A SOCIO-ECONOMIC ANALYSIS OF SMALLHOLDER AGRICULTURE IN LEBOWA

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PRETORIA

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"Africa is the only continent where the peasants have not yet been captured by other social classes. By being owners of their own means of production, the many smallholder peasants in Africa have enjoyed a degree of independence from other social classes large enough to make them influence the course of events on the continent"

Goran Hyden
(1980)

"These societies are more human than those where the law of value prevails, but they are at the same time less efficient"

Karl Polányi
(1957)

Dedicated to the Dearest of my childhood and to the Dearest of my manhood, – each of whom I owe so much in different ways.

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T. I. F.

ABSTRACT

A SOCIO-ECONOMIC ANALYSIS OF SMALLHOLDER AGRICULTURE IN LEBOWA

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The smallholders of Lebowa are not idealists farming for the good of the nation; they are farming for survival, and any plan for the agricultural sector must be in harmony with the hopes and aspirations of these farm people. The conceptual background was build around Mosher's philosophy of areas with different growth potentials and the Lebowa government's declared development policy. Following these guidelines, an attempt was made to divide Lebowa into three area types according to different growth potentials. The methodology of the division of areas was adjusted to place more emphasis on the human factor.

Smallholders were divided into two groups: Group A (Immediate Growth potential areas) and Group B (Future and Low Growth potential areas). Group A farmers were found to be more settled with stronger traditional structures and are generally speaking more satisfied with the present state of affairs. They enjoy higher welfare levels. They are generally more conservative but sometimes also more rational than Group B farmers.

The smallholders have little knowledge on the ecologically possible carrying capacity of grazing and their aspirations are unrealistically high. Non-traditional leaders regard lack of incentives, for example too small arable fields, inadequate markets, credit etc. and the subsistence base of the present social order, as major causes of low productivity. They generally have a very low opinion of traditional leadership. The level of rural off-farm employment, especially for Group A, is low and compares unfavourably with many African countries. A large variety of crops is grown and intercropping is common.

In stock farming, the smallholders have demonstrated positive response to price changes both in numbers and in percentages of stock sold. Overgrazing is a growing problem, and the pursuance of a production oriented extension programme is in danger of being counter-productive, because this enables smallholders to build up larger herds. This is likely to occur as long as arable and grazing land is communal or free, even if agricultural production will be significantly directed towards the market. Livestock is perhaps the only investment alternative open to many Lebowa farmers. This suggests that alternative investment opportunities must be created. This will require modification in the direction of flow of capital between different sectors by creating opportunities to invest in agricultural and agro-based production or financial institutions. Extension efforts should concentrate more on livestock quality which, coupled with progressive farming practices should lead to reduced livestock numbers.

The low level of market orientation can partly be explained by underdeveloped marketing and credit institutions.

The Lebowa smallholders and their non-traditional leaders gave a clear mandate for land tenure reform. The traditional leaders are in many respect more progressive than popular belief will suggest, but are hesitant in this regard.

SAMEVATTING

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Die kleinboere van Lebowa is nie idealiste wat boer ter wille van die nasie nie: hulle boer vir oorlewing, en enige plan vir die landbousektor moet in harmonie wees met die hoop en aspirasies van die kleinboeregemeenskap.

Die konseptuele agtergrond is gebou om Mosher se filosofie van gebiede met verskillende groeipotensiale en die verklaarde ontwikkelingsbeleid van die Lebowa Regering. In navolging van hierdie riglyne is 'n poging aangewend om Lebowa te verdeel in die gebiedtipes volgens verskillende groeipotensiale. Die metodologie is aangepas om meer klem te lê op die menslike faktor. Kleinboere is verdeel in twee groepe: Groep A (onmiddellike groeipotensiaalgebiede) en Groep B (toekomstige en lae groeipotensiaalgebiede). Dit is bevind dat Groep A boere meer gevestig is met sterker tradisionele strukture en dat hulle algemeen gesproke meer tevrede is met die huidige omstandighede. Hulle was meer welvarend as Groep B boere.

Die kleinboere het min kennis oor die ekologies moontlike drakrag van die weiveld en hul aspirasies is onrealisties hoog. Nie-tradisionele leiers beskou die tekort aan aansporing byvoorbeeld te klein bougrond, onvoldoende markte, krediet ensovoorts en die selfvoorsieningsbasis vir die bestaande sosiale orde as hoofoorsake van lae produktiwiteit. Hul opinie oor die tradisionele leierskap is algemeen laag. Die omvang van alternatiewe indiensneming is laag veral vir Groep A en vergelyk swak met baie Afrika lande. Groot verskeidenheid van gewasse word verbou en tussenryverbouing is algemeen.

In veeboerdery reageer die kleinboere positief op prys veranderings beide in getalle en in persentasies vee verkoop. Oorbeweiding is 'n toenemende probleem en die navolging van

'n produksie-georienteerde voorligtingsprogram loop gevaar om kontra-produktief te wees, aangesien dit kleinboere in staat stel om groter kuddes op te bou. Dit sal waarskynlik so wees solank bougrond en weiding kommunaal of gratis is, selfs as landbouproduksie betekenisvol markgeorienteerd word. Vee is miskien die enigste beleggingsalternatief beskikbaar vir baie Lebowaboere. Dit impliseer dat alternatiewe beleggingsgeleenthede geskep moet word. Dit sal verandering in die vloei van kapitaal tussen verskillende sektore benodig word deur die skepping van alternatiewe geleenthede om te investeer in landbou en landbou-gebaseerde produksie of in finansiële instellings. Voorligtingspogings behoort meer te konsentreer op veekwaliteit wat gesamentlik met progressiewe boerderymetodes behoort te lei tot verminderde veegetalle.

Die lae peil van markorientasie kan gedeeltelik verklaar word deur onderontwikkelde bemarkings- en krediet instellings.

Die kleinboere van Lebowa en hul nie-tradisionele leiers het 'n duidelike mandaat gegee vir grondbesettingshervorming. Die tradisionele leiers is in baie opsigte meer progressief as wat algemeen aanvaar word maar is huiwerig in hierdie verband.

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CHAPTER 1

INTRODUCTION

1.1 PURPOSE OF INVESTIGATION

In any empirical study, the theoretical approach should be firmly rooted in institutional reality, and this institutional reality in turn may to a certain extent be explained by the theoretical approach. (Lundahl, 1979: 37)

A plan for the agricultural sector constructed at the regional or national level, must therefore also be in harmony with the hopes and aspirations of farm people. The operational features of the plan must also be acceptable to farm operators. The professional staff in the agricultural sector has an important function in the total planning process by interpreting the hopes and aspirations of farm people to the central planners or policy makers.

Cochrane (1974: 158) states that: the small independent farmer, often illiterate, tends to be suspicious of anything that originates outside his village. Furthermore, he is not engaged in farming for the good of the nation; he farms to survive, and because of adverse natural forces and continuous economic pressures, he and his family are often barely able to survive. Thus, he will participate in a programme or respond to a policy in accordance with how he believes such programmes or policies will affect his survival. What he believes will in turn depend upon what he sees with his own eyes and the manner in which he is informed about the plan as it relates to him. It is not easy to integrate him into the various phases of an agricultural development plan as they relate to him in a particular place at a particular time. There can, however, be no implementation of any plan for the agricultural sector without that integration.

The main purpose of this investigation is thus to increase knowledge and understanding on how the smallholder agricultural sector of Lebowa looks and operates and thereby to assist the development and planning process.

1.2 NON-SMALLHOLDER – AGRICULTURE IN LEBOWA

Although this investigation is concerned with the smallholder agricultural sector of Lebowa,

its relation to the total agricultural scene is also important. Therefore, it is also relevant to describe non-smallholder agricultural projects and growth points. According to Van Marle (1980: 1–15) the Lebowa agricultural liaison committee identified the following projects or schemes as agricultural growth points:

1.2.1 Zebediela Citrus Estates

The company Zebediela Citrus (Pty) Ltd employs 1 900 people in a permanent capacity while during the packing season another 550 people are employed for 5 months. The ageing of citrus trees and the small fruit problem are responsible for gradual decreases in percentages of export fruit and decreased revenue. These two factors are receiving high priority attention.

1.2.2 Gillemberg Boerdery (Pty) Ltd – managed by the Corporation for Economic Development

This project employs 2 500 workers permanently and 800 temporarily during harvesting.

1.2.3 Steelpoort Valley – managed by the Lebowa Agricultural Company

Tswelopele serves as the core project for the existing irrigation scheme which includes the farms Praktiseer and Bothashoek in extent of 500 hectare. According to the Annual Report (1979–80) of the Lebowa Agricultural Company nine farmers have been settled. Their farms vary in size between 6 and 7 hectare. The company provides the farmers with credit, technical knowledge, marketing facilities, and production inputs such as seed and fertilizer. The labour force totals 60 permanent and 800 seasonal labourers. The crops grown are cotton, wheat, tobacco, pecan nuts and lucerne. The area under cotton for the 1978/79 season was 235 ha and yielded 607 115 kg or 2,58 tons of seed cotton per ha. The wheat crop for the 1979/80 season did well, although only 20 ha could be planted due to shortage of water during the winter months. Yield obtained was 79 849 kg (63,95 bags per hectare). Fixed capital invested in this project amounts to R812 600.

The goal is to retain Tswelopele as a core project and to settle commercial *bona fide* farmers on the remainder of all the other farms. When the proposed Steelpoort River dam is completed a total of approximately 6 000 hectare of land will be brought under irrigation and it is intended to have it settled by 1 000 commercial farmers.

1.2.4 Mapulaneng

This agricultural growth point includes Champagne (125 ha), the Dingleydale irrigation scheme (1 000 ha), the Zoeknog coffee project (200 ha) and the high rainfall area of Bosbokrand. The Marite River/Sand River complex has a potential of between 1 600 and 2 000 ha under irrigation.

1.2.5 Bochum/Blouberg Magalakwin

This project consists of the farms Avon, Innes, Fraaigesicht, Cleadon and Uitzoek, a total area of approximately 7 000 ha in the district of Bochum. Irrigation farming and ranching are practiced. Cotton, tobacco and potatoes are grown and a herd of 2 000 cattle is run. The area under cotton during the 1878/79 season was 133 ha, which yielded 423 921 kg, or 3,1 ton per ha. In the same season 69 ha of tobacco was planted, the yield being 75 430 kg. Due to quota restrictions only 40 ha of tobacco could be planted during the 1979/80 season. The potato crop yielded 85 129 pockets from an area of 80 ha. Capital invested amounts to R603 510. The total assets, at cost, amount to R1 429 750. Eighteen permanent workers and 350 seasonal labourers are employed.

1.2.6 Naphuno

This growth point includes a number of existing State and Farmer irrigation schemes. It has a great agricultural potential due to a frost free climate and reasonable rainfall, and has good water resources for irrigation. Naphuno includes well-known schemes such as:

- Tours Coffee: it is a irrigation project, 100 ha in extent. The aim of this project is to incorporate farmers in adjoining areas and to supply them with processing and marketing facilities, credit, planting material and know-how. Goals of this project also include training of farmers in the production of coffee. Approximately 230 labourers are employed daily. When the coffee comes into production the daily labour force during picking seasons will be approximately 400. The Tours Dam is high on the priority list. The irrigation land can be expanded to 500 ha for additional coffee and avocado production.

- Letsitele Farm: this is a 260 ha Citrus State farm.

- Strassbourg A: 230 ha Citrus State project.

1.2.7 Nebo

This growth point includes the Montevideo and Goedvertrouen irrigation schemes with 120 ha irrigation land.

1.2.8 Upper Olifants River

This growth point includes mostly irrigation land in the riverine area of the Olifants River. It includes:

- Coetzeesdraai: 600 ha for cotton, beans, wheat and maize.
- Adriaansdraai: a large area under permanent pasture for intensive milk production.
- South African Development Trust farms: 400 ha for cotton, beans, wheat and maize.

1.2.9 Lower Olifants River

This area includes two citrus projects, that is, The Willows and The Oaks. Up to the present, 70 ha have been developed. The Lebowa Agricultural Company has been requested to develop a further 120 ha under citrus and to provide a citrus packhouse. A water allocation to irrigate a further 700 ha of fertile soils has been made.

1.2.10 Lebowa hinterland

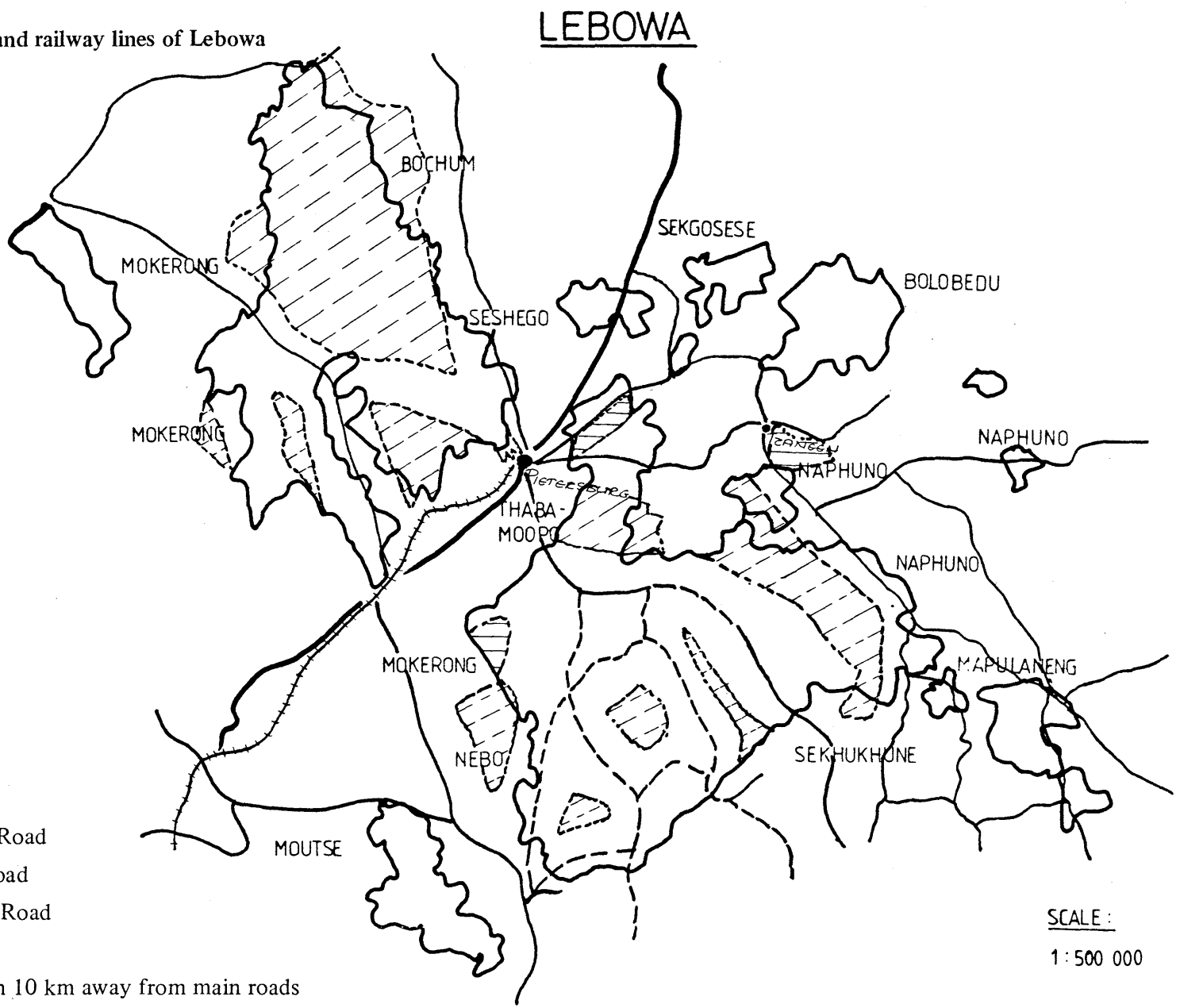
This is not a growth point in the real sense but covers the major area of Lebowa where the smallholder sector dominates the scene.

1.3 AGRICULTURAL POTENTIAL OF LEBOWA

According to the University of Pretoria's Agricultural Committee (Fölscher *et al.* 1980: 1–6) the overall subtropical climate of Lebowa, as influenced by topography, assigns a less favourable moisture regime to the North as compared to South Lebowa. The dominating natural vegetation is of "Mixed Bushfeld" type of intermediate to low carrying capacity. Approximately 350 000 hectares of arable land exist and 1 500 000 hectares of natural

grazing can permanently sustain about 210 000 animal units. Fölscher *et al.* (1980: 2) concludes that if the agricultural sector of Lebowa will by the year 2 000 be able to achieve yield practically feasible with 1980 technology, it should be able to feed the population quite adequately and, in addition to export approximately 290 000 tons of grain equivalents and 4 000 tons of meat. Present production provides only a small portion of food needs. The general problems presently hampering agricultural production in Lebowa include lacks in marketing infrastructure, in infrastructure relating to the provision of inputs, to poor communication (roads and railway lines – Map 1.1 –, telephones, postal services etc.), the relatively low water potential (Map 1.2) and under utilization of existing water resources. The small amount of towns and industries (Map 1.3) also present developmental problems and added to these, the lack of knowledge on modern farming technology, capital shortages, inadequate farm financing institutions and the absence of many prospective farmers. Important problems relating to land tenure and land use will be discussed in Chapter 9.

MAP 1.1 Roads and railway lines of Lebowa

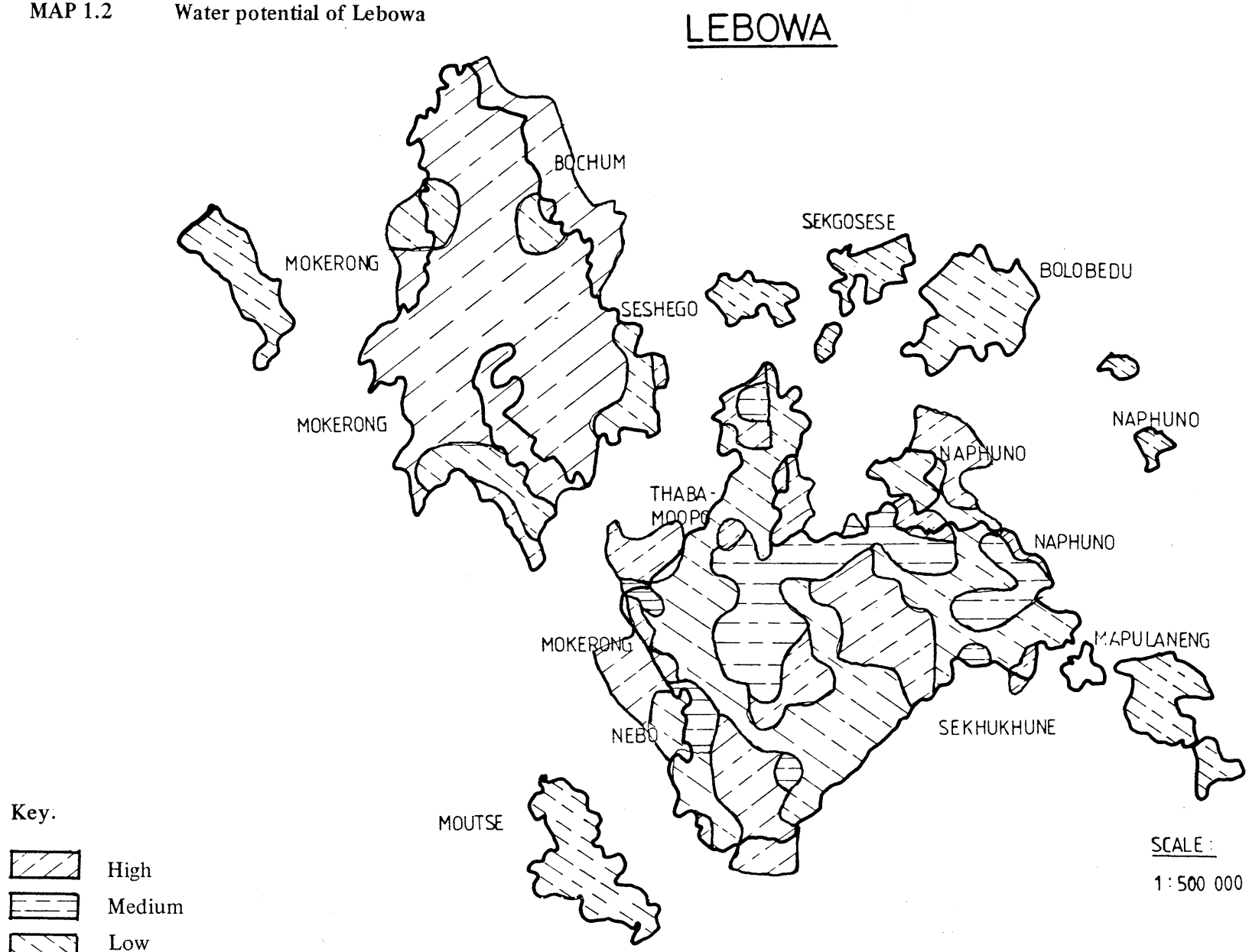


Key:

- National Road
- Tarred Road
- Untarred Road
- Rail-line
- More than 10 km away from main roads
- Within 10 km from main roads

Source: Die Lebowa Projek Deel II. U.P. 1979.

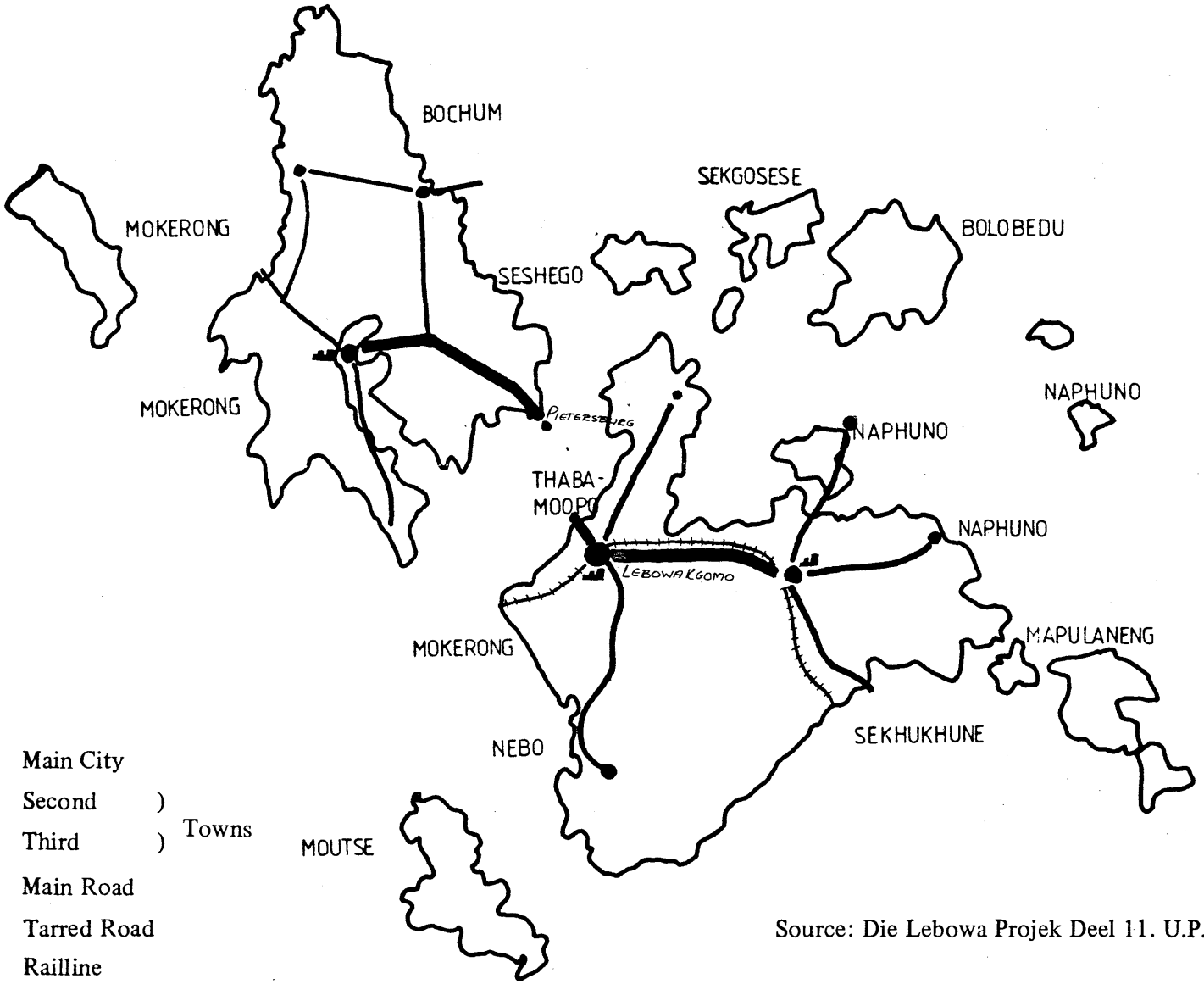
MAP 1.2 Water potential of Lebowa



Source: Die Lebowa Projek II. U.P. 1979

MAP 1.3 Location of towns and industries of Lebowa

LEBOWA



Key:

- Main City
- Second) Towns
- Third)
- Main Road
- Tarred Road
- Railline
- Industries

Source: Die Lebowa Projek Deel 11. U.P. 1979.

SCALE:
1 : 500 000

CHAPTER 2

CONCEPTUAL BACKGROUND AND THE OBJECTIVES OF THIS STUDY

2.1 BASIC CONSIDERATIONS FOR AGRICULTURAL DEVELOPMENT

Mosher (1971a. pp 14–16) regards agricultural development to involve a cluster of at least six related but separate concepts:

(i) agricultural expansion, when additional land is brought into agricultural production;

(ii) increased production per hectare of cropland or per head of livestock;

(iii) agricultural growth in aggregate terms as a result of expansion and or increased production per unit;

(iv) rising value of agricultural products per farm worker;

(v) rising income per person employed;

(vi) agricultural transformation as reflected by a decline in and the ultimate disappearance of the predominance of agriculture in an economy.

The first two of these concepts are probably the most useful in planning programmes to accelerate agricultural growth, particularly at early stages of commercialisation.

In reference to agricultural transformation, it is important to note that large parts of Africa's agriculture has traditionally depended on peasant [1] cultivation of small plots combined with communal grazing and a communal system of land tenure. It has been stated

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1. Some writers (e.g. Jeppe (1978), Shahin (1971) prefer not to use the term "peasant" for African smallholders' chiefly because of the tribal affiliations common to Africa, while others (e.g. Bundy (1979), Cliffe (1977, 1978) use this term.

that in order to modernize production and make it more efficient the new African states have to choose between (Fényes, 1981, p. 660):

(a) establishing state farms and/or projects;

(b) organizing collective farms with various degrees of cooperative organisation;

(c) encouraging capitalistic farming by the more enterprising members of the farming community; and

(d) finding a suitable combination of (a), (b) and (c), so as to use the advantages of each system without destroying those aspects of the social structure which do not necessarily hamper the development process.

(See also Jeppe (1978, pp. 261–262; 1979, pp. 254–270; 1980, pp. 254–256) and Coetzee (1979a, pp. 2–3; 1979b, pp. 4–7).

According to Mellor (1966, p vi.) a full understanding of the economic development of agriculture requires treatment of three interrelated parts:

(i) the role of agriculture in over-all economic development, (ii) the economic nature of traditional agriculture, and (iii) the economic process of modernisation of agriculture.

The Lebowa Government (White Paper 1979, pp 3–4) underwrites the essential role of agriculture in economic development and determines that high priority must be given to the optimal utilization of available agricultural resources. Roughly two-thirds of the economically active people of Lebowa depend for their livelihood on the rural sector and insufficient employment opportunities outside this sector dictate that it is not presently practical to think in terms of any large scale movement of people from agriculture to other sectors in order to achieve consolidation of smallholder areas into economic farming units. The Lebowa Government therefore determines that the present dual main objectives of agricultural development in this country should be those of commercial agricultural production and labour absorption in this sector. Agricultural development is seen as part of integrated rural development strategy, involving all people who are of necessity present in the rural sector and stresses the need to identify different target groups with specific needs and to institute specific development programmes to meet these needs.

The principles of the strategy are as follows:

(i) As a first priority *bona fide* farmers must be identified and selected for placement at agricultural growth points. In order to give these farmers a fair chance to achieve and succeed in commercial production, they must be supported by an integrated agricultural infrastructure. These supporting services must be provided in such a way as to stimulate production, yet without dampening private initiative. The Department of Agriculture and Forestry, development corporations, and private companies have complementary roles to fulfil in the development of such agricultural growth points. It is the task of the farmers involved at these growth points to provide the production input for economic development.

(ii) The Lebowa Government determines that every effort must be taken to make high potential agricultural land available for these agricultural growth points. If needed the Government must negotiate land rental contracts on behalf of the farmers from those people or authorities who hold such land rights but are not engaged in full-time farming operations. The Government does not propose immediate large scale land reforms, but attention must be given to possible ways by which reforms of land rights can be achieved over the longer term without disruptions and in the best interests of the country.

(iii) The Lebowa Government determines that production targets must be set for Lebowa and a sufficient number of agricultural production growth points developed to achieve these targets over a specified period.

(iv) The Lebowa Government determines that the next target group to be identified are the people who have land rights but are not engaged in full-time farming operations due to employment elsewhere. The services of the agricultural infrastructure must be made available to this group only after the full requirements of the agricultural growth points have been met. This ruling is based thereon that this group is only partly dependent on earnings from farming. (During the interim period while the growth points are being developed, a number of full-time farmers will have to be accommodated in this group).

(v) The Lebowa Government determines that the third target group to be identified are those people who fully depend on the rural sector for their livelihood, but do not have any land rights. The Government determines that high priority must be

given to employment creation programmes to accommodate this group in the rural sector. In this regard preference must be given to labour intensive agricultural projects, labour intensive methods in building physical infrastructure and housing schemes, as well as the establishment of small-scale industries in the rural sector.

