

Sustainable !Nara Management by the Topnaar Community of the Lower Kuiseb Valley.

A baseline study of !nara resource management and its potential for development.

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Executive Summary

[in English, Afrikaans, Nama]

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1 Introduction

1.1 Problem analysis

- 1.1.1 Sustainable utilisation of natural resources by small scale economy - a major target in Namibia's current economic development
- 1.1.2 The NARA project - NATural Resource management of the #Aonin
- 1.1.3 Recent history of the Topnaars of the Lower Kuiseb Valley
- 1.1.4 The !nara of the Topnaars
- 1.1.5 Ecology of the !nara
- 1.1.6 Potential for development of !nara resource management
- 1.1.7 Theoretical framework
 - 1.1.7.1 Sustainable Development
 - 1.1.7.2 Developing Theories for Developing Countries
 - 1.1.7.3 NARA in relation to Community-Based Natural Resource Management

1.2 Objectives and Key questions

2 Methods

2.1. Literature Review

2.2. Secondary Data

- 2.2.1 Socio-economic Data
- 2.2.2 Biophysical Data

2.3. Primary Data

- 2.3.1 Socio-economic survey of the rural Topnaar community by structured personal interviews.
 - 2.3.1.1 Research Design
 - 2.3.1.2 Sampling
 - 2.3.1.3 Data collection
 - 2.3.1.4 Scaling and Measurement
- 2.3.2 !Nara market analysis by unstructured personal interview with !nara wholesalers in Walvis Bay
- 2.3.3 !Nara market analysis by structured fax-mail interview with current !nara retailers and wholesalers in Cape Town, Lüderitz and Walvis Bay
- 2.3.4 !Nara market potential analysis by structured fax-mail interview with possible !nara retailers in Swakopmund

3 Results and Discussion

3.1 Availability of biophysical and technical resources

- 3.1.1 current and potential !Nara harvest volume (Rohstoff)
- 3.1.2 harvesting, processing and marketing resources (Betriebs- und Hilfsstoff)
- 3.1.3 harvesting, processing and marketing infrastructure

3.1.4 Discussion

3.2 Availability of human resources

3.2.1 manpower

3.2.2 business ability and awareness of the Topnaars

3.2.3 socio economic importance of !Nara

3.2.4 social integrity of the Topnaar tribe

3.2.5 key players

3.2.6 discussion

3.3 Availability of financial resources and incentives

3.3.1 household structure and economics

3.3.2 !Nara utilisation, market structure and economics

3.3.3 Income generated by !nara business

3.3.4 discussion

4 General Discussion

5 Future Options

6 Recommendations

7 References

8 Appendices
[list]

List of pictures

- a from left: Piet Bees, Daniel Cloete, from right Markus, Deon during interviews near Wortel
- b near Wortel
- c Sophia Herero, Swartbank
- d from left: Joel Herero and Hendrik Animab(?), Swartbank
- e Piet Otta and his children, Ururas
- f Anna Engelbrecht and family, Armstraat
- g !Nara
- h flat tire, Deon
- j Ulrike
- k Julia Dausas (right), Chrisalda Dausas (teenager with black T-shirt in front), Goatanab
- l Anna Khurisas (right), Utuseb
- m Anna Beukes (left), Swartbank
- n near Wortel
- o Bethuel Skrywer, Dawedraais
- p Helmut Naweb, Goatanab
- q niece or grandchild of Bethuel Skrywer, Dawedraais
- r first and only !Nara advertisement, Flamingo Furnishers, Walvis Bay
- s child with melons (Vissier, Margarethe: !Nara of the namib. In Living Africa, 1998, p.67)
- t Extracted !Nara pips, p. 68
- u Armstraat, p.71
- v Cooked !Nara pulp (Vissier, Margarethe: !Nara Fruit. In: Flamingo - Air Namibia, 1998, p.8)
- w drying !Nara pips on the roof (p.10)

1 INTRODUCTION

1.1 Problem analysis

1.1.1 Sustainable utilisation of natural resources by small scale economy - a major target in Namibia's current economic development

After ten years of independence, Namibia is still affected by the inherited institutional segregation of past German colonisation and the South African administration. While the politics of modernisation and industrialisation¹ aiming at competitiveness and openness to foreign trade and investment, brought a sound legal system, a social security system, a sophisticated financial sector and a well developed infrastructure,², the striking dualism, typical for developing countries, still remains. As a traditional exporter of natural resources like diamonds, uranium, base metals, fish, beef, and karakul wool, a modern sector successfully developed in mining, commercialised agriculture and services. Although this growth puts Namibia into the world wide rank of 'middle income countries' (79th rank)³, more than 50% of its population still live in the traditional system of subsistence or small-scale farming. During colonisation and apartheid ethnic and cultural groups were displaced in confined rural and communal⁴ areas of minor agricultural quality. Neglected in their development for decades, they have been marginalised and denied benefit from what was their natural inheritance. Still they have to face 'Third World' conditions like the lack of education, health care and infrastructure and a high birth rate of more than 3% annually. Considering these indicators of wellbeing, done by the Human Development Index (HDI), Namibia then only counts the 116th rank in the world.⁵

Figure 1: Republic of Namibia

Although the government tries to fulfil its principles of the first National Development Plan, to reduce income disparities between rich and poor by numerous programs, the regional comparison of incomes and literacy still reveals distinct inequalities of more than 90 %⁶. Overcoming the inherited deficiency needs long term's process and faces many difficulties. As the ecosystem of semiarid to arid climate reacts highly unstable towards an intensive agricultural utilisation, a sustainable rural development should aim at a manifold integrated use of local resources by developing a diversified economic structure in the informal or formal sector of small scale farming, trade, manufacturing and craft. The need of a "utilisation of living natural resources on a sustainable base for the benefit of all Namibians both, present and future..."⁷ is expressed in Article 95 (1) of the Namibian constitution. The further need of promoting labour intensive instead of capital extensive micro enterprises⁸ in the informal sector was recently identified by the

1 Becker, F. /Butzin, B. (1998), p 218.

2 NEPRU (1998), p ii.

3 Hahnsohm, D./Mupotola-Sibongo, M. (1998), p 1.

4 Access to communal land is governed by custom. The population of communal land has no right to buy land, it is no freehold land, in: Hahnsohm, D./Mupotola-Sibongo, M. (1998), p 6.

5 The HDI is a composite index relating to access to resources (proxied by income), longevity (proxied by life expectancy after birth) and knowledge (proxied by adult literacy and school enrollment rate). It builds on the perception that income is an inadequate indicator of well being, especially in developing countries. UNDP (1996), cited in: Hahnsohm, D./Mupotola-Sibongo, M. (1998), p 1.

6 Hahnsohm, D./Mupotola-Sibongo, M. (1998), p 2.

7 Constitution of the Republic of Namibia, cited in: Ministry of Environment and Tourism (1995), p 1.

8 Micro enterprises are companies with less than 10 workers.

government. The budget speech of 1997/98 named small enterprises as the only target sector and a White Paper was launched in September 1997 to assist and promote this particular sector⁹.

Such an integrated approach towards rural development forms the basic principle of the natural resource management programme, called NARA (**N**atural **R**esource of the **#Aonin**), to which the following study contributes. This study in particular, serves as a preliminary report analysing the stage of rural development with regard to a future introduction of small scale enterprises and small scale markets built on local resources.

1.1.2 The NARA Programme – NATural Resource management of the #Aonin

In 1996 the so-called NARA-(Natural Resources for the #Aonin) project was founded as a joint program between the Topnaar Community Foundation (TCF) and the Desert Research Foundation of Namibia (DRFN).

The DRFN is a Namibian non-government organisation (NGO) involved in research, training and environmental education, which is achieved through several appropriate projects relating to arid lands and desertification control in the Southern Africa Development Community (SADC). While the DRFN headquarters are located in Windhoek, much of its research has, over the past 40 years, been undertaken in the Namib Desert at the Gobabeb Training and Research Centre, situated along the ephemeral Kuiseb River, 80 kilometres Southeast of Walvis Bay. Gobabeb is located in the centre of this hyperarid desert, where annual rainfall is a mere 20 mm, and evapotranspiration 3500 mm. The DRFN and its numerous collaborators from all over the world have accumulated knowledge and data on the Namib environment, with a bibliography exceeding 1300 publications¹⁰.

The lower Kuiseb Valley also is the home of the small Topnaar or #Aonin¹¹ community, a Nama tribe and one of the oldest indigenous people of Namibia. Living in the Namib Desert for at least some 8000 years¹² [need to check this: two points should not be confused: 1. !nara have been harvested and eaten by people for 8 millenia (Sandelowsky) and 2. Topnaars have a long history of residence in the Central Namib (Kinahan)] they still live as subsistence pastoralists and gatherers, while the nearby coastal towns like Walvis Bay and Swakopmund, where many Topnaars live today, have become prosperous economic centres. This severe dualism affects the balance of the socio-economic and environmental system of the Topnaar community in different ways. Bulk water extraction for urban supply reduced the Kuiseb groundwater availability. The integration of the lower Kuiseb in the Namib-Naukluft Park limits rural development. Furthermore, the attraction of urban life and work result in emigration from the rural settlements and consequent further impoverishment. Due to these circumstances the Topnaar Community Foundation (TCF) was formed in 1996, mainly aiming “to cater for the socio-economic development, needs and interest of the Topnaar people”¹³. In 1996, the TCF requested DRFN to assess the existing socio-economic and ecological interrelationships of their main resource, the !nara plant, as a preliminary approach to facilitate improved sustainable resource management.

⁹ Hahnsohm, D./Mupotola-Sibongo, M. (1998), p 8.

¹⁰ Henschel JR et al. 2000. Bibliography of the Desert Research Foundation of Namibia. DRFN, Windhoek, Namibia.

¹¹ #Aonin is the Nama expression for the Topnaar, indigenous people in the Kuiseb region of the Namib desert.

¹² Dentlinger, U. (1983), p 3.

¹³ Constitution of the Topnaar Community Foundation, p 2.

The !nara, an endemic cucurbit of the Namib Desert, plays a key role in the life of the desert-dwelling Topnaars. Due to its high nutritious value, !nara fruit provides an ideal drought relief food and the sale of its seeds contributes significantly to the income semi-subsistence economy of the Topnaar. The culture of the Topnaar is irreversibly bound to this unique plant and this is an old tradition. The existence of this reliable food probably caused the Topnaar to develop an early domesticism in the form of an integrated pattern of pastoral settlements¹⁴ and to replace the communal rights by individual harvesting ownership – an unusual adaptation for an otherwise typical pastoral Nama tribe. This exceptional position among the Nama tribes lead to common Nama name, the !Naranin, which expresses their dependence on this desert plant. Although the importance of !nara as the main staple food of the Topnaar is being replaced more and more by maize purchased in shops, !nara harvesting and livestock husbandry remain pillars of livelihood for the rural Topnaar community. More so, the !nara has fundamental cultural value and is important for the traditional lifestyle and efforts at maintaining self-sufficiency in this seemingly depauperate desert environment. Indeed, !nara harvesting can to some degree continue to be considered a key for their existence in the desert, as it represents an environmentally sensible use of the desert.

In recent years, increasing conflict was perceived between the decline of the annual !nara yield and the need for higher income. This lead to severe harvesting competition and uncontrolled exploitation of the traditional resource. As a result, the idea of a Community-Based Natural Resource Management project was born. In November 1997, the TCF and DRFN called a workshop with members of the Topnaar community to identify the nature and extent of the perceived problems and to formulate goals for the future sustainable use of !nara. The Topnaar Community came up with the following key issues that form part of the NARA programme¹⁵ (Breuninger & Henschel 1997; Henschel & Dausab 1997):

1. Is there a change in !nara fruit production and if yes what are the reasons for it?
2. Can the harvesting be managed in such a way that it benefits or at least does not diminish the !nara fruit productivity?
3. Can the !nara plant be cultivated without destroying the equilibrium of the desert ecosystem and without depleting other natural resources?
4. Can a higher commercial value of sustainably managed !nara be achieved to enable the rural Topnaar community to obtain an appropriate and predictable income?

The unique and promising character of the NARA Project is both the very interdisciplinary approach, dealing with biological (germination, water requirements, distribution) and socio-economic aspects (harvesting techniques, utilisation pattern, marketing) and the integrative approach that interconnects the indigenous community, scientists and stakeholders. Different tasks were proposed for a project, which, according to a systematic process of a natural resource management program, comprises five phases:

- Analysis of biophysical and socio-economic factors affecting the !nara productivity and the profitability of !nara utilisation in former and current times;
- Design of an appropriate cultivation, harvesting and management strategy;

¹⁴ Vigne, R. (1994), p 6.

¹⁵ Breuninger B & Henschel JR (1997), p 2.

- Implementation of the management system;
- Monitoring, evaluation and redesign;
- Long term monitoring and maintenance.

In this community-based, participatory development program all steps involve the local people to make them recognise and use their own capability in designing, implementing and maintaining an improved utilisation of their rural resources. The initial co-operation with external experts of the DRFN and other organisations that may become involved in the process should only catalyse and guide the process while the community retains full responsibility at all stages.

1.1.3 Recent History of the Topnaars of the Lower Kuiseb Valley

[some of the details are already written above, move to here & rephrase]

1.1.4 The !nara of the Topnaars

The !nara is invaluable for Namibia, the Namib Desert, and the Topnaars. Its multifaceted relevance includes what we wish to illustrate in the !Nara Triad (Fig. 14 [#to be changed]):

- **!Nara is a unique natural product** - endemic to the Namib desert; an important illustration of the principles of desert ecology and ecophysiology; of high scientific interest because of its ecological importance to many animals and to the desert surrounding; a natural resource superior to alien crops in this area
- **!Nara is a unique cultural product** - irreversibly bound to the development of the #Aonin tribe and their traditions; reliable food that was the driver of early domesticism by the Topnaars in historic times; multifaceted cultural values as seen in their Nama nickname " !Naranin", the image of !nara as "many-breasted foster mother" and "wet nurse"¹⁶, as well as embodiment in numerous poems praising !nara.
- **!Nara is a unique economic product** – for a desert plant, the !nara has a high nutritional value because of its high content of unsaturated fatty acids and proteins; the fruit flesh, juice and seeds are tasty and there are multiple uses for each; the roots have medicinal value; seeds store conveniently for a long time and are easy to transport.

The multiple facets enhance each other, thereby intimately connecting the Topnaars to their environment and vice versa and connecting both the desert environment and its people to the outside world.

Figure 14: The !nara Triad: three-in one integration of !nara importance

Source: current study

[!nara distribution in relation to Topnaar settlements & harvesters, Fig.2]

Figure 2: !Nara fields and settlements of the Topnaars

Source:

[sum up the plant parts used and products produced]

[describe in short, the traditional and alternative harvesting and processing techniques, and how the seeds are marketed]

[plant management, professional harvesters and non-professionals]

[relative economic importance of the !nara, Fig.15]

¹⁶ Visser, M. (1998), p 68.

Figure 15: Sources of income for the Topnaars

Source: Personal interviews with Topnaars

1.1.5 Ecology of the !nara

The !nara *Acanthosicyos horridus* Welw. ex. Hook. fil. (Cucurbitaceae) is endemic to the fog belt of the western Namib desert, occurring virtually along the entire length of the Namib with high densities in the lower Kuiseb valley west of Gobabeb, particularly between Wortel, 10 km south-east of Walvis Bay, and Rooibank, but there are at least 54 !nara fields in this area (Budack 1977). Part of the Kuiseb fields declined gradually after the flood diversion wall prevented flood waters from replenishing the groundwater in a part of the Kuiseb Delta (Fig.2). The Kuiseb !nara fields are most widely known because of the attention given to the !nara harvesting and trade by the Topnaar people, but there are also extensive !nara fields along the north coast of Namibia and Himba people harvest in some of these fields [Reference].

The !nara is a leafless plant that photosynthesises through its stem and thorns (Kartusch & Kartusch, 1999). As a phreatophyte, it utilises groundwater (Herre 1974; Pfeifer 1979), and its 7-cm thick stem has 100-m long roots (Kutschera et al. 1997) that may reach > 50 m deep (Klopatek & Stock 1994). The xylem vessels of the roots are the widest found in any plant (370-1000 μ ; Kutschera et al. 1997) and can hold 2 ml of water per cm of root. Individual !nara plants can grow to a size of 5-10 m high and 10-40 m in diameter, with the stem tips projecting 0.1-1 m above the large hummock that grows with the plant. !Naras are dioecious (sexes separate) and it has been estimated that they may have a lifespan of centuries (Klopatek & Stock, 1994).

Female !naras annually produce 20-500 fruits of 10-20 cm diameter that each weigh 0.5-1.0 kg and each contain 200-300 seeds (Klopatek & Stock, 1994, counted 230). Females flower between September and December, and most fruit ripen in February and March (Berry, 2001). Males have a much longer flowering season from late July to early May produce a profusion of flowers during most months. It has been proposed that this may keep up viable populations of the main pollinators, meloid beetles *Mylabris zigzaga* and solitary bees (Line Mayer, pers.comm.). Meloids are of particular interest, as their populations may furthermore be dependent on the ability of their larvae to consume eggs of !nara crickets *Acanthoproctus diadematus*, a perennial herbivore associated with !nara plants.

The fruits, seeds, growing tips and flowers are highly nutritious, while the rugged canopies of both sexes provide shelter to dune animals. The !nara is regarded as a keystone species (Klopatek & Stock 1994, p.233-234) which is “a direct protein and water source for insects, reptiles, mammals and birds, an indirect food source as a collection site for windblown plant litter that is fed on by many beetles, and a stabilising influence in the dunes and hence a refuge for burrowing animals. In essence !nara forms the basis for a highly diverse and complex food-chain.” From several perspectives, the !nara can be considered to be one of the most important plants in the dunes of the Namib Desert, and a key to understanding its ecosystem as well as its indigenous people (Fig._ [sketch the network of relationships]).

