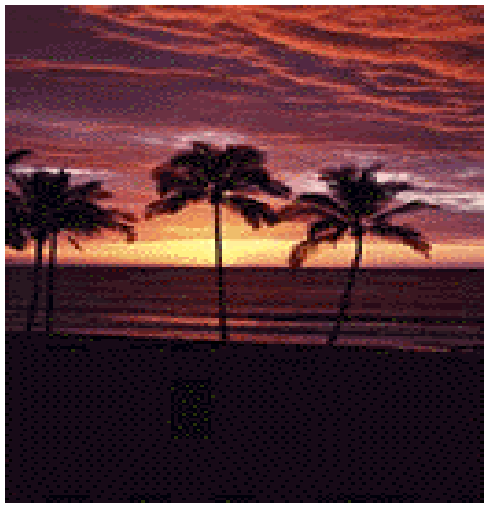
South Pacific Regional Environment Programme

SPREP

FEASIBILITY STUDY

HONEY BEE PROJECT

IN A SPREP CONSERVATION AREA



UAFATO Village

Upolu • SAMOA

August 1999

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…for Small Island States"

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ACKNOWLEDGEMENT

I wish to acknowledge the assistance offered by the Uafato Village Community, especially Reverend and Mrs Asotasi, CACC members and the Komiti-a-Tina. Special thanks to the Uafato CASO, Papalii Dion Ale, for his valuable guidance.

1. EXECUTIVE SUMMARY

The proposed income generating project is the Uafato Village Community Honey Project, co-ordinated by the Komiti-a-tina (Women's Committee) in association with the Uafato CACC.

Background

The SPBCP/SPREP Project has been working closely with one of its Conservation Areas since 1994, the village of Uafato on the island of Upolu in Samoa. The overall goal is to conserve the biodiversity of the Uafato CA based on the sustainable use of natural resources and for the benefit of current and future generations.

To achieve the project goal, one of the main activities is "to develop sustainable income generating projects". This study looks at one such possible project using the production of honey through beekeeping, as identified by the Uafato Village community themselves.

Project Feasibility

In assessing the feasibility of this project as an income generating activity for the Uafato CA, the main issues examined were technical viability, commercial issues and a sustainable environmental impact.

The technical report clearly explains how there is a positive nectar flow for this conservation area. Commercial viability is clarified by the market report noting the existence of a local honey market and a potential export market. Financially, there is also the opportunity to earn some form of income which could be as supplementary or main source. The impact of such a project on the environment is seen as very positive, where the bees are beneficial to the conservation of natural resources.

The project management structure being proposed may seem somewhat unconventional but it is designed to give a practical flow to income generation and to ensure that appropriate share of funds are received by project owners (family units)

Project Management Structure

It is proposed that there be three practical management units for this 'honey' project.

- Project Co-ordinators – being Komiti-a-tina (in association with CACC)
- Project Units/Owners – being the family units identified as participants of the project
- Contract Managing Agent – being a business dealing in honey, contracted (for an initial period of up to 3 years) to manage the hives, harvest and market the honey from Uafato

Production

The production process is very simple, which basically involves the maintenance of the beehives through ensuring that they are secure on the allocated/identified sites. The initial number of hives will be thirty-one, based on nineteen family units that have offered to participate in this project. All management including maintenance of hives and harvesting of the honey is proposed to be carried out by a contracted private business dealing in Honey, with the intention of training personnel to be able to give them the option of managing their project within 3 years.

Market

The initial market for this product will be the local market in Samoa with the ultimate aim of supporting the honey industry's efforts in Samoa to explore the potential export market in New Zealand as a high value, disease free and possibly 'certified organic' product. It is also anticipated that the marketing of the honey product be based on a continued partnership with the contract management agent.

The projected income is given at two levels:

(i) Direct Selling of Product to the Retail market – use Retail Value

(ii) Selling through a Management Agent/Distributor – use Wholesale Value

Projected sales for the first three years are:

SALES Projections No. of Hives: 31	**YR 1**	**YR 2**	**YR 3+**
(A) Yield per Hive: 30Kg/year			
Volume (Kg)	*744*	*930*	*930*
Retail Value($10/Kg)-Bottled	7,440	9,300	9,300
Retail Value($12/Kg)-Bottled	8,928	11,160	11,160
Retail Value($14/Kg)-Bottled	10,416	13,020	13,020
Wholesale Value($5/Kg)-BULK	*3,720*	*4,650*	*4,650*
(B) Yield per Hive: 60Kg/year			
Volume (Kg)	*1,488*	*1,860*	*1,860*
Retail Value($10/Kg)-Bottled	14,880	18,600	18,600
Retail Value($12/Kg)-Bottled	17,856	22,320	22,320
Retail Value($14/Kg)-Bottled	20,832	26,040	26,040
Wholesale Value($5/Kg)-BULK	*7,440*	*9,300*	*9,300*

* These projections are based on an assessment of the local market in Samoa, and are subject to the assumptions as outlined in the market and finance reports contained in the attachments.

Project Financing

Project financing, especially in the set-up phase, is required to be sourced from outside agencies because of the limited amount of cash available within the community.

Proposed Project Cost: (CONTRACT Management)

Cost per 31 Beehives @ST$410.00/hive	ST$	12,710.00
TOTAL INVESTMENT	**ST$**	**12,710.00**

Proposed Project Funding: (CONTRACT Management)

It is recommended that the community be expected to make some nominal contribution to the investment cost per hive, to instill true feeling of project ownership.

- Community Family Units ($10/Hive for 31 hives) $ 310.00
- Project Funding (to be sourced) $12,400.00

TOTAL PROJECT FUNDING	**ST$**	**12,710.00**

2. INTRODUCTION

2.1 Background

The SPBCP/SPREP Project has been working closely with one of its Conservation Areas since 1994, the village of Uafato on the island of Upolu in Samoa. The objectives of the Uafato Conservation Area project and the activities to be carried out thereunder are set out in the "Uafato Conservation Area Project Preparation Document (PPD) – 1996." This document stipulates that the overall goal is to conserve the biodiversity of the Uafato CA based on the sustainable use of natural resources and for the benefit of current and future generations.

To achieve the project goal, one of the main activities is "to develop sustainable income generating projects". This study looks at one such possible project using the production of honey through beekeeping, as identified by the Uafato Village community themselves.

2.2 Project/Product Details

The proposed income-generating project is 'beekeeping eco-enterprises' in the Uafato conservation area, for the village community and families.

The product will be liquid honey for the local market in Samoa and potentially to support an export market opportunity. It is also anticipated, as was agreed to at the Workshop in Uafato (31 August 1999) that a 'management agent' will be appointed to manage the hives, harvest and market the honey.

2.3 Proposed Project Management Structure

The proposed management structure is recommended on the basis of the experience as discussed with various people and groups who have been working with community groups in Samoa. It is also based on knowledge obtained from research on the development of Cooperatives in Samoa (1952-1998)

It is proposed that there be three practical management units for this 'honey' project.

- Project Co-ordinators
- Project Units/Owners
- Contract Managing Agent

PROJECT CO-ORDINATORS

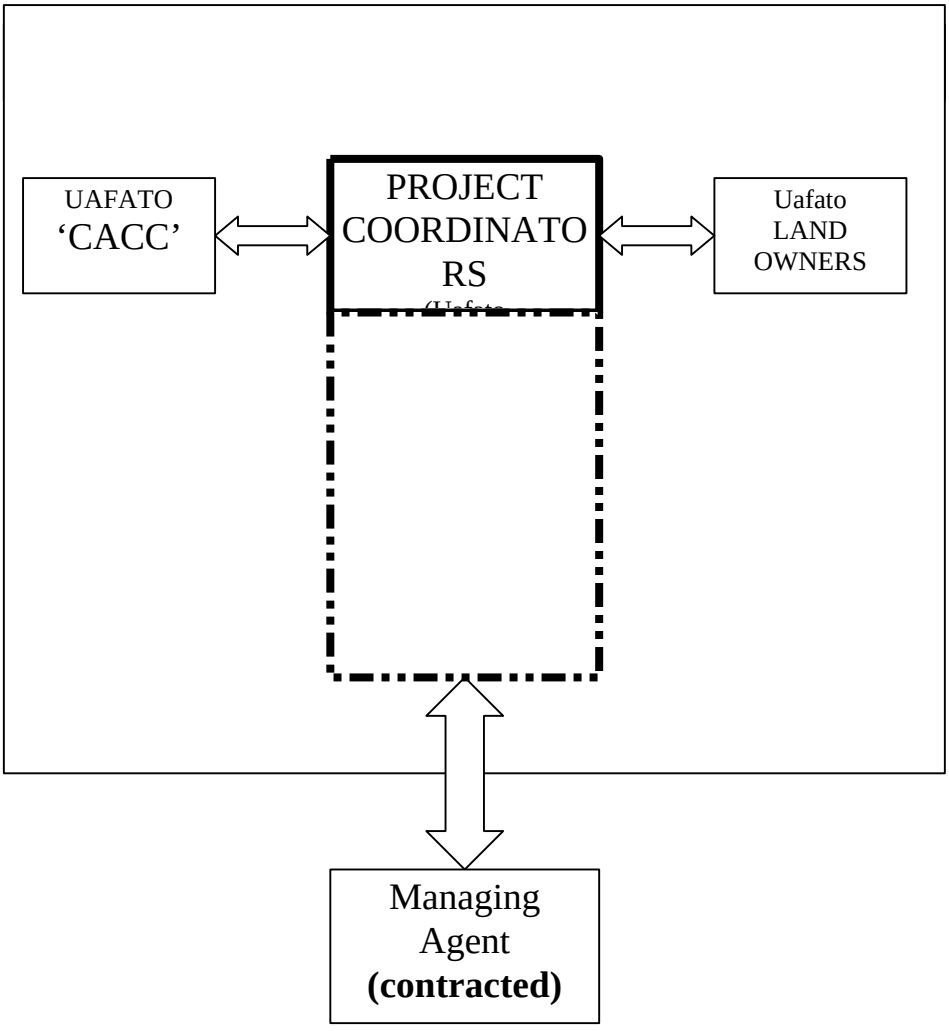
It is proposed that the Uafato women's committee (Komiti-a-tina) be the project co-ordinators but to work closely with the Uafato CACC. They will be responsible for supervising the whole project and to facilitate issues like the land ownership/usage for project purposes and the contract with a 'management agent'.