The issues raised above form the basic considerations of this study. These include the basic concepts of agricultural development; systems of tenure and production to achieve development; the role of agriculture in over-all economic development of Lebowa; the economic nature of traditional agriculture; the economic process of modernisation; the strategy principles set by the White Paper; the growing awareness of the need for micro-level data;[1] the empirical testing of the acceptibility of proposed changes; the fundamental issues involved with development[2] such as reducing poverty, unemployment and inequality.

2.2 OBJECTIVES OF THE STUDY

This study combines the results of three surveys used to investigate smallholder agriculture in Lebowa and in particular, to appraise possibilities for change. The initial aims of the investigation were:

(i) the elaboration of a programme of development priorities in agriculture which would include suggestions about production patterns and changes in economic and social institutions designed to raise the level of living of the local population in a manner acceptable to them;

(ii) at the same time to compare the appropriateness of existing planning proposals and priorities[3] with the findings of the surveys;

(iii) further, to develop improved understanding of the smallholder farmers of Lebowa; and

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1. Collinson (1973) states that: "The macro planners (in Africa) are now part of the established infrastructure of these economies. Their experience during the 1960's has created an awareness that development plans are missing a link with the dominant type of production unit in agriculture, the smallholder. C.f. also Byerlee and Eicher (1972), Fényes (1981), Spencer (1972).
2. C.f. Seers (1981, pp 8–11).
3. C.f. White Paper (1979), Bembridge (1979), Coetzee (1977), Groenewald (1980), Laker (1981), Fölscher (1980), Adendorff et al (1980), Becker (1975), De Villiers (1978, 1980).

(iv) to analyse certain popular opinions regarding smallholder behaviour and efficiency.

Although this study is micro-level socio-economic in nature, some important points of contact with macro planning may arise in that:[1]

(i) the limitation of the range of possible changes to be considered may be dictated by national policy and planning considerations;

(ii) the timing and priority attached to national and regional institutional developments will influence local opportunities;

(iii) Aggregations based on the data collected can be used by regional or national planners as a base for matters such as input supply estimates, output distribution and processing requirements and infrastructural needs;

(iv) the analysis of resource use and productivities in the existing farming system provide leads for focusing adaptive agricultural research into most productive lines.

In this study, it was also considered whether it is preferable for Lebowa to have a population of smallholder (peasant) cash crop producers with slowly increasing prosperity, but farming below modern standards of agriculture; or to encourage the emergence of a small number of specialist commercial farmers with higher efficiency. The institutional – tenurial system within which this choice is to be made is of necessity a matter of political and social policy, and is also discussed in Chapter 9 of this study.[2]

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1. C.f. Collinson (1974, pp 5–6).
2. See also Richards *et al.* (eds.) (1973, p 8) in this regard.

CHAPTER 3

PLANNING AND EXECUTION OF THE SURVEYS

3.1 PLANNING OF THE SURVEYS

The planning of the surveys started with an extensive literature study on less developed agriculture in general and African smallholder agriculture in particular.[1] The next step was a preliminary reconnaissance carried out early 1978, including three thousand kilometres travel in all twelve districts of Lebowa and discussions with agricultural officers, traditional and non-traditional leaders and many smallholders. On the basis of the knowledge so obtained and the paucity of available data with respect to smallholder agriculture it was decided to cover the whole of Lebowa in the survey. Following Mosher's (1971b: 21–22) guidelines an attempt was made to divide Lebowa into three area types according to different growth potentials:

(i) Immediate growth potential areas (IGP)
(ii) Future growth potential areas (FGP), and
(iii) Low growth potential areas (LGP)

The IGP areas are defined as areas where agricultural growth is possible within the next three years. These are areas where:

(i) growing conditions, including soil, climate and water availability, are favourable;

(ii) where new technologies that hold the promise of substantially higher production of at least one major crop now being grown, or of increasing cattle turnover are already available;

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1. Works consulted includes among others: Richards *et al.* (eds.) (1973), Thornton (1973), Dalton and Parker (1973), Farrington (1975), Abercrombie (1961), Baum (1968), Beeghly (1972), Catt (1965a, 1965b), Clark and Haswell (1967), Collinson (1962, 1963, 1964a, 1964b, 1968, 1972), De Wilde (1967a, 1967b), Wills (1967a, 1967b) Watt (1966a, 1966b), Heyer (1965, 1966, 1976, 1981), Norman (1970a,b) Warner (1970), Lele (1975), Stevens (ed.) (1977), Bessell *et al.* (1968).

(iii) efficient transport links with the national economy (i.e. with towns containing established commercial facilities such as Pietersburg, Potgietersrus, Marble Hall, Groblersdal, Phalaborwa, and Tzaneen) exist; and

(iv) where the general attitude of the smallholders and their leaders are more conducive to commercially-orientated agriculture and cooperation in planning and modernization effort is easily obtainable.

In Lebowa some other regions have a future growth potential. These may also represent areas with favourable physical conditions (soil and climate) for agricultural growth but one or more of the other essential elements of an IGP area, as mentioned above, is at present lacking. To provide the missing element(s) will require time, probably several years.

In addition Lebowa has other areas that have a low present and future potential for agricultural growth.

According to Mosher (1971b: 23), it is only the IGP areas that are ready for public efforts to increase the production of specific farm commodities, to provide a complete Progressive Rural Structure,[1] and to complete the creation of a modern agriculture.

In FGP areas priority should be given for the time being to activities that will lift them to the category of areas of IGP, while in LGP areas the development of non-farm employment opportunities or training of people to utilise such opportunities elsewhere should receive top priority.

Mosher (1971b: 24) believes that this type of classification will make it easier to adjust programmes to regional differences, and in doing so will ensure that the activities emphasized in each area will be those for which each type of area is ready and from which it can benefit.

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1. Progressive Rural Structure consists of six elements to be made available in each farming locality: 1. retail outlets for farm supplies and equipment; 2. markets for farm products; 3. an agricultural extention service; 4. production credit for farmers; 5. local verification trials; 6. farm-to-market roads, and roads connecting each farming locality center to district headquarters.

For the purpose of the main survey, Lebowa was thus divided into IGP, FGP and LGP areas. Further in the text these areas will be referred to as Group A (IGP areas) and Group B (FGP areas). The LGP areas are thought to be fairly small and form a subset of Group B and includes non-agricultural land such as residential areas, industrial sites and mountainous land. Groups A and B are shown in Map 3.1. Map 3.2 shows the physical agricultural potential and Map 3.3 the development potential of Lebowa, according to the University of Pretoria.

The next step was the development of a questionnaire to obtain information regarding:

(i) the general social and living conditions of the smallholders and their agricultural activities;

(ii) the nature and structure of decision-making in various agricultural operations;

(iii) communal activities and obligations and their significance on agriculture;

(iv) knowledge on the presence and the use of facilities such as tools and implements, storage, transport, marketing, credit, extention;

(v) perceptions on possible agricultural development;

(vi) the degree of preference for farming compared to other occupations;

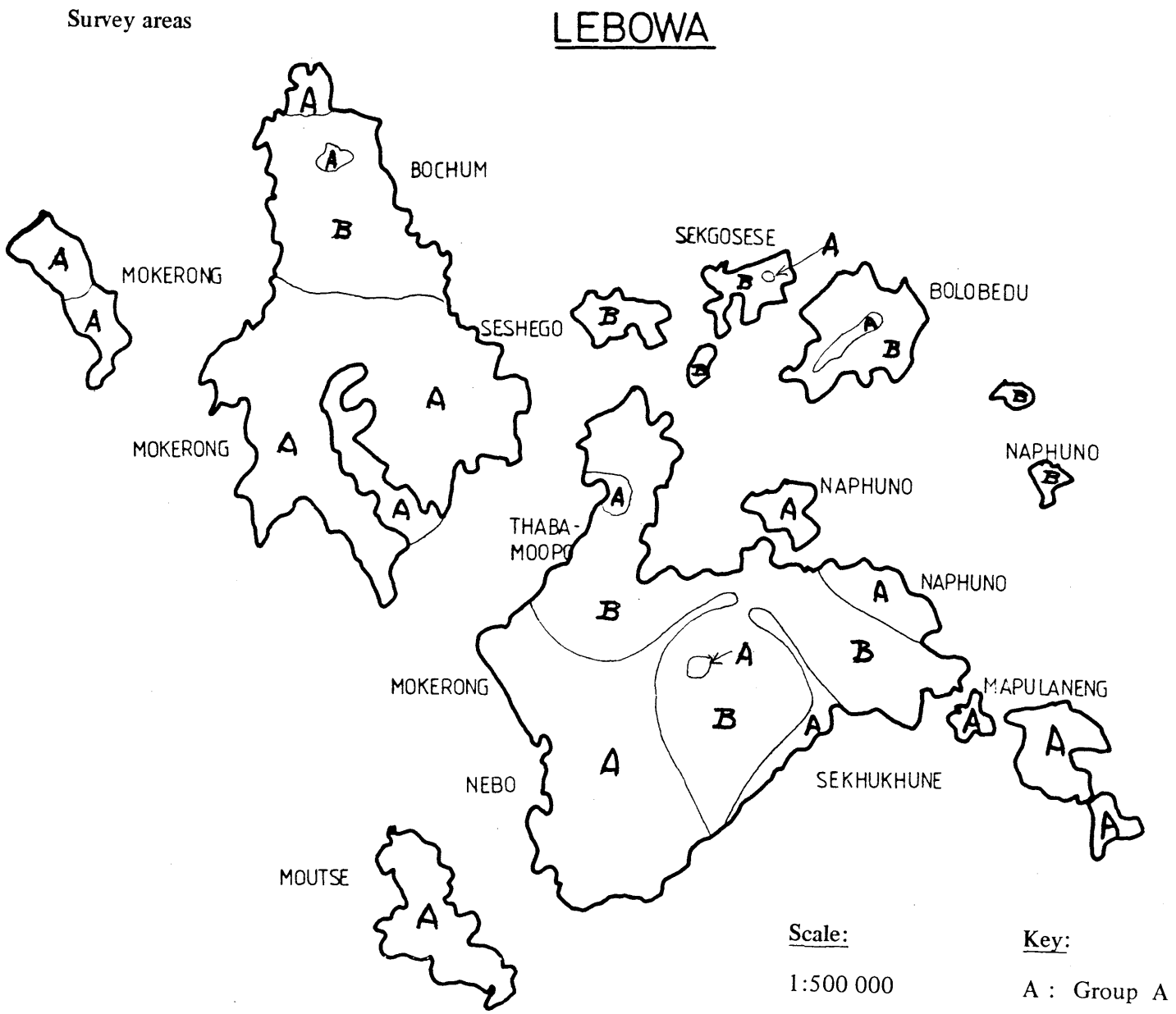
(vii) contact with more modern farming practices;

(viii) perceptions on soil conservation, modern farming techniques and commercial agriculture;

(ix) preferences and acceptability of different land tenure systems and community cooperation; and

(x) preferences for potential marketing channels, obtaining of inputs and financing organizations. (Appendix 1.)

MAP 3.1 Survey areas



LEGEND OF MAP 3.1 [1]

1. Areas Thabamoopo (Northern portion) Bolobedu (portion), Sekgosese (large portion), Bochum (large portion), Naphuno and Sekhukhuneland (large portion) have low agricultural and human potential, and poor infrastructure and are thus classified as Group B.

2. Areas Thabamoopo (Southern portion), Seshego, Naphuno (small portion), Mootse and Bochum (small portions) have good infrastructure and human potential and relatively good agricultural potential and are thus classified as Group A.

3. Areas Mokerong, Mapulaneng, Nebo, Bolobedu (portion), Sekgosese (portion) and Sekhukhuneland (portion) have good human and agricultural potential, and good infrastructure and are thus classified as Group A.

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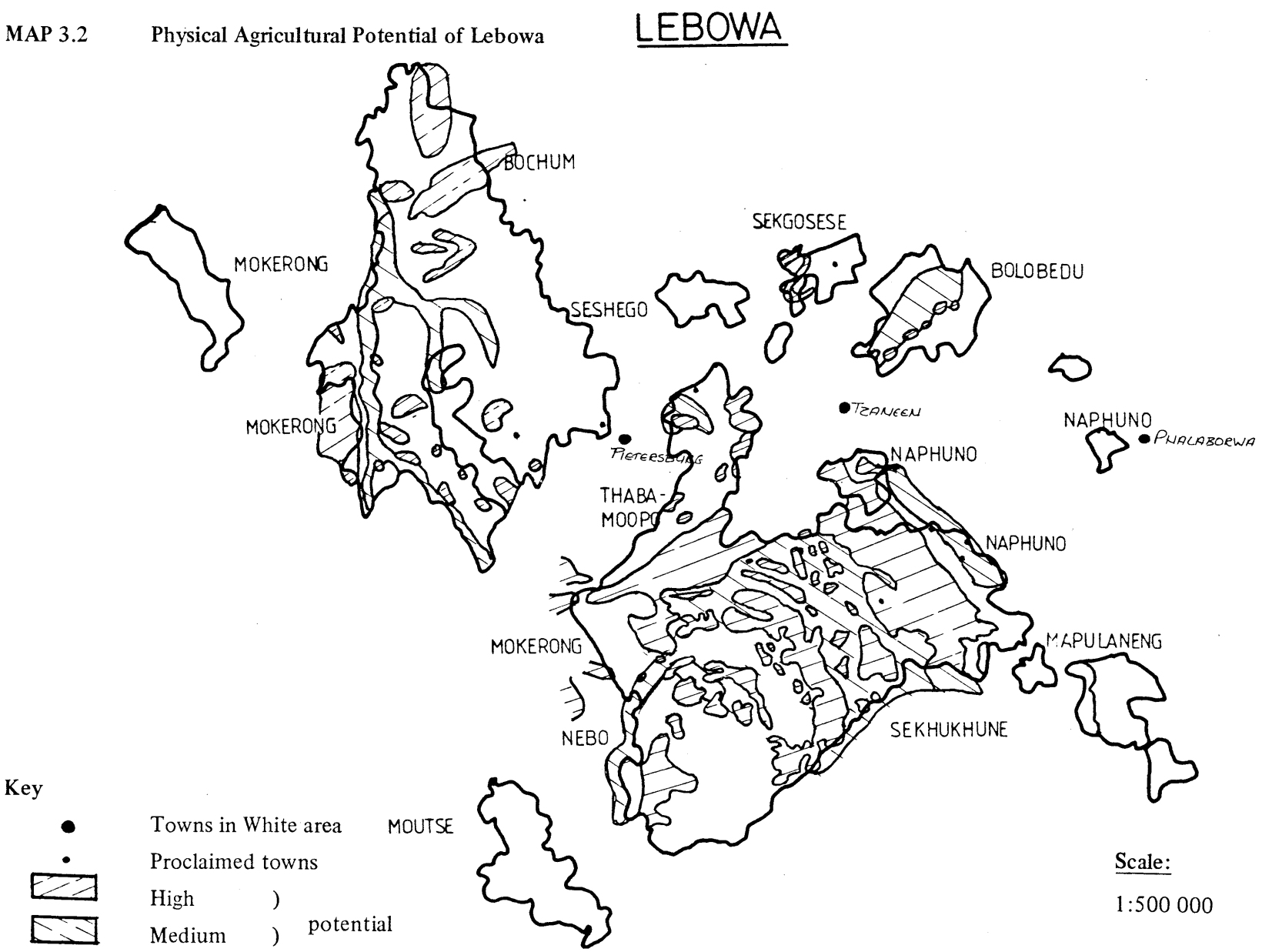
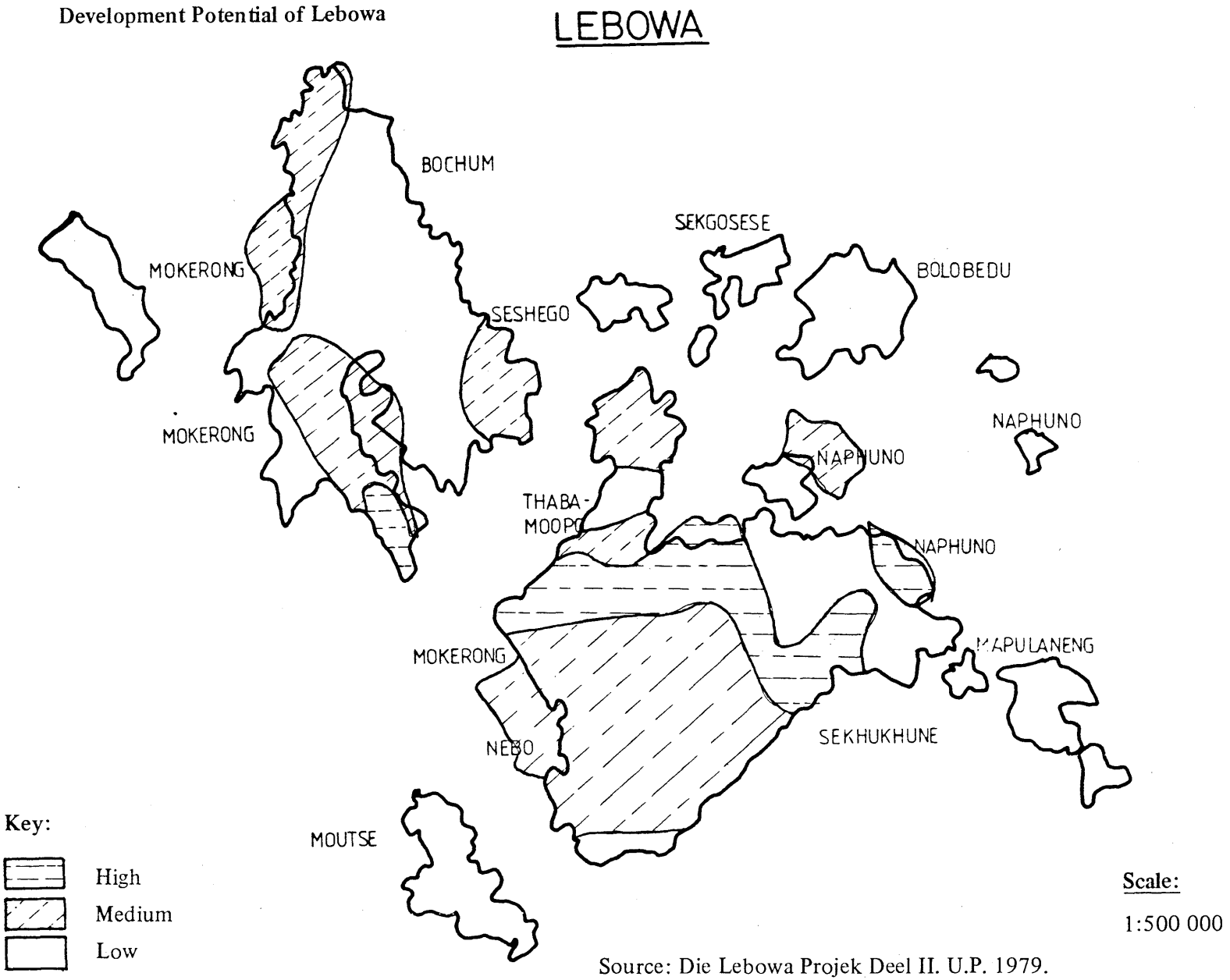
1. This classification is based on the opinions and experience of agricultural officers in Lebowa and personal observation and is therefore necessarily somewhat arbitrary.

MAP 3.2 Physical Agricultural Potential of Lebowa



Source: Die Lebowa Projek Deel II. U.P. 1979.

MAP 3.3 Development Potential of Lebowa



Source: Die Lebowa Projek Deel II. U.P. 1979.

The Lebowa Department of Agriculture and Fisheries provided 30 enumerators,[1] who studied the questionnaire, made suggestions regarding its possible streamlining and conducted a pilot study amongst 20 smallholders as well as 5 traditional and 5 non-traditional leaders during March 1978. These preliminary investigations led to the adaptation of the final questionnaire. Some questions were deliberately repeated at different intervals, and not always in the same fashion so as to provide checks on the accuracy of answers and to serve as an indicator of the care necessary during the checking of records completed by each enumerator. The next step was to design the sample and to decide on the size of the sample. This is discussed in the next section.

3.2 SAMPLE SIZE FOR SMALLHOLDERS

In deciding on sample size knowledge of three entities is necessary: the distribution of the population statistic, the distribution of the sample statistic and the variance of the population statistic. Once these are known, sample size can be calculated using the formula:

$$\text{Precision} = \text{confidence coefficient} \times \text{standard deviation of the estimator} \ldots \quad (1)$$

It is known that a simple random sample from an infinite population is asymptotically normal when $n > 30$ (approximately); where n is the sample size. This statement is a special case of the central limit theorem (c.f. Snedecor and Cochrane, 1967, p 51). It is also known that any population will approximate the normal distribution when $N \rightarrow \infty$ where N is the population size.

These conditions also hold true for an unknown variance when a large sample is taken from a population which approaches infinity (Spiegel, 1972, p 158) if some estimation of the variance, σ^2 can be found. This estimation is denoted S^2.

---

1. Agricultural extention officers with standard 6 or higher educational levels and at least 3 years experience.

It has been found that S^2 can be estimated using the formula $\hat{R} = \sigma^2$ where $\hat{R}$ is a crude estimate of the range of the estimator (Williams, 1978, p 224).

Using the above information, sample size can be calculated with the formula:

$$n = \left(\frac{ZS}{d}\right)^2 \qquad (2)$$

This formula can be refined for a finite population using the finite population correction factor, so that

$$n = \frac{N(ZS)^2}{Nd^2 + (ZS)^2} \qquad (3)$$

or, for this example,

$$n = \frac{N\left(Z\frac{\hat{R}}{\sigma}\right)^2}{Nd^2 + \left(Z\frac{\hat{R}}{\sigma}\right)^2} \qquad (4)$$

Where
- n = sample size
- N = population size
- Z = confidence coëfficient
- $\frac{\hat{R}}{\sigma}$ = estimator of σ
- d = stated precision

In order to calculate sample size for this study, it is necessary to make certain decisions regarding the required level of precision, the confidence intervals and the range. It is also necessary to select a variable on which the calculation is based. As any single variable or weighted average of variables is of necessity arbitrary, it was decided to base the calculation on average total income for farmers. Prior to actual sampling range of incomes was assumed as being from R0,00 to R10 000,00, so that S is estimated as being R1666,70. confidence coefficient of Z = 3 (i.e. a confidence level of 99,73%) was assumed as satisfactory, with a precision of ± R250,00.

Given these assumptions, required sample size can be calculated as:

$$n = \frac{N\left(Z\frac{\hat{R}}{\sigma}\right)^2}{Nd^2 + \left(Z\frac{\hat{R}}{\sigma}\right)^2}$$

and $N = 80\,000$ Farmers in Lebowa [1]

$Z = 3$

$\frac{\hat{R}}{\sigma} =$ R1 666,70

$d =$ R250

so that $$n = \frac{80\,000\,(3 \times 1666{,}70)^2}{80\,000\,(250)^2 + (3 \times 1666{,}70)^2}$$

$$= 398$$

This means that with a sample size of 398, there is a 99,73 per cent chance that the average total income of farmers in the sample will be within R250,00 of the actual population average total income.

3.3 SAMPLE SIZE FOR TRADITIONAL AND NON-TRADITIONAL LEADERS

Two simple random samples for traditional and non-traditional leaders were planned in order to ascertain their attitudes towards existing traditional practices and power structures (see Appendix 2, 3). Traditional leaders include *Kgošis'*, headmen, etc., while non-traditional leaders included people such as teachers, doctors, politicians etc. who live and work in Lebowa but are not part of traditional tribal leadership structures. The first population consists of approximately 500 traditional leaders, while the population for the second sample was not known with any degree of accuracy. As these opinion questions were mostly of a Yes/No type, it can be assumed that the populations are both binomially distributed. (In favour or not in favour of existing structures) (Williams, 1978).

It was assumed that the traditional leaders would be more in favour of the existing structures than non-traditional leaders, and to the specific extent of 70 per cent in favour, and 30 per cent against. For the non-traditional leaders these assumptions were reversed.

Given these assumptions, sample size for the two populations was calculated using the following formula (Snedecor and Cochrane, 1967, p 517):

$$n = \frac{4\,pq}{L^2}$$

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1. Included in this figure are only traditional plotholders.

where n = sample size
p = proportion in favour of traditional structures
q = proportion not in favour of traditional structures and
L = allowable error.

A confidence probability of 95 per cent was used, and allowable error is set at 10 per cent.

Sample size for traditional leaders was therefore calculated as:

$$n = \frac{3{,}92\ (70)\ (30)}{100}$$

$$n = 82$$

The actual sample consisted of approximately 100 in order to allow for errors in completion. For non-traditional leaders sample size is also $n = 82$, and in this case extra questionnaires were also included as a safety measure. Given that the initial assumptions were correct, it can thus be expected that for both samples there is a 95 per cent probability for sample answers to lie within a range of 10 per cent of actual population answers.

3.4 PRE-SURVEY ACTIVITIES

Before the surveys, several preparatory meetings were held with the enumerators to discuss strategy and possible difficulties which could be encountered. Experienced extension officers revealed important aspects which could influence the ultimate results of the surveys. These included factors such as that:

(i) A successful relationship between the survey personnel and the cooperators is possible only if the enumerator understands the structure of law and order and the nature of the social relationships which exists among different tribes.

(ii) The type and extent of the information being collected requires a great deal of co-operation from the survey farmers and their families. In order to obtain the goodwill of the people they must be satisfied that the survey is going to be to their long-term benefit. Nothing must be done during the collection of the data that might arouse suspicions that the survey is an attempt by the Government to pry into their affairs.

(iii) It would also be a mistake for enumerators to visit villages dressed very differently from the inhabitants as this could create or widen a gap of misunderstanding or mistrust.

(iv) The giving of small gifts could help in acknowledging a friendly relationship which in turn is important to the supply of accurate information. Initially, gifts should be small since the value of gifts cannot be reduced. "Value" does not refer to the cost of the gift but rather to its importance in the eyes of the people.

(v) It is necessary for the enumerators to pay social calls on co-operators over and above visits to fill in the questionnaires. As it turned out later, valuable corrections or additional information was collected in this way during the post-survey visits.

3.5 THE SURVEY AND DATA PROCESSING

The surveys commenced in April 1979 and – including post survey visits – were completed in March 1980.

The processing and calculation of the data was done by the computer centre of the University of the North. Special computer programmes were written in FORTRAN IV.

CHAPTER 4

SOCIAL DETAILS OF RESPONDENTS

4.1 ETHNIC DISTRIBUTION, TRIBAL POSITIONS AND OCCUPATIONS

Table 4.1 gives the ethnic distribution of Lebowa smallholders included in the sample. No considerable difference between Groups A and B is found. Although Ndebele and Swazi seem to make out a larger percentage in Group A than Group B.

Because of the relatively small numbers involved, it was not possible to reach any conclusions regarding e.g. the degree of accommodation (Galbraith, 1979), progressiveness or the usually lower status of foreigners within the tribal hierarchy (Vink, 1981). In average, 83,1% of the farmers are Northern Sotho, with Ndebele at 8,3% as the second largest group. Among the traditional leaders the percentage of Northern Sotho is, as could be expected, highest (92,8 per cent), followed by Ndebele (5,2 per cent) and Southern Sotho (2,0 per cent). Table 4.2 also shows the tribal position of these leaders. The majority of them are Headmen (68,0 per cent) followed by *Kgoši* (22,7 per cent) and Councillors (9,3 per cent).

Table 4.3 gives the occupations and ethnical distribution of non-traditional leaders. Teachers, progressive farmers, evangelists, businessmen and clerks dominate the list. If the taxi fleet owner is included with businessmen these groups formed 82,4 per cent of all respondents. 87 Respondents are Northern Sotho (90,6 per cnet) and 9 are Ndebele (9,4 per cent). Also, 93,8 per cent have relations domiciled in Lebowa, while 97,9 per cent are themselves domiciled in Lebowa and 95,9 per cent are citizens of Lebowa.

The majority of the smallholders are ordinary farmers (53,7 per cent) Table 4.4 shows the distribution of farming and other activities for smallholders. These additional activities may be centered on any one of a number of organizations – the churches, the schools, the village elder group, special interest groups and in some villages on village Agricultural Committees which have been set up in growing numbers in recent years.

Table 4.1 Social details: ethnic distribution

Ethnic Groups	GROUP A		GROUP B		TOTAL	
	Number of farmers N = 160	Proportion (%)	Number of farmers N = 190	Proportion (%)	Number of farmers N = 350	Proportion (%)
Northern Sotho	128	80,0	190	85,8	291	83,1
Ndebele	17	10,6	12	6,3	29	8,3
Swazi	9	5,6	6	3,2	15	4,3
Zulu	2	1,3	2	1,0	4	1,1
Shangaan	2	1,3	6	3,2	8	2,3
Venda	1	0,6	1	0,5	2	0,6
Xhosa	1	0,6	0	0,0	1	0,3

Table 4.2 Traditional leaders: tribal position and ethnical grouping

Number of traditional leaders	Kgosi	Headman	Councillor	Northern Sotho	Southern Sotho	Ndebele
	22	66	9	90	2	5
Proportion (%)	22,7	68,0	9,3	92,8	2,0	5,2

Table 4.3 Non-traditional leaders: occupations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total
Number of respondents	32	15	2	1	10	4	14	1	8	1	1	1	1	1	1	1	1	1	96
Proportion (%)	33,0	15,5	2,1	1,0	10,3	4,1	14,4	1,0	8,2	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	100,0

Note:

1.	Teacher	2.	Progressive farmer
3.	Building contractor	4.	Medical doctor
5.	Businessman	6.	Agricultural extention officer
7.	Evangelist	8.	Politician
9.	Clerk	10.	Herbalist
11.	Social worker	12.	Attorney
13.	Taxi fleet owner	14.	Miner
15.	Security officer	16.	Professor
17.	Detective	18.	Inspector of education

Table 4.4 Social status in the village

Socal Status	GROUP A		GROUP B		TOTAL	
	Number of farmers	Proportion (%)	Number of farmers	Proportion (%)	Number of farmers	Proportion (%)
	N = 147		N = 188		N = 335	
Headman	15	10,2	20	10,6	35	10,4
Assistant Headman	9	6,1	11	5,8	20	6,0
Elder	13	8,8	8	4,3	21	6,3
Rural Councillor	18	12,2	45	23,9	65	19,4
Chairman of Farmers Association	4	2,7	3	1,5	5	1,5
Ordinary farmer	83	56,6	97	51,6	180	53,7
Member of school committee	1	0,7	3	1,6	4	1,2
One of the following: Foreman, male nurse, witch doctor, tribal policeman, tribal clerk	4	2,7	1	0,5	5	1,5

4.2 SEX, MARITAL STATUS AND AGE

Table 4.5 reveals that in Group A 88 per cent of the household heads are males. From the 20 cases where the family is headed by a woman, 12 are widows, 4 divorced and in another 4 cases the husband is in permanent urban employment. These proportions are roughly similar in Group B. The most common age group is males at 50 + years, followed by females in the 10 – 14 years age group. The average age of the family head is 57 years,[1] and the average number of wives is 1,15. It is evident that westernisation and economic realities could drive out polygamy. Riddell (1981: 43) notes in Zimbabwe that whereas in the past polygamy served a socially constructive role by absorbing widows into the extended family system, the practice today serves as a means of exploiting cheap labour. It is still particularly widespread in areas in which intensive market gardening is practiced. Here, junior wives are often little more than servants who, through no personal choice, provide an extra pair of hands in the fields.

