

54 14th Steet  
Menlo Park 0102  
South Africa

e-mail: av90@dial.pipex.co.za

P O BOX 36349  
Menlo Park 0102  
International Tel: 027-12-46-6921/3  
Fax: 027-12-46-6932  
Cell phone: 083-375-8479

~~file copy~~  
PN-ACC-253  
97059



**TRANSFORMATION, RECONSTRUCTION, INFORMATION, AID AND DEVELOPMENT**

**VELD PRODUCT MARKETING**  
**STUDY**

**APRIL 1996**

**Prepared for the  
Natural Resource Management Program: Botswana  
USAID Project Number: 690-0251-33**

**By: Gerrit Booyens  
April 1996**

## National Resource Management Project

### Veld Product Marketing Project: Final Report

#### TABLE OF CONTENTS

<b>1. EXECUTIVE SUMMARY.....</b>	<b>4</b>
<b>2. THE MARULA PROJECT SUMMARY .....</b>	<b>7</b>
2.1. SUMMARY OF FINDINGS AND CONCLUSIONS .....	8
2.1.1. Total market size.....	8
2.1.2. Probable growth rate .....	11
2.1.3. Potential non-beverage using industries .....	11
2.2. RECOMMENDATIONS.....	11
2.2.1. Develop "Processing in the field" technology: .....	11
2.2.2. Finalize constitution of Gweta Natural Resources Trust and build commercial capacity within Executive Committee.....	12
2.2.3. Finalize concentrate product specification.....	12
2.2.4. Finalize order for concentrate from at least Oasis Breweries.....	13
2.2.5. Finalize joint venture agreement between Gwezotshaa Natural Resources Trust ,Granor Passi and or Oasis Brewery .....	14
2.2.6. Investigate common requirements between Marula and Springwater Projects.....	14
<b>3. THE PHANE PROJECT SUMMARY .....</b>	<b>14</b>
3.1. PHANE MARKETING CONCLUSIONS AND RECOMMENDATIONS.....	16
3.1.1. The eliminating of unnecessary steps in the distribution channel .....	16
3.1.2. Structured marketing Joint Ventures between the harvesting communities and the retailers.16	16
3.1.3. The processing, preservation, packaging and quality assurance technology to be transferred to and moved as close to the community as possible .....	16
3.1.4. Establish Harvest Buying and or Financing mechanisms .....	16
3.1.5. Establish affordable transport mechanisms for transporting harvest to markets:.....	17
3.1.6. Establish adequate quality controlled warehousing and distribution infrastructure: .....	17
3.1.7. Develop alternative users of Phane.....	17
<b>4. SPRINGWATER SUMMARY.....</b>	<b>18</b>
4.1. ALTERNATIVES:.....	18
<b>5. ETHNIC CRAFT SUMMARY .....</b>	<b>19</b>
5.1. CRAFT INDUSTRY CONCLUSIONS AND RECOMMENDATIONS .....	20
5.1.1. Improve representation:.....	20
5.1.2. Establish Reciprocal marketing/supply agreements: .....	20
5.1.3. Establish craft design and development work group: .....	20
5.1.4. Develop Production, raw material sourcing options.....	21
<b>6. MARULA PROJECT: GWETA, ZOROGA AND TSHOKHATSAA COMMUNITIES (GWEZOTSHAA NATURAL RESOURCES TRUST) .....</b>	<b>23</b>
6.1. MARULA BACKGROUND .....	25
6.2. CONSTITUENTS OF MARULA FRUIT:.....	26
6.3. NUTRIENT AND PROXIMATE COMPOSITION OF MARULA FRUIT .....	27
6.4. VITAMIN C CONTENT OF MARULA FRUIT .....	28
6.5. CONSTITUENTS OF MARULA NUTS .....	28
6.6. PROXIMATE AND NUTRIENT COMPOSITION OF MARULA NUTS .....	29
6.7. PROJECT MISSION.....	29
6.8. OBJECTIVES.....	30
6.9. KEYS TO SUCCESS.....	31

6.10. MARULA PROJECT IMPACT SUMMARY .....	32
6.11. MARULA PROJECT OWNERSHIP .....	32
6.12. STARTUP SUMMARY .....	33
6.13. MARULA PROJECT BY-PRODUCTS .....	34
6.13.1. <i>Fresh nuts</i> .....	34
6.13.2. <i>Oil</i> .....	34
6.13.3. <i>Dried fruit rolls</i> .....	35
6.13.4. <i>Jellies and other preserves</i> .....	35
6.13.5. <i>Other potential by-products</i> .....	36
6.14. MARULA PROJECT LOCATIONS AND FACILITIES .....	36
6.15. SOURCING .....	36
6.16. TECHNOLOGY & EQUIPMENT .....	36
6.16.1. <i>Processing capacity</i> .....	36
6.16.2. <i>Process development technology</i> .....	37
6.16.3. <i>Pre-process, on site fruit maceration and pulping</i> .....	37
6.16.4. <i>PADDLE DESIGN MACHINES</i> .....	38
6.16.5. <i>Harvest manipulation</i> .....	41
6.16.6. <i>Cultivar ennoblement</i> .....	41
6.17. MARKET ANALYSIS SUMMARY .....	41
6.17.1. <i>Market Segmentation</i> .....	41
6.17.2. <i>Oils</i> .....	45
6.17.3. <i>Aromas and flavors</i> .....	45
6.17.4. <i>Stones (pips after seed removal)</i> .....	45
6.18. STRATEGY AND IMPLEMENTATION SUMMARY .....	45
6.18.1. <i>Phase 1: 1995-1996 season</i> .....	46
6.18.2. <i>Phase 2: 1996 -1997 season</i> .....	46
6.18.3. <i>Phase 3: 1997-1998</i> .....	46
6.19. MARKETING STRATEGY .....	46
6.19.1. <i>Target Markets and Market Segments</i> .....	46
6.19.2. <i>Pricing Strategy</i> .....	47
6.20. PROMOTION STRATEGY .....	48
6.21. DISTRIBUTION OR TRANSPORT LOGISTICS STRATEGY .....	49
6.22. MARKETING PROGRAMS .....	50
6.23. SALES STRATEGY .....	50
6.24. SALES PROGRAMS .....	51
6.24.1. <i>Southern African Introduction</i> .....	51
6.24.2. <i>International introduction</i> .....	52
6.25. STRATEGIC ALLIANCES .....	52
6.26. MANAGEMENT SUMMARY .....	52
6.26.1. <i>Organizational Structure</i> .....	52
6.26.2. <i>Management Team</i> .....	53
6.27. ACTION PLAN AND RECOMMENDATIONS: .....	54
6.27.1. <i>Finalise concentrate product specification</i> .....	54
6.27.2. <i>Secure order for 1996/97 harvest from at least Oasis Brewery</i> .....	54
6.27.3. <i>Finalize joint venture agreement between GRNT, Granor Passi and marketing organization</i> .....	54
6.27.4. <i>Finalise development of by-products, with emphasis on nut and oil extraction</i> .....	54
6.27.5. <i>Define technology and process requirement of Gweta/Zoroga processing facility</i> .....	54
6.27.6. <i>Agree implementation strategy between GNRT, NRMP, IRCE and South African partners</i> .....	54
6.27.7. <i>Develop training program for GNRT key management team members</i> .....	54
6.27.8. <i>Investigate common requirements between Marula project and Springwater plant for combination in final implementation</i> .....	54
<b>7. MOPANE CATERPILLAR (PHANE) MARKET .....</b>	<b>55</b>
7.1. INTRODUCTION .....	55
7.2. SUMMARY OF FINDINGS AND CONCLUSIONS .....	56
7.2.1. <i>Total market size</i> .....	56
7.2.2. <i>Growth rate</i> .....	57
7.2.3. <i>Using industries</i> .....	57

7.2.4. Global market share and competition .....	58
7.2.5. Market Geography: .....	58
7.3. CLIMATE SEASONALITY .....	58
7.4. ECONOMIC TRENDS .....	59
7.5. INDUSTRIAL TRENDS .....	59
7.6. SOCIAL AND CULTURAL TRENDS .....	59
7.7. ORGANIZATIONAL EXPERIENCE LEVELS AND EXPERTISE .....	60
7.8. LAWS AND REGULATIONS .....	60
7.9. DESCRIPTION OF THE MARKET .....	60
7.9.1. Market size .....	60
7.9.2. Market trends and forecast .....	61
7.9.3. Distribution channel dynamics.....	62
7.9.4. Market structure and segmentation.....	63
7.9.5. Existing competitors and market share .....	64
7.9.6. Competitive comparison .....	64
7.9.7. Information on potential customers tastes, habits and attitudes.....	64
7.9.8. Prices and pricing policy.....	65
7.10. CONCLUSIONS AND RECOMMENDATIONS .....	66
7.10.1. Elimination of unnecessary steps in the channel .....	67
7.10.2. Joint ventures between Harvesting Communities and Retailers.....	69
7.11. WAREHOUSING, PROCESSING, PRESERVATION AND QUALITY ASSURANCE.....	72
7.12. IMPLEMENTATION PLAN .....	73
7.12.1. Year 1: 1995/96 season:.....	73
7.12.2. Year 2: 1996/97 Season .....	73
7.12.3. Year 3: 1997/98 Season .....	73
7.13. ESTABLISH TRANSPORT NETWORK WITHIN HARVESTING COMMUNITIES AND TO SA MARKETS .....	74
<b>8. CRAFT DISTRIBUTION STUDY.....</b>	<b>75</b>
8.1. INTRODUCTION.....	75
8.2. SUMMARY OF FINDINGS AND CONCLUSIONS .....	76
8.2.1. Total market size.....	76
8.2.2. Value adding chain.....	76
8.3. GENERAL BACKGROUND OF MARKET .....	77
8.3.1. Purchasing influences and buying (consumer behavior).....	77
8.3.2. Product Preference Map:.....	78
8.3.3. Social and cultural trends.....	79
8.4. DESCRIPTION OF THE MARKET .....	79
8.4.1. Market trends and forecast .....	79
8.5. DISTRIBUTION OPTIONS AVAILABLE .....	81
8.5.1. Botswana Tourist trade (extension and refinement of current trade practices.) .....	81
8.5.2. South African Tourist trade (established retail).....	81
8.5.3. Internet Trading.....	81
8.5.4. Alternative Trade Organizations.....	81
8.5.5. Church groups.....	84
8.5.6. Art , Craft and Flea markets .....	84
8.5.7. Supply collaborators: Ostrich farms .....	84
8.6. COMPETITORS AND MARKET SHARE .....	85
8.7. PRICES AND PRICING POLICY .....	85
8.8. CONCLUSIONS AND RECOMMENDATIONS .....	86
8.8.1. Improve representation:.....	86
8.8.2. Establish Reciprocal marketing/supply agreements: .....	86
8.8.3. Establish craft design and development work group: .....	86
8.8.4. Develop Production, raw material sourcing options.....	86

## **1. Executive summary**

The Government of Botswana is decentralizing the management of wildlife and other natural resources to rural communities. Communities managing their resources are expected to directly benefit from the sustainable utilization of the natural resources that surround them.

The Veld Product Marketing study was commissioned to:

Investigate the regional and international markets for veld products.

Assess seasonal availability of resources, processing, distribution and marketing systems.

Establish relationships with potential joint venture partners, purchasers and market systems of such products.

Investigate and specify processing and packaging requirements to enhance the value of veld products.

The four most promising projects had to be identified and strategies developed for their optimal, sustained utilization, beneficiation, and market penetration.

The identified areas included:

Gweta, CT7 and CT11, Central District.

Groot Laagte, GH1, Ghanzi District.

Chobe enclave, CH1 and CH2 Chobe District.

The attached report is the product of an intensive search for information on the potential of Veld Products in Botswana. The information search included:

A two day workshop with several NGO's in a IRCE convened workshop.

An eight day field trip visiting the three communities in Gweta, Chobe enclave, and D'Kar/Ghanzi areas.

A market inquiry including visits to Cape Town, George, Knysna, Oudtshoorn, the Southern Cape Peninsula, Nelspruit, Hoedspruit, Pietersburg, Louis Trichardt and included interviews with:

Several South African Universities' departments of Entomology, Environmental studies, Anthropology, Botany, Horticulture, and Agriculture.

Craft retailers, wholesalers, manufacturers and distributors in the Gauteng, Eastern Cape, and Western Cape areas, as well as telephonic inquiries to the United States of America and Europe.

Pharmaceutical, cosmetic, food and beverage processing, milling and food distribution companies.

Herb distributors, growers and associations.

Council for Scientific and Industrial Research divisions: Foodtech, and Watertech, in Pretoria and Stellenbosch,

Packaging, equipment and process designers and suppliers.

Formal and informal Trade Associations.

Potential project joint venture partners in the packaging, beverage, fruit and food processing industries.

The key high leverage Veld products or projects have been selected on the following bases:

Potential in terms of financial feasibility and economic sustainability.

Availability of information.

Existence of markets or high potential in development opportunities.

Availability of and access to resources.

The nature of the projects can be categorized in two distinct approaches:

Development of new products or processes (Springwater, Forestry product and Marula product range)

Re-engineering of existing processing and marketing process. (Phane, Crafts, Devils Claw/Grapple)

The latter approach could be used to demonstrate early success and contribution to the enhancement of value at the harvester community level.

The selection of the high priority products were influenced significantly by the availability and relevance of the information.

The following products / projects have been identified as high potential projects:

Marula

Phane

Indigenous crafts

Spring or natural water

Forestry products

Herbal teas and devil's claw or grapple

Natural Gums

## Morama nuts

The project's first phase identified keen interest in veld products. Four projects, namely Marula Fruit juice and concentrate production, Mopane Caterpillar distribution, the development of a Natural Springwater resource and the development of an enhanced indigenous craft production and marketing system, present immediate economic development opportunities.

The second phase of the study was commissioned to continue market research and product development support, aimed at developing the availability of the four resources into fully fledged community projects. The project consultant was also requested to develop the basis of long term business agreements between private enterprise and communities in Gweta for the development of the Marula and Springwater resources and the Tswapong Hills Conservation Area to better utilize the Mopane Worm (Phane) resource. The Kuru ethnic craft project did receive some attention as well.

## 2. The Marula Project Summary

From December 1995 through to end of March 1996 the focus of the consultancy was aimed at providing specifically the Marula harvesting project with:

**Marketing Support** to the communities, by maintaining contact with interested companies in purchasing and or distributing marula products, and investigating processing and packaging requirements that might secure increased returns to producer communities

**Logistical Support** was provided specifically to the Gweta community with the trial harvest of Marula, negotiating transport logistics and cost, and maintaining contact with the contractors, and suggesting means to minimize cost and maximize returns to producer communities in terms of collection, processing, storage, packaging and transport logistics.

**Negotiating business contracts by :**

- examining buyers' long and short term requirements and developing joint venture partnerships and agreements with them.
- Scheduling short term financing and forward selling mechanisms to fund communities collection, processing storage and packaging requirements.
- Ensuring payment from South African buyers is promptly made for producer communities.
- Negotiating financing and grant funding with commercial banks, donors and other financial institutions to support producer communities in their development of the storage and processing infrastructure required to enable them to maximize benefits from available veld products.

**2.1. Summary of findings and conclusions**

**2.1.1. Total market size**

Approximately 600 tons of Marula concentrate is currently being produced annually in the South African market, and is mainly used for the production of a liqueur product, Amarula.

Keen levels of interest were however uncovered in the fruit juice concentrate markets and specifically as base for alcoholic beverages.

An order for 1000 tonnes of 60° Brix Marula concentrate, which represents a harvest of 12000 tons of fresh Marula was secured from a brewer of a Marula based alcoholic beverage.