PROJECT UNITS/OWNERS

Interested Family units ('matafale'), who are willing to participate in the project, need to be identified and registered with the project co-ordinators. Each 'unit' will be expected to own their beehives and to contribute a nominal investment sum of $10 per hive, for the number of hives that they will take.

CONTRACT MANAGING AGENT

There was general agreement at the Uafato Workshop that the best initial option (for at least 3 years) would be to appoint or contract a 'managing agent' responsible for managing the hives, harvesting and marketing the honey.



2.4 Political Factors

The proposed project is very much in line with government's efforts to promote economic activity, and especially in the rural sector. This is also an income generating project sanctioned by the regional environment agency, SPREP, who have sponsored this feasibility study for one of its official Conservation Areas.

2.5 People involved in the income generation project

2.5.1 Family Units(refer Attachment A1, page 24)

2.5.2 Uafato Komiti-a-Tina(Women's Committee, refer list page 25)

2.5.3 Advisers and Others

Uafato CACC	Monitoring Conservation Area
O Le Siosiomaga Society	Monitoring through CASO
SPREP	Environmental Advisers
Beekeepers Association of Samoa	Technical Advice

2.6 Production/Processing

The production process is very simple, which basically involves the maintenance of the beehives through ensuring that they are secure on the allocated/identified sites. The initial number of hives will be thirty-one, based on nineteen family units that have offered to participate in this project. All management including maintenance of hives and harvesting of the honey is proposed to be carried out by a contracted private business dealing in Honey.

There is however the option of the project being able to carry out this part of the operation in the future, should the family units decide to do so, once they have the basic skills and know-how.

2.7 Materials

Boxing Material for beehive construction is available locally, however it is advisable to obtain, for the initial stages, the proper boxes and frames which are imported, so as to minimise any risks that could affect the bee colony.

Packaging material and promotional materials are anticipated to be part of the costs that would be carried by a proposed private business to be contracted as agent.

2.8 Personnel & Training

It is anticipated that 19 Family Units from the village will be involved in the project.

Skill level required for the proper management of the hives will initially be fairly high but this should be overcome by some basic training to be delivered by an expert beekeeper.

Such a training program is to be incorporated into a proposed Management agent Agreement and is to include at least the basic components outlined in Attachment A6: Basic Apiculture Training Curriculum. It is anticipated that any training should result in personnel being able to obtain the necessary skills to manage hives within three years.

It is important to note that experience over time would be the most useful way to upgrade any needed skills, and any associated costs are generally absorbed into the activity.

2.9 Proposed Timetable/Schedule of Implementation

(The schedule below is to be used only as a guide)

MAY 2000

- FUNDING to be in place (ready for disbursement)

JUN 2000

- MANAGEMENT Agreement to be discussed and agreed to between the Project Family Units and the proposed Private Business to manage and harvest their honey.
- LAND Agreement between land owners and Project Family Units to be in place.

JUL 2000

- PURCHASE and assemble Hives.

AUG 2000

- PLACEMENT of Hives at the Sites

SEP 2000

- First Maintenance visit by the private business

3. MARKETING PLAN

The Marketing Plan outlined below is based on an assessment of the market (refer Attachment A3 for details), taking into consideration the background of the Honey Industry (Attachment A5) in Samoa.

The initial market for this product will be the local market in Samoa with the ultimate aim of supporting the honey industry's efforts in Samoa to explore the potential export market in New Zealand as a high value, disease free and possibly 'certified organic' product.

In ensuring access to the export market, emphasis will have to be placed on quarantine issues to ensure the product has no access problems into the export country.

Projected sales for the first three years are given below in annual yields of 30Kg and 60Kg using, initially, 31 hives (Refer Attachment A3 for other detailed scenarios)

SALES Projections No. of Hives: 31	**YR 1**	**YR 2**	**YR 3+**
(A) Yield per Hive: 30Kg/year			
Volume (Kg)	*744*	*930*	*930*
Retail Value($10/Kg)-Bottled	7,440	9,300	9,300
Retail Value($12/Kg)-Bottled	8,928	11,160	11,160
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Wholesale Value($5/Kg)-BULK	*3,720*	*4,650*	*4,650*
(B) Yield per Hive: 60Kg/year			
Volume (Kg)	*1,488*	*1,860*	*1,860*
Retail Value($10/Kg)-Bottled	14,880	18,600	18,600
Retail Value($12/Kg)-Bottled	17,856	22,320	22,320
Retail Value($14/Kg)-Bottled	20,832	26,040	26,040
Wholesale Value($5/Kg)-BULK	*7,440*	*9,300*	*9,300*

* These projections are based on an assessment of the local market in Samoa, and are subject to the assumptions as outlined in the market and finance reports contained in the attachments (A3 & A4).

It was generally accepted at the Workshop held at Uafato on August 31,1999 that the initial option (for the first 3 years) of selling through an agent should be adopted. The proposed marketing strategy outlined below is thus based on this understanding from the 'project coordinators'.

The strategy involves the product being sold in bulk at the farm gate as 'liquid honey' that would be harvested by the 'managing agent' themselves. The proposed price will be negotiated with the 'agent', once an appointment is made. It is noted that the current farm gate price is $5 per Kg.

The community will assist wherever possible in supporting any marketing efforts by the 'managing agent' to promote the 'honey' product. Especially in ensuring the physical security of the hives and protection against use of chemicals within the conservation area.

It is proposed that a 'distribution agent' (being an existing honey business/organisation) be appointed as a 'managing agent' to manage the hives, harvest and market the honey . The specific terms, duration of an arrangement and prices will have to be negotiated.

The agent will naturally be managing any overseas marketing opportunities.

4. FINANCIAL ISSUES

The Financing Plan (refer Attachment A4), outlines the two options considered by the proposed Honey Project management committee (Komiti-a-Tina). The preferred option (Option II) was for the 'village family units' to own the hives and that the maintenance, harvest and selling be contracted to an existing Honey Business/Organisation. The estimated project cost for the two options are given below:

4.1 Project Cost

The costs are made on the basis of research findings and assumptions listed. **Please refer to Attachment A4 for the List and more detailed options/scenarios.**

Option I. **DIRECT Management** – by the village project

The **first** option is Direct Management of Hives, which means that the project facilitators and owners (village) will have to invest in buying the hives, facilitate the training of the project members, managing/maintenance of hives, harvesting and marketing of the honey product.

Cost per 31 Beehives @ST$410.00/hive	ST$	12,710.00
Special Maintenance Equipment (1set)		2,000.00
Harvest-Extractor Frame (1x4Frame)		2,500.00
TOTAL SET-UP COST	ST$	17,210.00
Hive Maintenance per year 1&2		2,550.00
Queen Bee Replacement per year 1&2		750.00
Selling Expenses per year 1		1,760.00
TOTAL INVESTMENT (a)	**ST$**	**22,270.00**

Option II. **CONTRACT Management** – by an outside honey business

The **second** option involves the Contract Management of these Hives. The project facilitators and owners will only need to invest in the purchase of the hives then to negotiate with a private business dealing in honey to manage the hives, harvest and market the honey product for an agreed farm gate price per Kilogram.

Cost per 31 Beehives @ST$410.00/hive	ST$	12,710.00
TOTAL INVESTMENT (b)	**ST$**	**12,710.00**

4.2 Project Funding (using Option II above)

It is recommended that the community be expected to make some nominal contribution to the investment cost per hive, to instill true feeling of project ownership.

4.2.1	Community Family Units($10/Hive for 31 hives)	$	310.00
4.2.2	Project Funding (to be sourced)		$12,400.00
	TOTAL PROJECT FUNDING	**ST$**	**12,710.00**

4.3 Training COST

There will be a training component required regardless of which option is taken. It is anticipated that such a component be addressed separately with interested parties bidding for it or negotiated for under the management contract and funded under an assistance program. The study has therefore not allocated a specific amount to this cost.

5. DEVELOPMENTAL ISSUES

5.1 Justification for a Project Fund

As outlined in the introduction, part of the effort to conserve the environment around Uafato Village (especially the 'ifilele' tree), was to provide alternative sources of income for the village people. One such activity that was prioritised was to be the introduction of Honey Production.

There is very limited cash available within the village to invest in this type of project, so if a fund/grant were not available, the project would need to obtain loan funding, which would make it difficult for the project to be viable as a community income generating activity.

All proposed assets are to be used directly in the operation itself :-

- Hives (3 Boxes)
- Cover (Roofing iron)
- Bee Colony

5.2 Effect on the Local Environment

- There are no known adverse effects from the production of honey

- All processes are achieved without the use of chemicals or the production of harmful residue

- The bees are beneficial to both community development and conservation of natural resources. It does not require the destruction of natural vegetation, use of chemicals or disturbance of the soil.

5.3 Occupation Health & Safety

- Sting – can hurt or affect allergy sufferers
- Inconvenience – bees can swarm into buildings
- Hard Work – boxes can be heavy and the hives require proper management

Three hives were set up in the Uafato Village area for 3 months to ascertain whether or not there was a honey flow. In that time there had been no complaints on issues of safety or inconvenience.

As noted in the technical report, it was evident that the participants had a high degree of fear, for being stung in the face by bees. Fear arising from pre conceived mental images. But when outfitted with protective clothing the participants were more forthcoming to handle the frames, taste the honey and to observe the hive up close. It would seem that if a gentle strain of bees are used (strain used in the monitoring hives) together with more awareness training, that any village tolerance problems, as a whole, can be overcome.

5.4 Effect on the Local Economy & People

It is anticipated that the project can provide an opportunity for the village people to earn some form of income. Depending on the number of hives, it could be a supplementary or main source of income for the family unit.

5.5 Effect on Gender and Development

The effect on women will be positive and substantial, in that the women's committee will basically provide the project coordination aspect. They will need to be working closely with the CACC Committee and the chiefs in the village.