4.3 HOMESTEAD

About 90 per cent of the smallholders surveyed live in a traditional *lapa* or in a *lapa* with a galvanized iron roof. It is interesting to note that more farmers in Group B live in a Western type house. Table 4.9 shows no significant difference in place of origin between the two groups. A possible explanation can be found in Table 4.10 which shows more periodic household movement among Group B farmers, thus it can be assumed that farmers will tend to build less traditional structures on a new site. (C.f. Table 4.6).

No electricity supply was found and the main sources of household water is from boreholes (63,9 per cent), rivers (17,0 per cent) and dams (9,8 per cent). (C.f. Table 4.7) . The average distances from place of residence to the water source and average quantities of household water consumption are given in Table 4.8.

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1. Coetzee found the same in the Bantwane area in 1977. Vink (1981, p 84) calculated average age as 52,1 for the Grootfontein and Success irrigation schemes in Lebowa, but this sample included a relatively larger proportion of female farmers (40 per cent) who were of a younger average age. Groenewald & Du Toit (1981, p 9) calculated average age of cattle owners as 57,8 live in five Bophuthatswana districts.

Table 4.5 **Social details: sex, marital status, age and average number of wives**

GROUP A

	Male	Female	Single	Married	Widowed	Divorced	Males <10	Females <10	Males 10–14	Females 10–14	Males 15–19	Females 15–19	Males 20–50	Females 20–50	Males 50 +	Females 50 +	Av. Age of head	Av. No. of wives
No	140	20	0	144	12	4	111	82	106	201	113	80	109	117	208	109	57,7	1,1
%	88,0	12,0	0,0	90,0	7,5	2,5	9,0	6,6	8,6	16,3	9,1	6,5	8,8	9,5	16,8	8,8		

GROUP B

No	175	11	6	170	8	2	106	92	102	233	119	102	94	95	235	71	56,5	1,2
%	94,0	6,0	3,2	91,4	4,3	1,1	8,5	7,4	8,2	18,6	9,5	8,2	7,5	7,6	18,8	5,7		

GROUP A + B

No	315	31	6	314	20	6	217	174	208	434	232	182	203	212	443	180	57,0	1,15
%	91,0	8,9	1,7	90,0	5,6	1,7	8,7	7,0	8,4	17,5	9,3	7,3	8,2	8,5	17,8	7,2		

Table 4.6 Construction of homestead buildings

Homestead buildings	GROUP A		GROUP B		TOTAL	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 149		N = 186		N = 335	
Lapa traditional	81	54,5	104	55,9	185	55,2
Lapa with galvanized iron roof	59	39,6	55	29,6	114	34,0
Manifold room structure	5	3,3	11	5,9	16	4,8
Western type house	4	2,7	16	8,6	20	6,0

Table 4.7 Sources of water for household requirements

Source of water	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 155		N = 191		N = 346	
Dam	6	3,9	28	14,7	34	9,8
Rainwater	1	0,6	3	1,6	4	1,2
Borehole	108	69,7	113	59,2	221	63,9
River	24	15,5	35	18,3	59	17,0
Hand pump	1	0,6	6	3,1	7	2,0
Pit (Setiba)	4	2,6	2	1,0	6	1,7
Fountain	1	0,6	3	1,6	4	1,2
Channel	10	6,5	0	0,0	10	2,9
Windpump	0	0,0	1	0,5	1	0,3

Table 4.8 Average distances and average quantities of water for household consumption from main sources

GROUP A SOURCE	Average distance (Km)	Average quantity consumed per day (litres)
Dam	4,3	80,0
Rain	1,0	110,0
Borehole	2,5	70,8
River	2,4	73,8
GROUP B SOURCE		
Dam	2,4	88,1
Rain	4,0	85,0
Borehole	2,3	75,9
River	3,5	50,6
Handpump	2,2	96,0
Pit (Setiba)	2,5	90,0
TOTAL (A + B) SOURCE		
Dam	3,4	86,7
Rain	2,5	93,3
Borehole	2,4	73,4
River	3,0	60,0
Handpump	2,2	98,3
Pit (Setiba)	2,5	86,7

4.4 HOMESTEAD MOVEMENTS

Shifting of households is characteristic of African traditional agriculture. It initially involved deeper penetration into primary vegetation, then developed into circular migration as untouched areas were reduced. Table 4.9 shows the frequency distribution of farmers according to their place of origin. About 80 per cent of the farmers still reside in their original villages or districts in Lebowa and only about 5 per cent came from outside Lebowa. Table 4.10 gives the periodic movements of the homestead.

Group A seem to be more settled with 41 movements, while Group B accounts 78 movements. Table 4.11 shows the reasons for moving to the present place of residence. The highest percentage in both groups (26,4 and 41,0 respectively) is resettlement, 93 per cent of the more settled group A is satisfied with the present place compared to only 66,1 per cent of Group B. (Table 4.12) More than 70 per cent of those who preferred to move want to live in another area inside Lebowa (Table 4.13). The main reasons for preferring the other area is to get more land and better communication and market facilities. (Table 4.14). Frequency and distance of homestead movements for reasons other than resettlement, namely to virgin land or within long-term shifting cropping/fallow patterns is reflected in Table 4.15.

This table reveals that only 9 homesteads from Group A moved to virgin land and 25 within a long-term shifting cropping/fallow pattern. The corresponding figures for Group B are 17 and 47 with household shifting a long fallow period is characteristic, the same ground being cultivated perhaps for a whole generation. Of interest are the timing of shifts between areas, whether the shift is into areas of primary vegetation or regrowth, and whether the land is already held in right by the family or will be acquired by possession. Table 4.16 shows that family rights over fallow land is considerably higher in Group A The difference in the permanency of homestead between Groups A and B is significant. Nearly 20 per cent of Group B farmers live in temporary homesteads while the corresponding figure for Group A is only 2,6 per cent. One probable reason for this is the higher occurrence of resettlement and the higher preference for other areas amongst Group B farmers (see Table 4,11 and Table 4,12).

The data presented in connection with homestead movements are all memory-dependent but a certain degree of control was exercised during the presurvey investigations of impor-

Table 4.9 Frequency distribution of farmers according to place of origin

Place of origin	GROUP A		GROUP B		TOTAL (A + B)	
	Number of repondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 160		N = 187		N = 347	
Same village	92	57,5	106	56,7	198	57,1
Same chieftainship	2	1,3	18	9,6	20	5,8
Same district	35	21,9	26	13,9	61	17,6
Other Lebowa district	21	13,1	30	16,0	51	14,7
Outside Lebowa	10	6,3	7	3,7	17	4,9

Table 4.10 Periodic movements of homestead

Once in every three years	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 17		N = 17		N = 34	
5 – 15 km	9	52,9	11	64,7	20	58,8
16 – 50 km	7	41,2	3	17,6	10	29,4
51 – 100 km	0	0,0	1	5,9	1	2,9
101 – 150 km	0	0,0	1	5,9	1	2,9
151 – 200 km	0	0,0	0	0,0	0	0,0
201 – 250 km	1	5,9	1	5,9	2	5,9
Once in every five years	N = 7		N = 17		N = 24	
5 – 15 km	4	57,1	8	47,0	12	50
16 – 50 km	0	0,0	4	23,5	4	16,7
51 – 100 km	1	14,3	1	5,9	2	8,3
101 – 150 km	0	0,0	4	23,5	4	16,4
151 – 200 km	2	28,6	0	0,0	2	8,3
201 – 250 km	0	0,0	0	0,0	0	0,0
Once in every fifteen years	N = 17		N = 44		N = 61	
5 – 15 km	12	70,6	21	47,7	33	54,1
16 – 50 km	1	5,9	13	29,5	14	23,0
51 – 100 km	3	17,6	7	15,9	10	16,4
101 – 150 km	0	0,0	1	2,3	1	1,6
151 – 200 km	1	5,9	2	4,5	3	4,9
201 – 250 km	0	0,0	0	0,0	0	0,0
	ΣN = 41		ΣN = 78		ΣN = 119	

Table 4.11 Reasons for moving to the present place of residence

REASONS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 72		N = 78		N = 150	
Family moved	9	12,5	5	6,4	14	9,3
Better soil	3	4,2	10	12,8	13	8,7
Conflict with headman or other villagers	8	11,1	1	1,3	9	6,0
Education for children	4	5,5	4	5,1	8	5,3
Proximity to hospital	0	0,0	0	0,0	0	0,0
Marketing reasons	0	0,0	2	2,6	2	1,3
Marriage	7	9,7	6	7,7	13	8,7
Racial oppression	6	8,3	5	6,4	11	7,3
Resettlement	19	26,4	32	41,0	51	34,0
To get employment	2	2,8	4	5,1	6	4,0
Better conditions for cattle	5	6,9	4	5,1	9	6,0
To get more land	8	11,1	4	5,1	12	8,0
Closer to transport	1	1,4	1	1,3	2	1,3

NOTE: If answer to question on Table 4.9 other than 1.

Table 4.12 Preference to move to another place

ANSWER	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 157		N = 183		N = 340	
Prefer to move	11	7,0	62	33,9	73	21,5
Prefer not to move	146	93,0	121	66,1	267	78,5

Table 4.13 Other preferred areas to live

AREAS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 11		N = 62		N = 73	
Other area inside Lebowa	8	72,7	47	75,8	55	75,3
Other area outside Lebowa	1	9,1	1	1,6	2	2,7
White area	1	9,1	9	14,5	10	13,8
Black urban area	1	9,1	5	8,1	6	8,2

Table 4.14 Reasons for preferring the other area to live

REASONS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 11		N = 62		N = 73	
To get more land	6	54,5	37	59,6	43	58,9
To get more grazing	1	9,1	12	19,4	13	17,8
To be nearer to big city	1	9,1	1	1,6	2	2,8
To have better infrastructure	3	27,3	12	19,4	15	20,5

Table 4.15 Frequency and distance of homestead movements

GROUP A	Once in 3 years		Once in 5 years		Once in 15 years	
	1.	2.	1.	2.	1.	2.
5 – 14 km	0	7	1	2	3	7
	0.0	20,6	2,9	5,9	8,8	20,6
15 – 39 km	3	4	0	0	1	0
	8,8	11,8	0,0	0,0	2,9	0,0
40 – 64 km	0	0	0	0	0	2
	0,0	0,0	0,0	0,0	0,0	5,9
65 – 74 km	0	0	0	0	0	0
	0,0	0,0	0,0	0,0	0,0	0,0
75 – 84 km	0	0	0	2	0	1
	0,0	0,0	0,0	5,9	0,0	2,9
85 >	1	0	0	0	0	0
	2,9	0,0	0,0	0,0	0,0	0,0
GROUP B						
5 – 15 km	4	6	0	7	1	19
	6,3	9,4	0,0	10,9	1,6	29,7
16 – 39 km	0	2	1	3	6	4
	0,0	3,1	1,6	4,7	9,4	6,3
40 – 64 km	1	0	0	1	4	2
	1,6	0,0	0,0	1,6	6,3	3,1
65 – 74 km	0	1	0	2	0	0
	0,0	1,6	0,0	3,1	0,0	0,0
75 – 84 km	0	0	0	0	0	0
	0,0	0,0	0,0	0,0	0,0	0,0
85 >	0	0	0	0	0	0
	0,0	0,0	0,0	0,0	0,0	0,0
TOTAL (A + B)						
5 – 14 km	4	13	1	9	4	26
	4,1	13,3	1,0	9,2	4,1	26,5
15 – 39 km	3	6	1	3	7	4
	3,1	6,1	1,0	3,1	7,1	4,1
40 – 64 km	1	0	0	1	4	4
	1,0	0,0	0,0	1,0	4,1	4,1
65 – 74 km	0	1	0	2	0	0
	0,0	1,0	0,0	2,0	0,0	0,0
75 – 84 km	0	0	0	2	0	1
	0,0	0,0	0,0	2,0	0,0	1,0
85 >	1	0	0	0	0	0
	1,0	0,0	0,0	0,0	0,0	0,0

NOTE:

1. Second row refers to per cent of total.
2. 1 and 2 refers to reasons other than resettlement, namely:
   (1) moved to virgin land
   (2) moved within long-term shifting cropping/fallow pattern.

Table 4.16 Family rights over fallow land

ANSWER	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 114		N = 178		N = 322	
Have rights	78	54,2	55	30,9	133	41,3
Have no rights	66	45,8	123	69,1	189	58,7

tant community events. In extreme cases, shifts might be outside the experience of younger operators because of their infrequency. However, they are a major feature of family life and would be recalled by operators who moved as a member of their fathers' households. Within a random sample of farms, subsamples at varying stages in the rotational cycle can be identified by the time each household shifted last. (Collinson, 1972: 147).

Once new land becomes scarce – as is the case in Lebowa – families retain rights over land which they have cleared and used. Permanent settlement is established and the cultivated area is shifted around the area held in right. Table 4.17 shows that nearly 90 per cent of the homesteads are permanent. It is a clear principle of customary tenure that the community may reassert its rights over fallow land when density of population demands reallocation (Collinson, 1972: 147). Arable/fallow sequences are thus a transitional phase between shifting cultivation proper and permanent, continuing cultivation of the same land. It is a phase which currently dominates the major part of traditional agriculture in Africa although it has already, lost importance in Lebowa. The maintaining of fertility by rotation of fields or rather than crops or by applying chemical fertilizers is often a skilful adaptation to natural conditions (Ruthenberg, 1976: 73).

Remote sensing techniques are extremely useful to identify areas which have been taken out of primary vegetation and put under cultivation and also to identify standing crops and ratios on unlimited areas.

Table 4.17 Permanency of homestead

ANSWER	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 154		N = 186		N = 340	
Permanent homestead	150	97,4	149	80,1	299	87,9
Temporary homestead	4	2,6	37	19,9	41	12,1

CHAPTER 5

FARMERS' OPINIONS REGARDING PROGRESS

Progress is measured by applying certain models of change to Lebowa and particularly to the smallholders in Lebowa.

These models include a cultural, a resource, an economic, a spatial and a soil conservation awareness testing model.

5.1 THE CULTURAL MODEL

Within this model population/resource questions which may come from either direction are important.

Boserup (1965) advanced the basic premise that population growth is an independent variable determining agricultural development and states that successive stages in the evolution of agricultural systems represent increasing frequency of cultivating land necessitated by increasing population density. Population growth together with soil exhaustion may lead to a process of circular cumulative causation which tends to depress rural per capita production and may change the composition of peasant output to more labour-intensive subsistence products.

The rate of growth in the agricultural labour force (z) is given by the following formula (Mellor, 1966: 25):

$$\text{(i)} \qquad z_{\cdot} = \frac{x - ay}{1 - a}$$

where x = rate of growth of total labour force

y = rate of growth of the non-agricultural labour force

a = per cent of the population in non-agricultural employment

(ii) a. The total labour force of Lebowa grew on average by 17 100 per year between 1977 and 1980 (Benso, 1979: 13).

b. The de facto population in 1970 was 1 087 178.
The de jure population in 1970 was 1 777 940. The de facto population thus amounts to 61,15 per cent of the de jure population.

c. The de jure economically active population in 1970 was 392 925 people (22,1 per cent of the de jure population). (Benbo,1976: 22).

d. If it is assumed that also 22,1 per cent of the de facto population was economically active, then 240 666 were de facto economically active. ___
(22,1 per cent of 1 087 178).

e. Growth in the economically active population was 1970–1973 ∴ 41 700
1974–1976 45 800
1977–1978 34 200

f. Thus, the de facto economically active population in Lebowa in 1978 was 361 966.

g. The increase was 17 100 per year. Thus,

x = 4,7 per cent.

(iii) Percentage of the labour force in non-agriculture a = 31,8 per cent (Benbo, 1976: 23).

(iv) a. The rate of growth of the non-agricultural labour force was calculated as follows:

b. The average annual increase in employment in Lebowa in 1973–1975 was 5 590 in the secondary and tertiary sectors (mining as very small group ignored) (Benbo, 1976: 23).

c. The de facto economically active population in Lebowa in 1974 was 297 266. (Benbo, 1976a)

d. Thus, the increase was 1,8 per cent.

e. Assume the same percentages for 1978

$$\text{then} \quad y = 1{,}8 \text{ per cent}$$

$$\text{and} \quad z = \frac{x - ay}{1 - a}$$

$$\frac{0{,}047 - 0{,}318 \times 0{,}0118}{0{,}682}$$

$$z = 6{,}06 \text{ per cent}^{1}$$

It is reasonable to accept that this projected growth of the agricultural labour force will persist for some years to come mainly because of the absence of family planning and the lack of employment opportunities elsewhere. The implications of population growth on "disguised" underemployment and the utilization of the labour force is discussed in Chapter 6. This model has relevance in view of the importance of smallholder agriculture in the Lebowa economy.

5.2 THE RESOURCE MODEL

The other side of the population/resource argument is the level of resources needed to support a given population.

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1. According to Garlipp (1976, Bylaag 6:2) the central Government has projected a population growth of 5 per cent per annum and the Lebowa Department of Interior 6 per cent which is supported by using the compound interest formula

   $F = S(1 + i)^t$ where:
   F = de facto 1978 economically active population;
   S = de facto 1970 economically active population;
   i = rate of growth to be calculated;
   t = time period.
   Therfore: $391\,966 = 240\,666\,(1 + i)^8$
   $i = 6{,}3$ per cent.
   Becker (1975: 206) quotes Jooste (1973: 27) and Sadie's (1973) calculations according to which the de jure population of Lebowa in 1970 was 1,786 million and in the year 2020 will be 7,605 million – a population density of 340 per km^2.

Knight (1974: 204–205) refers to Ojo (1968) and suggests that some factors alter the Critical Density of Population (CDP) i.e. the maximum population density the agricultural system is capable of supporting permanently without damage to the land. According to him those factors that lower the CDP include:

(i) Private land tenure that makes land less fluid in the society;

(ii) Relatively permanent destruction of soil resources due to past agricultural practices;

(iii) Increased area needed per person under modern mechanized farming methods;

(iv) Introduction of cash crops that take land from the traditional farming system;

(v) Higher health standards which, because of greater labour effort available, have increased the amount of land cultivated per person and

(vi) Improving skills to such an extent that many educated people who return to rural areas want larger holdings.

Factors that raise the CDP are:

(i) Scientific farming practices;

(ii) Indirect population pressure of economic migrations of people to other sectors of the economy;

(iii) Direct reduction of population pressure by migration to town;

(iv) Freeing of land formerly off-limits for agriculture.

The relevance of these factors is implicit in the discussion of the Lebowa Smallholder economy.

5.3 THE ECONOMIC MODEL

The stages of agricultural change from a subsistance to a cash economy is presented in Figure 1.

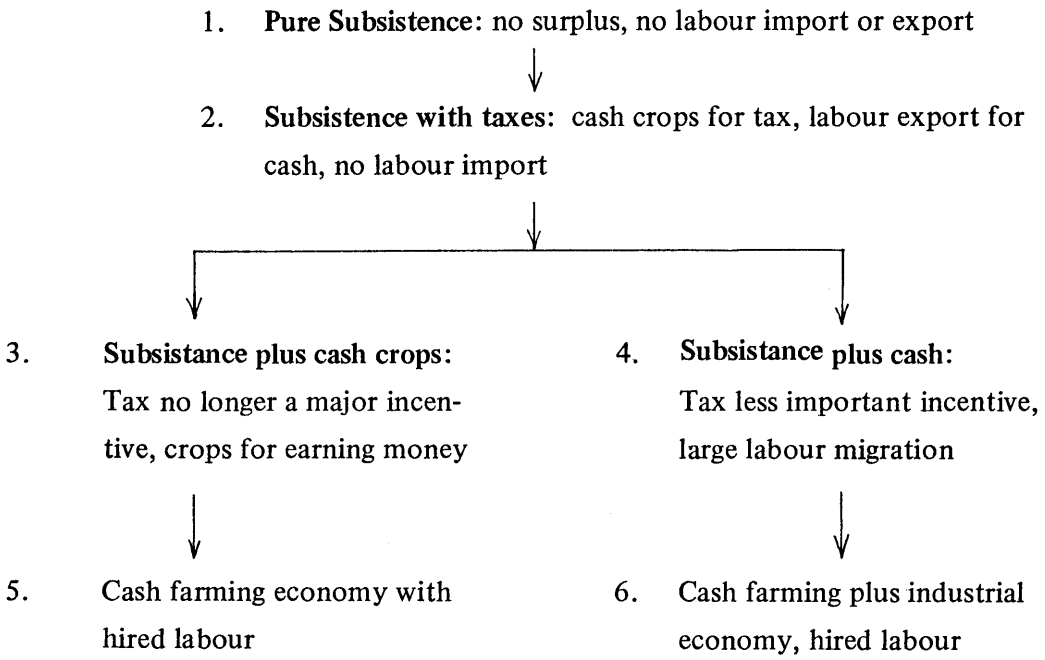

Figure 5.1 Stages of agricultural change

The Lebowa smallholders' agriculture obviously falls between stages 3 and 4.

The modernization process is presented in Figure 5.2

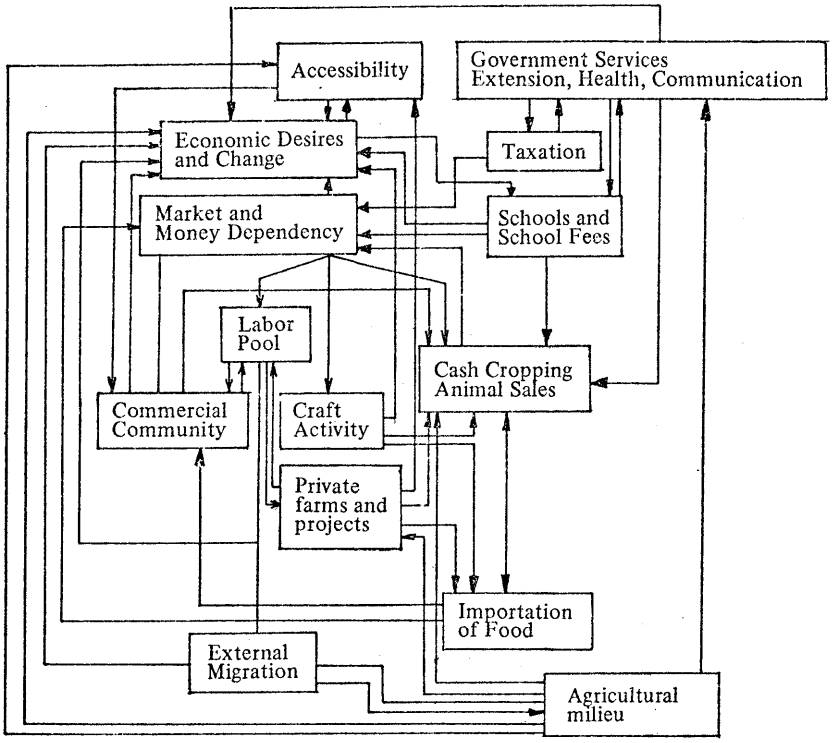

Figure 5.2 *An economic model of agricultural change. Source: Adapted from Knight (1974: 213)*

Whether taxation, rent, school fees, increased material desires, or increased dependence upon the market for formerly family produced commodities motivate further commitment to the modern economy, three alternative sources for income are available. These include cash cropping, livestock sales, self-employment in rural undertakings or entering the labour pool for employment on government or development corporation projects, in the service sector or through labour emigration to outside the region. The discussion of this modernization process in this study is obviously centered around the smallholder sector and their limitations and opportunities are discussed in the text.

5.4 THE SPATIAL MODEL

In this model the process of development is manifested through space and time.

By graphic representation of innovations over time the general form of the curve of innovation acceptance is one in which the proportion of adopters is small at first, increases slowly, then rapidly rises and finally decreases in growth rate as the total proportion of potential adopters is approached. The following basic premises must however hold:

(i) Innovation results are accepted by potential adopters who learn from adopters;

(ii) Potential adopters have varying degrees of resistance to acceptance of the innovation;

(iii) Within any area, there are a variety of potential adopters with different degrees of resistance and;

(iv) Individual resistance to accepting the innovation is surmounted by repeated contact with adopters.

It is the very nature of all innovations that they tend to be adopted first by the more resourceful farmers (Collinson : 1972). In the case of Lebowa they are the few who own private farms bought by their ancestors between 1905 and 1913 when this was allowed (Walker, 1940: 27).

Table 5.1 show opinions on change/innovations both by A and B groups in the following order: improved crop husbandry, improved animal husbandry, processing of crops and livestock products, improved storage of crops and lastly new tools and equipment. For both Groups improved crop husbandy is the most important innovation. Taken together with processing of crops and improved crop storage it constitutes approximately 60 per cent of accepted innovations. The likely reasons why certain innovations have not gained acceptance in the past ten years is given in Table 5.2. A lack of rain features prominently among both groups, while group A ranks the low level of animal sales and overgrazing second and third. Lack of capital occupies the second place in Group B, but this aspect is very strong if considered together with reasons such as lack of credit, high cost of inputs, lack of facilities etc.

When investigating these figures under three main problem areas, namely crops, animals and general progress, it is evident that Group A attached less weight to the problems of crop production (39,0 per cent as against 44,9 per cent of Group B) while, greater emphasis laid on animal production (46,4 per cent and 30,6 per cent respectively). In connection with factors hampering general progress the answer was 14,6 per cent of Group A and 24,5 per cent of Group B. These considerable differences may probably be explained by factors such as larger stock holdings and higher welfare levels of Group A farmers. (Table 5.2(b)).

Table 5.1 Change/innovations which have gained acceptance in the past ten years

CHANGE/INNOVATIONS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 232		N = 288		N = 520	
Improved crop husbandry	92	39,6	113	39,2	205	39,4
Improved animal husbandry	65	28,0	79	27,4	144	27,7
Processing crops/live-stock products	14	6,0	24	8,3	38	7,3
Improved storage of crops	34	14,7	37	12,8	71	13,7
New tools/equip-ment/power sources	27	11,6	35	12,2	62	11,9

Table 5.2a. Change/innovations: farmers' given reasons why innovations have not gained acceptance in the past ten years

REASONS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 41		N = 49		N = 90	
1	8	19,5	10	20,4	18	20,0
2	0	0,0	2	4,1	2	2,2
3	2	4,9	7	14,3	9	10,0
4	0	0,0	2	4,1	2	2,2
5	2	4,9	2	4,1	4	4,4
6	0	0,0	1	2,0	1	1,1
7	1	2,4	6	12,2	7	7,8
8	2	4,9	1	2,0	3	3,3
9	5	12,2	1	2,0	6	6,7
10	6	14,9	5	10,2	11	12,2
11	1	2,4	1	2,0	2	2,2
12	0	0,0	1	2,0	1	1,1
13	4	9,8	1	2,0	5	5,5
14	2	4,9	0	0,0	2	2,2
15	4	9,8	0	0,0	4	4,4
16	1	2,4	6	12,2	7	7,8
17	2	4,9	1	2,0	3	3,3
18	1	2,4	0	0,0	1	1,1
19	0	0,0	2	4,1	2	2,2

NOTE:
1. Improved crop production because of lack of rain.
2. Improved pig farming because of resistance to new breed.
3. Processing of crops and livestock products because of lack of capital and knowledge.
4. Improved crop production because of late ploughing.
5. Improved crop production because of too small plots.
6. General progress is hampered by the fact that too many farmers are too old and unable to progress.
7. Improved animal production because of lack of dipping facilities and unavailability of remedies.
8. New tools, equipment and power sources are too expensive.
9. Improved animal husbandry because of shortage of grazing and consequent overgrazing.
10. Improved animal husbandry because of, low sales.
11. Improved crop production because fertilizer is too expensive.
12. Improved crop production because of the low quality of seeds.
13. Improved animal production because of stock limitation.
14. Improved animal production because of the low reproduction capacity of bulls.
15. Improved crop production and -processing because of lack of processing industries.
16. Improved crop production because of lack of credit.
17. General progress is hampered by the lack of capital.
18. Animal production because of the lack of knowledge of diseases and incorrect method of feeding.
19. General progress is lacking because of traditional practices.