In nature, at least 26 vertebrate species are known to use the !nara in one form or another; there are many more invertebrates. The flowers and growing tips, including seedlings, are favoured food for several herbivores, e.g. meloid beetles, !nara crickets, but also the lizards *Angolosaurus skoogi* (in the northern Namib dunes), ostriches, oryx, and springbok. Domestic goats of the Topnaars apparently don't seek this food, while

donkeys favour it highly and have been observed removing many flowers and seedlings (pers.obs.). Many mammals are major consumers of the fruit and they potentially disperse the seeds with their droppings, but in the case of ungulates (hoofed mammals), the seeds are crushed and no longer viable. While rodents (mice and gerbils) will eat the seed, they also cache it in the sand, sometimes a short distance away from !nara hummocks.

The black-backed jackal *Canis mesomelas* appears to be the best potential disperser of seeds (Markus Müller, pers.comm.), as many seeds pass its gut intact. Jackals often eat ripe !nara fruit and often deposits their droppings at distances of tens of metres to several kilometres away from existing !nara hummocks, often at the bases of dunes. It is at these low-lying dune areas that the potential for seedling development may be particularly good (Petra Moser, pers.comm.). Jackal faeces probably provide a local nutrient supplement to the initial seedling in otherwise very nutrient-poor sand (Müller and Moser, pers.comm.). The jackal is therefore considered to be a crucial part of the community ecology of !nara, required for recruitment as well as establishment of !nara in new areas. The distribution of jackals overlaps completely with that of !nara, and it is suggested that the jackal is indispensable for the persistence of healthy populations of !nara fields in their natural condition. Ironically, the Topnaars consider the jackal to be a threat to their livestock, as jackals are capable of killing goats, besides their normal diet of plants and insects.

Concerning the constraints on !nara fruit production that have been of concern to the Topnaars, the following biophysical factors could possibly play a role and serve as indicators of plant health:

- 1) declining water availability
 - a) local groundwater depletion
 - b) regional groundwater depletion
 - c) poor water quality (e.g. saline)
 - d) decrease in fog
 - e) rainfall
- 2) herbivores (of flowers, shoots, fruit)
 - a) insects (e.g. meloid beetle, tenebrionid beetle, !nara cricket)
 - b) small mammals (e.g. gerbils, striped mice)
 - c) large herbivores (e.g. ostrich, springbok, oryx, donkey)
- 3) flood material
 - a) chemical pollutants
 - b) inundation with silt
- 4) sand-wind-plant interaction (hummocks)
 - a) inundation
 - b) exposure
- 5) population structure
 - a) insufficient recruitment (too few seeds after harvesting, seedlings eaten by herbivores, or there are no jackals to disperse the seeds to potential new sites)
 - b) too many old plants (fruiting may decline with senescence)
 - c) too few mature plants (lifespan is reduced)
 - d) too few flowering males for pollinators to achieve pollination
- 6) fungi
 - a) deficiency of endomycorrhizal symbiont
 - b) disease
- 7) soil properties
 - a) permeability

- b) nutrient status
- c) pH relations
- d) salinity

To this can be added the possibility of disturbance through harvesting in such a way that fruit production is affected:

- 8) harvesting method
 - a) traditional method of prudent loosening ripe fruit from the plant by soft tapping
 - b) picking unripe fruit, including use of hooks
 - c) picking all fruit, leaving none
 - d) damaging the plant during harvesting or travel across !nara fields
- 9) plant management methods
 - a) supplementation of seedlings with water (e.g. fog)
 - b) periodic burning (used to be traditional)
 - c) new techniques, e.g.
 - i) pruning
 - ii) limiting sand accumulation
 - iii) watering
 - iv) nutrient supplementation
 - v) artificial pollination
 - vi) selective protection of developing fruit.

Since the 1997 !nara workshop with the Topnaars, several biophysical studies have been initiated in order to improve the knowledge of the !nara plant as the source of fruit and as the fundamental basis of the perceived problem of reduced yield to harvesters. Besides studies by the TCF and the DRFN (mainly focusing on harvesting, marketing, socio-economics and livelihood, including the current study), the joint NARA initiative has, in close collaboration with the National Botanical Research Institute (NBRI), coordinated the following biological studies between 1998 and 2000:

- water sources & ecophysiological differences between !nara sexes (Sarah Eppley, University of California Davis, USA);
- flowering & pollination (Line Mayer, University of Würzburg, Germany);
- seed dispersal & seed consumption (Markus Müller, University of Würzburg, Germany);
- caching and consumption of seeds by mice (Connie Krug, University of Bonn, Germany);
- germination and seedling development (Petra Moser, University of Münster, Germany);
- Phloem anatomy & transpiration (Felix Hebel, University of Gießen, Germany).

In addition, several researchers have expressed interest in developing further studies on !nara products taking their biochemical, medical and nutritious contents into consideration. These people include: Patrik van Damme (University of Gent, Belgium), Pierre du Plessis (CRIA-SADC), Beatrice Sandelowsky (TUCSIN), and Erica Maas (University of Namibia). Further biophysical studies that have been planned include: population dynamics and demographic patterns, long-term seedling development, groundwater conditions, effects of harvesting, effects of ungulate herbivores, and the community ecology of the !nara as a possible keystone species in the Namib ecosystem.

These ecological, biological and physiological studies of the !nara form one part of the NARA programme and address the first three questions posed by the Topnaar Community at the 1997 workshop. They are important, in the sense that they concern

the resource itself, but the remainder of the current study will be more concerned with management aspects of the resource.

1.1.6 Potential for development of !nara resource management

The present study is part of the socio-economic research conducted together with the Topnaars and addresses answers to the fourth key issue identified by the Topnaar Community at the NARA workshop of 1997, namely, “Can a higher commercial value of sustainably managed !nara be achieved to enable the rural Topnaar community to obtain an appropriate and predictable income?” Furthermore, we address part of the first question “Is there a change in !nara fruit productivity?” and attempt to confirm this by examining the historic and current trade volume. Our study investigates the commercial potential of !nara products that is compatible and sustainable in terms of the environmental, economic and socio-cultural development of the Topnaar community in the lower Kuiseb valley. It serves as a baseline report analysing relevant features of the former and current !nara market by focusing on the task environment as well as the macro environment¹⁷ of the !nara supplier, the rural Topnaar community. This situation analysis belongs to the initial phase of the systematic management process and tries to address the question whether the utilisation, management and marketing of !nara requires adjustments so as to improve sustainability, continuity as well as development within the specific environment¹⁸.

The current socio-economic situation of the Topnaar people is typical for marginalised communities. Pushed back by the colonialists to the inland desert, they lost the marine resources as a direct source of livelihood and started to optimise the use of !nara for subsistence and trade. Now their livelihood is again endangered. While modern industries and labour markets have developed in the nearby coastal towns of Walvis Bay and Swakopmund, the rural area and the technique of harvesting, processing and marketing the !nara has not developed. Until 1999, harvesting patterns and trade structures have not changed significantly since the beginning of the 20th century, and have rather started to disintegrate. Apart from these recent changes, one main assembler in the trade chain of !nara seed still determines the price currently at between 6 and 6.5 N\$ per kilogram seeds, a poor income for about three hours of hard manual labour. The lack of appropriate work incentives cause younger Topnaars to seek wage labour in the industries of Walvis Bay. The equilibrium of the socio-economic system that is so well adapted to the ecological conditions of this desert is thereby being threatened. The traditional family plot system of managing !nara fields and the fine-tuned knowledge of cultivating and utilising the !nara properly are beginning to vanish. The result is a more and more dysfunctional and abandoned area. Left behind are older people, women and children, living on comparatively meagre old-age pension (at least to the cost of living in urban areas), as well as somewhat ad-hoc income from !nara, livestock and a bit of remittance from town-employed members of their extended family.

This unique and specialised interrelationship of !nara and the Topnaars has been the subject of several previous studies (References_). Furthermore, several initial studies began exploring the commercial potential of this wild desert plant. The first feasibility

¹⁷ The task environment of a company includes all basic institutions that create market value like suppliers, marketing intermediates, competitors, consumers and the market itself. A company as well is influenced by its larger environment, the macro environment, which consists of demography, economics, natural resources, technology, law, politics and culture; in: Kotler, Philip (1980), p 46 ff.

¹⁸ Environment includes all systems: social, economic and biophysical. Carrying capacity refers to the capacity without replanting !Naras, irrigation or cultivation.

study „Kuiseb Delta !Nara Products“ was prepared in 1992/93 aiming at funding from the Body Shop, an international cosmetic company, or from UNDP¹⁹. A second started in 1995 by the Social Science Division of the University of Namibia (UNAM) on behalf of the Directorate of Rural Development of the Namibian Ministry of Agriculture, Water and Rural Development (MAWRD). A third attempt was made by CRIAA-SADC, a Namibian NGO that provides research development and consultancy services. None of these projects went ahead as initially planned. The main reasons included the lack of funding, the limited total harvest volume of !nara fruits (i.e. its relatively small nation-wide importance), the unsettled question of land ownership as well as quite different approaches by the Topnaars themselves that created confusing with the other partners involved. As all those projects were carried out independently of each other, the substantial amounts of knowledge and data that were obtained, were not communicated and discussed among all the participating parties. This study endeavours to inject new vigour into the planning and discussions concerning the efficient management, utilisation and marketing of !nara. We tried to collate and revise as much of the available information as possible, both from the literature, from unpublished data, as well as from personal informants. We incorporate and update a recent socio-economic survey of the Topnaar community by the Government and make a first approach towards analysing the !nara market.

The latter survey and market analyses represent the focal point of this study, investigating the availability and conditions of all resources, as there are natural, technical, human and financial ones, which are necessary to examine the potential of a more efficient !nara utilisation. An integral theoretical background was needed for deriving key questions, for setting up a suitable research design, and for evaluating and discussing the results. This is presented in the next chapter.

1.1.7 Theoretical Framework

In the following chapter we try to relate the current problem to the main principles of Community-Based Natural Resource Management from basic concepts of Sustainable Development and Theories on Developing Countries. Finally, we create a catalogue of criteria, which an improved !nara resource management should fulfil.

1.1.7.1 Sustainable Development

In former times the general understanding of „development“ was confined to economic growth. Today, after people have realised that economic growth is linked to increasing resource consumption and that growth could be limited by the shortages of e.g. oil, water, minerals, space, etc., the idea of „sustainable development“ is applied. The term was first brought into common use by the World Commission on Environment and Development (The Brundtland Commission) in 1987. Calling for development that "meets the needs of the present generation without compromising the needs of future generations", the Brundtland Commission Report, "Our Common Future", highlighted the need to simultaneously address developmental and environmental imperatives²⁰.

„Sustainable Development“ tries to integrate socio-economic development and the conservation of the natural environment in such a way that human welfare is maximised, while the productive capacity of all natural resources is maintained for future generations. A holistic or integrated Sustainable Development could be subdivided into three disciplines :

¹⁹ United Nations Environment Program.

²⁰ Seralgedin, I., Steer, A. et al. (1994), p 7 ff.

- *the sustainable environmental or biophysical development*
The ecologist tries to preserve the integrity of ecological subsystems with respect to the overall stability of the global ecosystem or at least tries to maintain the resilience and dynamic adaptability of natural life-support systems. On a more operational level, sustainable environmental development means the use of natural resources without exceeding the carrying capacity of an ecosystem.
- *sustainable social development*
Main objectives of sociologist are to achieve social equity and cohesion. On a more operational level sustainable social development means the development of social institutions to maintain social integrity. (The sociologist emphasises that people and their patterns of social organisation are crucial for devising *viable* solutions to achieving sustainable development. Sustainable development has to be "socially constructed".)
- *sustainable economic development*
The economist seeks to maximise the human welfare within the constraints of existing financial, technological and natural capital. On a more operational level, sustainable economic development means the ability to derive a sustained income.

1.1.7.2 Developing Theories on Developing Countries

According to Nohlen and Nuschler²¹, the magic pentagon of economic development in developing countries is growth, equity, employment, participation and economic independence. The main concepts to explain this in the context of research on developing countries consists of two theories, the *modernisation* theory and the *dependency* theory.

The concept of *modernisation* states, that underdevelopment is caused by the *endogenous* country owned development potential. This is based on the premise that developing countries, especially their rural peripheries, currently find themselves at a stage comparable with that at the beginning of the industrial revolution in Europe. The further assumption was that newly developing societies must repeat the same evolutionary steps as the western countries did during their transition to modern society. According to this view western development strategies recommended the implementation of modern industry in geographically promising areas of developing countries like harbours and cities, where infrastructure has already been developed. This primary growth pole should spur development of itself and subsequently of its rural periphery by "spreading" or "trickling down". But instead of stimulating the peripheral development it often slowed down because of increasing extraction of rural resources like water, building material and man power. Discrepancy between urban centres and rural periphery were growing. The original existing self-sustaining rural economic system became dysfunctional and took over the role of a resource reservoir supplying the urban centres.

The second main concept, the *dependency* theory, constitutes an antithesis of modernisation theory. It is based on the premise that underdevelopment was caused not by endogenous but *exogenous* economic imperialism during colonisation. The

²¹ Nohlen, D. und Nuschler, E. (1982), p 49.

implementation by European countries of western technology in a country that was on a different pathway of its own development, caused underdevelopment by strengthening the dualistic structures of modern urban centres and traditional rural peripheries.

Although the risks of modernisation or top-down concepts are well known, they are still applied in today's development strategies: In Namibia several Export Processing Zones – e.g. one being planned in Walvis Bay - are supposed to increase national welfare by export-driven growth. However, in addition to such conventional strategies, alternative rural development programmes are being initiated. Instead of implanting large-scale farming and manufacturing in rural areas, equipped with sophisticated capital intensive technology, dependent on expensive external supplies like fuel, machines, know-how and on stable, less risk-prone ecosystems, a new "low-key" approach is promoted. It identifies alternative technological solutions that rely as far as possible on local resources, local raw material, local expertise, local indigenous economic and social systems. This new "bottom up" strategy aims at reviving the evolutionary rural development process that was stifled at the stage of subsistence or communal²² farming by external intervention. It seeks to achieve economic self-sufficiency and socio-political integration step by step, starting from the individual or its family unit to the level of local communities up to urban centres and the nation. Rural development should start from internal potential as it did during the pre-industrial phase in Europe. Of course one should not neglect important differences to the current conditions of underdeveloped rural areas in developing countries as there are high rates and large scales of change due to high pressure for change by rapid population growth. Furthermore, there is a rapid diffusion of western consumption patterns ("revolution of rising expectations"²³), increasing social and economic inequality and increasing alienation from one's own environments, needs and traditions. Main guiding principles for introducing this "low key" approach, or, in other words, this "self-sustaining rural system", "autocentric development" or "natural resource management" are:

- reduction of costs by using local resources;
- "strategy of scope"²⁴ with small scale enterprises, rather than "strategy of scale" with large scale industry;
- establishment of self-owned, self-managed enterprises instead of being employed and degraded as casual wage labourers or "stoke-receiving comrade workers" in the urban centres;
- establishment of enterprises based on appropriate technologies with products which are related to the traditional context of rural communities (capital extensive, labour intensive, affordable, low-maintenance, essential), rather than establishing alien, sophisticated technologies that produce foreign products for foreign needs and markets;
- reduce dependency on external know-how by use of local expertise;
- use of the organisational structure of indigenous family systems, of the rural household as a diversified work unit in producing food, textiles, tools, and household equipment for the satisfaction of basic needs, rather than making such organisational structures dysfunctional by extracting man power for casual work in remote centres;

²² In our study we distinguish subsistence farmers from communal farmers in the sense generally used in Namibia; whereas subsistence farmers strive to meet minimum living requirements, communal farmers are often market oriented. We avoid using the term "peasant" used in some literature to denote poor, market-oriented farmers, because of its class connotations.

²³ Dickenson, J. P. et al (1983), p 81.

²⁴ In contrast to "strategy of scale" the "strategy of scope" achieves efficiency by optimised co-ordination and not by size.

- development of self-respect, self-determination, entrepreneurial spirit by economic performance, rather than living in lethargy, fatalism and submission.

1.1.7.3 NARA in relation to Community-Based Natural Resource Management

The idea of "Natural Resource Management" has its origin in both in the concept of social, economic and environmental sustainable development and in the modern theories of "bottom up" development in rural areas.

The prefix "community-based" emphasises the need of a socially structured program, designed and managed by the community itself. Although this is already implicit in the goals of social sustainable development and the new approach of developing theories, the importance is often neglected. The experience of many case studies have shown that failure to pay sufficient attention to social factors in the development process is seriously jeopardising the effectiveness of a project. Communities must play a significant and active role during the whole process of assessing, designing, implementing and monitoring. Participatory co-management should replace simple consultations.

Applying the basic requirements of Community-Based Natural Resource Management to the NARA-Project, especially insofar as it may involve alternative !nara resource management, the criteria that are described below should be considered. In addition, one has to take into account that Namibia in general and the Topnaar community in particular, have to face three further general challenges: the sustainable use of natural resources in a highly unstable arid ecosystem, the economic development from subsistence to market economy, and the social change towards democracy and integration of all people into one nation after the era of colonialism and apartheid. Rural areas especially not only have to improve their standard of living and their job opportunities in order to compete with urban centres, they have to offer additional values to attract young people to come back and complete the functional rural unit.

Taking existing information on the Topnaars into account, we outline below how the application of the above theory may apply to the situation in the Lower Kuiseb Valley. This forms the background for the objectives as well as the details of our study (e.g. content of the questionnaires, see methods).