The project should also provide supplementary income opportunities for women and their families. Based on the proposed set up of the project, in terms of ownership and contract maintenance & selling, it should allow women to carry out their normal family and traditional roles.

5.6 Effect on the National Economy

Although the venture/project will have limited initially direct impact, through import substitution, on the national economy, it is anticipated that this project will contribute towards the efforts of the Honey Industry in Samoa in developing an export market opportunity in the longer term.

6. RISKS AND RISK MANAGEMENT STRATEGIES

In any commercial or income-generating venture, there are always risks associated with it. Projects of an agricultural nature, such as this one, has a natural risk like the weather (especially rain for bees), which is outside our control, that would affect the yield or outcome of the project.

Outlined below are some of the risks and risk management strategies that need to be considered for this income generating activity.

6.1 Threats & Weaknesses

Hive Damage
There is always the threat of people and livestock damaging the beehives.

Land Ownership/Usage Issue
According to the proposed set up of the placement of Hives, in order to maximise honey yield and efficiency of harvesting, three strategic locations were identified which were to be used for the project. It is essential that a land ownership/usage agreement is settled prior to project start.

Competition
There are many limitations on Uafato being able to meet the local competition in Apia, but the main one is that of logistics. The distance of the village from the market (town) requires efficient transportation in order to service the market and obtain supplies. However, the village does not have transportation available other than a bus service on Monday, Wednesday, Friday and Saturday.

Finance
The project would probably find it difficult to be set up without an initial capital injection or seed funding from outside the village members.

Disease
The greatest threat, especially in attempting to realise the export potential of the Honey product, is that of contracting bee 'diseases' from honey products imported into Samoa.

Quarantine Regulations
Restrictions on access to overseas countries imposed on our export honey product through their quarantine regulations.

Appropriate Training
Good hive management is essential to ensure the harvest of maximum potential yields.

6.2 Risk Management & Contingency Plan

In attempting to manage the risks within a project, it is important to note that there are many factors that could influence certain conditions. Therefore, risk management strategies are designed to help minimise any such risks identified.

Hive Damage
There are three possibilities to help minimise the risk of the hives being damaged by people. These can be implemented on their own or together.

- Awareness – through proper training of the village people on the behavior of bees and the benefits of having them in the village
- Avoidance – through strategic placement of hives away from the village plus some security fence around the hives
- Authority – through the use of village authority of the matai to ensure the protection of the hives.

Land Ownership/Usage Issue
The workshop identified the owners of the proposed project sites, one of whom was present. The workshop resolved to obtain permission from the owners to use their land for this proposed village project. It was also agreed that the process and any resulting agreement should be co-ordinated by the Komiti-a-tina with the help from the CACC.

It is recommended that any such arrangement should account for some monetary compensation (even if it is a token one) to the owners, either in the form of a fixed $tala amount payable per hive per year or a percentage amount on any Honey harvested. The agreement should also state the duration or term of the land use and conditions of renewal.

Competition
The workshop was in general agreement to consider the option of contracting the services of “managing the hives and harvesting”, to an existing private business already selling to the market. This should then leave the marketing issues to be handle by someone else who is closer to the market and is also an expert in managing hives.

Finance
Funds should first be made available in the form of a grant prior to the start of the project. However, people generally ‘would not appreciate that which is given free’ so to instill some sense of ownership, it is recommended that the village participants be expected to make a nominal contribution of around $10 per hive.

Disease
The project and the community should be prepared to offer support to the honey industry efforts to control the importation of honey, which is currently posing a threat of bringing in diseases.

Quarantine Regulations
The project should also be prepared to collaborate with honey exporters in efforts to meet required standards once the export opportunity is developed.

Appropriate Training
Appropriate training should be incorporated into the project to maximise the chances of attaining good annual yields.

ATTACHMENTS

ATTACHMENT A1

WORKSHOP Report

UAFATO CONSERVATION AREA

TUESDAY 31 AUGUST 1999

INTRODUCTION

The SPBCP/SPREP Project has been working closely with one of its Conservation Areas since 1994, the village of Uafato on the island of Upolu in Samoa. The objectives of the Uafato Conservation Area project and the activities to be carried out thereunder are set out in the "Uafato Conservation Area Project Preparation Document (PPD) – 1996." This document stipulates that the overall goal is to conserve the biodiversity of the Uafato CA based on the sustainable use of natural resources and for the benefit of current and future generations.

To achieve the project goal, one of the main activities is "to develop sustainable income generating projects"

PURPOSE OF THE STUDY

The purpose of this consultancy is to undertake a Feasibility Study for the Development of Beekeeping eco-enterprises in the Uafato Conservation Area, and in consultation with the village community and families, plan to develop beekeeping in Uafato following sustainable business, environmental and community management practices.

The planning study would include considerations related to:

1. Motivation and Skill Levels of Community and Individuals
2. Past experiences in Beekeeping - in Samoa
3. Commercial Issues
   - Market demand
   - Funding requirements – or costs
   - Share of Benefits
4. Establishment of suitable Management Structures

TASKS

(a) Technical – to carry out a technical evaluation on the establishment of a Honey Bee Project

(b) Commercial – to carry out an evaluation of the commercial viability of a Honey Bee Project

(c) Support Organisations (like NGOs) – to identify possible NGOs that could support the Project

(d) Social and Environment Impact – to assess the possible social and environmental impact on the possible establishment of such a project.

(e) Key Community Project Group - to identify the key "interested community or family units" that would initiate any such Honey Bee Project.

(f) Sample Business Plan – to develop an appropriate sample business plan for the 'identified units' – if such a project is found to be viable and is deemed appropriate.

CONSULTATION

That there be consultation with the Uafato Village community and families interested in Beekeeping:

(i) To collect perceptions and viewpoints on Beekeeping; **and**

(ii) To assess their interests and potential for initiating the project; **while**

(iii) Considering any limitations of beekeeping in Uafato

WORKSHOP METHODOLOGY : Tuesday - 31 August 1999

To hold a De-briefing Workshop on the Outcomes (preliminary findings) of the Feasibility and Planning Study with members of the CA staff, community and interested family unit representatives.

Refer List of Participants at the end, but the following people or groups were represented:

- Uafato CACC members – 4 members
- Komiti a Tina (Women's Committee) – 11 members
- Tina o le Galuega (Pastors Wife)
- Papalii D Ale (initiating CASO officer)
- Apete Meredith (Bioglobal Pacific Consultancy)

The workshop started with a general discussion first with the members of the Uafato CACC (while the Komiti-a-Tina was in attendance) to brief them on the general findings of the Study on a proposed Honey Project for the village. A general agreement was also obtained from the Uafato CACC to enable the Komiti-a-Tina to be responsible for the co-ordination of the Honey Project for the village. The Workshop then focused on more specific issues in discussions with the Komiti-a-Tina members.

(a) **Technical Assessment**

To carry out a technical evaluation on the establishment of a Honey Bee Project –

There were four main criteria for assessing the technical viability of the establishment of a Honey Bee Project:

1. Positive Honey Flow

   Based on the result of the three Hives that were put on location in May 1999, there appears to be a positive flow present

2. Equipment availability (Local or overseas) – for Hives Construction, Management, Harvesting and Processing.

   All equipment needed to establish and maintain a Honey Bee Project can be sourced locally or from overseas. There will, however, be some costs to set it up.

3. Personnel availability – for management of hives from the individual family units

   Interested Family units were identified, at the Workshop, that were willing to participate in the project.

4. Land availability – that suitable location is available for the establishing of the Hives (free from possible damage or family disputes). This was to be identified and discussed at the Workshop.

   The workshop identified the owners of the proposed project sites, one of whom was present, and resolved to obtain permission from the owners to use their land for this proposed village project. It was also resolved that the process and any resulting agreement should be co-ordinated by the Komiti-a-tina with the help from the CACC.

   Any such arrangement should account for some monetary compensation (even if it is a token one) to the owners, either in the form of a fixed $tala amount payable per hive per year or a percentage amount on any Honey harvested. The agreement should also state the duration or term of the land use and conditions of renewal.

NOTE:
A more detailed report had since been prepared and is attached as Attachment A2

(b) **Commercial Assessment**

To carry out an evaluation of the commercial viability of a Honey Bee Project

- **Potential Market for Honey**

An outline of the findings from the research carried out of the Local Retail Market and enquiries made into the New Zealand market is contained in Attachment A3: Market Report.

- **Costs & Revenues**

Set-up costs, Operating costs and Potential Revenues/Income (Samoa Tala$).

The costs and projected revenues are made on the basis of research findings and assumptions listed in the Financial Report – refer Attachment A4.

- **Potential Sources of Fund**

There are a few potential sources of funding that could be drawn on for the initial set up of such a community based project. Refer List provided in Section 5 of Attachment A4.

(c) **Support Organisations** (like NGOs)

To identify possible NGOs that could support the Project –

There are a two NGOs that could offer support for such a Honey project:

- Beekeepers Association of Samoa
- Women In Business Foundation

There are also some businesses in the private sector that could offer business support as well:

- WF Moore and Associates – Bill Moore
- Tropical Honey - Leicester Dean

(d) **Social and Environment Impact**

To assess the possible social and environmental impact on the possible establishment of such a project.

SOCIAL IMPACT

- Sting – can hurt or affect allergy sufferers
- Inconvenience – bees can swarm into buildings
- Hard Work – boxes can be heavy and the hives require proper management

It was reported that Bill Moore (technical expert) was coming to Uafato Village around the 1st or 2nd week of September, 1999 to collect the Hives that have been used in the trials. At that time an assessment was to be carried out on the possible acceptability of bees by those in the community who have agreed to be involved in the project (refer Technical Report per Attachment 2).

ENVIRONMENTAL IMPACT

- There are no known adverse effects from the production of honey
- All processes are achieved without the use of chemicals or the production of harmful residue
- The bees are beneficial to both community development and conservation of natural resources. It does not require the destruction of natural vegetation, use of chemicals or disturbance of the soil.

(e) Key Community Project Group

To identify the key "interested community or family units" that would initiate any such Honey Bee Project.