Table 5.2b. Change/innovations: farmers' given reasons why innovations have not gained acceptance in the past ten years (according to problem areas: crops, animals and general progress)

REASONS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 41		N = 49		N = 90	
Crops: lack of rain, late ploughing, too small plots, expensive fertilizer, low quality of seeds, lack of processing industries, lack of credit.	16	39,0	22	44,9	38	42,2
Animals: resistance against new breed, lack of dipping facilities, shortage of grazing, low sales, stock limitation, weak bulls, lack of knowledge	19	46,4	15	30,6	34	37.8
General: lack of capital and knowledge, too old farmers, expensive inputs, traditional practices	6	14,6	12	24,5	18	20,0

Table 5.3. Significant progressive changes observed

ANSWER	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 150		N = 178		N = 328	
Village headmen, community elders or older farmers recollect significant progressive changes in soil fertility productivity, vegetation type, areas of grazing etc.	50	33,3	62	34,8	112	34,1
No progressive changes were observed	100	66,7	116	65,2	216	65,9

Table 5.4. Farmers opinions on the adequacy of certain information

ADEQUATE INFORMATION ON:	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 109		N = 105		N = 214	
Allocation of lands as a result of planning for grazing camps, residential sites and arable lands	5	4,6	25	23,8	30	14,0
Crop production	19	17,4	30	28,6	49	22,9
Animal production	6	5,5	20	19,0	26	12,2
General farm management information	79	72,5	30	28,6	109	50,9

These answers may reflect on the general high risk aversion of Lebowa smallholders (Vink, 1981). Altogether 34 per cent of the respondents said there were significant progressive changes while the rest did not recognise such a change (Table 5.3). On available local information Group A regarded farm management information as most readily available (72,5 per cent) while still in the first place only 28,6 per cent of the B group held the same opinion. For them the allocation of lands as a result of planning by the Lebowa Department of Agriculture and Forestry was almost as important (23,8 per cent) (Table 5.4).

5.5 NEW CROPS

Forty Farmers in group A introduced ten new cash crops during the past eleven years, while in Group B sixty seven farmers introduced eighteen new crops (Figure 5,3 and Table 5.5).

The introduction of cash crop enterprises in addition to existing systems has been at the core of the development of traditional agriculture in many parts of Africa. In general new crops are readily acceptable to smallholders, particularly in farming systems with "surplus capacity", where food production does not absorb all family labour. Difficulties of assimilation are increased when the resource requirements of foods and the new crops clash.

According to Collinson (1972: 62), future possibilities for new crops are difficult to assess. Although many of the present possibilities can be expanded further, many others face declining markets, with falling prices. Mcloughlin (1970: 310–311) mentions that innovations are normally much more easily effected for cash crops than for household food crops. The cost of gambling with cash crops is less severe. To save the heavy labour of bush clearing, several crops per year may be grown on the same land. Crops may also be interplanted for the same reason. This may be the case in land surplus economies, while in Lebowa the reason is predominantly land shortage.

Reasons given for introducing new crops (for home consumption or market sale) show a slightly higher market orientation for the A Group (an average of 61,62 per cent from 20 introductions) as opposed to the B Group (an average of 55 per cent from 20 introductions) Table 5.6 shows the relevant details.;

Fig. 5.3 Newly introduced cash crops during the past eleven years

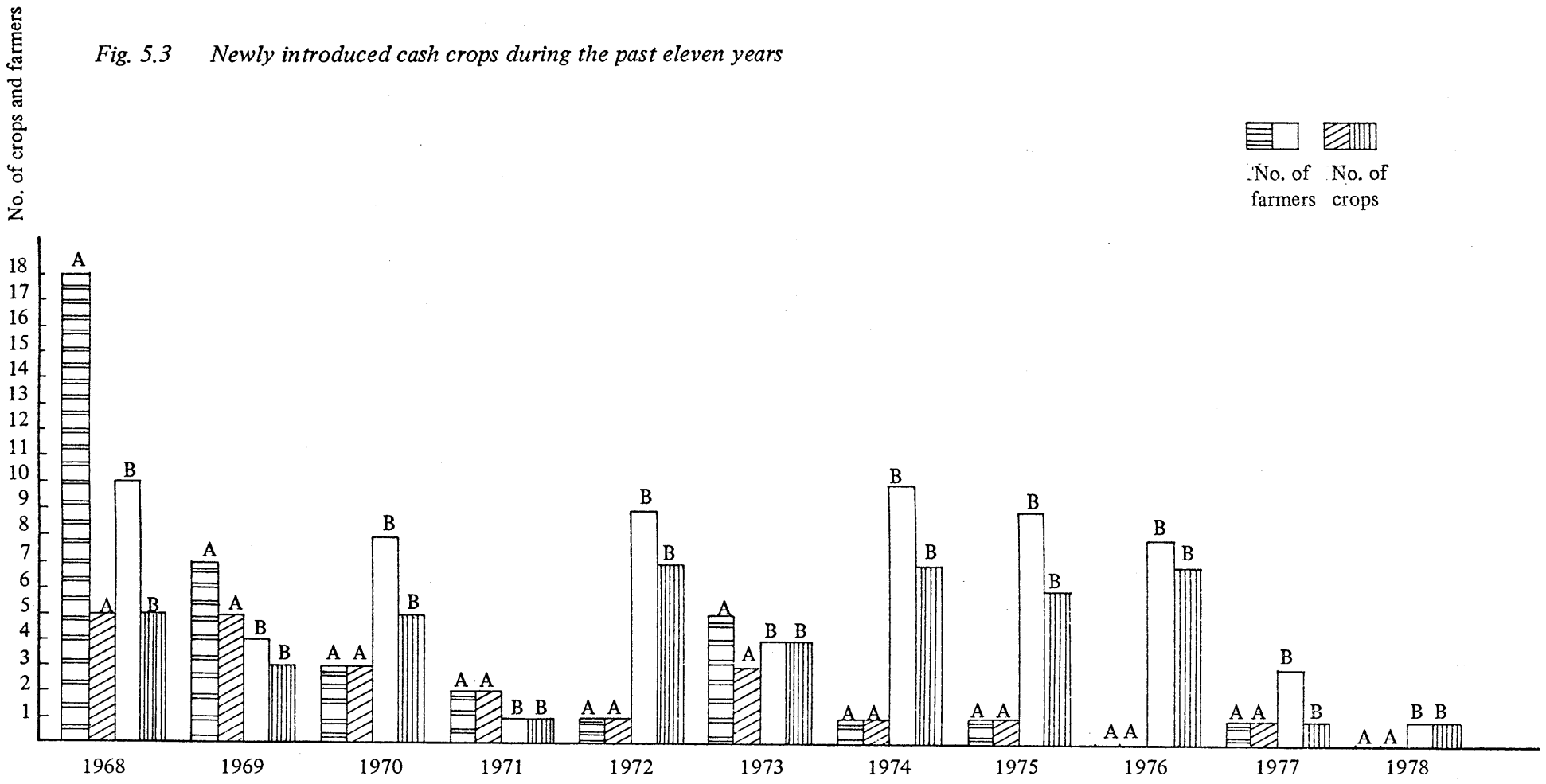

Table 5.5 Frequency of newly introduced cash crops during the past eleven years

GROUP A	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	Total
Maize	2	2	–	–	–	–	–	–	–	–	–	4
Jugobean	–	2	1	–	–	–	–	–	–	–	–	3
Cowpeas	5	1	1	–	1	–	–	–	–	–	–	8
Pumpkins	1	–	–	–	–	–	–	–	–	–	–	1
Sugarbeans	–	1	1	1	1	1	–	1	–	–	–	6
Kaffirbeans	6	–	–	–	–	–	–	–	–	–	–	6
Sorghum	4	1	–	1	–	–	–	–	–	–	–	6
Wheat	–	–	–	–	–	3	–	–	–	–	–	3
Sunflower	–	–	–	–	–	–	1	–	–	1	–	2
Greenbeans	–	–	–	–	–	1	–	–	–	–	–	1
Total	18	7	3	2	2	5	1	1	0	1	0	40
GROUP B												
Maize	4	2	3	–	1	–	4	3	–	–	–	17
Amadumbi	–	–	1	–	–	–	–	–	–	–	–	1
Jugobeans	1	–	2	–	3	1	1	–	–	3	–	11
Cowpeas	3	–	1	–	1	–	–	1	1	–	–	7
Groundnuts	–	1	–	–	–	–	–	2	2	–	1	6
Tomatos	–	–	–	–	–	–	–	1	1	–	–	2
Cabbage	–	–	–	–	–	–	1	–	–	–	–	1
Onions	1	–	1	–	–	–	–	–	–	–	–	2
Sweetpotatos	–	–	–	1	–	1	–	–	–	–	–	2
Pumpkins	–	1	–	–	1	–	1	–	–	–	–	3
Salad	–	–	–	–	–	–	1	–	–	–	–	1
Sugarbeans	–	–	–	–	1	1	–	–	–	–	–	2
Kaffirbeans	–	–	–	–	–	1	1	–	–	–	–	2
Sorghum	–	–	–	–	1	–	1	1	–	–	–	3
Manna	–	–	–	–	–	–	–	–	1	–	–	1
Wheat	–	–	–	–	–	–	–	–	1	–	–	1
Sunflower	–	–	–	–	1	–	–	1	2	–	–	4
Hybridmaize	1	–	–	–	–	–	–	–	–	–	–	1
Total	10	4	8	1	9	4	10	9	8	3	1	67
Great Total	28	11	11	3	11	9	11	10	8	4	1	107

NOTE: Number of newly introduced cash crops: Group A: 10; Group B: 18

Table 5.6 Reasons for introducing new crops in the past eleven years

GROUP A	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Maize	70,0 30,0	35,0 65,0	–	–	–	–	–	–	–	–	–
Jugobeans	50,0 50,0	10,0 90,0	45,0 55,0	–	–	–	–	50,0 50,0	–	–	–
Cowpeas	–	–	70,0 30,0	15,0 75,0	–	–	–	–	–	–	–
Bananas	–	–	–	0,0 100,0	–	–	–	–	–	–	–
Tomatos	–	–	–	–	–	–	–	50,0 50,0	–	–	–
Cabbage	–	–	–	–	–	–	–	50,0 50,0	–	–	–
Onions	–	–	–	–	–	–	–	50,0	–	–	–
Potatos	15,0 85,0	–	–	–	–	–	–	–	–	–	–
Sugarbeans	–	–	50,0 50,0	–	47,5 52,5	–	–	–	–	–	–
Sorghum	35 65	25 75	–	–	–	–	–	–	–	–	–
Peaches	–	100,0 0,0	–	–	–	–	–	–	–	–	–
Sunflower	–	–	–	–	–	–	–	–	–	0,0 100,0	–
White Harricot	–	–	–	–	10,0 90,0	–	–	–	–	–	–
GROUP B											
Maize	–	100,0 0,0	–	–	–	–	–	20,0 80,0	–	–	–
Jugobeans	–	–	10,0 90,0	–	–	0,0 100,0	0,0 100,0	–	–	–	–
Cowpeas	–	100,0 0,0	–	–	–	–	–	–	50,0 50,0	–	–
Groundnuts	50,0 50,0	–	–	–	–	–	–	–	0,0 100,0	–	0,0 100,0
Tomatos	–	–	–	–	–	–	–	100,0 0,0	–	–	–
Pumpkins	–	–	–	–	–	–	–	–	–	–	100,0 0,0
Sugarcane	30,0 70,0	–	–	–	–	–	–	–	–	–	–
Chillies	–	–	–	–	–	–	–	–	–	10,0 90.0	–
Sugarbeans	–	–	–	–	–	–	–	100,0 0,0	0,0 100,0	–	–
Kaffirbeans	–	–	–	–	–	0,0 100,0	–	–	–	–	–
Sorghum	–	–	–	–	50,0 50,0	–	0,0 100,0	–	–	–	–
White Harricot	–	–	–	–	–	–	–	0,0 100,0	–	–	–

NOTE: 1) First number for each crop is percentage for home consumption, second number is percentage for the market.
2) When more than once introduced, changes in the consumption/market ratio indicates increased (higher market-ratio) or decreased (higher consumption ratio) areas under cultivation.

Referring to African peasant production, Hyden (1980: 232) states that while it has been relatively easy to introduce new crops as long as they do not interfere with the existing farming systems in a fundamental manner, and while it has been possible to increase agricultural production through new acreages, it has been considerably more difficult to improve techniques and encourage a modern form of agriculture using inputs from other sectors. Thus much control over the variables that determine agricultural output has remained within the mode of peasant production.

5.6 SOIL CONSERVATION

The most commonly used soil conservation practice in Lebowa is strip cropping, followed by leaving surface trash/crop residues left on the surface and terraces by both groups as shown in Table 5.7. The use of terraces and/or banks may in some sense be regarded as the same type of practice. Taken together, these also assume quite important dimensions.

Both Groups A and B (78,5 per cent and 61,9 per cent respectively) mentioned shortage of land as the most important reason for putting fallow land back to crops before regaining a satisfactory level of fertility (Table 5.8). The majority of the farmers agree that natural grazing is deteriorating due to overstocking (Table 5.9) and according to both groups the local authorities and the Lebowa Department of Agriculture and Forestry are the most important bodies to take measures when natural grazing is overstocked (Table 5.10).

5.7 DIPPING OF CATTLE

40,1 per cent from A Group and 53,8 per cent from B Group farmers dip their cattle regularly and an average of 82,6 per cent (A + B Group) do so in every week or every month (Table 5.11).

5.8 GENERAL OPINIONS OF FARMERS

An average of 92,9 per cent of the farmers interviewed said they want to obtain a higher yield from their existing land units, but only 22,0 per cent of them desire higher yields exclusively for market production. The market orientation nevertheless seems to be somewhat higher in Group A. (Table 5.12) This concluded therefrom that in Group A 32 per cent

Table 5.7 Soil conservation practices used

PRACTICES	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 202		N = 202		N = 404	
Strip cropping	59	29,2	67	33,2	126	31,2
Banks	19	9,4	25	12,4	44	10,9
Terraces	29	14,3	33	16,3	62	15,3
Ridging	23	11,4	11	5,4	34	8,4
Soil tillage practices such as use of pointed or lined (non-soil-inverting) tools for land preparation	21	10,4	25	12,4	46	11,4
Surface trash/ residue left on surface	49	24,3	36	17,8	85	21,1
Curved shape of lands across the slope	2	0,1	5	2,5	7	1,7

Table 5.8 Reasons for fallow land being put back to crops before satisfactory fertility level regained

REASONS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 130		N = 160		N = 290	
Land shortage	102	78,5	99	61,9	201	69,3
Population pressure	28	21,5	61	38,1	89	30,7

Table 5.9 Farmers' opinion on the deterioration of natural grazing due to overstocking

OPINION	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 147		N = 177		N = 324	
Natural grazing is deteriorating	83	56,5	96	54,2	179	55,2
Natural grazing is not deteriorating	64	43,5	81	45,8	145	44,8

Table 5.10 When natural grazing land is deteriorating due to overstocking, certain measures are being taken by the following institutions:

ACCORDING TO THE FARMERS:	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 76		N = 94		N = 170	
Household	6	7,9	3	3,2	9	5,3
Community	10	13,2	20	21,3	30	17,6
Local authorities	43	56,6	45	47,9	88	51,8
Labour Department of Agriculture and Forestry	17	22,3	26	27,6	43	25,3

Table 5.11 Dipping of cattle

FARMERS' STATEMENTS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 142		N = 169		N = 311	
Dip cattle regularly (at least every two months)	57	40,1	91	53,8	148	47,6
Do not dip cattle regularly	85	49,9	78	46,2	163	52,4
PERIODS OF DIPPING	N = 63		N = 90		N = 153	
Every week	29	46,0	43	47,8	72	47,0
Every month	24	38,1	30	33,3	54	35,3
Every two months	7	11,1	5	5,5	12	7,8
Every three months	1	1,6	6	6,7	7	4,6
Twice a year	2	3,2	6	6,7	8	5,2

Table 5.12 Farmers' attitudes towards higher production

ATTITUDES	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 156		N = 184		N = 340	
Want to obtain higher yield from the land unit	149	95,5	167	90,8	316	92,9
Do not want to obtain higher yield	7	4,5	17	9,2	24	7,1
Reasons for wanting higher yield	N = 153		N = 169		N = 322	
To get more food	49	32,0	82	48,5	131	40,7
To sell more	35	22,9	36	21,3	71	22,0
To get more food and sell more	63	41,2	50	29,6	113	35,1
To help relatives	0	0,0	1	0,6	1	0,3
To gain recognition as a good farmer	6	3,9	0	0,0	6	1,9

mentioned more food alone as motivation compared to 48,5 per cent in Group B. In addition 41,2 per cent in Group A mentioned the combination of more food and sales as their motive, compared with only 29,6 per cent of Group B interviewers.

Higher order motivations such as recognition elicited a scant response in Group A and none in Group B.

Opinions on the size of land (in hectares) and the number of livestock necessary to get a higher yield and be able to make a living as a farmer follow a fairly similar pattern in both groups. Nearly 70 per cent of the farmers regard 5 ha as satisfactory and approximately 80 per cent regard 10 hectares as sufficient (Table 5.13). The stated number of livestock units necessary however does not correspond with the ecologically possible carrying capacity: Table 5.14 shows, for example, that only 7,6 per cent of the respondents regarded ten head of cattle as sufficient. This can be interpreted as a total of 800 000 head of cattle for the smallholder community of Lebowa, which in turn represents approximately 360 per cent overstocking (Benbo, 1976:32). The above data is further proof of the over-population of Lebowa's smallholder agriculture.

Otherwise stated, the majority (56,6 per cent) but certainly not all respondents regard a herd of 35 cattle as sufficient. If it is assumed that under present grazing management practices, the natural grazing of Lebowa can sustain 220 168 cattle (Benbo, 1976: 32), then this would imply that only 6 290 smallholders will be able to engage in profitable commercial cattle farming.

Fifty five sheep and goats are regarded as necessary by more than 70 per cent of Group A farmers and about 90 – 95 per cent of Group B farmers.

Respondents were asked for reasons for the difference between crop yields per hectare in Lebowa and in the adjoining white farming areas. More than 80 per cent of the farmers mentioned lack of capital (55,7 per cent) and non-scientific farming methods (26,2 per cent) as the main reasons.

There exist however considerable differences between Groups A and B. Lack of capital is regarded higher in Group A (61,3 per cent as against 50,2 per cent in Group B) while non-scientific farming methods accounts for 31,8 per cent in Group B and only 20,6 per cent in Group A. These differences may to a certain extent point at the more permanent and more traditional nature of Group A settlements.

Table 5.13 Farmers' opinions on the size of land (ha) necessary to get higher yield and make a living as a farmer

GROUP A	HECTARES OF LAND																							
Hectares of land	1	2	3	4	5	6	8	9	10	11	12	15	20	21	22	23	24	25	26	27	28	29	33	37
Frequency of respondents	1	0	8	18	72	7	0	4	8	1	2	0	4	1	0	3	5	3	1	2	2	1	1	1
Percentage	0,7	0,0	5,5	12,4	49,6	4,8	0,0	2,8	5,5	0,7	1,4	0,0	2,8	0,7	0,0	2,1	3,4	2,1	0,7	1,4	1,4	0,7	0,7	0,7
Cumulative frequency	1	1	9	27	99	106	106	110	118	119	121	121	125	126	126	129	134	137	138	140	142	143	144	145
Cummulative percentage	0,7	0,7	6,2	18,6	68,3	73,1	73,1	75,9	81,4	82,1	83,4	83,4	86,2	86,9	86,9	89,0	92,4	94,5	95,2	96,5	97,9	98,6	99,3	100,0
GROUP B																								
Frequency of respondents	0	3	21	31	65	4	4	0	8	0	1	3	10	6	3	8	2	0	1	1				
Percentage	0,0	1,8	12,3	18,1	38,0	2,3	2,3	0,0	4,7	0,0	0,6	1,8	5,8	3,5	1,8	4,7	1,2	0,0	0,6	0,6				
Cummulative frequency	0	3	24	55	120	124	128	128	136	136	137	140	150	156	159	167	169	169	170	171				
Cummulative percentage	0,0	1,8	14,0	32,2	70,2	72,5	74,8	74,8	79,5	79,5	80,1	81,9	87,7	91,2	93,0	97,7	98,8	98,8	99,4	100,0				
GROUP A + B																								
Frequency of respondents	1	3	29	49	137	11	4	4	16	1	3	3	14	7	3	11	7	3	2	3	2	1	1	1
Percentage	0,3	0,9	9,2	15,5	43,3	3,5	1,3	1,3	5,1	0,3	0,9	0,9	4,4	2,2	0,9	3,5	2,2	0,9	0,6	0,9	0,6	0,3	0,3	0,3
Cummulative frequency	1	4	33	82	219	230	234	238	254	255	258	261	275	282	285	296	303	306	308	311	313	314	315	316
Cummulative percentage	0,3	1,3	10,4	25,9	69,3	72,8	74,0	75,3	80,4	80,7	81,6	82,6	87,0	89,2	90,2	93,7	95,9	96,8	97,5	98,4	99,0	99,4	99,7	100,0

Table 5.14 **Farmers' opinions on the number of livestock necessary to make a living as a farmer**

GROUP A (CATTLE)

Number of cattle	5	10	15	20	25	30	35	40	45	50	55	65	70	75	85	90	95	100	200	300	1100	1400
Frequency of respondents	2	11	15	6	16	10	14	2	13	1	5	7	2	4	4	0	3	1	14	1	8	10
Cumulative frequency	2	13	28	34	50	60	74	76	89	90	95	102	104	108	112	112	115	116	133	134	142	152
Cumulative percentage	1,3	8,5	18,4	22,4	32,9	39,5	48,7	50,0	58,5	59,2	62,5	67,1	68,4	71,0	73,7	73,7	75,6	76,3	87,5	88,1	93,4	100,0

GROUP B (CATTLE)

Frequency of respondents	3	8	30	12	26	3	23	1	12	0	22	7	0	1	5	1	4	0	3	0	0	2
Cumulative frequency	3	11	41	53	79	82	105	106	118	118	140	147	147	148	153	154	158	158	162	162	162	164
Cumulative percentage	1,8	6,7	25,0	32,3	48,2	50,0	64,0	64,6	72,0	72,0	85,4	89,6	89,6	90,2	93,3	93.9	96,3	96,3	98,8	98,8	98,8	100,0

GROUP A + B (CATTLE)

Frequency of respondents	5	19	45	18	42	13	37	3	25	1	27	14	2	5	9	1	7	1	17	1	8	12
Cumulative frequency	5	24	69	87	129	142	179	182	207	208	235	249	251	256	265	266	273	274	295	296	304	316
Cumulative percentage	1,6	7,6	21,8	27,5	40,8	44,9	56,6	57,6	65,5	65,8	74,4	78,8	79,4	81,0	83,9	84,2	86,4	86,7	93,3	93,7	96,2	100,0

GROUP A (SHEEP)

Number of sheep	5	10	15	20	25	30	35	40	45	50	55	60	65	80	85	95	180	200	1100	1400
Frequency of respondents	2	12	12	5	23	2	10	1	11	2	11	1	5	0	4	1	2	4	16	5
Cumulative frequency	2	14	26	31	54	56	66	67	78	80	91	92	97	97	101	102	104	108	124	129
Cumulative percentage	1,5	10,9	20,1	24,0	41,9	43,4	51,2	51,9	60,5	62,0	70,5	71,3	75,2	75,2	78,3	79,1	80,6	83,7	96,1	100,0

GROUP B (SHEEP)

Frequency of respondents	3	7	31	5	30	2	20	1	7	1	10	0	1	1	2	1	0	5	0	1
Cumulative frequency	3	10	41	46	76	78	98	99	106	107	117	117	118	119	121	122	122	127	127	128
Cumulative percentage	2,3	7,8	32,0	35,9	59,4	60,9	76,6	77,3	82,8	83,6	91,4	91,4	92,2	93,0	94,5	95,3	95,3	99.2	99.2	100,0

GROUP A + B (SHEEP)

Frequency of resp.	5	19	43	10	53	4	30	2	18	3	21	1	6	1	6	2	2	9	16	6
Cumulative frequency	5	24	67	77	130	134	164	166	184	187	208	209	215	216	222	224	226	235	251	257
Cumulative percentage	1,9	9,3	26,1	30,0	50,6	52,1	63,8	64,6	71,6	72,8	80,9	81,3	83,6	84,0	86,4	87,1	87,9	91.4	97,7	100,0

GROUP A (GOATS)

Number of Goats	5	10	15	20	25	30	35	40	45	50	55	60	65	70	80	85	95	180	200
Frequency of resp.	3	6	16	9	16	1	10	3	15	1	16	1	4	0	0	1	1	19	9
Cumulative frequency	3	9	25	34	50	51	61	64	79	80	96	97	101	101	101	102	103	122	131
Cumulative percentage	2,3	6,9	19,1	26,0	38,2	38,9	46,6	48,8	60,3	61,1	73,3	74,0	77,1	77,1	77,1	77,9	78,6	93,1	100,0

GROUP B (GOATS)

Frequency of resp.	5	11	18	5	19	3	20	1	12	2	37	0	2	1	1	1	1	1
Cumulative frequency	5	16	34	39	58	61	81	82	94	96	133	133	135	136	137	138	139	140
Cumulative percentage	3,6	11,4	24,3	27,8	41,4	43,6	57,8	58,6	67,1	68,6	95,0	95,0	96,4	97,1	97,8	98,6	99,3	100,0

GROUP A + B (GOATS)

Frequency of resp.	8	17	34	14	35	4	30	4	27	3	53	1	6	1	1	2	2	20	9
Cumulative frequency	8	25	59	73	108	112	142	146	173	176	229	230	236	237	238	240	242	262	271
Cumulative percentage	3,0	9,2	21,8	26,9	39,8	41,3	52,4	53,9	63,8	64,9	84,5	84,9	87,1	87,5	87,8	88,6	89,3	96,7	100,0

(Table 5.15) with regard to animal husbandry 44,8 per cent and 18,3 per cent attribute their lower productivity to the same reasons, while an additional 19,1 per cent mention the problem of uneconomic grazing camps. Too many head of animals per capita and negative tribal usages constitutes only 14,3 per cent of the answers (Table 5.16).

Answers given by the non-traditional leaders differ notably from these already mentioned. The highest percentage, namely 43,2 per cent choose lack of incentives i.e. too small arable lands, lack of markets, credit etc. and the fact that the present social order is based on subsistence as the major cause. Lack of capital (32,9 per cent) was also regarded as important, while non-scientific farming methods (21,6 per cent)and traditional practices (12,3 per cent) (Table 5.17) consitute secondary causes.

With regard to animal husbandry, besides lack of capital (21,6 per cent), non-traditional leaders regard the fact that cattle provide security for unforeseen occurrences, with the implication that farmers are hesitant to sell, as second most important with 20 per cent. Only 14,3 per cent of the non-traditional leaders mentioned many heads of animals per capita and over-grazing as a possible reason for the unfavourable comparison (Table 5.18).

The most important reasons given for farmers' inability to farm well are all connected with capital namely: no tractor, (38 per cent), lack of capital (17,8 per cent) cannot afford fertilizer (11,7 per cent) and cannot get a loan (9,0 per cent). Together these reasons constitute 76,5 per cent of responses. Differences between the two groups appear to be insignificant. (Table 5.19) The high value attached to tractors probably reflects a desire for modernization and mechanization although with the present size of arable land holdings this does not make economic sense.

Respondents were asked for reasons of how the best farmer was able to farm well and earn a good living. 64,2 Percent of the respondents said that he has knowledge of progressive farming methods and another 19,5 per cent mentioned strong incentives (Table 5.20). Group B respondents laid more stress on incentive than those in Group A, 11,6 per cent ascribed it to witchcraft, thereby exhibiting a lack of rational thinking in terms of modern times. The other 88,4 per cent gave rational reasons. The most common opinion on what makes a farmer rich is good knowledge of farming (41,7 per cent) followed by hard work (19,7 per cent) and good land (8,5 per cent) (Table 5.21).

Table 5.15 Reasons given by farmers for difference between crop yield per hectare in Lebowa and in the white farming areas (percentages of replies)

REASONS	GROUP A	GROUP B	TOTAL A + B
	N = 155	N = 186	N = 341
Lack of capital	61,3	50,2	55,7
Non-scientific farming methods	20,6	31,8	26,2
Uneconomic land units	7,5	10,2	8,9
Traditional practices	10,6	7,8	9,2

Table 5.16 Reasons given by farmers why animal husbandry compares unfavourably with that of white farming areas. (Percentages of replies)

REASONS	GROUP A	GROUP B	TOTAL A + B
	N = 158	N = 183	N = 341
Lack of capital	44,1	45,6	44,8
Non-scientific farming methods	21,0	15,6	18,3
Uneconomical grazing camps	18,8	19,4	19,1
Too many head of animals per capita	9,3	10,7	10,0
Too few head of animals per capita	2,7	4,5	3,6
Negative tribal usages such as communal grazing	4,1	4,5	4,3

Table 5.17 Non-traditional leaders: reasons given for the comparatively low crop yields in Lebowa

REASONS	Number of responses	Proportion (%)
Lack of capital	32	32,9
Non-scientific farming methods	21	21,6
Traditional practices	12	12,3
Lack of incentives: arable lands are too small; lack of markets, credit etc.; the social order is based on subsistence.	42	43,2

NOTE: When more than one reason is given, a percentage weight is attached to each one.

