen during the course of the Workshop. The main issues discussed with the panel were in the following areas:

- 1) Marketing
- 2) Development/Assistance

### **Issues on Marketing**

Farmer's disenchantment with the delay between making dried seaweed available and receiving payment for it (up to 6 months in some cases) was noted by the forum, and was attributed to a lack of seaweed collecting and payment infrastructure. The marketing arrangements for seaweed were compared unfavourably to those in place for copra and beche-de-mer which are highly organised and payment is very prompt. Problems with domestic marketing arrangements within Fiji was seen by participants as the major stumbling block to further expansion of the seaweed industry, and the main explanation for why it is now in decline.

Transportation from outer islands to Suva had previously been identified as a stumbling-block, and Government's response was to set up a transport subsidy scheme to bring dried weeds to Suva. Implementation of this scheme merely awaits build-up of sufficient seaweed tonnage to invoke the scheme and send out a ship to collect it. The reason this has not yet occurred is because insufficient tonnage had yet built up, and the forum identified delay in payment to farmers as the main reason for this lack of tonnage.

The view was expressed that perhaps seaweed marketing in Fiji had been privatised too early, before the industry was ready for it. When Government was solely purchasing seaweed, for example, the industry in Ono-I-Lau thrived. It was also noted, however, that the commercial entity now responsible for marketing (REL Fisheries) was not present to give their side of the story.

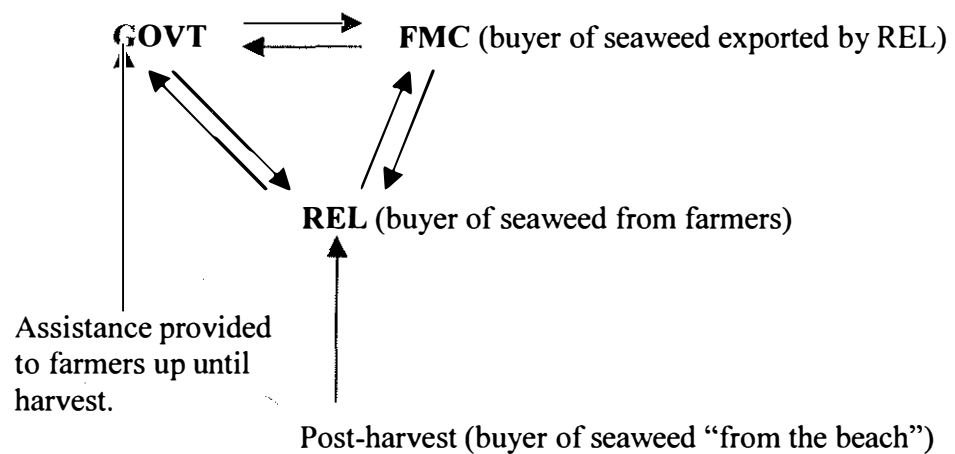
The forum was informed that Fisheries Northern were now seeking other markets for seaweed grown in the north, and to this end had submitted seaweed samples to Asian seaweed buyers for quality analysis and offer of a purchase price.

Discussion focussed for a time on the Memorandum of Understanding between Government of Fiji and FMC Corporation which nominates REL Fisheries as the sole purchaser and exporter of Fiji seaweed. It was noted that very few people had ever seen this MOU or knew what its contents were. It was clarified that, under the MOU, REL had the responsibility to purchase seaweed "on the beach" and bring it to Suva, but recently had been expecting it to be delivered to Suva whereupon they would then buy it.

The question was asked whether the MOU was truly legally binding and whether or not its arrangements could be reviewed. It was not possible to answer such questions at this forum, and officials resolved to bring these points to the attention of the Ministry at a higher level.

In terms of Fiji's relationship with FMC Corporation, it was noted by the forum that there appeared to be no difficulties with them as sole purchaser of Fiji seaweed. The price they had set for Fiji seaweed at US\$0.55 was good by world standards, and they had been very supportive of industry development within Fiji through *inter alia* provision of field agents, technical expertise, instruction manuals, and funding support for a Masters in Marine Affairs student at USP to study seaweed issues.

In answer to a question about the nature of the relationship and responsibilities between farmers, Government and REL Fisheries, the following schematic diagram was sketched upon a whiteboard:



The forum noted that the MOU between Government and FMC apparently had provision for arrangements and prices to be reviewed annually, but that no such annual review had ever occurred.

