MINISTRY OF AGRICULTURE, WATER AND RURAL DEVELOPMENT

HORTICULTURAL PRODUCTION & MARKETING IN THE KAVANGO REGION

Final report

August 2001
SERIES OF REPORTS CONCERNING THE CONSULTANCY ON THE KAVANGO HORTICULTURAL PRODUCTION & MARKETING PROJECT:

PART 1:
HORTICULTURAL PRODUCTION & MARKETING IN THE KAVANGO REGION (FINAL REPORT)

PART 2:
HORTICULTURAL MARKETING IN THE KAVANGO REGION (VOLUME ONE)

PART 3:
HORTICULTURAL MARKETING IN THE KAVANGO REGION (VOLUME TWO)

PART 4:
PLAN OF ACTION FOR IMPLEMENTING BASIC FOOD STANDARDS FOR HORTICULTURAL PRODUCE IN NAMIBIA
Executive Summary

1 Introduction

1.1 The Kavango Horticultural Production and Marketing Project was formulated as a one-year pilot phase project of the MAWRD to support small-scale horticultural producers in the Kavango Region. The project, launched in May 2000, was designed to better understand some of the major constraints of Namibia's smallholder horticultural sector as they were identified by prior studies.

The UK-based company Natural Resources International Limited in association with Namibia Resource Consultants cc was awarded the consultancy to execute the project. However, the unstable security situation in the Kavango Region prohibited the project from covering all smallholder gardens in the region, as was the initial intention of the project. It was decided to concentrate on gardens in the near vicinity of Rundu. The farmers at the Salem Irrigation Project, situated 7 km east of Rundu, were identified as the main target group. The recommendations in this report should be interpreted with caution because the circumstances of a semi-war situation could have made an impact on the conditions at the time of project implementation.

1.2 The overall objective of the project was to increase returns realised by farmers from horticultural production in the communal-tenure areas. The expected outputs of the pilot phase was for small scale farmers, DARD field staff, planners and higher management staff to gain clearer understanding of the structure and functioning of horticultural production and marketing in the Kavango region. The project was also expected to give indications of an appropriate set of interventions (i.e. a model or process) that would enhance the development of the sector in Kavango and other areas.

2 Background to horticulture in Kavango

2.1 The KHPM-Project has identified 3 major interacting factors that have an impact on the functioning of the horticultural farming system. These are production, socio-economic and marketing related issues.

A horticultural farming system is vulnerable to external factors and this makes horticulture a generally high-risk form of agriculture. The ability of the producer to cope with these external factors and his capacity to manage them in a sustainable way largely determines the success and failure of a horticultural business.

2.2 Most gardens in the Kavango have depended (and some still depend) heavily on subsidisation in one form or another. Donor organisations do not always realise that subsidising gardens disadvantages the efforts of true entrepreneurs and distorts the market. Also the impression is given that support from a donor agent is needed in order to start a garden, while a successful horticultural enterprise can be initiated by starting off small. This is how most individual gardens in the Kavango were established and they have proved to be reasonably successful.
The potential of the informal market is overlooked by most horticultural development projects. At the same time, helping producers to market their produce will discourage the establishment of traders.

3 **Actors in the Rundu horticultural production and marketing chain**

3.1 An estimated 176 people are permanently involved in horticultural production with the main objective of marketing their produce. Fifty five per cent are individual producers, while 45% produce on community plots. The total area for vegetable and fruit production under irrigation in Kavango is estimated at 100 ha. Most vegetable growers in Kavango are small growers. The highest concentration of gardens can be found in the near vicinity of Rundu. The Rundu constituency has the big advantage of having a market nearby and this has lead to the establishment of several market gardens in this area.

3.2 Due to an increasing demand for horticultural produce in the last few years, a growing number of actors have entered the horticultural marketing chain in Kavango. The two actors that play a key role in the distribution process are the informal market traders and the formal wholesale buyers. They fulfil the same function by bringing the produce from the supplier to the consumer, but they work almost completely independently from each other.

3.3 The informal traders operate without any other commission agent interfering, so no transaction costs are involved. They supply their own packaging and organise transport to and from the producers' fields. Informal traders mostly buy local produce and have a preference for the cheaper traditional vegetables (cabbage, mutete, green leaf onions and green maize).

3.4 The formal market is a very competitive market. Because the wholesale/supermarket buyers have the opportunity to buy from many potential suppliers, they are able to purchase where the prices are the lowest. As a result they often buy from South Africa, where production costs are lower and the climate is more favourable for a wider range of vegetables. An increasing amount is bought from the triangle. In addition to the wholesalers and retailers, the formal market also includes the institutional market. This market is relatively small in Kavango and predominately in the hands of one catering company, which holds the tender for supplying government institutions. Other institutions such as the Roman Catholic hospitals and schools demand small quantities of vegetables and could form an attractive market for local producers.

4 **The supply of horticultural produce with special reference to Salem**

4.1 The Salem Irrigation Project is situated 7 km east of Rundu and was started in August 1986 by a German church organisation. After independence it was handed over to
MAWRD. Support to the project was slowly reduced and is nowadays limited to technical assistance. Yields have doubled in the last 10 years. Nowadays Salem produces around 620 tonne of fresh produce per year. From this amount, 90% is sold through the informal urban markets in Rundu as well as to the village markets.

4.2 When producers’ access to services is improved, this does not guarantee that the producer will make use of these services. This is where the demand for a service becomes important. It is sometimes assumed that there is demand for a specific service because it is good for development of horticulture, but this is not always the case. Alternatively, the demand is there but farmers do not actively pursue the service they require. Unfamiliarity and an inaccessible format in which the service is offered are other contributing factors for producers not effectively making use of services. A lack of knowledge, illiteracy, cultural barriers between producer and suppliers, inability to communicate and poor efficiency of Extension service are some of the other contributing factors. It is recommended that Extension maintains closer links with the private sector, that agricultural shows are organised to familiarise stakeholders with the services on offer and that the informal sector is considered as a possible supply agent of agricultural inputs.

4.3 Socio-economic aspects largely influence farmers’ decision-making processes. At Salem, the ownership and decision-making power over the project and cultivated land is not clear and producers (and traders) have different social backgrounds (wealth groups, gender, ethnic/cultural difference). The situation of the HIV/AIDS pandemic in Namibia today has become the number one threat to human development and has important social implications. Extended families have an impact on expenditure patterns, which can hamper business growth. Due to the temporary character of employment of farm workers, knowledge is easily lost rather than being passed on from producer to worker. The very low wages also contribute to a lack of performance and loyalty of farm workers and there is a high turnover of employees as a result. It is important that technical solutions are also complimented by socio-economic solutions.

4.4 Horticultural Producers at Salem and elsewhere in Kavango face several technical challenges. Horticultural crops are generally much more technically demanding to grow and require much greater investment in time and money than other crops. Higher risks are involved than in other forms of agriculture. In most cases it is mostly the elite farmers who become seriously involved and successful in fruit and vegetable production.

4.5 Apart from a few exceptions, the technical capacity of most producers is low. Many of the producers at Salem have no clear vision of their business and lack the ability to recognise and respond to certain trends.

4.6 Climate is one of the major obstacles for development of the horticultural sector in Kavango. The high evaporation rate in the summer and possibility of frost in winter gives sub-tropical crops a very small window. The climate is appropriate for temperate vegetables such as cabbage and onions, crops that performs well in Kavango at certain times of the year. There is thus a relatively low range of
vegetables and the market seasons are short. Marginal soils, high occurrence of pests and diseases, incorrect irrigation management and lack of suitable cultivars are some of the technical constraints that affect the production of local vegetables. There are areas in Southern Africa which are much more suited for year-round production and a wider range of crops, giving these areas a higher competitive advantage over the Kavango Region. Assets such as the Kavango river do not automatically mean that everything can be produced locally. In theory, this is a possibility, but this would in most cases result in higher prices for the consumer, because of higher investment and production costs would be involved.

4.7 A lower input level in combination with incorrect agronomic practices and poor general management is the main reason for the weak performance of most of the producers in the region. However, gross margins analysis showed that good growers are able to make good potential profits. Two farm models were designed based upon data gathered at Salem. This data showed that a good producer has the potential to make a profit of N$ 50,000 per year. A poor/average producer is still able to make a profit of N$ 13,000 per year. Break-even analysis showed that a good producer is making a sufficiently large margin to be able to accept a lower price. Break even selling price information will be important if the formal market becomes over supplied in the future and producers are forced to look for alternative marketing opportunities. Growers (both good and poor/average) are under-utilising their resources, but are generally complacent with respect to their situation. They will be vulnerable if significant new investments in horticultural production with competent management are made in the region and they will become increasingly vulnerable to competition from the triangle. It can be concluded that only a selective group of producers is able to produce vegetables successfully and profitably in Kavango.

4.8 The difference in market strategy between the triangle producer and the local Kavango producer is that the triangle producer sells the majority of his produce to the formal market and his surplus and poorer quality produce to the informal market, whereas the Kavango producer sells the majority of his produce to the informal market and tries to sell his surplus to the formal market.

4.9 It is important for local producers to supply the informal market for as much of the year as possible to keep new entrants out. Currently the horticultural sector in the triangle is expanding rapidly, farmers are investing large amounts of money in their business. Some of these triangle producers have changed part of their marketing strategy and are now targeting the informal market as well as the formal market. However, the informal market is still mainly supplied by local Kavango producers since they have the advantage of the proximity to the market, which gives them a higher competitive advantage for low value leafy crops. The small size of these markets also makes it more difficult for producers from outside the region to gain competitive advantage through economies of scale.

4.10 Marketing extension is the concept of enabling extension staff to provide marketing advice in such a way that the producer is able to make his own informed marketing decisions. Gross margin calculations and farm models are extension tools, but also
provide a link with agri-business organisations and other private sector agencies that will help to empower the producer and encourage him not to be dependent, but take his own initiatives.

5 The demand for horticultural produce with special reference to the informal market

5.1 The local market for horticultural produce in Rundu is small but expanding. The population of Rundu has increased from 16,000 in the early 90’s to 45,000 in 2000. This growth in population and migration to the urban areas brings a change in consumption patterns and results in an increasing demand for fresh fruit and vegetables.

5.2 Producers at Salem have a good understanding of their target market: the informal market. They produce mainly those crops that are in high demand such as the cheaper leaf vegetables, cabbage, onions and green maize. The fact that producers are often criticised for not having a clear production plan probably stems from the fact that support to the horticultural sector often has taken the form of encouraging producers to enter the formal market and efforts to supply this market segment have not been very successful. Reasons for not developing the formal and institutional market segments are: lack of critical mass to supply these markets on a regular basis, unfamiliarity with the fluctuating prices and lack of negotiating and communication skills. Only a very few more ambitious producers have so far been able to target this market for short periods. The formal market is only willing to buy local produce if the produce is offered at a lower price or the quality is exceptionally better.

5.3 Previous projects and studies have focussed on problems that producers experience with selling to the formal market and have underestimated the value and role of the informal market segment. Urbanisation, lack of job opportunities in the private sector, improvement of informal market facilities and low entry barriers/requirements have contributed to the increase of informal traders.

5.4 Observations at the market at different times showed that the informal market is almost entirely dominated by produce from Salem and a small number of gardens in the Rundu rural and urban constituency. It is estimated that the size of the Rundu informal market is between 500 - 750 tonne of fresh vegetables per year of which half is cabbage.

The Salem exit survey recorded that at the end of July, over 160 traders came to buy produce at Salem daily. In February, when less produce was sold, there were still around 50 traders per day. The amount of produce bought per trader is small, averaging about 15 kg, worth N$ 15. Their mark-up is 100% but margins are small because of transport costs and rent of a stand at the market. The range of produce sold is small but expanding gradually. The most popular vegetables sold are leaf and head cabbage, mutete, tomato, green leaf onion, green maize and sweet potato.

The informal market traders are a unique group who have found an opportunity to improve their livelihood through the trading of vegetables. By doing so they have
created a marketing system that allows producers to successfully market their vegetables against reasonable profits. The traders have shown a remarkable degree of initiative in setting up and running their micro-businesses. The informal business sector not only reduces the dependency burden on the government for employment, but more importantly it also helps to fight hunger and poverty.

6 Future development of the horticultural sector

6.1 Development of the Rundu informal market will result in increasing competition between:
- Other producers in the Rundu vicinity who have realised the potential to make good margins by supplying the informal market;
- Existing producers who have increased their output by investing in better technologies and management;
- Producers from the triangle, who are currently making large investments and are able to obtain higher yields through better management – they have recently also discovered the informal market and are benefiting from the increasing demand for vegetables in the northern regions;
- From the "new generation" of emerging producers in the sector, who have better entrepreneurial skills, formal agricultural education and capital to invest.

These development scenarios should be encouraged since they will help the horticultural sub sector to become more mature and healthy. There will be more balance between supply and demand, which in the long term results in a more sustainable market system.

6.2 The KHPM Project strongly believes that the traders operating at the informal market can be the catalyst for improving marketing of horticultural crops in the region. The view is that working with the women in the informal market will improve presentation and efficiency and therefore improve the informal market sector. This will create a process of synergy and stimulate farmers to produce better yields and higher quality. Secondly, a few of these traders and/or incipient entrepreneurs can be encouraged to unlock some of the more formal market segments, by buying produce from local producers in bulk and reselling to caterers or supermarkets.

6.3 From a workshop with traders and producers, it became clear that there was special potential for the development of skills of the informal traders by providing appropriate capacity building.

It was recognised that there are two distinct groups of traders, both of whom need assistance to improve their marketing capabilities:
- The majority of traders who are involved in the informal marketing of horticultural produce – they need support in basic marketing principles and record keeping;
- Those few traders or other entrepreneurs who have the potential and capacity to become intermediaries between producers and the formal market – this group needs to be introduced to the opportunities that exist to start supplying this formal market segment.
6.4 The KHPM-Project is of the opinion that producers have received the most assistance in the past but displayed the least initiative and therefore this calls for a different approach. Assistance to small producers must be practical and focus on their true needs. With the adoption of a market-led approach and the introduction of the concept of marketing extension, which aims to empower producers to take responsibility for marketing, this should also facilitate production.

6.5 Government support to both large and small-scale producers should be given in a different format. Creation of a favourable climate for investing in the horticultural sector and provision of marketing information (extension) will enhance the emerging large-scale entrepreneurs. In order to prevent the small-scale producers from being the victim of increased competition, government should ensure that structures are being put in place that allow these smaller producers to compete on the informal and formal market.

6.6 The aim of a proposed follow-up intervention will be to contribute to the overall framework of efforts to promote the production and consumption of domestically produced agricultural produce through a market-led approach. Within this framework, the objective of the recommended follow-up project is to support stakeholders in the local marketing chain and help create favourable conditions for the emergence of a local economically sustainable marketing system for horticultural produce in the Kavango Region through a market-led approach. The intervention will be focussed towards the enhancement of the marketing linkages between the producers in Kavango and the traders and retailers of fresh horticultural produce.

6.7 It is recommended that a Horticultural Marketing Specialist be deployed to co-ordinate and facilitate these activities and maintain close linkages with extension and the private sector. The project should preferably be part of a larger horticultural programme or framework to promote the production and consumption of domestically produced agricultural produce in Namibia. Such a larger programme will ensure a more holistic approach in the design to take into account cross-sectoral linkages.

(See chapter 7 of this report for a summary of the recommendations)
1. Introduction

1.1 Background to the project

The Kavango Horticultural Production and Marketing (KHPM) Project was formulated as a one-year pilot phase project of the Ministry of Agriculture, Water and Rural Development (MAWRD) to support small-scale horticultural producers in the Kavango Region. The project, launched in May 2000, was designed to better understand some of the major constraints identified by prior studies that looked at Namibia’s smallholder horticultural sector, namely:

- Lack of expertise in horticultural production and marketing on the part of government extension personnel, producers and traders, which results in low yields, poor quality produce and a virtual absence of links between production and marketing;
- Limited access for farmers to most inputs needed for intensive horticultural production as well as reliable information regarding the use of these inputs (seeds and agro-chemicals);
- A shortage of business skills amongst farmers and traders (planning, budgeting, accounting and negotiation);
- Inability of (small-scale) producers to take a long term view to production and produce for the local retail outlets or caterers (supplying state institutions, such as hospitals, army etc.) who require continuity, quantity and quality of supply and work on contract basis;
- Lack of economies of scale (critical mass) to compete with larger growers;
- Limited access for producers to market intelligence, especially in the formal market sector. Particularly, lack of knowledge of prices, poor links with potential buyers, restricted knowledge of market needs and specifications, and inadequate baseline information to aid production planning.

The UK-based company Natural Resources International Limited in association with Namibia Resource Consultants cc was awarded the consultancy to execute the project. Two Technical Assistants (TAs), namely Ms. Jantien Zuurbier and Mr. Menno Keizer, were appointed for the day-to-day management of the project and were based at the Regional Agricultural Extension office in Rundu. Both TA’s are qualified Horticultural Advisors and have experience with agriculture/horticulture in the Kavango Region. Ms. Zuurbier was the project’s team leader.

Short-term input in the form of a Horticultural Marketing Specialist, Dr. Andrew Sergeant provided the necessary back up to the team in terms of analysing the marketing situation. Short-term local consultants were used to assist the project in the fields of business management training for farmers and informal market traders

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(Pahuka training Programme for Small and Medium Scale Enterprises, and Namibia Resource Consultants cc respectively). The project also used part of its funds to finance a study into the prospect of implementing the Codex Alimentarius food standards for horticultural produce.

The unstable security situation in the Kavango Region prohibited the project from covering all smallholder gardens in the region, as was the initial intention of the project. It was decided to concentrate on gardens in the near vicinity of Rundu. The farmers at the Salem Irrigation Project, situated 7 km east of Rundu, were identified as the main target group for the project. The recommendations in this report should therefore be interpreted with caution because the circumstances of a semi-war situation could have made an impact on project implementation. However, focussing on a smaller target group had the advantage that available resources did not have to be spread too thin, while many of the lessons learned could apply to similar situations elsewhere in the region and in northern Namibia.

Due to efficient use of available funds the project was able to run over a longer period and was extended beyond the initial one-year period for a further three months.

1.2 Objectives and expected outputs

The overall objective of the project was to increase returns realised by farmers from horticultural production in the communal-tenure areas. This will increase food security, improve nutritional status and create a more sustainable livelihood for smallholder horticultural farmers as well as employment opportunities in the Kavango Region, all of which are in line with the National Agricultural Policy.

The main tasks for the pilot phase included:
- Encouragement of co-operative production and marketing;
- Enhancement of horticultural farmers, traders and wholesalers ability to access information in order to make rational business decisions;
- Improvement of small-scale farmers’ ability to run commercial horticultural enterprises, and;
- Preparation of an action plan for a follow-up project.

The expected outputs of the pilot phase was for small scale farmers, DARD field staff, planners and higher management staff to gain clearer understanding of the structure and functioning of horticultural production and marketing in the Kavango region. The project is expected to give indications of an appropriate set of interventions (i.e. a model or process) that would enhance the development of the sector in Kavango and other areas.

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2 Some of the findings are not easily transferable because of virtual absence of the informal market traders who play a major role in the Salem and Rundu scenario.
A work plan was created from the outcome of a planning meeting with horticultural stakeholders in Kavango after the start of the project. After the short-term marketing consultancy in August, the recommendations of this consultancy and the work plan were combined to form a logical framework. The initial logical framework was later evaluated and revised to indicate which indicators had been achieved and which could not be achieved and why. The document (Evaluation and revision of logical framework, KHPM-Project, April 2001) also indicated new objectives and outputs that emerged during the implementation of the previous log frame.

1.3 Structure of the report

The report is divided into 7 chapters. The first two chapters will set the scene. Chapter 3 concentrates on the stakeholders in the horticultural sector in the Kavango Region. Chapter 4 will focus on the supply of horticultural produce in Kavango and the weaknesses and opportunities that exist. This chapter will also present the farmers at the Salem Irrigation Project and how they cope with the internal and external dynamics of their horticultural enterprise. Technical production aspects and socio-economical factors are described in more detail in chapter 4. Produce demand in Kavango and marketing issues are further explored in chapter 5. These findings are largely based upon the work and information initiated by Dr. Sergeant and continued by the KHPM-team. This chapter is partly complementary to, and partly a summary of, the reports “Horticultural marketing in the Kavango Region” part one and two (Sergeant, August/May 2000/1). Chapter 6 looks at the need to adopt a longer-term vision and a market-led approach. This chapter looks at how the markets for horticultural produce are likely to develop and how small producers and informal traders can participated in this development process. The last paragraph focuses on future interventions. The last chapter summarizes the main recommendations made in this report and is split up in a paragraph about policy recommendations and a paragraph with more direct (practical/technical) recommendations aimed at AET's, producers and traders.

It is almost impossible to write a report that encompasses all impressions and experiences that the team was exposed to during the last fifteen months. The KHPM team has tried to adopt a broad perspective approach to this report, while case studies are included to tell story from the experience of individual stakeholders.

A list of all KHPM-Project reports and short-term TA inputs can be found in Appendix A.

1.4 Acknowledgements

The KHPM-team wishes to thank all people who have made valuable contributions to this consultancy. For more than a year the team received considerable support and cooperation from colleagues in the Ministry of Agriculture, Water and Rural Development and from other stakeholders in the public and private sector. A special
world of thanks goes to the horticultural farmers in the Kavango region and from Salem in particular. Although the KHPM project was sometimes looked at with some scepticism and the Salem farmers were never afraid to air their criticism, working with this group was even more interesting and challenging. Their willingness to share their experience has been of the utmost importance. The team is especially thankful for the contributions of Sebastian Haushiku – even though he often pointed out the limitations of his formal education, he could not have been a better counterpart to the team. His organisational and horticultural skills, ever lasting patience and respected place in the community provided the perfect link with the farmers.

The consultants are also indebted to many others who provided assistance in the past months and in particular to Ms Tarah Minchin, project co-ordinator at NRIL for her positive back-up and administrative support, Andrew Sergeant who’s contribution has put a important mark upon the direction of the project, Rod Davis and his team at NRC for their input with the market traders, all Steering Committee Members for their feedback during meetings. Also, special thanks goes to the Pahuka training Programme staff, the traders and mangers at the open market and street markets, the staff at the Extension Office in Rundu for their logistic support and friendliness, AETs in Kavango and many others whom we have forgotten to mention here.
2. Background of Horticulture in Kavango

2.1 Geographical area

The Kavango Region is situated in the North East of Namibia (see fig. 1). The perennial Kavango River marks the border with Angola in the North. The region also borders with the Ohangwena and Oshikoto Regions in the West, Otjozondjupa in the South and the Caprivi Strip and Botswana in the East.

Kavango has one of the fastest growing regional populations in Namibia, and with an estimated 179,000 people, it constitutes almost 10 percent of the national population. The population of Rundu, the main town, has more than doubled in the past decade from 16,000 to 45,000 (el Obeid 2001). This increase can partly be attributed to the settlement of a large number of Angolan refugees.

The Kavango region is a large region (4.6 million hectares), but the majority of the population are settled in a narrow strip of 5-10 km along the south bank of the Kavango River. The so-called Maize Triangle is situated south of that area in the Otjozondjupa Region and is used by commercial farmers.

Figure 1: The Kavango Region and location of the main gardens in the region.

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3 The term ‘commercial farms’ could create some confusion. The expression no longer refers to the mostly white-owned, farms situated in the so-called commercial areas, but rather to the purpose of production (i.e. for commercial sale rather than subsistence). Horticultural farming in the communal areas can therefore also be seen as a commercial activity.
A large proportion of the cropping areas in Kavango belong to the Kalahari Sands Plateau and the dominant soil type is referred to as Haplic Arenosols (FAO Soil Units and Fertility Capability Classification, AEZ, 1998/9). These are mainly deep sandy soils with a marginal dependable growing period, even for drought resistant crops, owing to the low moisture retention and fertility status of the soil. The terrace system of the Kavango and Kwando Rivers are⁴: “the most suitable for irrigation. Soils, land slope, surface smoothness, nearness of a permanent water source, an already intensive degree of cultivation in the area and potential to increase farmers income are factors that earmark this area as a prime target for irrigation development. The main limitation of this area is that it is small (1700 km², and mostly situated in Caprivi)”. However, experience from farmers cultivating on these soils shows that there are risks of seasonal flooding and salinisation.

