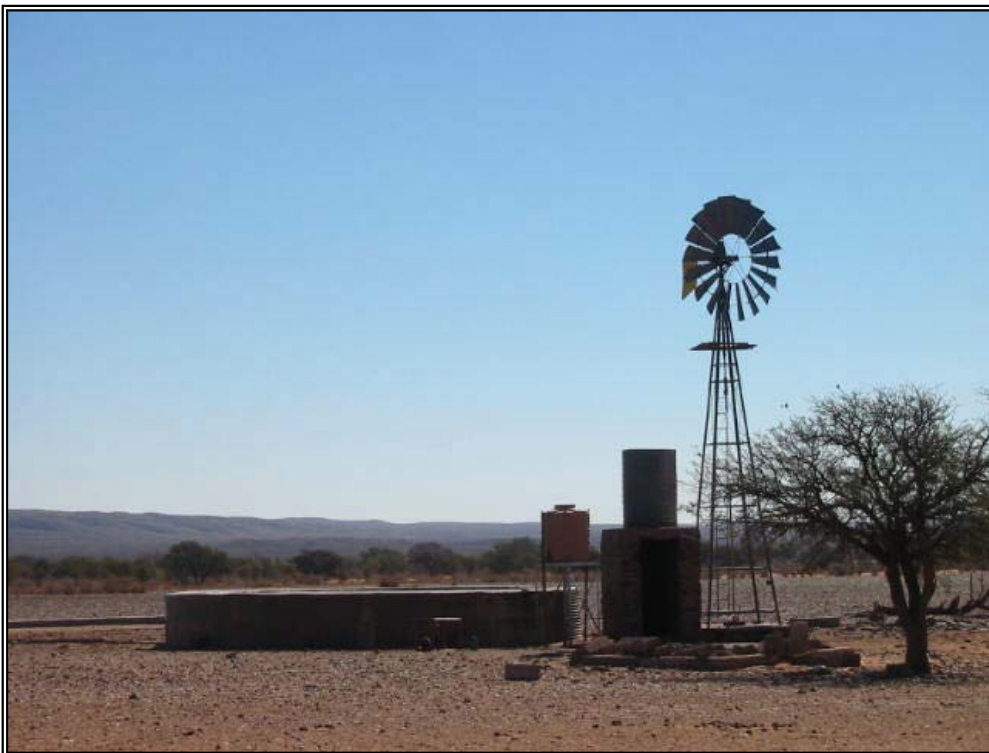




REPUBLIC OF NAMIBIA
MINISTRY OF AGRICULTURE
WATER AND RURAL DEVELOPMENT



KARAS REGION
BASELINE SURVEY OF THE IMPACT OF
AGRICULTURAL EXTENSION SERVICES

DIRECTORATE OF EXTENSION AND ENGINEERING SERVICES
KEETMANSHOOP, OCTOBER 2003

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Annex 1: The questionnaire of Karas and Hardap regions

Annex 2: The raw results for Karas region in tables

Acronyms and abbreviations

ADC	Agriculture Development Centre
CBNRM	Community Based Natural Resource Management
CBO	Community Based Organisation
CDC	Community Development Committee
DART	Directorate of Agriculture Research and Training
DEES	Directorate of Extension and Engineering Services
DRFN	Desert Research Foundation of Namibia
DVS	Directorate of Veterinary Services
FSRE	Farming Systems Research and Extension
HIV / AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
MAWRD	Ministry of Agriculture, Water and Rural Development
MOF	Ministry of Finance
MOV	Means of Verification
NDP 2	National Development Plan 2 (2002-2006)
NDT	Namibia Development Trust
NNFU	Namibia National Farmers Union
OVI	Objectively Verifiable Indicators
PFTD	Participatory Farming training Design
REMP	Research and Extension Management Programme
RISE	Rural Institute for Social Empowerment
RWS	Directorate of Rural Water Supplies
SARDEP	Sustainable Animal Rangeland Development Programme
SNAFU	Southern Namibia Farmers Union

Acknowledgements

Without the full cooperation and valuable input of our farmers, this document would not exist. We would like to thank the 124 farmers that took part in this survey. Thank you also to the enumerators for their hard work and the colleagues for their advice and input. A special word of thanks to Mr. P. Vigne and Dr E. Musaba for their technical advice and support during the training courses and the entire process. A big thank you to Ms Hanne Huysmans for her valuable advice and additions. Without her help this document would not have looked the same.

The questionnaire survey and the preparation of this report were undertaken by Mr J. Schutte and Mr A. Losper, in collaboration with the rest of the DEES team in the Karas region. Financial and technical assistance were provided by the EU supported Research Extension Management Programme. (REMP).

PART ONE

0 FOREWORD

Government's annual operational expenditure on agricultural extension services has averaged about N\$ 50 million over the last few years. In addition, international donors have contributed roughly N\$ 10 million per year to both operational and capital expenditure. Agricultural Development Centres are found all over the country staffed by qualified officials equipped with vehicles and provided with operational budgets. But, is the extension service achieving what it sets out to do?

This is a report on a baseline study designed to survey selected indicators of extension impact during the 2002/03 farming season. We intend to repeat this survey after the 2006/07 season to gauge change over the period between the baseline survey and the final survey. This period coincides with the span of NDP 2, which is the basic planning timeframe of the extension service.

Calls for an assessment of the impact of agricultural extension services have been made by our collaborators, as well as the Namibian public at large. These are the people who ultimately control our purse strings; and as competition for government resources increases, we want to assess whether what we are doing is worth supporting.

As managers, we also want to know whether all the effort we are putting in is actually bearing fruit. If we find, for example, that, after years of promoting a particular farming technology or practice, farmers are simply not interested and have not adopted it, we will obviously need to think again. What are we doing wrong? Is it the wrong technology? Are our methods failing? How can we improve?

We are approaching the task of impact assessment by gathering quantitative information using formal questionnaires and qualitative information using informal, participatory methods. The two approaches need to be integrated; qualitative methods need to build on quantitative.

This report presents the results of a regional questionnaire baseline survey that has produced, we believe, objective results. Each region has designed and managed its own survey. This reflects our decentralised organisational structure which operates regional programmes in response to regional realities.

This report focuses on Karas region, and is being distributed to you as important collaborating partners and stakeholders in the cause of regional development. We hope you find it interesting and informative and we look forward to increasing collaboration in future.

D.R. Tshikesho
DIRECTOR OF EXTENSION AND ENGINEERING SERVICES
October 2003

1 EXECUTIVE SUMMARY

In this document, the Directorate of Extension and Engineering Services team of the Karas region reports on the baseline survey of the impact of agricultural extension services which was undertaken in the region in 2003. The document can be divided up in three main parts.

In a first part, the context and rationale for this nationwide survey are explained. In his foreword, the Director of the extension and engineering services, Mr. Tshikesho, explains why we need to find an answer to the question: *“Is the extension service achieving what it sets out to do?”* Not only do collaborators and the Namibian public deserve an answer to this question, the answer will also assist management and extension workers in planning and implementing extension activities in the most effective way, so as to have the greatest impact for the farmers.

In a further introduction, the rationale behind the questionnaire survey is explained. We looked at indicators of a) extension-farmer contact; b) farmer satisfaction with the extension services and c) the farmer’s awareness and adoption of new technologies disseminated by the extension staff, to assess the situation now: the baseline. No information of this kind was available until this survey. In 2006/07, the survey will be done again, to review how things have changed over time, in other words, to measure the impact.

In the second part of the questionnaire, the reader can find more information on agriculture and the extension services of the Karas region. Interesting characteristics of the farming systems in the region are highlighted, one can find information on the ADCs, post establishment and much more. In chapter 5, every step in the process of developing the questionnaire is explained. Details on, for example, how the 124 sample farmers and enumerators were chosen, are given. The questionnaire (see annex 1) contains questions on farmer type, farmer-extension contact and extension impact. For this last part, some questions were included on each of four small stock management areas: breeding and selection, animal health, livestock marketing and rangeland management, to give an idea of the knowledge and practice of the farmers in the region.

In the third part of this document, the survey findings are given, and many conclusions are drawn from these findings. We have, for example, found that over 75 % of the interviewed farmers is older than 45 years, over 90 % live more than 10 km from the nearest Agricultural Development Centre (ADC) and over 70 % of the respondents have only received primary education or no education at all. All these findings have implications for the work of the extensionists in the region. For example, tools used during trainings should be adapted to the age and education level of participants and a conscious effort must be made to reach farmers through field visits and the mass media.

Probably the most important finding in relation to extension-farmer contact, is the importance of radio for the farmers of this region: over 60% of respondents hear agricultural information on the radio weekly, for over 65% of respondents, radio is the primary source of agricultural information and, more specifically, animal health information. The production of agricultural programmes in Nama by mass media member and colleagues should continue, increase and receive fullest support.

As for questions asked with regard to extension impact, answers suggest that extension staff should target especially the areas of livestock marketing and animal health over the next years. In case of marketing, the given answers pointed towards very poor knowledge and practice. And over 50 % of the respondents indicated that they would like to receive more information on disease prevention and treatment. The main conclusions of the baseline survey are summarised under heading 6.5, at the end of this document.

The DEES team of the Karas region believes that this document provides a proper set of data, which -in 5 years' time - will enable us to adequately assess the impact extension has had during that period. It also provides the extension service with farmer driven, and scientifically proven, suggestions for extension interventions.

2 INTRODUCTION

2.1 WHAT AGRICULTURAL EXTENSION SERVICES DO AND WHO THEY SERVE

Up until recently the government's agricultural extension services were focussed mainly on providing subsidised agricultural services (e.g. ploughing, farming input sales, the development and maintenance of farm infrastructure), and the administration of government programmes such as drought relief and credit schemes. In the mid-1990s, things began to change as it was realised that many of these services were not benefiting the mass of farmers and, in any case, were often best provided by the private sector.

New approaches stressed the provision of advisory, information, communications and farmer training services. Extension services aim to help farmers to develop and adopt improved farming technologies and practices, to organise themselves into self-help groups of various sorts, and to better interact with the world of agricultural markets, services, infrastructure, laws and policies in which they operate. In some places extension has been playing more of a facilitating role relating to a range of rural livelihood issues.

At the same time, greater attention was given to the communal sector, where extension services were supposed to target all farmers. Efforts were made to reach farmers by working with farmers' groups and through the mass media, and through various methods designed to impact on numbers of farmers, such as demonstrations, shows, and training courses.

2.2 QUESTIONNAIRE SURVEY RATIONALE

Extension impact: can you prove it?

This section discusses some of the conceptual and practical difficulties involved in trying to assess the impact of agricultural extension services.

How can we prove that changes in farmer welfare, farm production and income, and changes in farmer behaviour (which we can define as including increased farmer knowledge and skills, improved farm technology, farm management practice, and farmer organisations) have occurred because of the work of the agricultural extension service? Many variables influence such changes (for example, other sources of information, rainfall, market prices, availability of credit, health issues, and so on) of which extension may or may not be one. It is notoriously difficult to make a causal linkage between the work of extension services and changes in farmer behaviour, let alone farm production, and ultimately welfare.

This is different from other services. In the field of education, for example, we have exam results, in the field of health we have hospital records, in the field of transport we have roads built and maintained, all clearly visible and easily measurable indicators.

Impact on who?

The agricultural extension service uses different methods to address individual farmers, groups of farmers and the broad mass of farmers, be it information meetings, demonstrations, training, or mass media. Ultimately, the mandate of the extension service is to serve all farmers. Therefore, this baseline study looks at the impact of extension activities on the broad community of farmers. The rationale for this is that although extension recognises that it cannot

directly contact all farmers, it believes that its influence ultimately reaches all farmers through normal farmer-to-farmer dissemination. This assessment does not look at the impact of specific activities on immediate beneficiaries, for example on trainees who have been exposed to specific training activities.

Different types of impact

The DEES has drawn up a logical framework which describes its main activities and their relationship to a set of objectives (*see page 19*). The log frame describes extension activities which should deliver clear outputs, which in turn should contribute to the achievement of a broader purpose, which itself will contribute to a more general goal. It is the job of the extension service to carry out the activities and deliver the outputs.

For extension managers, it is most important to assess impact at the output level: that is to look at service delivery and changed farmer behaviour, as defined above. Changed farmer behaviour should, in turn, lead to the achievement of higher level objectives (e.g. improved yields, better risk management, increased incomes), although these are also subject to many other influences (e.g. rain, market prices, etc.).

Extension services provide information, advice and training to enable farmers to be better managers by enabling them to develop and adopt better technologies and farm management practices, and by being better organized for different types of collective action. We can measure the extent this has happened by looking at rates and degrees of change in farmer practices and management.