It was anticipated that there would need to be at least 10 Family units interested to initially establish 'ONE' Hive production each. There was, however, a fair bit of interest in the project as was evident in enlisting 19 family units, for a total number of initial hives of 31 as at the date of this workshop in August 1999.

No:	FAMILY Unit - NAME	No. in Household	No. of HIVES
1	**TOGIAI**	1	1
2	**MANOA**	-	2
3	**LAUFA'I**	2	1
4	**ALAILEFUE PELI**	1	1
5	**ALAILEFUE LISALE**	3	3
6	**VAIPUA MOEMOE**	3	3
7	**FUIMAONO**	1	1
8	**OFOIA**	1	1
9	**TOFATU**	1	1
10	**TUI TOVALE**	3	3
11	**TUI SAMUELU**	1	2
12	**TUI SAILI**	1	1
13	**FAASOU**	1	1
14	**ATAITI TAMA**	1	1
15	**MALO SAKARIA**	1	1
16	**ATAITI KILIATA**	1	1
17	**ATAITI LOI**	1	1
18	**SULIA LETOGA**	1	1
19	**Rev ASOTASI**	1	5

	T O T A L		**31**

(f) Sample Business/Project Plan

To be developed - a sample business plan for the 'identified FAMILY UNITS' – if such a project is found to be viable as a large business. However, if it is proposed to be maintained as small income generating units, then the main feasibility document should be sufficient to support a funding request.

(g) Workshop Participants

The following people were involved with discussions at a workshop carried out in August 1999 at Uafato Village.

Uafato CACC Members

- Alailefue Lisale
- Vaipua leiloa
- Ataiti Loi

Uafato KOMITI A TINA (Women's Committee)

- Sita
- Mele
- Lupe
- Faasuamalie
- Miriama
- Malo
- Sulia
- Sina
- Tuputala
- Sipau
- Afa
- Savaliga Time

Uafato CASO

- Papalii Dion Ale

WF Moore

Honey Production-Beekeeping in Uafato

Technical Assessment

September 1999

Honey Production-Beekeeping in Uafato

Technical Assessment

1. NECTOR FLOW POTENTIAL OF THE CONSERVATION AREA

To substantiate the existence of a nectar flow in the conservation area. Three 3 deck, full strength hives were established in three sites, and the weight gain was measured over a period of three months .The monitoring period was chosen around the known peak flow period for other areas, from the previous year. It is assumed that a high number of plants, in the area, should also flower during this period, May-June.

Although the many valleys are separated by steep ridges, the short distance inland(approximately 100m), would place any valley within reach of the bees from any of the three sites.

During the inspection visit. The Poumuli (nectar bearer) and the Fuafua *kleinhovia hospita* (used in the past as a honey flow indicator plant) were observed to be in flower, along the coastal forest and the village area. The Poumuli in the flower bud stage. On the ridge forest, only the Toi was seen to be in flower. None of the listed native flora was seen to be in flower. There is no existing literature detailing the nectar bearing capacity of the various native trees of the area, except limited survey information about the flowering and fruiting times for some of the native trees. The survey information indicates a scattered flowering time throughout the year. This suggests monitoring and charting of the local honey flow of the conservation area. For a full year period to establish the peak flow periods for future hive management information.

Nectar flow (or surplus honey) measurement suggest a positive nectar flow for the area (Figure 2) with a net gain of 6 kg in a 23 day period. Again the full potential of the area will not be known entirely until the nectar flow of the area is charted. Hive No. 25 suffered heat exhaustion during transportation to site and may have reduced the available work force for foraging. Note: availability of personnel hindered data collection for the full 3 month period.

Rainfall data recorded from the Ma asina, Fagaloa station (Table 1) show high rainfall for the area during the data collection month of May (Fig1). The high rainfall event during this period could have severely interrupted the critical nectar flow. This appears to be the case with other known high potential areas during the month of May.

Note: during a recent visit, 18 September 1999 for a demonstration. The top honey boxes (all 10 Frames) were full and ready for harvesting. Indicating a recent nectar flow after the rains. The entire honey store was light in colour, of the *light honey* grading.

STATION (mm) Rainfall

Laulii	APRIL	MAY	JUNE	JULY
1998	31.3	29.4	6.3	31.5
1999	173.7	490.9	80.2	.

Fagaloa	APRIL	MAY	JUNE	JULY
1998	258.9	.	224.1	147.7
1999	165.3	345.9	195.6	159.9

Table 1: MAFFM Meteorological Division, Climate Unit data

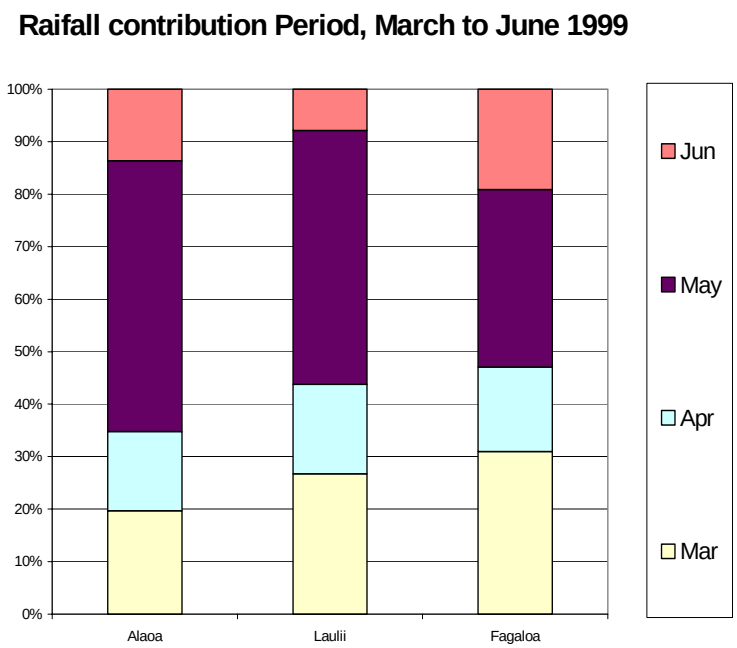

Fig 1: Rainfall contribution summary for the period March to June. Alaoa, Laulii & Fagaloa. High rainfall during the monitoring period (May), similar to other areas.

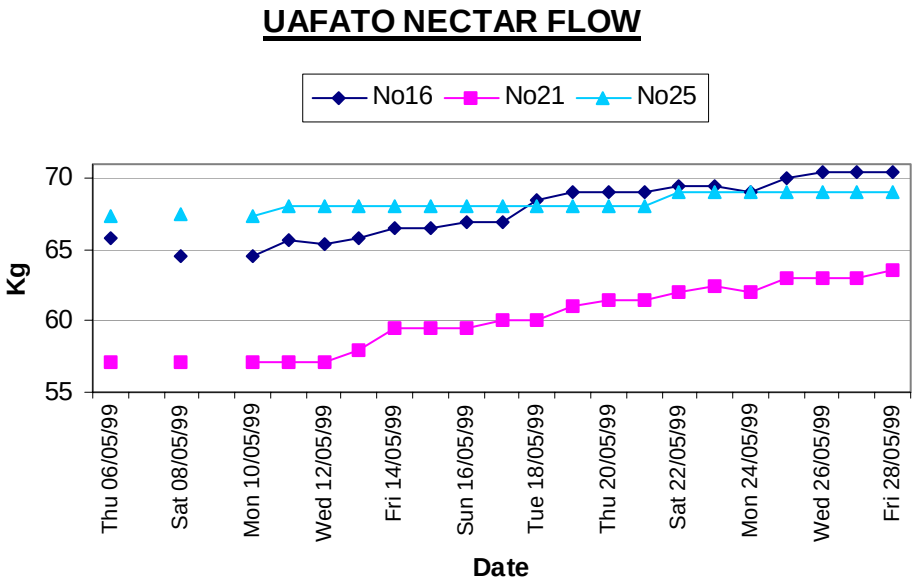

Figure 2: Recorded surplus stored honey, weight gain in kilograms. Hive number 16, 21 &25. Data collected by village member. Hive No.25 suffered heat exhaustion on transport to site hence little activity.

2. BUILDING AVAILABILITY FOR EXTRACTION AND STORAGE

All accept one building was cited suitable for extraction and storage. This building, is a cyclone shelter. With windows, closed walls, lockable door and well sealed- prevents robbing during extraction, as it is located along the main road, center of the village. Presumably empty most of the year. Severe robbing could cause a negative response and concern.

The shelter could accommodate a small extractor to service up to 50 hives. There is very little room to spare for super storage, 200 L drum storage and space for packaging. From the rainfall data 1997-1999, it follows that high humidity could be a problem and therefore place emphasis on a hot or dehumidifying room as an important requirement to lower the honey moisture content.

If the shelter could not be utilized for part of the year, then a small honey house will be needed.

Electricity is availability at a charge of 80 sene per unit, and there is piped running water (untreated) that is accessible.

3. PERSONNEL AVAILABILITY

During an on site demonstration. The responses from the participants were positive. Although all of the participants have no knowledge of beekeeping. From discussions it appears that each of the families participating have a member that would be available to care for and oversee the keeping of one or two hives initially.

It was also noted that the participants have a high degree of fear, for being stung in the face by bees. Fear arising from pre conceived mental images. But when outfitted with

protective clothing the participants were more forthcoming to handle the frames, taste the honey and to observe the hive up close. Based on the personal response observed, it would seem that if a gentle strain of bees are used (strain used in the monitoring hives) together with more awareness. That any village tolerance problems, as a whole, can be overcome.

Hence basic beekeeping training is required, with all the participating families. And would recommend a series of structured hands-on workshops, with the approach, to first develop basic handing skills and to develop fundamental understanding in floral nectar flow relationship, honey derivation and harvesting concepts. Followed by basic training on bee life cycles and hive management.

4. LAND AVAILABILITY

Suitable land is available along the valley floor, that is well sheltered from the village lights. Currently any apiary sites will need to be fenced off from domesticated pigs. Pigs rub against the hives causing the hives to topple over and be exposed to weather and robbing.
Hive placement permission will also need to be arranged with the plot owners.
The valley areas cited could accommodate 50 hives each, provided the flood water levels are below the flat areas.