Sustainable²⁵ Environmental or Biophysical Development

- Promotion of general Kuiseb valley ecosystem research determining the terms of ecological equilibrium and to insure a sustainable resource use of local natural resources that are involved in the processes of harvesting, manufacturing and marketing of !nara, like the !nara plant itself, water, and firewood.
 - Investigation of all factors which could have an impact on the equilibrium of !nara plants, e.g., wild and domestic herbivores, increasing external extraction of groundwater from the Kuiseb, or the consequences of park regulations such as not allowing !nara plants to be burnt as part of their management, not allowing game or jackals to be hunted, etc.;

²⁵ Sustainable resource use occurs when the consumed resource will be replenished, that means when the rate of production is equal or greater than the rate of use, in: Jacobson, Kathryn M. (1997), p 56 f and Hahnsohm, D./Mupotola-Sibongo, M. (1998), p 11. In this baseline study no definite time horizon is considered to control sustainability. In general, sustainability refers to the time after the doubling of the human population.

- Determination of the !nara harvesting rate that is sustainable, i.e., investigation of the process of resource production;
- Promotion of more !nara research to optimise extensive agricultural techniques;
- Implementation of land rights or the exclusive right to use the local resources for own benefit. Implementation of family or individual ownership of !nara fields to induce accountability and responsibility for the quality and quantity of !nara yield (compared to corporate factory-style farming, the traditional family farm is generally far more environmentally friendly and benign);
- Implementation of a monitoring system that avoids over-harvesting of !nara and the overuse of other local resources, especially if the number of people in the area increase, or if the level of infrastructure is improved (transport, communication, housing, sanitation and disposal facilities).

Sustainable Social Development

The catalogue of criteria for sustainable social development cannot be formulated very precisely because social developments during the project are unpredictable. Therefore, social management requires extreme flexibility and a vast repertoire of diverse tools, ranging from fostering economically competitive individualism to social cohesion or form that rely on traditions concerning change and innovation, in order to react appropriately according to the specific situation²⁶.

- Stimulation of social integrity, social cohesion, cultural identity, social change:
 - Introduction of democratic rules (decentralised power, election of responsible persons), equal participation in processes of planning, implementing, monitoring and administering of community projects;
 - Implementation of control mechanisms against corruption and self-serving interests;
 - Implementation of cultural history in school education, e.g., in a museum located in the Kuiseb valley;
 - Support of the revival or conservation of traditional ceremonies, customs, etc.;
 - Valuing the social security of the extended family system and tribal community, rather than accelerating developments that serve only individual interests;
 - Establishment of judicial institutions for resolving communal conflicts, for protecting common property, and for strengthening customary law;
 - Development of an institutional framework to encompass the above.

- Stimulation of entrepreneurial spirit, accountability and responsibility for the outcome:
 - A sense of ownership of the development project by every community member;
 - Improvement of the prestigious value of !nara by information and by generation of income;
 - Implementation of family or individual ownership of !nara fields to induce accountability and responsibility for the quality and quantity of !nara yield and to prevent vandalism;
 - Gradual reduction of external control and dependency on consultancy during the course of the project;
 - Gradual reduction of external subsidies during the course of the project;
 - Training in appropriate skills;

²⁶ Maser, Chris (1997), p 86 ff.; Seralgeldin, I., Steer, A. et al. (1994), p 12.

- Program against alcohol abuse.
- Integration of marginalised communities in the general development of the nation:
 - Supplying the community with basic infrastructure like electricity, disposal of waste, sewerage, communication and transport facilities;
 - Integration of the rural periphery into Walvis Bay by improving access to services in the urban centres (health care, education, entertainment) in order to avoid permanent move to the centre, migration;
 - Support of social mobility.

Sustainable Economic Development

- The generation of sustainable appropriate income by the rural Topnaar community will represent an ongoing incentive for their business efforts with !nara products:
 - Achievement of notably increased income in the beginning, as well as long-term income security, enabling them to purchase manufactured food, education, improved infrastructure, as well as health and insurance services;
 - Diversification in terms of multiple products and marketing approaches in order to minimise a one-sided market dependence;
 - Use of the traditional extended family as a well-diversified production unit by involving all Topnaars, especially woman, in the !nara business process to secure the functioning of rural units in the long run;
 - Optimise material efficiency (added value in relation to resource input);
 - Adaptation of the !nara utilisation pattern to the seasonal, highly variable and risk-prone productivity, eventually by access to yield insurance;
 - Establishment of a supply-driven rather than a demand-driven resource management in order to keep control over the impact on the resource base and to prevent over-harvesting the !nara.
- Smoothing the way from subsistence economy to market economy²⁷
 - Preventing partial integration in market economy when the revenues for the sold local resources are not sufficient to replace the subsistence resources by purchased manufactured products;
 - Enabling the possibility of !nara self-consumption in case of low or highly fluctuating !nara market prices;
 - Introduction to cash saving and credit systems.
- Integration of the peripheral market into national or international economic circuits and balancing the dualistic structures by avoiding economic imperialism:
 - Establishment of self-owned, self-guided, self-reliant rural business instead of using the rural periphery as a reservoir of unqualified casual workers for urban centres;
 - Abolishment of tenure insecurities;
 - Introduce !nara business onto the current stage of economic development in the rural area by making use of local experts to facilitate !nara product improvement and using appropriate work-intensive and capital-extensive technology of harvesting, processing and marketing;

²⁷ Subsistence economy implies that farmers produce a substantial part of their own food requirements, but it does not preclude the production of a surplus for sale or barter. In contrast to a subsistence farmer, a communal farmer, who can also have access to land without being simply a wage-paid labourer, is normally more orientated to production for the market than for own consumption. The critical threshold between subsistence and market orientation may be seen where a household relies on the sale of its produce in order to purchase the greater part of its household's food and when the farmer changes his decision-making strategy from the need to ensure a minimal food supply to the desire to maximise cash income by sale of his agricultural products, in: Dickenson, J. P. et al (1983), p 97, 103).

- Establishment of an economic co-operation network between urban and rural areas.

1.2 Objective and Key questions

1.2.1 Objective

The general objective of this baseline study is to address the question:

- Will it benefit the Topnaar community in the long run to redesign and implement alternative management approaches of !nara harvesting and marketing?
or in other words:
- What is the current and future socio-economic value of the !nara, can it be improved on a sustainable basis by the Topnaars?

1.2.2 Key questions

According to the above-derived requirements of a Community-Based Natural Resource Management the following key questions are discussed during this study:

- Are there enough **biophysical and technical resources** for harvesting, processing and marketing the !nara available in the long run, without causing permanent land degradation in the lower Kuiseb valley and without preventing its ability to adjust to the conditions?
- Are there enough **human resources** like integrity, solidarity, cultural conscience, educational background and entrepreneurial spirit in the long run to design and implement a more efficient !nara management stimulating the development out of marginalisation without abandoning their extended family system abruptly and without disturbing their tribal identity and independence?
- Are there enough **financial resources** to sustain sufficient growth of the !nara market that will continue to provide the rural Topnaar community with appropriate predictable income in the long run, smooth the way for change from subsistence to market economy, reduce dualistic structures by integrating peripheral rural areas in national or international economic circuits and by avoiding economic imperialism?

2 METHODS

A broad spectrum of data of the former and current situation is required to address the question. Information and data were therefore assembled from different sources, including literature review, secondary data previously gathered by other people as well as obtaining primary data, fresh from the source.

2.1 Literature review

2.1.1 Literature about natural resource management, small scale markets in rural environments, and business capability of marginalised communities delivers the theoretical background and the criteria for an integrative and multidisciplinary approach towards the matter which is to be investigated.

2.1.2 Literature about the #Aonin (Topnaars, !Naranin), their origin and their culture, and about the !nara, its biology and its utilisation, gives an overview of the current stage of socio-economic research and makes it possible to describe our main study objectives in detail.

2.1.3 Literature about the economic situation in the Erongo Region of Namibia, the physical biological conditions of the lower Kuiseb valley and about the socio, legal and political circumstances of marginal communities in Namibia will contribute to describe the global environment of the study area.

2.2 Secondary data

2.2.1 Socio-economic data

General socio-economic data in Namibia are rare and incomplete before Independence. Namibia conducted its first population and housing census in 1991. For this, the 27 governmental districts were subdivided into smaller Enumeration Areas with an average population of 600-700 persons. As one of the Enumeration Areas covers the rural Topnaar population in the Kuiseb valley these data were used to supplement the primary data concerning demographic, household, education and employment aspects. Important sources of information to describe the living standard of the Topnaars in the lower Kuiseb valley included a socio-economic survey of household income and expenditure in the Erongo Region during 1993/94, the 1997 Consumer Price Index in Walvis Bay and elsewhere in Namibia, and data on the household subsistence levels of major centres in Namibia and South Africa [these sources should be referenced]

2.2.2 Biophysical data

Results of the annual livestock census by Veterinary Services, the water extraction scheme of the Kuiseb River by Namwater, and general data on climate, flora and fauna were collected to assess the affect of human activities and to make predictions on the future influence of people on the desert ecosystem if the !nara harvesting and marketing management system either continues on its current tangent or is adjusted in overcome current constraints.

2.3 Primary data

2.3.1 Socio economic survey of the rural Topnaar community by structured personal interviews

The main purpose of this survey is to determine whether the effort of redesigning and implementing natural management of the endemic !nara is worthwhile or not. Therefore it was necessary to obtain a comprehensive inventory (stock taking) of all situational factors that determine the current livelihood and the development capacity of the rural Topnaars. As the socio-economic survey forms the focal point of this study, the research design will be described in more detail.

2.3.1.1 Research design

A quantitative descriptive research design in the form of a single cross-sectional survey was chosen to meet these requirements. The target population consists of rural members of the Topnaar tribe living along the Kuiseb River in the Namib Desert. Generally the Participative Rural Appraisal (PRA) would be the more appropriate method to generate information for a future community-based development programme. But in this case a conventionally structured interview was applied because: 1) the number of target people we found in their settlements during our short field trip was not sufficient for a PRA, and 2) personal and possibly sensitive information was requested that may not be revealed during group meetings.

2.3.1.2 Sampling

The main target population is formed by persons whose origin is Topnaar and who are permanent members of a Topnaar households settled in one of the seven villages²⁸ situated along the Kuiseb between Soutrivier and Armstraat (Fig. 2). The settlements east of Soutrivier were excluded because the majority of the inhabitants are not involved in !nara harvesting, both because of the larger distance to the !nara fields and because of job opportunities offered by the Gobabeb Training and Research Centre. The group of permanent household members includes all persons who permanently stay in the rural settlements and rely on the common household budget. Although schoolchildren stay in hostels for most of the time, they are included in the rural households, due to their financial dependence. Table 1 shows the composition of the target population: 205 people, 106 adult and 109 children live permanently in Topnaar households of the settlements Soutrivier to Armstraat. Among them there are 40 professional harvesters, organised in 25 harvesting teams, comprising 1 to 3 members.

place	permanent residents			professional harvesting				occasional harvesters
	total	adult	childr (0-14) ²⁹	total	adult	young (12-25)	teams	total
Soutrivier	22	11	11	3	3	0	2	19
Klipneus	18	6	12	3	3	0	2	15
Swartbank	37	15	22	6	6	0	4	31
Ituseb	31	15	16	3	3	0	2	28
Ururas	34	15	19	6	6	0	4	28
Dawe/Goât	30	20	10	10	10	0	6	20
Armstraat	43	24	19	9	8	1	5	34
total	215	106	109	40	39	1	25	175

²⁸ As there were few residents at the neighbouring settlements of Dawedraais and Goâtanab, these were regarded as one settlement.

²⁹ National Planning Commission (1991), p xxxii.

Table 1: Target population of the Topnaar community in the Lower Kuiseb Valley between Soutrivier and Armstraat
Source: Questionnaires to Topnaars

To elucidate the attitudes of different generations towards the current and future socio-economic value of !nara, the target population was subdivided into two further groups. The first group consists of adults older than 25 years, the second is formed by young people between the age of 12 and 25 years, who are not married and without children, and are still somewhat uncommitted in their eventual course of life. Each settlement along the Kuiseb was regarded as a cluster, except Dawe-draais and Goâtanab, which together formed one cluster. Ideally, four elements should be drawn randomly from each cluster. In practice this was meant to be the first person encountered who fulfilled certain sample requirements. An ideal sample of a cluster would then consist of four Topnaars: two young persons, one female and one male, and two adults, one female and one male. The total sample size would thus be 28 persons from the 7 elements. Despite the fieldtrip falling into the holidays around Christmas 1998, when people were at home, the planned sample could not be met. In order to balance at least the number of females, males, adults and young persons the area was visited again in January 1999. The individuals consented to be named in relation to the current study (see Appendix A).

Category →														
Settlement	professional harvesters	casual harvesters	not harvesting	adult	young	male	female	adult male	adult female	young male	young female	adult harvester	young harvester	total
Soutrivier	1	2	2	3	2	2	3	1	2	1	1	1	0	5
Klipneus	3	1	0	2	2	2	2	0	2	2	0	2	1	4
Swartbank	2	0	1	2	1	1	2	1	1	0	1	2	0	3
Ituseb	2	1	1	3	1	2	2	2	1	0	1	2	0	4
Ururas	2	0	1	2	1	2	1	2	0	0	1	2	0	3
Dawedr/Goâtanab	3	0	1	3	1	2	2	2	1	0	1	3	0	4
Armstraat	5	0	1	3	3	4	2	2	1	2	1	3	2	6
Total	18	4	7	18	11	15	14	10	8	5	6	15	3	29

Table 2: Random sample of the Topnaar community
Source: Questionnaires to Topnaars

2.3.1.3 Data collection

Data were collected by a structured questionnaire during personal house-to-house interviews. This approach enabled the interviewer to ask and discuss complex questions and answers that were translated to and fro between Nama and English. The personal approach enabled possible inconsistencies to be cross-checked, and facilitated continued motivation by the respondent during the 90 minutes that it took to make an

interview. Answers were immediately translated from Nama into English. The questionnaire (Appendix B) reflects the structure of the whole study and covers nearly all aspects that characterise the task environment of a !nara supplier. The interview with the younger sub-population differs in some aspects in relation to household and family planning. In the case of young Topnaars without any harvesting experience, it was thus found better to omit the part referring to harvesting and marketing !nara. Both open and fully standardised questions, e.g. open-ended³⁰, multiple-choice or dichotomous questions were posed in such a way as to help the respondent articulate precisely, remembering facts and overcoming inhibitions. The questionnaire was pre-tested in the cluster Soutrivier and then mainly applied during the school holiday in the week between the 13th and 18th December 1998.

2.3.1.4 Scaling and Measurement

The research design was descriptive, and most data were non-metrically scaled. Only some interval data were collected dealing with harvest volume, monthly income, sale price of !nara and work input. Ordinal data were obtained by a comparative scaling technique, a rank order scaling. The respondent was asked to select three alternatives and rank them with respect to some criterion. Nominal data were usually developed by dichotomous questions. In preparation of data analysis, all structured questions with categorical answers were assigned numerical codes before field work. Open-ended questions were coded after the whole spectrum of answers was available.

In this report, the harvesting seasons and their yield that are given for a specific year, are the products of all fruit collected by the Topnaars during a particular season between January and April, and the resulting sales refer to the months that followed. Citations of personal interviews normally refer to the period December 1998 and January 1999 unless stated otherwise.

2.3.2 Market analysis based on unstructured personal interviews with primary wholesalers of !nara in Walvis Bay

Among literature dealing with Topnaars and their traditional utilisation of !nara, marketing of !nara was often mentioned but no real in-depth analysis of its origin and its current structure was ever undertaken. As initially only one main market participant, a wholesaler in Walvis Bay was known, this single information source was essential for exploring to deepen this study and explore other market-related aspects and its participants. For this qualitative research, a detailed unstructured questionnaire (Appendix C) was set up to elaborate the supply and demand side, and the entire marketing mix, including price, product, communication and distribution policies. In order to obtain the amount of annually purchased !nara seeds as a reference to the available harvest volume, all market intermediates were targeted with questionnaires. Altogether three primary wholesalers, Flamingo Furnishers, Yon and Schweickhardt were discovered in Walvis Bay. Only two of them agreed to participate in a personal interview. Interviews were conducted in November 1998 with Mr. Yon and three informants of Flamingo Furnishers, Mr. John Webster (former owner), Mrs. Brits (present owner) and Mrs. Owens (chief accountant).

³⁰ Structured, open ended questions offer the respondent a set of preselected response alternatives. The alternative "other" still enables him to choose answers that were not mentioned.

2.3.3 !Nara market analysis through structured fax mail interviews with current !nara retailers and secondary wholesalers in Walvis Bay, Lüderitz and Cape Town

Placed at the end of the marketing channel, the group of !nara retailers and primary wholesalers provide a very valuable information source for describing the consumers' behaviour, estimating the current and the future demand potential and completing the records of the annually marketed volume of !nara seeds. Altogether five well-established wholesalers in Cape Town, three recently established private sellers and wholesalers in Lüderitz, one retailer in Narraville and one in Swakopmund were found. Due to time and financial constraints, fax mail was used to conduct research with fully structured and pre-coded questionnaires during February 1999 (Appendix D). The questionnaire includes a detailed description of the projects' purpose. Its main subjects, !nara and Topnaars, were previously announced by telephone. Completed questionnaires were received by four wholesalers of Cape Town (Abrahamse & Sons, Atlas Trading, Gheewala & Sons, van Wyk), by one wholesaler in Lüderitz (Martins & Sons). Incomplete answers were sent by one private seller from Lüderitz (Sneuve) and one retailer from Swakopmund (Granny's). Three of the identified !nara wholesalers/retailers did not respond.

2.3.4 !Nara market potential analysis by structured fax mail interviews with potential future !nara retailers in Swakopmund

After having exhausted all sources describing the characteristic of the current !nara market, the potential for further local market development was explored by a fax-mailed, fully structured pre-coded questionnaire (Appendix E). Data about the respondents' interest in co-operating with the Topnaars and their skill in developing and marketing !nara products were collected. The target population consists of retailers located in Walvis Bay and Swakopmund, belonging either to the branches of pharmacies/cosmetics, crafts, or delicatessen, and offering a specialised assortment of self-made, indigenous and natural, eco-orientated products. As we only intended to initially explore ideas on how to design and implement new marketing structures, we selected only a non-random sample of six retailers in Swakopmund. The questionnaires were introduced by a project description handed out personally during a visit in Swakopmund and Walvis Bay on the 4th of February 1999. Completed questionnaires were sent back by four possible retailers, the delicatessen shop 'Baumgart', coffee shop 'Out of Africa', craft shop of 'Save the Rhino Trust', and a pharmacy that did not wish to be named.