To do this we can break down the process of such change into a number of stages – and look at how much of each has occurred with regard to specific changes being advocated. Change requires that farmers have:

1. contact with extension (either directly through participating in activities with AETS or visiting demos, or ADCs, or indirectly through the radio or other farmers who have learned directly from extension);
2. received information, advice or training on the innovation from extensionists;
3. understood the information, advice or training on the innovation;
4. tried out and adapted the innovation to their specific needs; and
5. acted upon or adopted the innovation.

We measure this by looking at indicators of:

- Extension-farmer contact and farmer satisfaction with extension services
- Farmer awareness, understanding, adoption and change

Extension impact assessment aims to review the extent to which these things have taken place, first through revealing the baseline situation, and later through reviewing how things have changed over time.

Concerning extension-farmer contact and farmer satisfaction, we can measure this by asking about the extent farmer involvement with extension activities, and their perceptions of that involvement. Regarding farmer awareness and adoption, we select specific agricultural development issues to focus on. We cannot ask farmers about all the different technologies and practices and other information that extension services promote. We must select a few topics only. We can then say that these things represent the range of issues that extension deals with. In other words, they are indicators of the bigger picture of extension work.

Therefore, each region has designed its own questionnaire to investigate selected topics which they believe represent the many that extension in a specific region is promoting. These key topics have been selected from amongst those the region expects to be the most important over the next few years. Specific questions have been asked to try and pin-point whether farmers are aware of and understand extension recommendations, have reacted to and adopted them.

The hypothesis we are testing therefore is that extension services have a positive impact on farmer knowledge and behaviour. We are not able, at this stage, to test the hypothesis that this improved farmer knowledge and behaviour has in turn led to increased productivity and incomes, or improved agricultural GDP or balance of trade (purpose and goal indicators). To do so we need much better production and incomes data over a long period. Rather, We assume that, all being well in terms of the external environment, in other words when conditions allow, that improved farmer knowledge, technologies and practices will have an impact on production and incomes.

Finally, we must also acknowledge that monitoring extension impact, even at the output level, is not easy. How can we say that change in farmer behaviour is because of extension? Many variables influence farmer behaviour including information provided by other services. However, Namibia's extension services pride themselves on the extent to which they collaborate with other services (government, non-government and private), and are content to share credit should impact, in due course, be revealed.

2.3 QUESTIONNAIRE PROCESS

So far, we have focussed on conceptual issues. Now we move to the practical means of extension impact assessment.

Formal questionnaires are a useful tool for research into people's perceptions, levels of awareness, knowledge and practices related to specific issues under investigation. Questionnaires are essentially a mechanical tool, in which you ask carefully defined questions covering selected issues, to a carefully selected representative sample of the community, you receive answers, which are entered on answer sheets in code form, and you analyse these answers statistically.

This survey was undertaken by the regional team of the agricultural extension service, under the leadership of the regional Chief Agricultural Extension Technician.

This process is revisited in more detail in Section 4 (see page 29) of this report. The questionnaire is presented in Annex 1.

PART TWO

3 AGRICULTURE IN THE KARAS REGION

3.1 BIOPHYSICAL RESOURCES

3.1.1 General

The Karas Region is the most southern region of the country. The name assigned to the region reflects the prominence of the Karas Mountain range in the southern part of the Region. On the eastern and southern boundaries of the region you will find the international border between Namibia and the Republic of South Africa; in the south this border is determined by the course of the Orange River. In the west, the boundary is made up by the Atlantic Ocean and the Diamond Area. And when going north, you will cross into the Hardap region.

Karas Region is 161 324 square kilometres in size and is very sparsely populated. It only supports a population of 69 677 people (from 2001 Census Preliminary Results); more than half of these people live in rural areas. Therefore the population density average \pm 0.43 people per square kilometre, the lowest in the country. The Karas Region includes the magisterial districts of Keetmanshoop, Karasburg, Bethanie and Lüderitz. The Region comprises six constituencies: Keetmanshoop Urban, Berseba, Lüderitz, Oranjemund, Karasburg and Keetmanshoop Rural.

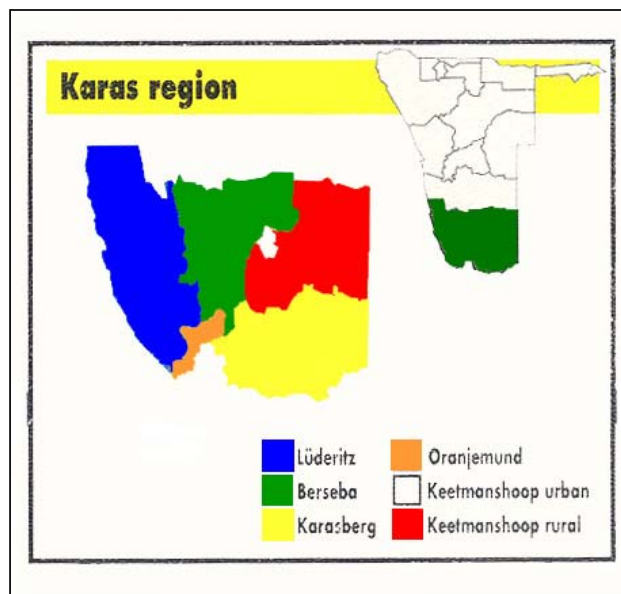


Figure 1: The constituencies of the Karas region.

The communal areas of Karas region comprise three separate areas, namely Namaland, Bondelswarts and Warmbad. The whole of Namaland is 2 145 098 ha in size, but part of it lies within the Hardap region. The Bondelswarts area to the west of Karasburg is 171 126 ha in extent. With 14 523 ha, Warmbad is the smallest of the three communal areas.

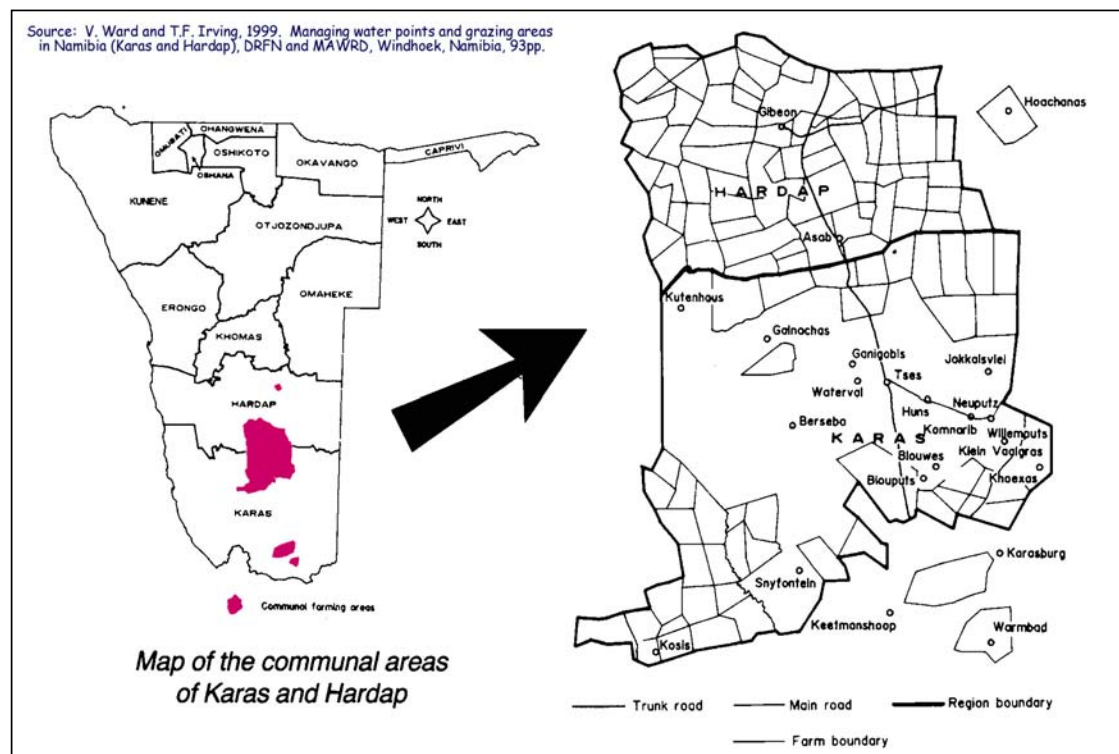


Figure 2: The communal areas in Karas and Hardap region.

3.1.2 Climate of the Karas region

Karas is the driest region of the country. The average annual rainfall varies from less than 50 mm in the southwest (Namib Desert) up to 250 mm in the northeast of the region. The average rainfall per year in Keetmanshoop is 142 mm (this was measured over 54 years). Not only is the average rainfall low, rainfall is also very unpredictable and localised, to the extent that average figures are a poor guide of the rainfall situation.. For example, at Keetmanshoop it is common for rainfall to vary as much as 50 per cent from the average. Also, while one farm might receive good rainfall, the neighbouring farm might not receive any. In the hottest months temperatures climb to over 40°C (105°F), while in the coldest months temperatures can drop below freezing point at night.

3.1.3 Soils of the Karas region

The soils in Karas originate from the ancient Karoo and Nama sediments, which underlie the whole southern area of Namibia. For the most part these soils are shallow, stony, and contain little organic matter. They are low in fertility and do not support much vegetation. They have a clay content of less than 5%, and thus have a very low water holding capacity.

3.1.4 Vegetation types of the Karas region

Rainfall, temperature, soils and water flow, all play a part in determining the variety and number of plants growing in different parts of the region. The main vegetation type in the Karas Region is dwarf shrub savannah. It is known as the dwarf shrub savannah where *Thigozum trichotomum*, *Catophractes alexandri* and *Erioccephalus* species are very common. *Parkinsonia africana*, *Acacia nebrownii*, *Boscia albitrunca* and *Boxcia foetida* will only appear

in certain areas. A wide range of grasses appear in the area and the distribution will depend on the soil types. *Stipagrostis uniplumis*, *S. brevifolia*, *S. obtuse* and *S. anomala* are available in most of the area. More to the West *Panicum arbusculum*, *Setaria appendiculata*, *Antheophora pubescens*, *A. ramose* and *Digitaria eriantha* are more common and these species are very important for good animal production. Trees are only confined to the riverbanks (Muller, 1983).

Vegetation types consist of desert-adapted plants towards the west, where rainfall is low. In the east, where rainfall is higher, you will find a mixed tree and shrub savannah. The largest part of this area is covered by sand dunes lying parallel, stretching along a northwest-south eastern direction. In the sandy parts *Acacia haematoxylon* are common in the shrub form. The harder soil areas between dunes are called streets and are mostly covered with *Rhigozum trichotomum*. Other trees and shrubs found in this area are: *Acacia erioloba*, *Boscia albitrunca*, *Boscia foetida*, *Acacia mellifera* subsp. *Detinens*, *A. reficiens*, *A. hebeclada* subsp. *Hebeclada*, *grewia flava*, *G. deserticola* and *Rhus tenuinervis*. The perennial grasses that are common in undisturbed veld are: *Asthenatherum glaucum*, *Antheophora argentea*, *Eragrostis lehmanniana*, *Stipagrostis uniplumis* and *S. ciliata*. In veld that was disturbed and not in a good condition *Schmidtia kalariensis* are very prominent. On the top of the dunes *Stipagrostis amabilis* are found and this specie is known to prevent sand erosion by the wind.

3.2 POPULATION ISSUES

The two main language groups in the Karas region are the Nama-speaking and Afrikaans-speaking people. Smaller numbers of Otji-herero and Oshi-wambo-speaking people have moved into the area, particularly since independence. The Nama-speaking people also use Afrikaans as home language to such a degree that most of the younger people cannot read or write Nama any more.

The Nama-speaking people are one of the oldest tribes in Namibia and have a long history of dislocation. They originally lived in Namaqualand but were pushed northwards by European settlers. In the mid nineteenth century, led by their leader Jan Jonker Afrikaner, they settled in the southern and central areas of Namibia.

At the beginning of this century the Nama rebelled against the German colonisers. After their defeat, the Germans confined them to so-called temporary reserves. After the First World War, when the mandate to govern Namibia was given to South Africa, the boundaries of these reserves were taken over and accepted by South Africa.

In the Sixties, the Odendaal Commission was appointed to enlarge and consolidate the native reserves along ethnic lines. The ultimate objective was to grant each ethnic group a 'homeland' which they could govern independently. People were shifted from inside Namaland to adjacent former white farms and the entire 'homeland' was divided amongst the dominant 12 family groups.

The Karas region is characterised by agro-ecological and socio-economic diversity. It includes most of former Namaland, as well as the Bondelswarts and Warmbad communal-tenure areas. Otherwise, the region is dominated by private-tenure farming, excepting its western part, which is occupied by the Namib Desert.