NOTE

Attached PRIMARY DATA Sheet

- Hives No. 16/21/25 were set up with full workforce
- Each Hive was situated in a distinct location that was identified as technically suitable
- Hive No. 25 suffered heat exhaustion on transportation and the workforce was severely limited
- The person from the village that was suppose to collect the data only maintained data collection on a daily basis for the first month
- Platform Scale was used in measuring the Hive weights

PRIMARY DATA – Uafato Village Honey Bee Project 1999

Net Gain over 3 mths=		**34 Kg**		**25 Kg**		**43 Kg**	
Hive No:	No16		No21		No25		
Date	KG	Time	KG	Time	KG	Time	Comment(Rain/no Rain)
Thu 06/05/99	65.75	6:30am	57.10		67.30		Using Platform Scale
Fri 07/05/99	-	-	-	-	-	-	No reading
Sat 08/05/99	64.50	11:00am	57.10		67.45		No Rain
Sun 09/05/99	-	-	-	-	-	-	No reading
Mon 10/05/99	64.50		57.10		67.35		No Rain
Tue 11/05/99	65.65		57.10		68.00		No Rain
Wed 12/05/99	65.35		57.10		68.00		Rain
Thu 13/05/99	65.80		58.00		68.00		Rain
Fri 14/05/99	66.50		59.50		68.00		No Rain
Sat 15/05/99	66.50		59.50		68.00		Rain
Sun 16/05/99	66.90		59.50		68.00		Rain
Mon 17/05/99	67.00		60.00		68.00		Rain
Tue 18/05/99	68.50		60.00		68.00		Rain
Wed 19/05/99	69.00		61.00		68.00		No Rain
Thu 20/05/99	69.00		61.50		68.00		Rain
Fri 21/05/99	69.00		61.50		68.00		Rain
Sat 22/05/99	69.50		62.00		69.00		Rain
Sun 23/05/99	69.50		62.45		69.00		Rain
Mon 24/05/99	69.00		62.00		69.00		Rain
Tue 25/05/99	70.00		63.00		69.00		Rain
Wed 26/05/99	70.50		63.00		69.00		Rain
Thu 27/05/99	70.50		63.00		69.00		Rain
Fri 28/05/99	70.50		63.50		69.00		Rain
Sat 29/05/99	-	-	-	-	-	-	No reading
Sun 30/05/99	-	-	-	-	-	-	No reading
Mon 31/05/99	-	-	-	-	-	-	No reading
Tue 01/06/99	-	-	-	-	-	-	No reading
Wed 02/06/99	-	-	-	-	-	-	No reading
Thu 03/06/99	-	-	-	-	-	-	No reading
Fri 04/06/99	-	-	-	-	-	-	No reading
Sat 05/06/99	64.00		53.00		57.00		No Rain
Sun 06/06/99	-	-	-	-	-	-	No reading
Mon 07/06/99	64.00		53.00		57.00		No Rain
Tue 08/06/99	-	-	-	-	-	-	No reading
Wed 09/06/99	-	-	-	-	-	-	No reading
Thu 10/06/99	-	-	-	-	-	-	No reading
Fri 11/06/99	64.00		53.00		57.50		No Rain
Sat 12/06/99	-	-	-	-	-	-	No reading
Sun 13/06/99	-	-	-	-	-	-	No reading
Mon 14/06/99	-	-	-	-	-	-	No reading
Tue 15/06/99	-	-	-	-	-	-	No reading
Wed 16/06/99	-	-	-	-	-	-	No reading
Thu 17/06/99	-	-	-	-	-	-	No reading
Fri 18/06/99	-	-	-	-	-	-	No reading
Sat 19/06/99	-	-	-	-	-	-	No reading
Sun 20/06/99	-	-	-	-	-	-	No reading
Mon 21/06/99	-	-	-	-	-	-	No reading
Tue 22/06/99	67.10		53.20		57.50		No Rain
Wed 23/06/99	-	-	-	-	-	-	No reading
Thu 24/06/99	-	-	-	-	-	-	No reading
Fri 25/06/99	-	-	-	-	-	-	No reading
Sat 26/06/99	-	-	-	-	-	-	No reading

Hive No:	No16		No21		No25		
Date	KG	Time	KG	Time	KG	Time	Comment(Rain/no Rain)
Sun 27/06/99	-	-	-	-	-	-	No reading
Mon 28/06/99	-	-	-	-	-	-	No reading
Tue 29/06/99	-	-	-	-	-	-	No reading
Wed 30/06/99	-	-	-	-	-	-	No reading
Thu 01/07/99	-	-	-	-	-	-	No reading
Fri 02/07/99	-	-	-	-	-	-	No reading
Sat 03/07/99	-	-	-	-	-	-	No reading
Sun 04/07/99	-	-	-	-	-	-	No reading
Mon 05/07/99	-	-	-	-	-	-	No reading
Tue 06/07/99	-	-	-	-	-	-	No reading
Wed 07/07/99	-	-	-	-	-	-	No reading
Thu 08/07/99	-	-	-	-	-	-	No reading
Fri 09/07/99	-	-	-	-	-	-	No reading
Sat 10/07/99	-	-	-	-	-	-	No reading
Sun 11/07/99	-	-	-	-	-	-	No reading
Mon 12/07/99	-	-	-	-	-	-	No reading
Tue 13/07/99	-	-	-	-	-	-	No reading
Wed 14/07/99	-	-	-	-	-	-	No reading
Thu 15/07/99	-	-	-	-	-	-	No reading
Fri 16/07/99	-	-	-	-	-	-	No reading
Sat 17/07/99	-	-	-	-	-	-	No reading
Sun 18/07/99	-	-	-	-	-	-	No reading
Mon 19/07/99	-	-	-	-	-	-	No reading
Tue 20/07/99	-	-	-	-	-	-	No reading
Wed 21/07/99	-	-	-	-	-	-	No reading
Thu 22/07/99	-	-	-	-	-	-	No reading
Fri 23/07/99	-	-	-	-	-	-	No reading
Sat 24/07/99	-	-	-	-	-	-	No reading
Sun 25/07/99	-	-	-	-	-	-	No reading
Mon 26/07/99	-	-	-	-	-	-	No reading
Tue 27/07/99	-	-	-	-	-	-	No reading
Wed 28/07/99	-	-	-	-	-	-	No reading
Thu 29/07/99	-	-	-	-	-	-	No reading
Fri 30/07/99	-	-	-	-	-	-	No reading
Sat 31/07/99	-	-	-	-	-	-	No reading
Sun 01/08/99	-	-	-	-	-	-	No reading
Mon 02/08/99	-	-	-	-	-	-	No reading
Tue 03/08/99	-	-	-	-	-	-	No reading
Wed 04/08/99	-	-	-	-	-	-	No reading
Thu 05/08/99	-	-	-	-	-	-	No reading
Fri 06/08/99	-	-	-	-	-	-	No reading
Sat 07/08/99	-	-	-	-	-	-	No reading
Sun 08/08/99	-	-	-	-	-	-	No reading
Mon 09/08/99	-	-	-	-	-	-	No reading
Tue 10/08/99	-	-	-	-	-	-	No reading
Wed 11/08/99	-	-	-	-	-	-	No reading
Thu 12/08/99	-	-	-	-	-	-	No reading
Fri 13/08/99	-	-	-	-	-	-	No reading
Sat 14/08/99	-	-	-	-	-	-	No reading
Sun 15/08/99	-	-	-	-	-	-	No reading
Mon 16/08/99	-	-	-	-	-	-	No reading
Tue 17/08/99	100.00		82.00		110.00		No Rain
	***Hives were picked up from Site at Uafato on Tuesday 17/08/100**						

ATTACHMENT A3

MARKET REPORT

SPREP HONEY BEE PROJECT
IN A CONSERVATION AREA
UAFATO Village

Upolu . SAMOA
August 1999

DISCLAIMER OF LIABILITY

We have compiled the attached report and projections based on data obtained from various sources in the Honey Industry. We accept no responsibility for the accuracy of the material from which this report has been prepared. Further, this report has been prepared at the request of and for the purposes of SPREP to assess the market viability of a Honey Project as an income generating activity for the Conservation Area of Uafato Village, Samoa. Thus, we accept no responsibility on any ground whatever, including liability in negligence, to any other person or party.

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Bioglobal
"Business Developers…
... for Small Island States"

1. INTRODUCTION

The SPBCP/SPREP Project has been working closely with one of its Conservation Areas since 1994, the village of Uafato on the island of Upolu in Samoa. The objectives of the Uafato Conservation Area project and the activities to be carried out thereunder are set out in the "Uafato Conservation Area Project Preparation Document (PPD) – 1996." This document stipulates that the overall goal is to conserve the biodiversity of the Uafato CA based on the sustainable use of natural resources and for the benefit of current and future generations.

To achieve the project goal, one of the main activities is "to develop sustainable income generating projects". As part of this effort to conserve the environment around Uafato Village (especially the conservation of 'ifilele' tree), the Project through SPBCP/SPREP, was to facilitate the identification of alternative sources of income for the village people. One such activity that was prioritised was to be the introduction of Honey Production.

The purpose of this research paper or study is to discuss the market issues and to provide an outline of a marketing strategy that could be adopted for this project.

2. MARKET INFORMATION

The local/domestic market for honey is fairly limited in Samoa but there is currently enough demand to sustain another supplier of honey product. There is also the great potential for high quality export honey to the European market, as has been done in the past. Refer Attachment 5, which outlines briefly the history of the Honey Industry in Samoa.

2.1 Size and Nature of Market

Local Market

Product:
There is potential for the local market for the "Honey Product" in its liquid form – to be supplied DIRECT to the retailers in the plastic bottles mostly in sizes 250gm, 400gm and 500gm.

There are two main brands being produced and supplied locally:

- Pure Natural Honey
- Tropical Honey

The main imported brands include:

- Pure Creamed Clover honey
- Sue Bee Clover honey
- Bee Maid Honey Mustard

There is also the opportunity to supply in bulk an existing business/distributor at wholesale prices.