The majority of people in the region base their livelihoods around the region’s most prominent feature: the Kavango River. The amounts of water that flows through the river varies a great deal during the year. At Rundu, the flow of the Kavango River reaches its highest level in April (2500 Mm³) and lowest level in October (400 Mm³). The total amount of water drawn from the Namibian side of the river was estimated to be 5.1 Mm³ in 1996, plus another 0.26 Mm³ from boreholes close to the river. This was much less than was allowed in terms of permits issued for irrigation and domestic supply purposes. In the early 90’s permits provided that 18 Mm³ per year be drawn from the river. The greatest use of river water was for irrigating Namibia Development Corporation and government farms, mainly downstream of Rundu, and to supply the town of Rundu itself (el Obeid, 2001). The river confers the Kavango Region with a significant comparative advantage in terms of vegetable production over most other regions in Namibia.

Rainfall is highest in the Northeast of the region, with an average of around 600 mm/year and declines towards the South and West. Average growing periods are reduced from above 120 days to 90 days in the more marginal farming areas (Coetzee, AEZ Project, 1998). Even though Kavango is sub-tropical, its climate is very dry from May to October. This is due to high rates of evaporation, comparatively little cloud cover and little rain. Humidity levels are also low during these dry months. Most rain falls from December to March, but there are fluctuations in total falls from year to year. Temperatures are high throughout the year (average of 28°C in summer), with only a few colder days in winter, when occasionally night frost can occur in lower laying areas.

Rain is relatively more important for subsistence crop production than for the production of a crop surplus or irrigated crops where additional inputs become more important. The average rainfall of 600mm allows some vegetables to be grown without irrigation during the rainy season (e.g. cowpeas, pumpkins, mutete green maize and sweet potato). These are mostly low value crops that have less marketing potential, but are good for sale at village level and for home consumption. In addition

⁴ AEZ: Agro-Ecological Zoning Project of MAWRD.
they provide variety and nutrition to the diet. However, with variable rainfall between and within years, rain-fed production of vegetables carries a significant risk. They are therefore often intercropped with pearl millet (*mahangu*) and maize. It is not recommended to grow rain-fed horticultural crops on commercial basis, since the unpredictable rainfall makes this too risky and reduces economical viability.

### 2.2 Horticultural development in the Kavango: failure and success stories

Several studies have been carried out to evaluate the success and/or failures of horticultural gardens in the Kavango region. A list of all relevant studies and reports on the horticultural sector in Namibia can be found in Appendix C. Horticultural production systems are often complex systems in which the rural household plays a central role. Both internal and external processes have an impact on the livelihoods of these rural households, and therefore on the performance of the production system. The KHPM-Project has identified 3 major interacting factors that have an impact on the functioning of the horticultural farming system. These are: production, socio-economic factors and marketing related issues (see fig. 2).

**Figure 2: Factors that influence the horticultural farming system**

![Diagram showing factors influencing horticultural farming](image)

These factors will be discussed in more detail in chapter 4 and 5.

A horticultural farming system is vulnerable to external factors: market trends and price fluctuations, availability of agri-inputs and credit (or other forms of financial assistance), infrastructure, pests and diseases, flooding, etc. This makes horticulture a generally high-risk form of agriculture. The ability of the producer to cope with these external factors and his capacity to manage them in a sustainable way largely determines the success and failure of a horticultural business.

In Kavango this seems especially true. A closer look at past surveys shows that gardens and horticultural projects have been started and later stopped over the years. For example, gardens such as the Kapako Project which was spotlighted in 1995 as the show piece of what is possible in terms of production in the region (Hishekwa, 1995), is nowadays no more than an overgrown piece of land. Reasons for failure or success of a garden are not always easy to identify. In the case of the Kapako Project, overhead costs were very high (expensive irrigation infrastructure etc.) and the
manager moved on to another project. There seems to be a concurrence of circumstances that make one project more successful than another. Much of this has to do with technical production constraints or lack of understanding of the market and human factors cannot be excluded. Some may even point to supernatural explanations as to gardens fail.

Existing gardens in Kavango can be split into two categories:

1. **The commercial or semi-commercial gardens** - established in order to market produce and generate income:
   - Subsidised group and community gardens
   - Irrigation schemes (semi-individual)
   - Individual gardens

2. **Subsistence gardens** - established to enhance food security and provide a more diverse and nutritious diet to the household:
   - Backyard gardens
   - Mission/school gardens
   - Seasonal gardens
   - Inland borehole gardens

It is important to note that the relative importance of market-oriented commercial horticulture in the farming system in Kavango is considered marginal. Livestock (cattle and goats) and dryland farming plays a major role in the farming system. With limited access to monetary income, dry land subsistence agriculture is the key factor in household welfare for the Kavango people. Farmers who wish to begin producing crops for sale should not be discouraged from producing millet, despite the low yields. It offers a relatively low risk introduction to cash cropping as surplus can be stored until there is sufficient local demand. However, for those farmers who are able and willing to apply resources to more risky crop production, there are better alternatives than millet, such as cotton, groundnuts and vegetables.

The KHPM-Project was established to focus mainly on the market oriented gardens. These are discussed in more detail below.

### 2.2.1 Group and community projects

After independence, subsistence poor households were identified as the main target group of MAWRD and NGOs in the effort to promote horticulture in the region. It was hoped that this would contribute to the diet of the poorer households, and provide a source of cash income. Several communities were mobilised to form groups and donor funding was made available for the necessary training and infrastructure. The costs of irrigation systems were often 'written off', free seeds and fertilisers were distributed. Vehicles were sometimes made available to help with marketing. Community groups only had to contribute labour from their own recourses. Few of these gardens have been successful in producing and marketing their produce. Most
were characterised by poor management and no marketing strategy. In the early years after Independence there were also several ‘Food for Work’ gardens in the region.

Few of the subsidised community gardens are managing to continue production on a sustainable basis. Members are mobilised and motivated through the promise of material assistance and the prospect of making money out of vegetable sales. Many of the subsidised community gardens have been criticised by the lack of technical and management skills of the members and for creating a trend of dependency. Dependency is seen as the main reason why many of these gardens have failed, but other factors such as socio-economic factors have also played an important role. For example, the Lihepurura Kavango Trust\(^3\) found that socio-economic factors such as ignoring gender issues and jealousy were the major reasons for the failure of many community gardens (Amunyela, 2001).

### 2.2.2 Individual market gardens

After realising that the community gardens approach and efforts to train individuals at ADCs (see 2.2.6) had not been very successful, the hopes were directed to the existing and emerging individual producers. These gardens are often characterised by the fact that they were started small with relatively little capital investments and expanded gradually. Most producers have acquired know-how through trial and error (Decosa, 2001) and occasionally through external training. Many of these producers are from the Ovanyemba and Ovimbunbu tribes, originally from Angola, who are vegetable growers by tradition. Most of the individual producers are highly motivated and work hard, but only very few have the right entrepreneurial skills required to get the optimum performance out of their business or are able to increase their output by investing in new technologies (e.g. drip irrigation).

### 2.2.3 Government supported irrigation schemes

The government extension service was also given the responsibility to finance and support two irrigation schemes established by church organisations. For the purpose of sustainability, financial support was gradually reduced and replaced by assistance from an extension technician. The farmers at the Nkurenkuru project in the far west were not able to maintain the project successfully, while the Salem project at Kaisosi benefited from the nearby Rundu market, which is one of the main reasons for its current success (discussed in more detail in chapter 4).

### 2.2.4 NDC out-growers schemes

The (First) Namibian Development Corporation ((F) NDC) was established under the previous colonial administration. These commercial parastatal farms mainly focus on large-scale production of cash crops (e.g. cotton) and cereals, but reserved a small

\(^3\) A local non-governmental organisation sponsored by Oxfam Canada (previously known as CANAMCO).
portion of their land for fruit and vegetable production. After Independence, several NDC’s in Kavango (i.e. Museese, Shiitemo and Shadikongoro) developed an ‘out-grower’ scheme for farmers who showed interest in irrigated agriculture. Initially, an overhead sprinkler irrigation system, land mechanisation and inputs were provided. Farmers sold their produce to the NDC, which took care of marketing. In time these ‘out-growers’ became autonomous producers and assistance to the farmers in the scheme was gradually reduced. Most of the farmers could not cope with this shift in approach and were not capable of providing the inputs required for managing a successful horticultural enterprise. Nowadays, few remain.

2.2.5 Fruit production

Although the climatic conditions are suitable for growing a variety of tropical fruits with supplementary irrigation (and fertiliser), there is little evidence that local farmers are growing these crops. The main reason seems to be the lack of knowledge regarding tropical fruit production, the lack of quality planting materials, and the long period of return required on investment. Frost is a potential risk that has resulted in poor performance and has damaged certain species of fruit trees, such as mango and avocado, especially in the lower laying areas and where there is no wind protection. The Department of Forestry in collaboration with a German development organisation, DED, and previously the Kavango Agro Forestry Working Group have put in efforts to promote fruit tree production in combination with crops. They planted several fruit trees at ADCs and at the sponsored community gardens (including trees such a neem (Azadirachta indica). Most trees are improved trees and imported from nurseries in South Africa. One of the objectives of planting fruit trees at the community gardens is to establish a mother tree collection from which budding and grafting material can be used to improve raised tree seedlings (rootstocks).

Fruits such as paw-paws (papaya), avocados and mangos can be found in many town gardens. The orchard that were established by the Roman Catholic Missions have showed that through creation of a microclimate, it is possible to grow a wide variety of fruit, such as kumquats, bananas, custard apple, and even coffee. However, there seems to be little scope for commercial production of these fruits on a small scale. They are potentially a lucrative export oriented crop, but require sophisticated post-harvest packing, storage and marketing, none of which are currently available locally. Citrus fruits have been grown on NDC farms, but only the Valencia orange and some rough lemons grow successfully as the climate is too hot for the other varieties.

2.2.6 Training and extension

Extension has been struggling to give horticulture a suitable place in its yearly extension programme. Because of its relatively insignificant role in the traditional Namibian farming system, horticulture has been given little attention at the Agricultural Colleges. Most Agricultural Extension Technicians are therefore not sufficiently equipped to provide extension to a farmer involved in this highly skilled, labour and input intensive type of agricultural enterprise. Two AETs were sent on additional in-service training courses to become Subject Matter Specialist in the field
of horticulture. One of these technicians is now responsible for the eastern part of the region and is based at the Salem Irrigation project and the other is based in western Kavango. The two SMSs are well equipped to handle basic production techniques, but are sometimes lacking the confidence to convey information about more complicated issues such as production planning, pest and disease identification and control, business management skills and marketing extension.

Horticultural in-service training programmes were instituted from 1993 onwards. Training facilities were established at ADC’s, sponsored by several NGO’s and MAWRD. Farmer training mainly took the form of residential training at the Mashare Agricultural Development Institute and a yearlong practical training took place on plots at the ADC’s. In the beginning the was training aimed at motivating growers to embark upon this relatively new form of agriculture. An evaluation report\(^6\) of these activities showed that one of the initial drawbacks was the fact that many of the trained farmers decided after the course that vegetable growing wasn’t for them. This was either because it required too many new labour intensive skills, involved high value inputs, or simply because they did not have suitable land available for vegetable growing. Consequently, many participants did not continue in the field of horticulture after having benefited from the year-long training course.

The training approach changed gradually with the adoption of the farming system approach by MAWRD in 1997. Farmers Extension Groups (FED-groups) were established and farmers were motivated to carry out research in their own fields. Subject mater specialists were educated to provide on-the-job training in farmers fields, where needed. Currently this type of extension (mostly on production aspects, such as pest management) is still ongoing. However impact assessments of horticultural training and extension of this kind are seldom carried out. A producers Business Management training course organised by the KHPM-Project and implemented by Pahuka is currently being evaluated.

2.2.7 Research

The Horticultural Research Programme started in 1995 as part of the National Research programme of MAWRD. Trials were conducted at several research stations in the North. The initial research focussed on the screening of existing (RSA developed) cultivars and their suitability to Namibian conditions. Because of the climatic differences between the countries for which the cultivars were developed and the Namibian climate, different planting dates were evaluated. The programme involved testing of onions, cabbage, tomato, pumpkins and sweet melon. Results between the stations varied, but results indicated and the report concluded that vegetable production is technically possible under Namibian conditions, especially in the North Eastern part of the country. It was recommended that vegetable production in Kavango needed to be stimulated, and that further research should be directed by vegetable growers and the Extension Services (Rusch, 1997).

\(^6\) Farmer Horticultural Training in Kavango region, an evaluation of two training activities
CANAMCO and DanChurchAid, in co-operation with DEES and MAWRD, January 1997.

Horticultural Production & Marketing in the Kavango Region. August 2001
In 1996, a survey was conducted under commercial vegetable growers in the triangle (Maasdorp, 1997) as well as in the communal areas (Kavango), with the objective of gaining better understanding of the horticultural production systems and to steer research and extension efforts.

The main recommendations that came forward at this stage were:
- Need for applied research on the control of major pests, introduction of an integrated pest management approach for horticulture and the provision of training on the subject;
- Further on-farm screening of vegetable cultivars;
- Investigate water use (irrigation methods), suitable soil management practices and nutrient and crop interactions;
- Improve marketing opportunities and conduct a marketing survey;
- Improve access to horticultural inputs (seeds, information, tools etc.) through community shops, co-operations etc;
- Improve access to loans for horticultural purposes;
- Focus on horticultural extension activities;
- Further investigate the role of women in horticulture as well as the importance of horticulture as part of the total farming system.

After this, research focussed on Integrated Pest Management and on the establishment of an on-farm screening programme (in co-operation with the KHPM-Project). However, lack of human resources in the Research department has contributed to the recent scaling down of horticultural research. The integration of Research in the Farming System Research and Extension Units and the plan to merge the Research department with Extension might in the future lead to a more adapted research approach and more efficient output.

2.2.8 Marketing

A 1996 survey showed that a large number of the horticultural-smallholder farmers produce vegetables for commercial selling. Although the ‘lack of a market’ has often been identified as a major problem for vegetable growers in the region, there have been few attempts at really understanding the marketing issues. Training and research has mainly focussed on the establishment of new gardens and training in production aspects, assuming that the selling would follow automatically if the produce was ready for harvest. Producers demanded that the support agents such as NGOs or MAWRD market the produce for them. In some cases, such as the Nkurenkuru scheme, farmers even requested a truck for collection and marketing of their produce. A syndrome of dependency was created and it has been difficult to change this attitude since.

In order to meet the demands of the producer and in an attempt to find a more durable solution, the Kavango Vegetable Growers Association (KVGA) was established in 1996. The Association consisted of members from community gardens as well as a few individuals. The association was sponsored by Lihepurura Kavango Trust, who
provided a minibus to collect produce from the gardens and transported this to the formal market (supermarkets and caterers) in Rundu. A storage and marketing course was designed to teach staff the basic principles of horticultural marketing. However, even all the small gardens together lacked economies of scale and production was not staggered (phased) to be able to meet supply and demand for the formal market segment. Moreover, the Association’s management lacked understanding of the target market and the right skills to negotiate effectively with potential customers. Members were disappointed and when an internal reorganisation forced the NGO to stop its support to the Association, it was unable to continue without financial support 7.

2.2.9 Baseline documents and survey reports

To support above-mentioned efforts, several studies and surveys were conducted by MAWRD to obtain a better understanding of horticulture in the NCAs. As part of the Terms of Reference of the KHPM-Project several of these studies have been critically reviewed (for more detail see Sergeant, 2000). A list of the reviewed documents can be found in Appendix B. These studies are mostly based upon short consultancy visits to the Northern regions. Information was gathered through interviews with producers and other key informants in the sector. The following is a summary of the observations made when comparing and reviewing the documents:

- Yield data varies greatly between the different projects and gardens and between the different surveys conducted. Methods of yield data gathering are not synchronised and there is little attempt to explain the differences in yield (i.e. failure and success) between the projects.

- Only few of the studies have tried to quantify or estimate the size of the different market segments. This is important when trying to evaluate the potential for horticultural production in the region, which was the main objective of some of the studies. Because of time constraints most reports are based upon ‘word of mouth’ i.e. information is acquired through interviews with role players, rather than own observations and research in the field and at the markets. Information was mainly obtained from the source of production (farmers) rather than in the marketing chain.

- As a solution to ‘marketing problems’ it is often recommended that a producers co-operative or marketing co-operative should be established. This is suggested without understanding how the market operates and how existing problems such as mismanagement of resources can be addressed.

- The competitive advantages and disadvantages of production in the Kavango Region or NCA are not always considered: even if farmers can overcome production constraints, will they be able to compete with the producers in the Triangle of RSA?

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7 The KHPM-Project was informed recently that Liphoneura has resumed their activities. They will be giving logistical marketing support to 4 gardens in the region. They have changed their marketing strategy and now aim to supply the Catholic hospitals and schools with local produce.
• The relevance of horticulture production in the Tsumeb-Grootfontein-Otavi triangle seems to be underestimated. Horticulture is expanding rapidly in this area and considerable investments are made. Also, it is not always appreciated that horticulture is a technically more difficult form of agriculture and that, in general, only a selected few will be able to practise it successfully.

• Many reports recommend that small-scale (or back-yard) gardens should be promoted in order to provide additional nutrition and variation to the diet of household members. Growing vegetables for home consumption can only be encouraged, but it is not the aim of a commercial oriented horticultural enterprise and therefore of little relevance to most of the marketing studies.\(^8\)

• Costs / Benefit analysis of recommended interventions (e.g. upgrading of roads or subsidised drip irrigation systems) are often overlooked, which makes it difficult to assess if such investments can be justified.

• Many of the recommendations, some which are very sensible, have not been pursued by the instructing organisation(s) (e.g. encouraging of home production, appropriate variety research, improvement of management of horticultural projects, etc.).

• The success of projects seems to depend on the scale of operation,\(^9\) subsidisation and a nearby target market. Good management is also mentioned as a major factor for success.

• There has been little evidence that support to producers has been successful. There is, however, a general opinion that producers need more help. At the same time there does not seem to be consensus as to which form this help should take (e.g. subsidisation/financial support or capacity building through training and new extension methods).

• Most reports agree that horticulture is a small sub-sector in Namibia, with limited potential. All say that more statistical data collection (e.g. on production figures) is needed in order to get a clearer picture of its economic importance.

\(\text{2.2.10 Conclusion}\\)

With all these efforts to promote horticultural development in the region it is not totally justified to say that little has been done ("A lot has been said, little has been done..." Amakali, 2000). However it can be concluded that the past efforts or projects have had little impact on the emergence of the sub-sector and/or have sometimes had negative side effects. In other words, there are few real success stories.

The main reason to promote horticulture after Independence was to provide an alternative source of income and food to the resource-poor, often female-headed, households. However, when these groups started producing on a larger scale,

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\(^8\) However, the size of the market may be affected if more people would grow their own vegetables.\(^9\) Given the technical and financial constraints small scale seems to be more profitable in the NCAs (Helmstetter, 1995).
difficulties that are associated with larger production units became evident, such as: pests and disease occurrence, mismanagement, high costs and poor availability of inputs, unsuitable irrigation methods, and the need to market larger surpluses.  
It was not realised that horticulture needs high skill and input levels and that this target group had very little scope for the required commercialisation. Instead opportunistic efforts to enhance these gardens continued and focused on encouraging them to supply to caterers and supermarkets (KVGA).

Encouraging and training resource-poor farmers in horticulture is a good initiative as long as it is aimed at production for home consumption, with a little surplus selling to neighbours and nearby villagers.

There is a need for agricultural extensionists to understand the concept of “Marketing Extension” in order to assist the emerging commercial producers (see also chapter 5). In-service AET training should move away from training in production aspects to marketing and business oriented training. Assistance to market-oriented horticultural producers should be aimed at the most advanced farmers because they are more likely to have the capacity and ability to cope with high risks. 

Most gardens in the Kavango have depended (and some still depend) heavily on subsidisation in one form or another. Donor organisations do not always realise that subsidising gardens disadvantages the efforts of true entrepreneurs and distorts the market. Emerging individual gardens should be encouraged rather than discouraged, which is often a consequence of unfair competition with the subsidised (community) gardens. Also the impression is given that support from a donor agent is needed in order to start a garden. A loan will be required in some cases to meet initial capital costs, but often something can be initiated by starting off small. This is how most individual gardens in the Kavango were established and they have proven to be more successful.

The potential of the informal market seems to be overlooked by most horticultural development projects. At the same time, helping producers with marketing their produce (e.g. by providing a vehicle) will discourage the establishment of traders.

The KHPM-Project has recognised the opportunities of development of the informal market sector. These opportunities will be discussed in chapter 5.

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10 This might seem to conflict with the aim in the National Development Plan 2 and Extension policy to give priority to the enhancement of the livelihoods of the resource poor households, but it will increase the changes of sustainable domestic horticultural production.
3. **Actors in the Rundu horticultural production and marketing chain**

The actors in the horticultural sub-sector can be divided into three groups:

1. Producers;
2. Support agents from the Government, NGO's and the private sector, and;
3. Actors in the marketing chain.

In this chapter the stakeholders are introduced and the level of participation of these stakeholders in the project will be discussed.

3.1 **Horticultural producers**

One of the tasks of the KHPM-Project was to identify all existing and incipient gardens/ producers in the region with potential to produce vegetables and fruits for the market. This task has not been an easy one, since the security situation prevented the team from physically visiting these gardens. At the end of the project, the team partly succeeded with the help of AETs in compiling a list of gardens by updating an existing list dating from 1996 (see Appendix C).

It was only after Independence that farmers in Kavango gained more interest in horticulture due to the influence of NGO's and MAWRD's policy to support smallholders. Before, it was mainly the (First) Namibian Development Corporation that was involved in vegetable production (to supply the South African Army).

An estimated 176 people (excluding employed farm workers) are permanent involved in horticultural production with the main objective of marketing their produce. 55% are individual producers, while 45% produce on community plots. The division between community projects and individual gardens can be quite blurred and figure 3 below only gives a rough indication. Many gardens that were initially established as community gardens are nowadays run on an individual basis (a communal fence and irrigation system, but with own inputs). The farmers at the Salem and Nyango irrigation projects are therefore classified as individuals.

The total area under vegetable and fruit production under irrigation in Kavango is estimated at 100 ha. Most vegetable growers in Kavango are smallholders. This is not surprising, as horticulture is a labour demanding, intensive form of agriculture. Only 7% of the gardens exceed the 1.0 ha (Salem 1 ha /grower). These bigger gardens often consist of sub-plots, of which some plots are left fallow for a certain period of the year. Green maize is an important crop in these bigger gardens. Most gardens have a size of between 0.01 and 0.5 ha. This is often enough for the home consumption of

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11 The following assumptions are made: the average number of active members in a community garden is estimated at 5. The figure (10 persons) for individual gardens in Rundu-urban might, at times, be much higher, observations at the Open markets showed that in the rainy season many back-yard garden vegetables, such as mutele and pumpkin leafs are sold.
one family and to make some additional money from selling surpluses (Zuurbier, 1999).

The highest concentration of gardens can be found in the near vicinity of Rundu. The Rundu constituency has the big advantage of having a market nearby and this has lead to the establishment of several market gardens in this area.

Figure 3: Number of persons involved in horticultural production in Kavango

![Involvement in horticulture per constituency 1996/2001](image)

Source: Updated list of gardens in Kavango / AET reports 2000/1.
Note: there was no data available for Rundu urban and Mukwe in 1996.

The area around Ndonga-Linena (Ndiyona constituency) was known to hold the heaviest concentration of smallholder horticultural gardens (often seasonal) in the region because of its favourable conditions for horticulture on riverbanks, floodplains, omuramba, and inland wetlands. However, the current danger of landmines and the occurrence of cross border incidents, especially along the riverbanks, has contributed to the decision of several producers to quit their horticultural activities.