Table 5.18 Non-traditional leaders: reasons given for unfavourable animal husbandry practices in Lebowa

REASONS	Number of responses	Proportion (%)
Lack of capital	21	21,6
Non-scientific farming methods	15	15,4
Uneconomical grazing camps	17	17,5
Too many head of animals per capita	6	6,1
Too few head of animals per capita	2	2,0
Over-grazing	8	8,2
Negative tribal usages	9	9,2
The cattle provides security for unforeseen happenings, thus farmers are hesitant to sell	19	20,0

Table 5.19 Reasons given why farmers are unable to farm well (Percentages of replies)

REASONS	GROUP A	GROUP B	TOTAL (A + B)
	N = 137	N = 163	N = 300
Lack of capital	19,0	16,6	17,8
Insufficient labour	1,5	0,2	0,8
No tractor	36,3	39,7	38,0
No oxen	2,8	1,0	1,9
Cannot afford fertilizer	13,4	10,0	11,7
Not enough land	3,6	3,4	3,5
Land is poor	7,9	7,6	7,8
Cannot get a loan	7,4	10,6	9,0
No equipment	2,6	3,5	3,1
Insufficient knowledge of farming	5,5	7,4	6,4

Table 5.20 Opinions on how is the best farmer able to farm well and earn a living (Percentages of replies)

OPINIONS	GROUP A	GROUP B	TOTAL (A + B)
	N = 150	N = 181	N = 331
Has knowledge of progressive methods	67,0	61,5	64,2
Uses witchcraft	12,7	10,4	11,6
Physically strong	0,1	1,0	0,5
Has a large family – large labour force	2,2	1,8	2,0
Started farming with sufficient capital	2,7	1,7	2,2
Has strong incentive	15,3	23,6	19,5

Table 5.21 Opinions on what makes a farmer rich (Percentages of replies)

OPINIONS	GROUP A	GROUP B	TOTAL (A + B)
	N = 159	N = 185	N = 344
Hard work	20,2	19,3	19,7
Good land	10,5	6,5	8,5
Much land	3,9	5,0	4,5
Medicine	1,9	1,0	1,4
Much labour	1,0	1,0	1,0
Loans	5,3	6,6	6,0
Good knowledge of farming	40,7	42,8	41,7
Good seed	6,5	7,7	7,1
Oxen and/or equipment	4,7	3,1	3,9
God	5,3	7,0	6,2

Table 5.22 **Opinions on what farming inputs or results show that a person is a good farmer (Percentages of replies)**

INPUT OR RESULT	GROUP A	GROUP B	TOTAL (A + B)
	N = 159	N = 181	N = 340
Good yield	20,4	15,6	18,0
Hard work	7,1	10,2	8,6
Much equipment	0,0	0,6	0,3
Tractor	40,4	40,5	40,5
Oxen	7,0	5,0	6,0
Fertilizer	3,2	4,8	4,0
Good land	2,8	4,0	3,4
Much land	1,5	1,2	1,3
Hybrid seed	4,4	4,8	4,6
Hired labour	2,7	2,4	2,6
Cash crops	2,0	2,0	2,0
Good management	3,8	2,7	3,2
Grows many crops	1,4	1,2	1,3
Hired tractor	3,3	5,0	4,2

Table 5.23 Opinion of farmers on the availability of human material for agricultural development in Lebowa

OPINION	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 135		N = 146		N = 281	
There is enough human material with scientific knowledge to place agricultural activities on a sound and competitive footing	50	37,0	73	50,0	123	43,8
There is not enough human material	85	63,0	73	50,0	158	56,2
REASONS FOR POSITIVE ANSWER	N = 50		N = 73		N = 123	
Enough, because the Lebowa Government give sufficient advice, but they do not have enough capital to use scientific methods	4	8,0	12	16,4	16	13,0
Enough, because there are now many agricultural schools and higher educational institutions to educate the people	18	36,0	20	27,4	38	30,9
Enough, because there are now many new enterprises in both crop and animal production	9	18,0	17	23,3	26	21,1
The human material is enough, but they operate in a very limited institutional environment (infrastructure, credit facilities, markets and marketing arrangements etc.)	19	38,0	24	32,9	43	35,0
REASONS FOR NEGATIVE ANSWER	N = 85		N = 73		N = 158	
Not enough because the bulk of the rural population still accepts the advice of the traditional bound tribal authorities	31	36,5	23	31,5	54	34,2
Not enough because many people still support tribal beliefs e.g. that fertilizers encourage weed instead of crop development	17	20,0	10	13,7	27	17,1
Not enough because most of the farmers produce only for own consumption, not for the market	2	2,4	8	11,0	10	6,3
Not enough because the traditional system of land tenure and communal grazing together with traditional customs and the absence of institutional support gave agriculture a low graded status and the best people are working in white areas but keep their land under the care of old people or women who are not able to utilize it fully.	35	41,1	32	43,8	67	42,4

Tractors are again regarded as the most prominant indicator of a person being a good farmer (40,5 per cent) while good yields and oxen occupy the second and third places with 18,0 per cent and 8,6 per cent respectively (Table 5.22).

Table 5.23 and 5.24 give the opinions of the smallholders and non-traditional leaders on the availability of human material for agricultural development in Lebowa. It is interesting to note that only 50 per cent of Group B farmers give a negative answer. The corresponding percentage is 63,0 for Group A and 73,2 per cent for the non-traditional leaders. In this respect Group A probably demonstrate more rational perception. Regarding the reasons for positive answers Groups A and B follow the same pattern and point at the ineffectiveness of human effort because of limited institutional environment (38,0 and 32,9 per cent respectively), followed by the positive answer because of the existence of agricultural schools and higher educational institutions (36,0 and 27,4 per cent for Groups A and B respectively). Advice by the Lebowa Government and the introduction of new agricultural enterprises are regarded somewhat higher by Group B farmers (16,4 per cent in Group A and 23,3 per cent in Group B as against 8,0 and 18 per cent in Group A). As far as negative answers are concerned the highest percentage (41,1 in Group A and 43,8 per cent in Group B) regard the traditional system together with migration of able people as the main reason for the shortage of human material. In general all four reasons given blame the traditional system and tribal authorities at least to a certain extent.

Reasons for shortage of human material given by non-traditional leaders are significant: 42,3 per cent of them are of the opinion that lack of preference for agriculture at schools, mostly because the low image of tribal agriculture and lack of employment opportunities are the responsible factors. Bearing in mind that at present no African is able to buy agricultural land, this observation is indeed important. The interest in agriculture in educational institutions increased in recent years. The University of the North for instance reported a first year enrolment of 65 students majoring in agricultural economics, (approximately 250 per cent increase on previous years enrolment figures).

Table 5.24 Non-traditional leaders: opinion on human material for agricultural development in Lebowa

OPNINION	Number of responses	Proportion (%)
	N = 97	
There is enough human material in Lebowa because we have agricultural extention advisors. The human material is presently applied on un-economic farming units.	26	26,8
There is not enough human material	71	73,2
REASONS FOR SHORTAGE OF HUMAN MATERIAL	N = 71	
Lebowa is a young country and needs many more trained citizens	8	11,3
There is a shortage of agricultural advisors	12	16,9
Most of the learned people have left for towns	9	12,6
Lack of preference for agriculture at schools, mostly because the low image of tribal agri-culture and lack of employment opportunities	30	42,3
Most farmers are uneducated and too old to learn	2	2,8

5.9 EXTENSION

5.9.1 The introduction of technical change

Agricultural extension programmes are concerned primarily with the introduction of technical change, and associated inputs, into a farming system operating under existing infrastructural conditions (Lever, 1970: 3). In essence it implies a systematic attempt at disturbing the low level of equilibrium in traditional agriculture. Low level equilibrium is reflected in terms of low or static productivity, whichever is chosen to measure it. A successful disturbance of the low level equilibrium in the agricultural sector would be observable in:

- changes in productivity level and acceleration of its rate of growth, and
- changes in the quality of inputs accompanied by a substantial increase in the use of superior quality, yield raising, modernizing inputs. These changes are usually referred to as diffusion of innovations (Chandhri, 1979: 1).

The ability to decode information may come to the farmers in various ways:

- the farmers might learn to critically examine it as "learning by doing". This, as explained by Arrow (1962), would provide greater ability to those who have already experience and who have already been decoding information and it would be less useful to those who are being initiated into the use of new techniques embodied in capital;
- the state can devise an elaborate extension system, such as demonstration plots, core projects (van de Wall,, 1981) to acquaint farmers with new information on inputs, techniques, markets etc. This can be extended by personal contacts of the extention agents or through the use of mass media (Fényes *et al.* 1980b);
- in close-knit village communities there is a lot of personal, family and social interaction, among farmers with different types of information field. This interaction can also contribute to an expansion of the information field of the farmer (Chandhri, 1979: 3).

5.9.2 Factors affecting the adoption of technical change

The attractiveness of an innovation will depend upon the costs and benefits of adoptation as perceived by the farmers. These factors are complex. The three main factor groups identified by Lever (1970: 3–6) are briefly considered below.

5.9.2.1 *The technical system*

A prerequisite for the existence of a ready demand for a new technology is that it must have a potentially significant effect in alleviating a constraint and improving the benefits the farmer perceives he will derive from the productive system. In general, technologies closely related to those at present in the system, and which have proved successful in the past, are more easily understood as productive factors and can be more confidently evaluated in the decision-making process. They are also more likely to be readily integrated with the present system structure. Failure of adoption implies some incompatibility or unprofitability in the system. Other technologies may present problems at times of peak work load or require a timeliness of operation to which farmers are not accustomed. Embodied technologies (i.e. those which can only be obtained in the form of new capital goods) which require large capital outlays relative to the current level of capital investment may be incompatible with the overall agricultural system because of risks and uncertainties in technical relationships, markets, price instabilities or the lack of suitable credit facilities.

5.9.2.2 *Community norms and institutions*

Agricultural growth and change is largely dependent on the extent of economic motivation of the community; the desire to improve, experiment and seize opportunities. This will depend upon levels of aspirations and relative valuations of effort and material goods, valuations which vary considerably between social groups. Horizons are often limited because the range of available consumer goods is limited. "People living in dark huts with no electricity supply have little use for elaborate furnishings, electrical appliances or similar goods. The utility of, and incentive for, increased cash incomes are, therefore, likely to be very low in the early stages of development". (Lever, 1970: 5).

If the proceeds of a individual's labour have to be shared amongst a large extended family, the incentives to individual efforts are likely to be reduced,

unless some status or moral satisfaction is derived from being a benefactor. If there is insecurity of tenure of land, incentives to make improvements are reduced. Social pressures also may discourage innovation by those of low social status or lineage.

5.9.2.3 *Personal characteristics*

Within a given social and agricultural system, the rate of uptake of innovations and change will depend on personal characteristics and aspirations, the development of personal needs and the realisation that these can be satisfied by available means of change. Lever (1970: 5) refers to Lewens *et al.* (1944) who suggested that, in general, the formation of aspiration levels depends on the following processes:

- when performance falls short of level of aspiration, search behaviour (particularly search for new courses of action) is induced;
- at the same time, the level of aspiration begins to adjust itself downwards until the goals reach levels that are practically attainable;
- if the two mechanisms listed above operate too slowly to adapt aspirations to performance, emotional behaviour – apathy or aggression for example – will replace adaptive behaviour.

The decision process involved in assessing new alternative actions are likely to be in terms of the aspirations of "satisfying" rather than maximizing (Lever, 1970, Westermark, 1961).

5.9.3 Measuring diffusion of innovations

The "natural" rate at which an innovation is likely to diffuse through a community will influence the benefits accruing to extension by affecting the rate of uptake of the innovation by farmers directly served and the rate at which other farmers adopt the new ideas, and thus benefit from the introduction of the new technology. According to Lever (1970: 125) several authors (Griliches, 1957, Mansfield, 1969, Shetty, 1966) have considered that diffusion generally follows the form of the logistic function. They have found the function, expressed mathematically as;

$$p = \frac{K}{1 + e^{-(a + \beta t)}}$$

fits empirical data to a high degree of approximation where:

p	=	the proportion having adopted;
e	=	the base number for Napierian (natural) logarithms;
K	=	the ceiling level of adoption – the maximum proportion of the population who will adopt;
a	=	a constant of integration;
t	=	time;
β	=	the rate of growth coefficient or the diffusion constant.

Estimation of the equation parameters were achieved using a logarithmic transformation of the basic equation, having the form:

$$\log \left(\frac{p}{K - p} \right) = a\beta t$$

The parameters may be estimated using least squares regression.

The β coefficient, the determinant of the rate of growth of the function, will itself be a function of the attractiveness of the innovation, the degree of communication between individuals and the whole complex of socio-economic circumstances.

A more attractive innovation or a more stimulating socio-economic context is likely to produce a steeper curve (Figure 5.4).

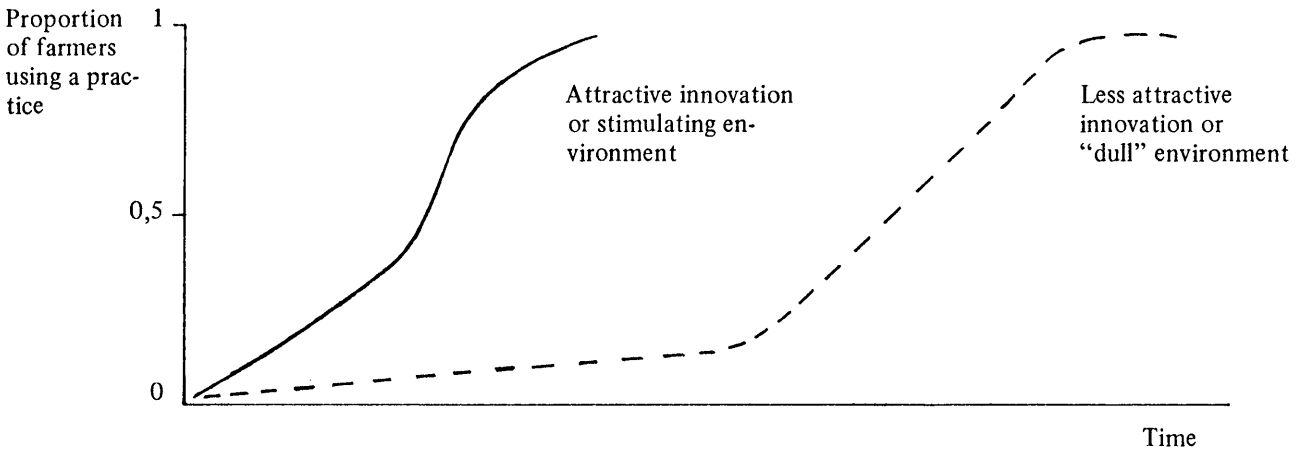

Figure 5.4 *Diagramatic adoption curves*

The effect of extension may be envisaged as increasing the propensity of farmers to use particular techniques resulting in an upward shift of the adoption curve (Figure5.5).

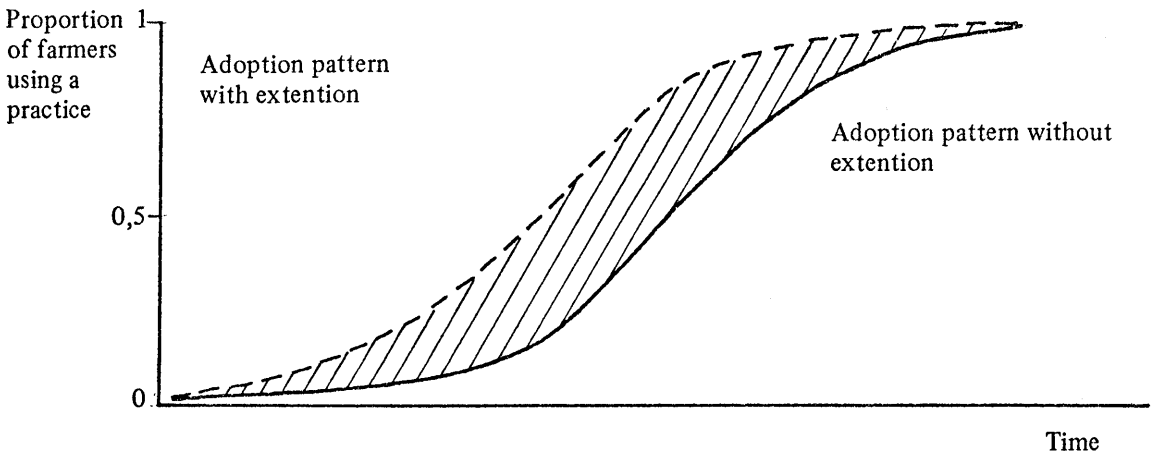

Figure 5.5 Effect of extension on the adoption pattern

The shaded area in Figure 5.5 will correspond to the benefit due to extension.

The functions of the extension division of the Lebowa Department of Agriculture and Forestry is given as:

- to establish the means of extension, media, methodic;
- to prepare radio programs, pamphlets and speeches;
- to provide films and slides;
- to plan extension action for target groups (Van Wyk and Herman, 1980).

The extent of the extension effort in the year of the survey is demonstrated by the following data:

- Organized meetings : 1800
  Attendance : 65 794 persons
  (36,6 per meeting)
- Visits by farmers to extension officer : 17 461
- Visits by extension officers to farmers: 36 036
- Demonstrations : 1 455
  Attendance : 19 664 persons
  (13,5 per demonstration)

- Meetings at farms : 212
  Attendance : 5 310 persons
  (25,0 per meeting)
- Agricultural Shows : 32
  Attendance : 75 885 persons
  (2 371 per show)
- Movies: 81 : 46 195 persons
  (570 per movie)
- Tours : 94
  Attendance : (16,1 per tour)
- Farmers' days : 361
  Attendance : 27 732
  (76,8 per farmers' day)
- Radio speeches : 139
- Newsletters : 821
- Auctions : 123

Activities at educational centrums:

- Training courses : 425
  Attendance : 3 089 persons
  (7,3 per course)
- Lectures : 976
- Demonstrations : 425

In this period the section Field personnel employed 457 agricultural officers, thus one agricultural officer per 175 smallholders.

The opinions of smallholders on the usefulness of the extension advice is shown in Table 5.25. Group A shows higher profit orientation and a higher propensity to borrow. In average only 4,4 per cent said that the advice does not help. Group A showed a greater awareness of the existence of limited opportunities to learn craftmanship and specialized advice offered by co-operatives (Table 5.26). Details on perceived needs regarding training or advice is given in Table 5.27. Production aspects such as cultivation, cattle, fertilisers etc. in average account for 62,8 per cent of the replies. The need for farm management information is seem to be higher in Group A (22,7 per cent) as in Group B (12,9 per cent) but in-

formation needed on tractors is higher in Group B (15,6 per cent as against 9,3 per cent in Group A). When asked what form of help was needed to practise improved methods of farming, advice on production practices and loans dominated the scene with 55,5 per cent of replies. Quite a few respondents also felt a need for more land or for tractors and implements. Labour shortage does not appear to be a bottleneck. More Group B respondents mentioned water works than respondents in Group A. Table 5.29 gives the preferred forms of obtaining training or advice. Schooling is the preferred source by both groups, but Group A regard the visit by the extension officer much higher than Group B, while respondents in Group B attach more value to information obtained from other farmers. Slightly more Group B farmers use registered and approved bulls than Group A farmers (Table 5.30). Only about half of the farmers declared that they had received better prices for cattle since the use of registered or approved bulls (Table 5.31). In a study (Louw, 1976) investigated the reasons for the non-adaption of improved milk production pratices by fresh milk producers in the South-Eastern Transvaal. His main hypothesis – namely that perception is a causative factor to behaviour and that the unsatisfactory degree of adoption of fresh milk farming practices is reflected in the degree of differential perception between fresh milk producer and expert and mutually between producers was tested by means of perception of:

- the production efficiency of producers
- the compatibility attributes of practices in respect of:
- aspirations and
- barriers to adoption.

Supporting evidence was found confirming a relationship between differential perception and the unsatisfactory degree of adaption of improved milk production practices. Differential perception was found amongst others in connection with the compatibility of practices as revealed by respondents and experts' listing of problems (and their solutions) in order of priority. Barriers like capital shortages, labour problems, a lack of time or interest or unstabilized farming enterprises were regarded important by respondents while factors like poor feeding, inadequate disease control, deficient reproduction management or insufficient records and also poor selection and breeding might were regarded as major barriers by experts. According to Louw (1976: v) this differential perception presumably corresponds with the unsatisfactory degree of application of improved milk production practices. This also have relevance to this study.

Table 5.25 **Opinions on the usefulness of the advice by the Lebowa Department of Agriculture and Forestry (Percentages of replies)**

USEFULNESS	GROUP A	GROUP B	TOTAL (A + B)
	N = 60	N = 90	N = 150
Improves methods	60,0	91,5	75,7
Improves profits	17,4	3,6	10,5
Learn how to get a loan	16,9	1,9	9,4
Does not help	5,7	3,0	4,4

Table 5.26 Respondents aware of training facilities and craftmanship

FACILITIES	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 81		N = 93		N = 174	
Local agricultural advisor (Training Centre)	39	48,2	38	40,9	77	44,3
Demonstration plot (Farming Days)	17	21,0	29	31,2	46	26,5
Tribal authority gives general advice	13	16,0	23	24,7	36	21,0
Limited opportunities to learn craftmanship such as carpentry, painting, plumbing, brickmaking and bricklaying, shoe repairing and welding exists only in an informal base by the people who practice such trade	7	8,6	2	2,2	9	5,2
The co-operative gives special advice on crop and animal production	5	6,2	0	0,0	5	3,0

Table 5.27 Training or advise needed (Percentages of replies)

TRAINING OR ADVICE ON	GROUP A	GROUP B	TOTAL (A + B)
	N = 156	N = 180	N = 336
Cultivation	22,7	24,7	23,7
Cattle	6,0	7,2	6,6
Fertilizers	5,1	9,4	7,2
Poultry	1,3	1,1	1,2
Pigs, goats, sheep	3,1	1,0	2,1
Crop rotation	23,2	20,8	22,0
Farm management	22,7	12,9	17,8
Tractors	9,3	15,6	12,5
Accounting and record keeping	6,6	7,3	6,9

Table 5.28 **Form of help needed in practising improved methods of farming (Percentages of replies)**

FORM OF HELP NEEDED	GROUP A	GROUP B	TOTAL (A + B)
	N = 160	N = 191	N = 351
Loans	18,2	25,1	21,6
Advice on production practices	35,0	32,7	33,9
More oxen	4,9	3,4	4,1
More land	17,1	10,0	13,6
More labour	2,5	1,6	2,1
Tractors and implements	17,2	14,8	16,0
To be able to hire tractors and implements	3,4	4,2	3,8
Provision of water (works)	1,7	8,2	4,9

Table 5.29 Preferred sources of training or advice (Percentages of replies)

PREFERRED SOURCES	GROUP A	GROUP B	TOTAL (A + B)
	N = 103	N = 131	N = 234
Visit by extension officer	18,8	3,4	11,1
Training courses	18,2	17,4	17,8
Schooling	41,8	55,2	48,5
Field days	9,4	8,0	8,7
Other farmers	7,2	13,2	10,2
Forming of farmers co-operative societies	4,6	2,8	3,7

Table 5.30 Use of registered and approved bulls

REGISTERED BULLS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 143		N = 170		N = 313	
Use registered bulls	67	46,8	88	55,8	155	49,5
Do not use registered bulls	76	53,1	81	47,6	157	50,1
APPROVED BULLS	N = 140		N = 169		N = 309	
Use approved bulls	63	45,0	96	56,8	159	51,5
Do not use approved bulls	77	55,0	73	43,2	150	48,5

Table 5.31 Difference in price since registered or approved bulls are used

REGISTERED BULLS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 119		N = 131		N = 250	
Received better price for cattle since the use of registered bulls	59	49,6	68	51,9	127	50,8
Has not received better price	60	50,4	63	48,1	123	49,2
APPROVED BULLS	N = 118		N = 131		N = 249	
Received better price for cattle since the use of approved bulls	63	53,4	72	55,0	135	54,2
Has not received better price	55	46,6	59	45,0	114	45,8

More than 70 per cent of the farmers perceived problems in livestock production (Table 5.32). It is probably significant that Group A farmers seem to be somewhat more realistic in this regard. 80,1 Per cent of them perceived such problems as against only 67,3 per cent of Group B farmers. The most important problems mentioned were livestock diseases, followed by over-grazing and lack of water (Table 5.33).

Amongst the measures to economize on consumption or obtain food from elsewhere in a bad food production year buying from shops, seeking employment and reductions of daily ration were most commonly mentioned. A greater willingness to sell livestock is apparent by Group A, who also appear to be more willing to seek employment or reduce the daily ration. Table 5.34 gives the details. Farmers were asked how they thought they could produce more food. Both groups expressed a preference for more land, with higher yields per unit second in rank of importance and a combination of these two third (Table 5.35). More group A farmers preferred more land, and fewer would plump for communal farms, than is the case in group B. The highest priority for both groups if money is available, is to buy a car. The next priorities, namely the starting of additional enterprises and buying of tractor or equipment shows an intense interest in farming.

Almost 50 per cent of farmers in Group A would however buy tractor or equipment or invest their money as against only some 25 per cent of farmers in Group B. Conversely 35,5 per cent of farmers in the latter group would buy a car compared to 27 per cent of farmers in the former group (Table 5.36).

The attitudes of farmers towards farming in general and towards change and modernity their contentment with their present environment and their interest in the world beyond their own social circle are likely to be reflected in their activity and their eagerness to progress. Statements used to assess a farmer's general attitude are given in Table 5.37. The majority of farmers are of the opinion that they can make a good living as farmers, and then express a desire to make money from cattle. More farmers in Group B, however, do not want to make money from cattle than do farmers in Group A. Most farmers typically seem dissatisfied with product prices, those in group A showing more common dissatisfaction. Approximately half of those who answered are satisfied and the remainder not satisfied, with the present system of land allocation.

Table 5.32 Existence of problems perceived in livestock production

PROBLEMS PERCEIVED OR NOT	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 151		N = 171		N = 322	
Perceived problems	121	80,1	115	67,3	236	73,3
No problems perceived	30	19,9	56	32,7	86	26,7

Table 5.33 Problems experienced in livestock production (Percentages of replies)

PROBLEMS	GROUP A	GROUP B	GROUP A + B
	N = 131	N = 124	N = 255
Over-grazing	30,1	26,7	28,4
Livestock diseases	53,9	52,6	53,3
Lack of water	16,0	20,7	18,3

Table 5.34 **Measures to economise on consumption or obtain food elsewhere in a bad food production year**

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 200		N = 195		N = 395	
Buying from shops	68	34,0	115	59,0	183	46,3
Seek employment to earn money	42	21,0	28	14,4	70	17,7
Selling other produce	16	8,0	23	11,8	39	9,9
Selling livestock	27	13,5	13	6,7	40	10,1
Asking food from neighbours	5	2,5	0	0,0	5	1,3
Reduce daily ration	21	10,5	6	3,1	27	6,8
Co-operation for help (community action)	4	2,0	5	2,6	9	2,3
Asking credit from traders	5	2,5	2	1,0	7	1,8
Asking for help from the nearest *Kgoši* (Chief)	0	0,0	1	0,5	1	0,3
Asking for help from relatives	3	1,5	0	0,0	3	0,8
Buying from neighbours	1	0,5	0	0,0	1	0,3
	5	2,5	2	1,0	7	1,8
Use stored food	2	1,0	0	0,0	2	0,5
Selling pottery	1	0,5	0	0,0	1	0,3

Table 5.35 Expected ways to produce more

METHODS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 143		N = 169		N = 312	
By using more land	62	43,3	62	36,7	124	39,7
Increasing the yield per unit of land	43	30,1	56	33,1	99	31,7
By combination of the above two	34	23,8	37	21,9	71	22,8
By group action – modernized communal farming	4	2,8	14	8,3	18	5,8

Table 5.36 Priorities of farmers if money is available (Percentages of replies)

PRIORITIES	GROUP A	GROUP B	TOTAL (A +B)
	N = 146	N = 174	N = 320
Leave farming	7,2	11,9	9,5
Buy tractor or equipment	23,3	16,9	20,1
Move to town	0,7	0,8	0,8
Buy a car	27,0	35,5	31,2
Build a house	0,9	0,2	0,5
Educate children	4,3	2,8	3,6
Invest money to earn interest	15,9	8,5	12,2
Start additional enterprises	20,7	23,4	22,1

Table 5.37 Opinions of smallholders on farming in general

OPINIONS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 154		N = 173		N = 327	
Thinks he can make a good living as a farmer	142	92,2	156	90,2	298	91,1
Does not think so	12	7,8	17	9,8	29	8,9
	N = 152		N = 169		N = 321	
Wants to make money from cattle	138	90,8	143	84,6	281	87,5
Do not want to do so	14	9,2	26	15,4	40	12,5
	N = 153		N = 170		N = 323	
Satisfied with the prices he can get for his products	48	31,4	80	47,0	128	39,6
Not satisfied	105	68,6	90	53,0	195	60,4
	N = 157		N = 185		N = 342	
Satisfied with the present system of agricultural land allocation in Lebowa	86	54,8	101	54,6	187	54,7
Not satisfied	71	45,2	84	45,4	155	45,3

Farmers' attitude to new ways of doing things are shown in Table 5.38. They seem to display positive attitudes towards modernization as evidenced by responses to these questions. The greatest difference is found where almost 30 per cent of farmers in Group A are of the opinion that few are in power and they are not always the best people because the general level of education is still very low and the best people emigrate to urban areas, as against less than 10 per cent of farmers in Group B. The most serious problem stated by Group B farmers (45,9 per cent) is that the farmers have no bargaining power or say in the formulating and enforcement of farming laws and regulations. This was also the major objection of Group A farmers (35,1 per cent). The personal conviction that one has the ability to influence the course of one's environment is likely to be an important factor in determining attitudes toward a farm business. The answers and motivations are given in Table 5.39. Traditional leaders were asked for their opinions on causes for low agricultural output. They regard lack of capital as the prime reason with lack of know how as second most important. (Table 5.40) The majority of them do not think that annual crops provide for the need of the farmer. Only 17,5 per cent of them said that a part of the crops (15,5 per cent on average for the respondents) is supposed to be given to the *Kgoši* (Table 5.41). Non-traditional leaders are divided on the issue of land allocation by the tribal authority, but the great majority of them stated that the jurisdiction of the tribal authority should exclude the decision when to plant and matters concerning agricultural development (Table 5.42).

In general they seem to have a very low opinion of traditional leadership (Table 5.43).

5.9.4 Farm management situation and extension advice

Schultz (1964: 37) concluded that in traditional agriculture there are comparatively few significant inefficiencies in the allocation of production factors. Although he mentions allocative efficiency (equivalence of marginal value product and marginal factor cost for each factor) he also assumes perfect technical efficiency (all farmers operating on the outer bound production function). Allocative efficiency is usually considered and measured in terms of the amounts of inputs combined in production while technical efficiency refers to the manner in which the inputs are used. Schultz's hypothesis is generally known as the "efficient but poor hypothesis" and is supported by many writers (e.g. Tax, 1975; Hopper, 1957 and Welsch 1965).

The empirical evidence of this hypothesis lies in the estimation of Cobb-Douglas production functions; derivation of average estimated marginal productivities (MP) from those functions, and comparison of those averages (transformed to money units and called marginal value products or MVP) with relevant marginal factor costs. (MFC's, which are assumed to equal observed unit costs and are generally assumed to be constant over the sample).