Size of Market:
It is estimated by the main local suppliers that the local market can currently absorb about 3,000 to 5,000 Kgs per year. It is difficult to ascertain from Customs returns what the annual quantity is that has been imported over the years, however, the Samoa Tala $value of honey imported into Samoa for the six months June – December 1999[1] is about $5,390 (includes cost/insurance/freight) for 1,952 Kg of Honey.

Price Range:
Retail Prices per 1Kg Honey have been identified in the ranges from $8 to $12 per Kg (net of packaging and tax costs noted below).

Outlined in the Table below are Honey Prices (bottled local product in 3 standard sizes) from some of the main retail outlets in urban Apia.

[1] Samoa Customs Department, ASYCUDA System, March 2000

Retail Honey Prices 1999 (Samoa Tala$ per bottle)	**250gm**	**400gm**	**500gm**
Molesi Samoa Supermarket	-	$ 6.15	$ 8.15
Chan Mow Supermarket	-	$ 6.25	$ 7.50
Lucky Foodtown	$ 4.20	$ 5.50	$ 7.20
MD Big Fresh	-	$ 6.25	$ 7.20
S&D Boon Store	$ 4.50	-	-
T&L Netzler Store	$ 4.00	$ 6.80	-
Tavita Chan Tung Store	$ 4.20	$ 7.50	-

Note:
1. All prices include Vagst
2. Bottles and Labels make up between 20% - 25% of product cost
3. Imported/overseas honey prices are all higher than the local product

Wholesale prices payable at the farm gate are currently being offered by an existing business at around $5 per Kg which could include the buyer coming in and harvesting the honey themselves.

Promotion:
There is currently no promotion evident within the local market for this product. The only form of promotion, if any, is that of usage by those trying to keep bees or producing honey in the rural area.

Distribution:
The channels of distribution available includes direct selling by the village to the retailers/wholesalers OR as mentioned above, by having an arrangement with another organisation/business, similar to an agency, to sell the honey to Retail outlets.

Overseas/Export Market

Product:
There is potential for the export market, as has been proven before when Samoa had exported its high quality, disease free honey in bulk to Europe. There is also the opportunity to export this liquid "Honey" to New Zealand but it needs to be certified "organic" if it is to attract at least a fifty percent premium on conventional price.

Size of Market:
Previous exports of honey from Samoa were around 20 ton per year to the German market. It is anticipated that any exportable product, if "certified organic" would be absorbed by the New Zealand market because of the expected initial production capacity being small.

Price Range:
Price per 1Kg is currently around NZD$4 landed in New Zealand (about 50% premium) for bulk liquid honey, not yet packaged into small retail bottles/containers.

Promotion:
There is currently a potential buyer in New Zealand interested in the product, as long as it can be certified 'organic'. Promotions are carried out by the New Zealand company, however, to be successful, Samoa would need to maintain its 'organic certification' and 'disease-free' status.

Distribution:
The channels of distribution available includes direct selling by the village to a buyer overseas OR through an Export business based in Samoa.

2.2 Market Trends

Within the local market there appears to be more awareness of the use of honey and especially the benefits from consumption. This is evident in the villages where they have established bee hives and are collecting honey. Honey is however, not generally accepted as a traditional 'spread' and that the price range is slightly higher than the alternatives like jam. So, future growth will be expected to be slow and within the range of 3,000 to 5,000Kg per year.

Overseas trends appear to be very much moving towards the 'natural' and 'chemical-free' products. Premiums of up to 50% on conventional prices are being offered to such products, which are usually 'certified organic'. Samoa is also one of the few countries in the world that is considered to have a premium product that is free of 'foulbrood' disease.

2.3 Competition

Competition to the honey product are naturally the imported 'spreads', like Jam, peanut butter, coconut spread/jam and also the overseas honey that is being imported by the big businesses in town.

The possible competition for suppliers to the market comes from all the other small rural community honey projects around Samoa, like the groups being co-ordinated by the Women in Business. There are also the established honey businesses but some are offering to work in conjunction with any possible project to be set up at Uafato Village.

2.4 Potential Customers

Current local customers for the product are generally the expat personnel who are familiar with the honey product. There is a potential though for the general public, the nationals of Samoa, as they become more familiar with the product.

Potential customers for a community project would be the wholesale/retail operators in Apia that are selling the honey. There are also the existing honey supply/distribution businesses that can buy the honey in bulk for re-selling.

3. PROJECTED SALES

The projected income is given at two levels:

(i) Direct Selling of Product to the Retail market – use Retail Value

(ii) Selling through a Management Agent/Distributor – use Wholesale Value

The projected income is also made on the basis of the following assumptions:

a) At least 80% of full yield of each Bee Hive is harvested in the first year, followed by full yield in the subsequent years

b) Estimated yield range per hive is set at 30Kg to 60Kg per year

c) That the initial number of hives at 31 are maintained to be increased up to 50 within three years

d) Local market will be able to absorb the proposed honey production from Uafato

e) Wholesale & Retail selling prices will be maintained for at least the first three years

f) If management agent is used, that the arrangement will be in place for at least three years.

Scenario 1: No. of Hives: 31	**YR 1**	**YR 2**	**YR 3+**
(A) Yield per Hive: 30Kg/year			
Volume (Kg)	*744*	*930*	*930*
Retail Value($10/Kg)-Bottled	7,440	9,300	9,300
Retail Value($12/Kg)-Bottled	8,928	11,160	11,160
Retail Value($14/Kg)-Bottled	10,416	13,020	13,020
Wholesale Value($5/Kg)-BULK	*3,720*	*4,650*	*4,650*
(B) Yield per Hive: 60Kg/year			
Volume (Kg)	*1,488*	*1,860*	*1,860*
Retail Value($10/Kg)-Bottled	14,880	18,600	18,600
Retail Value($12/Kg)-Bottled	17,856	22,320	22,320
Retail Value($14/Kg)-Bottled	20,832	26,040	26,040
Wholesale Value($5/Kg)-BULK	*7,440*	*9,300*	*9,300*

Scenario 2: No. of Hives: 50	**YR 1**	**YR 2**	**YR 3+**
(A) Yield per Hive: 30Kg/year			
Volume (Kg)	*1200*	*1500*	*1500*
Retail Value($10/Kg)-Bottled	12,000	15,000	15,000
Retail Value($12/Kg)-Bottled	14,400	18,000	18,000
Retail Value($14/Kg)-Bottled	16,800	21,000	21,000
Wholesale Value($5/Kg)-BULK	*6,000*	*7,500*	*7,500*
(B) Yield per Hive: 60Kg/year			
Volume (Kg)	*2400*	*3000*	*3000*
Retail Value($10/Kg)-Bottled	24,000	30,000	30,000
Retail Value($12/Kg)-Bottled	28,800	36,000	36,000
Retail Value($14/Kg)-Bottled	33,600	42,000	42,000

Wholesale Value($5/Kg)-BULK	*12,000*	*15,000*	*15,000*

4. PROPOSED MARKETING STRATEGY

In order to propose a marketing plan for this project, we need to first understand the options of the set up of the project as referred to in the financing plan.

There are two Options (outlined below) within the Financing Plan, which were considered by the proposed Honey Project facilitating committee (Komiti a Tina), at the workshop conducted in Uafato on August 31, 1999.

OPTIONS

The **first** option is Direct Management of Hives, which means that the project facilitators and owners (Uafato Community) will have to invest in buying the hives, facilitate the training of the project members, managing/maintenance of hives, harvesting and marketing of the honey product.

The **second** option involves the Contract Management of these Hives. The project facilitators and owners will only need to invest in the purchase of the hives then to negotiate with a private business dealing in honey to manage the hives, harvest and market the honey product for an agreed farm gate price per Kilogram.

It was generally accepted from the Community consultations that the second option was sound and should be adopted. The proposed marketing strategy outlined below is thus based on this understanding from the community project facilitators.

The whole strategy will be facilitated by the proposed managing agent and how they assess the market and what feedback they would be receiving. The community will be expected to offer support to the marketing efforts of the agent by working together to ensure security of the hives for production and thus consistency of supply of the product.

- **Product**

The product will be sold in bulk at the farm gate as 'liquid honey' that would be harvested by a 'managing agent'.

- **Price**

The proposed price will be negotiated with the 'managing agent', once an arrangement is settled. It is noted that the current farm gate price is $5 per Kg.

- **Promotion**

The community will assist wherever possible in supporting any marketing efforts by the 'managing agent' to promote the 'honey' product. Especially in ensuring the physical security of the hives and protection against use of chemicals within the conservation area.

- **Distribution**

It is proposed, as was agreed to at the workshop, that a 'distribution agent' (being an existing honey business/organisation) be appointed as a 'managing agent' to manage the hives, harvest and market the honey . The specific terms, duration of an arrangement and prices will have to be negotiated.

The agent will naturally be managing any overseas marketing opportunities.

ATTACHMENT A4

FINANCIAL REPORT

SPREP HONEY BEE PROJECT
IN A CONSERVATION AREA
UAFATO Village

Upolu . SAMOA
August 1999

DISCLAIMER OF LIABILITY

We have compiled the attached financial information and projections based on data obtained from various sources in the Honey Industry. We have also made these projections based on the assumptions as outlined in the report, therefore we accept no responsibility for the accuracy of the material from which this report has been prepared. Further, this report has been prepared at the request of and for the purposes of SPREP to assess the viability of a Honey Project as an income generating activity for the Conservation Area of Uafato Village. Thus, we accept no responsibility on any ground whatever, including liability in negligence, to any other person or party.

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Bioglobal
"Business Developers…
... for Small Island States"

1. FINANCIAL ISSUES

There are two Options on Financing Plan outlined below, which were considered by the proposed Honey Project facilitating committee (Komiti a Tina).

INVESTMENT OPTIONS

1.1 DIRECT Management

The **first** option is Direct Management of Hives, which means that the project facilitators and owners (village) will have to invest in buying the hives, facilitate the training of the project members, managing/maintenance of hives, harvesting and marketing of the honey product.