3.3 LIVESTOCK PRODUCTION

The main agricultural activity is sheep (about 80% dorpers and 10% karakul currently) and goat (95%+ boerbok) farming with small numbers of cattle kept mainly for dairying purposes (see livestock census figures in table 1). The number of karakul sheep, which until recently provided

an important source of livelihoods and of foreign exchange earnings, fell from 1.43 million in 1985 to 0.39 million (while these are national figures most karakul were and are farmed in the Karas region) in the mid- 1990s, matched by an increase in the number of other small stock, and of ostriches. While the karakul pelt industry has suffered a major collapse since its hay day in the 1970s and 1980s, there are signs that the international market is picking up. The Karas region is well positioned to take advantage of this opportunity. Otherwise, the development of a small stock slaughter industry is adding value to the region's production.

In addition, ostrich and game farming is gaining in importance. Since the development of major ostrich processing facilities at Keetmanshoop the region has become a centre of the country's ostrich industry. While the industry internationally is subject to market instability, the environmental conditions prevailing in the region mean that southern Namibia should in the long run have a comparative advantage in ostrich production to its competitors. Out-grower ostrich chick rearing offers an opportunity for resource-poor communal-tenure farmers to benefit from the ostrich industry.

Reflecting the importance of the livestock sector to the region, recent livestock census figures are presented in

Table 1. Amongst other things these figures reveal a significant drop in numbers following the 1995/96 drought years in private-tenure areas and some, but not all, communal-tenure areas, and signs of a gradual recovery subsequently.

There are two widely disparate types of production system. In the freehold or 'commercial' farms there are clear boundaries, exclusive rights for the individual properties, and commercial objectives. The commercial areas are divided into fenced ranches, further subdivided into a number of paddocks, through which some form of rotational grazing is normally practised.

In the communal areas there are often unclear boundaries, there are generally open access rights to grazing areas, and the farmers are subsistence oriented. The grazing areas tend to be shared by members of a community. The production systems in the communal areas are based on pastoralism and the majority of households are subsistence-based, with limited use of modern technology and external inputs. Stock numbers tend to be less evenly distributed in communal than in commercial areas. There is a tendency for high concentrations of people and livestock near to permanent water sources, while other areas remain potentially under-utilised due to a lack of water. Animal numbers tend to be geared more to the quantity of reliable water than to the reliable quantity of forage, hence drought effects tend to be more severe in communal than in commercial areas (Sweet, 1999). (FAO, Country Pasture/Forage Resource Profiles)

Both the commercial and communal farmers in the region mostly farm with small stock, e.g. goats and sheep. Goats are predominantly Boer goats. The original Boer goat was indigenous to Southern Africa and was kept by the Namaqua people of South Africa. Dairy goats from Germany and Switzerland were used to upgrade the breed to what it is today. It is a hardy breed, well adapted to the semi-arid and arid conditions of the region. The major sheep breeds in the region are Karakul and Dorper. The Karakul is well known for its pelts, which are exported to Europe and are sold on fur-auctions as Nakara-pelts. The breed is very well adapted to the conditions in the region. The Dorper breed is kept solely for its meat-production and is predominantly farmed with on the commercial farms because it is not easy to herd. Cattle play a lesser role, but some cattle are found all around. Game farming, mainly with ostriches, has gained significantly in importance. In the communal areas, horses and donkeys are held for transport; chickens for eggs and meat. Chickens are generally free-ranging and scavenging, although some owners practise housing and feeding.

Figure 3 is included for interest sake. The carrying capacity is clearly defined for the different areas. The carrying capacity is expressed as kg per ha.

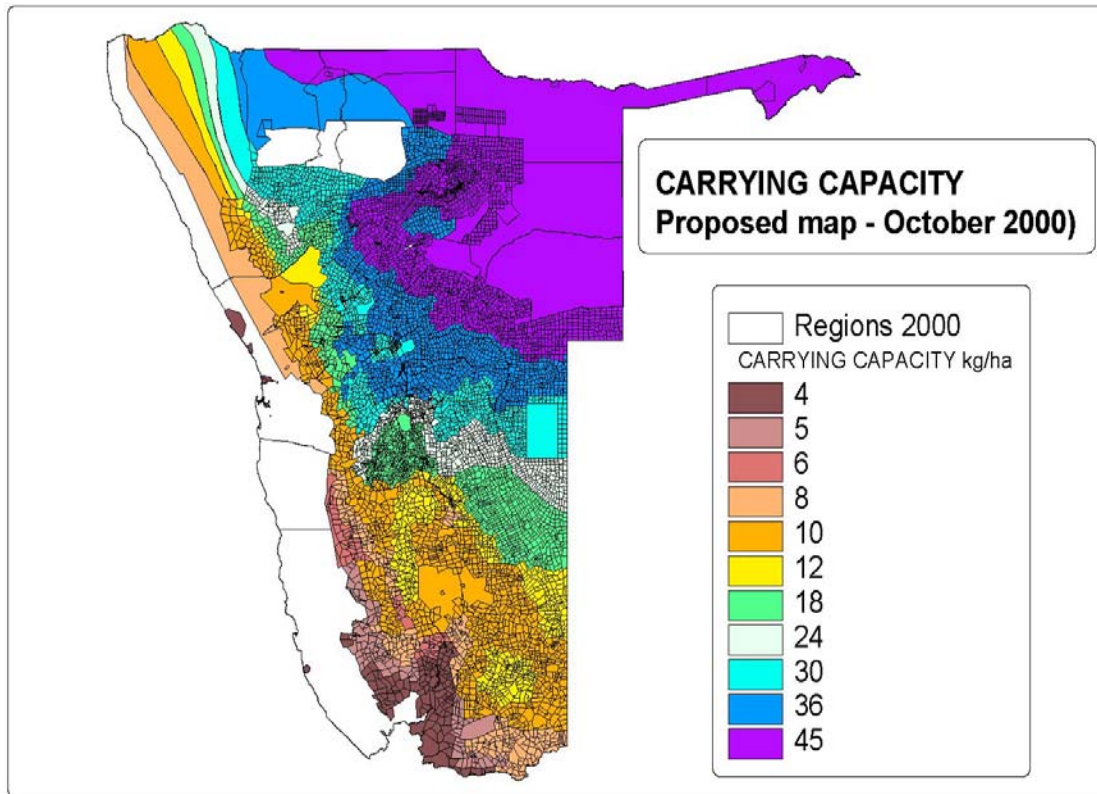


Figure 3: Carrying capacity for the whole of Namibia.

Table 1: Directorate of Veterinary Services: Karas Region Livestock Census

Cattle - 1995 to 2001

Veterinary Area	December 1995	December 1996	December 1997	December 1998	December 1999	December 2000	December 2001
Keetmanshoop	12,440	10,096	10,979	10,645	8,933	10,563	6,030
Lüderitz	3,521	2,788	3,142	2,170	1,989	2,374	2,476
Bondelswarts	984	1,046	896	787	728	803	796
Namaland Soromaas	3,928	5,522	4,616	2,565	2,812	3,589	3,972
Karasburg	6,009	6,303	6,049	5,758	5,439	6,294	6,396
Maltahohe	436	330	257	130	128	413	736
Bethanie	6,527	2,582	3,109	2,847	2,789	3,788	4,053
Karas Region	33,845	28,667	29,048	24,902	22,818	27,824	24,459

Sheep - 1995 to 2001

Veterinary Area	December 1995	December 1996	December 1997	December 1998	December 1999	December 2000	December 2001
Keetmanshoop	448,974	393,724	462,771	474,477	426,447	450,838	268,070
Lüderitz	20,991	17,323	16,675	14,652	13,437	11,160	10,527
Bondelswarts	8,416	8,428	7,568	9,630	8,683	11,294	13,736
Namaland Soromaas	36,277	44,470	35,184	13,644	12,535	18,337	26,376
Karasburg	244,502	242,261	255,570	265,529	240,807	278,739	261,175
Maltahohe	1,865	1,082	1,462	1,728	1,692	5,715	7,322
Bethanie	100,565	59,141	69,571	69,751	67,702	83,633	92,919
Karas Region	861,590	766,429	848,801	849,411	771,303	859,716	680,125

Goats - 1995 to 2001

Veterinary Area	December 1995	December 1996	December 1997	December 1998	December 1999	December 2000	December 2001
Keetmanshoop	59,636	57,387	67,123	66,361	65,184	67,212	53,520
Lüderitz	8,022	5,966	5,334	8,836	9,067	3,370	3,892
Bondelswarts	7,011	9,374	9,051	9,221	7,637	9,525	11,243
Namaland Soromaas	104,894	120,936	145,458	74,816	61,156	84,150	82,737
Karasburg	30,300	28,452	30,862	31,996	24,764	26,388	29,597
Maltahohe	1,931	2,333	2,202	999	987	1,534	3,467
Bethanie	49,805	37,015	43,702	42,242	41,241	42,452	61,635
Karas Region	261,599	261,463	303,732	234,471	210,036	234,631	246,091

Other Livestock - December 2001

Veterinary Area	Horses	Donkeys	Pigs	Poultry	Domesticated Ostrich
Keetmanshoop	352	352	156	3318	323
Lüderitz	123	51	19	494	390
Bondelswarts	397	395	41	935	0
Namaland Soromaas	1,548	3,185	381	6,203	3,912
Karasburg	742	170	210	3,595	108
Maltahohe	21	6	0	86	0
Bethanie	531	698	31	2412	14
Karas Region	4,148	4,857	838	17,043	4,747

3.4 CROP PRODUCTION

Irrigation farming at the Naute Dam and along the Orange River produces grapes, maize, wheat, lucerne, dates, watermelons and other vegetables.

Irrigated farming is practised along the Orange River (major schemes, at the time of this report, include Groot Gariep boerdery: 120 ha. Nivex: 65 ha. Namibia grape company: 360 ha., GRN Aussenkehr: 130 ha., Aussenkehr farms Pty. Ltd.: 150 ha. and below the Naute dam (some 270 ha.). Irrigation farmers produce a number of high value crops notably grapes and dates. There is potential for expansion of irrigation along the Orange River, as well as potential for dam construction in various locations. Date production is also of interest because it is believed to offer potential for both communal and private tenure farmers who have access to small irrigated plots.

3.5 FOOD SECURITY

Food security, which is achieved when people have reliable access to the safe and nutritious food necessary to lead an active and productive life, is, according to the government, the most basic and essential human right. It reflects levels of poverty and is mainly determined by access to productive resources and income earning opportunities. It is closely linked with people's nutritional status, which is in turn determined by access to food, the use made of resources in the household and the biological utilisation of food in the body. Under-nutrition affects both physical and mental growth and development particularly in children (Isaacson, 1995).

Agricultural production makes only a small and, it is believed, declining contribution to average communal area household income, both actual and imputed. Most rural people rely mainly on purchased food, using incomes derived from employment, pensions, remittances of both food and cash and a range of non-farm activities. Over two-thirds of households rely on wages as the main source of income. This compares to 44% for the whole nation (CSO, 1996). Food purchases are supplemented by meat and milk from a household's own livestock. However, some 30% of households (usually female headed households) in the southern communal areas own no livestock (DRD, 1992). Own production of food comprised only 3% of total intake in the Karas region as a whole (CSO, 1996).

Household and individual food insecurity is a chronic problem amongst the region's poor. The 1993/94 Household Income and Expenditure Survey revealed that 32.2% of households spent more than 60% of their total income (in cash and kind) on food. This is a generally accepted indicator of poverty. Further, 4.1% of the region's households spend more than 80% of their income on food (CSO, 1996). Although the mean income level for the region is relatively high by national standards, the region's Gini co-efficient of income inequality is the highest of all regions after the Omaheke region. However, 32.2% of all Karas households are classified as poverty stricken which is below the national average of 37.8% (CSO, 1996).

A 1992 health survey concluded that about 25% of children under five in the southern regions suffered from chronic under nutrition. About 5% of all children under five were suffering from moderate to severe wasting¹. Earlier surveys in Namaland specifically revealed the prevalence of wasting in children under five at between 14 and 17 %, stunting at 27 % and that more than 30 % of children under five were under weight (Rossouw, 1989).

Chronic under nutrition/stunting is defined as below minus two standard deviations from height-for-age. Moderate to severe wasting is defined as below minus two standard deviations from reference weight-for-height.

In general, under nutrition is worse nationally than in Karas region. This is particularly true of short-term under nutrition measured by weight for height. However, one in three under fives in the southern regions shows signs of long term malnutrition. Findings also suggest that the situation had improved in the years before the 1992 demographic and health survey (MOHSS. 1993).

4 AGRICULTURAL EXTENSION SERVICES IN KARAS REGION

4.1 MISSION AND STRATEGY

“To provide agricultural extension services in the form of advisory, information communication, and training services aimed at empowering farmers, and at encouraging the adoption of improved agricultural and related income generating technologies and practices.”

A log frame was developed for the 3 regions of the southern Division of the Directorate of Extension and Engineering Services (DEES) (Karas, Hardap and Omaheke) for the NDP 2 period (2002-2006) based on a national framework in which 5 outputs and 8 main activities were highlighted to reflect the above mentioned mission statement.