Several other fruit juice, concentrate, cosmetic oil, jam jelly and dried fruit producers expressed interest pending the receipt of samples of the product. Due to the unknown qualities of the by-products no producer was prepared to venture any estimates of potential market size and or growth.

Plans were set in motion to harvest 12000 tons of fruit from the Gweta, Zoroga and Tsokhatsaa areas in period stretching from the last week in January to the end of March 1996:

The Gwezotshaa Natural Resource Trust was formed represented by members of the three communities

A harvest, transport, processing and supply agreement was negotiated between the communities, Truck Africa transporters, Granor Passi as processor and Oasis Brewery.

By-product processors were retained on stand-by to receive samples from the final product in order to develop specifications for the next season.

Phytosanitary protocols were developed by the Department of Plant Health in South Africa and permits acquired for the importation of 500 loads of approximately 28 tons each.

Severe rainfall in the area seriously curtailed access to the area from December through to the second week in March 1996.

The effect was a dramatically reduced harvest period, and therefore a trial harvest was planned to only provide the processor and industrial users with sufficient product to specify their need for concentrate during the following season.

Considering the reduced availability of Marula, a trial harvest and process program was defined by the NRMP and funded by the IRCE to harvest 240 tons of fruit.

Lower than anticipated harvester participation, insufficient local transport availability and initial communication difficulty between the Gwezotshaa Natural Resources Trust Committee and the community at large regarding specifically harvester remuneration, resulted in a slow start to the harvesting process.

Significant progress with the communication, harvester motivation and co-ordination was made within the first week and harvesting gained some momentum during the last ten days of the harvest.

Stringent quality control processes were in place at the time of the harvest due to guidelines used from previously published literature, which stated that the Marula fruit fermentation process sets in after four days. In hindsight, the quality assurance process reduced the usable harvest significantly, as the fruit was so fresh that the processor had to have it ripen for almost a week after thawing before it could be processed.

A total harvest of 42 tonnes was finally processed. Almost 25% had to be rejected due to the fruit not being workable for it not being sufficiently ripe. The freezing of the product also had an adverse affect on the processing, due to the waiting period required for the product to thaw prior to processing.

Their process was delayed due to the delayed period of the harvest. Marula had to be processed between previously schedule guava runs.

All available Marula had to be processed as to gain sufficient volume of pulp to process through the evaporators. Enzyme treatment experiments were conducted on the pulp in an attempt to optimize yield.

It is expected that the evaporation process will yield approximately 15500 liters of concentrate.

A laboratory sample of the puree were forwarded to Oasis Breweries, who in turn submitted it to Mitsubishi Food Corporation for their approval and potential inclusion in a new beverage product development aimed at the United Kingdom market.

### **2.1.2. Probable growth rate**

Without any growth in orders and immediate potential, the demand will be difficult to satisfy. Natural Marula, as opposed to nature identical synthetic flavouring, is specified by the international importers and is a prerequisite for export by the Oasis/Mitsubishi venture to the United Kingdom. Production trials are being conducted to determine the percentage of Marula concentrate required for the beverage range.

### **2.1.3. Potential non-beverage using industries**

Interest have been keen in the fruit juice, concentrate and by product industries. The sufficient supply of nuts is of particular interest for the cosmetic industry.

## **2.2. Recommendations**

### **2.2.1. Develop "Processing in the field" technology:**

It is strongly recommended that the processing technology to macerate and liquefy the fruit be established in close proximity of the harvest area.

Initial investigations of available technology indicate that a macerator, pulping and finishing plant, reducing the fruit to pulp, pasteurizing and cooling the puree to 2-4°C and storing the puree in insulated tanks will require an investment of approximately P540 000. ( R700 000).

Although the transport per kilometer will be more expensive, only puree (46% of the fruit weight) will be transported in temperature controlled tankers.

The nuts will remain in the area for further processing, providing substantial additional job opportunities.

Phytosanitary protocols compliance cost will be substantially less as the fruit will not have to be frozen.

The savings directly attributable to the “processing in the field” could amount to P1,44 per kg of delivered concentrate or P1 440 000 over the first year’s project.

Final costing will be available on receipt of the Granor Passi trial process cost estimates and technology specifications. The latter will be designed after the final product is available and quality specification consultations have been finalized with the industrial users.

### **2.2.2. Finalize constitution of Gweta Natural Resources Trust and build commercial capacity within Executive Committee**

At completion of the initial harvest the trust was not finally constituted and registered. For any final negotiation to take place between the communities and the processors, it will be imperative that the Trust be registered and the committee members and community be equipped with the required skills to enter into negotiations and prepare for the next harvest.

### **2.2.3. Finalize concentrate product specification**

Final product specification should be cleared and finalized with the final industrial users..

The preliminary evaluation of the first concentration run have been received from Granor Passi ,.

Crates received at Granor Passi: 84

Total Kilograms received 84,390 (eighty four thousand three hundred and ninety).

Single strength fruit juice yield: 92 barrels of 180 litres each = 16560 litres

Yield of fruit juice from whole fruit ranged from 38% to a maximum of 46%.

Flavour of single strength juice (pre-evaporation): typically Marula. There is a significant loss of aroma in the process and it is ascribed to the following:

Degree of ripeness of the received fruit was insufficient for maximum yield of juice and aroma as the fruit was freezed on receipt by Granor Passi. Degree of ripeness did not improve after thawing. Yield is expected to range between 46% and 48% with full ripe fruit. The aroma

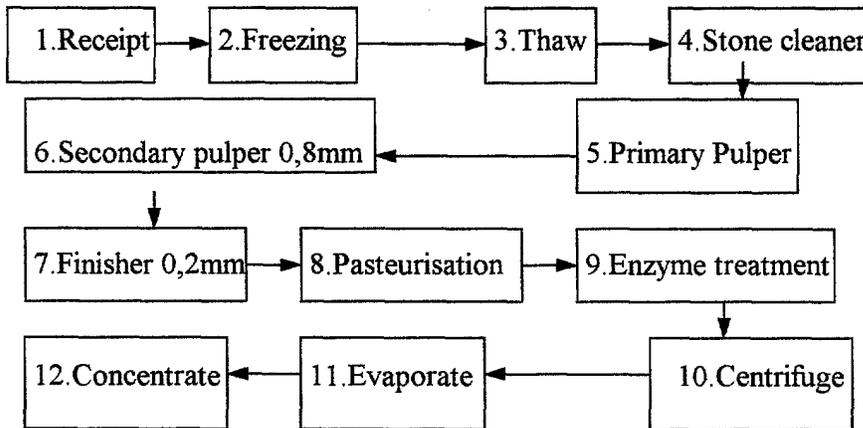
stability is expected to increase dramatically should full ripe fruit be used. Although available theory indicated that full ripe fruit should measure between 12° and 16° Brix the pre-process measurement of fruit only yielded 7° to 8° Brix.

**Analysis:**

Brix° (Refractometer):	46.6°
Brix (Acid corrected):	47,5
pH:	3,42
Total acidity:	4,67
Ratio (Acid corrected Brix/acidity):	10,17
Viscosity (LTV 4/6) 20° C, CPUs:	15000
Pulp content at 9.9° Brix	18%
Vitamin C content:	Results awaited

Results from Department of Plant Health and Phytosanitary services being awaited.

**Process flow: After delivery to Granor Passi:**



**Alternative process:**

It was strongly recommended that alternative pre-production process should be established in the field. The in the field process will not need steps 1 to three and should include process steps 4, 5, 6, 7, and 8. Pasteurised juice will then be shipped to processor for further processing. Impact on importation duties and equipmqt cost will be forwarded on receipt.

**2.2.4. Finalize order for concentrate from at least Oasis Breweries**

After final product specification have been developed and agreed the final order with Oasis can be finalized.

**2.2.5. Finalize joint venture agreement between Gwezotshaa Natural Resources Trust ,Granor Passi and or Oasis Brewery.**

The joint venture agreement draft is attached as annexure 6 to this report.

**2.2.6. Investigate common requirements between Marula and Springwater Projects**

### **3. The Phane Project Summary**

The Phane marketing system is well established in the greater Southern African context, i.e. Botswana, South Africa and Zimbabwe. The distribution channel fuses traditional rural sourcing, with sophisticated trading and distribution channels and mechanisms. Through direct selling, brokering, bartering and/or formal wholesaling and repackaging, reaches most of its end consumers in a traditional informal trading environment.

Due to the seasonality and climatic sensitivity of the source, demand and supply forces have a severe impact on pricing. The sensitive and erratic nature of the natural resource, inaccessibility to finance by harvesting communities, combined with traditional speculators and wholesalers' dominance of the market structure and distribution channel, do not allow the harvester to fully participate in the marketing system.

This study addressed and investigated harvesting communities' inability to control the resources that inhibit their access to the market and value derived from the Phane resource.

The focus of the recommendations in this report will be to:

- Enable the harvesting communities to increase their share in the benefits offered by the market by contracting or shrinking the channel from harvester to end user.

- Engineer joint ventures between harvesting communities and participants in the value chain to eliminate unnecessary steps in the process and thereby increasing the value accruing to the communities and individual harvesters. Distribution channels have been established that reduce the maximum number of steps in the distribution channel from nine to three.
- Enhance the time value of the “crop” by establishing harvester managed and controlled warehousing. This will enable the harvesting community to actively participate in the distribution channel and participating in the benefits offered by the seasonality, rather than being the victims of volatile market forces.
- Promote the sustainability of the resource by scientifically ensuring the re-establishment of Phane in areas where the resources were depleted or destroyed.
- Promote the notion of “domesticating” the Phane resource in order to enhance and increase the yield to communities.
- Facilitate maximum adding of value to the product at harvesting community level. Labor intensive packaging technology exist and can be implemented at low entry cost.
- Recommend alternative financing systems to enable harvesters to control the resource from source to final consumer.

Recommend storage and quality assurance practices to maintain and enhance value of resource over time

### **3.1. Phane marketing conclusions and recommendations**

#### **3.1.1. The eliminating of unnecessary steps in the distribution channel**

Interest from retailers, wholesalers and informal traders indicates a willingness from the extended channel to invest in the streamlining thereof. The general perception is that the harvesters do not participate in the benefits and value of the market. The “middle-man buyer” exploits the harvester and realises excessive profits on sales to the SA wholesalers and retailers.

#### **3.1.2. Structured marketing Joint Ventures between the harvesting communities and the retailers.**

Immediate potential exist to engage the

African Council of Hawkers and Informal Business in the urban areas of South Africa,

Fish and Chix , a rural retail/wholesaler food franchise chain, and

Score Supermarkets

in joint venture agreements to connect harvesting communities directly with the consumers.

#### **3.1.3. The processing, preservation, packaging and quality assurance technology to be transferred to and moved as close to the community as possible**

Inexpensive equipment and storage facilities are available to be installed at harvester level.

#### **3.1.4. Establish Harvest Buying and or Financing mechanisms**

Retailers and development agencies are prepared to assist harvesters to finance their harvest through creative buying, storage and transportation mechanisms. The one inhibiting

element in finalizing the mechanism was the availability of a “legal entity” representing the community. The formulation of the Tswapong Hills Conservation Area Project have not reached finality, and could not contribute to the establishment of the trading mechanism prior to the completion of the Marketing project.

Should the Tswapong Hills Community Trust be formed, the introductions to the potential joint venture partners can be arranged within days.

**3.1.5. Establish affordable transport mechanisms for transporting harvest to markets:**

Transport from harvesting communities to Northern Province and Gauteng at most competitive rates are from Score retailers. The return leg transportation will be made available at significantly reduced rates equal to approximately 30% of the one way rate.

**3.1.6. Establish adequate quality controlled warehousing and distribution infrastructure:**

Storage for harvesting communities could be made available by purchasing or renting shipping containers. Twenty one containers were secured at R7500 each, or R30 per day rental, but had to be relinquished due to Tswapong Project not materializing . The transaction could be revitalized on request

**3.1.7. Develop alternative users of Phane.**

Food processors and producers of nutritional supplements for sportsmen and animals expressed interest to conduct some research in developing a range of consumer products utilizing the unique properties of Phane. Availability of Phane to these researchers could provide an inexpensive (no cost) research project on the development of alternative uses of Phane

## 4. Springwater Summary

Significant interest were shown in the Maun market. The 1995 - 1996 fiscal year could see the market size in Maun develop to approximately 200 000 liters per annum. It is projected with confidence that at least thirty percent of the volume could be captured by a local plant, not only due to the logistical and cost benefit, but also by the involvement of the Maun distribution channel in the project.

Using currently available "high Tech" plant however will require a break even volume of approximately 108 000 liters per month, which is substantially above what the Botswana Market will be able to absorb.

### 4.1. Alternatives:

The following alternatives exist:

- **Establish effective relationships** with South African Markets by inter alia engineering joint venture partnerships with the Spar Franchised chain, Maun Fresh Produce which is part of the Shield Franchise, and/or the Score Retailing group. This opportunity will utilize existing available logistics and transport capacity, and provide the joint venture partners with a meaningful participation in community involvement.
- **Investigate and utilize potential "appropriate technology" available via Watertech, a research subsidiary attached to the CSIR.**

Meetings with Mr. Grant Mackintosh, based in Stellenbosch have been arranged and feedback would initially have been available in the first week in October. Due to the rain during the latter part of November through January 96 the Springwater investigation was postponed to the first quarter of 1996. A technical report on the project have been submitted to the NRMP by Watertech.

## 5. Ethnic Craft Summary

The indigenous craft industry was identified to be of high potential development value. This study's exposure to the Botswana craft industry was limited to visits to craft production and buying centers in Ghanzi and D'Kar. The investigation briefly examined the craft industry's production and co-ordination efforts in Botswana. The focus was on the requirements for developing an effective distribution channel and the potential in the international market. The investigation also attempted to design a competitive marketing and distribution against the backdrop of the international craft market.

Several efforts have been made in the past to streamline the Botswana craft industry. These efforts did not achieve international market penetration.

The lack of an integrated approach with regard to the craft industry is not unique in Botswana. Internationally cottage industries and handicrafts are associated with traditional low skill, and dispersed economic activities with limited economic impact.

The growth in the South African international tourist trade in specifically ethnic craft, has the potential of absorbing all Basarwa craft. The indigenous craft market structure needs changing to support a growing distribution system. Agreements have been reached with major tourist attractions to not only distribute the crafts, but also make available exhibition space and facilities to be utilized by indigenous people.<sup>1</sup>

International markets are eagerly awaiting the response to their invitation to establish a reliable and consistent supply network in order to establish formal commercial linkages<sup>2</sup>

---

<sup>1</sup> Greenmarket square and Waterfront Cape Town. Klein Karoo Co-op :Oudtshoorn

<sup>2</sup> Internet enquiry attached as annexure

## **5.1. Craft Industry Conclusions and Recommendations**

### **5.1.1. Improve representation:**

Establish project committee or appointed agent in South Africa to utilize existing craft and art distributor and retail networks. Immediate benefit could be transferred to Kuru by extending their current representation in the Republic of South Africa. Internet avenues should also be used as a low cost entry into the international market.

### **5.1.2. Establish Reciprocal marketing/supply agreements:.**

Formalize the relationship with commercial ostrich breeders to supply unrestricted ostrich eggs for the increase in productive capacity in the Basarwa Bead market.

### **5.1.3. Establish craft design and development work group:**

Establish craft design group between producers and distributors to be pro-active to market and fashion trends.

Traders believe that the most significant benefits to the Botswana craftsmen would be:

- Improving quality of merchandise
- Improving consistency of supply and ability to reorder and contact supply base
- Reducing number of links in the distribution channel, therefor reducing the number of steps requiring profit participation.