		Scenario 1 *(31 Hives)*	***Scenario 2*** *(50 Hives)*
Cost of Beehives @ST$410.00/hive	ST$	12,710.00	20,500.00
Special Maintenance Equipment (1set)refer **Note A**		2,000.00	2,000.00
Harvest-Extractor Frame (1x4Frame)refer **Note B**		2,500.00	2,500.00
TOTAL SET-UP COST	ST$	17,210.00	25,000.00
Hive Maintenance per year 1&2		2,550.00	4,110.00
Queen Bee Replacement per year 1&2		750.00	1,210.00
Selling Expenses per year 1		1,760.00	2,840.00
TOTAL INVESTMENT-Estimated (1.1)	**ST$**	**22,270.00**	**33,160.00**

1.2 CONTRACT Management

The **second** option involves the Contract Management of these Hives. The project facilitators and owners will only need to invest in the purchase of the hives then to negotiate with a private business dealing in honey to manage the hives, harvest and market the honey product for an agreed farm gate price per Kilogram.

		Scenario 1 *(31 Hives)*	***Scenario 2*** *(50 Hives)*
TOTAL Cost of Beehives @ST$410.00/hive	ST$	12,710.00	20,500.00
TOTAL INVESTMENT-Estimated (1.2)	**ST$**	**12,710.00**	**20,500.00**

1.3 Training COST

There will be a training component required regardless of which option is taken. It is anticipated that such a component be addressed separately with interested parties bidding for it or negotiated for under the management contract and funded under an assistance program. The study has therefore not allocated a specific amount to this cost.

2. FINANCIAL PROJECTIONS

The costs and projected revenues are made on the basis of research findings and assumptions listed in section 3 below.

REVENUES & OPERATIONAL COSTS (Projections)
Please refer previous Attachment A3 (Section 3), which outlines the different Scenarios on Revenue streams for the project. For the purpose of the following analysis we have adopted the conservative annual yield per hive of 30Kg and varied the number of Hives, under the two management options.

Option I: DIRECT Management

SCENARIO 1: Using 31 Hives (with a yield of 30Kg/Hive/year)

INCOME			**Year 1**	**Year 2+**
Income @ yield 30kg/hive:*ST$10.00/kg*		ST$	7,440	9,300
COSTS				
Hive Maintenance per year			1,275	1,275
Queen Bee Replacement per year			375	375
Selling Expenses per year			1,760	2,200
Total Costs			3,410	3,850
	Net Revenue/(Loss)	**ST$**	**4,030**	**5,450**
PER HIVE:	Net Revenue/(Loss)	ST$	130	175

SCENARIO 2: Using 50 Hives (with a yield of 30Kg/hive/year)

INCOME			**Year 1**	**Year 2+**
Income @ yield 30kg/hive:*ST$10.00/kg*		ST$	12,000	15,000
COSTS				
Hive Maintenance per year			2,056	2,056
Queen Bee Replacement per year			605	605
Selling Expenses per year			2,832	3,540
Total Costs			5,493	6,201
	Net Revenue/(Loss) (a)	**ST$**	**6,507**	**8,799**
PER HIVE:	Net Revenue/(Loss) (a)	ST$	130	176

Option II: CONTRACT Management

SCENARIO 1: Using 31 Hives (with a yield of 30Kg/Hive/year)

			Year 1	Year 2+
INCOME				
Income @ yield 30kg/hive:ST$5.00/kg		ST$	3,720	4,650
COSTS				
Hive Maintenance per year			Nil	Nil
Queen Bee Replacement per year			Nil	Nil
Selling Expenses per year			Nil….	Nil…
Total Costs			Nil	Nil
	Net Revenue/(Loss)	**ST$**	**3,720**	**4,650**
PER HIVE:	Net Revenue/(Loss)	ST$	120	150

SCENARIO 2: Using 50 Hives(with a yield of 30Kg/Hive/year)

			Year 1	Year 2+
INCOME				
Income @ yield 30kg/hive:*ST$5.00/kg*		ST$	6,000	7,500
COSTS				
Hive Maintenance per year			Nil	Nil
Queen Bee Replacement per year			Nil	Nil
Selling Expenses per year			Nil….	Nil…
Total Costs			Nil	Nil
	Net Revenue/(Loss)	**ST$**	**6,000**	**7,500**
PER HIVE:	Net Revenue/(Loss)	ST$	120	150

3. FINANCIAL ASSUMPTIONS

(i) Funding will be made available for project implementation.
(ii) There will be Thirty One (31) Nucleus Hives to be transferred to Thirty One (31). Production Hives – incorporating at least 19 Family Units.
(iii) Yield after year 1 that could be harvested is 30 Kg/hive/year (It can range up to 40kg with good management).
(iv) It can take up to 2 years to achieve full Yield, under an experienced hive management agent (Yr 1=80% and Yr 2+ = 100%).
(v) Retail Sale Price set at about $10 per Kg (ie $5 per 500 grams).
(vi) Farm Gate price (at Village) is around $5 per Kg and will be maintained for at least the first three years.
(vii) That all honey harvested will maintain its good quality and be all sold or bought by customers.
(viii) All land being used as Hive Sites are either producer owned or village owned with no possible disputes.
(ix) Repairs & Maintenance is set at about 10% of capital cost.
(x) Production Hives are pre-cut from supplier ready to be placed on site.
(xi) That all Hives are - Three Box Ten Frame Hives.
(xii) Cost per ONE HIVE (3 box/30 frame/1 lid/1 bottom)-no bee colony is about $300.
(xiii) Cost per one nucleus bee colony is about $100 each.
(xiv) Selling expenses are based on $1.15 Per plastic bottle, with label included, which holds 500grams of honey.
(xv) NOTE must be taken on useful life of equipment (Must consider some form of Depreciation to be charged on ALL equipment used – regardless of source).
(xvi) Specific Training Costs are not specified and need to be considered separately under other technical assistance funding.

4. NOTES

The information below was obtained from WF Moore and Associates Limited, Apia, Samoa, a registered member of the Beekeepers Association of Samoa Incorporated (BASI).

NOTE A

Special Maintenance Equipment – Approximate Cost ST$2,000.00

The list of required set of equipment is given below and can be shared amongst the hive owners/operators.

Bee Gloves
Boots
Bee suit-one piece with veil
Queen Excluders
Feeder FD 3.5L(1 Frame)
Foundation Embedder (use BASI)
Honey Refractometer
Bee escape Boards-complete porter
Hive tools kelly
Capping Scratcher
Bee brushes
Poly Pails 20Ltr
Food Grade Storage Drum 200Ltr
S/S Smokers 4" w/shield
Capping Knife

NOTE B

Harvest-Extractor Frame – Approximate Cost ST$2,500.00

This extractor can be fairly expensive but are also available locally from honey business operators. These could be leased just for the harvest.

5. SOURCES OF FINANCE/FUNDS

The community do not have a large pool of its own funds to initiate a project of this nature, however outlined below are some potential sources of funding that could be drawn on for the initial project set up.

(i) Personal Money

There can be personal savings as a source or even a pool of money contributed by the members of ones family.

(ii) Income from Activities

There is money that should be available from the income derived from the business activity itself, however, it is usually not available for the initial set-up of any project. So there is always the need for initial seed or an establishment fund.

(iii) Lenders

There are the traditional financial/lending institutions that would usually require their normal lending criteria to be met (including some form of security) and would also charge an interest on the use of money.

- Development Bank of Samoa (DBS)
- ANZ Bank (Samoa) Ltd (ANZ)
- Pacific Commercial Bank Ltd (PCB)
- National Bank of Samoa (NBS)

(iv) Grants

It is important to note that each Funding agency has its own criteria or requirements that need to be first met before grants are approved and dispersed.

SPBCP– SPREP

Funds and technical assistance could be sourced through the SPBCP/SPREP, specifically under Uafato Village's Conservation Area status.

CANADA FUND – Canada

Assistance could be sourced through the Women In Business Foundation Beekeeping Project, which is currently being funded by Canada Fund.

AusAID – Australia

Funds could be made available for Community/Village projects through the Small Grants Scheme, upon application through Ministry of Foreign Affairs in Samoa.

NZODA – New Zealand

Funds could be made available through schemes that are funded by New Zealand through the Private Sector Support Scheme.

EU Micro Project Scheme – European Union

The village/community could apply to the EU Micro Project Scheme for funds to help set up the project.

ATTACHMENT A5

THE HONEY INDUSTRY IN SAMOA

Outlined below is a brief account of Honey Production and the Industry in Samoa based on information obtained through discussions with members of the Beekeepers Association of Samoa and the Women In Business co-ordinator for their Honey Project.

BRIEF HISTORY

Honey Production is not new to Samoa and was first developed to a moderate to large scale in 1978 by a local company Samoa American bee Company (SABCO) and the management taken up by overseas German investors in1985 as a joint venture under Samoa Honey and Bee Company (SABHO), due to difficulties obtaining a resident technical expert. The honey company operated through developing and maintaining its own hives. Such hives were strategically placed around the island. However, there were widespread problems in hives being damaged by people. The two cyclones in the early 1990s did a lot of damage as well and the company eventually folded, when the German investors (SABHO) abandoned the hives including the premises without notice.(the second of such incident in the pacific concerning the same investors)

At the time the company SABCO was operating, there was much demand from Germany for Samoan honey. It was considered a premium product that was free of foulbrood diseases. This honey was extracted at the factory in Vaivase-uta and was packed as bulk honey in 44 gal drums for export. During the local ownership under the Samoa American Bee Company (SABCO), hive holdings increased up to 800 hives and exported 20 tons of honey to the German markets, with 3 to 5 tons sold locally. Some of the honey was also packed in small containers and sold on the local market. There was also a Honey liqueur product that was developed for the tourist market, during the SABHO management. Under SABHO, hive holdings was further increased and subsequently exported a similar quantity of honey to Germany.

CURRENT STATUS

- Market for Honey

The industry is currently in its infant stages of 'revival'. The volume of honey being produced is fairly small and is estimated at about 1 tonne being traded per year. The current prices are between $5 per kg of bulk honey to around $10 retail per bottle of honey. Most of the main Supermarkets carry the local honey. It is acknowledged that packaging is one of the high cost components in trying to sell the honey locally. Although there are now quite a few people having hives and extracting honey, most of the honey is bought up by a beekeeper/packager -TROPICAL HONEY or Women In Business Honey Project, through its membership agreement. There appears to be an increase in awareness of and use of honey in the rural area.