Mpungu in the west has a low number of gardens, probably because of the harsher conditions (poorer soils and infrastructure) and access / proximity to inputs and markets. The previously government-managed Nkurenkuru Irrigation Scheme used to produce some vegetables and supply local institutions in the area. Nowadays, this scheme is not longer operational.

The low number of people involved in horticulture in the Mukwe constituency is somewhat surprising, since this area has plenty of water resources, reasonable soils and the area around Divundu is gaining importance as the economic centre of Eastern Kavango. The cross border conflict is however known to have left a mark on this area.
A recent study in the Kavango Region\textsuperscript{12} reports that the highest number of households involved in selling "vegetables" are the villages along the main road from Rundu to Grootfontein (almost 40% of the households plant vegetables and 15% of the households in this area are reported to sell vegetables). However, the vegetables sold in this area are mainly rain-fed grown vegetables such as beans, pumpkins, mutete, and melons. Wild forests fruits are also frequently sold along this road.

Horticulture is not a business typically run by men or women. The 1996 Horticultural Systems survey showed that, of 172 farmers interviewed, 55% were male and 45% female. Most individual growers were men, while women were more involved in community gardens and back-yard gardening. Husbands and wives sometimes work together and most individual producers employ casual labourers to assist on their farm.

\textbf{Triangle producer}

Triangle producers will be featuring in this report as the main competitors for Salem producers and are therefore often used to compare the different management systems. A short note about this group therefore seems appropriate. The area between Tsumeb, Grootfontein and Otavi is referred to as the triangle. The area is characterised by higher rainfall patterns and good soils. Production units are large private (mainly white owned) commercial farms, with highly skilled managers and a well trained labour force. Investment and input levels are medium/high and producers maintain a large network of contacts including the private sector. Most managers have gained their skills and knowledge on farms in South Africa or knowledge is passed on from generation to generation. Producers are mainly targeting the formal market sector. However, they also experience problems in complying with the standards and requirements set by caterers so they also sell their produce to the informal market. Other problems include high pest and disease occurrence (combated by spraying large amounts of chemicals) and insufficient marketing information.

\section*{3.2 Support agents: GRN, NGOs and Private sector}

This paragraph will briefly list the existing support agents in Kavango and nearby Regions and their role. Chapter 4 will give more detail about the issue of accessibility of the horticultural supporting structures. Table 1 gives an overview of the most important institutions that (could) provide support to the horticultural sub-sector in Kavango. Most of these institutions are represented by branches in the region itself, whereas some only have offices in Grootfontein or Windhoek.

\begin{footnote}{\textsuperscript{12} S. el Obeid, J. Mendelsohn, "A Preliminary Profile of the Kavango Region", Namibia Nature Foundation, 2001.}

\end{footnote}
<table>
<thead>
<tr>
<th>Institution</th>
<th>Type of support offered (in relation to horticulture)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government:</strong></td>
<td></td>
</tr>
<tr>
<td>- Directorate of Extension and Engineering Services.</td>
<td>Technical advise, logistic support, agricultural information dissemination / farmer extension (FSR/E)</td>
</tr>
<tr>
<td>- Directorate of Research and Training</td>
<td>On-farm research, applied and basic scientific research, training courses</td>
</tr>
<tr>
<td>- Directorate of Planning and Division of Co-operative Dev.*</td>
<td>Policy dev., project design &amp; proposals, agricultural statistics, M&amp;E, agricultural co-operative support</td>
</tr>
<tr>
<td>- Rural Water Supply</td>
<td>Boreholes, water permits, etc.</td>
</tr>
<tr>
<td>- Directorate of Forestry</td>
<td>(Fruit) tree promotion, sponsoring gardens (fencing)</td>
</tr>
<tr>
<td>- Regional Government &amp; Housing (Town Council/ Councillors)</td>
<td>Establishment Open markets, land use permits, community issues etc.</td>
</tr>
<tr>
<td><strong>NGOs:</strong></td>
<td></td>
</tr>
<tr>
<td>- Lihepurura Kavango Trust</td>
<td>Community mobilisation, distribution Agri-inputs, small scale loan scheme, financial and technical support</td>
</tr>
<tr>
<td>- Pahuka Training Programme for small and Medium Enterprises</td>
<td>Business Management training SMEs, Business plan writing</td>
</tr>
<tr>
<td>- Kavango Regional Farmers Union</td>
<td>Not yet represented by vegetable growers</td>
</tr>
<tr>
<td>- Church organisations</td>
<td>Community mobilisation, donations</td>
</tr>
<tr>
<td>- Foreign donor agencies*</td>
<td>Support local development</td>
</tr>
<tr>
<td><strong>Private:</strong></td>
<td></td>
</tr>
<tr>
<td>- Agri Business &amp; Consultants*</td>
<td>Consultants advice and Agri-input supply, seed agent</td>
</tr>
<tr>
<td>- Starke Ayres*</td>
<td>Seed supply agent and advisors</td>
</tr>
<tr>
<td>- Hardware stores</td>
<td>Local suppliers of basic inputs</td>
</tr>
<tr>
<td>- Engineering companies*</td>
<td>Maintenance and repairs, irrigation equipment supply</td>
</tr>
<tr>
<td>- Agribank</td>
<td>Agricultural credit</td>
</tr>
<tr>
<td>- Consultant agencies*</td>
<td>Expert advice, implementation of projects, M &amp; E</td>
</tr>
<tr>
<td>- Taxi's</td>
<td>Transport (e.g. from and to market)</td>
</tr>
<tr>
<td><strong>Semi-government:</strong></td>
<td></td>
</tr>
<tr>
<td>- NDCs</td>
<td>Loans, agricultural mechanisation, advice</td>
</tr>
<tr>
<td>- Lux Development / Nolidep</td>
<td>Donor agency: financial and infrastructural support (markets, roads, boreholes)</td>
</tr>
<tr>
<td>- NBC</td>
<td>Information dissemination</td>
</tr>
<tr>
<td>- Traditional Authorities</td>
<td>Permits, community / communal land issues</td>
</tr>
<tr>
<td>- Other parastatals (Namwater, N.Elect. Telecom, Roads authority)</td>
<td>Infrastructure</td>
</tr>
</tbody>
</table>

*Do not have offices in the Kavango Region, but provide their service to the region on request.

### 3.3 Actors in the marketing chain

The different market segments that play a role in the marketing of fruits and vegetables in the Kavango were described in the KHPM-report “Horticultural Marketing in the Kavango Region” (Sergeant, 2000). It is important to segment and characterise the markets as well as the products and the suppliers to better understand the marketing linkages.

Due to an increasing demand for horticultural produce in the last years a growing number of actors have entered the horticultural marketing chain in Kavango. The flow diagram (fig. 4) illustrates the channel of local produce (red arrows) and of produce grown outside the region that enters Kavango (black arrows).
The diagram shows that the marketing chain in is often very short (except for imported produce):

- Traders buy directly from producers’ fields (‘ex-farm’) and sell to the end-consumer at the Open markets.
- The buyer (wholesaler) of produce from outside the region buys either directly from the producer (in the triangle) or from an agent in South Africa. The local wholesaler arranges transport, and has a storage and packing unit. They also supply catering companies, and own retail outlets in the region, selling to the end-consumers.
- Catering companies buy from producers directly or from the wholesaler and deliver to the institutions (= consumer in this case).
- Local producers supply the rural village market directly or through informal market traders. This is mostly the case for gardens in the more rural areas, where road infrastructure is poor and distance to urban markets is too far. Salem producers also sometimes try to sell in town from the back of a bakkie or have their own market stand.

The two actors that play a key role in the distribution process are the informal market traders and the formal wholesale buyers. They fulfil the same position i.e. bringing the produce from the supplier to the consumer, but they work almost completely independently from each other.

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13 The channel from the wholesaler to the local rural retail outlets (mainly potatoes and onions) is not indicated in the diagram.
Informal Market actors

The informal traders (virtually all women) operate without any other commission agent interfering, so no transaction costs are involved. They supply their own packaging and organise transport to and from the suppliers (producers). Informal traders mostly buy local produce and have a preference for the cheaper traditional vegetables (cabbage, mutete, green leaf onions and green maize). Their most important customers are the people in the informal urban settlements of Kechemu, Kaisosi, Sauyemwa and Ndama. Although the number of traders is large (the project recorded an average of 90 traders/per day at Salem), there are no real differences in buying patterns and traders are not formally organised in a traders or hawkers association. There are also informal traders who are specialised in selling produce that originates from outside the region. Tomatoes, which are technically more difficult to produce locally, are bought directly from producers in the triangle. The commercial triangle producers have recently discovered the potential of the informal market and are starting to deliver and sell crates of produce to the informal market traders (mostly in Oshakati, but nowadays also in Rundu) at peak production times.

The informal market and traders play such a vital role in the horticultural system in Kavango that this aspect will be highlighted in more detail in chapter 5.

Formal Market actors

In most marketing chains there is a dominant business force. In the Kavango scenario this force is generated by the formal wholesale agents who also own several retail outlets in the region. The Spar, Sentra and Cola Cola supermarkets are the three largest buyers of fruit and vegetables in Kavango. It is a very competitive market: because the wholesale/supermarket buyers have the opportunity to buy from many potential suppliers they are able to purchase where the prices are the lowest. As a result they often buy from South Africa, where production costs are lower and the climate is more favourable for a wider variety of vegetables. An increasing amount is bought from the triangle, where producers are investing in their farms to benefit from economies of scale in order to compete with South African prices.

Previous studies (e.g. Hishekwa, 1995) mentioned that supermarkets in Rundu buy their South African products through a wholesaler in Windhoek. Nowadays most of them act as wholesaler themselves and have direct contracts with exporters in South Africa (e.g. Multipack). Most produce originates from the Cape Town Fresh Produce Market, while the Spar supermarket in Rundu deals with a supplier in Johannesburg (the Trans-Kalahari provides easier access to this more specialised and higher value market). The wholesaler / exporter in South Africa faxes a list of produce and prices on request and the Rundu manager places orders twice a week. The list does not indicate the class or grade of produce available, and certain perishables such as lettuce and mushrooms are often received in poor quality. Sometimes products are received in bulk packets and are further distributed or repacked for retail selling, while others are received pre-packed and labelled.

Most of these vegetables are sold in the supermarket retail outlets, but some is sold at a wholesale price to caterers, take-a-ways and petrol stations outlets in Rundu. The
Cola Cola supermarket and wholesaler also supplies smaller branches and shops elsewhere in the region.

In addition to the wholesalers and retailers, the formal market also includes the Institutional market. This market is relatively small in Kavango and predominantly in the hands of one catering company (Welwitchia, a branch of Independence caterers), which hold the Government tender to supply schools, hospitals, and NDF in Kavango. In Rundu, the caterer buys directly from producers in the triangle on a contract basis and occasionally from larger scale projects in Kavango (e.g. the Shankara project). They also place orders for specific vegetables and fruits at the local supermarket / wholesaler for produce such as potatoes, canned and frozen vegetables.

Other non-governmental Institutions are the Roman Catholic hospitals and the United Nations refugee organisation UNHCR. Both are very small in Kavango and purchase their vegetables from caterers and retail outlets. Each RC hospital is responsible for its own purchases and because of lack of transport and tight budgets they would prefer to buy “ex farm” from local producers as long as they have a contact point and can place orders in advance.

3.4 Participation of stakeholders in the KHPM-Project

Inclusive participatory planning has been the major drive behind successful project implementation and great importance was given to bringing stakeholders and producers together during the pilot project phase.

Producers’ participation
Salem producers (43) formed the main target group of the KHPM-Project. They participated in all training activities, extension meetings, exchange and study visits. Producers from elsewhere in the Region were invited whenever this was logistically possible. A producer’s workshop, which was attended by farmers from Salem as well as surrounding market gardens, was held mid June 2000. The main aim was to get a first impression of the strengths and weaknesses of horticultural production, as perceived by farmers, and to start identifying opportunities and some direction for action to be taken. The issues identified mostly related to lack of access to information and inputs, poor access to formal markets, lack of marketing knowledge and skills, and limited co-operation between producers. However, participation of producers has not always been satisfying. Although the mandate of the KHPM-Project and its objectives was explained often, several producers continued to demand financial assistance and attendance at meetings was often low.

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14 This was particularly noted for meetings where input of the producers was required, such as management committee meetings, i.e. meetings that did not have an immediate incentive. This was contrast to meetings were there was something to gain: e.g. when a seed agent was invited, who distributed seed samples.
Planning Workshop
The KHPM-team also organised a horticultural stakeholder planning workshop in June 2000 to define the role of the KHPM-Project and stakeholders/producers in order to bring horticultural stakeholders and producers together and acquire a common vision to develop an action plan. Most of the stakeholders in the region participated including representatives of Government Directorates such as DEES, DART, DoF, NGO's such as Lux-Development, KRFU, Rundu Open-market, Agribank, NDC, as well as producers from Salem and Likoro gardens. The formal business community (retailers, wholesalers) were invited but did not attend the meeting. A detailed action plan/logical framework, which indicated tasks and responsibilities of all stakeholders and a report were compiled (see “Improving horticultural production and marketing in the Kavango region”, Amakali 2000).

Informal Traders participation
Soon after the planning workshop the team established that the traders at the open market represent an excellent opportunity to lead market diversification. It was therefore important to gain better understanding of how this group of traders operates. The team spent several days with the women traders at the different open markets and street markets in Rundu. Informal interviews were held and traders were tracked from the fields where they purchased their produce to the markets until finished selling their produce for that day. After analysing the information, producers and traders were brought together. Two workshops were held with groups of informal traders and farmers. The first workshop focused on the dialogue between traders and producers, showed their critical dependency, and they discussed positive solution to their problems. The second workshop discussed some basic marketing principles with the producers (see NRC reports, 2001).

Regular briefings
Other ways to ensure participation included regular briefings with stakeholders, mostly short informal meetings or through more formal extension meetings, producers meetings and discussion workgroups. These meetings were held on a regular basis to keep people informed and involved. During these meetings it became clear that although all stakeholders participated fully in the planning workshop and several had been involved in implementation, there was still no real common vision amongst stakeholders with regard to the direction which the development of horticulture should take. Some institutions and producers still feel that sponsoring gardens can bring about a positive change in the sector, whereas others think that there is scope to revitalise the vegetable growers association, responsible for marketing of produce. The fact that both of these options have failed in the past does not seem to mean much.

Progress reports
A bi-monthly newsletter (KHPM News) was issued to further keep stakeholders up-to-date. The newsletter was open for everybody to contribute and comment on in the form of readers’ letters and articles/advertisements etc. Quarterly progress reports and financial overviews were distributed amongst interested stakeholders and Steering Committee Members. Furthermore a Spotlight on Agriculture was written and a
poster with marketing research results was presented at the annual Research Conference.

**Steering Committee meetings**
The Project Steering Committee held regular meetings in Rundu and Windhoek during which verbal presentations were made and were the team received feedback on written reports and general progress. The Steering Committee consisted of staff from the Directorate of Planning and Co-operative Development, Extension Services, Namibian Agronomic Board, Agribank, the Kavango Regional Farmers Union, Agro Business and Consultants, and an (ex)member of the Kavango Vegetable Growers Association.
4. Supply of Horticultural produce in Kavango with special reference to Salem

In this chapter local production of vegetables in the region and especially at the Salem Irrigation Project will be discussed. A short background of this irrigation project is therefore appropriate here.

4.1 The Salem Irrigation Project

History of the project
The Salem Irrigation Project is situated 7 km east of Rundu and was started in August 1986 by a German church organisation called ‘Brüderschaft Salem’. The project aimed to contribute to the livelihood of a number of rural households by producing (organically grown) vegetables. After consultation with the traditional authorities of Sambyu, 10 members (some from Angola) with basic knowledge and experience in vegetable production were selected. The project was initiated with the long-term vision that the project would be managed sustainably by its members through the creation of a co-operative or producers association. The members received financial and technical support during the first years. The land was cleared with the help of MAWRD and an engineering company installed the electric pumps and irrigation system (overhead sprinkler irrigation).

Management & support
During the first three years, the electricity bills and other agricultural inputs such as seed were covered by the German organisation. The project held a license for pumping bulk water from the Kavango River, and paid a nominal fee of 1 cent per m$^3$. A revolving fund was set up at the start of the project in which each member was expected to contribute N$ 720. - per year, to be paid after the first harvest. The money was to be used for future project expenses such as the maintenance of the irrigation system. A shade was built at the entrance of the project to function as a farm stall where individuals or groups of farmers could market their products.

The initial plan to form a producers association and market produce jointly was not successful, as the producers themselves did not support the idea and preferred to work as individuals. The German initiator, who was technically in charge of the project, became unmotivated due to lack of enthusiasm to work together and poor attendance of producers at meetings. Assistance from the German NGO ‘Brüderschaft Salem’ came to an end after Independence.

At this point the MAWRD was given control of the project. However, in order not to create dependency and for the project to be sustainable, MAWRD decided that support to the project should be limited to technical assistance. An Agricultural Extension Technician, Mr. Haushiku, was transferred to the project to provide training
and extension to the members. The project expanded with two more sections of 12 ha each. Currently the project comprises a total area of 34 ha under irrigation and accommodates 43 individual members. Women producers are in the majority (25) and work fulltime on the farm, while men own 18 of the plots of which 7 work part-time. Initially each farmer was allocated 1 ha, but because some members could not manage the 1 ha, it was decided to divide 9 of the plots into 0.5 ha. Such decisions about land ‘ownership’ are usually made in presence of the traditional land authority and the headman of the area. Producers selected a committee to discuss issues of mutual interest, such as the management of the irrigations system and contributions towards the monthly electricity bill\(^\text{15}\). Input supply, production and marketing are the responsibility of the individual.

**Production**

The main crops that are grown at Salem are:

**March – November**
- cabbages (leaf and head cabbage)
- onions (with green tops and dry bulb onions)

**September – February**
- green maize,
- mutete
- sweet potato.

Other crops produced on a smaller scale are: carrots, cucurbits, tomatoes, peas, beetroot, cassava (leaves and roots) and occasionally green peppers, eggplant and chilli peppers.

Peak harvesting time is from August to December. From January to March fields are prepared for the next season and there is relatively little production in this time of the year.

In total Salem produces around 620 tonne of fresh produce per year. From this amount 78% is sold ‘ex farm’ to the informal market for sale on the Rundu Open markets. The other 22% is sold through other (formal) channels and used for home-consumption.

| Table 2: Volume of Salem produce to different market segments |
|-----------------|-----------------|---------------|
| **Destination (market)** | **Tonne produce/year** | **Percentage** |
| Rundu informal market | 485 | 78% |
| Formal market | 24 | 4% |
| East of Salem (village market) | 74 | 12% |
| Home consumption | 37 | 6% |

*Source: KHPM data*

\(^{15}\) This committee still does not function at time of writing this report.
Figure 5: Monthly sales of most important vegetables produced at Salem

![Monthly sales Salem](chart.png)

Source: KHPM-Project exit survey and own estimation (Sep '00 /Jul '01)

Table 3 shows that yields have more than doubled in the last 10 years. A study in 1991 noted that there is a large variation in yields and revenue between good and poorer growers – concluding that vegetable growing is a risky business and that incorrect management practices are used (e.g. selection of varieties, pest management, manure application/timing and quantity). KHPM research shows that this is still very much the case nowadays.

Table 3: Yields at Salem: 1991 (Yaron, 1992) – 2001 (KHPM-NRIL) / 0.25 ha

<table>
<thead>
<tr>
<th></th>
<th>Average yield 1991</th>
<th>Average price/unit 1991</th>
<th>Average yield 2001</th>
<th>Average price/unit 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabbage (head/leaf)</td>
<td>1500</td>
<td>0.74</td>
<td>3170</td>
<td>0.75</td>
</tr>
<tr>
<td>Maize (cob)</td>
<td>2330</td>
<td>0.28</td>
<td>4500</td>
<td>0.40</td>
</tr>
<tr>
<td>Onions (kg)</td>
<td>770</td>
<td>0.98</td>
<td>6300</td>
<td>1.10</td>
</tr>
</tbody>
</table>

*Price on the informal market

It is also worth noting that use of chemical fertiliser and chemical pesticides was prohibited in the initial agreement with the German founders to introduce organic agriculture. However, due to the marginal soils, harsh climate, lack of organic fertiliser, high pest occurrence and without modern technologies of biological control, this practice was not very successful. This could be one of the reasons for the low...
yields obtained in 1991. Nowadays producers are more experienced and only the relatively “better” producers have remained.

4.2 Access to information, credit and agri-inputs

This paragraph looks at the ability of producers to access information, credit and agri-inputs, which are vital elements for a horticultural enterprise. Access to information, credit and agri-inputs will enable the producers to keep-up-to date with the latest developments and technologies in the sector to compete with other producers.

An important question is “Why does a commercial producer in Grootfontein (triangle) have better access to services than a producer in Rundu?” The following factors probably contribute to this unequal distribution of services:

- Knowledge is power: lack of knowledge results in poor ability of producers to demand services or make things happen. Also clear vision is missing, which makes it difficult to identify and be specific about what is good for business;
- Illiteracy of producers;
- Ethnic/cultural/historical barriers between input supplier and producer: e.g. language, previous apartheid system, resulting in a high access/entry barrier for the Kavango producer;
- Poor access to communication facilities (telephone /fax /internet);
- Proximity from major supply centres: higher (transport/courier) cost to cover distance from supplier to producer;
- Lack of access to post/banking facilities: they are not able to pay in advance for supplies to be couriered to them and often do not have accesses to a delivery/postal address.
- Relative low demand for information and agri-inputs: not economically viable for service providers to target producers in ‘remote areas’ or to maintain large stocks of supplies in local shops, provide marketing information, etc.;
- Unwillingness and lack of ability of producers to pay for services (advice);
- Lack of network of contacts (e.g. membership of farmers unions);
- Lack of collateral to apply for formal credit/loans, or “makongo” (=credit from family or community members);
- Difference between Extension services in the communal areas (generalists and low coverage) and the commercial private sector (specialists and performance orientated);
- Temporary character of services offered: e.g. foreign expatriate advice, donated supply (e.g. fertiliser from Japan) and development projects, which are not sustainable and disappear after a few years.\[16\]

\[16\] Most donor-funded projects (foreign expertise and donation of fertiliser) are aimed to support the producers in the NCA and notably those in the commercial triangle. This is an advantage for producers in this area, provided they make use of the services.
The above shows that poor accessibility is a problem that cannot easily be solved. Even if a telephone were to be installed at Salem, it would not mean that the producer is able to communicate and arrange with the supplier to have his packing material, or seeds suitable for his conditions, be delivered in time.

In the past, lack of development in an area could be described as lack of availability and supply (of food, medicine, technologies, education and knowledge etc.). However, it is often the poor accessibility to these services that forms the main problem.

However, even if services were more accessible, this would not guarantee that the producer would make use of these services. This is where the demand rather than the supply or accessibility for a service becomes important. It is sometimes assumed that there is demand for a specific service because it is good for development of horticulture but this is not always the case. Alternatively, the demand is there but farmers do not actively pursue the service they require. A combination of the above-mentioned factors and a lack of initiative, dependency, being satisfied with what they have, results in services being under-utilised, and it is therefore not economically viable to provide such a service.

The form in which the service is provided is of major importance: instructions in own language will improve accessibility. For example, the KHPM-project has developed a visual tool for the identification of most common pests with a description of suitable control methods in Rukwangali. Product names of chemicals are given in English, which will make it easier for producers to enquire at the hardware shop if the product is available.

Often it is a matter of a person being unfamiliar with or unaware of a service that prevents the person from making use of this service. The KHPM-Project took a group of farmers to Grootfontein where they could see what kind of agricultural inputs are available and what kind of advice can be given by the companies there. Producers realised that this service is also provided to them and not only to the commercial triangle producers. Now that the link has been established and contract details exchanged, they will have better access to these services.