Table 2: The logical framework for the southern division (2002-2006)

Narrative	OVI	MoV	Assumptions
<p>Goal</p> <p>Improved food security at household and national level.</p>	<ol style="list-style-type: none"> 1. Improved balance of trade for food items 2. Increase agricultural derived per capita income 3. Increase per capita agric production 4. Number of rural poor decreased. 	<ul style="list-style-type: none"> -National Income and Expenditure Survey -Trade figures -DoP survey 	
<p>Purpose</p> <p>Farmers have achieved increased and sustainable agricultural production and increased incomes deriving from agriculture.</p>	<ol style="list-style-type: none"> 1. 3% increase (nominal) in agricultural incomes 2. 10% increase in marketed high quality meat 	<ul style="list-style-type: none"> NEWFIS data Meat Board figures. DVS census figures 	<ul style="list-style-type: none"> -No natural disasters -Economic climate remains conducive -National peace and security prevails

Narrative	OVI	MoV	Assumptions
<p>Outputs and Main Activities</p> <p>1.Improved agricultural technology and practice options are available</p> <p>Continuously develop technologies and related information and disseminate</p> <p>2. Relevant staff and farmer support information is available.</p> <p>2.1. Inform farmers on policy issues, input and product markets and complementary off-farm and non-farming livelihood opportunities.</p>	<p>10 proven tech available in division</p> <p>40% of farmers aware of all tech options being disseminated in division</p> <p>2.1.40 % farmers have up-to date market information</p> <p>2.2. 50 % communities are aware of DEES-policies and strategies.</p> <p>2.3. DEES staff is 80% aware of policies, strategies and market information.</p>	<p>Reports</p> <p>Records</p> <p>Surveys (DEES)</p> <p>Reports</p> <p>DEES surveys</p>	<p>-No natural disasters</p> <p>-Minimum staff turnover at officer and management levels.</p> <p>-National peace and security prevails.</p>
<p>3. Human resources in the Agriculture sector are developed.</p> <p>3.1.Train farmers in technical, management and facilitation skills.</p> <p>3.2.Train staff in technical, management and facilitation skills.</p> <p>4. Agricultural institutions and Organizations are strengthened towards improved services delivery.</p> <p>4.1. Facilitate CBO formation, training and projects.</p> <p>4.2. DEES MIS²</p>	<p>3.1.25% of farmers/staff trained in identified needs in the 3 target fields.</p> <p>3.2. Pre- and post training tests to evaluate inputs.</p> <p>4.1.DEES has facilitated at least 50 CBO events / year in the division</p> <p>4.2.DEES has assisted or facilitated assistance to at least 50 projects / year</p> <p>4.3.1.An applicable AWPB system which incorporates proper M + E procedures, have been developed, trained and implemented.</p>	<p>- Training schedules</p> <p>- Training reports</p> <p>- Training tests</p> <p>- Budgets</p> <p>- Reports</p>	<p>National and regional development policies remain supportive of FSRE</p> <p>-Conducive HRD policy for staff.</p> <p>-No undue political influence on resource allocation.</p>

Narrative	OVI	MoV	Assumptions
4.3. Efficient use of DEES personnel, financial logistics, infrastructure and material resources.	4.3.2. Proper resources (vehicles, human, etc.) management plan have been drawn up, tested + functionally implemented.		
5. Co-operation between partner organisations is improved.	5.1. DEES have established proper and functional working relationship (planning, M+E) reports with all partner organizations.	- Reports	-Minimum staff turnover
5.1. Information sharing, joint planning for coordination & collaboration.	5.2. Regional coordinating committee with monthly meetings and functional implementation plan.		-Adequate resources are available.

4.2 KEY EXTENSION APPROACHES:

The FSRE approach (Farming Systems Research and Extension) was adopted by MAWRD and the extension services in the Karas region. The FSRE approach and therefore our way of working have three key characteristics:

Participatory: participation that leads to empowerment of communities to take charge of their own development. The approach focuses on people rather than on science and technologies.

Demand driven: Responding to the farmers' real needs.

Multi-disciplinary: Bringing pools of knowledge together. A wide range of expertise is required to understand a particular system not only the disciplines of Research and Extension. Linked to multi-disciplinarity is the recognition of the need to join local indigenous technical knowledge with the pool of knowledge available elsewhere.

In our way of working, this FSRE-approach is related to the “project cycle”. In the figure below, the 4 steps of the project cycle are visualised.

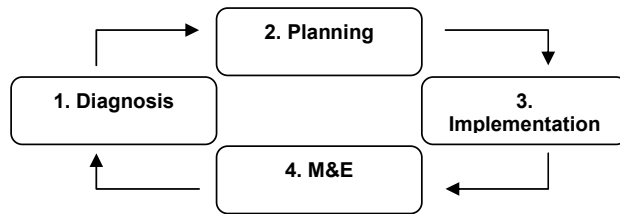


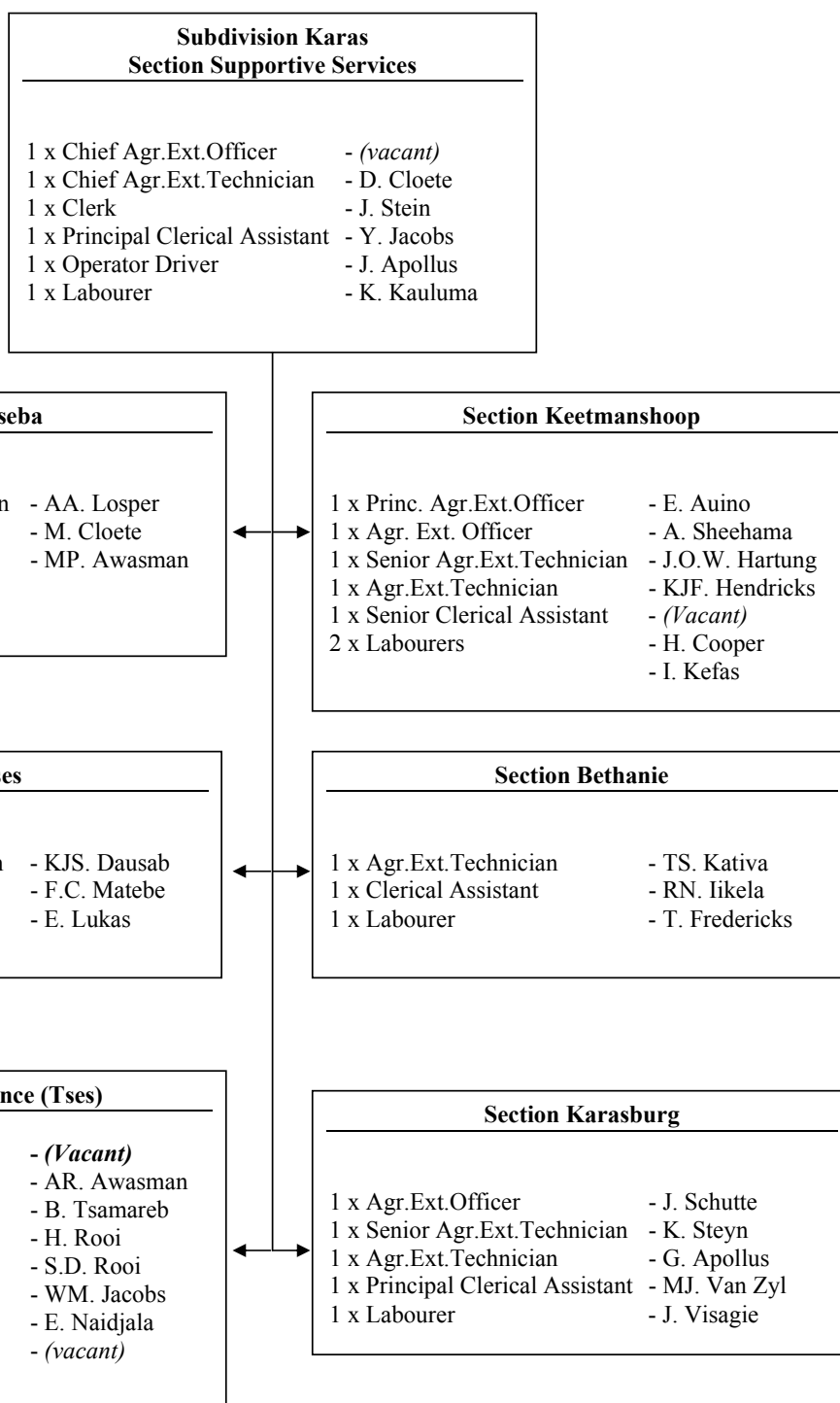
Figure 4: The project cycle

The table on the next page gives an overview of what is done during each stage of the cycle, by whom and what the outputs are.

Table 3: The FSRE approach to the project cycle

CYCLE PHASES	WHAT?	WHO?	OUTPUTS
Analysis and diagnosis	Primarily an investigating and analysing activity with farmers to understand how their systems are organised to ensure that projects and programmes respond to real needs (using tools such as PRA, PLA).	This is a participatory activity. A Multi-disciplinary team approach is ideal with relevant subject matter specialists interacting with community members. Ideally, this could involve staff from throughout the Ministry – DEES, DART, DVS, DRWS, other stakeholders (Ministries, CBOs NGOs) and farmers/community members	Identification and classification of main farming systems or livelihood systems and descriptions of key system constraints and potential opportunities.
Activity planning to address constraints and opportunities	Primarily a development planning activity.	Involvement in this activity depends on the nature of the constraint/opportunity being addressed. This is likely to fall under either: <ul style="list-style-type: none"> • Production systems (may require - participatory technology development, adaptive research, training etc) • Marketing systems (infrastructure, training, market information etc) • Community organisation (CBO formation, training, etc.) • Enabling environment etc. (Policy changes, infrastructure, legal reform) All of these will involve farmers/community members and Extension with other development professionals involved as required by the programme	Implementable Programmes/ Projects These may be designed to be led by CBOs, NGOs, Directorates etc, depending on the nature of the activity that has emerged from the analysis and planning process.
Programme / Project implementation	This may be a variety/ combination of activity types; research, extension, training, communication/ information.	May involve Ministry staff from number of Directorates/ other Ministries and stakeholders But again it will always involve farmers/community members and Extension	Whatever the programme or project aimed at. For example, increased productivity of systems, improved incomes, reduced risks, reduced vulnerability, improved household and National food security, increased human resource and/or institutional capacity in rural communities
Review, monitoring and evaluation, impact assessment	This is primarily a research activity	All involved in implementation of a programme or project should participate e.g., subject matter specialists and staff from throughout the Ministry – Research, Extension, Vets, Water and possibly other stakeholders (Ministries, NGOs) and farmers/community members.	Quantification of progress, adjustment of activities, new activities, re-prioritisation.

4.3 DEES POST ESTABLISHMENT IN THE REGION: AS OF SEPTEMBER 2003



4.4 AGRICULTURAL DEVELOPMENT CENTRES

There are five wards (ADC's) in the region: Tses, Berseba, Keetmanshoop, Karasburg and the Bethanie/Lüderitz wards.

The **Tses ward** lies within Namaland, which is part of the Berseba Constituency. The Tses ADC is situated in Tses village. On its boundaries in the east and south are commercial farms. On the west is the Berseba Ward; in the North is the boundary with the Hardap region. The whole of Namaland is communal land. In the Tses ward, approximately 460 000 ha is farmed communally, of which 58 000 ha is not fenced (open area), while the rest is fenced off. On the map you can see the farms that were added to Namaland during the Odendaal Commission. There are seven villages / settlements in the area, namely Koichas, Vaalgras, Komnarib, Tses, Blauputs, Blouwes and Swartwater. The area is divided into two traditional authorities namely the Blouwes or //Hawoben Tribal Authorities and Vaalgras Tribal Council. Some Odendaal farms have been allocated to both of the Tribal Councils.

The **Berseba ward** lies within Namaland, which is part of the Berseba Constituency. The Berseba ADC is situated in the Berseba village. On its boundaries in the west are commercial farms and the Soromaas Communal Area; part of the boundary in the west is determined by the course of the Fish River. On the east is the Tses Ward; in the North is the boundary with the Hardap region. All land in the Berseba area is used communally and covers 728 106 ha. In this area there are eleven former Odendaal farms, covering less than 300 000 ha. The rest of the area is open communal land covering over 400 000 ha. There are more than 4 000 people living in the Berseba area. The Isaacs and the Goliath tribes are the two main traditional groups in the area. There are plans to join the two groups together with one Headman in charge. There are six main villages/settlements in the area, namely Berseba, Gainachas, Kutenhoas, Snyfontein, Ganigobis and Soutputs.