- Hives and Hive Management

There are currently over 300 hives in Samoa, about half are owned by WIBF project and the remaining owned privately and by organizations registered with the Beekeepers Association of Samoa Incorporated (BASI). The set-up cost of one complete 3-Box Hive ranges from $300 to $400 tala. The productivity of these hives is considered fairly good compared to some overseas countries like New Zealand. The conservative yields are at 30 kg per hive per year but it is estimated that most of the hives in Samoa can have yields ranging from 40kg to 60kg. The key is in good management of the hives, using good quality queen bees. It is noted from the WIBF project that some of the villages involved in the project do not manage their hives properly.

- Honey Extraction/Processing

The honey is mostly extracted on site. A local beekeeper/packer -TROPICAL HONEY buys and collects the frames and extracts them . An extractor frame is available on hire for those who cannot afford it. The key to proper commercial harvesting is in ensuring that the comb is capped and that a selection of frames is extracted at a time.

SUPPORT

- Beekeepers Association of Samoa Incorporated (BASI)

This Association has recently been formed to further develop the honey industry in Samoa, in a strategic manner. It has as members, about 12 private beekeepers, 3 businesses and a school (a recent effort to encourage the inclusion of apiculture in tertiary certificate courses). Also affiliated with the Association is the MAFFM Agriculture Research Unit (Nuu) and the WIBF.

The Association has members with technical expertise in beekeeping and management of a honey business. Training programs and other expert services that may be required from overseas could be accessed through the Association and funded through Agencies.

There are monthly meetings for members and intending members or supporters. These are usually held at the Yacht Club. Members get the chance to discuss views on the development of the Honey Industry and to obtain information on managing risks that could threat its development. The association is also in the process of formulating a 5 to 7 year strategic development plan.

Some of BASI's immediate task's are to implement the crucial overseas import requirements namely;

1 Maintain the international (commercial) disease free status of Samoan bees through a disease survey every 5 years, conducted by independent overseas experts.

2 Operate and maintain a database register for the purpose of disease response management to ensure outbreak control. This task is currently performed by BASI through WF Moore and Associates. Ultimately a function of MAFFM (Nuu)

3 Facilitate regular disease inspections. This task is currently performed by MAFFM (Nuu). But needs legislation to enforce its findings.

4 Help influence government to approve protective legislation through the draft Apiary's Bill. This bill is currently with the MAFFM Minster. The legislation will also safeguard Samoa's disease status through restriction of imported honey (under WTO agreement) from known disease countries.

- Women In Business Foundation (WIBF)

The WIBF currently has a Honey Project funded by Canada Fund, and is co-ordinated by Phil Belcher. The project is community based, currently involving over 70 villages, with the total number of hives at about 160. It is estimated though that there are only about 120 active hives. The WIBF Honey Bee Project offers support in:-

1. Marketing of Honey
2. Awareness promotion and Training on Beekeeping
3. Provision of Technical and Maintenance Support (including help during harvest).

FUTURE OF THE INDUSTRY

There appears to be great potential for the Honey Bee Industry if it is managed properly. There are overseas markets asking for this quality honey and there is also the potential niche of 'organically certified honey'.

Besides the actual honey, there is great potential for the by-products of 'propolis', 'beeswax', and 'pollen'. There is also the market for 'hives' or 'queen bees', which are all untapped as yet from Samoa.

Samoa has a major advantage that it needs to capitalise on and to protect and that is, its environment is 'free' of the major diseases found in bees overseas.

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List of Beekeepers in Samoa
As at June 1999

WF Moore

Honey Production-Beekeeping in Uafato

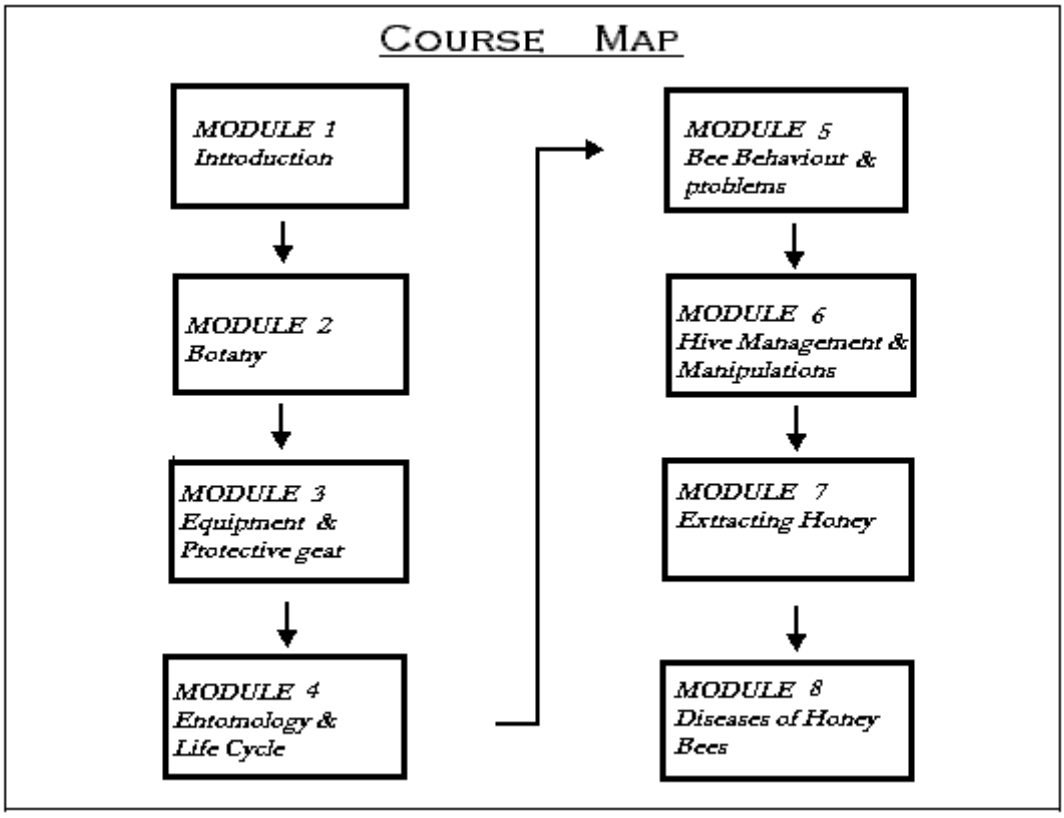
Basic Apiculture Training Curriculum

December 1999

Honey Production-Beekeeping in Uafato

Basic Apiculture Training Curriculum

A brief summary of the proposed course topics pertaining directly to the Uafato village situation. This is to be used as a general guideline for training and is expected to be delivered over the period of 3 years.
All modules other than the introduction will require practical demonstration for each sub heading.
Provided attendees cover all topics and demonstrations. The individual farmer could be expected to manage their own beehives. Hence a monitored system of topic attendance should be applied. This will also serve to indicate village commitment.



MODULE 1: INTRODUCTION

⇒ Bee farming concept "Renewable resource".
⇒ Relationship bee farming to native forest of the Uafato Conservation Area.
⇒ Other reasons for keeping bees.
⇒ Bee farming can be easy to do.
⇒ Problems with keeping bees.

MODULE 2: BOTANY

⇒ What are nectar bearing trees ?
⇒ Methods you can use to indicate nectar flow- "Honey Flow" .
⇒ Parts of the flower.
⇒ What is nectar ?
⇒ What is honey ?

MODULE 3: EQUIPMENT AND PROTECTIVE GEAR

⇒ Parts of a beehive.
⇒ Measurements of a beehive.
⇒ What is a hive stand ?
⇒ What is a frame ?
⇒ What is a bee smoker ?
⇒ What is a Hive tool ?
⇒ What is a Bee Veil ?
⇒ What are Overalls ?
⇒ What are Gloves ?
⇒ How to wear full protective equipment ?

MODULE 4: ENTOMOLOGY AND LIFE CYCLE

⇒ The Feral or the Black honey Bee.
⇒ The Yellow Honey bee (Italian).
⇒ Body parts of the Honey bee.
⇒ How bees use their body ?
⇒ The three caste of bees in the hive;
⇒ The work of the Queen bee.
⇒ The work of the Worker bee.
⇒ The work of the Drone bee.
⇒ What is brood ?
⇒ What is capped brood ?
⇒ How to arrangement brood in the hive ?

MODULE 5: COMMON BEHAVIOUR PROBLEMS

⇒ What is a Queenless hive ?
⇒ Hive with worker bee laying eggs.
⇒ Hive with only drone brood.
⇒ What is swarming ?
⇒ How to stop swarming ?
⇒ How to catch a swarm ?
⇒ How to put a swarm into a new beehive ?
⇒ What is robbing ?
⇒ How to stop robbing ?
⇒ How to minimize stinging ?

MODULE 6: HIVE MANAGEMENT AND MANIPULATION

⇒ When you should check your hive.
⇒ How to go into a hive ?
⇒ Routine hive management procedure.
⇒ How to unite two hives ?
⇒ How to re-queen a hive ?
⇒ How to check for the new queen ?
⇒ Neglected hives.

MODULE 7: EXTRACTING HONEY

⇒ What is un-capped honey ?
⇒ What is capped honey ?
⇒ How to check moisture in honey ?
⇒ Removing honey.
⇒ Extracting honey.
⇒ How to store honey ?
⇒ How to package honey for selling locally ?
⇒ How to store empty honey combs ?
⇒ Robbing while extracting (see How to stop robbing).

MODULE 8: DISEASES OF HONEYBEES

⇒ Serious diseases and pests of honeybees
⇒ Minor Diseases found in Samoa
⇒ How diseases can arrive in Samoa
⇒ Who to contact for more information about diseases

References

- **Rex Ramoiau,** *How to start bee farming in the Solomon Islands*
- **Andrew Matheson,** *Practical Beekeeping in NZ, 3rd edition 1997*
- **Dadant Publication** , *The Hive and the Honey bee, revised edition 1992*