#### **5.1.4. Develop Production, raw material sourcing options**

Design and material sourcing opportunities have been identified which could reduce Kuru's input cost substantially. A reliable source of ostrich egg shells have been established out of the Oudtshoorn area. Import permits to be obtained and process to be established. High levels of enthusiasm and support established with group of prominent ostrich farmers. The potential linkage is not only to the sourcing of broken egg shell but can be extended to:

##### ***5.1.4.1. Transfer of skill:***

The Klein Karoo ostrich farming co-operative have vertically integrated the ostrich breeding and by-product development process. High quality garments and fashion accessories are being manufactured in and around Oudtshoorn. Craft and clothing design assistance as well as international marketing connections could be exchanged. The transfer could include the tanning process as well, which could lead to enhanced utilization of the Kuru tannery.

##### ***5.1.4.2. Genetic stock and farming skill exchange:***

Although the exchange of ostrich genetic stock falls outside the craft trading environment, the ostrich project at Kuru deserves some specific attention. The initial reaction from the farmers was that the Kuru ostrich project could provide Klein Karoo farmers with new strains of genetic stock. They also have access to markets for non-craft products i.e. meat, leather and feathers that they would be prepared to exchange in a joint venture project.

##### ***5.1.4.3. "Live Craft Display":***

At the main Oudtshoorn tourist outlet for ostrich related products the concept of a Live Craftsman Display was raised. The owners of the store are prepared to provide

accommodation and will establish an ethnically appropriate Craftsmen's Village to display Kuru Craft during the festive season. This concept was tested with several other craft outlets and was met with significant interest. It could typically involve a craft producing family from Kuru to manufacture ostrich eggshell based beadwork on site. This concept could be extended to the high specifically international "tourist traps" in South Africa e.g. Greenmarket square and Waterfront "Cape Town", Bruma Lake Flea Market, Randburg Waterfront and Rosebank Mall Rooftop Market, Knysna/Wilderness Streetmarkets. Ethnically sensitive issues will need to be resolved as the markets will be specifically interested to create a typically "Basarwa Village" based display.

## **6. Marula Project: Gweta, Zoroga and Tshokhatsaa communities (Gwezotshaa Natural Resources Trust)**

The first phase of the Natural Resource Management Project's Veld Product Marketing Study identified the utilization of the abundant Marula resource in the Gweta CT7 and CT11, Central District area as one of the economically and strategically most feasible projects.

The Marula resource will serve as a versatile base in initially providing low capital intensive, high unskilled labour content, raw material input to producers of fresh fruit beverages and juices, concentrate, jellies, jams, fruit rolls, nuts, vegetable oils, fuel briquettes and cattle feed. Secondly, value adding productive capacity by reinvesting harvest earnings could be established.

The harvesting of the stone and extraction of the nut is expected to extend job opportunities for the harvesting crew from May to August by harvesting fruit not suitable for the fresh juice or concentrate market.

Considering market commitments<sup>3</sup> received to date a first harvest earning of P1152000 (one million, one hundred and fifty-two thousand Pula) could have been realized during the period March to May 1996. The 1996 pilot harvest could however not meet this demand. The action plans and evaluation of the pilot harvest are outlined below.<sup>4</sup>

An efficiently organized harvest crew and management of approximately 600 people could effectively collect the 12000 tons of fresh fruit required to satisfy the demand for the production of 1000 tons of concentrate. It is expected that as many as 3000 people will be mobilized by the community to participate in the process.

---

<sup>3</sup> Letters of intent attached as annexure 1

<sup>4</sup> Attached as annexure 2

In order for the community to “own” the value adding process from resource to final consumer product, the execution of the project was designed to retain control of the value chain by suggesting community commercial joint venture options with processors and manufacturers of industrial and consumer products rather than offering the fruit for sale in the open market.

Although the pilot project’s harvest and processing logistics were split between Botswana and South African partners. The intention is to establish processing facilities in the immediate vicinity of the harvesting area, to destone the Marula and reduce the fruit to pulp. The pulp will then be pasteurised, cooled and bulk-transported to South Africa to be processed into fruit juice concentrate. Utilizing existing capital intensive, hi-tech productive capacity of under-utilized or out of season South African fruit juice processors will provide the processing capacity at marginal cost, reducing the capital intensity of Botswana based project considerably

The project management process has been structured in six project divisions:

Community organizational design and management structure development.<sup>5</sup>

Community logistics management (From Tree to harvest staging area)<sup>6</sup>

Harvest distribution logistics ( Staging area to processor)<sup>7</sup>

Joint venture structuring between Community, Processors and Manufacturer<sup>8</sup>

Juice extraction, concentration process and by product development

Marketing of processed products<sup>9</sup>

---

<sup>5</sup> Action plans attached as annexure 3:

<sup>6</sup> Action plan attached as annexure 4

<sup>7</sup> Action plans attached as annexure 5

<sup>8</sup> Proforma contract attached as annexure 6

<sup>9</sup> Contact list of Processors, Associations and Importers attached as annexure 7

### **6.1. Marula Background**

The Marula tree (*Sceroclearea birrea* subspecies *caffra*) and its fruit is one of the most commonly utilised wild fruits in Southern Africa.<sup>10</sup> Known and consumed by man since 9000 to 10000 BC it offers a drought resistant, exceptional yield of easily harvestable fruit, highly nutritional nuts within the fruit, and an easy to work with wood.

The Marula tree is widely distributed throughout Africa; from the lowlands in Kwa-Zulu Natal in the Republic of South Africa in the south, stretching northwards to Ethiopia and Sudan. It prefers a warm frost free climate, but is also found in areas up to 1370 meters above sea level, where temperature could drop to below freezing during short periods.

The Marula is a medium to large tree, usually growing to approximately 9m, but 18m trees have been recorded. It is single stemmed with a dense deciduous foliage. Although male and female flowers occasionally occur on a single tree, it is considered to be dioecious.

Fruit is borne in clusters of up to three at the end of twigs and always on the new growth. It is a round or oval drupe and usually wider than it is long, with an average diameter of 30 to 40 mm. Marula fruits have a thick leathery exocarp, enclosing a white juicy mucilaginous flesh, which adheres tightly to the stone. The flesh tastes tart, sweet and refreshing, whereas the fruit has a slight turpentine-like aroma and could when decaying, release a pungent smell.

Each fruit contains an exceedingly hard, mostly trilobular, but often bilobular, seed. Each seed locule contains a single light nut filling the entire cavity. Every locule has its opening sealed by a round hard disk protecting the seed until germination.

The Marula tree is a prolific bearer with fruit yields up to 2 metric tons per tree recorded. Mature fruit drop when still green and ripen to a yellow colour on the ground, usually during the period January to March. The fruit is harvested by picking up the fallen fruit.

---

<sup>10</sup> Weinert, van Wyk and Holtshausen

Available literature indicated that the fruit will commence fermentation within 5 days from falling. Extreme quality control procedures were in place during the trial harvest to ensure that the greenest fruit are collected for transportation to South Africa. This was done to ensure that no fermentation took place en route to the processor. Hindsight however,<sup>11</sup> proved that the fruit was too “unripe” and that dark yellow fruit would have yielded substantially better results.

## **6.2. Constituents of Marula fruit:**

The variance in nutrient and proximate composition of destoned Marula fruit, skins and flesh can be explained by the differences in ripeness of fruit, geographical and therefor climatic condition, as well as methods of analysis.<sup>12</sup> Citric acid is the most abundant of the organic acids, excluding ascorbic acid. Of all the nutrients in the Marula, the vitamin C content has attracted the most attention. Ripe fruit has an average vitamin C content of 168 mg per 100g that is approximately three times that of oranges and comparable to the amount present in guavas and blackcurrants.

---

<sup>11</sup> Report from Granor Passi awaited on fruit ripening post freezing

<sup>12</sup> Constituent analysis of the Marula attached as annexure 8

**6.3. Nutrient and proximate composition of Marula fruit  
(or Parts thereof from different regions of Southern Africa)**

	Zimbabwe <sup>13</sup>	Botswana <sup>14</sup>	Venda <sup>15</sup>	Namibia <sup>16</sup>				
Namibia <sup>17</sup>								
Fruit	Fruit	Fruit	Flesh	Skin	Flesh	Skin		
g/100g								
Moisture	87	91.7	86.4	85.2	80.7	85.5	78.8	
Protein		0.5	0.3	0.5	0.8	0.6	0.6	
Fat		0.1	0.1	0.4	0.6	0.4	0.4	
Ash		0.2	0.4	0.9	1	1.3	1.0	
Crude fibre			0.5	0.8	1.2	2.4	2	2.6
Carbohydrate			7		12	14.4		
Fructose	2.3			.97(juice)				
Glucose				.75(juice)				
Sucrose	5.9			5.95(juice)				
mg/100g								
Calcium		6.2	10.4	20.1	44.7	117.9		
	126.7							
Magnesium			10.5	14.8	25.3	33.5	74.7	41.5
Phosphorus			8.7	9.6	11.5	14.2	7.78	3.94
Iron		0.1	0.24	0.5	0.55	0.3	0.27	
Copper		0.04	0.11	0.07	0.08	0.45	0.07	
Zinc			0.17	0.1	0.17	0.34	0.12	
Sodium		trace	0.64	2.24	1.71	2.53	2.0	
Potassium		54.8	163	317	345	490.2		
	417.3							
Riboflavin		0.05		0.02	0.02	0.05	0.02	
Nicotinic acid			0.25		0.27	0.37	0.48	0.37
Malic Acid					0.22(fruit)			
Tartaric acid					0.75(fruit)			
Citric acid				11.6(fruit)				

<sup>13</sup> Carr (1957)

<sup>14</sup> Wehmeyer (1967)

<sup>15</sup> NFRI (1972)

<sup>16</sup> Shone (1979)

<sup>17</sup> NFRI (1977)

#### 6.4. Vitamin C Content of Marula fruit

or its parts and some products prepared from the Marula Fruit

##### Reference Vitamin C Content (mg/100g)

	Fruit	Skin	Flesh	Juice	Beer	Jelly	Jam
Carr(1957)	179.1				97.1	70.7	105
Unripe	127.2						
Ripe	133.7						
Overripe	52.7						
Grivetti	61				140		
Wehmeyer (1967)	67.9						
NFRI (1967)						49	
NFRI (1971)		166					
NFRI: Ripe			237.6	194.4			
Unripe		150.4	198.2				
NFRI (Shone 1979)			230	194			
NFRI (1979)			227	161	192		
NFRI (1980)					129		

#### 6.5. Constituents of Marula Nuts<sup>18</sup>

The nut contains an average of 56% oil which is comparable to nut such as almonds, walnuts and pistachios. The protein content (28%) of the Marula nut is however much higher than the aforementioned nuts. The minerals Ca, Mg, K and P contribute significantly to the ash content of 3,9%. The nuts' composition is comparable to other tree nuts except for P which is notably higher.<sup>19</sup>

<sup>18</sup> Constituent analysis of the Marula nut attached as annexure 9

<sup>19</sup> Oliveira (1974)

Protein contents have been reported for defatted Marula nuts to be as high as 54 to 70%.<sup>20</sup>

In comparison to other nuts, the Marula nuts contain small amounts of lysine and would therefore not be suitable to supplement cereal diets normally lacking in lysine. The Marula nut was however found to be rich in arginine, aspartic acid and glutamic acid. Its essential amino acid content was also compared with that of human milk and a whole hen's egg.<sup>21</sup>

**6.6. Proximate and nutrient composition of marula nuts from different parts of Southern Africa**

	REGION				
	Angola	South Africa	South Africa	Mocambique	
	g/100g				
Moisture	3.9	4.0	3.9	9.0	
Protein	27.6	30.9	25.9	27.6	
Oil	56.2	57.0	57.6	54.3	
Ash	4.1	4.2	3.5	3.7	
Fiber	4.5	2.4	3.5	2.8	
Carbohydrate			1.5	5.7	5.3
Caloric value				645.4	
	mg/100g				
Ca	161	106	130.4	93	
Mg		467	456.6	329	
Na		3.4	4.2	81.0	
K		677	525.3	675.0	
Cu		1.99	3.62	8.1	
Fe		0.42	9.32	4.4	
Zn		4.89	4.89	2.9	
P	1907	836	779.1	774	
Thiamine		0.4	0.43		
Riboflavine		0.12	0.12	.20	
Nicotinic Acid			0.71	0.72	0.74

**6.7. Project Mission**

The establishment of an effective, commercially viable, financially independent community based natural resource management project utilizing, developing,

<sup>20</sup> Rijke & Joubert 1967 Burger et al 1987

<sup>21</sup> Rijke and Joubert 1967

and adding value to an abundant natural renewable resource namely the Marula.

### **6.8. Objectives**

The key objectives of the study are to:

- Establish an effective community based natural resource management organization in the Gweta area.
- Establish a commercially viable harvesting, and processing and marketing joint venture between the Gwezotshaa Natural Resources Trust and private enterprise, utilizing an abundant indigenous fruit, the Marula.
- Create at least 600 job opportunities for four months of the year in the target area within the first year and by the third season fully utilize the manpower by adding value through establishment of local processing capacity
- Utilize Marula project as the base for the expansion of commercial as well as sustainable veld product utilization throughout Botswana.
- To establish viable international markets for Marula fruit juice concentrate, as well as by products.

### **6.9. Keys to Success**

- Finalize and establish the Gwezotshaa Natural Resources Trust as an effective community based natural resource management organization.
- Successful test harvest and processing of 30 tonnes of Marula fruit by the first week in February 1996.<sup>22</sup>
- Soundly structured joint venture and supply agreements between Community, fruit juice processors and industrial end users.<sup>23</sup>
- Established marketing, logistic, administrative and financial management support systems to assist in harvest management and marketing.
- Availability of sufficient fruit. (12000 tonnes)
- Total community involvement in and management of harvesting, field logistic and compensation structures.
- Established and finalized harvester financing mechanism.
- Development of markets and production systems for by-products, i.e. oils, jams, jellies, fire briquettes.
- Implementation strategy agreed to by GNRT, NRMP and IRCE:
- The implementation strategy revolved around the following milestones:
  - Implementation of Gwezotshaa Natural Resources Trust project organizational structure and design
  - Harvester compensation design

---

<sup>22</sup> Evaluation of trial harvest will be attached to final report

<sup>23</sup> Joint venture agreement between Gwezotshaa Natural Resources Trust, and Granor Passi attached as annexure 6

- Harvester & logistics financing
- Trial Harvest of 30 tonnes to fruit juice processors
- Fruit juice production trial run to be completed
- By product tests to be completed
- Market finalisation:
  - Fruit juice concentrate
    - By-products
    - Final marketing, pricing, logistics and financing strategy

#### **6.10. Marula Project Impact Summary**

Using an initial concentrate order as the base of activities the following impact could be realized:

- “Formal” Job opportunities mid February to August: 580
- Informal community harvester job creation potential  
3000
- Cash injection into employment of harvesters, supervisors  
and loaders P840 000
- Research and development contingency fund: P120 000
- Resource compensation to Gweta Natural Resource Interim  
Committee P913 596

#### **6.11. Marula Project Ownership**

The proceeds of the resource will be owned by the Gwezotshaa Natural Resource Trust, a recently formed and soon to be registered community trust, established by the communities of Gweta, Zoroga and Tsokgatshaa.

### **6.12. Startup Summary**

The low cost of entry or project establishment is particularly attractive from a commercial perspective. Provided that the market and landed prices are finalized the start up cost is directly variable. No capital equipment will be required within the first season. The only cost to be incurred is to deliver the first test consignment to the processor.