The **Keetmanshoop ward** / District consists of 3 857 874 ha, with the town lands of Keetmanshoop, Koës and Aroab covering 62 825 ha. The ADC is situated in the town of Keetmanshoop. The boundaries of the district are made up by the Karas Mountain range in the South, the border with the Republic of South Africa in the east and the boundary with the Hardap Region in the north. Apart from the Game Park at Naute Dam (23 000ha) and the town lands of Keetmanshoop, Koës and Aroab, the area's land is used for commercial farming. The Municipality / Village Council rents out town lands to farmers.

The **Karasburg ward** is in the southern most district in the country and is one of the biggest, ± 3, 5 million hectares big. The ADC is also situated in town. The boundaries are mostly defined by natural occurrences like the Orange River in the south, the Fish-River (Canyon) in the west and the Karas Mountain Range in the north. The eastern boundary is part of the international border between Namibia and South Africa. Mainly Nama-speaking and Afrikaans-speaking people inhabit the area. Most of the Nama-speaking people in the area practise subsistence farming in the Bondelswarts (171 126 ha) and Warmbad (14 523 ha) communal areas. Population / number of farmers in communal area is about 360 and free hold about the same.

The communal area in the **Bethanie/Lüderitz ward** is part of Namaland and is referred to as the Soromaas Communal Area. The ADC is situated in the town of Bethanie. This area is solely made up of farms that were added to Namaland during the Odendaal Commission (see map below). The communal area is about 192 747 ha in size. The people stay around the water points. There are ± 150 communal farmers. There are five main villages/ towns in the whole area namely Kosis, Bethanie, Helmeringhausen, Aus and Rosh Pinah. The area is sparsely populated. Rosh Pinah has a higher population density due to the Scorpion Zinc mines. The development of the Scorpion mine will have a big financial and labour input in the area. This

area is mainly populated by Nama- speaking and white, Afrikaans-speaking people. The latter make up 98% of all the farmers in the area. The whole area covers 3 000 646 hectares.

4.5 OPERATIONAL EQUIPMENT:

A. Vehicles:

- 1 Sedans:
 - VW Polo GRN 10198
 - Opel Corsa GRN 10228 (2)
- 2 Single cab (2x4)
 - Ford Courier GRN 11543
 - Mazda 2.2 GRN 10318
 - Mazda 2.2 GRN 10319 (3)
- 3 Single cabs (4x4)
 - Toyota Hilux GRN 10668
 - Toyota Hilux GRN 10686
 - Izusu GRN 12389
 - Izusu GRN 12390
 - Izusu GRN 12384
 - Nissan GRN 12387
 - Nissan GRN 12587
 - Nissan GRN 12589
 - Nissan GRN 12590
 - Ford Courier GRN 12391
 - Ford Courier GRN 10503
 - Chef GRN 10302 (12)
- 4 Double Cabs (4x4)
 - Toyota Land Cruiser GRN 12144
 - Toyota Land Cruiser GRN 12145 (2)
- 5 Minibusses
 - Ford Marathon (16 seater) GRN 10366(1)
- 6 Trucks
 - Mercedes Benz (2x4) GRN 11750
 - Toyota Hino (4x4) GRN 10898 (2)

Total vehicles: 22

B. Computers and Audio Visuals equipment:

- 1 Computers
 - Full sets (Monitor, PC and Printer)
 - Keetmanshoop **8 + 1 laptop**
 - Karasburg **2 + 1 laptop**
 - Berseba **1**
 - Tses **1**
 - Bethanie **1**
 - Total computer sets: 13 + 2 laptop**
- 2 Television and VCR sets
 - 2 x TV and VCR sets
- 3 Flip chart stands
 - 10 x pressboards
- 4 Overhead projectors and screens
 - 3 x O/H
 - 2 x Screens
 - 1 x Slides projector

5 Cameras (Mass Media)

- 1 x Video camera
- 1 x photo camera
- 1 x Digital camera

4.6 ANNUAL BUDGET ALLOCATION BY MAIN MOF VOTE:

The table below indicates the funds received by DEES Karas region from 2001/2002 till 2003/04 (excluding remuneration).

Votes	2001-2002 (N\$)	2002-2003 (N\$)	2003-2004 (N\$)
021 Travel & Subsistence Allowance	99987	98013	109000
022 Materials and Supplies	70300	58699	68000
023 Transport	526680	469117	494000
024 Utilities	14000	11704	16737
025 Maintenance Expenses	25000	20963	23047
027 Other Services and Expenses	7000	5861	90000
044 Transfers	0	0	20000
101 Furniture and Office Equipment	28000	28000	37520
103 Operational Equipment, Machinery and Plant	28500	28500	37050

4.7 DONOR PROJECTS

Only two of the donor projects within MAWRD have had significant programmes and budgets for the Karas region, namely REMP and SARDEP since independence. Both of these projects are phasing out in early 2004.

SARDEP

The sustainable animal and range development programme (SARDEP) was born just after independence in 1991 and is active in the communal areas of Namibia. In Karas region their focus was on rangeland management and rehabilitation and support to community based organisations. SARDEP is phasing out at the end of this year (2003)

REMP

The Research and Extension Management Programme (REMP) started in June 1999 and will come to an end in March 2004. It is a joint programme between the government of the Republic of Namibia and the 8th European Development Fund of the European Union.

The programme has benefited the Karas region in several ways:

- Capacity building of staff in relation to the FSRE approach e.g. PFTD (Participatory Farmers Training Design) training,
- Provision of hardware, software and computer training
- Upgrading and building of infrastructure (agricultural development centres)

4.8 MAIN COLLABORATORS

- **DART** – Directorate of Agricultural Research. Research is our main collaborator in identifying new technologies and adapting existing technologies to farmer driven needs.
- **RWS** – Directorate of Rural Water Supply. This directorate has established water point associations, which are also an entry point into communities by DEES.
- **DVS** - Directorate of Veterinary Services. A start has been made to involve this directorate into training programmes on animal health and it is hoped that their involvement will increase further. DVS is also used by DEES as a source of information on animal numbers and animal movement in the region.
- Ministry of Local Government and Housing, as a decentralised office of power of the government, regular communication on relevant topics takes place.
- Traditional Authority, including all traditional leaders. As this is recognised body of power in the communal areas, their cooperation and support is essential for successful implementation of extension activities.
- All different organized farmer groups in the region, including the farmers unions, cooperatives, water point committees, conservancies and other CBO's. These groups are not only the beneficiaries, but are often active partners in making extension activities a success.
- DRFN, looks into ways of combating desertification and developing sustainable livelihood systems. The arid nature of our region necessitates good collaboration with this organisation.
- Regional HIV/AIDS Committee, implementing the basic methods to fight the disease and its consequences. As this pandemic is especially rampant in the rural areas, this office is represented in this committee and awareness creation takes place during many of the extension activities.
- Livestock marketing agencies, including Farmers Meat Market, Agra, NLA, and others. DEES works together with these agencies to find solutions to marketing related problems in the region. DEES also receives valuable marketing information from them.
- RISE for small businesses often makes use of our technicians to get information about social empowerment projects to the rural communities
- NDT, Namibia Development Trust, the main collaborator on Community Based Natural Resource Management, which manifests itself in the establishment of 2 conservancies in the Karas region.

5 SURVEY METHOD

5.1 RATIONALE: BASELINE AND IMPACT SURVEYS

The rationale for this survey have already been in the Foreword and further discussed in the section 1 of this report. Essentially, this is a report on a baseline study designed to survey selected indicators of extension impact during the 2002/03 farming season. We intend to repeat this survey after the 2006/07 season to gauge change over the period between the baseline survey and the final survey. This period coincides with the span of NDP 2, which is the basic planning timeframe of the extension service.

Comment: So how come it is called a baseline survey?

5.2 SURVEY OBJECTIVES

- The awareness and adoption of new technologies and information disseminated by means of farmer trainings, mass media, farmers days, excursions, etc. are to be determined. The survey concentrated on the four main management areas of breeding and selection, animal health, pasture management and marketing.

5.3 QUESTIONNAIRE DEVELOPMENT

- The questionnaire was designed to gather as much data as possible without either being too long or being insensitive to local socio-cultural norms.
- The questionnaire was sub-divided into 4 parts namely a) Farmer type, b) Farmer-extension contact, c) Extension impact and d) Farmer's information needs.
- The proposed questionnaire was then pre-tested by completing 12 questionnaires with farmers and listening to their comments as well as our own observations. The wording of some of the questions was changed or questions were completely re-written.
- The translation of the official questionnaire from English into Afrikaans and Nama (where needed) posed the most problems but no serious other problems were encountered.

5.4 SAMPLE SELECTION

- The Karas region has four communal areas namely Tses, Berseba, Soromaas (Bethanie) and the Bondelswarts.
- There currently are about 1235 households living in these communal areas. It was decided to randomly sample 10% of the total target population.
- There is only one farming system being used in these areas i.e. small stock farming with goats and karakul sheep. Therefore no stratification was used in sample selection.
- There are four wards in this one farming system and all four have been selected for the survey.
- The number of questionnaires assigned to a ward has been decided upon based on the number of households in each ward:

Tses	350 households	35 questionnaires
Berseba	500 households	50 questionnaires
Bethanie	150 households	15 questionnaires
Karasburg	235 households	24 questionnaires
TOTAL	1235 households	124 questionnaires
- The team decided to do 3 households / water point and decided to do the first 3 households encountered when coming into a village or community.

- The number of water points to be visited in every ward was then determined by dividing the number of questionnaires by 3 i.e.

Tses	35 questionnaires	÷ 3	= 12 water points
Berseba	50 questionnaires	÷ 3	= 17 water points
Bethanie	15 questionnaires	÷ 3	= 5 water points
Karasburg	24 questionnaires	÷ 3	= 8 water points
- The water points to be visited were then randomly selected to represent as much of the ward as possible.
- This whole process was thus used to randomly select a representative sample to be interviewed.

5.5 PREPARATION OF FIELD IMPLEMENTATION

- The survey team of the Karas region, after discussion with the CAET (Acting CAEO), decided to make use of people already trained in surveying methods and who have an agricultural background so as to limit the problems regarding work ethics, attention to detail and others which might jeopardise the authenticity of the whole process.
- After deliberations it was decided to make use of the clerical assistants of the ADC's in the region as they know the region very well, are fluent in English, Afrikaans and Nama, and have the skills and educational background to cope with problems on their own. Care was taken to minimise bias by not letting extension staff be present at interviews so that farmers had to complete the forms on their own.



Figure 5: The enumerators

- One day was set out to familiarise the enumerators with the content of the questionnaire, the necessity of being very precise in completing these forms as well as the steps used to do such interviews. Communities were informed of the survey and the reasons for conducting it by radio and through community visits. We also explained thoroughly why only a sample was interviewed and that not being interviewed does not mean that they have been forgotten.

5.6 QUESTIONNAIRE IMPLEMENTATION

- A total of 10 working days was set out to complete the survey in the Karas region
- The first day was used to train the enumerators whilst the other nine were used to complete the questionnaires; this meant that 14 questionnaires were completed on average every day.
- This meant that on average a questionnaire took \pm 45 minutes to complete but the whole interview took nearer to 1 ½ hour to conclude.
- No practical problems were encountered other than people not being at home and to again realise what long distances the extension staff have to cover to do their job.
- The total number of kilometres travelled to complete the survey added up to **4804** kilometres.
- The following table is a breakdown of the costs to do the survey:

ITEM	UNIT/N\$	N\$
Enumerator remuneration	4 X 10 days X N\$ 200.00 / day	N\$ 8 000.00
Transport	4 804 kilometres X N\$ 2.10 / km	N\$ 10 088.40
Materials	Pens, Papers, etc	N\$ 500.00
TOTAL		N\$ 18 588.40



Figure 6: One of the enumerators with some farmers

5.7 DATA ANALYSIS:

Data entry and analysis was undertaken in Windhoek by contracted services. Questionnaires were inspected for errors, double responses, omissions, unanswered questions and general completeness prior to data entry, and where necessary the corrections were made. Coding of responses for some questions that were not pre-coded was done.

Trained data entry assistants transferred the data from the questionnaires into Microsoft Excel. Data analysis was done using Statistical Package for Social Sciences (SPSS) software. The data was transferred from Excel to the SPSS templates. This involved matching the cases and variables from Excel with those defined in SPSS data file. Using SPSS, the initial frequency tables covering all the defined variables per region were generated. These frequency tables were checked for errors, by inspecting values in each column against the codes for each response in the SPSS data file, and tracing the error to the specific source questionnaire. The necessary corrections were made to the data file based on information found on the questionnaire.

The corrected data set was used to generate preliminary frequency tables for all variables for the region and these tables were circulated to Region Survey Officials for review and comments during a two-day workshop. The Regional Survey Officials provided clarity on some errors in particular omissions/ unanswered questions and inconsistencies based on their knowledge of

extension in their regions. After the workshop, the comments from regional officials were used in making final corrections to the data set.

Lastly, final frequencies and cross-tabulations were established on the data, and where applicable multivariate analysis was conducted. In addition, appropriate graphics in the form of simple bar graphs, clustered bar graphs and pie charts for selected variables or survey questions were generated to complement the findings presented in the final tables.