Below are three practical examples regarding access and demand for information, credit and agri-inputs in Kavango:-

1. **Providing Marketing Information**
   During a planning meeting with stakeholders it was initially anticipated that a marketing information systems section (HMISS) would fulfil an important role in facilitation of the marketing process and producers’ ability to enter the formal market. However, besides lacking the human and financial capacity to run such a unit, the demand for and benefits of such a(n) (expensive) system are not obvious. With the informal market segment working effectively, there is currently little need for price
information to be made public. Only when there is a need to change producers marketing strategy, a demand for such service may arise. It will then be important to guide producers in how they can make use of this basic information in order to improve their business.

2. Credit facilities
Access to credit facilities is often mentioned as an essential element for the development of emerging horticultural enterprises. However, formal credit institutions such as Agribank say they have never received loan applications or proposals for horticultural businesses. The Pahuka training programme for small-scale entrepreneurs, which assist with business proposal writing and with linking producers to credit schemes, has a lower entry barrier, but also have hardly ever been approached by producers to request (free) assistance with their business proposals. In addition, research has shown that production output of those with access to credit is not significantly higher than for those without credit. In Kavango credit is mostly used for non-agricultural purposes such as cucashops (Yaron, 1992). In the triangle, producers also say they do not make use of credit facilities. One of the reasons is the high interest rates and risks involved in horticulture.

3. Agri-input supply
Several initiatives have been undertaken to improve producers’ access to input supply. The development of the role of the Katemo co-operative was critical for the success of Salem and of the sector in general (Yaron, 1992). It provided farmers with agricultural inputs such as seeds and fertiliser and guaranteed a market by providing firm contracts with supermarkets and catering companies. The co-op, which was located in the centre of town, was easily accessible but the quality of service was poor and producers lost interest. When Katemo closed, producers were mainly relying on seeds sold in supermarket outlets. Wrong or out of date seeds are often being sold in these outlets; but farmers did not demand the right service from the supermarket managers. The producers at Salem and the manager of the nearby Vungu-vungu NDC initiated the idea of establishing a branch of Agra at the NDC, were farmers could order and buy all their input requirements. However, the demand for inputs was also too low to keep a large stock and for the ‘shop’ to be open at all times.

The following recommendations will contribute to the improvement of access and utilisation of services.

**Extension services and role of Private sector**

Extension has adopted the Farming Systems Research and Extension (FSR/E) approach which tries to look more at the demand side of development and services provided, by including farmers in decision making, project implementation and development of new technologies (on-farm research). However, the coverage of the Extension Services is low, as there is only 1 AET for 3000 rural households (National Development Plan - 2) and there are only two subject matter specialists in horticulture for the region. **The implementation of the FSR/E approach takes time, not only for government staff, but also for the farmers, who are expected to take a much more active lead in their own development.**
Furthermore, extension should work in co-operation with private sector instead of both working in isolation. Extension sometimes lacks time, manpower and knowledge to reach all farmers and provide information and inputs. GRN should therefore provide guidance and advise private sector companies on how they can fulfil this task. Farmers who visit (or is visited by) a private agricultural supply company to purchase seed can also receive advice from them. This is a more efficient way of achieving an extension outreach programme and it can be cost recovering.

Agricultural shows
Agricultural shows have recently become a regular feature in many regions in Namibia. It is strongly recommended that an agricultural show be organised in the Kavango Region in the near future (in addition to the annual seed fair and the trade show). This could provide a useful tool to familiarise farmers and agricultural stakeholders with the services on offer and create a forum for exchange of experiences. The private sector as well as MAWRD can use this opportunity to advertise their services to the public.

Informal sector as supply agent
Informal traders can be involved in supplying agricultural inputs to farmers. As the Agra at Vungu-vungu has not performed satisfactorily, the manager proposed that traders at the open market start selling the inputs. The representative of a Windhoek based seed agent who was invited by the KHPM-team has started discussions with the manager at one of the Open markets to agree on a local selling point for seeds.17 Community shops or other local shop owners could also be involved in selling inputs on a small scale. It is important that this is done in co-operation with the private sector and that some training is provided to shop attendants.

4.3 Farmer’s decision-making strategies: socio-economic aspects

At an early stage of the KHPM project, the team identified the important role of the socio-economic aspects, which largely determine how a producer or trader makes decisions. A farming system (or livelihood system) consists of several capital assets: human, natural, financial, social, and physical capital assets and outside factors: policies, law, seasonality, shocks and trends have an impact on the outputs of such a livelihood system (Ashley, 1999). The KHPM-project has tried in its’ own capacity to identify the factors that influence decision-making strategies of producers (and traders) in Kavango and in particular at Salem:

17 In other countries traders offer a package deal to the producer: they enter into an agreement in which the trader requests a certain amount of a produce from the producers, cherry tomatoes for example. The trader provides ‘free’ cherry tomato seed and inputs to the producer, and the producer sells the produce to the trader for a lower price.
1. At Salem the ownership and decision-making power over the project and cultivated land is not clear. MAWRD has been giving financial support to Salem (maintenance of pumps and technical assistance of AET) and in return has demanded producers to provide production records to monitor whether this support is economically justified. However, this has created a feeling amongst producers that they are being patronised and are not included in the process. As a result they are reluctant to provide information (also because they are not sure how the data is used – e.g. for tax purposes)\textsuperscript{18}. Producers have not always participated fully in the project’s formulation and design, and in the implementation of new project ideas.

The role of the traditional land authority is also unclear. Some producers are demanded to pay an entry fee for a plot at Salem, whereas others have been given the right to cultivate the land for free. Unclear ownership prevents producers from investing in their business (e.g. drip irrigation, water tank, planting of fruit trees) either because they expect the ‘owner’ to do this for them or because they are afraid they could be dismissed from their plot.

A clear constitution that points out selection criteria for admission, rights and obligations of members is urgently required to solve this issue. Such a constitution should clearly state the term of reference of each member on the management committee and the committee’s mandate. A strong leadership structure is currently missing; the management committee is afraid to make firm decisions, partly because meetings are poorly attended and also because there is no majority decision making. Elected persons sometimes do not support their own nomination and are unmotivated to carry out their tasks.

2. Producers (and traders) have different social backgrounds.

Producers at Salem generally enjoy respect in the farming community. There are however considerable differences within producer groups that sometimes lead to conflicts and jealousy amongst members. A few people with higher social status or a more prominent position in the community largely influence the decision-making process at Salem. This has, for example, hampered the implementation of a constitution for Salem. Some other factors are:-

- **Different wealth groups** – there are producers who can be categorised as good growers who earn more money and average/poor growers, with less income. Some producers have additional income sources e.g. teachers or cucashop owners and some have access to their own transport. At Salem, producers with additional income sources are mostly part-time farmers (or weekend-farmers) who are less dependent on income generated from the farm and are therefore not motivated to make large investments\textsuperscript{19}. Producers are generally seen as having a higher social status than informal.

\textsuperscript{18} The same happened when the KHMP-Project and extension arranged to pay for the replacement of the pump switchboards, which presented a potential hazard. The producers then claimed that they would rather have decided themselves on how to use the money.

\textsuperscript{19} It is thus not necessarily the case that producers with a higher income are taking higher risks and investing more in their business.
market traders. There are also differences between traders: those selling vegetables have a lower status than people who can afford to sell meat or fabrics.

- **Gender differences** – besides being the major breadwinner women are also responsible for running the household, childcare, etc. They are therefore mostly in favour for risk reducing and labour saving practises; such as participation in the tractor scheme and forming a co-operative to work more closely with other producers or traders. Men seem to be more entrepreneurial in their thinking and look for alternative markets, and they show less appreciation for the informal (mainly women) traders. Some women’s community projects are said to have failed because gender issues were ignored. For example the failure to consult men resulted in them being jealous and destroying or stealing implements or not allowing the women to work in the garden (Amunyela, 2001).

- **Ethnic/cultural differences** – Ethnic difference played a much greater role in the past than nowadays. Nevertheless, some ethnic groups/cultures still enjoy higher social status than others. At Salem the Ovinyemba, originally from Angola are in the majority and are more entrepreneurial and business minded (they are managers rather than farmers, but their farm workers are hard working and do most of the field work). Most of the informal traders are also from this last group. The Shambyu people are hard working and relatively new in the horticultural business. Ethnic background does play a role when people are elected on committees: people tend to favour somebody from their own tribe, but this seldom results in conflict. However, differences between tribes and language groups is a sensitive issue and requires the involvement of an anthropologist to understand well. Cultural beliefs also play an important role in decision-making; sometimes the help of a witchdoctor or traditional healer is called upon to ‘solve’ an argument. The fear of becoming bewitched can compel a person to hide and not show up at work for a few days.

3. **The situation of the HIV/AIDS pandemic in Namibia today has become the number one threat to human development.**

This certainly also has its effect on the horticultural sector. The disease has important socio-economic implications, especially since it concentrates on the young and active people. Producers and traders, normally the key-breadwinners in the family, face a serious risk of infection, becoming ill for long periods and dying young. Their families suffer a great loss, both emotionally and in economic terms. Long illness diverts family resources and funerals costs money that might otherwise have gone to investments in the enterprise. Also, with the death of a farmer or employee, a large amount of knowledge and skills are lost.

It is recommended that discussions with producers (and their families) about the risks and effects of HIV/AIDS are included in the curriculum of AETs.
4. Extended families have an impact on expenditure patterns which can hamper business growth

Producers at Salem do not always keep separate books for their farm income and their household expenditure. A household head who earns an income is often under pressure to pay for expenses of other extended family members, such as schooling and funeral expenses. It happens often that a farmer is left with no savings to buy inputs for the next planting season. Some producers invest their money from sales of vegetables in other businesses in the hope to generate even more income (e.g. cucashops, selling of cigarettes at the open market). The same is applicable to the traders. The Pahuca business management workshop has encouraged producers to keep financial record books for their farm and household separate and to only allocate a fixed amount per day as salary for the producer’s work. It is recommended that this business training continues and its cover is expanded to producers and traders in the rest of Kavango.

In future when new projects are embarked upon or new gardens are established it is important that technical solutions are complimented by socio-economic solutions.

4.4 Technical challenges

Horticultural Producers at Salem and elsewhere in Kavango are facing several technical challenges. Horticultural crops are generally much more technically demanding to grow and require much greater investment in time and money than other crops. Higher risks are involved than in other forms of agriculture. In most cases it is mostly the elite farmers who become seriously involved and successful in fruit and vegetable production. Appendix D outlines specifications and technical challenges for vegetables grown in Kavango.

4.4.1 Knowledge and human resource management

Although most Salem producers had some basic understanding of vegetable production when they started, they mainly gained their knowledge through trial and error and the assistance from the AET. Indigenous knowledge (which plays an important role in cultures that have a rich tradition of horticultural production, such as in Egypt) is of less importance. Techniques such as sprinkling ashes on the crop to repel pests are used as a last resort (if the conventional methods are inadequate or not available at the time) rather than common practice. It is however interesting to note that certain knowledge has been adopted over time and is rooted so deep that producers are reluctant to change despite strong advice against it from the AET.
Case 1: Information vs. knowledge vs. understanding
Examples of techniques that are in most cases not (longer) advisable but still commonly practiced are:

1. Top dressing of almost mature crops with organic manure;
2. Broadcast sowing in nursery;
3. Application of Curaterr (a soil pesticide against stemborer caterpillars) in the growing point of maize.

Farmers have in the past received information that they have interpreted in their own way without understanding the 'how, what, why, where and who' of the technique and use this now as their knowledge:

1. Top dressing of chemical fertiliser is recommended, because this will give the plant a boost for growth. Farmers assumed this would be the same with manure. In case of manure, nutrients are released very slowly: it should therefore rather be applied three weeks before planting and worked into the soil.

2. Broadcasting of seed saves time and can therefore be recommended in the case of cheap open-pollinated seed. However farmers are using more hybrid seeds nowadays so broadcast sowing is not longer recommended.

3. In the past a few farmers received a pesticide from Zimbabwe that was very effective against stemborer. This needed to be applied in the growing point of the maize plant. When this chemical was not longer available in Kavango, farmers bought Curaterr, (a highly poisonous pesticide which should be applied to the soil before planting) and assumed it could be used in the same way. This is how farmers have it used ever since.

Understanding a certain practice becomes especially important when the technique needs to be adapted to the changing conditions. A technique is useless if there is no thorough understanding of how it can be used. Producers, for instance, generally know that sweet potato is better grown on ridges and that nursery areas for seedlings can be levelled by using a terrace system. If producers had a better understanding of why they use this practise, they could have adapted it and applied the same techniques to lower lying areas which have poor drainage. Cabbage grown in these areas is prone to water logging, resulting in low yields.

Technical capacity
Apart from a few exceptions, the technical capacity of most producers is low. Low educational levels (average education of Salem producers is Primary school), old age (Pahuka, 2001) are the main contributing factors as well as the lack of ability to access information.

Many of the producers at Salem have no clear vision of their business and they lack the ability to recognise and respond to certain trends. This is important in order to anticipate on pest and disease outbreaks in time, to predict yield potential and seasonal price fluctuations and to make pre-arrangements with potential buyers.

There are several tools that can aid producers to make informed business decisions. One of the tasks of the KHPM-team was to offer these tools to producers and teach
them how to use them. A Training Needs Assessment revealed that there were quite a few producers at Salem who were keeping a cashbook in which they recorded production cost. However most producers do not keep these records in order to determine if they were making a profit or a loss and if they made optimum use of the inputs. A simple balance sheet of money going in and money going out would give them a better insight to their business. A 2-week business management course was organised by the KHPM-project to train producers in basic business management skills. It should however be noted that entrepreneurship is a disposition and not something that can easily be thought to producers.

Training of workforce
Another problem that hampers the transfer of information (or knowledge) is the fact that training at Salem is often given to the farm workers rather than to the producer himself. This happens, especially when the producer is a part-time farmer and the farm worker is responsible for the day-to-day work. Because the producer did not attend the training he will not be able to supervise properly or give the worker specific instructions. Instead, producers tend to blame their workforce for things that have gone wrong on the farm. Due to the temporary character of employment of farm workers, knowledge is easily lost rather than being past on from producer to worker. The very low wages also contribute to a lack of performance and loyalty of farm workers. There is a high turnover of employees as result.

4.4.2 Climatic constraints
Climate is one of the major obstacles for development of the horticultural sector in Kavango. Judging from the annual rainfall patterns, the climate in Kavango can be considered more sub-tropical than other regions, which would make it more suitable for sub-tropical crops such as okra, aubergines, tomatoes and sub-tropical fruit trees. However, the high evaporation rate in the summer and possibility of frost in winter gives these crops a very small window of opportunity and makes horticulture an even riskier business. The climate is appropriate for temperate vegetables such as cabbage and onions which are crops that performs well in Kavango at certain times of the year. There is thus a relatively low range of vegetables and the market seasons are short. There are areas in Southern Africa which are much more suited for year-round production and a wider range of crops, giving these areas a higher competitive advantage over the Kavango Region.
4.4.3 Marginal soils
Soils in Kavango are mostly sandy and low in organic matter content (Salem: soils with sand percentages ranging from 86.3% till 97.3% and less than 0.4% organic matter, MAWRD soil laboratory, 2001). The low soil fertility requires high input levels of organic or chemical fertiliser (including micro elements). At Salem several producers have complained about poor growth and discolouring of leaves as symptoms of nutrient deficiencies. In sandy soils nutrients easily leach away because of the low water holding capacity. Good water management and frequent organic manure application is required to improve the soil structure and maintain soil fertility. Soil erosion is another area of concern, especially at gardens close to the river, where heavy rains and floods wash away fertile riverbanks. At Salem, salinsation of the soil occurs in the lower laying areas due to a poor drainage system. At certain places the PH is as high as 9.4, making any form of production impossible. Again, there are areas in Namibia (e.g. triangle) with much better soils, which give these areas a higher competitive advantage over Kavango. Producers have difficulties in interpreting soil conditions (e.g. by observing growth and leaf colour) and to relate this to correct fertiliser and manure application. The KHPM-Project has made several soil samples and had them partly analysed. However, lack of manpower at the soil lab delayed the results, which still need to be translated into fertiliser recommendations. It is recommended that the AET at Salem makes a follow-up with staff at the soil laboratory in this regard.

4.4.4 Pests and diseases
Producers in Kavango face a high level of pest and diseases that attack vegetable and fruit crops. This has discouraged a number of producers, especially in the community.
gardens, to continue with vegetable production. In order to reduce costs, producers often choose (or were recommended) to spray a broad-spectrum pesticide, which can be used for a wider range of pests. Frequent use of these pesticides has destroyed the natural balance and pests have become increasingly resistant resulting in even higher pest outbreaks (e.g. red spider mite in tomato and diamond back moth in cabbage). At Salem, producers are familiar with most pests that occur on their crops and with advice of the AET they generally manage to control the pest. However pesticide use could be reduced considerably if producers used an integrated approach of early identification and detection in the field> this could be done by using specific pesticides that are less harmful (but more expensive) and by increasing crop hygiene by removing of weeds and crop residues, and by improving general management (a strong plant is less susceptible for pests and diseased attacks). Producers do have knowledge about crop rotation and try to practise this, but often the rotation cycle is too short due to a relatively small plot size. Diseases are on the increase and because they are often difficult to identify, farmers have little knowledge about suitable control methods. A few producers have lost their entire tomato crop due to late blight infestation. TYLCV (tomato yellow leaf curl virus) is also reported in Kavango and could form a serious treat to future tomato production. Ministry of Agriculture subject matter specialists do have some expertise about pests, but lack knowledge about identification and advice on disease control. If horticultural production is to be expanded in Namibia, the input of a pathologist would be recommended.

4.4.5 Irrigation systems

Although the Kavango River is a major asset for the region, it does not necessarily guarantee that producers are able to make use of the water effectively. Many of the community and individual gardens use a small diesel pump. This water then needs to be distributed in the garden. The easiest way to do this would be to build channels and practise flood irrigation. Although some gardens used this method in the past, is work well because of the poor water holding capacity of the soils (see 4.2.3). Bucket watering is only suitable for the smaller (backyard) gardens. Connecting hosepipes and taps in the garden is the third option and this is practiced in most community gardens. It is an effective method, but very labour intensive. All larger gardens in Kavango use overhead sprinkler irrigation. This works well for most crops, but is less suitable for crops such as tomato, cucurbits, sweet pepper and aubergine, as they are prone to fungal diseases if water stays on the plants. This is another reason why producers in Kavango are not successful in tomato cultivation. Triangle producers have a higher competitive advantage for tomato production, because they use drip irrigation.

Another major limitation at Salem is the fact that the pump capacity only allows that one section (a block of 12 ha) be irrigated per day, which means that farmers only have access to water twice a week. In addition, poor irrigation techniques such as

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20 A producer in the triangle who is involved in tomato production is clearing another hectare of bush each season to be able to rotate his crop. He only returns to the same area after a period of 4 years.
irregular opening and closing of taps, malfunctioning sprinkler heads/nozzles and
poor supervision while irrigating contributes to low germination of crops such as
carrots for example and generally poor crop stands.

It is advised that producers at Salem repair or replace their water tanks, so that
they are able to water their seedbeds on the days that no irrigation water is
available, or make use of drums to irrigate plants that need extra care. Worn
sprinkler nozzles need to be replaced (see for further recommendations Basson,
2000).

Also, if new horticultural farms are established, it is recommended that the cost
and benefits of a drip irrigation system be determined (for a part of the
production area). This would e.g. increase the opportunity for successful tomato
production for example.

4.4.6 Selection of cultivars

Most of the vegetable seed on the Namibian market has been developed for South
African environments and is therefore not always suitable for Namibian conditions
(Namibia has a different latitude and climate). Access to other sources of seed is very
limited. A representative of the FAO has informed the KHPM-team about a new
database (www.fao.org) that will enable users to locate and order seeds suitable for
similar in areas. These alternative seed sources should be further explored.

Not much on-farm research has been carried out in Namibia to evaluate the
performance of vegetables under small-farmers’ conditions. The commercial/private
sector is conducting on-farm research trials in co-operation with a RSA seed agent,
but little has been done in the Kavango or NCA, and experience is often not
documented.

Advice given by seed agents is often also related to performance in South Africa and
formal market requirements. An example is an onion cultivar that was said not to be
suitable for planting because of general poor performance. This cultivar (Sonic) was
tried in the on-farm evaluation and voted as one of the better onions because it
produces large bulbs with many leaves, which is one of the requirements of the
informal market. The private seed sector should also realise that the producers in
Kavango form a very attractive potential market and should be encouraged to conduct
on-farm research in Kavango, using producers’ criteria for evaluation. The KHPM-
Project has already initiated such a link, but the AET and the seed agent should
maintain this when the project ends.

Recently, the KHPM-Project in co-operation with DART has initiated on-farm
demonstrations and evaluation of several available onion and cabbage cultivars.
Producers evaluated this crop against their own criteria, such as:

• Different sowing intervals (early/late sowing)
• Pest and disease resistance/tolerance
• Yield potential
• Marketability (depend on target market)

Several producers have hosted these demonstrations and at intervals other producers
(from Salem and other gardens) were invited to share experience and results. It was
interesting to note the differences in performance of the cultivars between one producer and the other. This would suggest that correct management plays a crucial role and largely affects the yield potential of a cultivar. Differences between the cultivars could clearly be observed in case of disease tolerance against black rot. These “trials” will have to be an ongoing effort (in co-operation with the private sector). DART will assist with analysis and documenting of the findings. It is however also important that producers take ownership over the demonstrations and form their own conclusions.

4.5 Production planning

Production planning will have to take into account issues such as labour availability, seasonality of vegetables and crop rotations but above all the approach towards production planning will have to be **marketing oriented**.

Producers at Salem are not interested in co-operating with regards to marketing their produce, i.e. combining their produce or combining land to implement a joint cropping plan. Salem is able to sell almost all their vegetables through the informal market and is almost entirely dominating this market. The only competition at the moment is from producers within the Project. Collective or co-operative marketing works best when it creates economies of scale to compete more effectively and this is not yet an issue at Salem.

Even though producers are often criticised for not having a clear production plan, this is not entirely true. Producers at Salem do have a good understanding of their target market, namely the informal market, and produce mainly those crops which are high in demand, namely the cheaper leaf vegetables, cabbage, onions and maize. Producers are also aware of the fact that early planting to avoid oversupply will increase their market opportunities. However, because this seldom results in a higher price being obtained, this is mainly done to reduce competition with other producers and to quickly earn money early in the season for purchase of inputs for the second crop. The following examples illustrate this:

**Case 2: Reaction to other producers**
The Vungu-vungu NDC dairy farm is next to the Salem irrigation project and also has to its advantage its proximity to Rundu. Maize is grown under a centre pivot and mainly meant for cattle fodder, but cobs are sold to the informal market when the demand for green maize has reached its peak (in December). Informal market traders do not seem to mind the extra two kilometre journey in order to buy maize. Vungu-vungu would therefore compete directly with Salem. As a reaction, Salem producers are now growing maize 1-2 months earlier than Vungu-vungu, and delay their second planting until January, when Vungu-vungu has stopped selling, to prevent flooding of the market.
Case 3: Reaction to market demand

Salem producers have learned over the past years that there is a high demand for mutete during the dry season and early rainy season. After January the demand becomes less due to the fact that many households are growing rainfed mutete. Mutete is now replacing the cabbage crop during this time of the year. The reason for this is that mutete is easy to grow and there are hardly any pests or diseases compared with cabbage. Furthermore the growing period is very short (4-5 weeks) hence it gives the producer a quick return on investment.

The fact that producers are often criticised for not having a clear production plan probably stems from the fact that support to the horticultural sector often has taken the form of encouraging producers to enter the formal market and efforts to supply this market segment have not been very successful. It is important for a producer to carefully consider in advance which market segment he wants to target with a certain product and then plan his production accordingly, instead of making that decision at the time of harvesting. The formal market often requires a different type of product (e.g. medium-household-size head cabbage instead of leaf cabbage and dry bulb onions instead of onions with green tops) and selection of the right cultivars is thus important.