Total estimated cost per load is as follows:

Harvest of first test load: P96 X 30 tonnes

P2880

Container (bulk fruit bin rental) 60 bulk bins X 50t X 4 days P  
120

Phytosanitary required liners P2.85 X 60 P  
171

Phytosanitary pre-process freezing requirement P  
500

Transport

P5769

Total cost per load for test harvest

P9440

A 30 ton load should provide the project with the following sample product and material:

Concentrate 2550Kg

Nuts (50% retained as fresh nuts) 1500Kg

Oil from nuts (50% of nuts cold pressed) 765Kg

These samples should be sufficient to establish the following:

- Confirm concentrate order for 1997 and subsequent seasons' order
- Establish base to finally negotiate contract processing cost and product specification
- Confirm direct supply agreements with non-contract processors
- Establish value of, extraction potential and cost as well as usage potential of Marula nut oil
- Establish market value of pulp in the dairy, confectionery, preservative, dried fruit and cattle feed industries.

### **6.13. Marula Project By-Products**

Although the initial viability of the project is based on fruit juice, puree and concentrate the following "by-products" will be developed and market tested:

#### **6.13.1. Fresh nuts**

Fresh Marula nuts have been marketed in South Africa in the Lowveld area in the vicinity of the Kruger National Park. The distribution was limited to road side stalls and exceptionally high retail prices (P12 per 100g) were achieved. The difficulty in cracking and withdrawing the nut intact is however the main stumbling block.

#### **6.13.2. Oil**

Oil pressed from Marula nuts promises to deliver one of the most stable, highest quality cosmetic oils. As the base of eye mascara remover, bath oil and skin ointment it presents significant potential. Initial discussions with producers of cosmetic oils have indicated that the price for nuts could be as high as P7.50 per kg. It is however imperative to get the nuts to the processor within two weeks of nut extraction as the nut loses its value if not preserved.

### **6.13.3. Dried fruit rolls**

Some attempts have been made to produce Marula based dried fruit rolls.<sup>24</sup> South African Dried Fruit Co-operative (SAD) regards the inconsistency of supply in the past as the major inhibiting factor. They would however seriously consider developing the product if annual supplies could be guaranteed.

### **6.13.4. Jellies and other preserves**

**Jelly:** is made from strained fruit juice. The product is clear and firm enough to hold its shape when turned out of the container, yet soft enough to spread.

**Butters:** are made by cooking fruit pulp and sugar until thick enough to spread easily. Spices are added depending on taste. The butter needs to be cooked slowly after the sugar is added to prevent scorching. Finer butters can be made by straining the pulp through a food mill and then through a fine meshed sieve.

**Jam:** is made from crushed or ground fruit and tends to hold its shape but is generally less firm than jelly. Jams are cooked until they round up in a spoon. They should be made in small batches and cooked rapidly until the sugar dissolves.

**Conserves:** are jams made from a mixture of fruits, usually including citrus fruit, often raisins or nuts are added. Conserves are cooked until the mixture will round up in a spoon.

**Marmalade:** is a tender jelly with small pieces of fruit or peel distributed throughout. It should be cooked in small batches and brought quickly to the jelling point after the sugar is added. A marmalade commonly contains citrus fruit; part of the rind should be cooked with the fruit for most of the pectin is found there.

---

<sup>24</sup> Frank Taylor: Veld Product Institute

**Preserves:** are whole fruit or large pieces of fruit in a thick syrup often slightly jellied. Preserves should be cooked in small batches in wide pans.

**6.13.5. Other potential by-products:**

Cattle feed, commercial flavors and aromas, dry base for traditional alcoholic beverage brewing and fire briquettes from stone residue.

**6.14. Marula Project Locations and Facilities**

Although the focus would be on the utilization of the Gweta resource, the economies of scale offered by this resource could be of such a nature that it could prove to be economically feasible for Marulas to be “imported” from other community areas in smaller quantities. Provided that sufficient quantities are available at other centers for a full load, trucks could be routed to load smaller, single consignments.

**6.15. Sourcing**

The most significant constraints mentioned by all researchers, fruit processors and end users were as follows:

- Logistics of gaining access to Marula and managing harvesting in the wild have been the main limiting factor in establishing a Marula based project.
- Storing sufficient Marula to enable processing over time presented logistic bottlenecks in specifically temperature controlled warehousing and the inability to process rapidly enough.

**6.16. Technology & equipment**

**6.16.1. Processing capacity**

Available but underutilized equipment and productive capacity in the Northern Province, RSA have been identified and (some) secured:

Granor Passi Fruit Juice and Concentrate processors (Pietersburg  
840km from Gweta)

Letaba Citrus Processors (Letaba Valley, 20Km from Tzaneen, 960km  
from Gweta)

Magaliesburg Citrus Co-operative (Brits, 990 Km from Gweta)

#### **6.16.2. Process development technology**

Appropriate technology for juice extraction and oil recovery have been investigated in the past by Foodtech, the food technology division of the South African Council for Scientific and Industrial Research. Plans for the prototype macerator/liquidiser as well as a Marula nutcracker being retrieved and could be made available to the project. Some reservations, based on personal observation of technology, and discussion with inter alia Prof. Cas Holtshausen and previous users of the prototype equipment, were expressed on the effectiveness of the equipment.

The following cost saving and or processing technologies are being investigated:

#### **6.16.3. Pre-process, on site fruit maceration and pulping**

During the pilot project it became clear that it would be preferable to process the fruit in the field in order to

- ensure a consistent quality and ripeness of the processed fruit,
- save cost on the transport and phytosanitary regulated process of whole fruit

as well as

- retaining the nuts in the community area for further processing.

Suppliers of fruit processing equipment have been approached, and although none of the manufacturers have had any specific Marula processing experience or equipment but were confident that existing technology could be adapted with the input of the Granor Passi experience to successfully process the fruit in the source area.

It is recommended that paddle design machines be installed. A brief description is included below.

#### **6.16.4. PADDLE DESIGN MACHINES**

Separation of liquid and solids is accomplished by means of precision fitted paddles rotating concentrically within a 360° cylindrical screen. Paddle-type machines can be used either as pulpers or finishers by changing the pitch of the paddles and the screens.

In the paddle machine, a liquid product and the desired amount of solids pass through the screen. The remaining solids are discharged through a large exit port..

Paddles that are adjustable as to pitch fit closely at the ends with a gap in the center.

Although no Marula processing has been done before, diverse fruit such as apricots, tomatoes, pumpkins, squash, apples, berries, have been reduced to pulp or juice free of stones, seeds and skins. Fine screens (.010" and .016" perforations) are used for "Super-finishing" to remove excess solids from various liquid products. This "Super-finishing" process often eliminates the need for centrifuging.

Variations of the paddle machines are available to suit particular needs.

#### **5.9.1 ADVANTAGES OF THE PADDLE DESIGN MACHINES Vs SCREW PRESSES**

- **Maximum Solids Recovery** - the paddle machine gives maximum fiber recovery for viscosity and consistency.
- **Easy Maintenance** - Screens are easily changed without the necessity of disturbing bearings.
- **Versatility** - for intermediate effects, the screen cage can be fitted with two different screen sizes.
- **Lower Cost** - Paddle machines are generally lower in cost than competitive machines of the same size.
- **Drier Solids** - the paddle machine can produce drier solids than screw machines. Results are comparable to that obtained with presses on many materials.
- **Easy Cleaning** - the paddle machine shares the advantage of fast, thorough, easy cleaning and inspection of designers.
- **Brown Machinery**, a US based producer of fruit processing machinery, has two models available that are easily transportable. The first model has a pulping capacity of approximately 1,2 tonnes per hour at a cost of US\$20 000. The bigger machine has a throughput capacity of 3 tonnes per hour and costs US\$29 000.

Both machines are electrically driven.

Granor Passi have requested some “in the field” processing technology design from their Italian and US based suppliers of equipment.

***6.16.4.1. Freeze, spray, or vacuum drying***

Freeze, spray, or vacuum drying of fruit, pulp, and/ or concentrate in order to save transportation, storage and handling cost proved to be exceptionally capital intensive with entry level capital requirement ranging between P4,5m and P75m.

Subject to the assumptions that :

12000 tonnes need to be processed

of which 50% is pip,

a seven week harvest,

and a resultant 120000 kg per day drying  
requirement

the following reply was received by the manufacturers and  
developers of the freeze and vacuum drying technology:

***6.16.4.2. Freeze drying***

Freeze drying is typically use for high value product  
(>P100/kg). The capital cost for the establishment of a plant to  
handle the throughput is estimated at P70m.

Power requirements will be in excess of 66 MW.

High water flow greater than 13,000 M<sup>3</sup>h<sup>-1</sup>

High level of skilled operators would be required.

Drying cycle will be in excess of a 24 hour day.

Long delivery lead time. (+- 1 Year)

The plant will not be transportable.

The plant will deliver 5% residual moisture content.

***6.16.4.3. Vacuum drying***

Vacuum drying was posed as an alternative:

Capital cost: P12m

Power requirements: 500 kW

Water Flow: 2000 M<sup>3</sup>h<sup>-1</sup>

Semi skilled operators will be required

Residual moisture content will be 20% to 25%

Faster drying times (+- 12 hours) will be possible

Delivery lead time for equipment will be 8 months

Equipment is fully transportable.

#### **6.16.5. Harvest manipulation**

Horticultural technology has been developed by Prof. Cas Holtshausen to effect retardation and acceleration of flowering and fruit setting by the Marula. This technology would significantly assist the extension of the harvesting season that could contribute to substantial logistic cost saving. The availability and cost of technology application are being investigated at the moment.

#### **6.16.6. Cultivar ennoblement**

Prof. Holtshausen offers a service in identifying, selecting, beneficiating and ennobling cultivars that could pave the way for the enhancement of the Marula resource in general, and particularly fruit yield and quality.<sup>25</sup>

### **6.17. Market Analysis Summary**

#### **6.17.1. Market Segmentation**

Although the initial focus is on the effective marketing of the fresh fruit to fruit juice processors, it is necessary to consider the market segmentation and market characteristics of the potential product range users:

##### **6.17.1.1. Fresh Fruit Market**

Fruit juice processors and concentrate manufacturers

---

<sup>25</sup> Project proposal to establish tree nursery by Prof. Cas Holtshausen attached as annexure 11

### Fresh Produce markets and urban hawkers

The stringent control of fresh fruit imports into South Africa of fresh Marula, severely inhibit the marketing of the fruit as fresh produce.<sup>26</sup> As the fruit have to be frozen until core temperature reaches 0°, the product handling procedures and reaction to the process are not known. Sample runs could however be made to select the best fruit from the harvest for placement in specifically the informal hawker market.

#### *6.17.1.2. Fruit Juice concentrate*

High levels of imports are required to sustain the food and fruit juice industries in developed countries. The novel and exotic draw consumers looking for "something different." When a food item or ingredient also possesses a positive nutritional profile and a "good for you" image, the possibilities are limitless. Many food companies in North America and Europe have already realized the advantages of using tropical fruit ingredients in their products and identifying tropical fruits on their labels. In the United States, for example, between 1991 and 1992 a 20% increase in the number of new food and beverages introduced that identified mango, passion fruit, guava or banana on their labels.

Many tropical fruits are extremely rich in Vitamin A or  $\beta$ -carotene, which makes them nutritionally desirable.

Furthermore, their chemical composition makes them highly compatible in a wide variety of beverages, dairy products, desserts, sauces, salad dressings and fillings, as well as in bakery products and baby foods. The relatively low prices of many exotics such as passion fruit, mango and banana make them very attractive to manufacturers as ingredients.

Western European manufacturers alone need to import 880,000

---

<sup>26</sup> S.A. Dept of Plant Health Phytosanitary protocol and permit attached annexure 12

tons of fruit juice concentrate per year. Fruit juices and nectars, which are made with these concentrates (one of many uses), have sales that exceed 6 billion liters, now worth more than US\$8 billion. The market is predicted to reach US\$9.04 billion by 1997. Although orange juice represents approximately two thirds of the total, demand for tropical fruit juices, concentrates and related products has increased steadily in recent years.

Tropical juice imports amount to roughly 115,000 tons or 13% of the total Western European market for concentrates.

Pineapple accounts for 74,000 tons, followed by passion fruit, banana, mango, guava and other exotic fruits. The US and Western Europe are the largest importers of exotic juices. The main European markets are found in Germany, the Netherlands, France, Britain and Spain.

The European market for non-alcoholic beverages (including juices, nectars, ice teas, and mineral waters) is growing rapidly.<sup>27</sup> For example, the average German drank 40.5 liters of fruit juice in 1994, breaking all world consumption records. In France the same year, pineapple drink sales rose to 4.1 million liters from 3.4 million liters in 1993. According to traders, demand is also strong and growing for juice blends and desserts containing tropical flavors.

Tropical fruit juices are now generally traded as concentrates: water is removed by a low pressure, partial vacuum evaporation until the desired degree of concentration is obtained (measured in degrees Brix). Often, an additional distillation step is performed to capture volatile aromas that are added back to the juice. The concentrate is sanitarily filled into drums, bags, pails and other containers. Frozen concentrates are also available.

Purees contain the fruit pulp and are generally preserved by an

---

<sup>27</sup> from Market Asia, Volume 2, Issue 5 (November-December 1995)

appropriate heat treatment. Related products can be obtained, such as powders, crystals or granules. With a long shelf-life (6 to 12 months under proper storage, depending upon the product) tropical fruit products are convenient, versatile and value-adding ingredients for manufacturers. However, locating reliable and consistent sources of these fruits remains difficult for many manufacturers. Industrial users say that finding suppliers who can comply with the sophisticated quality standards of their markets and their own exacting specifications remains a challenge. According to industry and trade sources, the market for many tropical fruit products is mostly limited by the availability of supply rather than by consumer demand for products made with these ingredients.

Industrial users of concentrate will include:

- Fruit beer breweries
- Dairy and Yogurt manufacturers
- Preservative, jelly and jam manufacturers
- Carbonated soft drink manufacturers

#### ***6.17.1.3. Dehydrated Pulp and Nuts***

##### **6.17.1.3.1. Dried fruit and nut industry:**

This industry produces a wide range of products, the most popular being fruit and nut mixes. All packs contain a mixture of dried fruit e.g. raisins and sultanas and dried tropical fruit. Most product mixes also contains some nuts e.g. coconut chips, peanuts and almonds. Some tropical fruits are also sold in single fruit packs.

**6.17.1.3.2. Breakfast cereal industry:**

Tropical fruit is used more for their appearance than for the flavour. The focus on healthy and nutritious food has stimulated substantial growth in the muesli markets.

**6.17.1.3.3. Confectionery industry:**

Dried or dehydrated fruit is used in various confectionery products like health bars, snack bars Muesli bars, fruit bar and chocolate bars that are frequently taken as a health snack between meals.

**6.17.1.3.4. Preservative, jelly and jam manufacturers**

**6.17.1.3.5. Cattle feed manufacturers**

**6.17.2. Oils**

Food processors and packagers (preservative and shelf life extender)

Cosmetic industry (Sunblock, skin creams, preservative carrier)

Pharmaceutical industry (Preservative carrier)

Dried fruit producers (glazing and lubricating dried fruit)

**6.17.3. Aromas and flavors**

Commercial flavor houses

**6.17.4. Stones (pips after seed removal)**

Fire and energy blocks or briquette manufacturers

**6.18. *Strategy and Implementation Summary***

**It is recommended that the project be implemented in three phases**

**6.18.1. Phase 1: 1995-1996 season:**

Harvesting of fresh fruit for processing plant in SA during March to April 1996

Harvesting of Marula stones for extraction of oil and nuts: May to August 1996

**6.18.2. Phase 2: 1996 -1997 season**

Harvesting of fresh fruit for pre-processing in Gweta area and concentration by joint venture plant in SA during February to April 1997

Harvesting of Marula stones, extracting nuts and extraction of oil: May to August 1997

Pressing and refining of oil from nuts

Manufacture of jellies jams and dried fruit rolls.