Table 5.38 Attitudes: statement of opinion regarding certain variables

STATEMENT OF OPINION	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 157		N = 186		N = 343	
Doctors trained in European methods and well acquainted with African conditions are better at curing diseases than native healers	120	76,4	162	87,1	282	82,2
They are not better	37	23,6	24	12,9	61	17,8
	N = 156		N = 185		N = 341	
I enjoy discarding the old and accepting the new	119	76,3	149	80,5	268	78,6
Negative answer	37	23,7	36	19,5	73	21,4
	N = 155		N = 185		N = 340	
There will be much harmony in Lebowa if you leave things as they are and follow old and proven ways	88	56,8	94	50,8	182	53,5
Negative answer	67	43,2	91	49,2	158	46,5
	N = 154		N = 180		N = 334	
Traditional authority has grown up over a long period of time so there is bound to be much wisdom in it	90	58,4	138	76,7	228	68,3
Negative answer	64	41,5	42	23,3	106	31,7
	N = 154		N = 183		N = 337	
Becoming a success is a matter of hard work; luck has little or nothing to do with this	136	88,3	154	84,2	290	86,0
Negative answer	18	11,7	29	15,8	47	14,0
	N = 157		N = 185		N = 342	
In Lebowa the average citizen can have an influence on the way Government is run	129	82,2	166	89,7	295	86,3
Negative answer	28	17,8	19	10,3	47	13,7
	N = 156		N = 179		N = 335	
It is sheer luck if your conditions improve; there is not much you can do about success or failure	70	44,9	116	64,8	186	55,5
Negative answer	86	55,1	63	35,2	148	44,2

Table 5.39 Attitudes: statement of opinion and motivation

STATEMENT OF OPINION	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 156		N = 185		N = 341	
This world is run by the few people in power; there is not much the ordinary man can do about it	78	50,0	100	54,0	178	52,2
Negative answer	78	50,0	85	46,0	163	47,8
MOTIVATION FOR POSITIVE ANSWER	N = 74		N = 73		N = 147	
The statement is true because the privileged group in any country is always small	16	21,6	21	28,8	37	25,2
The traditional authority has too much power	10	13,5	11	14,9	21	14,3
The farmers have no bargaining power, have no say in the formulating and enforcement of farming laws and regulations	26	35,1	34	45,9	60	40,8
Few are in power and they are not always the best people because the general level of education is still very low and our best people went away to stay in big cities	22	29,8	7	9,4	29	19,7

Table 5.40 Traditional leaders: opinions on the low agricultural output of Lebowa

THE OUTPUT IS LOW BECAUSE:	Number of responses	Proportion (%)
Lack of know how	22	19,1
Lack of capital	56	48,7
Exaggerated sub-division of land	7	6,1
Lack of private initiative because of present structure of land allocation	8	7,0
Tribal customs, like using seed over and over again, wrong ploughing methods, no or little use of fertilisers etc.	18	15,6
Measurement is difficult because of continuous consumption	4	3,5
TOTAL	115	100,0

TABLE 5.41 Traditional leaders: opinion on annual crops

OPINIONS	Number of responses	Proportion (%)
Annual crops provide in the need of the farmer	41	42,7
Do not provide	55	57,3
Part of the crops is supposed to be given to the Kgosi	17	17,5
Not supposed	80	82,5
Average percentage of the crops given to the Kgosi	17	15,5

Table 5.42 **Non-traditional leaders: opinions on the jurisdiction of the tribal authority on specific matters**

OPINIONS		The jurisdiction of the tribal authority should *exclude* it	The jurisdiction of the tribal authority should *include* it
Allocation of land	Number of responses	56	41
	Proportion (%)	57,7	42,3
Decision when to plant	Number of responses	81	16
	Proportion (%)	83,5	16,5
Matters concerning agricultural development	Number of responses	79	18
	Proportion (%)	81,4	18,6

Table 5.43 Non-traditional leaders: opinions on the *Kgoši* and tribal authorities' powers on the usage of land in general

OPINIONS	Number of responses	Proportion (%)
They must give land to the people who need it	4	4,8
Most of them accept advice from the extension advisor and make good decisions	3	3,6
They are trying to utilize the limited land resources according to custom	9	10,7
Their powers are limited and there is a shortage of land	5	5,9
They misuse the land and retard progress	29	34,5
They should take away land from unproductive farmers and give it to the best farmers	8	9,5
Immediately after the harvest the Kgoši and tribal authority allow livestock to graze on the cropland. This is a setback to those farmers who would like to use the stalks as manure by ploughing it in.	4	4,8
Many of them are uneducated and unable to give correct advice	22	26,2
TOTAL	84	100,0

Schultz's hypothesis has been installed as a basic tenet in agricultural development thought although the results of this and other recent studies (Shapiro, 1977: 94–95; De Swardt and Van Rooyen, 1979; Sampath, 1979: 18–33) do not support it. Considerable differences are to be found in the performance of farmers even if they use the same inputs and technologies. Thus, efforts such as extension and education aimed at improving allocation and use of available resources should be increased thereby enabling more farmers to operate closer to the efficiency levels now achieved by only a few. This conclusion does not negate the importance of new inputs and technologies for developing agriculture: it rather illustrates observable efficiency differentials in smallholder agriculture, thus identifying a potential for relatively inexpensive gains in output without a dependence on major new investments. Furthermore, as pointed out earlier, present extension efforts in Lebowa may even be counter-productive in the sense that increased production and cash earnings, in the absence of alternative investment apportunities may be channeled into increased stock keeping with the concomitant results of further over-grazing and deterioration of the ecological balance.

An empirical study using farm income as a criterion among smallholders on a irrigation scheme in the Ciskei shows that it is possible to identify groups of farmers who consistently perform far above or below the group average over time. (De Swardt & Van Rooyen, 1979). This study also found some attitudal differences between the high and low income farmers *inter alia* towards farm economic and farm management factors. The high income farmers were more positive in their attitude towards farmer training, farming as a way to earn a living and farm economics in general. These farmers expressed their confidence in the current farming system, favoured maize (high income but high management and labour intensive crop) and were prepared to attach definite priorities to the different enterprises. These farmers also expressed definite views on the availability of some resources such as land and capital. On the other hand, the low income farmers were vague in their assessment of farm economic factors. Thus it appears that farmers can be stratified into different groups based on their managerial ability, efficiency and income grouping.

Sampath (1979: 18–33) in a study conducted in India criticises the use of the Cobb-Douglas production function approach mainly because of its failure to distinguish between technical and allocative efficiency. It disregards possible differences in entrepreneurial ability, managerial capacity, technical know-how and value system amongst farmers. He concludes that the major source of inefficiency of small farmers is allocative inefficiency. In contrast, for large farms the major souce of inefficiency lies in technological inefficiency.

An outstanding distinction between commercial and traditional agriculture can be found in methods of management. The most widely used management approaches in the commercial sector are those of individual Farm Management (Dillon, 1979: 7–13) and the comparative approach (Collinson, 1981: 43–53). In traditional agriculture the situation is different as farm size is generally much smaller.[1] The principles of farm management as developed in the context of the Western World are correct for small farmers in the developing world but the conceptual and situational framework in which they have to be applied is different. In particular, farm management and extension in the Western World emphasizes the individual farm and is based on private ownership of land. In much of Asia and Africa, however, traditional agriculture is based on communal tenure (Dillon and Hardaker, 1980: 12). Individual guidance of farmers becomes very expensive especially when opportunity costs of scarce qualified management advisers are considered (Collinson, 1972: 51). With the large numbers of farms involved, and the scarcity of skilled manpower coverage of the smallholder sector will be negligible. Also with small farmers moving in small steps to improve their present positions, the low returns to skilled planning advice on the single unit will never be cost-effective (Collinson, 1981: 43–53).

The high degree of uniformity of traditional units in a certain geographic area also renders individual management advice unnecessary (Johnson, 1968). There is furthermore a large degree of correlation among traditional smallholders in a certain area regarding capital intensity and the type of capital items they use (Fényes, 1978: 16). The most appropriate course therefore seems to be the furthering of the group or representative management approach (Wong and Reed 1978) combined with institutional backup to provide alternative investment opportunities for farmers.

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1. Farming systems such as the "latifundio" and plantations are not considered here, as they are not typical of the dominant type of production unit in developing agriculture, namely the smallholder.

CHAPTER 6

LABOUR USE AND MIGRATION

The pattern availability and use over time of family labour is probably a key to understanding much of traditional African agricultural systems.

Before any consideration can be given to possible developments on Lebowa's smallholdings and the means by which these can be brought about, it is necessary to determine what farmers are now doing, what factors govern their actions, their work-sharing, labour availability and use. (Collinson, 1972: 197) Until recently most discussions on labour use in agriculture in the less developed world have centered on the existence or non-existence of disguised or non-disguised under employment, and the focus of interest has mainly been whether labour could advantageously be transferred to industry without scarcities developing in agriculture. It has become increasingly obvious that one problem of underdevelopment centres around "urbanbias" together with the failure of industry and or other sectors to provide enough employment opportunities (Lipton, 1977). Interest has now swung toward the capacity of agriculture not only to release labour, but rather to absorb it (Cleave, 1974: 31). According to Grant (1973: 12) the major difference between productivity and labour intensity in countries is not so much a question of cultural attitudes towards work, but rather whether the agricultural sector is organised in such a way that farmers have access to agricultural support services (technical advice, credit, organized marketing, etc.).

Japan and the U.S.A. serve as good examples of opposing but effective approaches to agricultural production (Hayami and Ruttan, 1971: 112–127). In 1965 the working population per hundred hectares of land in Japan outnumbered that of America by 87 to 1.

According to Bruwer (1977: 2–3) the average farmer in the U.S.A. runs a farm of 156 hectares single-handed. In Central Africa, where 20 000 tractors were imported in the sixties, 1,13 hectare was cultivated per labourer on large mechanized farms, while smallholders without machinery managed to cultivate 1,40 hectare per labourer. According to this survey the area cultivated in Lebowa is 1,72 hectare per labourer, using an 8 hour working day converted into man equivalents.[1]

1. For family and hired labour

Man equivalents is calculated as follows:

Age group (years)	10 – 14	15 – 19	20 – 50	Over 50
Male	0,25	0,67	1	0,67
Female	0,25	0,50	0,67	0,50

Anthony *et al.* (1979: 41) note that in large parts of tropical Africa the scope for increasing labour inputs in farming was substantial because of the traditional division of labour by sex, which left men a good deal of time to spend on activities that were no longer possible or needed as European influence spread, or on activities that were readily compressible when more attractive alternatives become available. In many societies women and children were responsible for most of the work in producing and preparing food crops while the farm work of men was limited to heavy tasks such as felling trees and clearing bush plots. Where cash crop production took hold, the traditional restrictions related to the division of labour by sex have generally been modified and the new cash crop has most often been a "man's crop". The time devoted to hunting has declined as game became less abundant. Time devoted to farming increased when transportation facilities improved.

Present-day Lebowa represents a different situation. The influence of whites changed traditional roles, but the free time which became available for men was mostly used to take up wage earning employment outside Lebowa. Farming was left for old men, women and children. Nattrass (1981: 4) states that the imigrant labour system has been fully institutionalised as a way of life amongst both workers, employers and the Black rural areas. She refers to Mayer (1980) as saying that most Black rural families should be viewed as spatially dislocated urban dwellers.

One must however recognise that migration of human populations is generally accepted as an integral part of the process of socio-economic development. Largely because of the communal land tenure system, an African generally has claim to his land even when residing in the city. Most studies of migration (both permanent and circular) in Africa have found economic motives to be the primary determinants of the quantity and direction of migration flows (Caldwell, 1969; Elkan, 1967;Gugler, 1968; Panofsky, . 1963; Hutton, 1970). This is also the case in Latin America (Thomas, 1970) and in the U S A (Mcdonald, 1971). Some authors classify economic factors into "push" and "pull" factors (Elkan, 1960, Mitchell, 1970, Wilson, 1972) thus, demand and supply concepts. Problems arise however, when attempts are made to categorise determinants of migration as either push or pull factors without recognising that both are important and that they tend to be interdependent. Regression equations (Beals *et al.*, 1967; Mabogunje, 1970; Sabot, 1971) do generally not explain causative relationships well, although rural-urban per capita income differentials sometimes showed significant effects.

Given the general inconclusiveness of these results, the highly aggregative nature of the data, and statistical problems in using regression techniques, great caution must be exercised

in interpreting the important economic factors bearing on migration from analyses of African census data. Although Van der Berg (1981) presents a conceptual framework for fitting such data, no serious empirical testing of the Todaro or its refined model (Johnson, 1971) has been undertaken in Africa. Given the social costs of urbanization, incentives to encourage higher returns from agricultural work and the development of agro-based small-scale industries in the rural areas seem particularly important in a territory like Lebowa because of the relatively early stage of urbanization.

Another important factor that changed traditional roles and rather reduced the availability of agricultural labour is the increased school enrolment and the relatively low image of agricultural work especially amongst young males. This may be intensified by the generally accepted fact (Beals *et al.*, 1967; Todaro, 1971; Sabot, 1972) that returns to education are almost as a rule very low in rural areas compared with urban areas. Van Rooyen (1980a), Hutton (1970), Foster (1968) and McQueen (1969) however find no prejudice of school leavers against agricultural work if sufficient economic incentives are provided. The problem lies in the fact that these incentives are presently almost completely absent in Lebowa.

Much has been achieved in school enrolment over the past eleven years. Nattrass (1981: 26–27) gives the following statistics: school enrolment of Black pupils in South Africa (including Lebowa) grew at a rate of 5, 8 per cent per year between 1970 – 1981 and enrolment in standard 8 and standard 10 grew by an annual average of 19,7 per cent and 31,5 per cent respectively. (Excluding Transkei, Bophuthatswana and Venda).

Results obtained in this investigation clearly reflect the demise of the traditional division of tasks (Table 6.1). The responsibility for decisions regarding food crop production is mainly that of the husband, (Table 6.2) while decisions regarding food storage is more a joint (husband/wife) task with the husband still in a decisive role (Table 6.3).

Data from the survey suggest that slightly more than half of the families are involved in full-time agricultural production and/or communal activities. Fewer farmers in Group A farms could be classified as fulltime (48,9 per cent as against 58,3 per cent in group B). Migrant workers were excluded from this calculation but commuters were included. (Table 6.4). The underutilisation or underemployment situation thus appears to be serious especially in Group A.

Table 6.1 Family labour: division of agricultural tasks according to enterprises

GROUP A		TASKS											
Family member	Number	Crop production: soil preparation		Crop production: planting, weeding		Crop production: harvesting		Crop processing storage		Animal production: herding		Animal production milking	
N = 298		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Husband	89	37	41,6	0	0,0	7	7,9	0	0,0	42	47,2	3	3,4
Wife	80	10	12,5	33	41,3	8	10,0	24	30,0	1	1,3	4	5,0
Son	72	5	6,9	1	1,4	4	5,5	1	1,4	57	79,2	4	5,5
Daughter	55	8	14,5	31	56,4	9	16,4	1	1,8	2	3,6	4	7,3
Husband's mother	1	0	0,0	0	0,0	0	0,0	1	100,0	0	0,0	0	0,0
Grandson	1	0	0,0	0	0,0	0	0,0	0	0,0	1	100,0	0	0,0
GROUP B N = 255													
Husband	103	44	42,7	3	2,9	7	6,8	0	0,0	44	42,7	3	2,9
Wife	73	9	12,3	35	47,9	1	1,4	16	21,9	6	8,2	6	8,2
Son	45	1	2,2	1	2,2	8	20,0	4	8,9	26	57,8	4	8,9
Daughter	33	6	18,2	10	30,3	10	30,3	1	3,0	2	6,1	4	12,1
Husband's mother	0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
Grandson	1	0	0,0	0	0,0	0	0,0	0	0,0	1	100,0	0	0,0
TOTAL (A + B) N = 553													
Husband	192	81	42,2	3	1,6	14	7,3	0	0,0	86	44,8	6	3,1
Wife	153	19	12,4	68	44,4	9	5,9	40	26,1	7	4,6	10	6,5
Son	117	6	5,1	2	1,7	12	10,3	5	4,3	83	70,9	8	6,8
Daughter	88	14	15,9	41	46,6	19	21,6	2	2,3	4	4,5	8	9,1
Husband's mother	1	0	0,0	0	0,0	0	0,0	1	100,0	0	0,0	0	0,0
Grandson	2	0	0,0	0	0,0	0	0,0	0	0,0	2	100,0	0	0,0

Table 6.2 Responsibility for decisions regarding food crop production

RESPONSIBLE PERSON(S)	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 156		N = 185		N = 341	
Husband	83	53,2	141	76,2	224	72,0
Wife	44	28,2	28	15,1	72	21,1
Husband and wife	22	14,1	9	4,9	31	9,1
Extension officer	1	0,6	4	2,2	5	1,5
Kgosi (Chief)	0	0,0	0	0,0	0	0,0
Husband, wife and children	5	3,2	0	0,0	5	1,5
Wife and children	1	0,6	0	0,0	1	0,3
Husband and extension officer	0	0,0	0	0,0	0	0,0
Kgosi, husband and wife	0	0,0	3	1,6	3	0,9
Children	0	0,0	0	0,0	0	0,0

Table 6.3 Responsibility for decisions regarding food storage

RESPONSIBLE PERSON(S)	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 156		N = 180		N = 336	
Headman/Kgosi	2	1,3	2	1,1	4	1,2
Husband	95	60,9	94	52,2	189	56,3
Wife	57	36,5	78	43,3	135	40,2
Extension officer	0	0,0	1	0,6	1	0,3
Husband and wife	1	0,6	0	0,0	1	0,3
Children	0	0,0	1	0,6	1	0,3
Husband, wife and children	0	0,0	0	0,0	0	0,0
Wife and children	1	0,6	0	0,0	1	0,3
Husband and extension officer	0	0,0	0	0,0	0	0,0
Kgosi, husband and wife	0	0,0	4	2,2	4	1,2

Table 6.4 **Fulltime or part-time participation of the family in agricultural production and/or communal activities**

NATURE OF PARTICIPATION	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 141		N = 151		N = 292	
Fulltime	69	48,9	88	58,3	157	53,8
Part-time	72	51,1	63	41,7	135	46,2

Those who are part-time participants are scholars or engaged in off-farm employment, but support the agricultural efforts of the family after hours or during weekends. The frequency distribution of part-time participation is summarized in Table 6.5.

Group A seems to use less part-time family participation than Group B. Seen in conjunction with Group A having a smaller percentage fulltime component, the situation is contradictory and because of the small number (19) responding no conclusion can be reached.

Few attempts have been made to record the time spent by rural people on farming and non-farming employment activities. Records of farming activity frequently include only time spent on the field. Cleave's (1974: 32–34) examination of farm surveys in English-speaking countries on both sides of tropical Africa shows that time actually spent in farming proper (by adult males) ranges from about 530 to 2 135 hours per year, with all areas but one reporting less than 1 700 hours. Earlier studies (e.g. Clark and Haswell, 1967) found that in some of the remoter parts of Africa men devoted less than 1 000 hours/year to agricultural work. Baldwin (1956) sampled two cocoa-farming villages in northwest Nigeria and found that the average number of working hours per adult male per year were 997 and 1 327 respectively. Martin (1956) found in Southern Nigeria that men averaged only 4 hours per day in agricultural work throughout the year.

Collinson (1972. 36) presents data based on Pudsey's survey in Uganda, that account for 7,1 to 9,6 hours per day, assuming 300 working days in the year. They show non-farm activities (such as neighbours, visitors, school, building work, etc.) to account for between 3,5 and to 8,7 hours per day. Heyer's (1965: 3–11) study in Machakos was perhaps the first in East Africa to quantify the importance of non-crop operations in absorbing labour using a standard 48 hours work week, her small sample of 14 farmers used 37 per cent of available time over the year on crop production work and a further 26 per cent on non-specific work directly associated with agriculture, leaving another 37 per cent of available time to beer brewing, marketing, craft work and contract services. She recorded no use of hired labour in Machakos.

In Lebowa, calculated on basis of the data presented in Table 6.6 and 6.7, the average hours per day spent by four age groups amounts to 7,46. There were 238,74 working days and thus the average hours per year per worker are calculated as 1 781 as against the 954 hours, found by Martin. The corresponding figure in Lebowa for adult males only is 1917,5.

Table 6.5 Frequency of part-time family participation in agricultural production and/or communal activities

FREQUENCY GROUP (PER CENT)	GROUP A			GROUP B			TOTAL A + B		
	Number of farmers	Proportion (%)	Cumulative Proportion (%)	Number of farmers	Proportion (%)	Cumulative Proportion (%)	Number of farmers	Proportion (%)	Cumulative Proportion (%)
	N = 19			N = 41			N = 60		
0 – 9	4	21,0	21,0	4	9,8	9,8	8	13,3	13,3
10 – 19	0	0,0	21,0	1	2,4	12,2	1	1,7	15,0
20 – 29	2	10,5	31,5	6	14,6	26,8	8	13,3	28,3
30 – 39	6	31,6	63,1	3	7,3	34,1	9	15,0	43,3
40 – 49	0	0,0	63,1	4	9,8	43,9	4	6,7	50,0
50 – 59	4	2,0	84,1	8	19,5	63,4	12	20,0	70,0
60 – 69	1	5,3	89,4	10	24,4	87,8	11	18,3	88,3
70 – 79	1	5,3	94,7	1	2,4	90,2	2	3,3	91,6
80 – 89	1	5,3	100,0	1	2,4	92,7	2	3,3	96,6
90 – 99	0	0,0	100,0	3	7,3	100,0	3	5,0	100,0

Table 6.6 **Family labour: Frequency of sex, age groups and number of days per month spent on agricultural enterprises**

GROUP A		Fre-quency	J	F	M	A	M	J	J	A	S	O	N	D
Male	< 20	47	21	17	18	18	18	18	20	18	18	18	18	20
Male	> 20	94	23	21	21	21	21	22	23	21	21	21	22	22
Female	< 20	20	19	15	15	14	19	18	19	16	16	16	16	21
Female	> 20	43	27	24	25	25	25	25	26	24	24	25	24	27
GROUP B														
Male	< 20	53	17	16	17	16	20	20	20	18	18	18	18	20
Male	> 20	91	23	22	22	22	21	20	19	20	20	21	22	21
Female	< 20	18	16	15	15	14	27	14	17	17	17	16	15	15
Female	> 20	39	23	21	22	22	21	20	20	19	19	19	22	22
TOTAL (A + B)														
Male	< 20	100	19	17	17	17	19	19	20	18	18	18	18	20
Male	> 20	185	23	21	22	22	21	21	21	21	21	21	22	21
Female	< 20	38	17	15	15	14	23	16	18	16	17	16	16	18
Female	> 20	82	25	23	24	23	23	23	23	22	22	22	23	24

Table 6.7 Family labour: allocation of tasks according to age, groups, sex and average time (hours per day) spent on each task

GROUP A – TASKS	Male < 20	Female < 20	Male > 20	Female > 20	Average time
Collection of water, wood, washing,cooking	13	84	10	126	5,9
	12,3	14,9	45,4	41,3	
Bricklaying, thatching, roofing	0	0	4	0	8,3
	0,0	0,0	46,5	0,0	
Herding, milking, livestock	15	1	14	2	6,7
	12,7	20,0	43,2	41,5	
Crop production in general	7	1	14	2	7,6
	13,9	20,0	43,2	41,5	
Weeding	1	1	1	7	8,6
	14,0	18,0	25,0	41,7	
Harvesting	4	3	6	1	7,1
	13,8	14,3	42,8	25,0	
Marketing or going to the market	8	4	3	6	4,2
	13,9	16,0	45,3	37,8	
Employed	0	0	0	2	9,0
	0,0	0,0	0,0	45,0	
Scholar	8	3	2	0	6,5
	13,1	15,0	24,0	0,0	
Cleaner	0	0	0	1	9,0
	0,0	0,0	0,0	48,0	
Driver	1	0	0	0	8,0
	20,0	0,0	0,0	0,0	
Fence and road worker	0	0	1	0	8,0
	0,0	0,0	60,0	0,0	
Church activities	0	0	0	1	3,0
	0,0	0,0	0,0	60,0	
Extension adviser	0	0	1	0	8,0
	0,0	0,0	53,0	0,0	
Teacher	0	0	0	2	8,0
	0,0	0,0	0,0	23,5	
Woodworker	0	0	1	0	10,0
	0,0	0,0	33,0	0,0	

NOTE: First row : Frequency, second row: Average age

Table 6.7 (Continued)

GROUP B	Male < 20	Female < 20	Male > 20	Female > 20	Aaverage time
Collection of water, wood, washing, cooking	5	87	10	108	6,2
	10,6	14,8	48,9	39,0	
Bricklaying, thatching, roofing	3	0	7	0	4,7
	14,0	0,0	37,8	0,0	
Herding, milking, livestock	27	0	27	5	7,3
	13,2	0,0	49,6	40,8	
Crop production in general	10	9	27	14	6,0
	15,4	17,9	46,3	41,0	
Weeding	1	1	0	7	6,7
	14,0	20,0	0,0	49,8	
Harvesting	0	0	1	1	7,5
	0,0	0,0	42,0	55,0	
Sweeping, looking after children	0	0	1	4	4,6
	0,0	0,0	65,0	41,5	
Marketing or going to the market	1	2	11	2	4,1
	18,0	5,0	50,3	55,5	
Employed	4	0	7	2	9,1
	15,0	0,0	35,8	28,5	
Scholar	6	9	2	0	12,0
	13,2	13,4	31,5	0,0	
Driver	0	0	1	0	1,0
	0,0	0,0	59,0	0,0	
Community activities	0	0	1	0	14,0
	0,0	0,0	22,0	0,0	
Church activities	0,0	0,0	1	0,0	10,0
	0,0	0,0	47,0	0,0	

NOTE: First row: Frequency, second row: Average age

Table 6.7 (Continued)

TOTAL GROUP A+ B	Male <20	Female <20	Male > 20	Female > 20	Aaverage time
Collection of water, wood, washing, cooking	18	171	20	234	6,0
	11,8	14,8	47,1	40,2	
Bricklaying, thatching, roofing	3	0	11	0	5,7
	14,0	0,0	41,0	0,0	
Herding, milking, livestock	42	1	61	5	7,0
	13,0	20,0	50,4	40,8	
Crop production in general	17	10	41	16	6,4
	14,8	18,1	45,2	41,1	
Weeding	2	2	1	14	7,7
	14,0	19,0	25,0	45,8	
Harvesting	4	3	7	2	7,2
	13,8	14,3	42,7	40,0	
Sweeping, looking after children	0	0	1	4	4,6
	0,0	0,0	65,0	41,5	
Marketing or going to the market	9	6	14	8	4,2
	14,3	12,3	49,2	42,3	
Employed	4	0	7	4	9,1
	15,0	0,0	35,8	36,8	
Scholar	14	12	4	0	4,0
	13,1	13,8	27,8	0,0	
Cleaner	0	0	0	1	9,0
	0,0	0,0	0,0	48,0	
Driver	1	0	1	0	10,0
	20,0	0,0	59,0	0,0	
Community activities	0	0	1	0	14,0
	0,0	0,0	22,0	0,0	
Fence and road worker	0	0	1	0	8,0
	0	0,0	60,0	0,0	
Church activities	0	0	1	0	10,0
	0,0	0,0	47,0	0,0	
	0	0	0	1	3,0
	0,0	0,0	0,0	60,0	
Extension adviser	0	0	1	0	8,0
	0,0	0,0	53,0	0,0	
Teacher	0	0	0	2	8,0
	0,0	0,0	0,0	23,5	
Woodworker	0	0	1	0	10,0
	0,0	0,0	33,0	0,0	

NOTE: First row: Frequency, second row: Average age.

The remarkedly low seasonal variations can probably be explained by the large number of crops cultivated and the prevalence of livestock enterprises.

It is however unlikely that the balance of the daylight hours is spent in idleness; fragmentary evidence suggests that most of the time left unaccounted for may be used to produce additional income for worksharing, and for social or leisure activities, the latter two of which are normally irregular and difficult to quantify.

It is well known that many of the off-farm work activities and even schooling was made possible by Europeans but that this was not always recognised as advantageous by tribal leaders. Read (1938) quotes the Paramount Chief of the Nguni in Nyasaland who expressed regret at the reduction in the variety of foods enjoyed by his people (cf. Collinson, 1972: 37–40): "Formerly there was no other work than taking care of their work affairs. When the Europeans came, they came with other work for the people such as tax and work to receive cloth. When they were busy with such things they forgot the work of their ancestors". Read makes the important point that cultural contact has destroyed the traditional channels of agricultural instruction: the Nguni people have drifted away from the traditional practices and became confused and disorganised. In this state they are not receptive to advice or improvements (Collinson, 1972: 40). It may also be significant that although the Lebowa smallholders had spent some 18 years on average as labourers on White farms (Table 6.8) only about 25 per cent said experience gained on white farms or knowledge gained from white agricultural office were their major source of knowledge of farming. Black agricultural officers score the highest (47,4 per cent). This answer may be biased since these officers were the enumerators for the survey (Table 6.9). Little hired labour is used in Lebowa. Surprisingly, only 7 of the total of 55 hired labourers are employed by Group A (Table 6.10).

Some 10 per cent of the smallholders stated that they run own businesses separate from farming (Table 6.11), the most important being trading and contract ploughing (Table 6.12).

Details of the wide range of off-farm employment situations are provided in Table 6.13. Only 9 smallholders of Group A are engaged in off-farm work and only one of them in industrial (plumbing) work. Forty five of Group B farmers hold employment outside the farm and 25 of them are employed in industrial skilled or semi-skilled employment. The situation is similar in connection with occasional off-farm labour and income.