The difference in marketing strategy between the triangle producers and the local Kavango producers is that the triangle producer sells the majority of his produce to the formal market and his surplus and poorer quality produce to the informal market. Whereas, the local Kavango producer sells the majority of his produce to the informal market and tries to sell his surplus to the formal market. With a strategy that is mainly aimed to supply the informal market, it is not very surprising that Kavango producers are less successful in continuously supplying a market in which they are not specialised.

The producers will need more advice from extension technicians to better equip them to translate market requirements into practical production schedules:
- selection of suitable cultivars
- adjustment of sowing dates (see case 4)
- techniques to extend production into high price periods such as protected cultivation under shade, early or late varieties etc. (applicable when the formal market is targeted, since prices are more prone to fluctuations)
- introduction of new crops or new production technologies to be tested on a small scale.

The example below illustrates that some producers are already aware of techniques that enhances their ability to meet market requirements and increase their competitive advantage.
Case 4: Increase competitive advantage

Mr. K has an irrigated plot around 20 km west of Rundu. His garden is too far away from Rundu for informal traders to reach. When he plants cabbage in the peak marketing season (August) he will not be able to sell most of his crop. The village market is too small and the informal market is already supplied by producers nearby Rundu, who have a competitive advantage over him. He therefore decided to plant as early as January. With the selection of a heat and black rot tolerant cultivar and intensive management practices he was able to market head cabbage of good quality as early as April. Because vegetables are hard to come by at this time of year he was even able to sell most of his crop to people in the surrounding villages. He took the surplus to Rundu, where it was sold in no-time.

Staggered planting

Another issue which requires more extension input, is staggering (or phasing) of production to provide a continuous supply over a certain period. Continuous production does not necessarily have to mean year-round production. If supply of small quantities of a product can be maintained over a period of 6 months, this could make arrangements with potential buyers much easier. In general buyers would prefer to know in advance for how long they can count on a regular supply instead of large deliveries on an ad-hoc basis.

Producers are generally aware of the importance of staggered production and do plant two or more plots after each other but planting intervals are still too large (intervals of 1 month) resulting in supply gaps and loss of the customer. One of the problems that producers face is the lack of space to efficiently stagger production. The solution would be for one or two neighbouring growers to ‘combine’ their land and agree upon a joint production plan. However, only a few producers at Salem will be prepared to try this and it will require clear mutual agreements.

Specialising

Producers at Salem generally produce a range of crops, since this is what the market demands and it reduces the impact of an eventual crop failure. However, it is sometimes advisable to specialise and concentrate on fewer crops\(^1\). In this way the producers becomes more skilled in such a crop, resulting in higher yields and better quality produce.

Profitability

Profitability of a specific crop is also an important aspect of production planning. This is where gross margin calculations can help a producer to make the decision to cultivate a larger area of those crops that give them a higher margin (see also paragraph 4.7).

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\(^1\) This would only be advisable for those growers who are already proficient

Horticultural Production & Marketing in the Kavango Region, August 2001
4.6 Post-production aspects

Producers at Salem do not exhibit much concern about post-production aspects. Almost the entire harvesting process is taken care of by the informal market traders.

Producers often do understand that the method and timing of harvest, as well as handling of the product afterwards, has an effect on the quality and storability of the product in the market. This is especially important when the product is sold to the formal market, but also the informal market has specific requirements with regard to post-production aspects.

Immature harvesting
Timing of the harvest period is important; producers often allow traders to harvest early: e.g. immature cabbages sold as a green leaf vegetable and spring onions. The demand for these vegetables is high and producers are often pushed to sell earlier than they would like. Producers do not fully exploit this opportunity i.e. they are not linking price to demand.

Timing of harvest
Informal traders often harvest in the early hours of the day, when it is still relatively cool. When there is surplus to be sold to the formal market, harvesting is done by the farm worker, who only starts harvesting when the informal traders have left. By this time it is often already too hot, i.e. the harvest to the formal market is more of an ad hoc arrangement, and informal traders are often given first harvest opportunity and choice.

Case 5: Quality of produce and service
A Salem producer was delivering carrots to one of the supermarkets in Rundu. Despite the fact that they were freshly harvested, observation in the shelves of the supermarket showed that they had lost their quality very rapidly (within two days). The next time the producer approached the supermarket the manager was reluctant to buy since the quality was poor.

The farmer was encouraged to do a little trial to investigate the cause of early wilting. Two days later, the carrots that he had stored in his house were still of reasonable quality. He again approached the supermarket, but the manager had lost confidence in his product. Even when he was given a free sample of the new harvest, the interest to buy was already lost.

Although the farmer lost a potential buyer, he was keen to find out the real cause of the problem. He observed that his labourers were often harvesting during the hottest period of the day and grading was done in the sun. This was mainly because of the short-term notice they were given to harvest and pack for the ad-hoc deals the farmer made for delivery to the supermarket. It was later found that storability of a root crop can generally be improved by selling a fully mature crop. Also a lack of calcium in the soil could reduce the storability. A second physical observation at the supermarket also revealed that the carrots might have been stored too cold in the cool room of the supermarket, which had damaged the tissue cells, resulting in early wilting.
Quality and crop hygiene
Field and crop hygiene during and after is often neglected or the effects of poor hygiene are not well understood. Informal traders are allowed to walk from one field to the other and use their own knives for cutting the produce. This increases the spread of viruses and bacterial diseases such as black rot. Producers have maybe calculated the risk of infection against the benefits of having no harvesting cost. However, the removal and burning of infected crop residues will now be of significance and this is not always done properly. At Salem risks of infection are even higher because a high number of gardens and different levels of management occur next to each other.

Packing
Packing of the produce is also mostly done by the traders. They are responsible for bringing their own packing material: e.g. empty mieliemeal bags, plastic bags, buckets or other containers. This system works rather efficiently for both parties. Traders are limited by the fact that they have to carry all the produce from the garden to the road and every so often to the market. Because transport cost are high (sometimes more than 25% of the value of the purchased goods), traders try to fit as much produce in one bag as possible, with bruising and compression damage as a result.

The formal market requires the products to be packed in bulk bags (string bags of 5-10 kg). These bags can be ordered for 1.10 N$ per bag in Grootfontein. Occasionally supermarkets provide free used empty bags to the producer to pack his produce. Weighing of bags takes place in the supermarket warehouse. However, producers are not always willing to invest in packing material and this limits their market opportunities to the formal market.

Grading and standardisation
Grading is done on a small scale. Produce sold to the informal market is generally graded by the producers as well as the traders according to size and to a lesser extent according to quality and this is reflected in the price. Introduction of formal standardisation and grading for domestic and imported produce is likely to benefit only the best producers and will result in an increase of consumer prices. Until the costs and benefits (and effect on the Namibian horticultural sector) of standardisation of domestic produce is clearly examined, this type of standardisation should mainly be recommended for products that are exported.

Storage
There is very little need to store products longer than two days. The informal market is a very immediate market; products are harvested directly from the field and sold over a period of two days. The only time that the need for storage has arisen at Salem was when onions reached maturity stage before they could all be sold as green onions to the informal market. Dry onions were stored at homesteads or at the project office, until a suitable buyer was found.
Policy makers at MAWRD have talked about the establishment of cool rooms in the region as a possible solution to prevent spoilage of crops in the field, because of lack of market opportunities and purchase of refrigerated trucks to transport products to areas with a higher demand. However, most horticultural crops are only suitable for short-term storage (1-4 days), storage is expensive and detracts from freshness (which reduces the price). Stored produce can seldom compete with fresh supply. In Kavango producers are able to sell all their produce for most of the year. The storage facilities will probably be under-utilised for most of the year and will therefore be uneconomic.

**Small scale value adding and preservation**
It would be much more worthwhile to investigate in the market opportunities of small scale value-adding and preservation techniques as a home industry and business opportunity. An example of a technique already practised is the pounding and drying of mutete into cakes that can be sold for a relatively higher price at times when green vegetables are scares. Producers at Salem have been known to dry cabbage for their own consumption. A chief extension technician in Rundu explained that he had dried his supply of homegrown tomatoes, which he has used for the rest of the year in preparing soups and sauces. Some informal market traders could be encouraged to specialise in drying and preservation techniques.

**4.7 Profitability**

The profitability of a crop depends on three main factors:
- 1st Selling price i.e. market prices
- 2nd Yield or plant population (planting density)
- 3rd Cost of production

**Selling price**
The selling price often has the greatest impact on profitability.
Producers in Kavango and at Salem have become used to selling at a certain price, which covers their production costs and gives them a good margin\(^2^2\). The lack of competition in supplying the informal market has led to the lack of variation in prices (Sergeant, 2001).

Another factor that could have resulted in more or less constant farm-gate prices is the fact that the system for determining prices is underdeveloped: traders and farmers do not understand the reality of supply and demand.

Prices at the formal market are less stable and determined by demand and supply. The Kavango producer who delivers to the supermarket is the “price-takers” instead of “price setter” and can only decide to accept a price or go elsewhere with his product.

\(^2^2\) Often the selling price is not related to production cost, but rather to what the end-consumer is willing to pay for the product. Producers look at the price at the informal market and deduct 50% to establish the ‘ex-farm’ price or simply look at what a neighbour is asking.
Yield and planting population
It has already been mentioned that yields obtained in Kavango vary greatly due to different inputs and management levels. One management practice in particular seems to influence profitability of a crop, namely the planting density. It has been observed that some producers have almost twice as much plants/ha than other producers due to different spacing and more seeds per plant hole. As long as the soil fertility is maintained and the correct cultivars are used, increasing the planting density can almost double the profitability.

Costs of production
In developed production and marketing systems risk and profit are very closely linked i.e. the most potential profitable crops are often the most risky. However, in Kavango this is not always the case. Costs of production are not always reflected in the selling price. Production costs of gardens in Kavango are often relatively low due to lower input and management systems, low wages of farm workers, free use of water from the Kavango River, free extension advice and frequent donation of inputs and overhead cost of irrigation systems are often not covered. This is at the moment a competitive advantage for Kavango producers over other producers, but is not sustainable in the long run.

4.7.1 Gross margins and farm model interpretations

Gross margin and farm models as an extension tool for decision-making
Gross margins are one of the tools which can help farmers in their decision-making and crop planning. However, it cannot be expected that every farmer will be able to make gross margin calculations. The role of the extension technician is to assist the producer with gross margin calculation and give explanations of the method of gross margin calculations so that the producer will be able to interpret and make use of the data. Once the producer is able to do this, the extension technician will no longer have to recommend which crop to plant: the producer will be able to make his own optimal production plan. Nonetheless, care should be taken not to base a decision solely on the gross margin figures, but rather to take into account all variables e.g. labour availability, risk reduction and market demand.

The KHPM-Project has been collecting gross margin data and refining them over time. The gross margin analysis were then taken a step further to the level of financial analysis to included farm models i.e. the annual money a 1 ha producer can make by growing a series of crops. Assumptions were made for typical cropping patterns i.e. the cash margins for each of these crops were added together and the farm profitability calculated. In addition, the scope of the margins was widened to differentiate between two management levels (good and the more typical growers), use of hybrid and open pollinated seed and early and late planting.

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23 The low wages and poor working conditions (without any social benefits) of farm workers employed by small-farmers should be looked into. The labour act does protect the rights of temporary casual workers, but farm workers associations seem to mainly lobby for the rights of workers on commercial farms.
Summary of findings
Although the margins and farm models have been presented and discussed in Dr. Sergeant’s reports, it is felt that some findings are worth highlighting here.
Table 4 and 5 present a summary of the gross margins for the relatively good growers and average/poorer growers at Salem. The critical factor that appears to cause the difference in yields (and hence, margins) between good and average farmers is management, the good growers follow extension advice, pay attention to details within the field and do not take unnecessary risks.

Table 4: Gross margins (N$) for well grown small-farmer crops, based on 0.25 ha.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Direct costs</th>
<th>Revenue</th>
<th>Margin</th>
<th>Growing period (weeks)</th>
<th>Margin/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweet potato</td>
<td>877</td>
<td>4,218</td>
<td>3,341</td>
<td>22</td>
<td>152</td>
</tr>
<tr>
<td>Mutete</td>
<td>772</td>
<td>9,450</td>
<td>8,678</td>
<td>5</td>
<td>1736</td>
</tr>
<tr>
<td>Carrots</td>
<td>1477</td>
<td>12,750</td>
<td>11,273</td>
<td>14</td>
<td>805</td>
</tr>
<tr>
<td>Green maize early</td>
<td>986</td>
<td>4,125</td>
<td>3,139</td>
<td>14</td>
<td>224</td>
</tr>
<tr>
<td>Green maize late</td>
<td>972</td>
<td>2,700</td>
<td>1,728</td>
<td>13</td>
<td>133</td>
</tr>
<tr>
<td>Cabbage hybrid, May</td>
<td>2,112</td>
<td>8,498</td>
<td>6,385</td>
<td>14</td>
<td>456</td>
</tr>
<tr>
<td>Cabbage hybrid, August</td>
<td>2,112</td>
<td>9,375</td>
<td>7,263</td>
<td>14</td>
<td>519</td>
</tr>
<tr>
<td>Cabbage open pollinated, May</td>
<td>1,588</td>
<td>2,990</td>
<td>1,402</td>
<td>10</td>
<td>140</td>
</tr>
<tr>
<td>Cabbage open pollinated, August</td>
<td>1,588</td>
<td>9,000</td>
<td>7,412</td>
<td>10</td>
<td>741</td>
</tr>
<tr>
<td>Onion</td>
<td>2,303</td>
<td>12,500</td>
<td>10,197</td>
<td>18</td>
<td>567</td>
</tr>
</tbody>
</table>

The margins show that good producers at Salem are able to make good potential profits, especially for mutete which has a high selling price/kg and a much shorter growing period than most other crops, and seems highly profitable under irrigation. It should be noted that for farmers to achieve these attractive margins, there has to be a reasonable investment in agro-chemicals and seed. Seed selection is especially important if farmers want to combat the elements and grow early in the season or through the rains.

Table 5: Gross margins (N$) for poorly grown small-farmer crops, based on 0.25 ha.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Direct costs</th>
<th>Revenue</th>
<th>Margin</th>
<th>Growing period (weeks)</th>
<th>Margin/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweet potato</td>
<td>877</td>
<td>2,220</td>
<td>1,343</td>
<td>22</td>
<td>61</td>
</tr>
<tr>
<td>Mutete</td>
<td>619</td>
<td>6,000</td>
<td>5,381</td>
<td>5</td>
<td>1076</td>
</tr>
<tr>
<td>Carrots</td>
<td>1,212</td>
<td>3,000</td>
<td>1,788</td>
<td>14</td>
<td>128</td>
</tr>
<tr>
<td>Green maize early</td>
<td>780</td>
<td>2,700</td>
<td>1,920</td>
<td>14</td>
<td>137</td>
</tr>
<tr>
<td>Green maize late</td>
<td>749</td>
<td>1,050</td>
<td>301</td>
<td>13</td>
<td>23</td>
</tr>
<tr>
<td>Cabbage hybrid, May</td>
<td>1,508</td>
<td>2,550</td>
<td>1,042</td>
<td>14</td>
<td>74</td>
</tr>
<tr>
<td>Cabbage hybrid, August</td>
<td>1,695</td>
<td>2,850</td>
<td>1,155</td>
<td>14</td>
<td>83</td>
</tr>
<tr>
<td>Cabbage open pollinated, May</td>
<td>1,099</td>
<td>1,200</td>
<td>101</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Cabbage open pollinated, August</td>
<td>1,099</td>
<td>2,435</td>
<td>1,336</td>
<td>10</td>
<td>134</td>
</tr>
<tr>
<td>Onion</td>
<td>1,756</td>
<td>7,000</td>
<td>5,244</td>
<td>18</td>
<td>291</td>
</tr>
</tbody>
</table>
In contrast to the good growers, average small-farmers only achieve small gross margins (except for mutete). These growers make some money, but obtain very poor returns for their efforts and utilise their irrigation systems very ineffectively. The analysis shows that their most profitable crops are onion and mutete.

Margins for green maize on the cob are somewhat low in both systems. Still farmers find this crop very rewarding: it is relatively easy to grow and the stovers can be exchanged for manure at the neighbouring dairy farm.

Two cropping models, as they have been discussed with producers, are included in Appendix E. The models show that good producers are able to make a potential income of N$ 50,000. It should however be appreciated that there are very few producers who are actually making such profits at the moment. The farm models were based upon the better growers at Salem24. The average /poorer grower at Salem is still able to get an income of N$ 13,000 per year. Compared to the profit which can be expected with better management and better utilisation of resources, this is not very high, but it is probably satisfying for many producers.

**Break even selling price**

Break even analysis (the minimum price a producer has to obtain to cover production cost) for each crop showed that a good grower is making a sufficiently large margin to be able to accept a lower price and still get acceptable return for his or her efforts e.g.:

- Green maize: market price N$ 0.50 : break even selling price N$ 0.12
- Head cabbage: market price N$ 1.25 : break even selling price N$ 0.28

Break even selling price information will be important if the informal market becomes over supplied in the future (Sergeant, 2001) and producers are forced to look for alternative marketing opportunities (see chapter 6). Adversity will most likely be the driving force behind change. At the moment the good producers have little incentive to start producing for the formal market segment or try new crops and change their cropping plans accordingly.

### 4.8 The concept of Marketing Extension

Marketing extension is the concept of enabling extension staff to provide marketing advice in such a way that the producer is able to make his own informed marketing decision. This is in contradiction to what often is expected of the extension technician; namely that the AET should recommend which crops to plant, how, when and where to market it. As with all extension information it is not the duty of the AET to tell what the producer should plant and to arrange a market for crops, but rather provide a range of options and methods that enable the producer to make his own decision.

Gross margin calculations and farm models are such a tool, but also provide a link with agri-business organisations and other private sector agencies that will help to empower the producer and encourage him not to be dependent but take his own

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24. Maybe 3 or 4 good farms were observed out a total of 43 producers.
initiatives. This situation will probably suit the producer as well as the AET (who cannot be blamed for advising on the wrong crop). However there is still a big role for the AET; he/she will have to be familiar with all market opportunities, know how they work and their requirements, be familiar with market prices etc.

Examples of marketing extension techniques\(^{25}\) are:
- Forums and talks with actors in the market chain;
- Farmer to farmer extension; one producer explains on his farm to other producers how he was able to sell to the supermarket;
- Demonstrations: of cultivars that are enable producers to widen their market period, harvesting and grading techniques;
- Discussions about interpretations of gross margins and farm models;
- Exchange and study tours; to markets, agribusiness companies, farms of other producers to experience new technologies;
- Extension material; with production information, cultivars, record keeping etc.;
- Radio bulletins with relevant marketing information.

The following is an example of a marketing extension project recently initiated in South Africa.

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**Case 6: South African Marketing Extension Project**

In South Africa, marketing is only just emerging as a concept that is important for the successful commercialisation of emerging farmers. There is the beginning of a change in attitude and appreciation of marketing and commercialisation of the African marketing sector. In order to improve the access of the markets by emerging farmers there was a need for marketing extension and improved marketing information. Extension officers need to have a broad understanding of the commercial aspects of agriculture, i.e. prices, opportunities, local traders. The FAO implemented a project to train extension officers in marketing extension. Three five-day training courses were held for extension officers, training officers and senior managers of the 9 provinces. The course content was highly practical, participative and flexible and included role-plays, market visits (to demonstrate techniques of interviewing traders), market research, sources of market information, visual aids/grading samples and small-scale value added options.

The course emphasised e.g.:
- The importance of the informal sector (responsible for distributing 70% of the food stuffs to the population)
- Opportunities for production of indigenous crops
- Importance of value-adding activities for increasing the output of small farmers etc.

The training officers received posters, books and a CD-ROM to conduct training courses in their region for extension technicians and farmers. The other participants received a boxed set containing technical papers on marketing and a list of commercial agricultural organisations. Especially the latter was felt important by the extension officers in order to function better as a facilitator and make linkages between farmers and agribusiness organisations. (Source: G. Dixie, FAO 2001)

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\(^{25}\) Of which some have already been initiated by the KHPM-Project
It is recommended that senior management in the Directorate of Extension and Engineering Services look into the possibility of establishing a (small scale) marketing extension programme for its technicians and officers.

4.9 Conclusion

Business Management Levels
Looking at the different horticultural enterprises in the region and in Salem in particular, it can be observed that there is a high disparity in yields obtained e.g. head cabbage: 60-75 tonne/ha for a good producer and 20-25 tonne/ha for a poor/average producer at Salem. These better producers are able to overcome most technical challenges. A lower input level in combination with incorrect agronomic practices and poor general management is the main reason for the weak performance of the poor/average producers. Some producers at Salem have been involved in horticultural production for such a long time that they are reluctant to take advice from the AET. Also the factors mentioned in the two paragraphs: Access to information, credit, agri-inputs and Socio-economic aspects contribute to differences in business management levels. During an exchange visit to the triangle producers it was observed that these commercial producers are very much in control and have the means to make things happen i.e. they can take preventative measures. Whereas the Kavango Producers are much more responsive and reacting to their’ environment.

A participant of the FAO Marketing Extension programme in South Africa made the observation that the emerging commercial sector can be divided as follows:

- The majority of subsistence home-growing vegetable producers who are not motivated to become commercial farmers – they will require technical support, but mainly with the purpose of food security.

- A small number of existing commercial producers (e.g. the average/good growers as at Salem) – they need some support, but mainly in the format of marketing extension and help with production planning and organising themselves

- A group of entrepreneurs that are determined and committed to lift themselves out of the subsistence category and become commercial farmers – they will most likely benefit most from marketing extension and information and a marketing oriented approach (Dixie, 2001).

It is of importance that local producers supply the informal market for as much of the year as possible to keep new entrants out. Currently the horticultural sector in the triangle is expanding rapidly, farmers are investing large amounts of money in their business\textsuperscript{26}. Some of these triangle producers have changed part of their marketing

\textsuperscript{26} A farmer in the Otavi area erected a two ha shade house for tomato production costing NS$100,000.
strategy and are now targeting the informal market as well as the informal market. At the moment they are mainly looking at NCD but the Rundu market is certainly as attractive. Producers in Kavango will have to look at their competitiveness and take advantage of the assets they have.

Table 6: Competitiveness of Kavango producers

<table>
<thead>
<tr>
<th>Competitive advantage of horticultural production at Salem (Kavango)</th>
<th>Disadvantages for Kavango Horticultural producers to compete with triangle producers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Proximity to market (Rundu)</td>
<td>• No economies of scale / critical mass</td>
</tr>
<tr>
<td>• Cheap irrigation water/low overhead costs</td>
<td>• Limited range of crops</td>
</tr>
<tr>
<td>• Technical support from MAWRD (DEES etc) and, NGOs</td>
<td>• Low technical capacity / management</td>
</tr>
<tr>
<td>• Understanding of target market (informal Rundu market)</td>
<td>- Pests control, irrigation techniques, general agronomic management</td>
</tr>
<tr>
<td>• Attractive gross margins achieved by selling at open market, no marketing cost</td>
<td>• Adverse climate prevent all year round production of most vegetables</td>
</tr>
<tr>
<td></td>
<td>• Marginal soils</td>
</tr>
<tr>
<td></td>
<td>• Lack of incentive to change marketing strategy</td>
</tr>
<tr>
<td></td>
<td>• Limited opportunities to expand cropping area (land ownership issues)</td>
</tr>
</tbody>
</table>

Producers (both good and average/poor) are under-utilising their resources, but are generally complacent with respect to their situation. They will be vulnerable if significant new investments in horticultural production with competent management are made in the region, and they will become increasingly vulnerable to competition from the triangle.