**6.18.3. Phase 3: 1997-1998**

Establishment of juice processing and packaging capacity in the Gweta area.

Harvesting of Marula stones for extraction of oil and nuts

Pressing of oil from nuts

Manufacture of jellies jams and dried fruit rolls.

Manufacture of Fire Briquettes

**6.19. Marketing Strategy**

**6.19.1. Target Markets and Market Segments**

The first base project viability is totally dependent on the successful marketing of the fresh fruit to the fruit concentrate market via the contract processors. A test market has been secured provided that

quality, consistency and price meet stringent specifications. The equivalent cost of nature identical flavoring and “what the market will bear” have been used as the target market price, and a retrofit of expected yields produced the result of harvest value FOB Gweta at P96 per ton.

Several potential users have been identified over and above the first market commitment; all are eagerly awaiting sample material.

**6.19.2. Pricing Strategy**

The channel cost for the production and marketing per ton of 60° Brix concentrate is estimated to be as follows:

**Scenario 1: Harvest only in Botswana, total processing performed in South Africa**

	Concentrate	Fresh fruit
Harvest cost at	P1152/t	P 96
Transport Gweta to processing plant	P2388/t	P198
Bulk bin rental	P 32/t	
Phytosanitary liner	P 68/t	
Processing estimate	P 829/t	
Frozen Storage @ standard cost	P2038/t	
Packaging @ standard cost	P 65/t	
Transport Processor to market	P 852/t	
<u>Marketing ,G&amp;A et al</u>	<u>P 473/t</u>	
Total landed cost	P7897/t	
Landed cost per kg	P 7,90	
Landed cost per liter	P 6,08	

This relates to approximately R10.27 per kilogram or R7,90 per liter which is within the market price parameters.

**Scenario 2: Harvest and preliminary process performed in Gweta, puree transported to South Africa for concentration:**

Should the fruit be macerated, and pulped in the field, and only the fruit pulp or puree transported the cost could change to:

<b>Fresh Fruit cost:</b>	<b>Per ton</b>	<b>Harvest P'000</b>
Harvest cost at	P96 per ton	P 1152
Processing cost fruit to pulp:		

Cost in Pula per ton of fruit:		
Labour	P1.20	P 14,4
Electricity	P5.00	P 60
Incidentals	P1.00	P 12
<b>Processed fruit cost:</b>	<b>P103 per ton</b>	<b>P 1230</b>
<b>Yield: puree to fruit 46%</b>		<b>5520 ton</b>
<b>Puree FOB Gweta:</b>	<b>P 224 per ton</b>	<b>P 1238</b>
Transport Gweta to processing plant	P334.00 per ton	P1844
Bulk bin rental	P 0	
Phytosanitary liner	P 0	
<b>Cost of puree</b>		
<b>Per ton puree FOB Pietersburg</b>	<b>P558</b>	<b>P3082</b>
Per ton of concentrate	P3348	P3348
<b>Processing estimate per ton of concentrate:</b>		
Concentrate to 60° Brix	P 400/t	P 400
Frozen Storage @ standard cost	P2038/t	P2038
Packaging @ standard cost	P 65/t	P 65
Transport Processor to market	P 133/t	P 133
Marketing ,G&A et al	P 473/t	P 473
<b>Total landed cost of concentrate</b>	<b>P 6457/t</b>	<b>P 6457</b>
Total landed cost per kg	P6,46	P6460 (1000
tonne)		
Total cost per liter	P4,97	P6460 (1300
kilolitre)		

Significant reductions in cost are possible in eliminating and displacing the refrigeration cost by transferring concentrate to the industrial user as early as possible. The above costing is based on a 80 tonnes per month take off agreement. Should the user accept the concentrate immediately after concentration, the cost per ton of concentrate could be reduced to P4848.

### **6.20. Promotion Strategy**

The initial phase of the promotional strategy was based on personal contact with selected South African fruit juice concentrate manufacturers. The second phase of the project will entail the broadening of the marketing base to

international fruit juice manufacturers, packagers and potential by-product users as per attached contact list.

### **6.21. Distribution or Transport Logistics Strategy**

The distribution and logistics strategy need to be divided into two segments:

- Inbound logistics organizing the transport of fruit from the veld to the staging area.
- Outbound logistics addressing the need of the fruit and or field processed pulp to be transported to the main concentrate processor.<sup>28</sup>

For the pilot project the outbound distribution strategy, as part of the marketing mix, was limited to moving the fresh fruit from the harvesting zone to the fruit juice processors. A wide range of South African and Botswana based contractors, as well as long distance Southern African hauliers have been approached to quote on the project.

The initial efforts of utilizing as many as possible return loads were thwarted by the fact that the fruit will be transported in bulk bins which would necessitate a dedicated fleet as the empty crates need to be returned to the harvest area. Some return loads will however be possible as more empty crates could be forwarded on the return journey. The enhanced peak transport requirement during March will however require the transporter to have substantial resources and access to sub-contractors.

Truck-Africa has proved that they do have the ability to move the required loads. Creative shuttling plans have been devised to overcome 14 hour per day border closures. They also will make available substantial logistics management during the process that will include:

- On site (Gweta) outbound logistics manager for the period
- On site border liaison and freight shuttle coordinator

---

<sup>28</sup> Logistics plan and transport contract proforma attached annexure 13

- Radio contact with all vehicles and Gweta base at all times
- Mechanical and breakdown support.

The outbound strategy needs to be comprehensively reviewed in the light of the obvious need to and opportunity of processing fruit into pulp “in the field” that will save approximately 50% of the tonnage transported, but require specialised refrigerated transport and handling equipment on project site.

### **6.22. Marketing Programs**

The marketing of the Gwezotshaa Marula resource will include the introduction of the project and its products to international industrial users as mentioned in segmentation paragraph 12 above.

Although the trial harvest’s fruit juice concentrate yield has been earmarked and marketed to a single organization the marketing focus will be extended to as many as 95 international organizations after the trial harvest’s results are known.

The formulation of the final strategic marketing plan will depend heavily on the requirement of how deep into the process the community project needs to “own” the process. Should their focus be restricted to providing the fresh Marula to processors, the options and efforts are far less than when the requirement is to own the process from harvest through to final consumer product, initially utilizing excess production capacity but later creating its own productive capacity in processing and adding value to the fruit.

### **6.23. Sales Strategy**

An initial order for 1000 tonnes of concentrate has been secured for the period March 1996 to February 1997.

Contact with significant potential users has however shown that the potential lies far beyond the initial order. Much of the potential market is eagerly awaiting the first harvest test results and sample product.

Sales Forecasts for following seasons will be completed after the samples have been forwarded to the international circuit. Due to the high seasonal nature it should be possible to secure future financing of the season's harvest.

#### **6.24. Sales Programs**

On receipt of the sample concentrate and by products the following program will be embarked upon:

##### **6.24.1. Southern African Introduction:**

The following Southern African manufacturers, other than Oasis Brewery, are awaiting sample concentrate and puree:

- Ceres Fruit Juice
- Letaba Citrus Processors
- Classic Beverages
- Coca Cola East and Central Africa
- Swazi Brewers: Swaziland
- Langeberg Co-operative (Jams and Jellies)
- SAD Dried Fruit Co-op
- Fruitburst
- Infrutek
- Contact International
- Unifoods (Durban) Unilever's food division
- The Juice Factory

Samples will be distributed and specifications, required quantities for the following seasons negotiated on availability of the concentrate samples from Granor Passi.

**6.24.2. International introduction**

Samples and introductory project information to be forwarded to major international manufacturers, blenders and packagers of tropical fruit.

<sup>29</sup>Research is currently being extended to include, find and reach European, USA, and Japanese potential customers.

**6.25. Strategic Alliances**

The most important alliance to be finalized is the relationship between the GRNT, Granor Passi and Oasis Brewery to secure the base of the Marula project with the 1000 ton concentrate order. Oasis has already entered into a joint venture with the Japanese corporation Mitsubishi, to distribute the final product into Europe.

Granor Passi's commitment is illustrated by their efforts to develop a high quality first test run and their intention to contribute as venture partner in the establishment of an on-site process in Gweta/Zoroga.

The structure of the project needs to be finalised before the end of June 1996 to ensure that equipment and process technology and transport and logistics could be finalised.

**6.26. Management Summary**

**6.26.1. Organizational Structure**

The organizational structure at this stage includes:

Structure/Organization

Responsibility

Gwezotshaa Trust

Community mobilization

Information dissemination

Compensation design

---

<sup>29</sup> Address list attached

	Source identification & mapping
	Community resource analysis
NRMP (R Hartley)	Community structural support
	Project co-ordination
	Funding options (donor)
	Community trust liaison
NRMP (via GJB & Triad)	Marketing Strategy
	Sales execution
contractor)	Transport Logistics (via
	Harvest management logistics
	Financing options
	Product development
	Production co-ordination

#### **6.26.2. Management Team**

The management team essentially consisted of :

The Gwezotshaa Natural Resources Trust Committee

Richard Hartley (NRMP)

Gerrit Booyens (NRMP)

Transport contractor

Production management (Granor Passi)

End user production and marketing management (Oasis Brewery)

**6.27. Action Plan and recommendations:**

The following action plan is proposed:

**6.27.1. Finalise concentrate product specification**

**6.27.2. Secure order for 1996/97 harvest from at least Oasis Brewery.**

**6.27.3. Finalize joint venture agreement between GRNT, Granor Passi and marketing organization.**

**6.27.4. Finalise development of by-products, with emphasis on nut and oil extraction.**

**6.27.5. Define technology and process requirement of Gweta/Zoroga processing facility.**

**6.27.6. Agree implementation strategy between GNRT, NRMP, IRCE and South African partners.**

**6.27.7. Develop training program for GNRT key management team members.**

**6.27.8. Investigate common requirements between Marula project and Springwater plant for combination in final implementation.**

## **7. Mopane Caterpillar (Phane) Market**

### **7.1. Introduction**

The Phane marketing system is well established in the greater Southern African context, i.e. Botswana, South Africa and Zimbabwe. The distribution channel fuses traditional rural sourcing, with sophisticated trading and distribution channels and mechanisms. Through direct selling, brokering, bartering and/or formal wholesaling and repackaging, the phane reaches most of its end consumers in a traditional informal trading environment.

The marketing system is not well documented and is fraught with rural and urban legend.

Due to the seasonality and climatic sensitivity of the source, demand and supply forces have a severe impact on pricing. The sensitive and erratic nature of the natural resource, inaccessibility to finance by harvesting communities combined with traditional speculators and wholesalers' dominance of the market structure and distribution channel, does not allow the harvester to participate to full potential in the marketing system.

This study will address and investigate harvesting communities' inability to control the resources that inhibit their improved access to the market and value derived from the Phane resource.

The focus of the recommendations in this report will be to:

- Enable the harvesting communities to increase their share in the benefits offered by the market by contracting or shrinking the channel from harvester to end user.
- Engineer joint ventures between harvesting communities and participants in the value chain in order to eliminate unnecessary steps in the process and thereby increasing the value accruing to

the communities and individual harvesters. Distribution channels were established that will reduced the maximum number of steps in the distribution channel from nine to three.

- Enhance the time value of the “crop” by enabling the harvesting community to actively participate in the distribution channel and participating in the benefits offered by the seasonality, rather than being the victims of volatile market forces.
- Promote the sustainability of the resource by scientifically assuring the re-establishment of Phane in areas were the resource was depleted or destroyed.
- Promote the notion of “domesticating” the Phane resource in order to enhance and increase the yield to communities.
- facilitate as much adding of value to the product at harvesting community level, by labor intensive packaging, of which the technology exist
- Recommend alternative financing systems to enable harvesters to control the resource from source to final consumer.
- recommend storage and quality assurance practices to maintain and enhance value of resource over time

## **7.2. Summary of findings and conclusions**

### **7.2.1. Total market size**

The potential South African market size, provided sufficient stocks are available, is projected to be approximately 6000 tonnes per annum. The market size of packaged Phane in the Northern Province of South Africa, is estimated to be at least 1320 tonnes at a wholesale value of P13,2m during the 1994/95 season, representing a yield per kg of P10. The retail value to the final consumer ranges between P16 and P20,

dependent on which packaging and retail channel is used. This value only represents the phane that was actually sold and not the true potential, should the supply have satisfied the demand as limited quantity of satisfactory quality phane was available for distribution for 5 months (August to December) of the season.

### **7.2.2. Growth rate**

Interviews conducted with several Phane traders indicated that the only limiting factor in the development of the market is the limited supply side of the market. Due to the high seasonal nature of the market, linked to the inability of the distribution channel to correctly preserve the quality of the product throughout the year, very little Phane is available from August to mid-December. Availability of the product could result in strong growth in the market size.

### **7.2.3. Using industries**

Although the total Phane harvest is aimed at the traditional food consumer market the following potential user industries have been identified:

#### ***7.2.3.1. Food processing industry:***

Research is being done on Phane as a potential source of concentrated, high energy animal protein for the balancing of powdered foodstuffs.

The essential fatty acid content is also of interest to the food interest. South Africa is currently a net importer of essential fatty acids.

#### ***7.2.3.2. Sports Enthusiasts nutritional supplements.***

Some interest has been shown by nutrition researchers, focusing on sports enthusiasts' nutritional supplement, in the amino acid content found in Phane.

*7.2.3.3. Exotic bird and racing pigeon breeders.*

**7.2.4. Global market share and competition**

Although some Phane has apparently been exported to Korea, the source of information is elusive.

**7.2.5. Market Geography:**

The traditional consumers of Phane in South Africa are predominantly found in the areas where Phane occurs, that is the Northern and Northeastern areas of the Northern Province traditionally known as Venda, Gazankulu and Lebowa.

With the high level of urbanization and migration labor in South Africa high demand prevails in urban areas where North Sotho, Venda and Shangaan speaking consumers reside. The national informal traders association, ACHIB, (The African Council of Hawkers and Informal Business) indicated that apart from the Northern Province, significant requirements for Phane direct from the harvester would be distributed in the East Rand area (Tembisa, Kathlehong, Ivory Park, Vosloorus), Northern Gauteng, (Mamelodi, Soshanguve, Mabopane) and Soweto markets.

Some interest have also been shown by wholesalers in the Mpumalanga Province.

**7.3. Climate seasonality**

As mentioned above Phane availability is strongly dependent on the climatic conditions. Drought, excessive exposure to sun in the hatching stages, and as proved during the 1995/96 season, excessive rains, have a severe impact on the availability and occurrence of Phane.

Research is currently being done to investigate the potential of protecting the resource and re-introduce it to areas where Phane has disappeared or occurs sporadically.

#### **7.4. Economic trends**

Compensation systems for the harvesters and their participation in the enhanced value to the community trust would most likely be the high leverage area in this distribution re-engineering process. "Employee" or stakeholder share option programs as a variation to ESOPs could be applied to maximize the value for participating harvesters. Systems similar to the tobacco small farmers or the agricultural Co-operative system could be adapted to ensure that the harvesters not only have one "payday" during harvest but share in the long term benefit derived from a meaningfully serviced market.

The effect of the abovementioned strategy will be that the communities and harvesters will enter into direct opposition with their previous distribution channel, which could have a positive price impact on remaining harvesters not part of the system, which will in turn bring the project closer to forcing the benefit down the channel.

#### **7.5. Industrial trends**

The CRAFT project of Foodtech a division of the Council for Scientific and Industrial Research is available to assist in the development of appropriate technology for the repackaging and potential processing of phane by the communities in order to optimize the value adding at source.