Table 6.8 Average number of years of farming experience (percentages of replies)

EXPERIENCE	GROUP A	GROUP B	GROUP A + B
On own farm	27,0	19,7	23,4
Labourer on white farm	19,1	16,6	17,9
Formal agricultural training	0,7	0,2	0,5

Table 6.9 Sources of knowledge of farming (percentages of replies)

SOURCES	GROUP A	GROUP B	GROUP A + B
	N = 156	N = 182	N = 338
Agricultural officer: Black	54,8	40,1	47,4
Agricultural officer: White	8,3	7,7	8,0
Self, through experience on White farm	13,1	19,6	16,4
On own farm	4,0	7,2	5,6
On commonage	13,5	18,2	15,8
Friends	4,3	6,5	5,4
Kgosi	2,0	0,7	1,4

Table 6.10a Use of hired farm labour according to tasks (Regular)

REGULAR	GROUP A		GROUP B		TOTAL (A + B)	
	Number	Proportion (%)	Number	Proportion (%)	Number	Proportion (%)
	N = 2		N = 6		N = 8	
Loading kraal manure	1	50	0	0,0	1	12,5
Planting	1	50	1	16,7	2	25,0
Kitchen work	0	0,0	2	33,3	2	25,0
Ploughing	0	0,0	0	0,0	1	12,5
Weeding	0	0,0	0	0,0	0	0,0
Harvesting	0	0,0	0	0,0	0	0,0
Hoeing	0	0,0	0	0,0	0	0,0
Transporting	0	0,0	0	0,0	0	0,0
Crop production in general	0	0,0	1	16,7	1	12,5
Night chief	0	0,0	1	16,7	1	12,5
Building	0	0,0	0	0,0	0	0,0
Fence and dam repairing	0	0,0	0	0,0	0	0,0

Table 6.10b Use of hired farm labour according to tasks (Seasonal)

SEASONAL	GROUP A		GROUP B		TOTAL (A + B)	
	Number	Proportion (%)	Number	Proportion (%)	Number	Proportion (%)
	N = 0		N = 17		N = 17	
Loading Kraal manure	0	0,0	0	0,0	0	0,0
Planting	0	0,0	2	11,8	2	11,8
Kitchen work	0	0,0	0	0,0	0	0,0
Ploughing	0	0,0	1	5,9	1	5,9
Weeding	0	0,0	9	52,9	9	52,9
Harvesting	0	0,0	1	5,9	1	5,9
Hoeing	0	0,0	1	5,9	1	5,9
Transporting	0	0,0	1	5,9	1	5,9
Crop production in general	0	0,0	1	5,9	1	5,9
Night chief	0	0,0	0	0,0	0	0,0
Building	0	0,0	0	0,0	0	0,0
Fence and dam repairing	0	0,0	1	5,9	1	5,9

Table 6.10c Use of hired farm labour according to tasks (Casual)

CASUAL	GROUP A		GROUP B		TOTAL (A + B)	
	Number	Proportion (%)	Number	Proportion (%)	Number	Proportion (%)
	N = 7		N = 23		N = 30	
Loading Kraal manure	0	0,0	2	8,7	2	6,7
Planting	0	0,0	1	4,3	1	3,3
Kitchen work	0	0,0	0	0,0	0	0,0
Ploughing	0	0,0	6	26,1	6	20,0
Weeding	6	85,7	10	43,5	16	53,3
Harvesting	0	0,0	1	4,3	1	3,3
Hoeing	0	0,0	0	0,0	0	0,0
Transporting	0	0,0	1	4,3	1	3,3
Crop production in general	0	0,0	0	0,0	0	0,0
Night chief	0	0,0	0	0,0	0	0,0
Building	1	14,3	0	0,0	1	3,3
Fence and dam repairing	0	0,0	2	8,7	2	6,7

Table 6.11 Business activities separate from farm activities

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 148		N = 162		N = 310	
Run own business	12	8,1	20	12,3	32	10,3
Do not have own business	136	91,9	142	87,6	278	89,7

Table 6.12 Kind of business activity separate from farm activities

KIND OF BUSINESS ACTIVITY	GROUP A		GROUP B		TOTAL (A + B)	
	Number	Proportion (%)	Number	Proportion (%)	Number	Proportion (%)
	N = 12		N = 19		N = 31	
Trading	5	41,7	11	57,9	16	51,6
Contracting (general)	1	8,3	1	5,3	2	6,5
Transporting	0	0,0	1	5,3	1	3,2
Ploughing	1	8,3	4	21,0	5	16,1
Sheet metal work	0	0,0	1	5,3	1	3,2
Selling vegetables	0	0,0	1	5,3	1	3,2
Witchdoctor	1	8,3	0	0,0	1	3,2
Brickmaking	1	8,3	0	0,0	1	3,2
Builder	1	8,3	0	0,0	1	3,2
Butcher	1	8,3	0	0,0	1	3,2
Taxi owner	1	8,3	0	0,0	1	3,2

Table 6.13 Kind of off-farm employment

KIND OF OFF-FARM EMPLOYMENT	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 9		N = 45		N = 54	
Household tasks	1	11,1	0	0,0	1	1,8
Marketing	1	11,1	0	0,0	1	1,8
Nurse	1	11,1	1	2,2	2	3,7
Clerk	1	11,1	0	0,0	1	1,8
Driver	0	0,0	3	6,7	3	5,5
Road worker	0	0,0	1	2,2	1	1,8
Religious worker	1	11,1	0	0,0	1	1,8
Plumber	1	11,1	1	2,2	2	3,7
Selecting seed	1	11,1	2	4,4	3	5,5
Chasing birds	0	0,0	4	8,9	4	7,4
Extension worker	0	0,0	3	6,7	3	5,5
Teacher	0	0,0	5	11,1	5	9,3
Woodworker	0	0,0	1	2,2	1	1,8
Trader	0	0,0	3	6,7	3	5,5
Painter	0	0,0	1	2,2	1	1,8
Industrial worker	2	22,2	20	44,4	22	40,7

Table 6.14 Family labour: occasional off-farm employment and income

GROUP A	Number	Average Age	Average Income/days (R)	Average days/months
Male	4	44,3	15,0	1,5
Female	5	36,6	4,0	3,0
GROUP B				
Male	36	34,8	9,7	2,5
Female	21	38,0	3,3	2,0
TOTAL (A + B)				
Male	40	35,7	9,9	4,0
Female	26	37,8	3,7	5,0

Table 6.15 **Family labour: Sex, age and average number of days/months spent in off-farm business activities**

GROUP A	Number	Average Age	Average number of days/months
Male	9	48,4	17
Female	3	42,0	12
GROUP B			
Male	15	45,9	15
Female	4	32,4	10
TOTAL (A + B)			
Male	24	46,7	16
Female	7	35,1	11

Only 9 of Group A farmers occasionally work away from the farm while 57 of Group B farmers do so (Table 6.14). Another small group indicated that they have part-time (not every day) standing business commitments in White areas (Table 15). Here again more Group B farmers participate in such ventures.

According to this survey farmers in Lebowa compare somewhat unfavourably with the findings of a five-year study of rural employment in tropical Africa by the Michigan State University which states that "non-farm activity in the rural areas provide a source of primary or secondary employment for 30 – 50 per cent of the rural male labour force in tropical Africa". Byerlee *et al.* (1977: 22, 24) estimate that trading and manufacturing account for more than 70 per cent of employment, presumably of men, in the rural non-farm sector. Anderson and Leiserson (1980: 229) present data on 15 developing countries, where the percentage of the rural labour force primarily engaged in non-farm work falls between 20 per cent and 30 per cent. The composition of non-farm employment (excluding mining and quarrying) in Zambia in 1975 was as follows:

Manufacturing	10,4
Construction	12,1
Utilities	2,8
Commerce	34,9
Transport	5,1
Services	31,3
Miscellaneous	3,5

Source: Anderson and Leiserson (1980: 245)

Historical evidence in many countries reveals a rising share of the rural labour force engaged in non-farm work. According to Anderson and Leiserson (1980: 241) this is partly a result of the slow growth of labour absorption in agriculture and partly of the increasing division in rural areas between farm and non-farm work induced by high elasticities of demand for non-food goods and services with respect to changes in rural incomes and agricultural output.

Non-farm activities in rural areas are an essential element in the process of economic and social development, and therefore rural development policies, in addition to providing the support necessary to raise agricultural productivity, should also be addressed to the needs

of local non-farm activities. A study by Swanepoel (1980: 294–320) on 97 small-scale rural industries in Gazankulu and Lebowa points to future possibilities to combine those elements necessary for spreading the benefits of development to lower-income groups through growth of employment and wage incomes. These deserve close attention in the formulation of economic development policies with the aim to assist these groups in performing their role in the process of rural transformation.

CHAPTER 7

THE FOOD PRODUCTION SYSTEM

7.1 INTRODUCTION

The simple most important activity in most parts of Africa is the struggle for food. Food crop production is not only the dominant economic activity, it permeates every aspect of life – social, political, and cultural. The pace of change of any one element of this inter-related system is affected by and in turn influences other changes in the entire system. As with any other system of human activity, to understand the food production system, it is necessary to identify its component elements and what relationship every component bears to the other systems of behaviour in the society such as the tribal or traditional authority system.

Environmental factors such as temperature, soil, rainfall, and water supplies together with technology set farily narrow limits on the possibilities of food production within a particular environment. The numbers and productivity of indigenous and introduced plants and animals determine the amount of food available to the human population. Improved technology may modify the environmental limits of the food production system. The same also applies to welfare improving institutional and infrastructural arrangements. A society's values can set other limits that appear to have no biological basis. All these factors, taken together, determine the food production system of a particular society.

7.2 PHYSIOGRAPHY

7.2.1 Geographical description

At present Lebowa consists of 14 geographical units, situated between the latitudes 22° and 26° south and the longtitudes 27° and 32° east. The territory is situated in the Northern Transvaal and comprises an area of 2 247551 ha.

7.2.2 Agro-ecological regions and climatological description

Lebowa can be devided into four main agro-economic farming regions: the cattle grazing region of the plateau; the mountain grazing region of the mountain range; the diversified farming region of the lowveld and the diversified farming region of the bushveld complex. Of the total surface area of 2,25 million ha, nearly 411 300 ha are suitable for dry-land crop production and about 8 000 ha for irrigation. This leaves approximately 1,8 million ha for grazing and residential areas (Benbo, 1976: 18, Acocks, 1975). The average monthly temperatures for January and July are 21,3° C and 11,0° C respectively. The average maximum temperature for January is 32,2° C and the average minimum for July is –1,8° C.

7.2.2.1 The cattle grazing region of the plateau this region comprises the largest part of Lebowa. The Mogalakwena and Palala rivers which flow into the Limpopo River in the North, traverse this region. This is a semi-arid region with very warm summers and dry winters. The rainfall fluctuates from 350 – 600 mm per year and falls mainly in the summer months. Important Grass types in this regions are: *Eragrostis* species, *Londetia Simplex, Aristida congesta* and *Heteropogon contortus* while the tree types are mostly *Acacia* species, *Combretum terminalia* and *Burkea africana.* This region is especially suitable for stock production with cattle farming as the most important enterprise.

7.2.2.2 *The mountain grazing region*

This region comprises the eastern highlands and the Transvaal Drakensberg. Important rivers are the Blyde and Steelpoort. Rainfall fluctuates between 350 – 1 000 mm per year and is limited to the summer months. The vegetation is similar to that on the plateau. Stock farming is the most important agricultural enterprise, especially cattle and goat farming. Field crops are prevalent in those areas where the rainfall reaches 1 000 mm per year.

7.2.2.3 *The diversified farming region of the lowveld*

This region stretches over the eastern foothills of the plateau, the climate is mainly sub-tropical with dry winters and warm summers. The rainfall fluctuates from 500 – 1 500 mm per year. Grass types includes *Eragrostis* species, *Themeda* species, *Loudetia* species, *Elephantorrhiza* species and *Hyparrhena* species, while the tree types are *Combretum, Acacia, Terminalia, Trichilia* and *Podocarpus* (Benbo, 1976: 19).

Cattle, goat and sheep farming are the most important enterprises and the climate is also suitable for the cultivation of field crops. Most parts are frost free for eleven months of the year and sub-tropical crops and fruits are cultivated, especially on the lateritic soils.

7.2.2.4 *The diversified farming region of the bushveld*

This region is bordered in the north and east by the mountain region and comprises and includes the Springbok Flats. The Olifants River traverses the region and the soil is especially suitable for the cultivation of field crops. The rainfall decreases to the west and fluctuates from 500 – 800 mm per year with two small areas in the Olifants River area which receive less than 400 mm per year. The characteristic grass species are *Eragrostis, Panicum, Hyparrhenia* and *Aristida* while the tree types are *Acacia, Combretum, Terminalia* and *Grewia.*

Cattle farming is an important enterprise in this region while irrigation is practiced on the alluvial soil adjoining the Olifants River (Benbo, 1976: 18).

7.3 LAND PLANNING AND CONSERVATION

Land planning and conservation have unifold aims: firstly, preventing over-stocking, over-cropping, and soil erosion and secondly to increase the production potential of the land.

The sub-programmes involved are as follows:

- Acquisition of land: completion of consolidation and excision of badly located settlements in White areas;
- Land planning: plans for the conservation of the soil and the removal of badly situated residential units within the planning areas;
- Soil conservation and reclamation: the construction of coffer-dams, grass strips etc.;
- Fencing. erection and maintenance of fences;
- Fauna and flora: purchase, maintenance and protection of game, shrubs, trees and plants.

A large part of the territory (77 per cent) has already been planned. Map 7.1 shows the details per district. Planning is undertaken in two phases. Phase 1. consists of the initial settlement and stabilization planning and entails the determination of productive and non-productive agricultural land. Phase 2. entails more detailed agricultural replanning and the implementation of this planning (Benbo, 1976: 19) The following Acts were passed in connection with Agricultural development:

Act No.	9/73	Lebowa Agricultural Development Act;
	10/73	Lebowa Nature Conservation Act;
	9/76	Lebowa Dipping tax and fees Act;
	9/78	Lebowa Amendment Act 9 of 1978;
		Lebowa Nature conservation Act;
	12/78	Lebowa Animal Diseases and Parasites Act;
	13/78	Lebowa Forestry Act;
	14/78	Lebowa Marketing Act;
	2/80	Lebowa co-operatives Act;
	3/80	Lebowa Agricultural Betterment Act;
	4/80	Lebowa Dipping Tax and Fees Amendment Act.

In the text reference will be made to certain sections of these acts where appropriate.

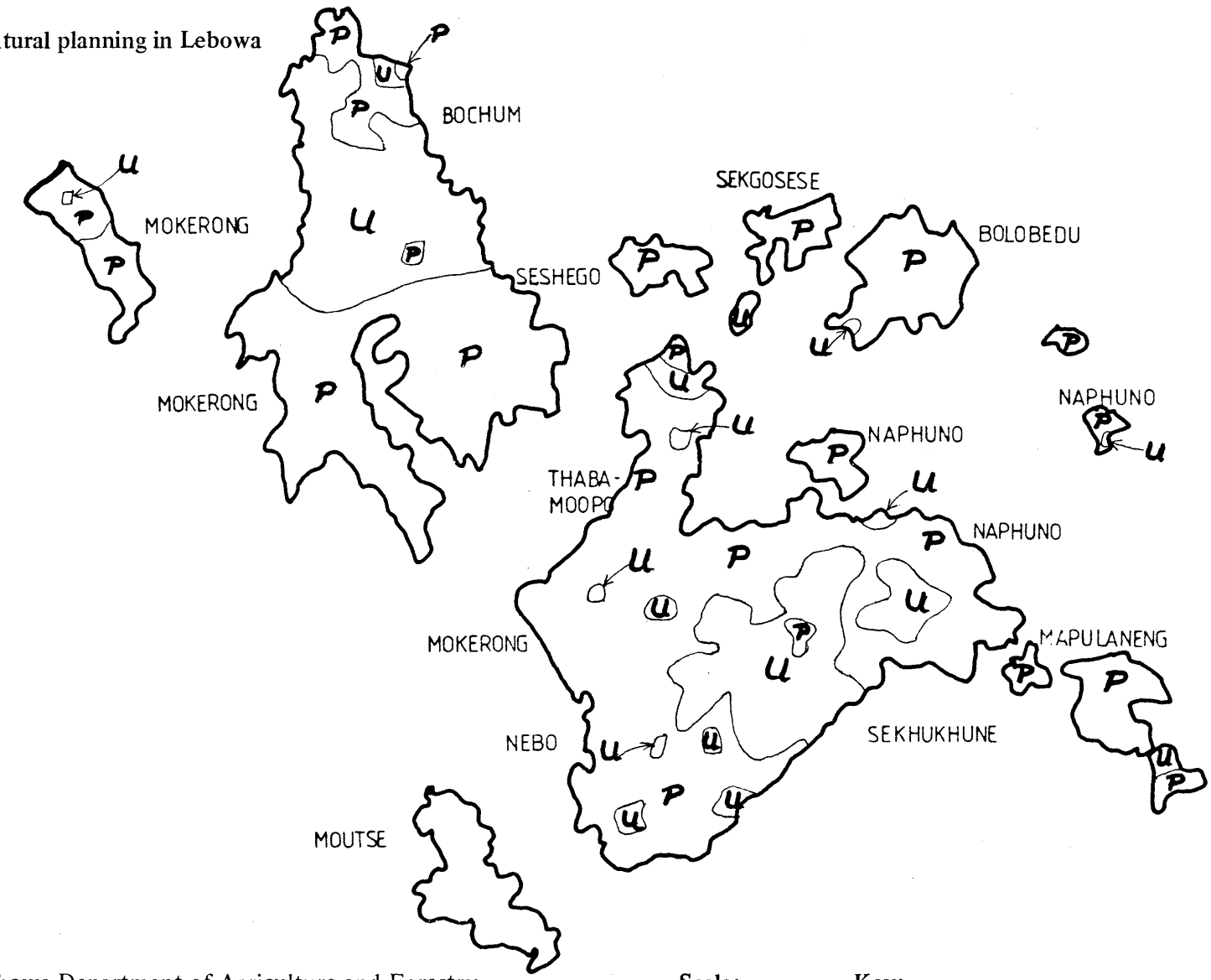
7.4 CROP PRODUCTION

Reference has already been made to the importance of food production for survival. In connection with plant production Murdock (1959: 21) observed that Africans grow approximately nine tenths of all the cultivated plant varieties known to man and have assembled them from every originating center in the world. Lebowa smallholders grow more than 50 different plants – a good example for diversification, so much advocated for commercial agriculture – hence intercropping is more the rule than the exception.

7.4.1 Farming knowledge

Coetzee (1977) identified (amongst others) people's knowledge of soil fertility, climatic conditions, pests and the adaptibility of cereals as possible stimulants to agricultural development.

Map 7.1 Agricultural planning in Lebowa



Source: Lebowa Department of Agriculture and Forestry.

Scale:
1:500 000

Key:
P : Planned area
U : Unplanned area

LEGEND OF MAP 7.1

PLANNED AREAS OF LEBOWA

1. THABAMOOPO DISTRICT

Mphahlele	66 545	ha
Seloane	5 969	ha
Maja	6 205	ha
Rietvalley	1 455	ha
Chuene	8 055	ha
Ledwaba	2 644	ha
Molepo	33 047	ha
Mathabatha	9 955	ha
Mafefe	36 042	ha
Mothapo	8 464	ha
Mamabolo	12 677	ha
Kalkfontein	6 466	ha
Dikgale	5 912	ha
Mothiba	3 804	ha
TOTAL =	207 240	ha

2. SEKHUKHUNE

Appiesboom	11 248	ha
Mooimeisiesfontein	6 548	ha
Riba	10 237	ha
Bothashoek	3 867	ha
Naboomkopies	7 582	ha
Rietfontein	46 561	ha
Stellenbosch	6 501	ha
Mashabela	8 246	ha
Makofane	5 561	ha
Malepe	15 160	ha
Geluks Location	84 517	ha
Phasha Grp.	45 991	ha
Mutsi	88 675	ha
Groothoek & The Shelter	6 656	ha
Potlake	1 352	ha
TOTAL =	348 792	ha

3. MOKERONG

Zebediela	50 124	ha
Rooiboschfontein	1 359	ha
Beauty	32 554	ha
Aborrtspoort	11 890	ha
Shongoane	20 105	ha
Haakdoorndraai	42 941	ha
Galakwin & Magalakwin	3 563	ha
Bavaria	22 769	ha
Salem	11 528	ha
Lekalakala	4 596	ha
Bellevue	5 132	ha
Vaalpanskraal	36 660	ha
Bakenberg	18 915	ha
Mapela	23 165	ha
Kamola Block	28 165	ha
Valtyn	18 280	ha
Grasvalley	1 961	ha
Galilia	1 916	ha
TOTAL =	335 623	ha

4. SESHEGO

Schoongezicht	2 996	ha
Matlala	62 508	ha
Maraba	10 459	ha
Mashashane	28 638	ha
Naude Grp	1 505	ha
Moloto	112 287	ha
Kalkbank	5 544	ha
Chloë Sisal Prop. & Breeding Scheme	1 862	ha
Palmietfontein	2 806	ha
TOTAL =	228 605	ha

5. MAPULANENG

Elandsfontein	10 364	ha
Bushbuckridge Zon 1	23 263	ha
Champagne & Dingleydale	17 988	ha
Alexandra & Oakley	7 985	ha
TOTAL =	59 600	ha

6. NEBO

Mahlangu	29 234	ha
Matlala	35 264	ha
Kotole	5 982	ha
Deugdvallei	13 077	ha
Spitskop (ptn)	2 030	ha
Vergelegen	7 178	ha
De Paarl A & B	23 260	ha
Masemola	17 509	ha
Lower Olifants	12 705	ha
Phokwane	33 597	ha
Arabie	1 644	ha
Bakopa (Tafelkop)	12 912	ha
TOTAL =	194 392	ha

7. BOLOBEDU

Planning unit	HA	
Modjadji Location	19 902	ha
Bellevue Group	21 422	ha
Mamaila Group	10 692	ha
Senobela Group	39 628	ha
Charlie Rangaan	18 790	ha
TOTAL =	110 434	ha

8. NAPHUNO

Sekororo planning	20 159	ha
Mamelja planning	22 089	ha
Letswalo planning	4 310	ha
Mogoboya planning	7 496	ha
Maake planning	12 172	ha
Selwana planning	5 261	ha
Mashishemale planning	4 043	ha
Makhusbane planning	5 182	ha
Bulwer Breeding Station	1 369	ha
TOTAL =	83 081	ha

10. SEKGOSESE

Zeermooi Block	14 280	ha
Bontfontein Group	10 520	ha
Boschbokhoek	3 130	ha
Goudplaats	7 055	ha
Matoks	13 943	ha
Kliplaatdrift	1 322	ha
Ramokgopa	12 522	ha
TOTAL =	62 772	ha

11. BOCHUM

Kiti Group	16 816	ha
Stolzenfels	2 355	ha
Bahananwa Breeding Scheme	14 588	ha
Pax Group	7 282	ha
De Vrede	2 214	ha
Edwinsdale	2 051	ha
Varedig	1 845	ha
My Darling	5 076	ha
Papagaai	5 269	ha
Holm Wood and Loveday	1 421	ha
Glenferness	3 460	ha
TOTAL =	62 377	ha
GRAND TOTAL =	1 692 826	ha

According to Mönnig, (1967: 152–153) the Pedi distinguish between seven types of soil. They are known by their colour and texture, and also by the particular trees, shrubs and grass which habitually grow on each. More important from an agricultural point of view is their knowledge of the fertility of different types, the growth of crops on each type under various conditions, and the crops best suited to each soil type, the seven categories distinguished are the following:

Sehlaba – a red soil on which the following crops do well: neillet , sorghum, melons, beans and pumpkins. This soil becomes exhausted after four seasons.

Sekuba – a dark-grey soil on which the following crops do well: maize, sweet-reed, pumpkins, gourds and sorghum. Crops grow quickly on this soil, but tend to be scorched by heat.

Seloko – a black heavy soil. It is good for all crops, except melons and beans. It tends to crack when hot, but has the advantage that when it rains the water enters deep into the soil through the cracks, and thus it holds the rain and contains moisture for a long time. It is considered to be one of the best soils, and sorghum, which grows equally well on poorer soils, is not usually sown on it.

Masu – a grey soil on which all crops grow quickly, but tend to become scorched by heat.

Mahlabane – a sandy, loam soil, which is particularly suitable for sorghum.

Lehlwahlwa – a sandy soil. It does not need much rain for the crops to do well, but tends to become exhausted after three or four seasons. All types of crops are grown on this soil, but beans are known to do particularly well on it.

Makuru – brackish soil, which is good only for grazing and is never tilled.

On their knowledge on rain Mönnig (1967: 158) states: they have a vast empirical knowledge of weather conditions, and are extremely astute in predicting the possibilities of rain. They also have considerable knowledge of animal husbandry, grazing areas and certain diseases (Coetzee, 1977: 399; Mönnig, 1967: 158) in general, the Lebowa smallholders have no control over their water resources, and they do not practise irrigation except in irrigation projects of the Government or the Lebowa Development Corporation (Lebowa Agricultural Company).

7.4.2 Soil preparation

Soil preparation is traditionally controlled by the *Kgoši*. Becker (1975: 127) describes the situation as follows: "enige persoon wat ploeg voordat die Kaptein die nodige seremonies en rituele voltooi het, word swaar beboet. Gewoonlik word al sy vee gekonfiskeer. Die Kaptein word deur die mans genader om hierdie aktiwiteit te open sodra dit genoeg gereën het. Ploeëry is onderhewig aan twee nadele, naamlik dat die trekvee se kondisie gedurende die gekose ploegtyd swak is, en dat die grond eers tot 'n sekere diepte nat moet wees voordat geploeg word. Gedurende dieselfde tyd word 'n monster saad deur elke *Kgoro* na die Kaptein gestuur, wie seremonies daarmee uitvoer en dan die betrokke saad met sy eie meng, die behandelde saad laat meng met die van die *Kgoros*, wat die saad op hulle beurt laat meng met dié van die huishoudings. Wanneer die saad behandel is en die lande beskerm is, moet die kaptein die hoof van die Mafiri *Kgoro* inlig dat met die ploeëry begin kan word. Dié lig op sy beurt die maleka-peu (testers of the seed) in, en sodra laasgenoemde begin ploeg het, moet vry arbeid in die vorm van mans en vroue die Kaptein se grond ploeg daarna van die res van die stam groep. Ploeëry word meesal deur spanpogings voltooi" The *lětsêma* (work) party) is still widely practiced where the voluntary workers are paid in kind, mainly beer and food. It is shown in this study that while the Kgošis are trying to maintain this traditions, they increasingly co-operate with extention advisers so that the disadvantageous aspects of their practice are diminishing.

7.4.3 Planting and cultivation

It is usually contended that Africans traditionally delegate the cultivation of land to women. (e.g. Becker, 1975: 127; Coetzee, 1977: 135). This was true in the past but not necessarily so today. In modern times this practice can at least partially be ascribed to the perpetuation of African tradition by legislation and economic pressures (Leseme *et al.*, 1980: 185). Because plots are small and yields low, the average income from agriculture per plot is below subsistence level. Consequently African males, even those interested in farming, are compelled to seek wage employment, usually in White areas. Once the man leaves for the White areas the wife assumes sole responsibility for cultivation of the plot. These women mostly lack the necessary agricultural knowledge and they fill the land almost exactly as their predecessors used to do. Their main agricultural tool is still the hoe, and seed is still sown by depositing it into a hole depressed by finger or broadcast by hand and hoed in (Leseme *et al.*, 1980) or where tractors with ploughs or cultivators can be hired. Almost everywhere different crops are still grown together and nothing is planted in rows. Thus, technology has remained primitive and motivation and means to change it is mostly lacking.

7.4.4 Fertilizers

The use of manure is a general feature today, but the use of chemical fertilizers is increasing very slowly. The main causes for this revealed by the survey is, risk aversion, lack of cash, the distance to the market and traditional beliefs.

7.4.5 Crop protection, harvest and storage

Chemical pest and insect control is exceptional and therefore only physical measures such as the planting of protecting plants e.g. aloe and the use of branches are practised. Birds and animals are controlled by guarding.

The starting of harvest is initiated by the *Kgoši* after certain ceremonies held with the heads of the *Kgoros*. The harvest is almost exclusively done by hand, frequently as a group action. Certain plants are dehydrated for future consumption. The ash of the aloe leaf is used as preserver for cereals (Mönnig, 1967: 163).

7.4.6 Perceived problems and preferences in food production

Motivations regarding the supply of food dominate priorities in the allocation of resources for the productive activity in smallholder farming. Given the low stage of development of the exchange economy (especially in more remote areas), particularly the inadequacy of retail food outlets, the peasant behaviour must be regarded as rational. This is one of the most important characteristics of developing economics, with fundamental influences on investigation, planning, extension and phases in the application of farm management economics. Leistner (1970: 13, 16), referring to Ruthenberg states for instance that on the strength of empirical studies in East Africa, worthwhile innovation takes place only when the marginal returns of additional land and labour are at least twice as high as usual; in respect of fertilizer, the extra return must be two to three times the cost of fertilizer. Ruthenberg terms this phenomenon the "threshold of critical minimum benefit".

Three relevant aspects received attention in this survey, each stemming from the pre-occupation of the peasant with survival:

(i) The range of food produced and how they are combined in consumption: preference order, insurance crops, influence on decision-making and resource allocation in terms of the quantity and timing of labour required;

(ii) Reciprocal obligations between household and community; and

(iii) A description of the food production system.

7.4.6.1 *Range of foodcrops produced and consumed*

Table 7.1 shows the six most commonly grown crops (maize, jugobeans, cowpeas, groundnuts, sorghum wheat) importance in order of whereas Table 7.2 shows the wide range of grown family-relief reserve food crops.[1] Priority order for the allocation of available labour to the four main crops during peak-demand labour periods are given in Table 7.3. Group B reported a much higher occurance of total crop failure due to lack of rain than Group A (Tables 7.4 and 7.5). General reasons for crop failure are shown in Table 7.6. Besides drought the following are listed as important reasons: pests, lack of amenities to cultivate properly and lack of knowledge.