3 Results and Discussion

3.1 Task environment of the !nara market and of the !nara supplier

The very first step to enable improvements to be made in future !nara resource management, is a precise inventory of all aspects which help to understand how former and especially the current indigenous system is functioning. The following collection of data, mainly gleaned from a previous socio-economic survey and market analysis, should illustrate the development and the actual state of all resources that are required for successful !nara management. The results should clarify whether intervention in the current system will reduce marginalisation, and transform the traditional lifestyle, and the harvest and trade pattern, in such as a way as to fit into the modern context.

3.1.1 Availability of biophysical and technical resources

Biophysical and technical resources comprise all materials and facilities that form the input for the whole supply process of the !nara business, including harvesting, manufacturing and marketing. Biophysical resources consist of all biotic and abiotic items which enter the process as raw or auxiliary material. Technical resources consists of equipment for harvesting and processing and general infrastructure like transport, communication, electricity and waste disposal. The reason for taking all these aspects into account is to avoid endangering the carrying capacity of any of the input resources when the !nara business is stimulated.

3.1.1.1 Current and potential !nara harvest volume

The yearly, or rather, seasonal harvest volume of the !nara fruits and it's variability are one of the most important parameters in the discussion of improving the !nara resource management. Sufficient harvest volume, that makes the manufacturing profitable and the supply reliable in quantity, quality, time and place, are the major criteria which attract business people to enter the !nara market. Because the lack of data about the approximate harvest volume has previously precipitated the end of negotiations, and as the fear of a possible decline of !nara productivity is currently growing, all available information was collected to get an idea of the development of the harvest volume how it was and is still developing.

a. Literature review: general data about former harvest and sales volumes

year	volume of !nara seeds (kg)	volume of !nara seeds (bags)	data source	remarks
1883	5 000		J.A. Böhm	sales volume for Cape Town
1890	15 000		M. Viehe	sales volume for Cape Town
1900	10 000		Dinter	sales volume for Cape Town
1954	20 000		R.F. Logan	
1957		55	J.A. Böhm	harvest volume of Topnaars
1957		44	O. Köhler	harvest volume of Topnaars
1969			W. Moritz	volume not specified
1970	11 000		W. Moritz	sales volume of Flamingo Furnishers
1974	5 000		U.Dentlinger/K.F.R. Budack	sales volume of Flamingo Furnishers
1975	24 212 12 000	269	K.F.R. Budack	sales volume of Topnaars sales volume of Flamingo Furnishers

Table 3: Sales volume of !nara seeds in the past

Sources: Moritz, W. (1992), p 9, p 30 ff; Logan R.F. (1969), p 166; Köhler, O. (1969), p 122; Budack, K.F.R. (1977), p 10, Dentlinger, U. (1977), p 18ff.

Changing currencies and units of weight and volume measurements to which various authors refer make a comparison and interpretation of these data difficult. There are even contradicting statements how many kilograms a bag contains. Moritz (1992), Dentlinger (1977) and the more recent study of Grasveld (1992) mentioned 35 to 40 kg per bag. However, according to Budack (1977) a bag contains 80 to 100 kg, and during our study 50 kg were always noted. The discrepancy between 35/40 and 50 kg could be due to the second-hand 50-kg-bags from a malt brewery, normally not being filled to capacity with !nara. For further calculations, the weight of one bag mentioned by the Topnaars will be considered to have an average mass of 37.5 kg. Summarising the literature data, the sales volume to the Cape ranges between 5 000 and 12 000 kg³¹ !nara seeds per season. Although Köhler (1957) obtained the information by conducting a comprehensive questionnaire in all Topnaar villages, 44 bags per season seem to be very little. More realistic data about the total sale volume in the 70's were found by Budack in 1975 during a comprehensive survey of all !nara dealers in Walvis Bay. The part of 12 000 kg, he mentioned as a sale volume for Flamingo Furnishers, corresponds to the statements of John Webster, former owner of Flamingo Furnishers. Budack's results furthermore indicate that the total !nara sales volume of 24 212 kg and that in those times Flamingo Furnishers shouldered about half of the sales volume. This puts a different perspective on the figures for the trade volume during the 80's and the early 90's, when data were available only from Flamingo Furnishers (see below).

b. Average harvest volume, sale volume and volume of self-consumption estimated from primary data obtained in our personal interviews with Topnaars in 1998/1999.

A random sample of 18 Topnaar harvesters living in one of the seven settlements between Gobabeb and Walvis Bay (see 2.3.4.2) delivered a minimum of 21.1 bags and a maximum of 35.7 per harvesting team³² and season. A similar investigation of Shilomboleni (1998) conducted with 12 informants mainly from Klipneus in a non-random sample during September 1998 found a harvest volume between 12.9 and 49.4 bags. As discussed above, a bag of seeds contains 37.5 kg and finally the average minimum and maximum harvest volume amounts to 792 to 1339 kg with an average minimum and maximum volume of 47 to 81 kg seeds for self-consumption per family. While the absolute yield of different harvesting teams is highly variable between 131 to 4500 kg per team, the part for self consumption seems to be independent of the total yield and deviates less from the mean minimum and maximum values. In estimating the total volume of harvest, sale and self-consumption for the whole rural Topnaar community, the average individual data refer to all 25 harvesting teams that were identified in the target population (Figure 3).

Figure 3: Average minimum and maximum seasonal total harvest volume of !nara seeds in the rural Topnaar community

Source: Personal interviews with Topnaar harvesters.

³¹ This is based on the assumption that more or less the whole sales volume of Flamingo Furnishers went to Cape Town.

³² According to chapter 2.3.4.2, a harvesting team consists of 1-3 harvesters.

A further result of the questionnaire reveals that the average minimum and maximum yield that the Topnaars can remember is not very reliable. The following figure shows that the yield of the 1998 season preceding this study was less than the overall minimum estimated by them.

Figure 4: Comparison of the average minimum and maximum seasonal total harvest volume with the actual total harvest volume in the season 1998.

Source: Personal interviews with Topnaar harvesters.

This discrepancy was probably caused by nine of the 18 interviewed regular harvesters, who did not go into the field at all during the season of 1998. Most of them did not give a reason for not harvesting, some were ill or had private problems. Nearly all of those who did harvest obtained less than their normal average minimum, barely enough to cover their own needs (Fig. 5), although the productivity of that season was apparently not extremely bad. Of the whole random sample of 29 informants, 7 described the season of 1998 as a good one, 6 as a bad one and 16 could not remember that particular year (perhaps indicating that it was not notably good nor bad).

Figure 5: Discrepancy between the average individual yield and the individual yield in season 1998 (missing co-ordinates stand for no answer)

Source: Personal interviews in Dec 1998 and Jan 1999

Concerning the general development of the !nara productivity, 66% of the 29 Topnaars and 83% of the 18 regular harvesters that were interviewed, stated that besides periodic ups and downs, the general trend was that of a decline (Fig. 6). Interesting is the fact that the only two regular harvesters, the teams of Piet Bees and Salmon Khurisab, belonging to the most professional harvesters, mentioned that the general productivity is stable. By contrast, the common opinion stated by Rudolf Dausab, coordinator of the Topnaar Community Foundation, is that there was a decrease in the !nara productivity by more than a third during the last 10 to 20 years, even when taking the reduction in !nara field size into account³³.

Figure 6: Opinion of the Topnaars concerning !nara productivity

Source: Personal Interview with Topnaars

c. Primary data by fax-mailed questionnaires to primary and secondary wholesalers of !nara seeds: figures about trade volumes.

As the Topnaar harvester could not deliver precise data about their harvest volume, information on the sales volume of the main intermediates in the !nara market were used to get independent information on trends in !nara productivity (Fig. 7). We found no records of that part of the total sales volume that is sold directly by the Topnaars to consumers in the suburbs of Walvis Bay. By contrast, there were comparatively good records for the part that is indirectly marketed via market intermediates. Two kinds of

³³ Dausab, R. cited in: Titus, Z. (1998), p 11.

data sources were available: one kind obtained from 2 out of the 3 primary wholesalers that we identified, namely Flamingo Furnishers and Yon in Walvis Bay; a second kind obtained from 5 out of 6 secondary wholesalers that we identified in Cape Town and Lüderitz. The trendline of sales volume by primary wholesalers is mainly derived from the data of Flamingo Furnishers, who has been the only permanent dealer in the highly fluctuating !nara market around Walvis Bay since 1946, with an estimated market share of 50 to 80%. According to John Webster, former owner of Flamingo Furnishers, the average trade volume per season was 10 to 12 metric tons during the 70's and 80's. He noted two exceptions, in 1985, when the Topnaars did not supply !nara because the sales price was too low, and in 1987, when under-supply by the Topnaars resulted in prices being raised and the Topnaars sold their temporarily stored stocks and Flamingo Furnishers were overstocked. Since Namibian Independence, detailed records were available and they show a decreasing trendline towards a sales volume of some 6 metric tons in 1997³⁴. Normally, the average sales volume of all primary wholesalers should more or less match the average purchase volume of all secondary wholesalers, presented by the second trendline in figure 7. This trendline is derived from the total purchase volume of five secondary wholesalers, exclusively supplied by Flamingo Furnishers in the time of the 60's to the 80's. The high discrepancy between the average of about 2 tons total purchase volume and 10 tons sales volume can only be explained by the incomplete data records and probably large amounts of !nara seeds, which Flamingo Furnishers sold to other market members in the past. Only in the 90's the data appear to match, as the trendlines approach each other.

Figure 7: Trade volume of !nara seeds between primary wholesalers in Walvis Bay and secondary wholesalers in Cape Town and Lüderitz

Source: Personal and fax-mailed interviews with wholesalers

When comparing all results, the harvest volume estimated by the Topnaars seem to be realistic for the past in the 50's up to the 70's. As Budack mentioned a sale volume of 24212 kg in 1975 (Table 3), and assuming that the sales volume is around 93.6% of the whole harvest volume (see methods), the total of 25892 kg lies between the average minimum and maximum given by the Topnaars (Fig. 3). In summary, in the past the average !nara yield ranged around a mean of 26600 kg, its sale volume around 24900 kg – of which some 50%, 11000 to 12000 kg, were sold to Flamingo Furnishers – and the 6,4% of the volume consumed by the Topnaars themselves was around 1598 kg.

The situation changed in the 90's. The sales volume of Flamingo Furnishers decreased to 5000 kg in 1997 and 7200 kg in 1998, and from the statements of the Topnaars, a harvest volume of only 15130 kg is estimated for the season of 1998 (Fig. 4). If the relative proportions of harvest, sales and self consumption continued to apply in the 90's (Fig. 3), we note that the trade volume of Flamingo Furnishers, generally about half of the total !nara sales volume, corresponds well to the total sales volume of 14154 kg (93,6% of 15130 kg) in 1998, estimated from our interviews with the Topnaars. Although it was reported that the harvesting activity was reduced by about half in this particular year (1998) compared to the previous years (see above), the total harvest volume of 15130 kg in 1998 may actually be representative for the late 90's. This

³⁴ The sale volume of Mr. Yon was not considered, as he started the !Nara business only in 1996 with a low amount of about 550 kg per season.

confirms that there appears to be a decline in the current total harvest of about one-third compared to earlier times.

A decline of the !nara yield in the last decade cannot be neglected. According to Dausab, there may be several underlying reasons. As was the case in 1985 (see above), one reason for the decrease could be the declining interest in !nara business, caused by missing market incentives for the harvesters. A possible further indication of this could be the fact that Gheewala & Sons, a Cape Town wholesaler with a trade volume generally in the order of 228 kg/year, was suddenly, in January 1999, supplied with the enormous amount of 8000 kg seeds, shortly after the interviews and the announcement of future workshops about !nara marketing were carried through in December 1998. Probably the prospect of higher revenues from !nara business will step up the yield by harvesting !nara more regularly in the already used fields and by including such fields in the !nara business, like some patches south of Wortel (Fig. 2), and several other fields in remote parts extending across the dune field, such as Tsondab Vlei, Tsondab Flats, Sossusvlei and Sandwich Bay, that are still difficult to access.

Nevertheless, the decrease of yield will not be caused only by a decrease of harvesting activity. The decline of the !nara productivity perceived by the rural Topnaars also needs to be taken into account. That there appears to be a severe impact of biotic, abiotic and anthropogenic factors, like the decline of the subterranean water of the Kuiseb, its floods, the heavy browsing of domestic and wild animals and the loss of traditional harvesting patterns was already noted by Shilomboleni³⁵ and also emerged as dominant factors stated by the Topnaars in the 1997 workshop³⁶. For example, the communal sharing of the harvesting rights appears to have created conflicts between the professional harvesters and the occasional harvesters, as none are assured of access to adequate ripe fruits. Consequently, some fruit are harvested prematurely by non-traditional means (e.g. tearing fruit off with metal hooks thereby damaging the plant, instead of knocking them off with wooden sticks without causing damage), and yield low-quality seeds that are poorly rated by the traders.

Not only those effects need to be quantified precisely, but the long-term seasonal productivity of individual !nara plants and the productivity patterns of entire !nara fields need to be quantified over the course of years. Furthermore, all accessible !nara fields near the Kuiseb need to be mapping and described in order to provide reliable figures of the potential !nara harvest volume in the future.

3.1.2 Availability of human resources

Human resources in a manufacturing and business process comprise physical (manpower, health, age), social (cultural background, education, integrity) and psychological (motivation, interest, identification, accountability) qualities of people. Transferred to the situation of the !nara resource management, four points are of interest: first, whether the small rural Topnaar community can provide enough manpower; second, whether the Topnaars show enough entrepreneurial spirit to facilitate the business development process on their own; third, whether the socio-economic importance of the !nara is able to recruit the younger generation; fourth, whether the tribal integrity is stronger than self-serving interests to build up a joint enterprise. The following inventory emphasises current **weak points** and makes projections for the conditions of human resources in the future.

³⁵ In a qualitative research sample, Shilomboleni confirmed the existence of several biotic, abiotic and anthropogenic impacts. Shilomboleni, A. (1998), p 10 ff.

³⁶ Breuninger B & Henschel JR. 1997.

3.1.2.1 Manpower

Professional !nara harvesting requires a group of two or three strong, healthy, dedicated people who are able to endure the strain of collecting !nara fruits through hot temperatures, long distance walks and several months of 12-hour workdays in the !nara fields away from the home settlement. During the fieldwork in the Kuiseb Delta, it is quite obvious that the fraction of young or middle-aged men was quite low. As the younger Topnaars try to make their living by other means than farming and harvesting, the traditional family system of labour distribution becomes dysfunctional. Women either accompanying their husbands into the field or process the !nara fruits into juice, cake and seeds at home, and temporarily suspend their normal household tasks. It is thus not surprising that in a few cases, harvesters, like Reuben Skrywer, complain that they have to stay at home, because nobody is available for joining them in the fields:

"Now when I come down to the !nara fields there is no one around to help. I long for the past when there were many people coming to the delta. We helped each other in the harvesting process and by sharing food. These days, I am so lonely, I cannot even work."³⁷.

The following evaluation gives an idea of how many harvesters are needed to manage the harvest volume, how many Topnaars were recently involved in the !nara business, and what the availability of manpower is now and should be in the future. We focus on the harvesting activities only. At the same time we realise that processing harvested fruit and bringing it to the wholesalers also takes much effort and time, but this was not quantified in this study. A further, detailed study, needs to take processing into account, so as to complete the design for improved !nara business.

a. Required and actual manpower for the annual harvesting of !nara

The average man-hours needed for the harvesting and processing of 1 kg dried !nara seeds was determined from the responses of 18 professional harvesters, a random sample out of the target population of all 40 harvesters living in the eight settlements of the lower Kuiseb valley. According to the interviews, on average, a group of 2.64 harvesters needs 2.61 days in better seasons, in worse seasons 5.16 days, to fill a bag with 37.5 kg of !nara seeds. On average, a harvester spends 11.24 hours a day, 5.41 days a week and about 4 months a year harvesting and processing !nara. 83 % of the harvesters are pastoralists, spending some days per month in town or in their homesteads, while the rest live close to the fields and return home every day.

	harvesters/ team	hours/day	days/week	weeks/ year	days/bag (good season) (bag = 37,5 kg)	days/bag (bad season) (bag = 37,5 kg)
mean	2.64	11.24	5.41	17.24	2.61	5.14
median	2.50	10.15	5.41	16.13	1.00	3.00
standard deviation	0.71	3.30	0.98	11.14	2.48	4.70

Table 4: Work input in harvesting !nara

Source: Personal interviews with Topnaars

The average input of man hours per kg !nara seeds (mh/kg) then amounts to:
 2.07 mh/kg in good seasons
 4.07 mh/kg in bad seasons

³⁷ Botelle A & Kowalski K. 1994, p 7.

The *man hours (mh)* required for the whole seasonal harvest volume, ranging from a minimum of 19812.50 kg to a maximum of 33468.75 kg (see 3.2.1.1, Fig. 4), is then calculated to be 69112.97 mh in good seasons and 80577.44 in bad seasons³⁸. Although double the amount of time is needed to produce one kg of seeds in bad years, the harvesters are still prepared to invest an additional 11000 hours of work annually in order to compensate for at least a part of the bad yield.

The *number of harvesters* required was calculated by using a more lenient 10 hours of work per day and 5 workdays per week over 4 months (instead of the more demanding 11.24 hours for 5.41 workdays per week that the Topnaars actually reported, see Table 4). Accordingly, we calculate that for 69112.97 mh in good seasons and 80577.44 in bad seasons, respectively 80.36 and 93.70 harvesters are required. When taking the actually reported daily work hours and weekly workdays into account, the number of harvesters required is between 66.08 and 77.18.