The final tables and graphics were sent back to the regions, together with the completed questionnaires, so that report preparation could be completed.

PART THREE

6 SURVEY FINDINGS

As already noted in section 5, the sample of the regional population that the questionnaire was applied to was selected randomly. This section of the report presents information on important characteristics indicating the types of farmers which comprise the sample. These questions are asked (i) as a check on the representativeness of the sample, and (ii) in some cases to learn more about the farmers.

The information presented below, should help us to judge the extent to which the sample was in fact representative of the entire farming community in the region. Based on our previous knowledge of farmers in the region, it can be concluded that the randomly selected sample was indeed reasonably representative. In addition, it will be important to ensure that, when the impact survey is conducted (planned for 2006/07), the sample then selected displays similar characteristics.

If it were found that the characteristics of the farmers, as sampled in either the baseline or the impact survey to follow, were significantly different from those of the community as a whole (i.e. were not representative) or from each other, this could compromise the findings of the survey related to extension - farmer contact (see 6.2) and extension impact (see 6.3). This is because responses to questions on indicators of extension – farmer contact and of extension impact may be influenced by the characteristics of the farmers, as below. For instance, if the farmers sampled all lived less than 5 kilometres from the ADC, one could say this is not representative of the whole region’s population. Further, it is obvious, that one would expect this to have an influence on extension – farmer contact and impact. Likewise, to a greater or lesser extent, with all the characteristics reported on before.

6.1 FARMER TYPE

6.1.1 Distance from ADC

Table 4: Distance from ADC

Variable	Category	Percent of Households
Distance from ADC	0-10 Km	3.2%
	11-50Km	65.3%
	>50Km	31.5%

Finding: More than 95% of the interviewed farmers live more than 10 km away from the ADC. One can assume it is not easy for these farmers to reach the ADC.

Conclusion: Extension should increase efforts to reach the farmers through field visits and mass media (most importantly newsletters and radio).

6.1.2 Type of communal area

Table 5: Type of communal area

Variable	Category	Percent of Households
Open or Fenced Communal area	Open communal area	70.2%
	Fenced communal area	29.8%

6.1.3 Sex of Respondents

Table 6: Sex of respondents

Variable	Category	Percent of Households
Sex of Respondents	Male	62.9%
	Female	37.1%

6.1.4 Age of Respondents

Table 7: Age of respondents

Variable	Category	Percent of Households
Age of respondent	<24	6.5%
	25-44	25.8%
	45-64	41.1%
	>65	26.6%

Finding: 2/3 of interviewees are older than 45 years, and more than a quarter are older than 65 years of age.

Conclusion:

- Extension staff should take this into account when designing training activities, energisers etc. and make use of appropriate PRA tools.
- Older people are often more stuck in the ways which have always worked for them for decades and may be less interested and willing to adopt new technologies.
- This may also be a sign that mainly the older people are remaining in the rural areas with the younger people moving away in search of employment. The young people that moved away don't always find a job and then live unemployed on the fringes of nearby towns. Maybe a campaign or training programme designed to draw young people back to the rural areas where they could become productive farmers is something to be considered?

Remark: We believe now that categories of age : <24, 25-40, 40-50, 50-60 and >60 might have been a better choice. For one, we would have known the percentage of pensioners, since 60 is the age at which one can receive a pension.

6.1.5 Respondent type

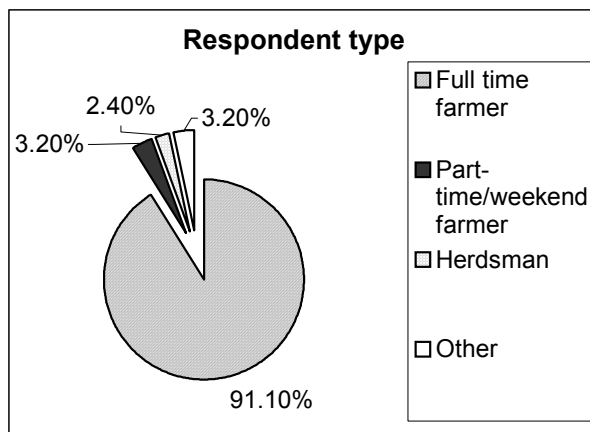


Figure 7: Respondent type

Finding: 91.1% of the respondents said that they are full-time farmers.

Conclusion: Extension can concentrate their activities during weekdays, as they will be able to reach almost all farmers.

6.1.6 Farm Labour

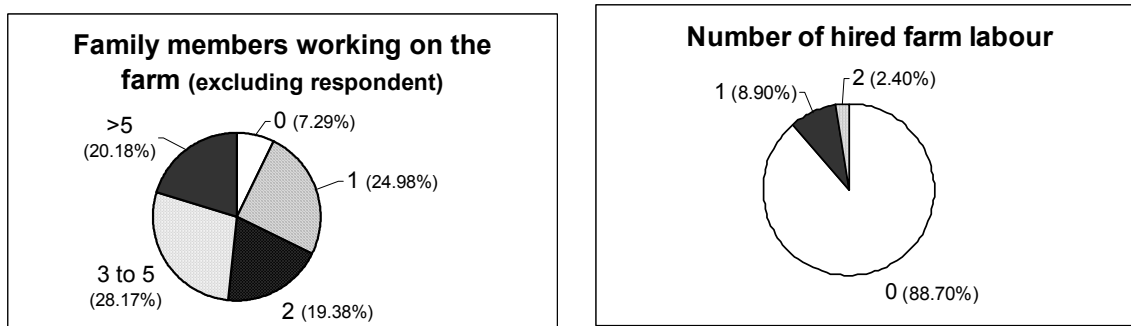


Figure 8: Number of family members and hired labour working on the farm

Finding: 88.7 % do not make use of any hired labour, but over 90% have at least one other family member working on the farm.

Conclusion: Training should target livestock owners and family members as they are – in most cases - doing all the labour (herding).

6.1.7 Education Levels

Table 8: Education level of the respondents and members of the household

Variable	Category	Percentage of Households
Education level of respondent	No school	17.7%
	Primary	54.8%
	Part secondary	22.6%
	Secondary	4.0%
	Above secondary	.8%
Highest education level of a member in the household	No school	2.4%
	Primary	11.3%
	Part secondary	33.9%
	Secondary	38.7%
	Above secondary	13.7%

Finding: Over 70% of the correspondents only received primary education or no education at all. One can assume that most of them can read, write and perform simple calculations, but one can also assume that this is only so on a very basic level.

Conclusion:

- Extension staff should limit the use of scientific language during activities with communal farmers and should increase the use and quality of visual aids even further.
- Relevant participatory tools and techniques e.g. role play may need to be adopted by extension staff.

6.1.8 Years of farming experience

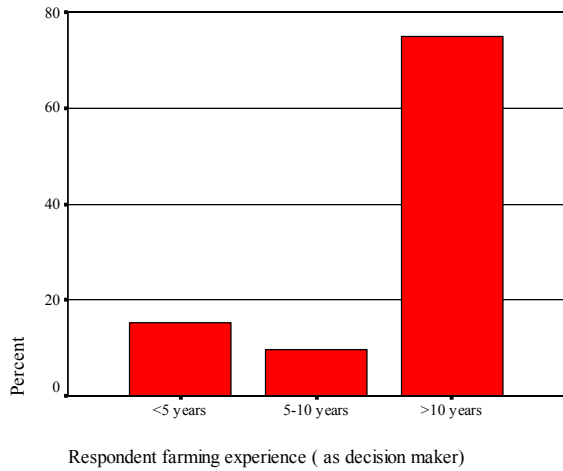


Figure 9: Years of farming experience of respondents

Findings: 75% of the respondents has over 10 years of farming experience (in the role of the decision maker), 9.7% has between 5 – 10 years of experience and only 15.3% has less than 5 years experience.

Conclusion: The high level of experience can be linked to the age of the respondents (see 6.1.4).

6.1.9 Basic household needs

Table 9: Farming satisfies basic household needs

Variable	Category	Percentage of Households
Farming satisfies basic household food needs	Yes	67.7%
	No	29.8%
	Don't know	2.4%

6.1.10 Livestock Ownership

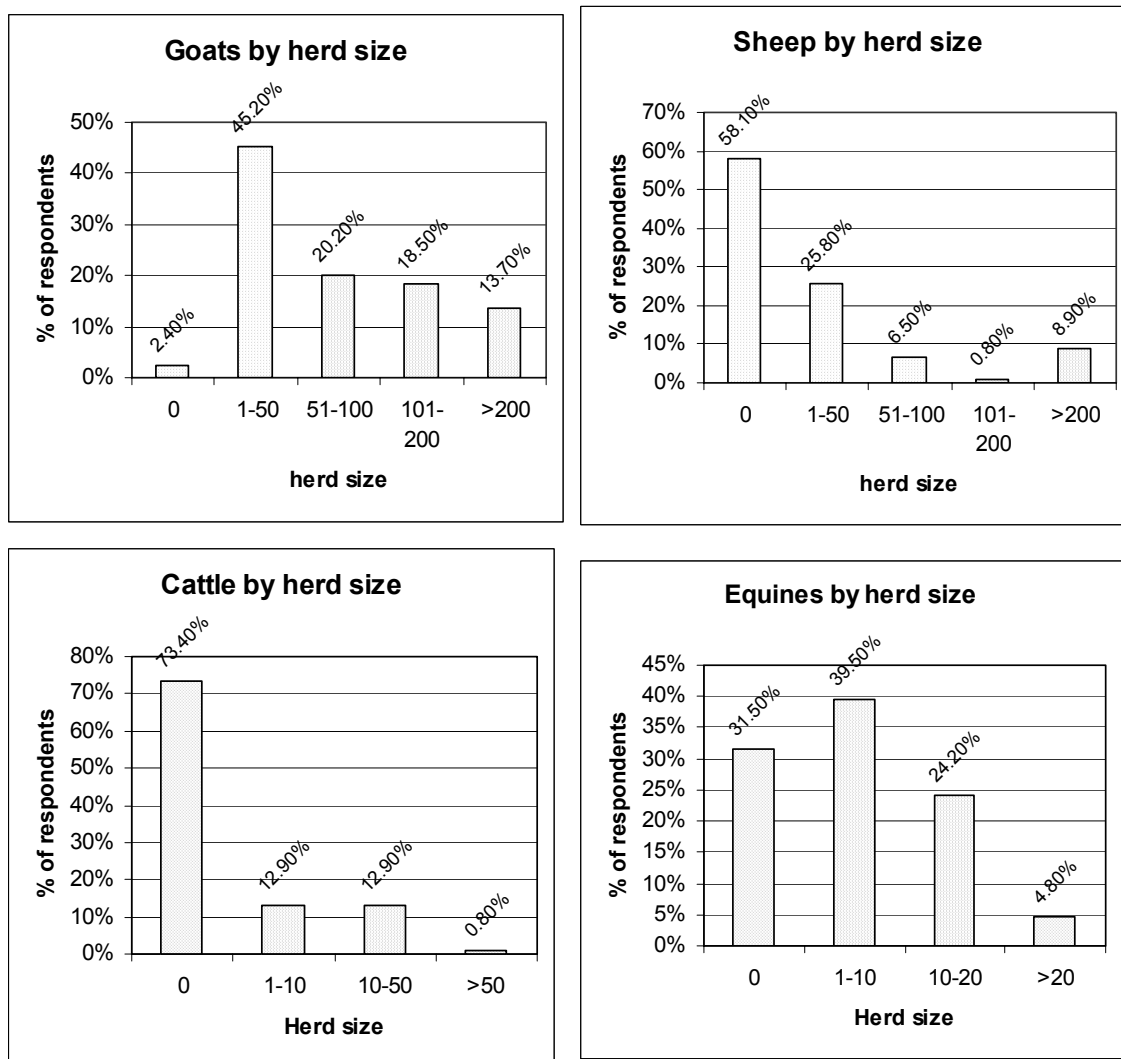


Figure 10: Goats, sheep, cattle and equines by herd size

Findings:

1. Most farmers only own limited numbers of livestock e.g. goatherds mostly number 1-50.
2. Over 70% of respondents do not own cattle, almost 60% do not own sheep, whereas only about 2% do not own goats.
3. Almost 70% of respondents own equines (horses and /or donkeys)

Conclusion:

1. Extension should concentrate on improving the quality of production and management as to maximise income from small herds.
2. Goat production is the most important livestock production in the communal areas of Karas region.
3. Extension activities related to equines should become part of the work of DEES Karas region.