Logistics in the veld, i.e. the availability of cooking utensils, exposure to rain, ability to carry or transport harvest over long distances is well described by P. A Hobane.<sup>30</sup>

#### **7.6. Social and cultural trends**

As the collection of Phane presents one of the few opportunities for harvesters to earn cash, harvesters are normally at the time of the phane

---

<sup>30</sup> Hobane P A: The Urban Marketing of the Mopane worm in Harare June 1994, Centre for Applied Social Sciences

Hobane P A: Amacimbi: The gathering, Processing, Consumption and Trade of Edible Caterpillars in the Bulilimangwe District

harvesting season under severe cash pressure, and is normally forced to accept whatever the buyers offer in exchange for the Phane. The worse the economical situation of the harvester the lower the price will be. It has been recorded that barter trade also takes place where buyers offer clothing and foodstuffs in exchange for product. The value of the "Barter" is often to the sole benefit of the buyer.

### **7.7. Organizational experience levels and expertise.**

Management support systems and expertise will have to be developed in order to assist the communities to effect the transition from harvesting to harvest, process, package, distribute and negotiate. The ability to effectively negotiate with the rest of the channel will become important as the stock pressure and availability control is shifted

### **7.8. Laws and regulations**

It is clear from the discrepancies between the official export figures and consumption estimates that large amounts of Phane is exported, without being documented.

It is suspected that the phane traffic could be used as a vehicle to expatriate funds to South Africa.

The high level of informal trading also provides ample opportunity for participants to trade outside the official tax nets in Botswana and or South Africa.

### **7.9. Description of the market**

#### **7.9.1. Market size**

Due to the complex nature of the distribution channel and the lack of documented evidence of trade movement, an accurate estimate of the market is impossible.

There is a significant understatement of exports from Botswana to South Africa.

Some export statistics were collected in a study launched by Thusano Lefatsheng<sup>31</sup> indicates a total of 4452 ton being exported during the period 1991 to 1994. Almost fifty per cent of the exports during this period took place during 1993 (2120 tons). According to the Botswana Department of Trade Statistics, the figures are not reliable due to the erratic and frequently incorrect recording and incorrect use of nomenclature classification of exports of Phane.

#### **7.9.2. Market trends and forecast.**

Growth in the market is totally dependent on the availability of the product outside the high volume harvesting season. The improved preservation of stock over longer periods could also enhance the market if damaged and deteriorated product could be eliminated.

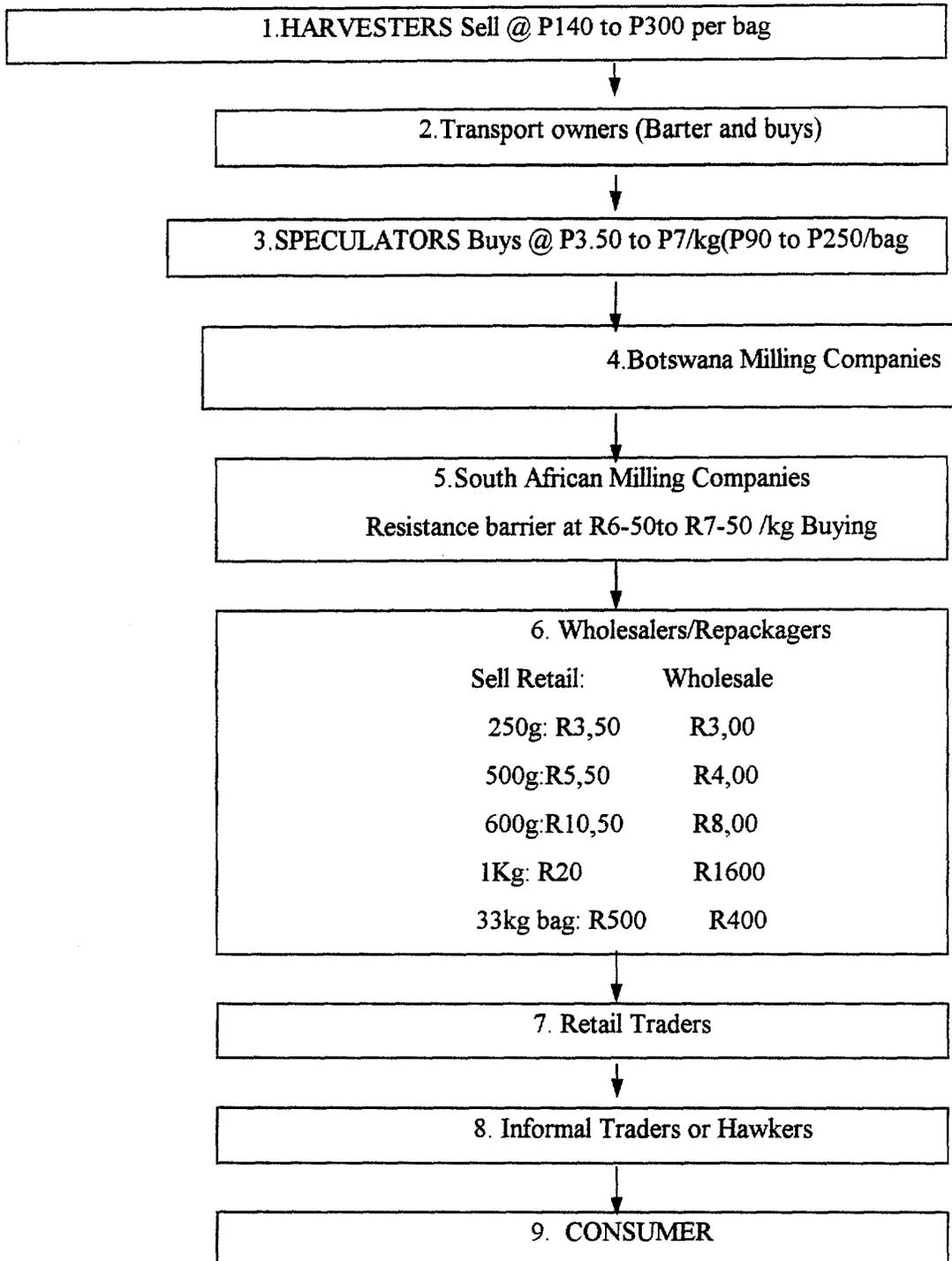
The export statistics recorded by Thusano Lefatsheng during 1994 showed only 979 tonnes being exported through the two main customs' ports. The South African information is based on a conservative estimate of the real market size experienced in SA. The above describes the lack of accurate information regarding this erratic and "informal" market that I am confident is being exploited mostly outside the official tax and customs net. This fact could provide some incentive to lobby government for some regulation in terms of licensing of harvesters and distributors but should probably be dealt with great circumspection.

---

<sup>31</sup> Moruakgomo Mpho B W: Commercial Utilisation of Botswana's Veld Products: The Economics of Phane: The beneficiaries of Phane Trade

### 7.9.3. Distribution channel dynamics

The steps in the distribution channel can be illustrated as follows:



#### **7.9.4. Market structure and segmentation**

Although the major focus of the market will remain on the traditional rural and “urban with rural roots” consumer the following segments could be developed and should be market tested with the first available Phane:

- Source of a high energy, concentrated protein base for balancing nutritional values of soup powders and other packaged foods<sup>32</sup>.
- High energy content food supplement for athletes and sportsmen. Analysis of amino acid content could prove to be beneficial for muscle endurance of athletes in sports requiring high energy burst.<sup>33</sup>
- Base for feed supplement for exotic birds and energy supplement for racing pigeons.

Distance from the markets and remoteness and variability of resource yield influences the market severely.

Provided that the communities could establish the collection, packaging and warehousing infrastructure the options could be narrowed down from what was illustrated in para: above

Research is currently being to understand the yield and occurrence dynamics better. An extremely valuable resource of information and potential participation have been found in Mr. Chris Styles, currently in the final stages of his Ph.D. in particular, and the Dept. of Entomology in general.<sup>34</sup>

---

<sup>32</sup> Prof. Justin Roberts University of Pretoria: Department of food science and Technology

<sup>33</sup> Dr Marcel Brussow, Department of Internal Medicine University of the Free State.

<sup>34</sup> Prof. Clarke Scholtz: Head of the Department Entomology: University of Pretoria.

#### **7.9.5. Existing competitors and market share**

The circumvention of steps in the distribution channel, imply that the harvesting communities will be in direct competition with their current "customers". The market is dominated by four major buyers of which the most significant players are Botswana Game Industries, and three farmer/businessmen. The relaxation in trade with South Africa has however brought more competition to the Phane market. Reports of individual speculators buying Phane in Botswana have been received from the Tswapong Hills area.

Due to the informal nature of the reselling of Pane, several traders in South Africa are experiencing competition from their own suppliers; i.e. the buyers sell to them as well as to their traditional customers. It is evident from this competitive activity that the margins in the formal trade allow the speculators to enter the market.

#### **7.9.6. Competitive comparison**

The Botswana Phane market competes for the South African Market along with the harvesters in Zimbabwe and the sources in the Northern Transvaal, concentrated in the traditional Venda and Gazankulu areas.

#### **7.9.7. Information on potential customers tastes, habits and attitudes**

##### ***7.9.7.1. Consumers of Traditional food with high nutritional value.***

The frequency of need is determined mostly by the availability and cost of the product. The need for human consumption is concentrated in rural areas and urban areas with high concentration of migrant laborers and South African urban residents with their roots in the Botswana, the Northern Transvaal and Eastern Lowveld.

Popular opinion maintains that the buyer needs the product in the most traditional form, i.e. buying it from the roadside trader. Reaction to the repackaged product is varied. The negative reaction from buyers is mostly centered around the quality of the packaging. From the roadside buyer the consumer can select unbroken and dust-free phane, while repackaged product, when subjected to inferior quality control in packaging or handling, often deteriorates product value.

#### **7.9.8. Prices and pricing policy**

Pricing surveys have brought the following pricing structures to light:

Botswana Game Industries offered Harvesters in the Shashe areas up to P3,50 per kg.

Wholesalers in South Africa expected the delivered price for Phane to be in the R7,50 to R8,00 bracket. (P5,77 to P6,15)

Bulk wholesaling price per 30 kg bag was set at R350 per 30kg bag. (P270 per bag or P9/kg)

Repackaged pricing for smaller quantities in the Northern Province varied as follows:<sup>35</sup>

10kg: From R103 or P79,23<sup>36</sup> (P7,92/ kg)

5kg: R51,70 or P39,77 (P7,95/ kg)

2,5kg: R26,03 or P20,02 (P8.01 / kg)

1kg : From R10,53 or P8,10 to R18 or P13,85

500g: From R5.32 or P4,09 ( P8,18 / kg) to R10,32 or P7,94 (P15,88 /kg)

---

<sup>35</sup> Towns surveyed included: Pietersburg, Tzaneen, Naboomspruit, Letsitele, Acornhoek, Louis Trichardt, Burgersfort, Hoedspruit, Thohoyandou, Bushbuckridge.

<sup>36</sup> NTK Pietersburg

100g: From R1.25 or P0,96 (P9,60 / kg) to R2,08 or P1,60 (P16 / kg)

The retail value to the final consumer ranges between P16 and P20, dependent on the packaging and retail channel.

The harvesters have very little defense against the vagaries of price sensitivities. Due to the high seasonal supply, the buyers control and more often than not sets the price. The sensitivity from buyer to market is determined by the ability of the buyer to finance and store the stock of product. Lack of transport and storage facilities by the harvesting communities delivers them to the will and mercy of those participants in the chain who has access to the distribution, warehousing and financial means.

The margin between cost of phane P3,50 and the wholesale price is available for an approximate cost of P0,40/kg for direct labor, P2,98/kg packaging, financing of scales, conveyors, and milling equipment

Cost to communities is represented in the forfeiture of benefit for not being able to fully participate in the market. Although higher cost may be involved in the participation process the net benefit of the process will far outstrip the cost.

Channel cost information varies on depending whom you speak to and in what capacity the interviewee views the interviewer.

The harvester relates his price to as close to the retail price, specifically out of season

### **7.10. Conclusions and recommendations**

The Project's key strategic objectives include and are very dependent on:

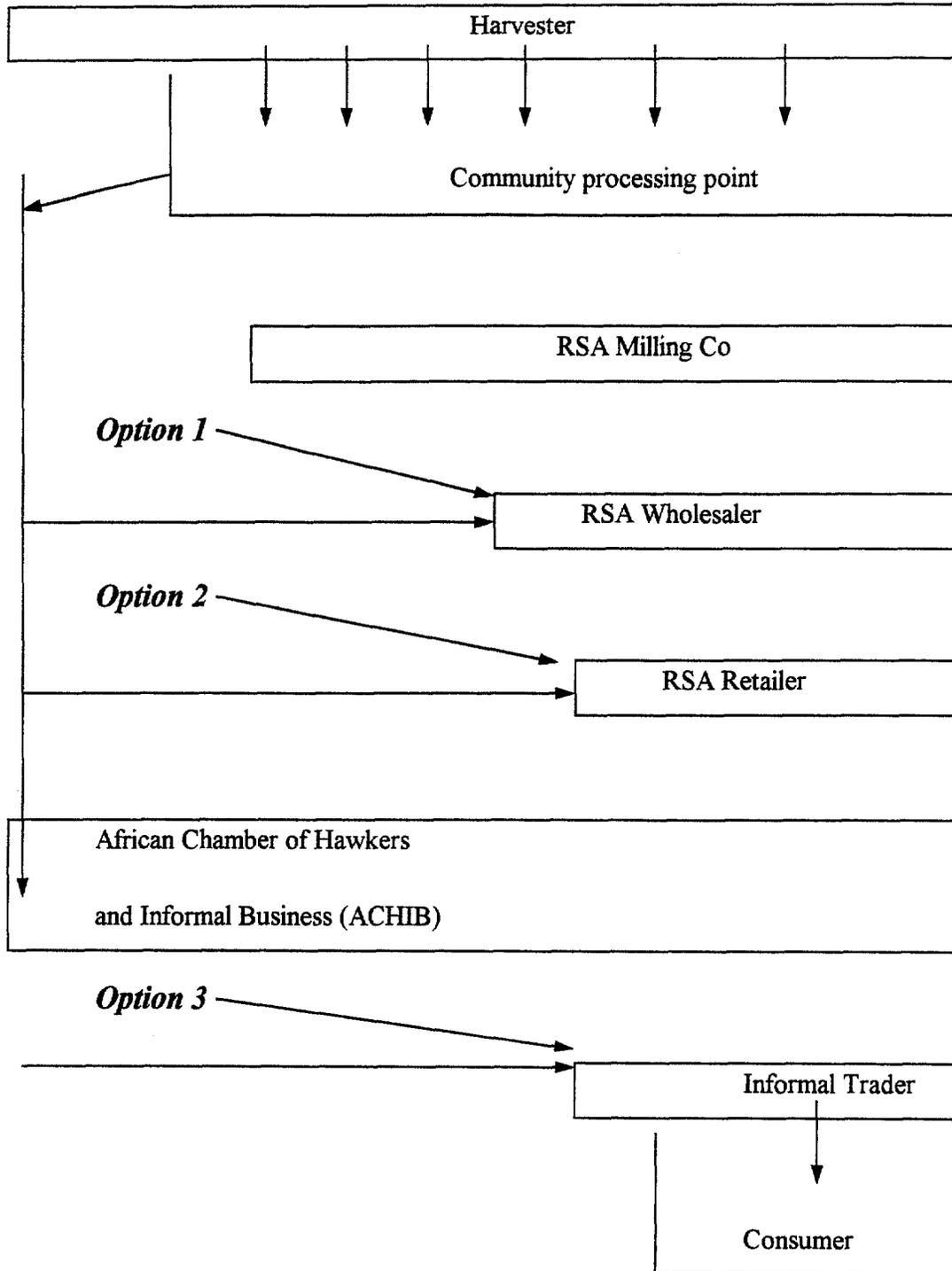
- The eliminating of unnecessary steps in the distribution channel

- Well structured marketing joint ventures between the harvesting communities and the retailers.
- The processing, preservation, packaging and quality assurance technology to be transferred to and moved as close to the community as possible.
- The ability to finance the harvesters for the initial harvest.
- Transport from harvesting communities to Northern Province and Gauteng at most competitive rates.
- Adequate quality controlled Warehousing and Distribution infrastructure to be available at distributor level in both focus areas.
- Developing additional distribution channels in the urban residential areas.
- Developing alternative users of Phane.