The calculated number of required harvesters seems to be quite high, considering that the *actual number* of all professional harvesters reported by the Topnaars is only 40, or 18.6% of the whole rural population of 215 Topnaars (37.7 % of the adult Topnaars, older than 14 years) that were counted from all reports we received during our field trip in 1998/99. Including the settlements Homeb, Oswater, Natab-1, Natab-2, Gobabeb, and possibly Mile 4 and 7 south of Walvis Bay, the whole rural Topnaar community comprises about 270 to 330 members³⁹. Few harvesters are resident in the settlements east of Soutrivier⁴⁰, so that we estimate that the proportion of the population that are harvesters is about 15% (about 30% of the adults). There may be several explanations for the huge discrepancy between the theoretically required number and the actual number of professional harvesters. First, there are an additional 175 occasional harvesters, whose efforts cannot be quantified as they vary so much. Second, the harvest volume could be overestimated by the professional Topnaars themselves and the figures they gave us may actually represent what they remember from the conditions of 20 to 30 years ago⁴¹. Using the harvest volume of 1998 with 15130,00 kg - keeping in mind that 50% of the available professional harvesters did not go to the field – the calculated labour decreases to 46449,10 mh, which would require 54.01 harvesters, or 18% of the rural Topnaar community, per season.

b. Availability of manpower now and in future

To meet the objective of the NARA-project to stimulate the harvest and market volume of the !nara seeds, the current number of professional harvesters is too small. How the

³⁸ The total of manpower hours in a good season was calculated by using the factor of 2.06 mh/kg, the total of manpower hours in a bad season was calculated by using the factor of 4.06 mh/kg. No mean value was calculated because of the high variability of !nara yield.

³⁹ In recent literature the rural Topnaar population is estimated from 300 to maximum 650 members [(Jones, B. (1992), p 1; !Gonteb, O. (1995), p 30; van den Eynden, F. et al (1992), p 6; Bruce, G. (1998), p 3)]. The Namibian census, conducted in 1991, delivers a number of 332 for the Enumeration Area 25-99001 [National Planning Commission (1991), p xxxiii.], which corresponds to the Topnaar living area in the lower Kusieb valley. The urban Topnaar population, which lives mainly in the suburbs of Walvis Bay are not included further in the calculation. For 1975, Budack (1977) reported that the urban and rural Topnaar populations were nearly of the same size as we found in our study. No data are available about the current size of the urban Topnaar community.

⁴⁰ See 3.4.2: In the settlements east of Soutrivier, nearly nobody except Piet Bees is harvesting regularly, so that the number of harvesters living in the settlements northwest of Gobabeb is more or less representative for the whole rural Topnaar community.

⁴¹ See 3.2.1.1 c: As the stated minimum and maximum harvest volume reflects more the harvesting conditions of the 50's to the 70's, the volume of 1998 may represent the situation in the 90's. As 1998 was described as a year with an average yield (s. 3.2.1.1 b) the mean of 3.07 mh/kg was used for calculating the manpower hours required.

number of available harvesters will develop in the future depends on several demographic factors, like age and disability of the harvesting community, and growth and migration rate of the whole rural Topnaar community.

The median age of the interviewed 18 harvesters is 42 years. Considering that the life expectancy of Namibians is less than 59 years⁴², the median value of an optimal age distribution should lie around 30. Only 4 (22%) of the 18 harvesters were younger than 30, which, if extrapolated to all 40 current harvesters, would translate to 9 people younger than the optimal median. The high risk of disability through old age, accompanied by the high risk of illness, typical for marginalised areas with limited access to urban health care centres, could lead to a sudden loss of one harvester and could result in the whole harvesting team becoming dysfunctional. In 1998, two of the 18 interviewed harvesters stayed at home due to illness, and one because of the lack of team partners. The unavailability of partners is a frequent reason given for reduced harvesting activity, as was clearly pointed out during the second NARA workshop in July 1999⁴³.

Figure 8: Harvesting activity in the season 1998

Source: Personal interviews with Topnaar harvesters

The potential of future harvesters will depend on the availability and readiness of young Topnaars to continue the harvesting tradition of their elders. In 1991 the population and housing census determined a natural growth rate of 2.4% for whole Namibia and 2.62 % for its rural areas. As currently a total rate of about 3% is estimated, the actual growth of the rural Topnaar populations probably lies above a rate of 3 %, although it tends to be lower than the average growth rate of total rural Namibia, when comparing the different age groups in the following diagram (Fig. 9).

Figure 9: Age groups of Topnaars in comparison to age groups of all Namibians

Source: National Planning Commission (1991), p xxxii.

The net growth of the harvesting Topnaar population will be much less, both due to increasing migration to the nearby centre of Walvis Bay – which shows a sharp upward trend of general immigration from 2.8% in 1992 to nearly 8.0% in 1999 – as well as the increasing social migration from employment in rural areas towards employment in industrial or services sectors.

During our fieldtrip in 1998/99, 72.73% of the young Topnaars (n= 11, 12-25 years old) and 27.27 % of the adult Topnaars (n= 18, older than 25 years) expressed that they would prefer living in an urban centre. Most of the younger respondents described the rural life as boring and complained about the lack of jobs and of facilities like electricity, shops, bars, parks etc. The major reason for the adult generation to stay in the Kuiseb valley was their bond to their ancestral home.

The younger generations wish for social change (Fig. 10). We asked the adult and young sample groups, which occupation they prefer for themselves and their children,

⁴² Hansohm, D./Mupotola-Sibongo, M. (1998), p 1.

⁴³ Iwanek, S. (1999), p 11.

and could cover the development during three successive generations. There is a hoped-for movement from agricultural work (including !nara harvesting), currently done by the older generation, to services, preferred by/for the next generation, to higher education by/for the third generation.

Figure 10: Which occupation do you prefer and which occupation do you prefer for your children?

Source: Personal interviews with Topnaars

But in spite of the evidence of these trends of leaving the traditional harvester's life, there are also slight indications of movements back from town to the Kuiseb. Young and old people are starting to recognise the advantages which agricultural work could offer, e.g. nature, space, independence and self-determination. "In town there are too many people"⁴⁴, stated the 19 year old Max Swartbooi. Hermann Areseb, who quitted his job as a mechanic in town, explained: "Walvis Bay is about being hungry and spending money. I prefer life along the Kuiseb. Here you can save money, milk is free and you can eat !nara."⁴⁵ An investigation in 1996 of Topnaar households that were relocated from Mile 4 south of Walvis Bay to the suburb of Kuisebmond by the South African Government in 1986, reveals a similar attitude: 6 of the 33 relocated Topnaars who were interviewed preferred to be resettled to the Kuiseb valley.⁴⁶ Their living conditions have not improved in town, but have partly become worse. In the survey, the urban Topnaars were described as being subject to malnutrition, deficiency of personal and environmental hygiene, high rates of tuberculosis, lack of education, lack of skills and lack of interest in obtaining a job.

The lack of interest in employment does not mean that Topnaars in general are economically inactive, as is indicated by the relatively low proportion of rural Topnaars that are not economically active (compared to the national rural population). In spite of a high unemployment rate, it seems that it is !nara that enables the Topnaars to show nearly twice the economic activity as the average rural Namibian (Fig. 11).

Figure 11: Demographic data of Topnaars in comparison to the Namibian total

Source: National Planning Commission (1991), p xxxii.

The résumé of all data that we found enables us to make several recommendations to improve the availability of manpower during the harvesting season.

The efficiency of harvesting with 2.07 to 4.07 man hours/kg seems to be too low. A precise investigation of current harvesting techniques may offer possibilities for improvements in terms of how to reduce the most time-consuming processes. For instance, the long distances between the plants probably could be managed by founding a co-operative of many harvesters, working separately in defined small areas, and by co-ordinating transportation.

The existing group of professional harvesters, comprising 40 members with an average age of 42, is too small with too few young members. Although a growth rate of more than 3% for the rural population is forecast, the majority of the next generation intends

⁴⁴ Personal interviews with Topnaars in Dec./ Jan. 1998/99.

⁴⁵ Visser, Magarethe (1998), p 66 f.

⁴⁶ Municipality of Walvis Bay (1997), p 18 ff.

to migrate geographically and socially. The ability to recruit enough manpower in future, by attracting the young to stay, by soliciting the urban Topnaars to return to the Kuiseb, and by stimulating economically inactive rural Topnaars to take up work in the !nara field again, would require several improvements in terms of:

- Better transportation and communication facilities could help single harvesters to join or found a functional team and would enable the younger Topnaars to enjoy some of the benefits of urban life without completely leaving the Kuiseb.
- Overall a better marketing of the restricted !nara harvest volume has to be introduced. Higher revenues will be one of the most important factors that could mobilise potential harvesters as well as motivating the current harvesters towards more performance.
- Continuous income needs to be assured in the off-season, when the !nara harvesting and immediate processing has been completed. The processing of !nara by cooking the fruit flesh, drying the seeds and preparing the !nara cake, has to be done immediately after the fruit are collected. However, !nara seeds store well for at least 12 months⁴⁷, and this makes it possible to defer further "value addition" to the off-season. There is thus the potential for products like oil, cosmetics, liquors, and even handcraft for individual packaging to be made and marketed throughout the year to enable income to become continuous.
- Additionally, in the long run, the supply of water, shopping possibilities, electricity, and easier access to health care will further diminish the gap between rural and urban infrastructure and will facilitate the self-controlled business approach towards !nara marketing. This requirement, is, however not unique to the Lower Kuiseb Valley and needs to be addressed at higher levels (local, regional or national government). Implementation of such infrastructure is currently largely beyond the control of the rural Topnaars and alternative !nara resource management patterns can be put into operation before this ultimate upgrading is put into effect. However, steps are already being made in this direction, e.g. the planning of a water committee.

3.1.2 Business ability and entrepreneurial spirit of the Topnaars

For !nara marketing to qualify to become a successful business enterprise, business skills, like market knowledge, ability to plan and make calculations, as well as entrepreneurial spirit, like the ability to take risks, to be innovative, and motivated, are indispensable. Like any other rural community in the past, the evolution of the Topnaars' entrepreneurial spirit has its roots at the level of subsistence farming. The early inducement of more developed western techniques and consumption patterns stifled the natural development before it could reach an advanced stage of market-oriented farming. In the current context, this level of communal farming is not any more able to provide self-sustenance, but is endangered by impoverishment and social marginalisation. Although the inevitable change towards modern lifestyles has raised expectations of the marginalised community and resulted in the development of new skills, the attitude towards work and the development of strategies towards market-economy has not kept pace with changing expectations. There are various reasons for this, as elucidated below.

The system of traditional communal farming is not blindly resistant to change, but it uses different survival strategies, namely, those that allow the people to cope with the scarce financial, technical, natural and human resources of rural life during the

⁴⁷ Personal interviews with Topnaars in 1998/99.

development process. These strategies differ from today's business ideas of small-scale entrepreneur in market economy by the following features:

- Communal farmers are not profit-maximising entrepreneurs. They rather aim at an adequate return for their effort, than a maximum return of all costs. Leisure time has a higher value than in western societies and there is a trade-off between more income and accumulating capital or more leisure time. By contrast, the western attitude towards work, which dictates so much of the expectations of the modern world, is deeply rooted in the European development from the Middle Ages until now.
- The communal farmers' strategy can be best understood in the context of risk-avoidance. Risk avoidance is the only strategy in a highly variable environment with no reserves of land or capital to secure survival. A communal farmer will only risk his stake if he perceives a virtual certainty of successful outcome.⁴⁸

In considering this socio-economic background, the evaluation of the data largely obtained during the interviews with the Topnaar harvesters and other community members in 1998/99 should screen the current stage of business skills and attitudes in the rural Topnaar community. It should further reveal where defects and deficiencies exist and where an appropriate training could lead to improvements. Business ability is defined by five main quality dimensions, operationalised by further indicators:

- *Knowledge* (indicators: school attendance, knowledge of general price mechanisms, knowledge of general urban income, knowledge about the !nara trade networks and pathways);
- *Calculation ability* (indicators: comparison of required income to actual income, reasonable investment of donations, general dealing with cash income, saving-credit strategy);
- Presence of entrepreneurial *initiative and innovative spirit* (indicators: preference of !nara or livestock business, preference of change in !nara business to conservation of traditional patterns, current initiatives and ideas of a more lucrative !nara marketing);
- *Good supplier quality* (indicators: supply on time, supply the ordered quantity, supply the ordered quality);
- Ability to *take risks* (indicators: preference of direct marketing to marketing by middlemen).

The sample consists of 18 informants, three young and 15 adult harvesters, all harvesting regularly⁴⁹. In order to minimise room for interpretation, the questionnaire was highly standardised by using questions that were closed, designed in dichotomous alternatives of pre-formulated responses.

Figure 12: Business ability of young and adult Topnaar harvesters

Source: Personal Interviews with Topnaar harvesters

The individual values obtained for young and adult Topnaar harvesters are added to a score characterising the dimensions: knowledge, calculation, initiative, supplier quality,

⁴⁸ Dickenson, J. P. et al (1983), p 94.

⁴⁹ See Table 1.

and ability to take risks. A final index for business ability is created by the arithmetic mean of all unweighted individual values converted to percent:

sample dimension	adult harvesters (n= 15) (in %)	young harvesters (n= 3) (in %)	total harvesters (n= 18) (in %)
knowledge	29.33	63.32	46.32
calculation ability	81.33	66.67	73.99
initiative	56.67	55.58	56.12
supplier qualities	55.56	44.45	50.00
ability to take risks	66.67	66.67	66.67
index "business ability"	57.91	59.34	58.62

Table 5: Index of "business ability" of young and adult Topnaar harvesters

Source: Personal interviews with Topnaar harvesters

Knowledge

Summarising the result of all knowledge indicators the level of knowledge is below 50% of the given maximum. Although the educational level of the Topnaars is higher than the average in rural areas of Namibia (Fig. 13), only 20% of the adult harvesters attended school for more than 4 years. By contrast, all of the three young harvesters attended school for longer than 4 years. The economic knowledge of all respondents when referring to salaries in town and especially to final prices for their !nara seeds on markets in South Africa was not satisfactory. Improved information about the high trade margins, wholesalers and retailers could achieve in Cape Town, would probably encourage the Topnaars to actively demand adequate prime prices, or to demand that the number of middlemen be reduced, instead of resorting to fatalism and giving up harvesting.

Figure 13: Literacy of Topnaars compared to literacy of total Namibia

Source: National Planning Commission (1991), p xxxii.

Calculation ability

The Topnaars seem to know reasonably well how to deal with money. The level of calculation skills lies above 70% and ranks at first place in comparison with other business abilities. Due to life experience, adults show an overall better understanding for planning and calculation. Especially in the case of monetary donations most of the adult would invest in livestock, food and clothes, while the young would prefer to buy cars. The own estimation of their monthly income at an average of N\$430 seems to be realistic, but their statements towards their income requirement were quite astonishing. Several Topnaar harvesters stated that they needed less income than they actually got, even if their income was only N\$200-300. Also unexpected was their behaviour towards saving and credit. Assuming that all the answers were true, the Topnaars prefer financial security to risk by credits. These statement about reasonable behaviour are surprising, because of the rather poor living standards, the high abuse of alcohol, and the information obtained from several shop owners, employers and !nara traders, that buying on account or taking credit is very common among the Topnaars.

Innovation

In contrast to the general opinion that the younger generation shows more initiative and innovative spirit, the index of both Topnaar generations range above 55%. But when looking closer at the single items, the two age groups differ strongly in their attitudes. While the young like to improve marketing by increasing the number of outlets, the elders would decide to diversify their !nara programme by introducing more product types. In contrast to the young harvesters who aspire changes in the !nara business and replacements of current agents with more competitive ones, the older generation preferred their traditional patterns and showed loyalty to those agents who were not cheating and who would deliver financial support in emergencies. Somewhat alarming is the result that all young Topnaars regard livestock farming as a more innovative agricultural enterprise than !nara harvesting. Probably the belief in better food security, higher revenues and the prospect of more prestige as a livestock owner leads to this opinion. Although pastoralism is a fundamental part of rural Topnaar livelihood, the limitations of resources for livestock in the extreme desert conditions are obvious constraints to expanding this agricultural activity.

Suppliers' qualities

From the western business point of view, a good supplier supplies in time, at the right place, at the expected quality and quantity. The achieved 50% of the full score by the Topnaar harvesters seems to be disappointing. But in this case, the Topnaars' response was uncertain, because they know that the availability of !nara is somewhat unforeseeable in present conditions. This constraint will need to be overcome somehow if the !nara business is to improve, especially if it is developed in co-operation with reliable business partners. But even if the supply in time and quantity can only be improved by a more reliable productivity of !nara, there is still a lack in their sense for quality. !Nara purchasers complain that the seed delivery is sometimes spoilt, unripe, dirty, or manipulated in weight. Special quality requirements, like roasted seeds or seeds with remnants of dried fruit flesh are often not fulfilled.

Taking risks

In this case young and adult are of the same opinion. The majority want to learn more about marketing techniques in order to control the distribution channels by themselves rather than ceding them to agents.

To summarise all of the above results, the current business ability of the Topnaars with an index of almost 59% is unlikely to be sufficient to start up an improved !nara business. But at least there is a sound foundation of entrepreneurial spirit and knowledge that can be built upon, even if one has to take into account that those scores reflect only theoretical ideas and knowledge, which may differ from what is translated into action. In daily life, the behaviour of the Topnaars still reminds of the subsistence farming strategies. The widespread attitude "You have to take what you get"⁵⁰ reveals the current reactive strategy and lack of self-motivation for active improvements. The trade-off between profit maximising and leisure time tends towards the latter. If there is no adequate return for their effort and survival is still ensured, Topnaars tend to diminish their work input, as they did, for example, in 1988 and 1997, when previous caching and hopes for changing prices reduced harvesting activity. This is slightly akin to the situation with the urban Topnaars who did not show interest in obtaining jobs.