In terms of attempting to solve problems in domestic marketing and remove this as a stumbling-block to further industry expansion, the discussion forum made the following recommendations to Government about marketing (a long-term and a short-term strategy) and about industry consultation mechanisms:

**Longer-term marketing strategy** – allow other entities (either within Government or in the private sector or both) to purchase seaweed and sell it to FMC Corporation, by either (1) invoking the provisions to review the MOU between Government and FMC, or (2) setting aside the MOU on the grounds that it may not be legally binding, or (3) setting aside the MOU on the alleged grounds of non-performance or breach of provisions by REL Fisheries.

**Shorter-term marketing strategy** – Government to step in and purchase seaweed throughout the Fiji group and deliver it to REL Fisheries (it currently does this in the North) either by using the mechanism of accountable advances, or by setting up a new revolving fund, with suitable mechanisms in place to ensure accountability for the funds disbursed and the seaweed collected.

**Consultative Committee** – an industry-wide committee should be set up with broad representation within and outside government, meeting several times a year as required, to consult with each other and formulate advice and strategies on industry issues such as marketing.

### **Issues on Development and Assistance**

**Re-possession of boats etc** - Clarification was sought from the panel on Government policy toward boats, engines and equipment given out by government to farmers in the past, in return for which farmers had signed agreements committing to plant agreed numbers of seaweed lines. Few ever honoured this commitment and the boats are now in use for other activities. Should they be re-possessed or not?

The panel acknowledged that the idea of giving out boats and engines had been a bad idea from the start, and ought not be repeated. For example, it led to people taking up farming for whom seaweed farming would otherwise not have been a sustainable activity, purely to get hold of a boat. The panel felt, however, that many of these assets would now be almost worthless, and it would cause a lot of friction and disenchantment to recover them now, so it may be best to write them all off and treat this as a “closed chapter” in the history of Fiji seaweed farming development. Other more appropriate mechanisms to support new farmers were now in existence, as reviewed in the next section.

**SCARF** - With regards to future funding assistance for seaweed farming development, the forum felt that this avenue could be used even though at the moment the scheme is restricted to offshore fishing.

Under SCARF, the *applicant* pays 10% as a deposit, *Fisheries* pays 35% as a grant, and *Fiji Development Bank* pays 55% as a loan to the applicant.

Under the SUBSIDY SCHEME (ONE-THIRD/TWO-THIRD), the *applicant* pays  $\frac{1}{3}$  as a deposit while *Fisheries* pays  $\frac{2}{3}$  as grant (this could be used by the seaweed farmers as an alternative to SCARF).

Other possible sources of assistance to new entrants into seaweed farming could potentially be Social Welfare (Poverty Alleviation), Te Kakano Fund (New Zealand ODA), PDF (administered by Department of Fisheries) and the Ministry of Commerce Micro-Finance (Start Your Business) scheme.

**Farm Support Services (Field Visits)** – The panel noted the feedback from farmers about lack of farm visits by extension agents, and noted the logistical problems faced by such agents in terms of wide geographical areas to support and poor state of transport links. The panel felt that this was a test for the character of extension staff and field-men, who should try to be innovative in such situations where often common sense has to prevail. They suggested a range of ways in which extension officers could make the best of their situation and do their best to serve the people within their area of responsibility:

- Communication links between ministries (consistent communication and networking is important to coordinate logistics and departmental visits)  
It is important to reach the public to get their point of view and provide assistance and guidance
- Divisional Office visits (liaise concerning all requirements)
- Work through Divisional Office
- Work closely with Divisional Heads  
Subordinates and their superiors should not work in isolation but in “collaboration”
- Find out when there is transport to particular areas and go out in multi-departmental teams if necessary to share transportation logistics

## **Participant feedback**

Workshop participants were asked to anonymously write answers to four questions about the workshop on a sheet of paper and hand it in for compilation of feedback about the workshop. The questions and their answers (typed exactly as written by them) are as follows:

### ***1. What did you like about the workshop?***

Enhancing of knowledge and skills  
Got to meet new people including other Extension staffs  
Sharing of experiences from various sites  
Understanding one's role in the "world" of seaweed  
Re-enforcement of skills needed to impart to farmers with regards to proper farming methods  
Goals have been achieved  
The venue for the workshop was very appropriate since Kiuva is a seaweed farming village  
Knowledge shared, ideas gained and problems identified - all contributed to broaden one's knowledge  
Its basic community environment  
The seaweed workshop was an eye-opener as far as seaweed farming is concerned  
The workshop was well-organized in terms of how it was conducted, training manuals and incentives like free equipment given to the participants  
A lot of insight on whole process of seaweed farming was quite helpful  
The workshop has been a wonderful experience because it was done in a real-life environment particularly where the participants from Fiji and the Solomons were able to share their successes and problems and carry out practical (hands-on) and theory at the grassroot level and also got to mingle with seaweed farmers at Kiuva  
Conveying of biological knowledge about seaweed farming to us  
Sharing of experience with others  
Enhancing of skills and know-how and encouraging other Extension officers on the importance of their role when serving the people  
Au taleitaka na workshop baleta ni mai vakatoroicaketaka na noqu kila na kena qaravi na tei lumi (Improving of skills and know-how about seaweed farming)  
E levu na ka au mai vulica ka mai kila sara kina vakavinaka me baleta na tei lumi (A lot of things I have come to learn and understand about the whole idea of whats required in seaweed farming)

### ***2. What did you not like about the workshop?***

Sitting on the floor was very uncomfortable - it disturbs our concentration  
Time of the workshop was during a cold month (esp. going out to sea)



Some of the issues by the participants were not answered well, because the appropriate stakeholder was not available (*marketing issues*)

Absence of the Deputy Director Fisheries-Fiji and the Permanent Secretary for Fisheries-Fiji in the Panel discussion, as most of the issues raised would have been appropriately clarified by them

Sa dua na vuli vinaka (It has been a worthwhile learning experience)

Au marautaka na workshop mai na I matai kina I ka va ni siga ka sega ni dua na ka e dredre (I liked what was covered in the workshop and there was nothing difficult in it - simple and easy to understand)

### ***3. How could this workshop be improved?***

Changing of the venue to a classroom with tables and chairs

More exercises

Extend duration of workshop to two weeks

More video shows from other countries culturing seaweed and a lot of hands-on experience

Should get all stakeholders to participate in the workshop, example REL, Senior Management Staff in the Department and so forth to be able to clarify the issues raised

Having more participants from other countries

A bit more on the economics of seaweed farming and also research would be helpful too

Having proper seats like in a classroom environment would be helpful

### ***4. Any other comments?***

Au nanuma ni na vinaka na workshop ke vakayacori vakawasoma (I feel that there should be more of this type of workshop to be conducted in the near future)

Gadrevi me dua tale na vuli (Need for more workshops as this)

More participants from the region thus sharing of ideas form one's experience

The more workshops like this conducted, the more field officers could inform and encourage senior management staff to revive the seaweed industry

Possibility to have this type of workshop on an yearly basis, as a means of re-viewing performance

Small island State should have an exchange programme for officers and farmers and FOB price for economic growth

If a workshop for the farmers to be held in Vanua Levu

Have a follow-up workshop later in the year

Having Senior Management Staff available to address some of the policy issues/staffing and so forth (internal issues)

## Workshop budget summary

Expenses	Amount (\$)
Return air fares (2 Solomon Islands participants)	2357
Return air fares (Fiji participants)	1651
Return sea fare for Asaeli Bale (Ono-I Lau participant)	155
Meals at Kiuva (\$22.5 per person per day for 15 people for 5 days)	1575
Meals at USP (all participants)	840
Accommodation at Kiuva (\$25 per day for 12 people for 5 days)	1500
Accommodation at USP lodge (before going to Kiuva)	534
Accommodation at Peninsula hotel	960
Hire of village hall at Kiuva	50
Boat hire at Kiuva (4 boats @\$20 per day for 4 days)	320
Bus hire	600
Freight for seaweed samples (Labasa to Suva)	54
Taxi fares for two regional participants	200
Taxi fares for Fiji participants (\$40 for 7 people)	280
Taxi fare expenses (for Nakobo and Dreketi participants)	240
5 kg kava root for Sevusevu	76
Cost of fuel for generator	120
Spring balance(14 @\$34 per balance)	490
Stakes (cost of cutting and transport)	100
Tools (bush knife/mall hammer/crow bar/ PVC end cap))	94
Cost of Printing 500 copies of seaweed manual(English translation)	4680
Contribution to Kiuva community fund	500
Stationary and printing of translated manual	632
<b>Total</b>	<b>18,008</b>

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