6.1.11 Other Income Sources

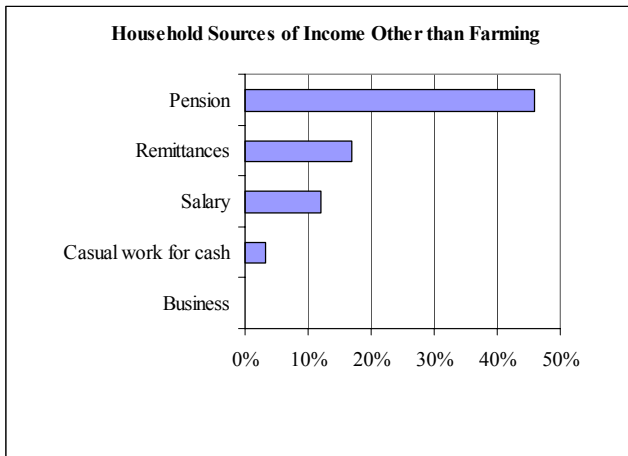


Figure 11: Household income sources other than farming

Findings: 46% of the respondents said pension was a source of income for their household, 16.9% of the households rely on remittances, 12.1% of respondents households receive a salary and 3.2% do casual work for cash. None of the respondents own a business or shop and none provide casual work for food. 13.7% of respondents' households have no other source of income than farming.

Conclusions: the high % of pensions can again be linked to the age of the respondents (see 6.1.4)

6.2 FARMER EXTENSION CONTACT

Questions reported on in this section aim to indicate levels of contact between farmers and the extension services, by various means. Such contact is the first stage and is indeed a pre-requisite to extension work having an impact on farmers.

6.2.1 Agricultural Extension Technicians

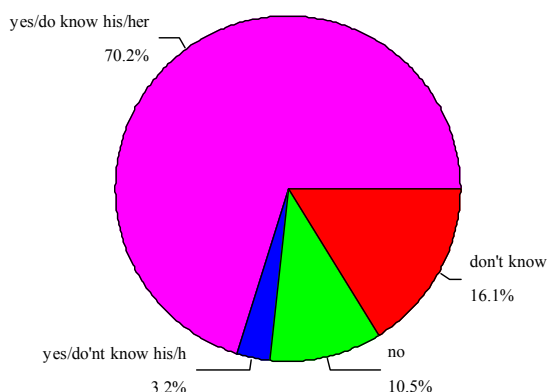


Figure 12: Extensionist (AET) exists and works in the area

Table 10: Information received from extension

Variable	Category	Percent of Households
Has met and received information from AET/extension in last year	No	61.3%
	1-3 times	33.1%
	>3 times	5.6%
Useful ness of information given by the extensionist	Quite useful	2.4%
	Very useful	37.1%
	Not applicable	60.5%

Finding: over 70% of interviewees know the extensionist of the area by his or her name, but over 60% of the interviewees did not receive any information or meet with the extensionist during the past year.

Conclusion: Reaching all the farmers in the ward personally in the course of one year is not always possible, particularly taking into consideration the distances to be covered. But extension should continue efforts to reach all farmers, if not through field visits, then through mass media.

6.2.2 Attendance and usefulness of Agricultural Extension Activities in 2002

Table 11: Extension activities attended in 2002

Variable	Percentage of Households
Has attended farmers days in 2002	27.4%
Has attended training sessions in 2002	22.6%
Has attended agricultural demonstration in 2002	8.1%
Has attended agricultural shows in 2002	7.3%
Has attended promotion days in 2002	4.8%
Has attended exposure trip in 2002	4.0%

Table 12: Reasons why extension activities 2002 were not attended

Reasons why not attended agricultural extension activities in 2002	Percentage of respondents
Not informed	22.6%
Time constraint	17.7%
Too far away	4.8%
No interest	.8%
Not concluded	34.7%

Table 13: Usefulness of attended extension activities

Variable	Usefulness	Percentage of respondents
Farmers' days	Very useful	88.3%
	Quite useful	2.9%
Training sessions	Very useful	100%
	Quite useful	0%
Agric. Demonstrations	Very useful	90.1%
	Quite useful	0%
Agricultural Shows	Very useful	76.7%
	Quite useful	0%
Promotion days	Quite useful	50.0%
	Very useful	50.0%
Exposure trips	Very useful	80.0%
	Quite useful	20.0%

Findings:

1. Farmers' days had the best attendance percentage among the respondents.
2. Over 22% of respondents attended an agricultural training session during 2002 – all of them said they were very useful.
3. Although the attendance rates were very low in 2002, agricultural demonstrations and exposure trips are also highly rated by those respondents who did take part in these activities.
4. 22.6% of respondents say that they did not attend activities because they were not informed.
5. The second most important reason for not attending events is lack of time.

Conclusions:

1. The attendance rate of farmers' days is the highest, which implies that a farmers day would be a good occasion for extension staff to meet with their farmers. Extension staff should be encouraged to attend and contribute to all farmers' days held in their ward.
2. Continue offering training sessions, as is done now i.e. making use of the PFTD-principles.

3. In these cases, the low attendance rates more than likely mean that the events did not take place very often. Since they are valued very much, extension in Karas region should organise more demonstrations and exposure trips.
4. This could mean one of two things: they were not informed because the activity was not held in their area or they were truly not informed. It is probably a combination of both. It is not possible to reach all communities with all activities during one year. Since a large percentage of respondents listens to the radio (see 6.2.3), extension activities in the Karas region could be announced on the radio.
5. The fact that 17.7% of respondents cited time constraints as the reason for not attending could mean extension activities are taking place at a bad time or are too long.

6.2.3 Radio

Table 14: Agricultural information heard on radio in 2002

Variable	Category	Percent of Households
Heard agric information on the radio in the last year.	Weekly	62.1%
	Monthly	12.9%
	Less than monthly	1.6%
	No	19.4%
	No access	4.0%

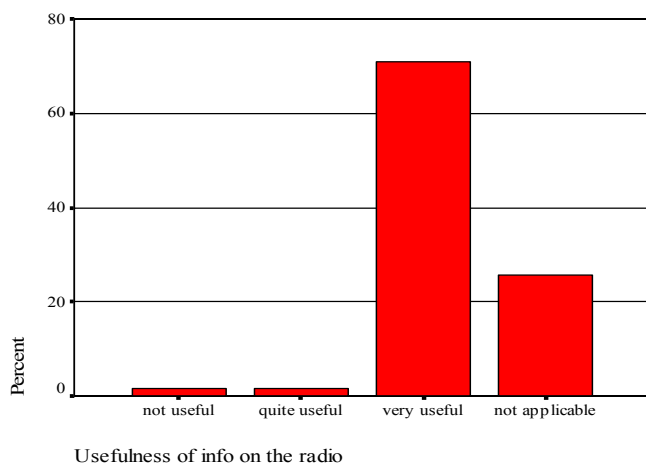


Figure 13: Usefulness of agricultural information on the radio

Findings: Over 60% of respondents hear agricultural information on the radio weekly. Over 70% of the respondents could give an example of the information heard on the radio and over 90% of the respondents that do listen to the radio, find the information given very useful.

Conclusion: The production of agricultural programmes in Nama by mass media member and colleagues should continue, increase and receive fullest support.

6.2.4 Sources of agricultural information

Table 15: Sources of agricultural information

Source of agricultural info	Percentage of respondents	Percentage of respondents seeing it as the primary source
Radio	81.5%	65.3%
AEO/AET	36.3%	12.1%
Agricultural newsletters	18.5%	3.2%
Other farmers	16.1%	6.5%
Friends / relatives	8.1%	3.2%
Group member	1.6%	1.6%
TV	1.6%	0%
Leaflets/posters	0.8%	0%
Other	10.5%	6.5%

Findings: Radio is by far the most important source of agricultural information, followed by the agricultural extension technicians (AET) and the newsletter. For over 65% of respondents, radio is the primary source of agricultural information.

Conclusions: This finding underlines once more the importance of radio as a source of information. Radio production should continue, increase and receive fullest support. (see also 6.3.2 : radio as most important source of animal health information)

It is also important to note, however, that information heard on the radio and via direct AET – farmer contact, fulfil different and complementary roles. Radio is suitable as a source of news and information of immediate relevance, and for creating awareness of farming innovations. On the other hand, AET interventions are aimed at increasing understanding of a new innovation, developing associated skills, encouraging testing of an innovation by farmers, and finally supporting adoption by the farmer. One could conclude that radio production and AET contact should go hand in hand.

6.2.5 Community Based Organisation

Table 16: Participation of respondents in community based organisations

Type of CBO	Percentage of respondents
Participates in FED/Water Point Committee-Association	87.1%
Participates in Farmer's association	20.2%
Participates in Conservancy	12.9%
Participates in Community Development Committee (CDC)	11.3%
Participates in Farmers' project group	7.3%
Participates in other association	2.4%

Table 17: Extension support to community based organisations

Variable	Category	Percentage of Households
Group received support from Extension in 2002	Yes, several times	21.8%
	Yes, once	15.3%
	No	46.0%
	Do not know	16.9%

Findings: Over 80% of respondents participate in a water point association. Participation in other forms of organisation is limited (second in line are farmers' associations with 20% of respondents participating). 46% of respondents stated that their organisation had not received extension support during 2002.

Conclusions: Continue to work with existing WPA's as is done at present, since WPA's are the most common form of organisation. Try to encourage other forms of community based organisation and community action planning. Increase assistance to groups in general.

6.2.6 The role of Extension and Farmer in the extension process

Table 18: Role of extension and farmer in the extension process

Variable	Category	Percent of Households
Decision maker's role	Farmer	98.4%
	Extensionist	0%
	Both	.8%
	Do not know	.8%
Facilitator's role	Farmer	44.4%
	Extensionist	50.0%
	Both	2.4%
	Do not know	3.2%
Listener's role	Farmer	65.3%
	Extensionist	8.9%
	Both	24.2%
	Do not know	1.6%
Observer's role	Farmer	76.6%
	Extensionist	6.5%
	Both	15.3%
	Do not know	1.6%
Implementer's role	Farmer	91.9%
	Extensionist	3.2%
	Both	3.2%
	Do not know	1.6%
Advisor's role	Farmer	3.2%
	Extensionist	92.7%
	Both	2.4%
	Do not know	1.6%

Finding: Almost all respondents see the farmer as the decision maker and the implementer.

Conclusion: This shows that farmers are comfortable in that role and extension is not working 'top down'. The farmers do not see themselves only as listeners.

6.3 EXTENSION IMPACT

The section reports on indicators of extension impact in terms of farmer awareness, farmer understanding, farmer attitudes and farmer adoption of specific extension recommendations relating to key farming issues in the region. Readers are referred to section 2.2. for further discussion of the issue of extension impact indicators. Questions on four main management areas in small stock production were included in the questionnaire. These management areas are breeding and selection, animal health, livestock marketing and rangeland management.

6.3.1 Breeding and Selection

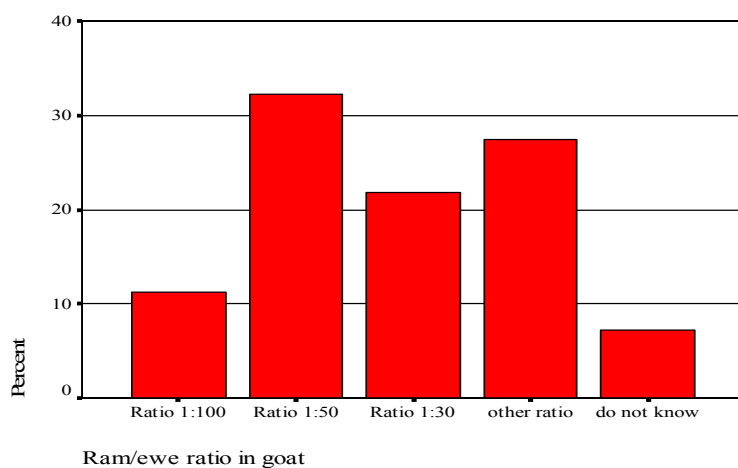


Figure 14: Ram / ewe ratio for goats

Finding: The ram-ewe ratio in goats should be between 1:30 and 1:50. Over 50 % of respondents gave the correct answer.

Conclusion: This extension message was spread quite widely over the past years, which might explain the rather high amount of correct answers. It can be expected that the percentage of correct answers will be even higher in a few years time. One could say that some of the other areas of animal husbandry should receive more attention – this specific topic less.

Remark: Almost 30% of respondents gave an answer other than the ones provided. It could be that a large part of these answers fall within the 1:30 to 1:50 interval and are therefore to be added to the percentage of correct answers.

Table 19: Record Keeping Practice

Variable	Category	Percent of Households
Use written record keeping system	Yes	29.0%
	No	71.0%

Finding: Only 29.0 % of respondents make use of a written record keeping system.

Conclusion: AEO / AETs should emphasize the need and the usefulness of record keeping as a management tool and the development of a simple record system should be a priority.