Besides these observations, there are opposite developments, like the initiative of the Topnaar Community Foundation, which recently succeeded in getting funding to develop

⁵⁰ Personal interviews with Topnaars in Dec./Jan. 1998/99.

up a tourist campsite at Lauberville and which is strongly interested in improving the !nara business.⁵¹

Where should a training program best start to mobilise the business interests of all Topnaars? Considering the low score of knowledge about the market by the adult harvesters, training concerning general market mechanisms and especially the potential of higher sale prices by changing marketing strategies would probably result in more initiative, self-reliant behaviour, and overall improved entrepreneurial thinking. As the Topnaar youth is relatively well educated, motivation for more harvesting initiative will only evolve when there are good prospects of higher revenues and better living conditions along the Kuiseb.

4 GENERAL DISCUSSION

This situation analysis deals with the question of whether the current social, economic and environmental situation of the Topnaar community and its indigenous setting in the Kuiseb valley warrants the modernisation of !nara resource management. We also ask whether the revival of !nara business will be the right starting point to stimulate self-sustaining rural development and enable the Topnaars to manage their three challenges, developing from subsistence to market economy, from marginalisation to integration, and from uncontrolled to sustainable use of natural resources. We suggest that revitalising the !nara business with a different approach is worthwhile, because:

1. Generally, a country like Namibia, whose economic development is restricted by history and extremely variable climate, is forced to profit from any available local potential, in order to reduce further importation of foreign products and processes, and thereby prevent further alienation from the local environment, needs, traditions and skills.
2. The !nara plant is a Namibian resource, that combines manifold features that should benefit the successful implementation of Natural Resource Management in the Kuiseb valley. Those features were mentioned in section 1.1.4., and include the uniqueness of this natural, cultural and economic product (Fig. 14).

There is a conspicuous lack of exploiting the cultural and natural potential of the !nara for economic benefits, although the natural and cultural uniqueness should contribute significantly to the economic potential (Fig. 14). In the last few years, the scientific importance of this plant has actively been highlighted by researchers and students affiliated to the DRFN, and contributed to the understanding of !nara ecophysiology, dispersal, recruitment and ecology. Besides elucidating possible constraints affecting !nara productivity, such studies provide a substantial body of information that can also benefit the economic interests. In recent years, the "Topnaar Community Tourism Enterprises" has been planning just such incorporation of cultural and natural information into their ecotourism programme in order to generate income whilst conserving and controlling the fragile environment. Lauberville, conveniently situated at the edge of the largest !nara fields, is being set up as a self-sustaining community-based tourist camp, similar to the successful Brandberg West Tourist Camp on the Ugab river⁵². When one considers the high popularity of the endemic *Welwitschia*, which is a must on most tourist programmes

⁵¹ Dausab R. pers.comm.

⁵² Bruce, G. ; Dausab, R. (1998), p 77.

in Namibia, the !nara probably has a similar high potential, currently still latent. The Topnaars have a gem on their doorstep, more so, as its story is their own.

However, new commercially viable uses of the multipurpose !nara plant will be required to make it a hit. While the unique flavour and high nutritional value have guaranteed a continued high demand by Malay and Indian people in Cape Town since the middle of the last century, neither this demand, nor the still rather small Namibian market appear to be satisfied by the current harvest that uses slow, traditional techniques of processing and marketing. Due to the rising interest in healthy, natural and indigenous products, various new local market niches have already emerged, and these should be expanded.

3. As the !Nara Triad of nature-culture-economics (Fig. 14) demonstrates, the effort to develop a more efficient !nara utilisation pattern is required to complete an integrated rural development programme. Only then a full development of its *synergetic effects* between all components is guaranteed. The joint activity of all three aspects, namely, the provision of diverse job opportunities, training by building on existing skills, and conservation of the Kuiseb environment can enable this rural periphery to build up a stable, socio-economic, self-sustaining network.
4. Besides the unique qualities of the !nara plant, a Natural Resource Management in the Kuiseb valley shows several advantages compared to industrial investments in urban centres, if cost-benefits aspects are considered.
 - At a first glance an investment in strategic favourable locations like Walvis Bay or Swakopmund, equipped with all necessary infrastructure, seems to be more promising in providing the marginalised Topnaar community with employment and welfare. However, the opposite was revealed in a recently published study⁵³ concerning the situation of Topnaars living in Kuisebmond after relocation from Mile 4 in 1986: only one of eight urban households investigated received regular income and was able to pay accounts for municipal services and rentals. Of 33 adults, only seven were employed, the rest lived on pensions and rentals of out-buildings on their premises. Cleanliness was a problem, tuberculosis widespread, food was partly collected at dump sites, and school attendance was low. The report attributes these conditions to "lack of education and skills, abuse of alcohol, lack of self discipline and lack of interest to obtain jobs in order to provide for themselves."⁵⁴
 - In considering the question of what one can do to assist the Topnaar community, it is obvious that further investment in urban industry will not improve the situation. Even without any subsidisation, the rural Topnaar still enjoy better living conditions: !nara and livestock for subsistence, enough living space, less danger of infection by diseases, no debts for rented houses, social security by the extended family and probably more self-confidence and self-esteem. Unlike 63% of the young rural Topnaars that we interviewed, the majority of the adults like to stay along the Kuiseb and even several urban Topnaars wish to move back to the Kuiseb. The rural conditions seem to provide a less risky area to implement a development programme that aims to integrate the marginalised Topnaar community.
 - While there is no cultivation or replanting of the wild desert plant, another argument against the feasibility of a modern !nara resource management might be the low and highly variable annual harvest volume of !nara seeds. In 1992 a British

⁵³ Municipality of Walvis Bay (1997), p 2 ff.

⁵⁴ Municipality of Walvis Bay (1997), p. 3.

cosmetic company and the UNDP showed interest in the processing of !nara, but then withdrew because productivity was decreasing and a less cost-effective small-scale production was not able to compete on international markets. Apart from the fact that today's exact potential harvest volume still needs to be determined, modern marketing strategies promote an economy of scope instead of an economy of scale. Rather than relying on mass production, successful companies rely on flexible productions that a highly diversified product offers, able to satisfy individual consumers' preferences at any time. Economy of scope could also be a prospect for the processing and marketing of !nara, by using one raw material for manufacturing different products for different markets. Besides that, a diversified small-scale production has further advantages: it can benefit from the various experiences and skills of the indigenous people, it can provide work for all family members and strengthen their already existing system of work distribution in their extended family, it is less risky because of its small controllable size.

- A third objection might be that the effort of stimulating Natural Resource Management in a rural community, which comprises only around 300 members⁵⁵ and probably will decrease in future, is not worthwhile. Of course the urban triangle of Swakopmund, Arandis and Walvis Bay, the latter with its prosperous fishing industry and emerging Export Processing Zone (EPZ), will attract young rural people to move there. But as the current situation in Walvis Bay shows, the majority of the urban Topnaars find themselves in worse living condition than in their former rural homes. Apart from the question, whether the duty of urban industries to employ fixed quotas of indigenous people will be successful or not, neither the fishing industry nor the international investors of the EPZ are obliged to employ Topnaars, although benefiting from resources, originally owned by the Topnaars. In contrast to urban investments, supporting the Topnaars in developing their rural enterprises could prevent rural exodus from the Kuiseb in future. If the Topnaars leave the Kuiseb valley, their culture will vanish and with it, their ability to attract foreign visitors. The change that may result in the Kuiseb environment, especially the !nara ecosystem, which is adapted to harvesting for at least 8000 years cannot be predicted. Resettlement after an exodus would be difficult, because it probably takes a long time and high incentives to develop an affinity to living off the desert environment, as the Topnaars have.
4. Investment in !nara business with higher revenues for the Topnaars could improve the currently low image of a !nara harvester compared to that of livestock farmers. This may result in a reduction in the large numbers of livestock that are a heavy drain on the Kuiseb's local resources.
 5. The idea of improving !nara resource management is not new. Comprehensive information from research in various disciplines, representing a substantial capital and work investment, is already available and has been integrated with the traditional knowledge. The development of alternative designs of Natural Resource Management in the lower Kuiseb valley can thus tap a substantial body of existing knowledge to facilitate success.
 6. Flamingo Furnishers, the most important dealer of !nara seeds and the most reliable business partner of the Topnaars, suddenly closed business in early 2000. A large proportion of the traditional marketing chain is now disrupted. As a result, there is now a danger that uncontrolled unsustainable business arises. Simultaneously, there

⁵⁵ see chapter 6.2.1

is now a great opportunity for the Topnaars themselves to fully take over and redesign the !nara marketing.

5 DIFFERENT MODELS OF !NARA RESOURCE MANAGEMENT

This study found that implementation of a revised !nara resource management is appropriate for the sustainable rural development of the Lower Kuiseb Valley. In this section we intend to demonstrate several possible marketing strategies that take advantage of the !nara's high, under-exploited potential.

In view of the possible (alleged) restricting factors limiting the yield of !naras within the general range of the current volume unless cultivation and replanting occurs, there are two options for the Topnaars to achieve appropriate income: Either allocate the current income from !nara sales to a reduced number of harvesters, or increase the monetary value of the product to the Topnaars by improving the efficiency of !nara marketing. The latter alternative is preferred, but it should be emphasised that in this case the income for every harvester has to increase notably. The failure of many rural development projects is not caused by the "conservative, uneducated indigenous workers"⁵⁶, but the true reason is the lack of incentives, the absence of appropriate rewarding incomes.

For choosing an efficient marketing strategy, the concept of marketing mix⁵⁷ offers several options to optimise the revenues from product sale. The marketer differentiates between four basic strategies, or politics: product, distribution, price, and communication (Table 6).

Marketing Mix				
Politics	Product	Distribution	Price	Communication
Variable	<u>Quality</u>	<u>Channels</u>	List price	Advertising
	<u>Features</u>	<u>Target consumer</u>	Discounts	Personal selling
	<u>Options</u>	<u>Coverage</u>	Allowances	Sales promotion
	<u>Style</u>	<u>Locations</u>	Payment period	Publicity
	Brand Name	Inventory	Credit terms	
	Packaging	Storage	(Costs)	
	Sizes	Transport		
	Services			
	Warranties			
	Returns			

Table 6: Variables of marketing mix that can be manipulated, underlining the ones with most critical effects

Source: Kotler, Ph. (1980), p 89.

As price and communication politics mainly result from the chosen product and distribution strategy, the following recommendations will only discuss alternatives of the latter, concentrating on the variable that are underlined in Table 6. In Table 7, six different marketing strategies, arranged by degree of division of labour and

⁵⁶ McDonald (1994), p 63.

⁵⁷ Marketing mix is a set of controllable variables that a company uses to influence the target markets, Kotler Ph. (1980), p 88.

specialisation, are presented with their advantages and disadvantages for the sustainable environmental, economic and social development of the Lower Kuiseb Valley and its residents.

Role of Topnaars	subsistence farmer (<i>original situation of the Topnaars</i>)	communal farmer (<i>current situation of the Topnaars</i>)	small-scale manufacturer of Inara products (<i>possible future situation of the Topnaars</i>)
marketing strategy	no strategy	sale of surplus	selective specialisation small-scale production (economy of scope) diverse product programme
branch	food	food	food, cosmetics, souvenirs
market location (macro)	national	national	national
market location (micro)	household /no real market	local rural, partly local urban	regional urban and tourist sites
target consumer	own household members (self-consumption)	own household members (self-consumption), other residents in the Kuiseb vicinity and in the suburbs of Walvis Bay	residents of the regional urban centres like Swakopmund and Walvis Bay, tourists in the urban centres or in tourist sites, e.g. in the Namib-Naukluft Park
<ul style="list-style-type: none"> • level of living standards • level of income • level of education • origin, cultural background 	<ul style="list-style-type: none"> • low, subsistence level • no or little income • no or little education of adults, average level of education of children • mainly rural Topnaars 	<ul style="list-style-type: none"> • low, subsistence level • little income • no or little education of adults, average level of education of children • mainly Topnaars, Ovambos, Coloureds⁵⁸, in the suburbs of Walvis Bay 	<ul style="list-style-type: none"> • average or high standard of living • average or high income • average or high education • economically-strong Namibians, residents of Swakopmund and Walvis Bay, European tourists, South Africans
product types	<ul style="list-style-type: none"> • dried or roasted seeds (pips) • fresh !nara juice (!nara milk) • dried fruit flesh (!nara cake⁵⁹, goa karibeb) • crushed seeds as fat or oil • tea of roots (medicine) 	for sale: <ul style="list-style-type: none"> • dried or roasted seeds (pips) • dried fruit flesh (!nara cake) for self-consumption: <ul style="list-style-type: none"> • fresh !nara juice (!nara milk) • crushed seeds as fat or oil • tea of roots (medicine) 	<ul style="list-style-type: none"> • food • dried or roasted seeds, oil, jam, liquor, juice, dried fruit flesh, confectionery, various bakery products • cosmetics • body lotion, oil • souvenir, crafts • jewellery out of !nara shells (packaged in patchwork or woodcarvings)
<ul style="list-style-type: none"> • product features • product style • product use 	<ul style="list-style-type: none"> • home-made, not manufactured • no intended style • for satisfaction of daily needs 	<ul style="list-style-type: none"> • home-made, not manufactured • no intended style • for satisfaction of daily needs 	<ul style="list-style-type: none"> • home-made, indigenous, eventually partly manufactured, emphasis on packaging as a present, as a souvenir • image of originality, uniqueness, healthy, typical for the Topnaar culture • for satisfaction of non-daily wants
distribution channel	-	harvester - <i>supplier, processor</i> (Topnaars) ↓ consumer	harvester, manufacturer - <i>supplier, processor</i> (Topnaars) ↓ (retailers - <i>distributor</i>) ↓ consumer
number of intermediaries	-	direct marketing/ no intermediaries	one intermediary or direct marketing

role of Topnaars	supplier of raw or pre-processed material (<i>current role of the Topnaars</i>)	supplier of raw or pre-processed material	supplier of raw or pre-processed material
marketing strategy	no strategy	full coverage of market large-scale production (economy of scale) few closely related product types	selective specialisation, large scale production (economy of scale) few closely related product types

⁵⁸ "Coloureds" include various mixed races. In Walvis Bay, these are mainly mixtures of local Nama and White or mixtures of Cape Nama, Malay and White; Logan, R. (1962), p 155.

⁵⁹ in Nama: goa karibeb.

branch	food	food or cosmetic or souvenirs	food or cosmetics or souvenirs
market location (macro)	international	national	international
market location (micro)	historical developed market in Cape Town	regional and national urban	countries with developed centres
target consumer	residents of Cape Town, RSA	residents of cities in Erongo or other regions	urban residents
<ul style="list-style-type: none"> • level of living standard • level of income • level of education • origin, cultural background 	<ul style="list-style-type: none"> • low to average standard of living • low to average level of income • average level of education • Malay, Indian 	<ul style="list-style-type: none"> • average to high standard of living • average to high income • average to high education • all cultural backgrounds 	<ul style="list-style-type: none"> • average to high standard of living • medium to high level of income • medium to high level of education • all cultural backgrounds
product types	<ul style="list-style-type: none"> • seeds • bakery products • confectionery 	<ul style="list-style-type: none"> • food dried or roasted seeds, oil, jam, liquor, juice, dried fruit flesh, confectionery, bakery or • cosmetics body lotion, oil or • souvenirs, crafts jewellery out of Inara shells, (patchwork, woodcarvings for packaging) 	<ul style="list-style-type: none"> • food dried or roasted seeds, oil, jam, liquor, juice, dried fruit flesh, confectionery, bakery or • cosmetics body lotion, oil or • souvenir, crafts jewellery out of Inara shells, (patchwork, woodcarvings for packaging)
<ul style="list-style-type: none"> • product features • product style • product use 	<ul style="list-style-type: none"> • home-made • tasty, nutritious • habit 	<ul style="list-style-type: none"> • manufactured • highly nutritious, unique • satisfaction of non-daily wants 	<ul style="list-style-type: none"> • manufactured • unique, nutritious, exotic • satisfaction of non-daily wants
distribution channel	harvester - <i>supplier</i> (Topnaars) 1. export agent - <i>exporter</i> (Flamingo Furnishers, Yon, Schweikhardt) 2. wholesaler in Cape Town - <i>distributor</i> 3. retailer in Cape Town - <i>processor, distributor</i> consumer	harvester - <i>supplier</i> (Topnaars) 1. national company - <i>processor</i> 2. (wholesaler - <i>distributor</i>) 3. retailer - <i>distributor</i> consumer	harvester - <i>supplier</i> (Topnaars) 1. export agent - <i>exporter</i> 2. international company - <i>processor</i> 3. (wholesaler, if there is no franchise system) 4. retailers in franchise systems - <i>distributor</i> consumer
number of intermediaries	four	three, including the wholesaler	four, including the wholesaler

Table 7: The situation of Topnaars applying different Inara marketing strategies

Source: present study

Topnaars as subsistence farmers

One possibility is for the Topnaars to move back towards their original situation of subsistence farming. Subsistence farming in drylands is a highly skilled survival system, using a minimum of resources so that a stable symbiosis of people and nature develops. Ideally, this symbiosis can continue indefinitely, as it is most sensitive to the condition of the natural environment. With regard to social conditions, it would strengthen the existing structures of extended families by integrating handicapped and old people and by reviving the partially dysfunctional communal supply system. However, the increasing population of Topnaars, the high migration rate of young community members from the rural to the urban environment, and requirements for money due to the increasing integration in market economy, schooling, and adoption of western consumption patterns preclude the re-adoption of former living conditions.