What has KHPM-Project done to improve the supply of horticultural produce?
The KHPM-Project has improved the understanding of supply and production constraints and has identified opportunities for overcoming some of these constraints. Recognising and understanding the problem is part of the process and this is when looking for possible solutions can start. It should be appreciated that the duration of the project was too short to effectively address all constraints and to expect an impact, especially because most aspects involve a change in attitude.
The KHPM-Project has initiated the following activities to address the technical challenges:
• IPM training course: to train producers in the basic principles of Integrated Pest management.
• Pahuka Business Management Course: training producers in the basic principles of business management and record keeping.
• On-farm demonstrations: for producers to recognise the characteristics and differences between cultivars under different management levels, exchange between producers.
• Exchange visits: between local producers’ fields and between Kavango producers and their triangle counterparts; see and learn.
• Technical advice to individual farmers and AET; agronomic advice, support to management committee, AET support and involvement in all activities.
• Development of extension/training materials.
• Soil sampling and reviewing of irrigation system; to test suitability of soils and efficiency / suitability of irrigation system.
• Linking farmers and private sector; initiate, encourage & strengthen and linkages between private sector, MAWRD and producers.

(For more details on KHPM activities see the projects’ Quarterly reports (5) and evaluation of logical framework (KHPM-Project 2001))

Recommendations Supply/production
The main recommendations in this chapter can be summarised as follows:
• Investigate market opportunities for alternative high value crops such as herbs and medicinal plants.
• Encourage average/poor growers to improve their management practises and focus on the urban informal market, village market and home consumption.
• Investigate opportunities for small scale processing and preservation to diversify market opportunities.
• Take into consideration socio-economic aspects when embarking upon new support projects (e.g. the involvement of socio-scientist).
• Focus on a market-oriented approach when embarking upon new support projects.
• Introduce Marketing Extension programme.
• Encourage commercialisation of the horticultural sector: focus on the better producers and create favourable conditions for investments in improved technologies (drip irrigation, hybrid seeds, seed trays, tunnels and shading etc).
• Continue with exposure and exchange visits between producers (farmer-to-farmer extension).
• Encourage Salem producers to intensify their cropping schedule to 300%.
• Continue to create better linkages with private sector and producers e.g. through an Agricultural (or horticultural) show.

4.9.1 Horticultural production in perspective
It can be concluded that only a selective group of producers is able to produce vegetables successful and profitable in Kavango. Assets such as a river do not automatically mean that everything can be produced locally. In theory this is a possibility, but this would in most cases result in higher prices for the consumer, because of the higher investment and production costs involved. Most of the climatic and soil factors can be positively influenced through available modern techniques, such as completely protected nursery areas, soil substrates, drip irrigation systems, refrigerated trucks etc. However, most of these techniques are highly costly and need a much higher management, knowledge and skill levels than currently exist among smallholder farmers.
The cost factor is often not taken into consideration when politicians comment on the ‘unused potential of the regions’. Questions from MP’s such as: “Where is Namibia’s pride as a nation that even onions and tomatoes are imported? ”(The Namibian, May 2001) are often heard in parliament. Only if horticulture is highly subsidised would it be possible to boast local production in such a way that it can substitute most of the South African imported produce. This is however not recommended because it will increase consumer prices for the majority poor people of Namibia. Subsidisation by government will ultimately have to be paid for by the Namibian taxpayers.

A recent study (Decosa, 2001) looked into the substitution of imports of agricultural commodities consumed by government institutions such as the NDF, schools and hospitals. The report estimates that these imported products are worth N$ 500 million per annum and this money is going straight out of the country. However, care should be taken not to interpret this figure in the wrong way: it is not to say that if Namibia would produce the same quantities of produce locally, the government would have automatically saved this money. As a matter of fact, it is more likely that much more money would have to be spent to supply these institutions because of higher production costs. It is of course true that any investment in the country would create employment opportunities and improve Namibia’s economy in general, but it remains a given fact that cheap food prices are essential for poverty reduction.

As said in the paragraph above, trying to achieve self-sufficiency in certain crops will imply higher costs for Namibia than if these products were imported. UNDP (1998) gives an example that puts the quantity and costs of water used for agricultural purposes in perspective: “While commercial farmers contribute only marginally to GDP (less than 5%) and employment (36,000), they use over 36 % of all available water resources. Over two third of the water used is for irrigation, while most of the irrigation schemes produce mainly low value crops such as maize and have so far been unable to meet their operating cost”. Producing higher value crops e.g. dates and grapes, will increase the contribution to the GDP and have a positive effect on the country’s trade balance, but the high price of water in an arid country such as Namibia remains a concern if horticulture is to be expanded in a sustainable way.

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27 The terms food-self-sufficiency and food security are often misunderstood. Food security refers to the situation when all members of a nation’s population have enough food to lead a healthy and active life, while self-sufficiency in food is reached when a country produces enough food for its population and does not need to import.
5. The demand for horticultural produce in Kavango with special reference to the informal market

The local market for horticultural produce in Rundu is small but expanding. The population of Rundu has increased from 16,000 in the early 90’s until 45,000 in 2000 (el Obeid, 2001). This growth in population and migration to the urban areas brings a change in consumption patterns and results in an increasing demand for fresh fruit and vegetables. Also the change from barter to cash economy, the opening up of world markets and access of households to refrigerators has contributed to this increase in demand of fresh produce.

In this chapter the demand for horticultural products will be discussed. The project has identified a unique group of informal traders who form a very important link between small-scale producers and the consumer in Kavango. Their role has been undervalued in the past and the KHPM-Project therefore wants to highlight their importance and potential in this chapter.

5.1 Characteristics and size of the markets

The market for vegetables and fruit in Kavango can be split into five sources of demand (market segments) with the following characteristics/requirements:

<table>
<thead>
<tr>
<th>Local village market</th>
<th>Size unknown (but estimated to be relatively small)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Small market, dominated by home production gardens selling little surplus, NDCs and few commercial orientated gardens near urban centre.</td>
<td></td>
</tr>
<tr>
<td>- Cucashops, small retail shops supplied by wholesalers in Rundu.</td>
<td></td>
</tr>
<tr>
<td>- Village trade: very informal: no road-site market infrastructure.</td>
<td></td>
</tr>
<tr>
<td>- Lack of cash economy = barter economy (“traders” exchange vegetables from Salem against mahangu from inland villages).</td>
<td></td>
</tr>
<tr>
<td>- Vegetables do not form part of traditional diet (no custom to eat vegetables) resulting in low demand. Demand dominated by low value vegetables: such as green leaf vegetables, green maize, green onions.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Informal town markets</th>
<th>Open market / street markets: 500 –750 tonne per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Dominated by Salem producers and nearby market gardens.</td>
<td></td>
</tr>
<tr>
<td>- Few producers are supplying, competition is still low.</td>
<td></td>
</tr>
<tr>
<td>- Limited selection of local produced vegetables (mainly green maize, cabbage, onions) at general lower prices than shop prices.</td>
<td></td>
</tr>
<tr>
<td>- Limited, small but slightly undersupplied market, expanding, relatively new market</td>
<td></td>
</tr>
<tr>
<td>- Target consumers from lower/middleclass income groups.</td>
<td></td>
</tr>
<tr>
<td>- Seasonal: respond to availability of local produce (and to triangle produce).</td>
<td></td>
</tr>
<tr>
<td>- Continuity of supply and quality (shelf life) is less important.</td>
<td></td>
</tr>
<tr>
<td>- Efficient system of supply; large number of traders take care of harvesting, packing, transport and selling.</td>
<td></td>
</tr>
<tr>
<td>- Limited competition between traders: ceiling prices determined by supermarket.</td>
<td></td>
</tr>
</tbody>
</table>
### Formal markets

Supermarkets and wholesalers: 3500 tonne of fruits and vegetables per year.28

- Source produce mainly from South Africa and increasingly from the triangle.
- Many producers supplying, competition is high.
- Large demand for a large variation of vegetables and fruits.
- Target consumer from middle and higher income groups.
- Demand for higher quality and uniformity.
- Some retailers operate as wholesalers and supply caterers, cucashops and take-a-ways.
- Cost of transport, packaging and grading.
- Efficient and effective distribution system, communication important.
- Demand reliability/quality of service from producers: regular communication, honour agreements etc.
- Highly competitive market: respond to better quality and cheaper prices.
- Fluctuating prices (lower than at the informal market, but can be high at times of shortage in RSA).
- Producer is price taker instead of price setter.

### Institutional markets (GRN) 170 tonne of fresh vegetables per year 29

- Many supplied by wholesalers, triangle producers and RSA suppliers (occasionally larger producers in Kavango).30
- Mainly on contract basis, demand reliable service and one contact person.
- Dominated by catering companies who are awarded tenders by the Central Tender Board in WHK to supply Government institutions: hospitals, NDF, schools, prisons.
- Year planning, demand determined by tender (no of plates).
- Buy in bulk per (10) kg.
- Competitive market: respond to cheaper prices.
- Limited product range: onions, cabbage, pumpkin, beetroot, potato, carrots, and tomato, fruit (canned and frozen products).
- Slower payment for the producer.

### Institutions (non-GRN) 35 tonne fresh vegetables per year 31

- Very small market, mainly supplied by wholesalers, local producers, supermarkets.
- Dominated by Roman Catholic hospitals and schools, UNHCR and restaurants and lodges.
- Prepared to buy local produce, provided of reasonable quality, and reliable service (e.g. through contact person).

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28 This is an estimate on the basis of information provided by two wholesale/supermarket managers. Each claimed to import around 25 tonne of fruit and vegetables per week (including apples, citrus and Irish potatoes). Together they represent about 75% of the formal retail sales.

29 This figure is for head cabbage, carrots, pumpkins, dry onions, only. Potatoes and fruits are not included.

30 Plans to change tender regulations (preference given to companies who buy local produce) might in future increase the percentage of Namibian produce bought by these institutes.

31 Not included are the lodges and restaurants.
5.2 The formal market

Producers in Kavango have good reasons for the fact that they have hardly developed the formal and institutional market segments; they lack critical mass to supply these markets on a regular basis, they are not familiar with the fluctuating prices and lack negotiation and communication skills. Only a few more ambitious producers have so far been able to target this market for short periods.

When producers offer produce for sale to the formal market, this market is not always prepared to pay import parity prices to local producers (RSA price + transport costs), especially if local products are offered on an ad-hoc basis. This is mostly due to the fact that managers have already made agreements with their RSA suppliers, and the truck will have to deliver fruits and vegetables that are not available locally in any case. They will then only buy if the local produce is offered at a lower price or if the quality is exceptionally better.

Case 7: Quality and price
A local producer with (what would be grade 1) cabbages, tried to sell her cabbage for 3.50 dollar per cabbage to a supermarket, who had just bought grade 3 cabbages from South Africa for 1.25 dollar per cabbage. Although the RSA cabbage was of poor quality, the supermarket could easily sell them and with the outer leaves removed it was still a reasonable product. The supermarket refused to buy the local produce.

Case 8: Price fluctuations on the formal market
In November 2000 a local supermarket manager was invited to visit the Salem project. He was impressed by the size of the project and the efforts that producers made and he could certainly see opportunities for the Salem producers to deliver to the supermarket.
Producers who had plenty of dry onions available at the time, made a loose agreement that they would deliver to the supermarket. The supermarket would supply them with bags and pick them up the following days. Unfortunately the organisational aspects of the deal were not worked out properly. There were not enough bags and by the time the producers had packed everything and were ready to deliver, the onion price had dropped from N$ 13/bag to N$ 7/bag. At this time the producers could get much higher prices on the informal market and most decided not to sell.

There are numerous examples of producers trying to supply the formal market, but being disappointed afterwards. Most of these efforts however have ignored all major marketing rules, such as quality and reliability of service, and understanding of the requirements and can thus hardly be seen as serious efforts. This can be largely attributed to the fact that producers have little incentive to target the formal market at the moment.\textsuperscript{32}

\textsuperscript{32} The same can be said for the supermarket manager: there is little incentive at the moment to buy from local producers. If this were the case, he would have bought the product.
The producer in case 7 had a first option to sell to the informal market traders. However they were reluctant to buy because of the large size and high price per head. When she could not sell to the formal market she decided to hire a bakkie and sell her cabbage from the back of the lorry in the residential areas of town and along the Grootfontein -Rundu road. She was able to get an average price of 4 dollar per cabbage. This was of course at a time when the market was undersupplied, but it illustrates that producers often complain they cannot sell to the formal market, while as a matter of fact they have alternative markets that give them higher margins. The KHPM-Project has seen little evidence of producers in the near vicinity of Rundu who could really not sell their produce.

5.3 The informal market - an undervalued potential?

Previous projects and studies have always had the tendency to focus on problems that producers experience with selling to the formal market and underestimated the value and role of the informal market segment. Agrisystems mentioned the following: "Open air wholesale and retail markets, through which a considerable volume of cash crops is traded in much of Africa are not very important in Northern Namibia." (Options for Cash Crop Production in NCAs of Namibia, 1996). They attribute this to the fact that there are a large number of formal retail outlets in the NCAs and that this provides a convenient situation for the consumer: high competition between shops and therefore sufficient low prices. However, they do acknowledge that open markets are important to small farmers (because continuity of supply and quality are less important), but there have never been real attempts by government to further investigate this market segment. Informal trading or hawking is a sector of growing importance. Urbanisation, lack of job opportunities in the formal sector, improvement of informal market facilities (Open markets) and low entry barriers/ requirements have contributed to an increase of informal traders.

Most of the small producers in Kavango sell their produce on the rural village market (see list of gardens, Appendix C) and, wheregardens are located nearer to Rundu, to traders who sell on the informal urban market. The advantages of these two markets are that they are easily accessible (communication, proximity) and they demand crops that are relatively easy to grow and that producers are familiar with. Producers in the vicinity of Rundu find it easy to sell to this market because traders come to their plots and they have little marketing costs (harvesting, packing and transport). There is little competition from producers outside the region, because local producers have the advantage of the proximity to the market, which gives them a higher competitive advantage for low value leafy vegetables. The small size of these markets also makes it more difficult for producers from outside the region to gain competitive advantage through economies of scale. Tomatoes are forming an exception here: Kavango producers do not have sufficient technical capacity and the climate is less favourable for tomato growing. The triangle producers therefore found an opportunity to supply these to the Rundu informal market.
Given the security situation in the Region, the KHPM-Project has not been able to closer investigate the village market segment and focussed mainly on the informal market. It was, however, recorded that 12% of Salem production is being sold to traders who take the produce to (inland) villages East of Salem. Especially in July and August, when mahangu is being sold and people have sufficient cash money, vegetable sales to these areas are higher. Traders also trade vegetables for mahangu.

There are a number of gardens in these more rural areas which have the important function of supplying surrounding households with a more diverse and healthy diet. It is, however, important for producers in the more rural areas to be informed that the informal market is almost dominated by gardens closer to Rundu and that they will have to carefully consider whether it will be worthwhile for them to try to compete with these producers. There is some scope for selling leaf vegetables at the time when Salem is failing to supply, but given the fact that Salem producers are generally more experienced and advanced, this opportunity will be small. A better market opportunity for these gardens would be to target the non-governmental institutions such as the Roman Catholic Church, who have several schools and hospitals throughout the Region. However this means they will need a good understanding of the market requirements and make some agreements before they decide upon a planting schedule. Other possibilities are the cucashop outlets (although some are already supplied by wholesalers in Rundu) and small scale home processing of vegetables (e.g. sun or solar drying).

These small home production gardens are maybe playing a less significant role in the whole marketing system but are important for the long-term development of a sustainable horticultural sector and therefore need to be promoted (i.e. by giving sound technical advice; not by subsidising infrastructure, inputs and marketing which will only create dependency).

5.4 Trends on the informal market

Method of data collection

A bi-weekly marketing count was held at Salem to get a picture of the throughput of vegetables to the informal market. The exit survey also gave a clear idea of which produce is sold when and for what price, how many buyers came to the project and how this evolved over time. Every two weeks, five enumerators (grade 12 school leavers hired by the project) were positioned at each Salem gate with a record sheet. All informal traders leaving the project were recorded, including the type of product they bought, an estimation of the quantity and where they planned to sell the produce. The quantity was recorded per number of units (e.g. a large bag, bucket or small plastic bag). At regular intervals the mass of these units was verified by weighing the units with a scale in the field. This method prevented buyers from being hindered in their movement (i.e. they were not stopped and asked for their produce to be weighed). Ex-farm price data was also collected at regular intervals.
5.4.1 Supply and trends in sales

Observations at the market at different times showed that the informal market is almost entirely dominated by produce from Salem and a small number of gardens in the Rundu rural and urban constituency.

The market survey showed that between 5 and 20 tonnes of vegetables are being sold per week, depending on the time of the year. The total value also varies between N$ 5000 – N$ 20,000 dollar (average price/kg is 1 N$).

There is a decrease in sales (both in quantity and value), and consequently the number of traders from August to May (fig. 7). This can be attributed to a combination of factors:

- Less supply of cheap leaf vegetables (producers concentrate on green maize, which has a higher price/kg, no optimal growing conditions for cabbage);
- Less demand for green leaf vegetables due to rain-fed production;
- At peak season of green maize, Salem has not sufficient land to satisfy demand;
- Most traders lack capital and communication skills to buy produce from the triangle – and/ or margins are too low to buy from supermarkets to resell; they rather concentrate on other trade during this period (e.g. selling mahungu meal or doing “stick-work”).

Figure 7: Salem produce sold to informal market traders August 2000 – July 2001/per sample day

Source: Salem exit survey
Tomatoes from the triangle as well as bulb onions and cabbages from supermarkets and maize from Vungu-vungu have partly filled the "supply gap", but only the better traders were able to invest in these products.\textsuperscript{13}

Taking into account this produce from elsewhere (triangle, supermarket, Vungu-vungu and other gardens\textsuperscript{31}) it is estimated that the size of the Rundu informal market is between 500 and 750 tonne per year. Salem has supplied most of this (485 tonne/year) of which more than half was cabbage.

The trend in sales reached its lowest point in February. The points mentioned above suggest that the demand at this time is also lower. However, interviews with traders would suggest that the higher prices/kg in combination with fewer products available results in the market being slightly undersupplied at this time. There is thus some scope for better producers to try to meet the demand of traders i.e. to widen the marketing season by supplying them with leaf cabbage at this time of the year (planting in December). Selection of black rot resistant heat tolerant summer varieties or growing ‘rape’ varieties (e.g. English Giant, which is common on the Zambian/Zimbabwean markets) could increase the success rate of these crops at this time of the year. Ideally, such an effort could be an agreement between a specific trader and a producer.

The survey results have proven that the decline in sales has been a seasonal trend. In the last weeks of July trade has almost reached the same level as during the same period last year. The war situation could still have distorted the figures slightly; it is likely that less Angolan produce has been marketed and that the large number of traders (many from Angolan origin) that have entered the Rundu informal market has been higher than in the years before.

5.4.2 Destination of produce

The Rundu informal market can be split in three types:

1. “Open markets” – these markets are specially designated for informal traders and have facilities such as toilets, water, stands under shade, security and sometimes storage rooms. Traders pay a monthly fee to the management of the markets (Town Council) for making use of these facilities.\textsuperscript{35} There are currently three such open markets in Rundu. The “main” market is the Rundu Open Market, which is less popular amongst vegetable sellers, because of its inconvenient location away from shopping customers and/or residential area. More popular are the Tandaveka market, near the informal settlement of

\textsuperscript{13} The triangle is also not able to produce cabbage successful (read: profitable) in the rainy season. Triangle producers also mentioned high transport cost of relatively bulky low value cabbage preventing them to produce for the Rundu informal market.

\textsuperscript{31} Interviews with key traders of tomatoes and other produce resulted in an estimation of 1 - 2 tonne/week from other sources than Salem (e.g. 35 crates of tomatoes/week).

\textsuperscript{35} The monthly rent varies per trade and size of the stand. Stand designated for vegetable sale cost between 20 and 25 dollar/month.
Kehemu and the newly opened Sauyemwa market, in the other main informal settlement area / sub-urb.

2. Road-side markets – these street markets sprout spontaneously at places where people congregate, such as near office blocks and in the centre of town were potential costumers do their shopping. The main locations in Rundu are at the First National bank and the post office, next to the Kavango supermarket\textsuperscript{36}, and in Ndama, one of the smaller informal settlements near the main tar road Rundu - Katima. Produce is displayed on an empty bag on the ground or on top of a box. There are almost no entry barriers to start selling produce at road side markets, there are no costs for rent, only the working capital to buy stock.

3. Street vendors – in order to reach a larger clientele, traders move around with produce. Especially the processed vegetables such as cooked maize and sweet potato are sold as a snack, but also other products are sold in that way. They target people at offices, in residential areas where there are no shops (New Millenium & Tutungeni).

Figure 8 shows the main destinations of Salem produce to the informal markets.

Most traders are selling their produce in Kehemu, either at the Open market or at several other roadside stalls. Kehemu is popular amongst traders, because it is relatively near to Salem and has a large potential number of customers from lower income groups who demand cheap leaf vegetables. Sauyemwa is a market that has grown fast in the past years. The far distance from Salem to Sauyemwa forms a barrier for some traders, especially in the low season, when there is a chance of having to go back empty handed, puts off many traders at this time. Kaisosi is a large informal settlement on the outskirts of Rundu. This area is closest to Salem and has a

\textsuperscript{36} Traders at this location have recently been summoned to leave this place; the property belonged to the supermarket, they caused ‘general inconvenience’ and conditions were unhygienic. It has however been reported that traders have put money together to buy a piece of land next to another major supermarket in the centre of town and erected a shelter here (another source says they rent this facility from a local businessman for N$ 15 per trader/month). Traders have resumed business and this is now major place for selling vegetables.
much more rural character compared to the other suburbs. Many of Salem’s farm workers live in this area and often take produce home with them (as a form of payment).

5.4.3 Buying patterns of informal traders
The KHLM-team has spent considerable time with the traders at the market in order to gain a better understanding of how they operate. The Salem exit survey recorded that daily over 160 traders came to buy produce at Salem at the end of July. In February, when less produce was sold, there were still around 50 traders per day. Traders are virtually all women. Vegetable selling requires less capital investments than most other forms of informal trade (e.g. meat and fish) and thus has a low entry barrier for starting traders. Most traders are part-time traders and have specialised themselves in the vegetable trade, whereas the better traders expand their business by selling more products, such as milk, and/or move into the open market to become full-time traders.

The amount of produce bought per trader is small (average 15 kg, worth N$ 15), and they prefer to buy new fresh produce every two or three days. Their mark-up is 100%, but margins are small because of transport costs and rent of a stand at the market. A market survey conducted by the project showed that a net return of N$ 5. - per day is common. None of the traders keep sales records. Their main aim is to have sufficient money at the end of the day to make a living and stay in business. The range of produce sold is small but gradually expanding. Most popular vegetables sold on the informal market are: leaf cabbage, mutete, pumpkin leaves, green leaf onions, head cabbage, tomatoes, dry bulb onions, sweet potato, green maize and chillies. Other products that are sold in much smaller quantities are; aubergine, carrots, sweet pepper, swiss chard, lemons, dried mutete, cassava leaves and roots, and several cucurbit types. The demand for these last products is very limited. Traders say that they would like to sell a wider range of vegetables, because they believe that this will attract more customers, but on the other hand, mention that their customers do not have sufficient money to buy other (more expensive) products37.

There is considerable competition between traders at peak production time. However, traders seem to have few ideas as to how they could increase their competitive advantage over other traders. They also complain that the consumer is not willing to accept a different retail price for their product (the price for maize has been 1 N$/cob for several years now). Because producers are for most of the time under-supplying the market, they have most power over the price and quality. Nevertheless, buyers of horticultural produce will always try to go for the “best deal”. If Salem cannot supply, they will look for other suppliers or buy produce at the supermarkets. It was already mentioned that mostly the better traders are capable of this alternative marketing strategy.

37 The traders in the Rundu Open market are selling a wider range of produce. This market targets customers from a higher income group than the other markets. The lack of buying power of the customers at the informal market means that there be little scope for producers to diversify.
Case 9: Lucia’s story: A day in the life of a vegetable trader in Rundu

Just before it gets light Lucia wakes up. Today will be another long hard day’s work. Yesterday she has sold all her vegetables and today she will have to go to the Salem Project to buy fresh produce. Her youngest daughter is still asleep, but because her mother is not at home today to baby sit, she will have to take her along on her back. At six in the morning she leaves her house in Kehemu and starts the six km walk to the Project. She joins her neighbour Anita, who is also a vegetable trader. They have been in this business since they both gained Namibian residence ship three years ago. Lucia’s sister still lives in Angola and she is saving money to bring her to Rundu one day.