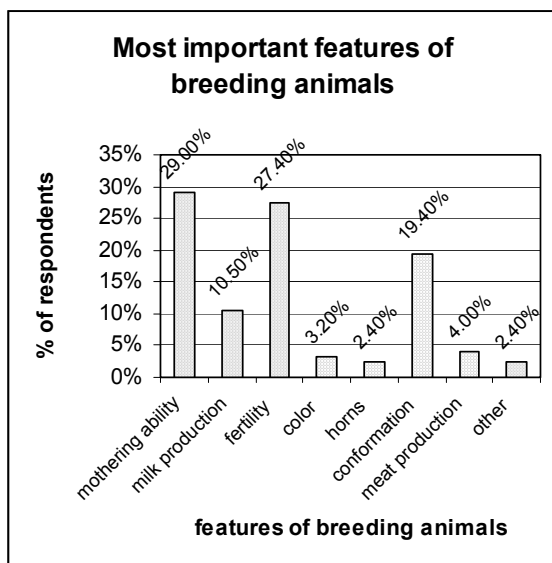


Figure 15: Ranking of features of breeding animals by importance

Findings: Mothering ability, fertility, conformation and milk production were the 4 features ranked most importantly by the correspondents.

Conclusion: This shows that farmers have a good knowledge of the features to look at in breeding animals. Meat production, although it is an important feature was only ranked most important by 4% of the farmers, but 46% of the farmers did answer yes when asked if it was an important feature (this question was posed before they were asked to rank them).

6.3.2 Animal health

Table 20: Sources of animal health information

Source of information	Percentage of respondents	Percentage as primary source
Radio	62.6%	31.5%
Myself	54.0%	36.6%
Extension	33.9%	8.9%
Other Farmers	21.0%	4.8%
Animal health inspector	16.1%	4%
Agra	15.3%	8.9%
Other	4.8%	3.2%

Findings:

- The radio is seen as the most important source of animal health information with the farmer himself and AEO / AET ranking second and third respectively.
- The animal health inspector is seen as a source of information on animal health by 16.1% of respondents and only 4% sees him as the primary source.

Conclusions:

- Once again this emphasises that the production of agricultural programmes in Nama by the mass media staff member and colleagues should continue, increase and receive fullest support.
- By drawing the animal health inspectors and their expertise into the extension training activities, their involvement in spreading animal health information will increase. The fact that animal health inspectors rank so low suggests that they should be drawn in to Extension training sessions more frequently.

6.3.3 Livestock marketing

Table 21: Livestock Marketing Practice

Variable	Category	Percent of Households
Time when livestock is usually sold	As needs for money arise	82.3%
	When prices are high	8.1%
	When animals reach marketing condition	5.6%
	Other	4.0%

Finding: 82.3 % of respondents say that the need for money is their incentive to do marketing.

Conclusion: The proper use of marketing strategies and information to maximize income (like making use of animal weights and condition to determine prices) should be one of the main extension messages in communal areas.

Table 22: Livestock Marketing Channels

Marketing channel	Percentage of respondents
Sell at auctions	75.0%
Sell on-farm to speculators	37.9%
Sell at abattoir (slaughter)	4.0%
Sell at permit days	2.4%
Sell through other methods	7.3%

Findings: 75% of the respondents sell livestock at auctions. 37.9% of respondents sell to speculators who come and buy livestock on the farm.

Conclusion: Although the number of respondents selling at auctions is very high, there is still almost 40% of these farmers that sell livestock to speculators. Prices they will receive from speculators are lower than what they would get at an auction, but for going to an auction one will have transport costs to keep in mind.

Remark: These figures do not give a complete picture, because they do not show through which marketing channel most animals are sold e.g. a respondent might sell 2 animals on auction and 40 to a speculator a year.

6.3.4 Range Management

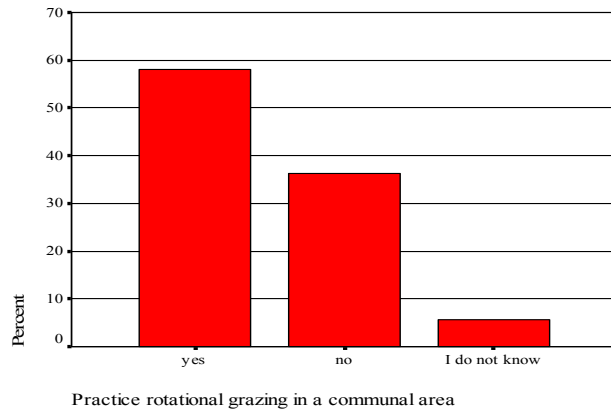


Figure 16: Possibility of practicing rotational grazing in a communal area

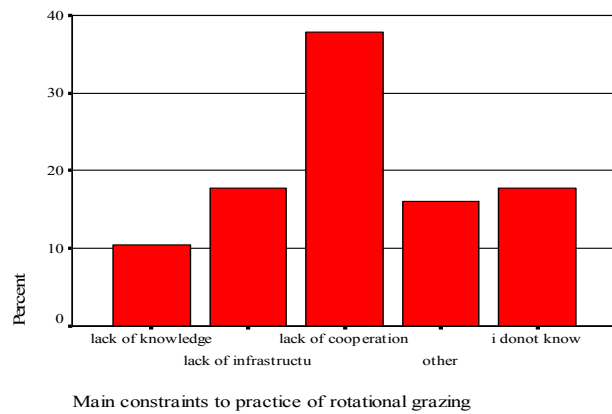


Figure 17: Main constraints in practicing rotational grazing in communal areas

Findings: Over 50 % of the respondents believe it is possible to practice rotational grazing in open communal area. Nearly 40% of them saw lack of cooperation as the main constraint for practicing rotational grazing.

Conclusion: Extension should facilitate the process of organisation for practicing rangeland management for those communities that show an interest.

6.4 TOPICS ABOUT WHICH FARMERS WANT INFORMATION

Table 23: Topics on which farmers want more information in order of importance

Variable	Category	Percentage of Households
Ranking of disease prevention and treatment info	Primary	50.8%
Ranking farm management info	Primary	20.2%
Ranking of animal selection info	Primary	8.1%
Ranking rotational grazing info	Primary	2.4%
Ranking veld evaluation info	Primary	2.4%
Ranking use of animal weights info	Primary	2.4%
Ranking vegetable gardening info	Primary	2.4%
Ranking record keeping info	Primary	.8%
Ranking of value of grazing and browsing plants	Primary	.8%
Ranking other info	Primary	7.3%

Findings:

- Topics on what farmers want more information are ranked as follow:
 1. Prevention / Treatment of Diseases.
 2. Farm management.
 3. Animal selection.
 4. Rangeland management practices.
- Over 50% of farmers want more information on prevention and treatment of diseases

Conclusion:

- These topics are currently already covered in most of the farmers' trainings offered. These farmers' trainings are diagnosed, planned, designed, implemented and evaluated according to the principals covered in the PFTD training (participatory farmers training design) which technicians underwent in 2001. It shows that extension is on the right track with it's farmers' trainings and should continue offering them.
- Extension should plan and work together with Veterinary services to address this need expressed by the farmers.

6.5 MAIN CONCLUSIONS

In this part, some of the main conclusions, which can be drawn from the baseline survey, are highlighted. Should you want more detailed conclusions, please refer to the specific findings and conclusions under 6.1 to 6.4.

There are a number of significant conclusions that can be deduced from the Baseline Survey data. However, it needs to be pointed out that there could be other factors not taken into account in this survey that could have led to some of the responses that were given. This is a problem of the quantitative research tradition in general.

Although the attitudes and practices of respondents at the time of the survey are validly represented by the data generated, a survey of this kind cannot adequately identify and explain historical as well as other significant structural influences affecting farmer's agricultural practices.

6.5.1 Farmer Type

- More than 95% of the interviewed farmers live more than 10 km away from the ADC. One can assume it is not easy for these farmers to reach the ADC. Extension should therefore increase efforts to reach the farmers through field visits. This is also a first finding in favour of use of mass media (most importantly radio and newsletters) to reach farmers.
- Two thirds of interviewees are older than 45 years. Extension staff should take this into account when designing training activities, energisers etc. and make use of appropriate PRA tools. Older people are often more stuck in the ways which have always worked for them for decades and may be less interested and willing to adopt new technologies. This may also be a sign that mainly the older people are remaining in the rural areas with the younger people moving away in search of employment. The young people that moved away don't always find a job and then live unemployed on the fringes of nearby towns. Maybe a campaign or training programme designed to draw young people back to the rural areas where they could become productive farmers is something to be considered?
- 91.1% of the respondents said that they are full-time farmers so extension can concentrate their activities during weekdays, as they will be able to reach almost all farmers.
- Over 70% of the correspondents only received primary education or no education at all. One can assume that most of them can read, write and perform simple calculations, but one can also assume that this is only so on a very basic level. Extension staff should limit the use of scientific language during activities with communal farmers and should increase the use and quality of visual aids even further. Relevant participatory tools and techniques e.g. role-play may need to be adopted by extension staff.
- Most farmers farm with goats and mostly with small herds mostly numbering less than 50. Extension should concentrate on improving the quality of production and management to maximise income from small herds.
- Almost 70% of respondents own equines (horses and /or donkeys). Extension activities related to equines should become part of the work of DEES Karas region.

6.5.2 Farmer Extension Contact

- Over 70% of interviewees know the extensionist of their area by his or her name, but over 60% of the interviewees did not receive any information or meet with the extensionist during the past year. Reaching all the farmers in the ward personally in the course of one year is not always possible, particularly taking into consideration the distances to be covered. But extension should continue efforts to reach all farmers, if not through field visits, then through mass media.
- More than 20% of respondents attended an agricultural training session during 2002 – all of them said they were very useful. These farmers' training sessions are diagnosed, planned, designed, implemented and evaluated according to the principals covered in the PFTD training (participatory farmers training design) which technicians underwent in 2001. It

- shows that extension is on the right track with its farmers' training and should continue offering them.
- Agricultural demonstrations and exposure trips are highly rated by the farmers so extension in Karas region should organise more of them.
 - **Probably the most important finding of this questionnaire** is the overwhelming importance of radio for the farmers of this region: over 60% of respondents hear agricultural information on the radio weekly, for over 65% of respondents, radio is the primary source of agricultural information and, more specifically animal health information. Increasing the amount of radio programmes and their quality might be the most efficient way of reaching the farmers of the Karas region. No efforts should therefore be spared by the extension staff of the region, and not just the mass media member, to improve the quality and quantity of the agricultural programmes in Nama. Support should be given, both technically and budgetary, to new ideas brought forward by the mass media member e.g. setting up radio listening groups, radio drama and question and answer time on NBC radio. It is also important to note, however, that information heard on the radio and via direct contact fulfil different and complementary roles. Radio is suitable as a source of news and information of immediate relevance, and for creating awareness of farming innovations. On the other hand, AET interventions are aimed at increasing understanding of a new innovation, developing associated skills, encouraging testing of an innovation by farmers, and finally supporting adoption by the farmer.
 - The most common form of community based organisation is the water point association. Participation in other forms of organisation is limited. 46% of respondents stated that their organisation has not received extension support during 2002. Extension should continue to work with existing WPA's as is done at present but should also try to encourage other forms of community based organisation and community action planning.

6.5.3 Extension Impact

Questions on four main management areas in small stock production were included in the questionnaire. These management areas are breeding and selection, animal health, livestock marketing and rangeland management.

Breeding and selection

The knowledge and practices of the farmers regarding to breeding and selection were quite good, with one main weak point, namely keeping of written records. Extension messages with regard to animal breeding and selection were spread quite widely over the past years, which might explain the rather high amount of correct answers. It can be expected that the percentage of correct answers will be even higher in a few years time. One could say that some of the other livestock management should receive more attention – this specific management area less. AEO / AETs should emphasize the need and the usefulness of record keeping as a management tool and the development of a simple record system should be a priority.

Animal health

The radio is seen as the most important source of animal health information whereas the animal health inspector is seen as a source of information on animal health by only 16.1% of respondents and only 4% sees him as the primary source. By drawing the animal health inspectors and their expertise into the extension training activities and radio programmes, their involvement in spreading animal health information will increase.

Over half of the farmers want more information on prevention and treatment of diseases. This would again suggest involvement of Veterinary Services.

Livestock marketing

The fact that more than 80% of farmers sell livestock whenever the need for money arises and almost 40% sell to on-farm speculants, suggests that farmers' knowledge on marketing is very poor, resulting in considerable loss of income for the farmer. Although farmers did not express a high interest in receiving more information on marketing, this could mean that it is simply a "new technology" for most. Ways and means to introduce farmers to new information about marketing strategies should therefore be investigated, tested and implemented.

Rangeland management

The knowledge of farmers on rangeland management is quite good. Over 50 % of the respondents believe it is possible to practice rotational grazing in open communal area. Nearly 40% of them saw lack of cooperation as the main constraint for practicing rotational grazing.

Extension may respond to this by facilitating the process of organisation for practicing rangeland management for those communities that show an interest.

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