Topnaars as communal farmers

In contrast to subsistence farming, the development towards communal farming is more market-orientated, but still far from a profit-maximising commercial system. The surplus of agricultural products is sold or bartered to community members on local markets in the vicinity in order to pay for rent, school fees or other basic needs. Similar to a subsistence household, the whole family serves as a productive unit around which multiple activities like food and clothing production revolve in perfect organisation. The Topnaars have lived in such a self-sufficient system for hundreds of years, maintaining a steady trade of !nara against goods brought by passing vessels from or to the Cape. This trade was later overtaken by general dealers in Walvis Bay. However, the proximity to prosperous, modern industrial centres like Walvis Bay and Swakopmund, the lack of land and civil rights, and the unilateral imposition by government of conservation laws concerning the Namib-Naukluft Park has resulted in the deprivation of essential natural resources (e.g., water, subsistence hunting) and of labour reserves, as young people are lured into urban centres. The restricted capacity towards self-determination resulted in increasing dualism with impoverishment and marginalisation affecting rural Topnaars.

Topnaars as rural entrepreneurs

Modern "bottom up" strategies for a sustainable development of rural peripheries suggest to restart the disrupted evolutionary process with the rudiments of market-orientation, initially somewhat dissociated from outside influence, in order to initiate a smooth, slow and self-determined development, based on available skills, techniques, local manpower and local natural resources. The idea of the so-called "autocentric development"⁶⁰ maintains that through comprehensive utilisation of all local resources, a direct satisfaction of the basic needs in that region can be achieved. It implies that the dissociation from urban manufactured goods will stimulate the development of already existing secondary, non-farming activities (building, sewing, weaving, pottery and modern activities like repairing bicycles etc.) to primary tasks in the form of micro-enterprises, as has already occurred in the craft sector elsewhere in Namibia. Such an evolving diversified structure in light industry and agriculture could initiate the establishment of small regional economic circles. In this model of increasing labour division only some of the Topnaars would concentrate on !nara harvesting, while other community member specialise on non-agricultural products or services which they could exchange against food on local markets.

Although this concept sounds promising for integrating sustainable social, environmental and economic development, its application to the development of the Kuiseb catchment

⁶⁰ Lit. 80, p.109.

may be difficult. One reason is the proximity of urban centres like Walvis Bay, which makes a social and economic dissociation impossible. The availability of cheap manufactured products in town leads to the existing situation that the demand, the image, and consequently the price, of !nara products are too low in the suburbs of Kuisebmond and Narraville, even among the Topnaars living there. Larger harvest volume and more time-efficient technology for large-scale production would alleviate the deficiency. However, these are not appropriate in the current social environment. Furthermore, the !nara seed price may not increase and there may be no realistic chance to generate a reliable income by concentrating on local markets with indigenous or low-income target consumers. In the past, the Topnaar harvesters reacted to this low and unreliable local market potential by ceding the marketing and trade to intermediaries, restricting their roles to that of a supplier of raw material without control and influence on the final consumer price and the overall !nara market development.

Topnaars as suppliers of raw or pre-processed material

In the current !nara market, Topnaars restricted their role to that of supplier of the raw material. They have neither control nor influence on the final consumer price and rate of sales, and they are often anonymous to the consumer. They are not involved in further processing in baking and confectionery done in Cape Town, where the added value and the profit is generally achieved. As the current target consumer mostly belongs to a low or average income class, a higher price for seeds or other !nara products would lead to a quick substitution of !nara by competing products like peanuts, almonds etc. In a highly competitive market of daily food, the price for current !nara products is given by the consumer, and there is no potential for extending the trade margin besides reducing production costs or the number of intermediaries. Production costs are already on a low level and Topnaars are dependent on their intermediaries to facilitate the international distribution. The only possibility for achieving better income in !nara business is to expand the harvest volume. From the ecological point of view, a more intensive harvesting can exceed the carrying capacity of this wild, uncultivated plant and could lead to its demise. The highly competitive harvest situation would promote uncontrolled, non-traditional harvesting techniques and vandalism⁶¹ in the communal !nara fields. This would increase conflicts between harvesters. Apart from damaging the !nara plants, removal of all fruits would leave the !nara no seeds for recruitment and thereby disrupt its population dynamics. We therefore conclude that increasing the !nara business by increasing the harvest volume and trying to increase consumption by the current consumers will not be of long-term benefit to the Topnaars. Such increases would rather aggravate current problems.

While the Topnaars' role remains confined to supplier of raw materials, modern marketing strategies would suggest targeting average to high income consumers in national or international markets by featuring the exotic and unique item of the !nara. But on national or international levels, !nara has to compete with numerous products having unique, exquisite and healthy properties. !Nara could become lost in the wide assortment of indigenous products from all over the world. In most cases the only competitive strategy for !nara will be to reduce the sales prices by cost-effective large-scale production with a high level of work-extensive, capital-intensive technology, introduced and financed by foreign contract companies. The price pressure, additionally

⁶¹ At the 1997 !nara workshop (Breuninger & Henschel, 1997), professional harvesters stated their concern about ongoing vandalism towards !nara plants by non-professional harvesters when they rip entire branches off, drive cars over !nara plants, or otherwise seriously damage plants in their efforts to quickly obtain fruits. Professionals also blame the non-professional for selling seeds from unripe fruits that consequently spoil the market and the integrity of relationships between the suppliers and buyers.

strengthened by the intervention of at least three and more intermediates, will finally be deferred on the member in the !nara chain without any market power, namely, the Topnaar harvester. Currently, the harvesters will agree nearly on any price, first, because they do not see any other possibility than "...to take what they get", second, because the contract partner would withdraw in case of high prices for raw material and, third, because the rural people are able to accept revenues below the "minimum of income" that should cover at least costs for food, housing and social security in systems of market economy. In case of emergencies, those basic services are still provided by the survivors in the extended family and subsistence structures. A national or international marketing strategy based on large scale economy thus not only fails to achieve sustainable economic development, it also puts high pressure on the limited !nara resource and the fragile desert ecosystem. From the social aspect the situation of the Topnaars will not differ from the situation of those employed as inferior, exploited and low wage-earning labourers in industrial centres.

A more promising scenario of a co-operation between rural, indigenous communities and external contract partners, which benefits both parties, has arisen in some western companies that promote ecologically and socially responsible business behaviour. Today, several companies offer programmes for developing countries, where in exchange for the permission to market the indigenous product, the local people receive employment, training, equipment and access to a world-wide distribution system, know-how and capital. There was already one European cosmetic manufacturer, the Body Shop, who showed interest in !nara business. No formal agreement was made, reportedly⁶² because the harvest volume is highly variable and apparently generally decreasing.

Topnaars as small-scale manufacturers

The last and probably most favourite proposal for successful !nara business, places the Topnaars as small-scale manufacturers. This strategy only differs in one aspect from the model of "autocentric development": the target consumer. Instead of community members or low-income consumers this proposal suggests that more consumers should come from the middle-to-high income group outside the Topnaar community, who would not choose !nara products for daily consumption ("need"), but as a speciality ("want"), e.g. as a regional delicacy, as a gift, or as a souvenir from the Topnaars of the Namib Desert. Positioning the !nara products in the food or cosmetic branch with features like "traditional", "indigenous" and "healthy" would not only meet the evolving demand of the world-wide "green" and "alternative" movement, but also the development from the supermarkets offering mass products to specialised retailers (special-line shops) as is already occurring in Swakopmund with shops and cafés like "Aroma & Health Therapy", "Out of Africa" and "Delicatess Baumgart". The additionally high nutritional value of the !nara could probably persuade the consumer not to test the !nara only once, but to use it permanently. As the growth potential for Namibian manufacturing is limited through the small and scattered population, !nara outlets should not be restricted to Namibians, but should additionally address foreign visitors. !Nara products could be perfect for satisfying the demand of the rising number of Namibia tourists. Features of the !nara plant, like low and possibly decreasing harvest volume, that currently seem to boycott the very idea of further developing !nara business, now give it the decisive competitive edge: "... the rapidly growing consciousness of diminishing wildlife and traditional cultures has whetted the appetite of many who desire to see the 'last tiger'...."⁶³, or, in this case the authentic way of life of the Topnaars, their culture of harvesting and

⁶² Dausab R, pers.comm.

⁶³ Citation?

processing !nara. The tourist, primarily interested in obtaining a typical souvenir, will prefer those products that are packaged appealingly and reveal something about the Topnaars and their culture concerning !nara. The type of product, !nara as rare snack, healthy body lotion or as tasty confectionery, will then play a minor role. As in this case the price results from the additional cultural value rather than from the pure material value, higher prices can be set than by marketing !nara as a daily food product.

From the economic point of view, this marketing strategy offers the possibility to optimise the material efficiency, or in other words, the value-addition, without requiring a higher volume of !nara raw material. The concept of economy of scope, the processing of a wide range of !nara products like oil, liquor, jam etc. and its packaging with patchwork, pottery or wooden carvings will both diminish the dependence on the highly variable !nara productivity and deliver work for all family members, including women and the aged. The productive unit of the extended family system will be strengthened, lost traditions and lost initiatives in processing various !nara products will be revived and probably further developed through the support of interested Namibian retailers in urban centres. The questionnaire with retailers from Swakopmund revealed that there is interest in co-operation with the Topnaars to create and test marketable products. The processing in storable goods will help to overcome the lack of inter-seasonal income. Overall, this proposal encompasses all requirements of implementing an appropriate technology: it is capital extensive, work intensive, low cost, and maximises the use of local skills and resources. It will revive the evolutionary process towards more advanced market-oriented farming and would promote the development of self-operated, self-sustaining, small-scale !nara business. It will have synergistic effects, because of the developing ecotourism plans centred around Lauberville and current developments of the Topnaar Community in relation to the Gobabeb Training and Research Centre. This will attract more visitors to the Namib-Naukluft Park and will accordingly open additional opportunities for direct marketing of !nara products. Direct marketing or at least the co-operation with one market intermediary (retailers in Walvis Bay or Swakopmund) diminishes the number of middlemen from currently three in the trade to Cape Town to a minimum. Although the trade to RSA is not efficient, it is stable and could reduce the risk of introducing a new marketing concept in the beginning. In the long run, the simultaneous promotion and synergy of the three elements nature-culture-economics of the !Nara Triad (Fig. 14) can deliver a highly diversified, stable economic structure for the Topnaars of the Lower Kuiseb Valley. The character of this integrated programme will also meet the current economic politics of the Namibian Government, that aims at initiating the development of micro-enterprises that fill gaps of the weak private sector between formal and informal markets in Namibia.

With regard to environmental aspects, the pressure on !nara productivity will be reduced, first, because the !nara market volume is determined by supply and not by demand, and second, because the main part of the product value will be achieved by the processing and not by the raw material. The existing wild plants will be sufficient and will again be treated well in the more environmentally friendly traditional family farming. The introduction of exploitative "cash-crop" systems in the corporate factor style farming will then be prevented. However, requirements for more water or other auxiliary material for the intensive processing of !nara, the implementation of a better infrastructure, and the increasing tourist traffic, could again endanger the equilibrium of the fragile Kuiseb ecosystem. A long-term, comprehensive monitoring system is needed to avoid such impacts. An Environmental Assessment should be conducted and this should assist in devising an ongoing Environmental Management Plan that ensures that

all elements of the !Nara Triad continue to be maintained simultaneously. Current and future ecological research conducted under the auspices of the DRFN can provide the required information.

The campsite of the Topnaar Community Foundation at Lauberville, based on the principle of responsible community-based tourism, aspires promoting and controlling tourism, so that this will not exceed the capacity of the existing social and ecological system.

The whole project is extremely sensitive to the development of the social aspect. This !nara business model enables the impoverished and marginalised community to start from the current stage and initiate social change without abruptly abandoning traditional life. It provides the possibility to build up indigenous, small enterprises that neither depend on external guidance, nor on alien processes and products. It includes extensive opportunities for training within the enterprise and consequent possibilities for recruitment from within the community. Such an indigenous enterprise would promote cultural awareness, self-consciousness and self-responsibility by the Topnaar community. Co-operation with urban retailers could establish an economic network between the centre and its periphery and will accelerate the integration of the Topnaars in the wider Namibian society. With such incentives, the current social problems, such as lack of motivation, quarrelling, alcoholism and poor health, are likely to decrease.

The question remains how best to initiate or catalyse this process from the current social situation of the Topnaar community. A further unsolved problem is the question of land rights. Although there never has been private ownership, the !nara fields used to be divided in patches among the families and only family members were allowed to harvest from their own holdings. Now that !nara fields are viewed as a communal resource, disruptive competition makes planning of quantity and quality of the harvest difficult to manage so that the professional harvesters and their business partners become insecure. If this problem of harvest rights is not solved, the Topnaars cannot fully develop their business and their executive power is restricted. Under these circumstances no Topnaar will risk long-term investment and the idea of a self-determined and self-guided development cannot be realised.

A tool to minimise the social risk would be a business organisation similar to a co-operative, obliged to cede management, control and organisation successively to single Topnaar enterprises after a period of introduction and training. 95 % of interviewed harvesters agreed to the establishment of a !nara co-operative instead of single family enterprises. The co-operative delivers the chance to set the sales price instead of simply accepting whatever the intermediates offer them. It enables the Topnaars to fully exploit their monopoly as !nara suppliers, provided that all !nara harvesters participate and do not attempt to undercut prices by selling privately. To assure that the executive management acts according its environmental and social goals and not according to their self-serving interests, an independent control body, representing the Topnaars, NGO(s), and government, whose members are elected by the main stakeholders should be implemented. A co-operative could also minimise the danger of unequal revenue distribution. It could support the Topnaars dealing with income in a reasonable way by offering saving and credit systems, health and social insurance. Training in calculation, harvesting techniques and general business skills is essential to smooth the way for establishing small and self-owned !nara enterprises after the transition period. Democratic structures, education, but also the increase of social

cohesion and cultural identity may result from the implementation of a co-operational organisation.

6 RECOMMENDATIONS

In summarising the different models of !nara resource management, we recommend the adoption of a strategy that enables the Topnaars to build up their own small-scale !nara enterprise in the long run. In our opinion, this seems to be the best way that would lead to the full integration in market economy and Namibian society, while the development occurs through a self-guided process with minimal external intervention. Although the NARA-project is based on co-operation, and was the basis for this study, NARA is fundamentally community-based, and therefore the decision of how to improve !nara resource management is up to the Topnaar community.

Steps to be taken:

- publish & circulate this report & resulting brochure
- hold workshops with Topnaar harvesters
- stakeholder workshops
- plan, submit and implement project proposal with Topnaars & stakeholders

Project should involve:

- manager & steering committee, project co-ordinator/facilitator
- formation of Topnaar co-operative & take-over of existing market
- R&D of market potential & product development
- assist harvesters in monitoring fruit production by individual !naras
- co-ordinate further biophysical studies of crucial knowledge gaps

REFERENCES

APPENDICES

Appendix A: Names and Settlements of Rural Topnaars who participated in the Interviews

[maps & names of all residents & interview participants; NB: need to get consent]

Appendix B: Questionnaire for the Topnaars

Appendix C: Questionnaire for the Primary Wholesalers

Appendix D: Questionnaire for the Secondary Wholesalers

Appendix E: Questionnaire for Potential Retailers in Namibia

Appendix F: Historical and Current Prices Along the Distribution Channel

data source	year	primary price (sales price of producer)	secondary price (sales price of assembler)	tertiary price (sales price of wholesaler)	final price (sales price of retailer)	profit margin (in N\$/Kg)	profit margin (in %)
Böhm, J.A.; in: Moritz, W. (1992), p 30 ff	1883	0.60 Mark/kg (30 Pf/pound)	?	?	?		
Viehe, M.; in: Moritz, W. (1992), p 30 ff	1890	0.80-1.00 Mark/kg (40-50 Pf/ pound)	?	?	?		
Dinter; in: Moritz, W. (1992), p 30 ff	1900	0.40 Mark/kg (20 Mark/ hundredweight)	?	?	?		
Köhler, O. (1975), p 122	1957	0.05 R/kg (1 Engl. Pound or 2,0 N\$/bag) 1 bag= 37,5 kg	?	?	?		
Moritz, W. (1992), p. 30 ff	1969	0.13 R/kg (5 R/bag)	?	?	Walvis Bay: Flamingo Furnishers: 0.22 R/kg (1c/1lb) Swakopmund: store at train station 0.36 R/kg (5c/5oz)		
Webster, J.; Moritz, W. (1992), p. 30 ff	1970	0.13 – 0.15 R/kg (6-7c/lb)	?	Cape Town: 0.27 – 0.31 N\$/kg (12-14c/lb; 14c at Atlas Trading)	Walvis Bay: Funck Store: 0.28 N\$/kg (4c/5oz) Cape Town: stalls on Parade 0.80 N\$/kg (36c/lbs) or 0.88 N\$/kg (10c/4oz)	0.14 N\$/kg	100%
Webster, J. in: Dentlinger, U. (1977), p. 20	1974	0.10 R/kg (10c/kg)	0,18 N\$/kg (18c/kg)	?	Cape Town: stalls on Parade or bakeries 7.00 N\$/kg (35c/50gr)	6.90 N\$/kg	6900%
Grasveld, C. et al. (1993); p 9	1993	3.50 N\$/kg	5,0- 6,0 N\$/kg	?	?		
Botelle, A., Kowalski, K. (1994), p 3	1994	3.40 N\$/kg	?	?	?		
Survey by author	1998/ 1999	Topnaars 6.00 N\$/kg to Flamingo Furnishers; 6.50 N\$/kg to Yon	Walvis Bay: Flamingo Furnishers 12,0 N\$/kg Naraville: Yon 9,5 – 10,0 N\$/kg	Cape Town/ Brackenfell: Gheewala & Sons 12.95 N\$/kg Atlas Trading 19.00 N\$/kg Van Wyk 25.00 N\$/kg	Cape Town Parade or bakeries ? ? ?	> 6.45-6.95 N\$/kg > 13.00 N\$/kg > 18.50-19.00 N\$/kg	> 108-110% > 217% > 308-317%
		Topnaars 6.00 N\$/kg to Flamingo Furnishers	Walvis Bay: Flamingo Furnishers 12,0 N\$/kg	Lüderitz: Martins & Sons 10.00 N\$/kg	?		
		Topnaars 6.00 N\$/kg to Flamingo Furnishers	Walvis Bay: Flamingo Furnishers 12,0 N\$/kg	→	Walvis Bay: Flamingo Furnishers 12.00 N\$/kg	6.00 N\$/kg	100%
		Topnaars 6.00 N\$/kg to Flamingo Furnishers	Walvis Bay: Flamingo Furnishers 12,0 N\$/kg	→	Lüderitz: Sneuve 15.00 N\$/kg	11.00 N\$/kg	183%
		Topnaars: 4.80 N\$/kg to Sentra Supermarket 2.70-10,00 N\$/kg to people in the street	→	→	Swakopmund: Granny's 30.00 N\$/kg Naraville: Sentra Supermarket: ? Naraville + Kuisebmond Streets: ?	23.70 N\$/kg	372%