At the time Lucia and Anita arrive at the project, they soon find out from the other traders which farmer is selling. When they arrive at the plot they notice that the farmer has marked a portion of her field with a piece of rope. They are only allowed to harvest the cabbage left of the rope. These are not yet mature cabbages, but that is exactly what the customer wants. The green leaves are a nutritious relish and used in most traditional dishes. After harvesting Lucia forms a heap of the cabbage and waits until the farmer has counted her bundles and determined the price.

This could sometimes take a long time because there are many traders, but today she is lucky. The total price is a bit higher than she hoped and she requests the farmer to give her an extra cabbage bundle for free. She knows that asking for a price reduction is hardly ever accepted. After packing the cabbage in her empty melie meal bag, she continues on her way to look for some onions. Lucia believes that to attract customers you need to have a variety of produce. Finally, after almost one hour, she finds what she is looking for, farmers tell her that it is very difficult to grow chilli this time of the year. She has now spent all her N$ 15 dollar. Since the quantity she bought is too much to carry on her head she will have to sit along the road and try to get a bakkie. For N$ 5 dollar the driver will take her to the Tundveka Open Market in Kehemu.

At 11hr00 Lucia arrives at the market and she starts putting up her display. Cabbage leaves will have to be bound in bundles of 0.50 cents, twice the price she bought it for at Salem. Sometimes she would buy a head cabbage and chop and sell the outer leaves in a small plastic bag. Slowly she is selling her produce. She hopes that lunchtime will bring a bit more customers to the market. Normally it takes her two days to sell all her produce, the second day usually sells less since the vegetables are losing their freshness and there is a lot of competition from other traders.

At the end of the day she has made N$ 20 dollar, with a little more than half of all produce sold. With a bit of luck she will get N$ 10 dollar tomorrow. She will keep 20 dollar to pay for new produce and a taxi. From the remaining 10 dollar she can buy some food for her children and mother. The monthly payment for the stand that is still outstanding will have to wait until next week. Hopefully the market authorities will understand her situation....

Maybe one day she will have enough money to bring her sister to Rundu. They have already made plans to start a catering business together.
Mutete field (*hibiscus sabdariffa*), a crop with a promising future.
Salem, December 2000

Linking producers to the private agribusiness sector.
Seed information day.
Salem, February 2001

Salem producers “On the move”.
Study tour to counterpart producers in the Tsumeb (triangle) area.
Mr. Basson from NAMFO explains how he grows his tomatoes.
Tsumeb, May 2001
Peak harvest time for green maize.
Salem, October 2000

Informal market traders have hired a pick-up to transport their produce to the market
Salem, August 2000

Can these women traders become middlemen?
Rundu, 2nd trader workshop, April 2001
5.5 Conclusion

The informal market traders play a key role in the functioning of the horticultural marketing system in Kavango.

The informal market traders are a unique group who have found an opportunity to improve their livelihood through trading of vegetables. By doing so they have created a marketing system that allows producers to successfully market their vegetables against reasonable profits. The traders showed a remarkable degree of initiative in setting up and running their own micro-businesses. Whilst the informal open market traders have received a boost from Lux Development’s construction of market stands, both they and especially the street traders have relied entirely upon their own resources and entrepreneurship.

The informal business sector not only reduces the dependency burden on the government for employment, but more importantly it also helps to fight hunger and poverty (NEPRU, 2001).

Specially targeted support given to these traders could result in a more efficient and economically sustainable marketing system that will benefit both traders and producers in the region. Such a system could also be the key to unlocking other markets. This will be further discussed in chapter 6.

Despite the evident advantages of the informal marketing system for the producer (no worries about packing and harvesting, no transport cost, paid cash in hand, and the traders being more specialist in understanding the consumers requirements), the producers at Salem do not always seem to appreciate the involvement of the informal traders. They complain about the small quantities bought and the fact that they are being put under pressure to sell immature produce. This is an effect of the market being slightly undersupplied and the high number of traders competing for cheap produce. Producers would ideally prefer to sell directly to the end-consumer. There also seems to be an attitude amongst producers that “if the government would like to see producers selling to the formal market and catering companies, the government should organise this for them”.

As already mentioned before, producers in the near vicinity of Rundu make sufficiently large margins by supplying the informal market sector and thus have very little motivation to really change their marketing strategy. This attitude towards marketing seems to be typical for small producers in Kavango; they do not take full responsibility for marketing of their produce.

It is however likely that the formal market will become more important when the situation in the informal markets develops in the future and that this will “force” producers to adopt a longer term view to marketing if they want their business to be able to survive, instead of always looking for the best price for their product. One of opportunities would be to unlock the formal market segment through an intermediary trader.
6. Future development of the horticultural sector: the need for a long-term vision and a market-oriented approach

6.1 Future scenarios

The Rundu informal market is a relatively underdeveloped market and still comparatively small in size, but other producers will soon also try to enter this market segment.

In Oshakati, which is perhaps a more developed, bigger market, this scenario of increased competition and oversupply seems already to have taken place. Observation at this market reveals that the informal market is almost entirely supplied by a few wholesalers and produce from commercial producers in the triangle. Here local producers have apparently lost their competitive advantage because the market has expanded rapidly and economies of scale have become more important.

Development of the Rundu informal market will result in increasing competition between:

- Other producers in the Rundu vicinity who have realised the potential to make good margins by supplying the informal market;

- Existing producers who have increased their output by investing in better technologies (seeds etc) and management (taking extension advice) and have by doing so become more successful in supplying the informal market throughout the year;

- Producers from the triangle, who are currently making large investments and are able to obtain higher yields through better management – they have recently also discovered the informal market and are benefiting from the increasing demand for vegetables in the northern regions. Their overhead costs being are met by supplying the formal markets; but they plan for surplus production to ensure they can fulfil contracts with caterers. For this surplus, which will be sold on the informal market lower prices can be accepted.

- From the “new generation” of emerging producers in the sector, who have better entrepreneurial skills, formal agricultural education and capital to invest (this group might want to target the formal market, but they will also need to plan for surplus production).

These above mentioned development scenarios should only be encouraged since they will help the horticultural sub sector to become more mature and healthy and contribute to domestic production and substitute imports. (However, if the government plans to initiate and subsidise new projects on the basis that Salem cannot supply the informal market all the year round, the market will become oversupplied for much of the year and it this would constitute unfair competition for the existing
producers. Any suggestion for further subsidised irrigation projects is thus not recommended.)

As a result of the increasing competition on the informal market, producers will have to accept lower prices for their produce. However, this also means that there will be more balance between supply and demand, which in the long term results in a more sustainable market system.

- A more developed informal market system would result in the development of middlemen. Lower “ex farm” prices will make it more attractive for traders to buy larger quantities and sell this to supermarkets or government institutions.

- Producers will be able to take advantage of high-price opportunities because prices will be fluctuating more: lower prices at times of oversupply and higher prices when there are shortages or at times when it is technically more difficult to produce a good quality crop.

Does this future scenario means we can expect to go back to the (earlier perceived) situation of small local producers having little opportunities for marketing their produce? And will it be possible to prevent the scenario where only the currently richer/better producers will benefit from this more developed market system?

The scenario stipulated in above could take a few years to develop. There are several steps in between which, if targeted carefully, could encourage participation of small local producers and informal traders in this process. The next paragraph will look at several of these opportunities (interventions) which will enhance sustainable development of the horticultural sector in Kavango.

6.2 Informal traders as the catalyst for development

The KHPM Project strongly believes that the traders operating at the informal market can be the catalyst for improving marketing of horticultural crops in the region. Most efforts to understand marketing issues were initially aimed at producers, whereas many possible solutions to these issues are normally found in the marketing chain and not at the source of production.

The view is that working with the women in the informal market will improve presentation and efficiency and therefore improve the informal market sector. This will create a process of synergy and stimulate farmers to produce better yields and higher quality crops. Secondly, a few of these traders and/or incipient entrepreneurs can be encouraged to unlock some of the more formal market segments, by buying produce from local producers in bulk and reselling to caterers or supermarkets.

The KHPM-Project has made a start in identifying key traders in the informal market and has started a dialogue between the traders and producers. A first workshop with these two groups concentrated on the interaction between producers and traders and
emphasised their critical dependency and the fact that their livelihoods are interwoven. Through joint problem-solving and by building upon existing strengths, both the traders and producers were able to come up with suggestions which would improve their businesses. It became clear that there was special potential for the development of skills of the informal traders by providing appropriate capacity building. Suggestions included:

- Formation of trader groups
- Improve display / hygiene/ customer service
- Improve understanding of basic marketing principles
- Expanding into bigger markets – deliver to alternative markets (take orders from offices, deliver to small catering companies)
- Adding value to products to increase your market
- Improve relation between producers – traders (forums, respect, exchange information)

A second workshop aimed at sensitising traders to basic marketing concepts such as supply and demand and competition. Furthermore, the workshop paid greater attention to the issues raised during the first workshop.

It was recognised that there are two distinct groups of traders both of whom need assistance into improving their marketing capabilities:

- The majority of traders who are involved in the informal marketing of horticultural produce – they need support in basic marketing principles and record keeping, which will increase their efficiency.
- Those few traders or other entrepreneurs who have the potential and capacity to become intermediaries between producers and the formal market – this group needs to be introduced to the opportunities that exist to start supplying this formal market segment.

The KHPM-Project pilot phase has been too short to be able to implement such a programme for the traders. One of the main objectives of the project was to write a proposal for a follow-up phase. The KHPM-team believes that the approach outlined above should be part of such a follow-up intervention. This approach will provide a sustainable opportunity for entrepreneurs to enter the horticultural marketing chain. It will also support the existing informal market traders into improving their standard of living. This group mainly represents poor female-headed households. As a result of the improved market infrastructure, producers will be encouraged to increase their production. For more details, refer to paragraph 6.4 and the KAHOMA Project description, June 2001.

6.3 Approach towards producers

The KHPM-Project is of the opinion that the producers have received the most assistance in the past but displayed the least initiative and therefore this calls for a different approach.
This does not have to mean that assistance to small producers should stop, but the assistance must be practical and focus on their true needs. Basic technical horticultural advice to producers will have to be part of the extension agenda, but such advice should be offered at the request of the producer. Other attempts to expand horticultural production at projects other than Salem have often failed – one of the reasons being a lack of quality marketing expertise. With the adoption of a market-led approach and the introduction of the concept of marketing extension which aims to empower producers to take responsibility for marketing, this should facilitate production at the same time.

**Improve quality of service**
One of the aspects of marketing extension, as has been discussed in chapter 4, is the fact that producers should be taught the principles of quality of service. Producers are often tempted to make short-term profits, which generally discourages the buyer from working with the producer again.

The following example of quality of service was given by a producer in the triangle to a group of Kavango producers during an exchange visit to this area:

**Case 10: Honour agreements**
As soon as Mr. L. started to anticipate that, due to frost damage to his tomatoes, he would fail to deliver the agreed quantity of produce in a few weeks time he informed the supermarket immediately so they could take the necessary action to order products from a different source. This is part of their good relationship. However, sometimes Mr. L. would buy produce from a neighbour producer or even import from RSA and supply them to the supermarket, in order to keep to his contract.

This last example of sourcing produce from South Africa is maybe an extreme situation, but it illustrates how important it is for a producer to maintain a good relationship with his client, even if he is not able to deliver.

**Type of contracts with formal market buyers**
Once producers have gained a better understanding of the concept of quality of service they could start negotiating with their buyers. It is often not realised that there are different type of agreements between the producers and the buyer. An agreement between a producer and a buyer has the advantage of reducing price fluctuations and therefore the risk, both for the producer and for the buyer. It is important that producers enter into discussion with traders/middle agents or formal buyers to produce according to a market-led production plan.

The following agreements could be attractive for Kavango producers:
- Agree upon a price and quantity in advance: e.g. a producer in the triangle made an agreement with a supermarket to deliver 100 bags of cabbage per week for a period of 4 months against a fixed price. The producer has the advantage of a secured market against an acceptable price to him. and the supermarket has a
continuous supply of cabbage, at a price which is sometimes lower than the current market price.

- Agree upon a minimum price with a trader and pay a bonus to the trader once he or she has sold the produce, depending on the profit made.
- Sell upon commission; the trader sells on behalf of the producer and deducts an agreed commission.

It is important that it is recognised that expansion into the formal market will only work if there is one point of contact—whether it be a farmer or a trader—who will coordinate a number of farmers to meet the requirements of larger buyers.

Investigation is required to see if there are sufficient incentives for the local producer or a middle agent to target the formal market segment. This information will be needed if competition and oversupply of the informal market forces local producers to change their marketing strategy. **It is recommended that an evaluation of the formal market in terms of products (volume, prices and specifications) be carried out in the near future to gain a better understanding of its opportunities.** The gross margin calculations of producers showed that the better producers theoretically have sufficient margin to pay a middle agent to access the formal market.

### 6.4 Large vs. small scale production systems

A question often asked is whether support to the horticultural sub-sector should focus on large or small production systems or both. Both are very different systems and cannot as such really be compared. Below are descriptions of some strengths and weaknesses of smaller and larger scale production units.

<table>
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<tr>
<th>Advantages</th>
<th>Disadvantages</th>
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<tbody>
<tr>
<td><strong>Large scale</strong></td>
<td><strong>Large scale</strong></td>
</tr>
<tr>
<td>Critical mass to target formal market</td>
<td>Compete for different market segment and with more suppliers (international)</td>
</tr>
<tr>
<td>Lower cost inputs/unit</td>
<td>High overhead cost</td>
</tr>
<tr>
<td>Staggered production possible</td>
<td>Transport and Marketing cost</td>
</tr>
<tr>
<td>Employment creation</td>
<td>Labour shortages</td>
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<td>Lower production cost</td>
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<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Small scale</strong></td>
<td><strong>Small scale</strong></td>
</tr>
<tr>
<td>Easier manageable</td>
<td>Poor infrastructure /access to inputs</td>
</tr>
<tr>
<td>Attention to detail becomes important</td>
<td>Low education level</td>
</tr>
<tr>
<td>Wider variety of produce</td>
<td>Weak in negotiation skills</td>
</tr>
<tr>
<td>Large number of small units – support many livelihoods</td>
<td>No economy of scale</td>
</tr>
<tr>
<td>Short marketing channel: no/low transport and marketing costs</td>
<td>Need to generate high income from small area</td>
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Salem producers can probably be categorised as falling between large and small scale. It is especially difficult for such medium scale enterprises to have a clear vision and market strategy; they are too small to supply the formal market successfully, but are at the same time not content with the (many) small quantities that the informal traders demand. A middle agent, acting as an intermediary who buys from several smaller producers and combines this produce, would get around this problem of lack of economies of scale.

An option for government support would be to focus on a combination of large and small-scale production units in the form of an out-growers scheme. Whereas this might seem to correspond with the aim of the government to resettle people on existing commercial farms, experience from the past has shown that producers on out-growers schemes are not functioning well. Management of the many small units is a major constrain and producers often have the feeling that they are bearing all the production risks but at the same time depend heavily the skills of the management, have little control over financial matters and therefore have the fear of being “ripped off”. Decosa (2001) also observed that often these producers would prefer to be labourers than self-employed. A combination of large and small-scale units through establishment of an out-growers scheme is therefore not recommended.

Government support should be given to both large and small-scale producers at the same time, but in a different format. The government should create a favourable climate for investing in the horticultural sector and provide marketing information to emerging large-scale entrepreneurs. These companies should be assisted in their negotiations of contracts with the formal market sector (e.g. through involvement of the Central Tender Board). In order to prevent the small-scale producers from being the victim of increased competition, government should ensure that structures are being put in place that allow these smaller producers to compete on the informal and formal market e.g. by providing marketing extension and support the emergence of a commercial middle agent function, and by focussing on the advantages of small scale production units (see table 7). Other small-scale producers who do not have the ability to access the more formal market outlets should be given assistance with accessing alternative markets (processing, medicinal plants, indigenous crops).

6.5 Future interventions

The recommendations and findings in this report have been used to formulate a proposal for a follow-up project after the KHPM-Project has completed its pilot phase. The framework of this proposal can be found in Appendix F.

The aim of this intervention will be to contribute to the overall framework of efforts to promote the production and consumption of domestically produced agricultural produce through a market-led approach.
Within this framework, the objective of the recommended follow-up project is to support stakeholders in the local marketing chain and help create favourable conditions for the emergence of a local economically sustainable marketing system for horticultural produce in the Kavango Region through a market-led approach. Implementation of such a system will help to expand horticultural production and marketing potential in the Kavango region.

The following specific activities will contribute towards achieving this objective:

- carry out an (independent) evaluation / assessment of the first pilot phase of the KHPM project;
- identify the main formal buyers in the region, quantify their requirements (in terms of products, product specifications (including packaging)) and prices;
- following the identification of the main buyers’ needs, develop a work plan for the first year;
- enhance informal market traders ability to understand basic marketing concepts;
- continue the dialogue with some more entrepreneurial traders and investigate the possibility of entering the formal market which could eventually be turned into a local equivalent of a vegetable wholesale;
- facilitate the process through targeted activities in order for this group to enter the formal market segment;
- enhance AETs ability to provide Marketing Extension to producers;
- investigate opportunities for small-scale processing and preservation of vegetables and fruits in order to diversify marketing options;
- enhance the producer’s ability to better plan their production in order to handle larger orders and to adopt a longer term view towards marketing;
- investigate the possibility to start a similar process elsewhere in Namibia and prepare an action plan for such a follow-up project.

Figure 9: Proposed target area of future interventions for the horticultural sub-sector in Kavango

Horticultural Production in Kavango
Production planning, post production, marketing extension

Formal market buyers:
Supermarkets, caterers, institutional organisations

Middle agents

Informal Market:
Informal market traders

Processing preservation
Figure 9 illustrates the proposed target area on which future interventions should concentrate: the marketing linkages between the producers in Kavango and the traders and retailers of fresh horticultural produce. The function of middle agents is not yet in place; it will be one of the main endeavours of the intervention to get this function operational.

It is recommended that a Horticultural Marketing Specialist be deployed to coordinate and facilitate these activities and maintain close linkages with extension and the private sector. The project should be supervised by the Marketing Sub Division with the Directorate of Planning and preferably be part of a larger horticultural programme or framework to promote the production and consumption of domestically produced agricultural produce in Namibia.

Such a larger programme will ensure a more holistic approach in the design to take into account cross-sectoral linkages (with the private sector, trade agreements, Central Tender Board, water affairs etc.) The intervention itself will then be able to focus on specific key activities as indicated in the project description.38

For more detailed information see: Project description KAHOMA Project, June 2001.

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38 A useful analogy is the ‘acupuncture approach’, a acupuncturist uses a holistic diagnosis of the patient followed by very specific treatment at key points (Ashley, Dfid/Oxfam 1999)
7. Summary of recommendations

Although some overlap exists, the recommendations in this report can be summarised under the following headings:

- Overall approach towards development of the horticultural sub-sector in Kavango
- Role of Extension Services
- Strengthening linkages
- Research requirements
- Support to informal traders
- Support to producers (including specific recommendations for Salem)

7.1 Overall approach

1. **Government support to the horticultural sub-sector should take into account that small-scale producers in the Rundu vicinity have for a large part of the year a good competitive position to supply the informal market.** Efforts should focus on the development of the informal market and expansion into the local formal markets through a market-led approach. *Any new support projects should be aimed to increase the efficiency of the whole marketing process rather than to focus solely on the role of the producer in this process.*

2. **Government should encourage the commercialisation of the horticultural sub-sector by creating favourable conditions for investment in improved production technologies.** This support should be aimed at the existing and emerging producers who have showed that they have the potential to be able to expand into the formal market segment. Their efforts need to be supported through the provision of marketing extension and establishment of closer links between extension and the private sector. *Once there is a favourable climate for investing and marketing, private companies will automatically show interest and emerge as new role players in this process. The government should take a leading position in exposing the private sector to the opportunities of investing in the horticultural sub-sector in the region. However, it should be realised that these opportunities are limited at the moment.*

3. **It should be recognised that the traders of the informal market fulfil a very important function in the marketing process of horticultural produce in Kavango.** Some of these traders have the potential to become the catalyst for improving marketing of horticultural crops in the region into an economically sustainable marketing system. There should be no unreasonable restrictions placed upon this group that prevents them from doing their business. *The informal business sector not only reduces the dependency burden on the*
government for employment, but more important it helps to fight hunger and poverty.

4. A combination of large and small-scale production units through establishment of government or parastatal managed out-growers schemes is not recommended. The past has showed that these schemes are not economical sustainable and have encountered several socio-economical problems that were not/or could not adequately be addressed. Government should not take the responsibility for establishing new irrigation schemes in the region. Local producers are able to supply most of the requirements for the informal market for most of the year and support should be aimed at these existing producers to improve their management practises to obtain higher yields. Increased competition on the informal market as result of development of the markets will encourage existing producers to change their marketing strategy, the local formal/institutional market being the most obvious to target next.

5. Low wages of farm workers employed by the small/medium scale producers contribute to the profitability of the sector. However, these low wages and poor working conditions are a cause of concern and do not contribute to a healthy sustainable horticultural sector. The exiting farm workers unions/associations are encouraged to look into this low wages and poor working conditions and start lobbying for the rights of farm workers in the communal areas.

6. HIV/AIDS is the major threat for development; it affects all levels of society and thus also impacts the performance of the horticultural sub-sector. This requires urgent attendance of policy makers. It is recommended that a programme is put in place that sensitises field staff about the risks, danger and impact of HIV/AIDS and ensures that this topic is integrated in discussions with producers.

7. An urgent decision is required with respect to the implementation of a follow-up intervention as proposed in the KAHOMA project description, written by the KHPM-team. The KHPM-Project has identified a unique opportunity to enhance the marketing of fruits and vegetables through the empowerment of the informal market traders and the initiation of a marketing extension programme to assist producers through a market-led approach. These opportunities will have to be further explored. The process that has been initiated needs to be continued in order not to loose momentum.

8. It is recommended that the above-mentioned approaches form part of a larger holistic horticultural support programme, which consists of specific focussed and targeted activities.
7.2 Role of Extension Services

9. Support to horticultural producers should be part of the regular Extension agenda, with special technical back up from the two SMS. It should be recognised that assistance to resource-poor producers requires a different approach than support to the (emerging) commercial market-oriented producers. Encouraging resource-poor small producers is fine as long as it is aimed at home-production with little surplus selling to nearby villagers.

10. In-service training of Agricultural Extension staff should move away from only training in production aspects, to marketing and business oriented training. In order for technicians and officers to be able to take a co-ordinating and facilitating role in the process of commercialisation of the horticultural sub-sector they need to understand basic marketing concepts and be taught the principles of marketing extension. It is recommended that Senior management of Extension look into the possibilities of establishing a (be it on a small scale) marketing extension programme for its technicians and officers. It is also recommended that funds are made available for a continuation of the business management training for producers and traders.

7.3 Strengthening linkages

11. Extension and the private sector will have to maintain closer links, instead of both working in isolation. Extension sometimes lacks the time, resources and knowledge to reach all farmers. Rather than mainly being a provider of services, the extension service should provide guidance and advice to private sector companies to fulfil this task (i.e. take a co-ordinating and facilitating role). Especially in the horticulture sub-sector this has scope; horticulture requires specialised skills and knowledge and the private sector is better equipped to do this more efficiently and on a cost recovering basis.

12. In addition to the above it is recommended that annual agricultural shows be organised in the Kavango Region in co-operation with all stakeholders in agriculture (both government, NGO and private sector). This will familiarise producers and other stakeholders with the services provided and improve linkages.

13. A continuation of a programme of exposure and exchange visits between producers (farmer to farmer extension) is recommended. This is an important extension tool. Funds should be made available (including kilometres and DAS) to carry out such activities.

14. Efforts to strengthen links and relations between produces and market traders should be continued. It is recommended that the platform for exchange between traders and producers that was created by the KHPM-Project in its pilot phase is maintained. This link between traders and producers does not have
to be limited to marketing. It is recommended that the informal market be involved in supplying agricultural inputs to farmers. It is important that this initiative is co-ordinated with the private sector supply agents and that training is provided to informal shop attendants.