#### **7.10.1. Elimination of unnecessary steps in the channel**

Interest from retailers, wholesalers and informal traders indicates a willingness from the extended channel to invest in the streamlining thereof. The general perception is that the harvesters do not participate in the benefits and value of the market and the perception is that the “middle-man buyer” exploits the harvester and makes excessive profits on the margin to the SA wholesaler or retailer.

It is evident from the discussions and interviews that the harvesting communities have three target markets and or options namely supplying direct to the South African wholesaler (in bulk) or the South African retailer and informal market in bulk or repackaged format. The revised channel could be outlined as follows:



The most important elements of the marketing mix for Phane will be the timing of availability through the financing of stock and distribution directly from producer to the market in the shortest possible way.

### **7.10.2. Joint ventures between Harvesting Communities and Retailers**

The multi-channel distribution process not only limits the benefit to the harvester but also increases the price to the end consumer substantially. By eliminating or combining some of the channel elements, value will not only accrue to the combined element, but could also make to product available at more affordable at the consumer level.

All traders involved in the market inquiries expressed interest in shrinking the channel by reducing the steps in the process. Sales promotion by the traders will be based on the fact that they will be able to ensure a substantial saving to the consumer while ensuring an improved price to the harvester.

It will also be possible to structure a joint venture between major retailing groups and the harvesting communities<sup>37</sup>

The two significant joint venture opportunities that arose were those between the Communities and

#### ***7.10.2.1. Score Retailers***

**Score Retailers** a South Africa or Botswana retailer that is prepared to assist communities with the financing, purchase and transport of Phane from Botswana to South African retailers and also placing product into their own SA and Botswana outlets.

---

<sup>37</sup> Score Retailers proposed Phane buying centre proposal attached

7.10.2.1.1. Heads of provisional agreement:

- Score Supermarkets (Trading) (Pty) Ltd., represented by their wholly owned subsidiary companies in Botswana, are prepared to finance natural resource based harvests and produced goods from harvesting communities.
- The required return on invested funds, provided as finance by Score Supermarkets, is set at 20% per annum.
- Risk of ownership, loss, deterioration in quality or mass will remain with participating Community Based Natural Resource Project (CBNRP).
- Risk to be underwritten and guaranteed as far as possible by Botswana Development and or Development Agencies, South African and or international marketing organisation and or final customer. The risk would typically vary from project to project and will be rated on its individual merit.
- Adequate and appropriate management, reporting and logistic control systems should be developed to:
  - Regulate harvest collection and receipt at stores
  - Ensure quality control of product
  - Optimise the trading volume through Score Supermarkets by participating harvest communities
  - Optimise the use of Score Supermarkets' "return leg" transportation
  - Although secondary to the primary financing of harvests, investigate feasibility and develop appropriate products for distribution via Score, e.g. Springwater, packaged Phane.

- Although appointees from CBNRP should be trained to fulfil as many of the project's management and administration tasks (in the field as well as at receiving Score) Score management personnel will perform a basic role as management custodian and project partner.
  
- Specific attention to be focused on the following issues:
  - Export requirements and or incentives.
  
  - Repatriation of funds. (Reconciling Botswana based investment with South African based loan redemption while staying within foreign exchange legislation.)
  
  - Compensation system to be developed to ensure minimum exposure to risk of cash handling outside project management's control, e.g. development of (harvester specific) coupon system redeemable for cash and or discounted purchases from participating Score stores. (5% discount on Score purchases mentioned.) Custom developed, serialised, counterfoil coupons, issued in the name of registered harvesters (*"The harvester's personal SCORECARD"*), could reduce the amount of cash handled on behalf of harvesters by project personnel and enhance the number of "harvesters' feet" through Score's door.
  
  - Logistic requirements and available capacity at each Score Store to be matched and additional capacity created if required. Instead of creating decentralised management capacity in inaccessible rural areas in the early stages of the project, the management and control function could initially be centralised in the area of Score Stores

#### **7.10.2.2. Fish & Chix**

**Fish & Chix** chain, a franchised wholesaler of affordable foods in the rural areas of the Northern Province of SA. They have distribution centers operating in the following areas:

- Tzaneen
- Thohoyandou
- Sibasa
- Giyani
- Louis Trichardt
- Pietersburg
- Sekhukuneland/Marble Hall/ Groblersdal

Several distribution centers under development in the Gauteng area.

#### **7.11. Warehousing, Processing, Preservation and Quality Assurance**

In order to invest in the capacity required to package and store the product, the communities' access to and yield of the resource in their area will be important. Their ability to include other developing communities in their program could also assist in the utilization of this facility. Should sufficient storage be available it could also serve as warehousing capacity for other seasonal products such as Marula and Thatching Grass.

Storage facilities could be established with the rental of shipping line containers. A list of container sources is attached.

## **7.12. Implementation plan**

A phased implementation is suggested:

### **7.12.1. Year 1: 1995/96 season:**

Distribution focused on current Wholesale and Retail markets in the Northern Provinces being traditional Phane consumers with first penetration into secondary markets in Urban Townships using existing wholesale dynamics. 40% repackaging with the bulk 60% still in the 23kg bags.

Commence secondary product research and development for exotic feeds and commercial food industry

### **7.12.2. Year 2: 1996/97 Season**

Distribution slanted towards penetrating the retail industry directly, by performing most of the wholesale functions within the project. Repackaging will steadily rise to 60% packaged and 40% bulk

Establish exclusive distributors within Urban Township areas by relationship building with retail trade associations.

Continue secondary market testing in Hi Tech food industry.

### **7.12.3. Year 3: 1997/98 Season**

Distribute direct to appointed exclusive distributors in rural as well as urban areas.

**7.13. Establish transport network within harvesting communities and to SA markets**

Utilization of empty leg return trip transport between Botswana and South Africa could prove to be highly advantageous for communities to directly export to the South African Trade

The distribution cost could be significantly offset by the utilization of empty leg transport. The project team have secured at least 8X6M loads per week for this purpose. An added advantage is that the transport arrangements could be made with a significant retailer of fast moving consumer goods, with access to a potentially high value retail market. Substantial central warehousing facilities are available in the Gauteng area in reach of the urban townships in the Johannesburg area

Initial interest in the Northern Provinces and Gauteng areas needs to be consolidated in terms of pricing, delivery schedules, seasonal quantities, future's commodity trading potential and the final ability of the retailers and distributors to reach the target consumer markets.

## 8. Craft Distribution Study

### 8.1. Introduction

Although the indigenous craft was identified as being one of the four first likely successful projects, this study's exposure to the Botswana craft industry was limited to visits to craft production and buying centers in Ghanzi and D'Kar. Although the investigation briefly examined the production and co-ordination efforts in Botswana the focus was on the requirements for developing an effective distribution channel and the potential in the international market. The investigation will also attempt to against the backdrop of the international market mechanisms, design a marketing and distribution system to effectively compete in the international market.

Several efforts have been made in the past to streamline the Botswana craft industry of which most have not achieved international market penetration.

The lack of an integrated approach with regard to the craft industry is not unique in Botswana. Internationally cottage industries and handicrafts are associated with traditional low skill, and dispersed economic activities with limited economic impact.

The growth in the South African international tourist trade in specifically ethnic craft, has the potential of absorbing all Basarwa craft. The indigenous craft market structure needs changing to support a growing distribution system. Agreements have been reached with major tourist attractions to not only distribute the crafts, but also make available exhibition space and facilities to be utilized by indigenous people.<sup>38</sup>

International markets are eagerly awaiting the response to their invitation to establish a reliable and consistent supply network in order to establish formal commercial linkages<sup>39</sup>

---

<sup>38</sup> Greenmarket square and Waterfront Cape Town. Klein Karoo Co-op :Oudtshoorn

<sup>39</sup> Internet enquiry attached as annexure

## **8.2. Summary of findings and conclusions**

### **8.2.1. Total market size**

Statistics on the value of world exports are not readily available. The lack of a common nomenclature renders the compilation and interpretation of statistics on this sector particularly difficult. In 1989 the United Nations Educational, Scientific and Cultural Organization (UNESCO) estimated world trade at \$3 billion with China dominating the market share at 40%, India 24% the rest of Asia 25% and Africa and Latin America sharing a combined 8%.

In South Africa, it was estimated that during 1993, approximately R74m was spent on souvenirs and craft by international tourist<sup>40</sup>. Since 1993 the tourist trade increased substantially. Updates on tourism indicates that a growth of 40% in tourist expenditure have been experienced. Although the expenditure breakdown of "Incidental and other expenditure" is not available, this increase could bring the value of the curios' and tourist gift market to R103m or P80m.

### **8.2.2. Value adding chain**

A classical approach of analyzing the value adding chain reveals the following steps.

- Identification of marketing opportunities
- Prototype design and development, adaptation and refinement
- Test marketing
- Upgrading equipping facilities
- Securing inputs (Raw materials, financing )
- Entrepreneurial training, hiring and management

---

<sup>40</sup> SATOUR tourist expenditure survey 1993.

- Production, quality control packaging
- Costing and pricing
- Physical distribution
- Export market development
- Sales and customer service

An in depth benchmark of the Botswana craft industry against this model needs to be derived from the literature and interviews with craftsmen, buying organizations and the literature emanating from previous workshops, seminars and studies<sup>41</sup>.

### **8.3. General background of market**

#### **8.3.1. Purchasing influences and buying (consumer behavior)**

In industrialized countries handicrafts are popularly conceived of mainly as ethnic products with little utilitarian value. They are categorized as curios, tourist souvenirs or and items of artistic interest, but seldom as articles for daily use.

When handicrafts are marketed as items with functional uses, fitting into peoples daily lifestyle the narrow restricted image disappears. The ethnic and or cultural image is toned down and the customer can then regard the craft as in terms of floor coverings, wall hangings, kitchen or table items, costume jewelry, or clothing.

Kuru has evolved in this direction with the diversification of their leather product range to include chairs, hats, clothing items, saddles and handbags.

---

<sup>41</sup> IRCE workshop 9 to 11 August 1995, Craft Workshop 20 December 1995

The dual approach i.e. the diversification from ethnic crafts only, to include utilitarian items opens different marketing opportunities.

The challenge faced by the handicraft industry will be to create an utility product without forfeiting the products' symbolic features making it distinctive. The following features need to be considered when developing the market:

- Quality characteristics
- Novelty and or utility
- Creativity of design
- Packaging
- Informational inserts and labels
- Brands or trade marks
- Warranties
- Harmony with trends or fashions

The above features will enhance the “product plus” or “just noticeable difference” in the product range and prevent price competition as the buyer will purchase the product for its distinctive features and not because it is cheaper than other similar products.

In developing strategies to effectively reach handicraft markets it will be useful with the above features in mind to develop products with high utilitarian value as well as expressing cultural uniqueness.

### **8.3.2. Product Preference Map:**

It will be valuable to plot the product in the product preference map attached as table 2.3.4 to achieve the highest level of utility as well as being novel to the buyer. A product meeting both the

novelty and utility criteria in the case of Kuru's product range could be the :

- Veld chairs for hunters and campers
- Painted textile for table cloths or wall hangings
- Ethnic design T shirts
- Costume

### **8.3.3. Social and cultural trends**

The fear has been expressed in interviews that the excessive commercialization of the Basarwa handicraft, requiring the adaptation of designs and motifs to suit demands from inter alia export markets, could obliterate the geo-cultural uniqueness to suit market demands.

## **8.4. Description of the market**

### **8.4.1. Market trends and forecast**

Comments from traders in SA and interested parties in the USA includes concerns regarding quality and overpricing and inconsistency of supply lines. With the communication and supply lines to producing NGO's and communities being less than optimal, the development of a representation in South Africa or at least Gaborone will be essential. To gain the required economies of scale it will be recommended that as broad a spectrum of producers to be represented to minimize the cost per producer and to optimize the access to product and feed back on quality and demand. Some design input could also be provided from a central collection/distribution center.

With increased demand from international tourists in SA for ethnic items, the opportunity for entering and establishing their market is awaiting action from communities and depending on their ability to delay their distribution system.

The nature of the South African tourism trade may be divided in two segments namely the Domestic tourism market and the International or foreign tourist market.

#### ***8.4.1.1. South African Domestic Craft Market***

The preferences of the domestic market is as follows:

- Items should not be more expensive than R50 per unit
- Art, craft, factory produced products preferred above ethnic African items
- Domestic tourist market very price sensitive
- Items should be of useful nature: clothing, utensils preferred

#### ***8.4.1.2. Foreign/international***

- Price per item should be less than R200,
- be manufactured in Africa,
- Be a natural product with an African Theme
- be small and light to travel easy:
- This market is less price sensitive than the domestic tourist market.

An marketing avenue worth pursuing could be the anthropological fraternities' associations and museums interest in the economics within indigenous communities. A list of associations and individuals with specific interest in this field is attached.

In a more commercial vein a list of ethnic and indigenous art and craft traders and wholesalers is attached as well. The South African Small Business

Development Corporation have been involved in the establishment of a Southern African Craft Association . An interim list of South African Wholesalers and retailers is also attached.

### **8.5. *Distribution options available***

#### **8.5.1. Botswana Tourist trade (extension and refinement of current trade practices.)**

#### **8.5.2. South African Tourist trade (established retail)**

#### **8.5.3. Internet Trading**

Artist are invited to exhibit and sell their art on the FolkArt & Craft Exchange. Latitude International a Internet trading organization believes that its marketing expertise and location on the Internet can be an important outlet for folk artists and craft persons.

Latitude International receives a 25% commission ONLY if the art is sold.

Artist may sell retail and/or wholesale. An "electronic" catalog displays the artist's creations without the high cost of producing a brochure that may be immediately out of date. In the electronic media "sold signs" can be place on items no longer available and new creations can be added in a matter of seconds. Latitude International's FolkArt & Craft Exchange claims to bring to the artist 20-million plus potential buyers that log onto the Internet's World Wide Web every day.

#### **8.5.4. Alternative Trade Organizations**

SELFHELP Crafts is a nonprofit, self-supporting alternative trading organization (ATO). ATOs are non-governmental organizations designed to benefit producers, not to maximize profits. They market products from handicraft and agricultural producer organizations based in low-income countries. They provide consumers around the world with fairly priced products from sustainable sources through just trading

relationships. ATOs put fair trade into practice and campaign for more equitable terms of trade for producers from low-income countries.

SELFHELP Crafts is a member of the International Federation for Alternative Trade, (IFAT), a coalition of Third World handicraft and agricultural producer organizations.

The International Federation for Alternative Trade defines fair trade as follows:

- Fair trade is better than aid--it builds a sustainable future on producers' own abilities.
- Improving the producer's quality of life is the main objective.
- Producers receive a fair price for their goods and advances on orders.
- ATOs work with producers to provide quality products.
- Purchase and marketing of producers' goods are conducted according to high ethical standards. Continuity of orders is important.
- Sources, production and workplaces do not exploit people or the environment.
- Products have meaning above their tangible attributes.

Consumers are informed about the people who make the products they purchase, increasing their loyalty and understanding that their purchasing power makes a difference.

SELFHELP Crafts' operating principles are outlined as follows:

They

- work with disadvantaged artisans.