Appendix G: Stakeholders who should become involved in !nara business planning

(notes, not necessarily for publication, full notes in German)

Stakeholder	Name - Address	remarks
governmental representative	Manfred Menjengwa, Chief Development Planner, Directorate of Rural Development, Ministry of Agriculture, Water and Rural Development Windhoek Tel: 061-224550	
expert in marketing of local products	Pierre du Plessis, Cyril Lombard CRIAA-SADC 22 Johann Albrecht Street P.O. Box 23778, Windhoek Tel: 061 - 220117 email: criaawhk@iafrica.com.na	If the harvest volume is enough, he perhaps could recommend a company to process the !Nara seeds.
UNAM	Prof. Fritz Becker (Dean) Department of Geography and Environmental Studies, UNAM Tel(W): 061-306 37380 Tel(H) 061- 223 580 email: fobecker@unam.de	generally interested in rural development, especially of marginalised groups
UNAM	Prof. Hintze Department of Law, UNAM Tel: 061-206 37010	supervised a 1998 study by UNAM students on customary law of the Topnaars; interested to participate in a !nara stakeholder workshop
???	???	it would be recommended to involve a legal specialist, who knows about the rights of use of the !nara fields, and what hurdles may exist in that respect
primary !nara wholesalers	Mrs. Owen, Mrs. Brits, Mr. John Webster Flamingo Furnishers Walvis Bay Tel: 064-203211 Tel: Mrs. Brits 065 –222325 Tel: Mr. Webster: 064-203106	Especially the former Flamingo Furnishers were known to have personal interests in the Topnaars, albeit for business reasons, and were known among the harvesters as helpers in need, and therefore preferred trading partners. Discretion needs to be shown to not reveal trading prices without permission from the traders.
primary !nara wholesalers	Mr. Yon Malvastr. 24 Naraville Tel: 064-202083 cell 0811292083	Involved purely out of business interests. Not fully trusted by the Topnaars.
primary !nara wholesalers	Mr. Schweikhardt Pelikanstreet Naraville Tel: 064-204941	Past wholesale trader, not fully trusted by the Topnaars.
secondary wholesalers (addresses provided by Flamingo Furnishers & Yon)	Abrahamse & Sons Cape Town Tel: 0027-21 477300	Need not participate in stakeholder workshop, as their trade will continue maybe indefinitely. Abrahamse stopped buying !naras in 1990 due to high prices.
secondary wholesalers	Atlas Trading Cape Town Tel: 0027 - 21-234361	largest !nara trader
secondary wholesalers	Fargo Trading/ Mr. Patel Cape Town Tel: 0027-21-476620	second largest trader, did not reply to questionnaire

secondary wholesalers	Gheewala & Sons Cape Town Tel: 0027-21-6378176	third largest trader
secondary wholesalers	Gert van Wyk Cape Town Tel: 0027-21-9051581	recently entered !nara trade
secondary wholesalers	Martin & Sons Lüderitz Tel: 063-204104	recently entered !nara trade
retailer	Sentra Supermarket owner: Mrs. Mouton Narraville Tel: 064-204270	sell !nara pips in the supermarket (they lost the questionnaire)
potential retailers for !Nara	Delicatess Baumgart Mrs. Hannah Rogers 19 Brücken 81 Swakopmund Tel: 064-463811	If it is planned to develop a local market, Mrs. Rogers must be invited to the stakeholder workshop, as she has initiated her own trials of making jam, bread, cake, oil from !naras, and confirmed that tourists are definitely interested.
potential retailers for !nara	Out of Africa Mrs. Elizabeth v.d. Westhuizen 11 Poststreet Swakopmund Tel: 064-404752	a coffee shop with “health food”, would cooperate if a !nara supply were reliable
potential retailers for !nara	Granny’s Mr. Peter Petersen 8 Shoprite Centre Swakopmund Tel: 064-404848	interested to become involved
potential retailers for !nara	Save the Rhino Trust Administration Manager Mrs. Lorna Davis Knobloch Street Swakopmund Tel: 064-403829	interested in becoming involved in associated products, such as artwork for packaging, especially where Topnaar women are involved
TCF	Rudolf Dausab	
Chief	Seth Kootije Tel: 064-207103	
interested Topnaars	Salmon Khurisab Ituseb	harvester, 38, very diligent, clever, interested
	Helmut Nawab Dawedraais	harvester, casual jobs, ca. 32, diligent and very interested
	Lidia Swartbooi and her mother Lisa Beukes Armstraat	harvesters, the only ones who attempted to extract high-grade oil from !nara seeds, and tried to sell !naracake to tourists
	Sophia Herero und Familie	harvester family with a long tradition
	Piet Bees Natab	one of the most experienced harvesters, 63
	Romanus Bees Armstraat	harvester, 18, grandchild and team partner of Piet Bees, convinced that !nara business will continue
	Justin Kham (Soutrivier), Hermina !Naris, Maria Xoagus, Dawid Gaweseb, Max Swartbooi (all Klipneus)	interested and should definitely become involved

Appendix H: Preliminary proposal for Inara marketing in the season 2000/2001

[this part should not be published openly, as it contains prices for each trader, and they may not want this to be disclosed publicly, only as part of the study]

This preliminary proposal concentrates only on the trade with Inara seeds in bulk and does not take possible processing of Inara to cakes, jam, liquor, oil, souvenirs into consideration. These products have to be developed and tested for the market, although the Topnaars already know how to make them for own consumption. While research and development (R&D) of those new products will take place, income should be ensured by supplying the traditional market with Inara seeds as was done before, but with one main difference:

As Flamingo Furnishers closed its store, the main Inara trade intermediate has disappeared. (The only assemblers of Inara pips in 1997/98 were Flamingo Furnishers and Yon; in 1997/98 Flamingo Furnishers sold 33 % (5 000kg) and Yon only 3,7% (550kg) of the whole harvest volume of 15 000 kg). Now is the chance to begin marketing Inara pips directly to the wholesalers in RSA. As the demand of RSA wholesalers in Cape Town is stable, it should be possible for the Topnaars to directly supply those wholesalers who were former customers of Flamingo Furnishers and Yon. By avoiding any interfering merchandiser, the main share of the total profit margin can be received by the Topnaars. Recent sales and profit statistics can serve as guideline:

Data for the Inara harvest of 1998:

- **Inara harvest volume:** around 15 000 kg/season
- **Inara sales volume to wholesalers in RSA:** around 5 550 kg
- **Inara sales volume all together:** around 13 800 kg (around 1 200kg is the minimum volume for self consumption), that means 8 250 kg was directly marketed by Topnaars.
- **Potential Inara harvest volume without cultivation of Inara:** 20 000 – 25 000 kg/season
- **Primary sales price, sales price of Topnaars to assemblers:** N\$6.00–6.50/kg
- **Secondary sales price, sales price of assemblers in Walvis Bay to wholesalers in RSA:** N\$12.95-25.00/kg
- **Final consumer sales price, sales price of retailers in RSA/Cape Town** (stall owners on the Parade & bakeries): not available, historical data show a margin of 500%
- **Final consumer sales price in suburbs of Walvis Bay:** N\$12.00–30.00/kg
- **Potential of profit margin** (difference between final consumer sales price and primary sales price of Topnaars) **in RSA:** 300–500%
- **Potential of profit margin in suburbs of Walvis Bay:** 100–300% (N\$30.00/kg is not realistic).

The following table lists all current and possible interested wholesalers and retailers, where a representative or the manager of the Topnaars Inara business should submit sales offerings. Basic information for further information is given like: name, address of customer, the average demand, the preferred Inara quality, the last purchase price, and a recommended price for business in the season 2000/2001. In general, the Topnaars should consider that a much higher sales price of Inara pips will kill business with RSA wholesalers, as Inara pips are not an essential food product, but a product that is consumed by Indian and Malay people out of habit, and probably could be easily substituted by other nuts or seeds if the price for the final consumer becomes unreasonably high.

Location	Name	Address	Average demand in 1994-1997 potential demand	Preferred quality	last purchase price	recommended purchase price
Cape Town	Gheewala & Sons	POBox 84 Cape Town/Gatesville 7764 Cape Town S.A. Tel:+ 27 21 637 8176 Fax: + 27 21 6371817	177 kg/ year 10000 kg/year	dry, spotless, big seeds	9.50-12.00 R/kg	try 10.00 to 13.00 R/kg
Cape Town	Atlas Trading	POBox 4785 94 Wale Str Cape Town/ S.A. Tel: + 27 21-234361 Fax: + 27 21-4261929	1850 kg /year 5000kg/year	dry, clean, big seeds	12.00 R/kg	try 12.00-13.00 R/kg, Atlas Trading will only allow a 5 % rise of price
Cape Town	Abrahamse & Sons	334 Lower Mani Road Observatory Cape Town /S.A. Tel: + 27 21 477300 Fax: + 27 21 478272	500- 2200 kg/year 2000kg /year	dry, spotted (shell with rests of dried fruit flesh), big seed	5.99 R/kg, he stopped purchasing in 1990, because the price was too high	try to acquire again with low price like 7.00 R/kg, if there is still a surplus of pips after having supplied the other traders
Cape Town	Fargo Trading	Malta House No. 3 Malta Road,7925 Salt River Cape Town/ S.A. Tel:+ 27 21 476620 Fax:+ 27 21 4485048	1120 kg/ year	did not answer questionnaire	12.00 R/kg	try 12.00 – 13.00 R/kg
Brackenfell/Cape Town	Dried Fruit for Africa (owner: Menelt van Wyk)	Range Road, Blackheath Park, Blackheath, PO Box 381 Brackenfell/S.A Tel: + 27 21 905 1581 Fax: + 27 21 9052248	200kg/year 300 /kg/year	dry, clean, shells without rests of dried fruit flesh, small seeds	12.00 R/kg	try 12.00-13.00 R/kg
Lüderitz	Martins & Sons	PO Box 347 Lüderitz/ Namibia Tel: 063 202735	77 kg/year ?kg/year	clean, small seeds	12.00 R/kg (?)	his former purchase price is not precisely known, try 10.00 to 13.00 N\$/kg
Walvis Bay/Naraville	Sentra Supermarket (owner: Mrs. Mouton)	Naraville Tel: 064-204270	response to questionnaire was mailed but never arrived		4,80 N\$/kg, supplied by Helmut Naweb (Topnaar harvester)	try 6.00 N\$/kg
Swakopmund	Granny's (Owner: Peter Petersen)	8 Shoprite Centre Swakopmund Tel: 064-404848	did not answer		10,00 N\$/kg	stay at this price
Swakopmund	Delicatess Baumgart Mrs. Hannah Rogers	19 Brücken 81 Swakopmund Tel: 064-463811	new very interested customer			8.00-10.00 N\$/kg
Swakopmund	Out of Africa Mrs. Elizabeth v.d. Westhuizen	11 Poststreet Swakopmund Tel: 064-404752	new very interested customer			6.00-10.00 N\$/kg

Calculation for income generation in case of direct marketing in season 2000/2001:

Assumptions:

- Total number of harvesters in the lower Kuiseb: 40
- Harvest volume/season: 20000 kg
- Volume of self consumption: 1200 kg
- Total sales volume: 18800 kg
- Sales volume to wholesalers in RSA: 18000 kg
- Sales volume to retailers in Swakopmund, Walvis Bay and to informal markets in Kuisebmond, Naraville: 800 kg
- Assumed average primary sales price to wholesalers in RSA: 12.00 R/ kg
- Assumed average primary sales price to retailers and informal customers in Namibia: 7.50 N\$/kg

- **Turnover of sales/season in total:** $18000 \text{ kg} \times 1200 \text{ R/kg} + 800 \text{ kg} \times 7.50 \text{ N\$/kg} = \text{N\$ } 222000$.
- **Turnover of sales/season/harvester:** $\text{N\$}222000 / 40 = \text{N\$}5550$
income/year/harvester
- **Turnover of sales/month/harvester:** $\text{N\$}462.50/\text{harvester/month}$
The monthly income per harvester has to be reduced by the cost of transport, trading staff, and store room.

- **Costs:**
 - *transport from the fields to a store room or to retailers in suburbs of Walvis Bay and Swakopmund:* rent for a 4x4 bakkie for about 6 collection trips during the harvesting season from February to April (Chief Kooitjie, Rudolf Dausab or other Topnaars in town, who have a car should be asked, if they will take over the transport while an appropriate payment is guaranteed.) Until the times of collection, bags should be stored safely in the Topnaars huts or in appropriate shelters in the field. The date and route of collection should be announced by radio.
→ *assumed cost/year:??*

 - *store room: interim store room - if necessary - either in Ituseb/school or Rooibank/water affairs* (only if a room is available for free)
 - *store room in Walvis Bay/ Kuisebmond, Naraville:* try to find an appropriate cheap, dry and dark store room. Ask e.g. Flamingo Furnishers if they would like to rent their old facilities, or ask Mr. John Webster of 'Jaydee's', Walvis Bay, 9th Str., or 'Save the Rhino Trust' or 'Delicatess Baumgart' in Swakopmund (these people all seem to be very interested, helpful and social; John Webster regretted having dropped the work with the Topnaars in the past, because his sister took over the business of their father in the '90s. Probably he is interested to support the whole business.) Ask the Municipality of Walvis Bay for possible store rooms.
→ *assumed costs/year: ??*

 - *transport from store room to Cape Town:* Flamingo Furnishers used the transport facilities of 'Westbank Transport' in Walvis Bay. Mr. Yon, Malvastreet 24, Narraville, is a transporter himself. He is transporting fish products from Walvis Bay to the Cape and bringing back fruits. In the last years he got into !nara business, but as a merchandiser. As no foreign party should interfere in the !nara business, he could be asked to continue transporting the !nara but without taking title to the goods and reselling them again. To minimise the costs for transport, the best offer for transportation facilities has to be looked for in the area of Walvis Bay. Transport should only take place three times during a season in order to keep costs low. The wholesalers should be informed about the dates of the deliveries.
→ *assumed costs/season: ??*

 - *staff for collecting, weighing, storing, overall co-ordination of those activities (assembler):* Person is located in the store room, has to announce the collection rides through the fields, he has to inform the harvesters what quality is required and has to inspect the quality, he has to weigh the goods, administer the incoming and outgoing volumes. He has to pay the harvesters. He has to conduct the supplies to the customers in the local market around Walvis Bay. Transport trips to town should be limited to three times during a season.

→ *assumed costs /year: salary, scale, office material, cost of communications: ??*

- *staff for management, acquisition and marketing:* Person has to care for the official register of the !nara business, bookkeeping, payments, for the fulfilment of health, safety, hygienic standards, for the fulfilment of export requirements. Person has to contact the envisaged customers in RSA and Namibia. He has to explain the project, the changes in the !nara business. He has to ask for the required quality and quantity during the season. He has to leave a detailed business address and office times, where he can be reached. He should fix the dates of supply (maximum three during a season). He should offer the goods for the maximum recommended price. (For first business support one may ask Mrs. Owens, former accountant of Flamingo Furnishers or Mrs. Brits, manager of Flamingo Furnishers, they both are very helpful.)

→ *assumed costs/year: salary, office material, communications, office rent: ??*

- *control committee:* group of person that should consists of Topnaar harvesters, of experts from NGOs, GRN, etc. Committee members should do the work on an honorary basis and without self-serving interests. The chairman should not be directly involved in the !nara business, nor the traditional leadership, and should be re-appointed from time to time. The committee should found an institutional framework for a communal !nara business, appoint the manager and the assembler. The committee should provide any Topnaar with the equal possibility to take part in the business and should guarantee equal distribution of benefits through the !nara business. They should prevent corruption and the danger of self-serving interests.

Assumed income, based on a guess of the costs:

- **assumed total costs/year:** N\$70000
- **assumed profit/year: turnover – costs =** N\$222000–N\$70000 = N\$152000
- **assumed income/year/harvester: turnover-costs/harvester:** N\$316.70
/harvester/month

Compared to an average income of N\$420.50 /harvester/month and a median value of N\$350.00 /harvester/month as derived from the interviews in 1998/99, the monthly profit seems to be low, but as the following figure reveals, !nara contributes only less than 50 % to the harvesters' total income. The total monthly income *during the whole year* will then amount to around N\$532.80 /household/month (N\$316.70 plus 51.4% of N\$420.50).

This monthly income can be increased substantially if new products of !nara will be added to the sales program. First, additional profit can be generated by the processing of fruit pulp into products like jam, liquors, and dried fruitcakes, which has not been commercially exploited until now. Second, higher profit can be generated if !nara pips are not sold in bulk any more, but processed further to products with high value-addition, which will achieve a better price per kg pips. R&D of those new products must be done, while the old traditional market is used to provide the necessary income to survive. A volume of 800 kg, which is normally used for sale to the local markets, can also be used for experimenting with new products like oil and cosmetics.