15. The Internet can be a useful tool to access information and resources that would otherwise not be within reach of extension staff and local producers. It is recommended that access to a computer with Internet is made available to technicians (including budgetary provisions for increased telephone cost!) and that a list is drawn-up with all web sites and databases that contain practical information for AETs and producers. Strongly recommended in this regard is the website of the FAO (http://www.fao.org) that provides detailed information about marketing extension/ materials etc. and a seed database that allows people to locate and order seed cultivars from areas with similar climatologic conditions.

7.4 Research requirements

16. The market opportunities for alternative high value crops, such as herbs and medicinal plants requires closer investigation. These crops can contribute to a more diversified and sustainable horticultural system and widen market opportunities for producers, who will have to cope with increasing competition.

17. It is recommended that the opportunities for small-scale value adding and preservation techniques are investigated as a home-based industry for smaller producers in the more remote rural areas and as a business opportunity for some informal traders.

18. It is recommended that an evaluation of the formal market in Kavango in terms of products (volume, price, and specifications) be carried out to gain a better understanding of its opportunities. It needs to be investigated if there are sufficient incentives for the local producer or a middle agent to target the formal market segment. This information will be needed if competition and oversupply of the informal market forces local producers to change their marketing strategy.

19. Care should be taken when implementing the codex alimentarius regulations. Until the costs and benefits (and maybe more significant, the effect on the Namibian horticultural sector, of standardisation of domestic produce is clearly examined, this type of standardisation should mainly apply to produce for export.

20. It is recommended that producers who want to establish new horticultural enterprises and embark upon tomato production call the assistance of agribusiness companies to analyse the cost and benefits of drip irrigation. This will increase the opportunity for successful production of this crop.
7.5 Support to informal traders

21. It is strongly recommended that support is given to the informal traders through the implementation of the proposed KAHOMA project. Improvement of presentation and efficiency will make the informal market better. Some key traders and entrepreneurs should be encouraged to unlock the formal market segment by forming the link between small producers and the formal market.

22. It should be appreciated that not all traders have the capacity to become successful middle agents. Development of skills of traders who do not have this capacity but still have scope to adopt a more professional approach should be further developed. This assistance should be aimed at: formation of traders groups, improvement of display, hygiene and customer service, improvement of basic marketing principles and value adding and processing to widen their market.

7.6 Support to producers

23. Producers should continue to be supported by the Extension service with basic agronomic/technical advice, but this advice should be demand driven and of practical nature. When specialist knowledge is required the private sector should be invited to provide this advice. Private companies often give this advice for free, provided that the producer makes use of their products (agri-inputs).

24. Assistance to market-oriented producers should be aimed at the most advanced producers. Their gross margins have shown that they have the capacity and ability to cope with higher risks. They should continued to be encouraged to take a longer-term view towards planting and marketing of their crops e.g. by increasing their cropping to 300% (Salem producers) and improve their quality of service. Then they are likely to be more successful in expanding into the formal and institutional market.

25. Assistance to the poorer/average performing producers should be aimed at improvement of their general management practices and their market strategy should be based upon home consumption, the village market and the urban informal market. These producers have little scope to enter the formal market segment.

26. Currently producers are able to sell all their produce through the informal market and there is thus no need to create storage facilities in the Kavango. These storage facilities would probably be under-utilised for most of the year and therefore uneconomic.

27. For Salem producers it is now most urgent to resolve issues concerning the management of the scheme: i.e. they will need to decided upon a clear
constitution that points out selection criteria for admission, rights and obligations of member etc. They will have to take ownership over the scheme and start taking responsibilities for maintenance to the irrigation system. If this is not done producers will have to face the consequences of not being able to compete with other emerging producers in the near future.
Appendices
Appendix A: List of KHPM-Project documents

- Amakali, T. et al., Improving Horticultural Production and Marketing in the Kavango Region, a planning workshop with local stakeholders in the horticultural sector, KHPM-Project, Natural Resources Ltd., MAWRD, 2000.

- Basson, Salem Irrigation Project Kavango, Evaluation of the irrigation system and recommendations to improve efficiency and reduce cost, Division of Agricultural Engineering, MAWRD, November 2000.


- J. Zuurbier, M. Keizer, Who buys my produce?, Spotlight on Agriculture, No 45, DART, MAWRD, June 2001

- Kavango Horticultural Production and Marketing Project. Quarterly reports:
  - November – February 2000/01, KHPM-Project, MAWRD, 2000/01.
  - August – October 2000, KHPM-Project, MAWRD, 2000
  - April – May 2001, KHPM-Project, MAWRD, 2001

- Keizer, M., J. Zuurbier, KAHOMA Project, Project Description (preliminary draft) for follow-up of KHPM-Project, Natural Resources Ltd., June, 2001


• Zuurbier, J., M. Keizer, Inception Document of Kavango Horticultural Production and Marketing Project, KHPM-Project, Natural Resources Ltd, May, 2000


• Zuurbier, J., M. Keizer, *Evaluation and revision of logical framework*, KHPM-Project, April 2001
Appendix B: (Reference) list of studies / reports on the horticultural sub-sector

List of reports/studies published in Namibia

- Agrisystems (Overseas) Ltd, *Option for cash crop production in the Northern communal areas of Namibia*, United Kingdom, 1996.


- MAWRD, Directorate of Planning, Marketing and Cooperatives, eds., *Workshop on Improvement of production and marketing of horticultural produce in Central-north and North-eastern communal areas*, Okahana, 1996.


**Other references:**


• Coetzee, M. E., DART, MAWRD, Addendum to the Agricola 1998/1999, Preliminary Agro Ecological Zones.


### Appendix C: List of gardens in the Kavango

<table>
<thead>
<tr>
<th>Village</th>
<th>Garden Type</th>
<th>Area (ha)</th>
<th>Marketing</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Individual garden</td>
<td>0.1</td>
<td>Village market</td>
<td>-</td>
</tr>
<tr>
<td>B.</td>
<td>Individual garden</td>
<td>0.2</td>
<td>Village market</td>
<td>-</td>
</tr>
<tr>
<td>C.</td>
<td>Community garden</td>
<td>0.3</td>
<td>Village market</td>
<td>-</td>
</tr>
<tr>
<td>D.</td>
<td>Community garden</td>
<td>0.4</td>
<td>Village market</td>
<td>-</td>
</tr>
<tr>
<td>E.</td>
<td>Individual garden</td>
<td>0.5</td>
<td>Village market</td>
<td>-</td>
</tr>
<tr>
<td>F.</td>
<td>Community garden</td>
<td>0.6</td>
<td>Village market</td>
<td>-</td>
</tr>
</tbody>
</table>

*Source: This list is based upon information given by ACTs. The size of the gardens is a rough estimation.*
Appendix D: Particular characteristics of the most commonly grown vegetables in Kavango

Cabbage
Producers at Salem have become quite specialised in cabbage production. However, the hot and wet summer makes cabbage production difficult from December to March. Black Rot, a bacterial disease that can be recognised by black veins, is a major problem at Salem and in Kavango as a whole, and is most abundant in the wetter months. The choice of a cultivar that is tolerant to these conditions can reduce these problems and lengthen the growing period by a few weeks. Despite the fact that a seed agent is now frequently visiting the project with the latest information on new cultivars, producers still prefer open pollinated cultivars that were introduced in the early 90’s. This is mainly a cost issue (open pollinated cultivars are often cheaper), but tradition also plays a role. The local names given to these cultivars often reveal their origin: Copenhagen Market is referred to as ‘Canamco’ (an NGO that initiated community gardens and seed supply in Kavango) and a sugar-loaf headed cabbage (CapeSpitz) that was brought to the region by the Angolans is known as ‘Curação’. Better cultivars are now available on the market to replace the Copenhagen market for example, but farmers seem to cling to what they know best. Cultivar demonstrations have been initiated to show producers the performance of various cultivars under their own management practices.

Most producers at Salem sell their cabbage immature as leaf cabbage to the informal market. There are special leaf cultivars available, but Salem producers prefer to grow a multipurpose cabbage that can either be sold young or when a head is formed. The informal market price for the latter is often higher, but there is a risk that informal traders cannot afford to buy the large heads.

Cabbage is a relatively easy crop to grow, provided a spraying programme against pests is maintained. Cabbage aphids form a threat in early summer, but there are effective pesticides available in Kavango to control them. The small greenish Diamondback moth caterpillars and the light brown, black headed cabbage webworms are found in the summer. The first can easily be recognised by holes and windows in the leaves, while the second feeds mainly on the growing point of the plant and produces a web-like substance. Producers are generally able to control these pests by spraying with Karate. The small black / orange Bagrada bugs prefer the cooler / dryer periods of the year and are mainly found in April - July when the eggs laid in the soil are hatching. The bugs feed on the growing point, causing the cabbage to produce multiple (small) heads, unsuitable for sale. Farmers at Salem tend to spray with Malosol or Malathion, but good crop hygiene and frequent soil cultivation to destroy eggs has also shown to be effective enough to reduce levels of infestation below the economic threshold (Keizer, 2000)

Head cabbage yields obtained in the region varies between 60-75 tonne/ha for a good producer and 0-25 tonne/ha for an (poor) average producer, the main

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39 Even producers in the triangle are not able to produce good cabbages in the rainy season.
40 Leaf cabbage yields are 10-19 tonne/ha and 12-36 tonne/ha for poor/average and good growers respectively.
determining factor being general management and care given to the crop. The triangle
producers do not seem to have particular agronomic competitive advantage over
Kavango producers if cabbage production is considered; they struggle with the same
issues and are also not producing in mid-summer. However, the milder South African
climate allows producers there to produce cabbage much earlier than Kavango and
therefore the cabbage price on the formal market is disappointingly low by the time
Kavango producers have their head cabbage ready.

Onions
In Kavango producers have found a very attractive market for fresh onions with green
tops, used as a relish in most local dishes. The advantage of this type of onion is that
the growing period is reduced with 4 - 6 weeks because the onions are sold before
they reach maturity and that no storage or drying is required, which can be
problematic at the start of the rainy season. Any surplus at the end of the season is left
to dry and is sold in bags to supermarkets or open markets, often against a much
lower price. Onions are sensitive to day length and this hampers year-round
production in Kavango. Therefore, only the short day varieties that are more adapted
to heat are recommended in the region. Short day onions have the disadvantage of
poorer storage quality, but there is little alternative: only areas South of the Tropic of
Capricorn can be considered suitable for long day onions.

Onions prefer a cool climate during the early growing period and higher temperatures
from the onset of bulb formation. Experience in the region has showed that cultivars
perform differently when sown and transplanted at different times and at different
spacing. For most vegetables narrow spacing yields smaller plants, while too wide
spacing has a considerable negative effect on the plant population and thus yields
obtained. On some commercial farms in the triangle, mechanised planting is used,
resulting in a more uniform crop. At Salem big differences in management and
spacing can be found between producers. One of the common mistakes that are made
is the application of fertiliser or manure. For onions it is important not to give
nitrogen fertiliser (e.g. urea) too late, since this will result in thick necks. If manure is
given this should be worked into the soil prior to planting and not as a top dressing
when plants are in the field. Onions are also prone to poor drainage or irregular water
management, resulting in yellow or brown leaf-ends.

Pests are not a major problem on onions, but thrips damage on the leaves (tinny spots)
seems to have become more common in the last years.

The most popular cultivar for the fresh market is Texas Grano. This well-known open
pollinated cultivar produces large bulbs with many leaves. Producers will have to
think of their target market when deciding upon a suitable onion variety. Those onions
which produce a lot of green leaves and thick necks are generally the ones that don’t
store well and are thus less suitable for sale to the formal market that demands dry
bulb onions.

Fresh maize
Maize is a popular crop amongst producers in the region, especially for those who
have a larger plot, such as at Salem. It is mainly grown for fresh consumption of the

\[\text{Due to crop failure in the rainy season zero yield is sometimes obtained.}\]
cobs and is often referred to as ‘green mielies’. There is a very high demand for this product on the informal market. The NDCs also grow maize, but mainly with the purpose of producing animal fodder. They only sell at times when demand is highest and other producers are not able to fully supply the market.

Maize is a crop that requires much less management skills than most other vegetables. This is probably one of the reasons of its popularity amongst producers. At the end of the cabbage season, when the coldest period is over, fields are prepared for maize. Often maize is already inter-planted while cabbage is still in the field (relay cropping).

This works when cabbage is already mature, but poor results have been observed in cases where young cabbage was intercropped with maize: both were competing for nutrients, with poor maize stands as a result. Hybrid yellow maize cultivars are used most and also give best results. Also here planting methods and management have most effect upon the yields obtained. One production system is more intensive than the other: e.g. some producers keep two plants per hole or use a narrow spacing, which is possible when soil fertility is higher and more nutrients (chemical fertiliser and manure) are applied, whereas others only have on plant per hole, resulting in less yield, but also in less production cost.

Producers at Salem are struggling with two major problems in maize:

- Streak, a viral disease causing yellow stripes on the leaves;
- Stem or stalk borer, a brown caterpillar that makes tunnels in the stem (sometimes just below the soil surface) and leaves.

Both result in retarded or stunted growth and in case of stem/stalk borers dead hearts can be found and poor plant stands. A viral disease is difficult to control. It is important that producers use certified seed which is free of diseases and when own seed is used only healthy plants are selected. Plant residues of affected plants should not be left in the field, but burned to prevent caterpillars to complete their lifecycle and lay their eggs which will hatch the following season. Producers at Salem usually control stem borers by applying Curaterr to the growing point. During an IPM course organised by the KHPM project they were pointed out the danger of this practise (see also paragraph 4.1.1). Fresh maize is only sold to the informal market. Kavango producers face hardly any competition from outside the region and the price has been constant over years.

_Mutete (Hibiscus sabdarifa sp.)_

Mutete is a traditional rain-fed leaf vegetable, which is not indigenous to the region, but has been grown for many years in the region. The small dark brown seeds from the previous year are planted (6-6 seeds/hole) at the onset of the rainy season on plots near the homestead. Plants grow with little extra care and produce an herbaceous small shrub with leaves. The leaf can be harvested while the plant continues to grow.

Producers at Salem have recently discovered that their irrigation system gives them a competitive advantage over rain-fed production in the early summer season and that there is a high demand for this kind of cheap leaf vegetables on the informal market. There is no competition from other regions or countries.

Salem starts producing mutete when the risk of frost is over, in August/September. The crop is ready when plants have reached a length of 15-20 cm and are then totally uprooted and sold in bundles. The plants are then still very young and tender and not woody, which consumer prefers. The rain-fed grown plants, which are found on the
market at the end of the rainy season and have grown much slower, have developed a much sturdier stem and are therefore more often sold in dried form.

The short growing period gives pests little chance; no major pest and diseases are experienced at this stage.

Seed is not available commercially, and producers normally keep a few plants to reach the flowering and seed setting stage from which they harvest seeds and store them in jars. Seed is also sold on the informal market, but large quantities often required by Salem producers are not always readily available. There seems to be two distinct cultivars: a red flowering type and a yellow type. The first is known to be used for rain-fed production and in other countries (such as Malawi) for production of juice or herbal tea from the flower calyx, whereas the Salem producers use the yellow type for its green leaves as a vegetable.

This crop has little technical constraints and has the potential to become much more important in the future. An export market for the red cultivar should be further explored.

**Carrots**

Through the years producers have gained more experience in carrot cultivation and this has resulted in an increase of production of this crop. In Kavango the optimum growing period for carrots is from February – September. It is often mentioned that carrots can be grown throughout the year in Kavango, because they are heat and frost tolerant, but in reality much poorer plant stands and lower yields are obtained during summer. Salem farmers, who are only able to irrigate twice per week are not very successful in growing carrots in spring (October - November) because it is too hot and dry and the seedbeds need regular daily watering to have a satisfying germination. In the rainy season there is the risk of seeds being washed away by occasional heavy downpours.

Carrots are one of the few crops that are produced locally which find their main market in the formal market. The demand of the informal market is very limited. The fact that this crop is mainly sold to the formal market (caterers and supermarkets), makes it more risky and often only the better producers take their chances. Packing material (10 kg string bags) now also becomes a requirement. There are several cultivars on the market which all seem suitable for Kavango, such as Kuroda, Cape market and Ideal Red.

Carrots need careful sowing and thinning which makes it a very labour intensive crop. If hand weeding is not done regularly, competition with weeds reduces the yield or causes malformed roots. There are no pests associated with carrots that hamper production. Yields vary between 8 – 25 tonne/ha.

Poor harvesting methods and lack of microelements (Ca) in the soil (see also paragraph 4.6) have sometimes resulted in poor storability of carrots delivered to supermarkets.

**Sweet potato**

Sweet potato, which can just as cassava and maize actually be considered a field crop instead of a vegetable, has also gained popularity in the Kavango region and amongst Salem producers. This can mainly be attributed to the recent research and promotion efforts of the Division of Plant production of MAWRD. It has been especially
successful to improve “home food security” of rural households. The demand for sweet potato is limited in Kavango, but triangle producers are predicting that this will change in the near future; they have already observed an increasing demand on the Oshikati market. At Salen sweet potato is grown from October – July onwards. A small amount of planting material is kept for the next growing season. Yields are generally very low (4 – 8 ton/ha) for irrigated sweet potato; producers use almost no inputs – mostly because they are unaware of the crops yield potential - it is regarded as a low maintenance field crop, rather than a vegetable. This crop has a long growing period and the gross margins are not very attractive. The crop provides a low risk for less skilled producers for whom a guaranteed income is more important than high profits. Cassava is a similar crop that has limited marketing potential but provides an additional income without having to bear high risks. Some producers have realised that production of these crops under irrigation with low input levels is a waste of their resources and are now mainly growing these crops on the borders of the field and on the land in between the “homesteads”.

Tomato
Tomatoes are maybe the most difficult to grow of all crops known to producers in the region. Only very few are able to successfully produce tomatoes when climatic conditions are most optimum (from August – December), whereas some of the triangle producers are capable of producing them year round. There are several technical challenges associated with tomato production. The crop is very prone to diseases such as blight and therefore does not thrive well under wet conditions. Irrigation water should not come in contact with the leaves and is therefore best given through drip or flood irrigation systems. Precautions should be taken against nematodes, prior to planting, or nematode resistant cultivars should be selected. Red spider mites also form a major threat to tomato plants in the Kavango region. It is important that a producer who embarks upon tomato growing has knowledge of these constrains and makes sure he has the right control method available in advance. Tomato yields per plant can be high, and staggered production is thus extra important to prevent overproduction and supply. Methods of trellising and staking are important to prevent fruits from lying on the ground. The best method would be to have large poles at regular intervals with lines of rope or steel wire in-between. Frost is another potential risk. In the commercial triangle producers are known to make little fires during the night between the tomato rows and in their nursery area to prevent frost damage. Tunnels or covered nurseries will also help to protect plants, and allows earlier planting. The above would suggest that tomato growing requires more investment than most other crops. This is indeed true and therefore only the most competent producers should embark upon growing this crop. Risk and profit are often closely related and this is certainly the case for tomatoes.
### Appendix F: Framework proposed KAHOMA-Project

<table>
<thead>
<tr>
<th>Time frame</th>
<th>Task</th>
<th>Formal Buyers</th>
<th>Informal traders</th>
<th>Middle agents</th>
<th>Producers</th>
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</thead>
<tbody>
<tr>
<td><strong>1st quarter</strong></td>
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<tr>
<td></td>
<td></td>
<td><strong>Familiarisation with KHPM findings and recommendations</strong></td>
<td><strong>M&amp;E - Evaluation and assessment of KHPM pilot phase</strong></td>
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</tr>
<tr>
<td></td>
<td>Identify buyers of the formal market segment and quantify their requirements in terms of product, pricing, specifications</td>
<td>Continue support to informal market traders (maintain platform created in pilot phase)</td>
<td>Invite expressions of interest of candidate entrepreneurs to become middle agents</td>
<td>Develop better understanding of large and small scale production potential in the region</td>
<td></td>
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<tr>
<td></td>
<td>Establish a link and dialogue</td>
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<tr>
<td><strong>2nd quarter</strong></td>
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<td></td>
<td></td>
<td><strong>Design - Develop a work programme / logical framework for the coming year</strong></td>
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<tr>
<td></td>
<td><strong>Identify few target markets for developing middle agent activities</strong></td>
<td><strong>Training of informal market traders in basic marketing concepts</strong></td>
<td><strong>Further participatory discussions with middle agents candidates and work out the concept</strong></td>
<td><strong>Motivate producers to take a longer term view to production (marketing extension)</strong></td>
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<td><strong>3rd quarter</strong></td>
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<td></td>
<td><strong>Promote initial contracts with local middle agents or producers</strong></td>
<td><strong>Identify opportunities for small scale processing and other value adding techniques (short term specialist)</strong></td>
<td><strong>Support required activities for operation of middle agent’s function (SME short term specialist)</strong></td>
<td><strong>Identify opportunities for small scale processing</strong></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td><strong>Middle agents to enter into discussion with producers to produce according to production plan</strong></td>
<td></td>
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<td><strong>4th quarter</strong></td>
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<tr>
<td></td>
<td><strong>Strengthen links between formal buyers and middle agents/ producers</strong></td>
<td><strong>Continue on-the-job training</strong></td>
<td><strong>Keeping up the process</strong></td>
<td><strong>Continue marketing extension</strong></td>
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<tr>
<td><strong>5th quarter</strong></td>
<td></td>
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<tr>
<td></td>
<td><strong>Keeping-up the process</strong></td>
<td><strong>Keeping up the process: encourage marketing-led trading</strong></td>
<td><strong>Encourage expansion of middle agent function into whole sale/ assembling function</strong></td>
<td><strong>Keeping-up the process: encourage marketing-led production</strong></td>
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<tr>
<td><strong>6th quarter</strong></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td><strong>M &amp;E - evaluate process and investigate opportunities for geographical expansion of the project</strong></td>
<td><strong>Reporting and recommendations</strong></td>
<td></td>
</tr>
</tbody>
</table>
Appendix E: Cropping Plans

### Characteristics good producer

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit</td>
<td>50,000 N$ / year</td>
</tr>
<tr>
<td>Land utilisation</td>
<td>250% cropping, high yields</td>
</tr>
<tr>
<td>Highest margin</td>
<td>Mutete</td>
</tr>
<tr>
<td>Negative margin</td>
<td>none</td>
</tr>
<tr>
<td>Input level</td>
<td>Higher, hybrid cultivars, fertilizers and correct chemicals</td>
</tr>
<tr>
<td>Management level</td>
<td>Good, listens to advice, pay attention to details</td>
</tr>
<tr>
<td>Production plan</td>
<td>Carrots for formal market, early planting of hybrid cabbage, two plantings of mutete</td>
</tr>
<tr>
<td>Scope for improvement</td>
<td>More intensive cropping schedule, focus on crops which give highest margin, increase input level, improve management by adopting basic agronomic principles</td>
</tr>
</tbody>
</table>

### Characteristics average/poorer producer

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit</td>
<td>13,000 N$ / year</td>
</tr>
<tr>
<td>Land utilisation</td>
<td>240% cropping, low yields</td>
</tr>
<tr>
<td>Highest margin</td>
<td>Green maize/ mutete/ open pollinated cabbage</td>
</tr>
<tr>
<td>Negative margin</td>
<td>Cabbage planted in rainy season</td>
</tr>
<tr>
<td>Input level</td>
<td>Low, open pollinated cultivars, low fertilizer use</td>
</tr>
<tr>
<td>Management level</td>
<td>Poor, producer often not in the field, part time farmer, do not listen to advise</td>
</tr>
<tr>
<td>Production plan</td>
<td>Target informal market/village market</td>
</tr>
<tr>
<td>Scope for improvement</td>
<td>Improve general crop management, once management ok start using hybrid cultivars investigate alternative income source, increase motivation, exposure to good growers, focus on low risk crops</td>
</tr>
</tbody>
</table>