- purchase from craft groups that are concerned for their members and that promote member participation.
- pay fair prices for handicrafts.
- pay promptly.
- pay up to half the value of a handicraft order when it is placed; the balance when the items are shipped to North America. This provides operating capital for artisans to purchase raw materials and for craft groups to pay workers.
- offer handicrafts that reflect and reinforce rich cultural traditions.
- promote fair trade.
- use marketing strategies and messages consistent with our mission and ideals.
- ideals include responsible lifestyle choices, efficiency and Christian ethics.
- seek integrity in all their actions and relationships.

SELFHELP Crafts is also a member of Fair Trade Federation (FTF), a coalition of more than two hundred craft producers, wholesalers and retailers. FTF seeks to develop a workable agenda for handicrafts and agricultural products within the context of fair trade.

An address list of self-help stores and outlets attached as an annexure.

#### **8.5.5. Church groups**

An underestimated and unutilised market and/or distribution channel will be the churches and congregations in South Africa with a traditional linkage with KURU. With the Bushmen issue enjoying high profile and exposure in the South African media, and the fact that this community is attempting to do something for themselves could present an opportunity for distributing some craft and art through exhibitions and distribution agreements.

#### **8.5.6. Art ,Craft and Flea markets**

An increasing number of these markets are emerging, and they are becoming more sophisticated in presentation and products offered. These markets have traditionally been targeted to attract local inhabitants and domestic tourists, but are currently providing increasing increased patronage by international tourists, exposing them to a diverse range of South African products. Various town councils make available space and facilities to traders and markets to provide tourist attractions. Some examples of these markets could be found at the Cape Town Waterfront, Greenmarket Square, the old Johannesburg fresh produce market, Port Elizabeth's Alba Sheds Crafters market and Lock street Goal Shopping Mall.

High tourist volume at these markets present an opportunity to appoint exclusive distributors for authentic ethnic crafts and other more contemporary leather work and basketry.

#### **8.5.7. Supply collaborators: Ostrich farms**

Ostrich farms in the South Eastern Cape present a invaluable outlet for specifically ostrich beadwork. Not only are the farms a prime local and foreign tourist attraction but collaboration agreements could also ensure readily supplies of ostrich eggshells.

### **8.6. Competitors and market share**

The international market for handicraft items is becoming increasingly competitive. Using the intrinsic strengths of the ethnic crafts from the Western Kalahari could however provide a unique competitive edge. The high media profile on the Basarwa in the Southern African context, linked with the increased awareness and tourist traffic in South Africa could provide very important marketing vehicles to promote and sell products.

### **8.7. Prices and pricing policy**

The general opinion on Botswana crafts were that the pricing policies need attention. The first impression from the South African traders were that the craftsmen are charging excessively for their ware. On investigation the following channel and associated channel became apparent:

#### **Mark-up at destination**

Craftsmen to Community Center	50%
Community center to wholesaler	45%
Wholesaler to retailer	30-50%
Retailer to Customer	100%

The tourist price as a factor of the craftsman's revenue could be as high as 6,5 times. Much of the value could be shifted towards the craftsmen, provided that the distribution channel's efficiency is improved.

## **8.8. Conclusions and recommendations**

### **8.8.1. Improve representation:**

Establish project committee or appointed agent in South Africa to utilize existing distributor networks in South Africa consisting of the Basarwa communities in Botswana, Namibia and South Africa. Immediate benefit could be transferred to Kuru by extending their current representation in the Republic of South Africa.

### **8.8.2. Establish Reciprocal marketing/supply agreements:.**

Formalize the relationship with commercial ostrich breeders to supply unrestricted ostrich eggs for the increase in productive capacity in the Basarwa Bead market.

### **8.8.3. Establish craft design and development work group:**

Establish craft design group between producers and distributors to be pro-active to market and fashion trends.

Trade inquiries were conducted during the first two weeks in September. Art, craft, souvenir and curio dealers believe that the most significant benefits to the Botswana craftsmen would be:

- Improving quality of merchandise
- Improving consistency of supply and ability to reorder/contact supply base
- Reducing number of links in the distribution channel, and therefor reducing the number of steps requiring profit participation.

### **8.8.4. Develop Production, raw material sourcing options**

Design and material sourcing opportunities have been identified which could reduce Kuru's input cost substantially. A reliable source of ostrich egg shells have been established out of the Oudtshoorn area. Import permits to be obtained and process to be established. High

levels of enthusiasm and support established with group of prominent ostrich farmers. The potential linkage is not only to the sourcing of broken egg shell but can be extended to:

#### ***8.8.4.1. Transfer of skill***

The ostrich farming group have gone far in vertically integrating the ostrich breeding and by-product development process. High quality garments and fashion accessories are being manufactured in and around Oudtshoorn. Craft and clothing design assistance as well as international marketing connections could be exchanged. The transfer could include the tanning process as well, which could lead to enhanced utilization of the Kuru tannery.

#### ***8.8.4.2. Genetic stock and farming skill exchange***

The initial reaction from the farmers was that the Kuru ostrich project could provide them with new strains of genetic stock. They also have access to markets for non-craft products i.e. meat, leather and feathers that they would be prepared to exchange in a joint venture project

#### ***8.8.4.3. "Live Craft Display"***

At the main Oudtshoorn tourist outlet for ostrich related products the concept of a Live Craftsman Display was raised. The owners of the store are prepared to provide accommodation and will establish an ethnically appropriate Craftsmen's Village to display Kuru Craft during the festive season. This concept was tested with several other craft outlets and was met with significant interest. It could typically involve a craft producing family from Kuru to manufacture ostrich eggshell based beadwork on site. This concept could be

extended to the high specifically international “tourist traps” in South Africa e.g. Greenmarket square and Waterfront “Cape Town”, Bruma Lake Flea Market, Randburg Waterfront and Rosebank Mall Rooftop Market, Knysna/Wilderness Streetmarkets. Ethnically sensitive issues will need to be resolved as the markets will be specifically interested to create a typically “Basarwa Village” based display.

## **9. The Springwater Project**

### **9.1. Introduction**

Bottled water is defined by the International Bottled Water Institute and the United States' Food and Drug Administration as water sealed in food grade bottles and intended for human consumption. There are several types of bottled waters, depending on the source of the water. These types are split into two distinct groups - mineral water and drinking water. Mineral waters are most often sparkling (carbonated) and are generally used as an alternative to soft drinks or cocktails. Bottled drinking water is consumed as an alternative to tapwater, and is also used for cooking, making coffee or tea, and general domestic use.

Bottled water is obtained from a variety of sources, including springs, artesian wells, drilled wells, and public water supplies.

In the United States of America, Bottled water is regulated as a "food" by the USA Food and Drug Administration (FDA). The FDA requires that bottled water products be clean and safe for human consumption, that they are processed and distributed under sanitary conditions, and they are produced in compliance with FDA Good Manufacturing Practices.

The proliferation of bottled water suppliers led to the FDA's publishing regulations on bottled water that promotes consistency in the marketplace by providing standard definitions for the terms "artesian water," "ground water," "mineral water," "purified water," "sparkling bottled water," "spring water," "sterile water" and "well water." They also bring mineral water under existing quality standards for bottled water. Bottled water can be carbonated, either naturally or artificially, or it can be flavored. Flavoring must comprise less than one percent by weight of the final product; otherwise it is a soft drink. Bottled water is without sweeteners or additives.

### **9.2. Market opportunity**

All bottled and packaged drinking water in the tourist intensive Maun and Okavango Delta Area is currently being imported from natural water spas and producers in the Republic of South Africa. High transport cost of this product provides Gweta with an opportunity to initiate a project to firstly serve the Maun/Delta market. Provided the analysis of and consumer reaction to the water compares favorably with the competitive products, could be extended into the export market.

### **9.3. Global market**

According to the International Bottled Water Association (IBWA), the trade association representing the bottled water industry, the sales of bottled water have increased by five-fold over the last decade, and consumption per capita has increased 15 fold, with approximately 1 in 15 United States households using bottled drinking water. About 700 brands are sold in the United States, with USA consumers spending about US\$2.7 billion on bottled water per year.

The international move to natural packaged drinking water (dependent on favorable content analysis, availability and quality)<sup>42</sup> is also evident in Europe.

---

<sup>42</sup> See action item on analysis of current boreholes and springs

Annual selected European consumption of Spring and Mineral Water per Inhabitant in 1990 (in liters) is as follows:

- Belgium 87
- Britain 7<sup>43</sup>
- France 97
- Germany 85
- Ireland 5
- Italy 94
- Netherlands 15
- Portugal 34
- Spain 50

The European Market has been estimated to be approximately US\$5 billion in 1991. This market presents a significant growth opportunity due to the consumers perception of the impact of industrial pollution and the perceived threat of the Chernobyl radiation leak on the quality of drinking water in Europe.

The South African Market was estimated by the Financial Press (1991) to be R12m and expected to grow by 40% per annum. Projections endorsed by the Industrial Development Corporation of SA estimated the market to grow at a rate of 25% for at least three year period 1994 to 1996.

The South African Market was estimated by the Financial Press (1991) to be R12m and expected to grow by 40% per annum. Projections endorsed by the Industrial Development Corporation of SA estimated the South African domestic market to grow at a rate of 25% for at least three year period 1994 to 1996.

No official mineral water figures are available in South Africa as it is combined with all carbonated soft drinks.

High quality, clarity, transparency of packaging, and contents listing will be imperative. Quality precautions could include protecting the source from animal, human and agricultural based pollution. Internationally the risk of contamination by fertilizer and pig slurry have forced producers to not only protect their source's

---

<sup>43</sup> Mineral water only

immediate proximity, but also the water supply chain which may stretch to a radius of 30km around the source

#### **9.4. Description of the market**

##### **9.4.1. Market structure and segmentation**

The tourist market may be divided in two main categories. Firstly it is consumer trade when the purchasing decision is made by the Tourist and the purchase is made from the retail trade. Pack preferences in this market will be the 340ml Source can to 1 liter packs. The bulk sales however is made to tourist operators, lodges and hotels for use by tourists on camp. Packs are mainly 1,5 and 2 liter containers.

Due to the recency of market developments, comparative historical figures are difficult to obtain.

##### **9.4.2. Current Market channels and distributions methods**

###### **9.4.2.1. Existing competitors and market dynamics**

During the market survey conducted during the week ending 26 August 1995 the following competitive action was observed in the retail market:

- Competitive brands: 25
- Brand packs: 39

Market leaders in ranked order by sales value are listed below. The figures are based on detailed sales report made available by Maun Fresh Produce, and Spar Supermarket, two of the major retail outlets in Maun.

<b>Brand</b>	<b>Pack</b>	<b>Sales value</b>	<b>Sales volume (liter)</b>
			<b>1995</b>
La Vie	2 liter	+ - P140000	82000
Source Still	340 ml can	+ - P50600	17201
Waterval Still	2 liter	+ - P25000	15360
Valpre still	1,5 liter	+ - P11000	4300
Waterval Still	500 ml	+ - P4000	1000

It is projected that the brands listed above cover approximately 75% of the total market.

Using market information on the recently introduced Botswana produced 340ml can

**Source Water** the following growth assumptions could be made:

“Source” 340ml Can sales through Kgalakgadi Breweries Limited’s Depot in Maun<sup>44</sup>

Sales April 94 to March 95                    17201 liters

Sales April 95 to August 1995            10783 liters

Annualized projection                        25879 liters

Growth experienced from 1994 to 1995:    50%

Using the qualified information from the retail and wholesalers the estimated Maun volume is thus stated at approximately 150 000 liters per annum and could grow to 200000 liters before the end of 1996.

#### **9.4.3. Tested market reaction.**

High level of support for locally produced product potential was experienced from consumers as well as distributing fraternity. The potential establishment of distributor house brands was mentioned as a joint venture opportunity, which could contribute to market penetration with the assistance of the retailers and distributors under whose name the product could be marketed.

#### **9.4.4. Potential customers tastes, habits and attitudes.**

The preference for bottled water over local tap water is based most commonly on aesthetic considerations of taste and odor. Depending on the geographical and physical location of the source of drinking water, and on the specific treatment methods used by local water suppliers, tap water can have a taste and odor that is disagreeable-even though it may be perfectly safe to drink. The general opinion received from Maun residents is that the water made available by the local authority is “undrinkable”, and domestic drinking water consumption is mostly based on packaged or bottled water. **Tourist’s** pronounced brand loyalty and need for variety by foreign tourists provided as reason for wide brand pack span observed in Maun.

---

<sup>44</sup> Source of information obvious and sensitive. Please retain confidentiality.

A preference to natural water exist rather than sparkling.

### **Domestic (Maun Residents)**

Domestic interviews with Maun residents indicated that a five liter container could be useful as addition for domestic use in the area. Although the purchasing of packaged drinking water by local indigenous residents is insignificant at the moment, it could improve with lower cost local product.

#### **9.4.5. Prices and pricing policy**

Purchases by tour operators are deemed to be highly price sensitive. Local production will have a logistics cost advantage of approximately 50 Thebe per liter due to the reduced transport cost. Provided that the diseconomies of scale of the relatively small market size can be overcome, the project should be in favorable competitive position. The Gweta plant will have considerable logistic advantage on the foreign sources. This benefit of proximity of source to market is offset by the distance from suppliers of packaging material, transport and storage thereof. PET, glass or plastic bottle transport cost will adversely affect the mentioned cost advantage. New developments on sachet packaging could prove to greatly overcome these disadvantages.

#### **9.4.6. Production and product options**

The manufacturing process could be outlined as follows:<sup>44</sup>

- Water drawn from boreholes by motor driven turbine pumps
- Water pumped into storage reservoirs.
- Water pumped into air release tanks to reduce odours caused by decaying organic matter and organic organisms
- Filtering through sand filters to purify water of suspended solids.
- Water filtered through absorbing activated carbon to purify water of dissolved pollutants, improve taste and remove remaining odors.
- Micro-filter process to eliminate micropollutants and microtoxic substances.
- Final cartridge filter process to trap any pollutant which might have escaped the preceding treatment process.
- Treated water discharged through Sterilizer to destroy any disease producing bacteria or micro organisms that may exist.

---

<sup>44</sup> Based on high tech process on typical highland spa. Appropriate technology and cost to be investigated with Watertech; CSIR.

- Mineral water then flows to filling machine, fills, seals and dates the prerinsed, sterilised bottles. Depending on the process and equipment prelabelled bottles could be used.
- Bottles manually packed into boxes or shrink-wrapped, stacked onto pallets, moved to warehouse, ready for distribution.

Due to the natural food characteristics of the product, purity of product and process will be imperative. Local Department of Health regulations to be researched.

#### **9.4.7. Promotion, advertising and promotional strategy**

Promotional “strategic alliances “ with local distributors could be valuable in establishing the product with bulk buyers. Retail and Wholesale distributors in the Maun area have indicated that they will be more than willing to enter into a “joint venture” with the community of Gweta in terms of ensuring successful introduction into the Maun market, quality permitting.

#### **9.4.8. Preferred distribution channels**

Distribution for the pilot project could be restricted to the Maun Area. Further distribution agreements could be considered with either the distributors in Maun and or the Kgalakgadi Breweries distribution network in Botswana. which consist of 14 KBL owned distribution depots and 4 independently owned distributors throughout Botswana).

The Spar franchise operation will be interested in establishing a distribution arrangement through their stores in Botswana. This avenue could also be used to enter the South African Market.

#### **9.4.9. Pricing levels**

Retail margins vary between 24 and 33%.

On the brand leader’s cheapest availability in the area it relates to:

Retail Selling Price: P3,50 per 2 liter

Competitive entry (inclusive of transport):P2.80 per 2 liter

#### **9.4.10. Terms of sales:**

Nature of project should be sufficient to limit sales to cash on delivery. Under normal circumstances a 2,5% COD settlement discount would prevail.