It is rather noteworthy that lack of manpower, frost and shortages of fertilizer or good seed were not regarded as important causes by many respondents. (C.f. Louw, 1976) Table 7.7 gives the occurrence and reasons for replanting. Lack of rain, late rain and the shortage of planting equipment in optimal time seem to be the most important reasons. Table 7.8 shows that in no single month of the year is the amount of self produced food enough for all families. High percentages of smallholder farm families report food shortages, particularly during the five summer months from October to February.

7.4.6.2 *Reciprocal obligations between household and community*

Data were obtained to determine whether or not the households are required by community custom to contribute food or labour to other community members who have had poor crop yields through sickness or some other misfortune. (Table 7.9a) The custom to share, and mutual aid still

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1. Appendix 4 gives a list of all crops grown in Lebowa, according to this survey.

Table 7.1 Crops grown in order of preference

CROP		ORDER OF PREFERENCE														
		1			2			3			4			5		
		GROUPS														
		A	B	T	A	B	T	A	B	T	A	B	T	A	B	T
Maize	No. of resp.	118	115	233	6	18	24	5	12	17	0	5	5	4	0	4
	%	88,7	76,7	82,3	4,5	12,0	8,5	3,8	8,0	6,0	0,0	3,3	1,8	3,0	0,0	1,4
Jugobeans	No. of resp.	4	7	11	16	19	35	31	19	50	13	16	29	3	4	7
	%	6,0	10,8	8,3	23,9	29,2	26,5	46,3	29,2	37,9	19,4	24,6	22,0	4,5	6,2	5,3
Cowpeas	No. of resp.	0	6	6	25	25	50	16	19	35	8	10	18	3	2	5
	%	0,0	9,7	5,3	48,1	40,3	43,8	30,8	30,6	30,7	15,4	16,1	15,8	4,5	3,2	4,4
Groundnuts	No. of resp.	1	3	4	5	22	27	7	12	19	4	3	7	1	1	2
	%	5,5	7,3	6,8	27,8	53,6	45,8	38,9	29,3	32,2	22,2	7,3	11,9	5,5	2,4	3,4
Sorghum	No. of resp.	6	1	7	22	32	54	11	17	28	2	7	9	2	1	3
	%	14,0	1,7	6,9	51,2	55,2	53,5	25,6	29,3	27,7	4,7	12,1	8,9	4,7	1,7	3,0
Wheat	No. of resp.	0	1	1	22	2	24	2	0	2	3	1	4	0	0	0
	%	0,0	25,0	3,2	81,5	50,0	77,4	7,4	0,0	6,5	11,1	25,0	12,9	0,0	0,0	0,0

Table 7.2 Grown family-relief reserve food crops

CROP	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 374		N = 459		N = 833	
Maize	123	32,9	140	30,5	263	31,6
Babala	2	0,5	4	0,9	6	0,7
Amadumbi	0	0,0	1	0,2	1	0,1
Jugobean	45	12,0	46	10,0	91	10,9
Cowpeas	62	16,6	75	16,4	137	16,5
Groundnuts	6	1,6	37	8,1	43	5,2
Tomato	1	0,3	2	0,4	3	0,4
Cabbages	3	0,8	0	0,0	3	0,4
Onions	0	0,0	1	0,2	1	0,1
Sweet potatoes	2	0,5	2	0,4	4	0,5
Pumpkins	12	3,2	13	2,8	25	3,0
Potatos	3	0,8	1	0,2	4	0,5
Sugar cane	1	0,3	0	0,0	1	0,1
Sugar beans	5	1,3	2	0,4	7	0,8
Beetroot	1	0,3	0	0,0	1	0,1
Kaffircorn	52	13,9	65	14,2	117	14,0
Manna	3	0,8	36	7,8	39	4,7
China peas	3	0,8	5	1,1	8	1,0
Wheat	14	3,7	5	1,1	19	2,3
Water melons	7	1,9	2	0,4	9	1,1
Rice	0	0,0	1	0,2	1	0,1
Cucumbers	1	0,3	2	0,4	3	0,4
Drybeans	6	1,6	1	0,2	7	0,8
White harricot	2	0,5	0	0,0	2	0,2
Millet	14	3,7	5	1,1	19	2,3
Greenbeans	1	0,3	0	0,0	1	0,1
Dehydrated food	4	1,1	13	2,8	17	2,0
Peas	1	0,3	0	0,0	1	0,1

Table 7.3 **Most important crops to receive priority for allocation of available labour during peak-demand labour periods**

GROUP A		Weed control	Pest control	Planting	Harvesting	Fertilizing	Soil preparation
Maize	No. of resp.	72	4	7	14	0	8
	Prop. (%)	68,6	3,8	6,7	13,3	0,0	7,8
Jugobeans	No. of resp.	6	0	1	6	0	2
	Prop. (%)	40,0	0,0	6,7	40,0	0,0	13,4
Cowpeas	No. of resp.	4	0	4	5	0	0
	Prop. (%)	30,8	0,0	30,8	38,5	0,0	0,0
Groundnuts	No. of resp.	3	0	2	6	0	0
	Prop. (%)	27,3	0,0	18,2	54,5	0,0	0,0
GROUP B							
Maize	No. of resp.	52	2	5	25	0	30
	Prop. (%)	45,6	1,8	4,4	21,9	0,0	26,3
Jugobeans	No. of resp.	4	0	1	7	2	2
	Prop. (%)	25,0	0,0	6,3	43,8	12,5	12,5
Cowpeas	No. of resp.	8	1	0	11	0	10
	Prop. (%)	26,7	3,3	0,0	36,7	0,0	33,3
Groundnuts	No. of resp.	5	0	1	5	0	4
	Prop. (%)	33,3	0,0	6,7	33,3	0,0	26,6

Table 7.4 Total Crop failure due to lack of rain in the past seven years

STATEMENT	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 150		N = 183		N = 333	
Total crop failure	86	57,3	141	77,0	227	68,2
No total crop failure	64	42,7	42	23,0	106	31,8

Table 7.5 **Times of total crop failure due to lack of rain in the past seven years**

TIMES	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 82		N = 147		N = 229	
Once	38	46,3	40	27,2	78	34,1
Two times	17	20,7	68	46,3	85	37,1
Three times	23	28,0	21	14,3	44	19,2
Four times	3	3,7	15	10,2	18	7,9
Five times	1	1,2	0	0,0	1	0,4
Six times	0	0,0	2	1,4	2	0,9
Seven times	0	0,0	1	0,7	1	0,4

Table 7.6 General reasons for crop failure (Percentages of replies)

REASONS	GROUP A	GROUP B	GROUP A + B
	N = 156	N = 180	N = 336
Frost	1,0	1,1	1,0
Pests	15,9	11,3	13,6
Drought	42,0	37,8	39,9
Lack of manpower	2,3	3,6	2,9
Theft	2,7	2,5	2,6
No fertilizer	6,1	10,7	8,4
Lack of amenities to cultivate properly	11,2	17,8	14,5
Lack of knowledge	14,2	10,6	12,4
Lack of good seed	4,6	4,6	4,6

Table 7.7 Occurrence and reasons for replanting

GROUP A	Lack of rain	Late rain	Shortage of equipment	Old seed	Bad planting	Shortage of seed in planting time	Shortage of labour in planting time	Rotten because of too much rain	Unequal distribution of plants because of windy condition in planting time	Poor soil preparation	Pests (worms)	Lack of knowledge of planting time
Common	19	12	0	4	0	0	0	2	0	0	0	0
Proportion (%)	51,3	32,4	0,0	10,8	0,0	0,0	0,0	5,4	0,0	0,0	0,0	0,0
Moderately common	8	16	1	0	0	0	0	0	0	1	0	0
Proportion (%)	30,8	61,5	3,8	0,0	0,0	0,0	0,0	0,0	0,0	3,8	0,0	0,0
Very occasional	33	24	3	2	1	0	0	0	3	1	0	2
Proportion (%)	47,8	34,8	4,3	2,9	1,4	0,0	0,0	0,0	4,3	1,4	0,0	2,9
GROUP B												
Common	16	9	1	0	0	0	0	0	0	0	0	0
Proportion (%)	61,5	34,6	3,8	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Moderately common	12	27	1	0	0	0	0	0	0	0	0	0
Proportion (%)	30,0	67,5	2,5	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Very occasional	23	73	7	1	0	1	0	1	0	0	2	0
Proportion (%)	21,3	67,6	6,5	0,9	0,0	0,9	0,0	0,9	0,0	0,0	1,8	0,0
TOTAL (A + B)												
Common	35	21	1	4	0	0	0	2	0	0	0	0
Proportion (%)	55,5	33,3	1,6	6,3	0,0	0,0	0,0	3,2	0,0	0,0	0,0	0,0
Moderately common	20	43	2	0	0	0	0	0	0	1	0	0
Proportion (%)	30,3	65,1	3,0	0,0	0,0	0,0	0,0	0,0	0,0	1,5	0,0	0,0
Very occasional	56	97	10	3	1	1	0	1	3	1	2	2
Proportion (%)	31,6	54,8	5,6	1,7	0,6	0,6	0,0	0,6	1,7	0,6	1,1	1,1

Table 7.8 Period of general food (produced) shortage

MONTHS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 496		N = 589		N = 1 085	
January	68	13,7	72	12,2	140	12,9
February	62	12,5	71	12,1	133	12,3
March	38	7,7	48	8,1	86	7,9
April	23	4,6	28	4,8	51	4,7
May	19	3,8	17	2,9	36	3,3
June	9	1,8	19	3,2	28	2,6
July	6	1,2	21	3,6	27	2,5
August	34	6,8	36	6,1	70	6,5
September	44	8,9	51	8,7	95	8,8
October	54	10,9	62	10,5	116	10,7
November	63	12,7	85	14,4	148	13,6
December	76	15,3	79	13,4	155	14,3

seems to be high, and considerably more so in Group B than in group A, both in respect of food and labour. This difference may indicate attitudian changes in Group A corresponding with its higher level of commercialization and welfare.

Less than half of the cultivators said that they are supposed to give a portion of the crops to the *Kgoši*. Here too the percentage for Group B was higher although only slightly so (Table 7.9b).

The existence of co-operation within the community is demonstrated by the diversity of communal facilities available to the households, the most important being storage, transport and communally owned tools (Table 7.10).

Group A farmers demonstrated greater co-operation as regards storage, transport and dipping facilities while Group B farmers in turn had more communally owned tools, machines and crop processing facilities.

Democratic and humanitarian aspects are evident in other communal activities/obligations except where social status or economic pressures suppressed desires.

Both Groups are divided more or less equally concerning community control over the allocation of land (Table 7.11). Over 80 per cent of farmers in Group A have no control over fallow land for further cropping or grazing, while more than 30 percent of Group B farmers have such control. (Table 7.12) Almost 70 per cent of this latter group have this control on ground of previous performance or experience, while 55 per cent of Group A farmers have this control on ground of social status of the household head (Table 7.13). This discrepancy is probably due to the more permanent nature of Group A farmer settlements which is more conducive for the maintainance of traditional social structures. Further proof of this assertion is found in Table 7.14 where a quarter of Group A farmers have community control or regulations concerning the clearing of new land while more than 40 per cent of farmers in group B have such control. The basis of this control is explained in Table 7.15 from which can be seen that Group A households gain such control mainly by virtue of the size of the household while among Group B farmers this control originates from previous performance or experience. Table 7.16 shows in turn that 70 per cent of the former group of farmers follow traditional practice – they have no community regulations – concerning the grazing of cattle while about a half of Group B farmers have such control or regulations. Both groups base such control on the size of grazing land and not on the number of cattle owned (Table 7.17).

Table 7.9a **Numbers and percentages of responding householders required and not required to contribute food and labour to the community**

OBLIGATIONS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 149		N = 156		N = 305	
Required to contribute food	69	46,3	98	62,8	167	54,8
Not required to contribute food	80	53,7	58	37,2	138	45,2
	N = 147		N = 164		N = 311	
Required to contribute labour	75	51,0	117	71,4	192	61,7
Not required to contribute labour	72	49,0	47	28,6	119	38,3

Table 7.9b Average percentage of crops supposed to be given to the *Kgoši*

GROUP A	GROUP B	TOTAL (A + B)
N = 80	N = 80	N = 60
11,3 %	14,4 %	12,9 %

Table 7.10 Communal facilities available to the household

COMMUNAL FACILITIES	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 125		N = 147		N = 272	
Storage	45	36,0	44	29,9	89	32,7
Transport	41	32,8	38	25,8	79	29,0
Communally owned tools	21	16,8	34	23,1	55	20,2
Communally owned machines	5	4,0	10	6,8	15	5,5
Crop processing	7	5,6	15	10,2	22	8,1
Communal dipping facilities	6	4,8	6	4,1	12	4,5

Table 7.11 Community control over the allocation of land to individual households

STATEMENT OF OPINION	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 156		N = 183		N = 339	
The community control or have regulations concerning the allocation of land to individual households	78	50,0	82	44,8	160	47,2
The community have no control or regulations concerning the allocation of land to individual households	78	50,0	101	55,2	179	52,8

Table 7.12 Community control over the use of fallow land

STATEMENT OF OPINION	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 143		N = 168		N = 311	
The community controls or regulates the use of fallow land for further cropping or grazing	26	18,2	54	32,1	80	25,7
The community do not control or regulate it	117	81,8	114	67,8	231	74,3

Table 7.13 The basis of community control over fallow land

BASIS OF CONTROL	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 20		N = 56		N = 76	
The size of the household	4	20	8	14,3	12	15,8
The social status of the head	11	55	10	17,8	21	27,6
On ground of previous performance or experience	5	25	38	67,9	43	56,6

Table 7.14 The community control over the clearing of new land

STATEMENT OF OPINION	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 133		N = 153		N = 286	
The community controls regulates the clearing of new land	35	26,3	64	41,8	99	34,6
The community does not regulate or control it	98	73,7	89	58,2	187	65,4

Table 7.15 The basis of community control over the clearing of new land

BASIS OF COMMUNITY CONTROL	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 22		N = 72		N = 94	
The size of the household	10	45,5	28	38,9	38	40,4
The social status of the family	3	13,6	12	16,7	15	16,0
On ground of previous performance or experience	9	40,9	32	44,4	41	43,6

Table 7.16 Community control over the grazing of cattle according to area or season

STATEMENT OF OPINION	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 130		N = 165		N = 295	
The community controls regulates the grazing of cattle	39	30,0	83	50,3	122	41,3
The community does not control or regulate it	91	70,0	82	49,7	173	58,7

Table 7.17 The basis of community control over the grazing

BASIS OF COMMUNITY CONTROL	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 45		N = 87		N = 132	
The number of cattle owned	10	22,2	21	24,1	31	23,5
According to the size of the grazing	35	77,8	66	75,9	101	76,5

7.4.6.3 *Decision-making*

The decision-making process in crop production, on what crops to grow and their position on the farm, on when to plant and their opinions thereon is given in Tables 7.18 -- 7.20. Decision-making on livestock enterprises and on the marketing of livestock is analysed in Tables 7.21 – 7.22.

According to traditional leaders decisions on when to plant are mostly the responsibility of either individual smallholders (35 per cent) or the *Kgoši* alone, or together with the *Kgoro.* Approximately 92 per cent of them prefer this procedure. The true origin of these decisions is however reflected in the fact that 64 per cent of traditional leaders support this procedure because " the *Kgoši* and *Kgoro* work together with the extension adviser and this should be kept so" (Table 7.18). Also, only 17,5 per cent of these leaders think that every farmer knows his own land and knows best when to plant, and only 6,2 per cent feel that the extension officer should be in charge of planting operations. It is therefore clear that the traditional decision-making process regarding planting times is still strongly supported by the *Kgoši* (C.f. Becker, 1975; Coetzee, 1977). Regarding which crops to grow and their position on the farm the husband carries the responsibility in almost two thirds of the cases (Table 7.19, 7.20). It is significant however that 17,4 per cent in Group B leave such decisions to the extension officer as opposed to 13 per cent in Group A. Over 20 per cent of the wives in this latter group carry the responsibility for these decisions compared to less than 10 per cent of the former group. The responsibility for general decisions regarding cash crop production rest with the individual household in that in less than 10 per cent of the cases for both groups decisions originate outside the family (e.g. *Kgoši*, extension officer etc.).

In both groups, decisions regarding the marketing of livestock are the predominant responsibility of the husband (Group A 73,9 per cent; Group B 87,4 per cent). Although in a considerable number of cases, wives in Group A assist their husbands in these decisions. (Table 7.21) The husband in both groups is also primarily responsible for decisions regarding which livestock enterprises should be practiced. In some 12 per cent of the cases however these decisions are left to the extension officer (Table 7.22).

Table 7.18 Traditional leaders: decision-making on when to plant and opinions

	1	2	3	4	5	6	7	8	9	10
No	22	34	34	7	89	8	12	62	17	6
%	22,7	35,0	35,0	7,3	91,8	8,2	12,4	63,9	17,5	6,2

Note: Decision on when planting should be done is made by:

1. Kgosi
2. Kgosi and Kgoro
3. Individual smallholders
4. Agricultural advisor

Attitude:

5. Think this is correct
6. Do not think this is correct

Opinions:

7. Decision-making by the Kgosi was good, and our tradition, but does not suit into the modern world. The Kgosi desides usually too late because he knows little about modern agricultural practices. The same is valid for the Kgosi – Kgoro decision-making.
8. The Kgosi and Kgoro work together with the extention advisor and this should be kept so.
9. Every farmer knows his own land and knows best when to plant.
10. The extention officer should be in charge of planting operations.

Table 7.19 Decision-making on which crops to grow, and their position on the farm

DECISION MAKER	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 153		N = 184		N = 338	
Chief (Kgoši) / Headman	1	0,6	4	2,2	5	1,5
Husband	100	64,9	125	67,9	225	66,6
Wife	33	21,4	17	9,2	50	14,8
Extention Officer	20	13,0	32	17,4	52	15,4
Husband and wife	0	0,0	1	0,5	1	0,3
Husband and Extention Officer	0	0,0	1	0,5	1	0,3
Wife and Extention Officer	0	0,0	4	2,2	4	1,2

Table 7.20 Decision-making on cash crop production

DECISION MAKER	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 152		N = 175		N = 327	
Chief (Kgoši)	7	4,6	3	1,7	10	3,0
Husband	85	55,9	119	68,0	204	62,4
Wife	32	21,0	40	22,8	72	22,0
Extention Officer	6	3,9	6	3,4	12	3,7
Husband and wife	22	14,5	4	2,3	26	8,0
Children	0	0,0	1	0,6	1	0,3
Husband, wife and children	0	0,0	2	1,1	2	0,6

Table 7.21 Marketing of livestock: who decides to sell livestock

DECISION MAKER	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 142		N = 151		N = 293	
Headman / Chief (Kgosi)	0	0,0	5	3,3	5	1,7
Husband	105	73,9	132	87,4	237	80,9
Wife	11	7,7	3	2,0	14	4,8
Husband and wife	26	18,3	11	7,3	37	12,6

Table 7.22 Decision making on which livestock enterprises should be practiced

DECISION MAKER	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 147		N = 178		N = 325	
Kgoši / Headman	1	0,7	6	3,4	7	2,2
Husband	104	70,7	132	74,1	336	72,6
Wife	8	5,4	8	4,5	16	4,9
Extention Officer	18	12,2	23	12,9	41	12,6
Stock inspector	0	0,0	4	2,2	4	1,2
Husband and extention officer	7	4,8	4	2,2	11	3,4
Group of farmers	0	0,0	0	0,0	0	0,0
Wife and extention officer	2	1,4	0	0,0	2	0,6
Husband and wife and children	0	0,0	0	0,0	0	0,0
Husband and wife	6	4,1	0	0,0	6	1,8
Husband, wife and extention officer	1	0,7	4	2,2	2	0,6

7.4.7 General tendencies in crop production systems

All farm systems are likely to be subject to basically similar changes in their environment. There is particularly a steady increase in population density and the availability of technical knowledge, facilities and assistance. Because of these and other factors, institutional, economic, social, and cultural features of the environment change steadily. The combined impact of all these changes usually is that farmers try to farm more intensively, to make more productive use of especially land. The traditional way of rotating fields instead of crops disappears and fallow periods become shorter. Figure 7.1 shows in diagrammatic form the evolutionary paths that may be followed in the four major climatic zones of Lebowa with no. 3 being the most important. Starting from the basic, undifferentiated system in each situation of some form of shifting cultivation, each line in the diagram shows a possible evolutionary path, its relative importance and feasibility being indicated by the thickness of the arrow.

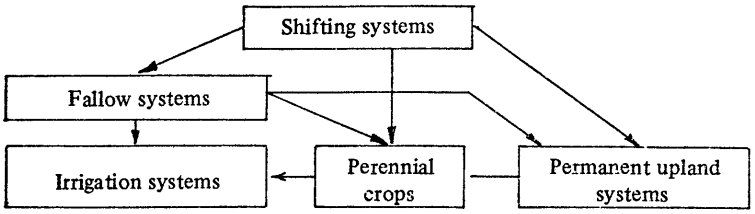
According to Ruthenberg (1976: 327–329) the general changes in systems are usually accompanied by a number of changes within each system, which can include the following effects:

(1) from long-fallow to short fallow systems;
(2) from short-fallow systems to permanent land use;
(3) from low-intensity crops to high-intensity crops;
(4) from natural grazing to cultivated fodder;
(5) from rain-fed farming to irrigation farming;
(6) from arable farming to the planting of perennial crops;
(7) from single cropping to multiple cropping;
(8) from the natural regeneration of soil fertility to intensive systems of manuring and fertilizing;
(9) from hoe-cultivation to animal traction or tractors;
(10) from traditional production methods to increasingly modern high-technology methods involving an increasing volume of purchased inputs.

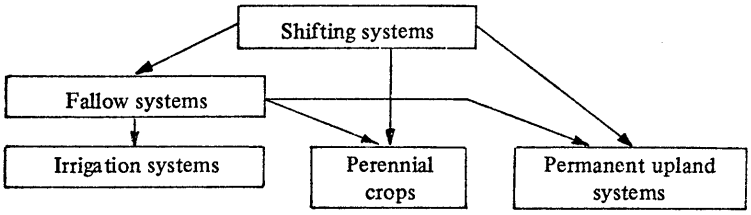
Lebowa's main problems start with point (4). Cultivated fodder is almost non-existent. There is also a possibility to increase the area presently irrigated and especially for the better utilization of the present areas (Vink, 1981; Swart *et al.*, 1981). Point no. (8) and (10) are also of serious importance. Some of the food production problems and preferences are discussed in the next section.

FIG. 7.1 *General tendencies in the evolutionary development of plant production systems.*

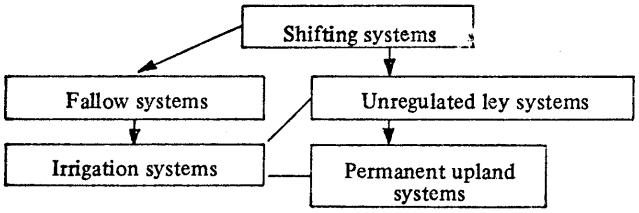
1. Humid climates



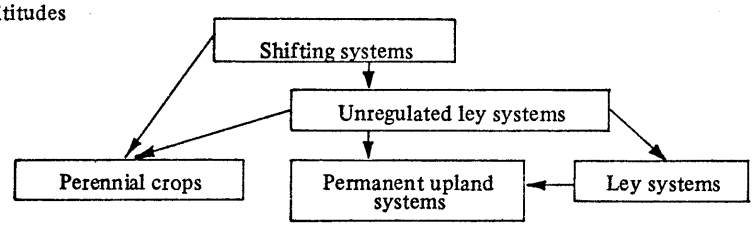
2. Semi-humid climates



3. Semi-arid climates



4. High altitudes



NOTE: 1. Adapted from Ruthenberg (1976:328)

2. The main tendencies shown are valid for indigenous smallholders only.

7.5 STOCK FARMING

7.5.1 Economic aspects

The literature (especially local literature) abounds with statements such as: as ekonomiese goedere is vee van min betekenis, en word hoofsaaklik gehou vir hulle sosiale en religieuse waarde . . . ., ekonomies word beeste slegs gebruik vir hul velle, horings ens. (Mönnig, 1967); . . . according to the old tribal culture cattle are still seen as a status symbol and not as something that has monetary value, (Benbo, 1976: 32), and many other similar statements. In this section it will be argued that such statements are gross simplifications, have not much more value than anthropological curiosity, and may indeed be misleading and thereby, by changing development thought, may hamper development efforts. Hughes (1972) however makes a distinction between commercial and economic value. According to him, cattle had historically been the only source of readily transportable wealth for traditional farmers.

Other economically based papers (e.g. Doran, *et al.*, 1979: 41–47, Lele, 1975: 58; Carlisle and Randag, 1970) frequently emphasize that animal husbandry in African smallholder societies is characterized by over-stocking, perverse supply response and low off-take from the herds. Explanations of these features often focus on cultural factors such as people's ignorance, traditional attitudes and value standards. It can certainly not be denied that over-stocking and a relatively low off-take of cattle is a feature of Lebowa agriculture. The carrying capacity of land in Lebowa is estimated at an average of 7 ha per L.S.U.[1] The optimal ratio of cattle: sheep: goat according to Tomlinson *et al.* (1954) is 8: 6: 13. If this ratio is applied to Lebowa, the maximum numbers of livestock will be 220 168 cattle, 165 126 sheep and 440 336 goats.

In 1980 Lebowa carried 107,39 per cent more cattle (236 434); 10,15 per cent more goats (44 708) and 38,21 per cent less sheep (63 094) (Jaarverslag 1980: 83–96). The corresponding percentages and numbers for 1975 were 88 per cent (193 715), 3,9 per cent (12 840) and 31,3 per cent (51 728). The situation thus seems to be deteriorating. Considering that the Tomlinson estimates, – due to continuous over-grazing since – have become over-estimates. The low off-take and high death-rate of livestock in Lebowa is well documented (Jaarverslae). Remedial action tends to concentrate on educational measures to change traditional attitudes and values. Although the behavioural importance of cultural values is not denied, it will now be argued that their determining effects on livestock farming in Lebowa cannot be fully understood unless the total context of the system is more fully

1. L.S.U. = Large Stock Unit.

analysed. As a start, consideration will be given to the hypothesis of the so-called perverse or backward bending supply response of African smallholders i.e. that individual stock-owners tend to sell fewer animals as the price of animals increases, leading to supply curves as shown in Figure 7.2

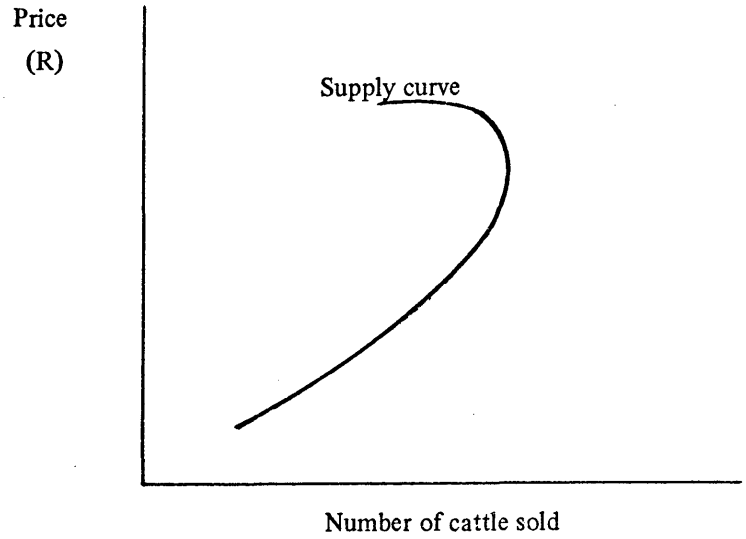


Fig. 7.2 *Perverse supply response*

This perverse response is usually explained in cultural lines, called the cattle complex, i.e. the dominating importance of cattle in various spheres of peasant life and the existing low consumption needs.

Recent studies by Doran and others (Doran, *et al.*, 1979: 41–47; Low, 1978: 62–74, Low *et al.*, 1980: 225–235) supported by multiple regression analysis – which explains annual variations in cattle off-take in terms of corresponding variations in cash needs and alternative cash supply – tend to support the hypothesis. It is shown, that, whilst cattle-owners may appear to respond positively to price incentives because of their natural preference to sell in higher priced markets, the overall supply response to price will be negative. Low *et al.* (1980: 225) note that this hypothesis has been challenged on two grounds in particular. First, negative responses have been observed in Western societies in the form of postponed cattle sales in expectation of even higher prices or value equalization of cattle at an older age and second because it is not always easy to differentiate between the cause and effect of price and supply movements and the confusing evidence on the nature of recorded responses.

One should, moreover, consider the undisputed fact that cattle are a store of wealth for the African smallholder in the same way as a house or a plot of land for members of advanced societies.

Lebowa data from the past three years show positive supply response to price changes both in absolute numbers and in terms of percentage of stock sold (Table 7.23). This may simultaneously also be a tendency to move toward a more commercial attitude toward cattle – particularly as youngmen take over from older farmers.

Furthermore, some of Low's variables may not be applicable for Lebowa. But that is not the point. One can fully agree that if Low's results are correct and applicable to Lebowa, the pursuance of a production oriented livestock development programme may be counter-productive, especially if overgrazing is a major problem, because they enable cattle-owners to sell less cattle and thereby build up larger herds. Nevertheless such studies should be combined with more solid household studies integrating econometric and linear programming models, (Ahn *et al.*, 1981: 697–707) to broaden our perceptions concerning household response to economic incentives in smallholder agriculture.

Table 7.23 Smallholder stock (cattle) sales, and price (1978–81)

Time period	Number of cattle	Number sold	% of Stock sold	Av. Price received	% Change in price
Apr. 1978 – March 1979	433 140	9 219	2,13	117,34	–
Apr. 1979 – March 1980	651 581	17 195	2,63	135,75	15,69
Apr. 1980 – March 1981	454 355	20 294	4,47	199,73	47,13

Source: Jaarverslae, Lebowa Department of Agriculture and Forestry.

A negative supply response may, moreover, not be "perverse", but rather the result of a rational economic decision. While the African has a relatively high marginal propensity to save, he has few profitable ventures to exploit. Land has no market value and gives a very low rate of return from private investment. The houses rural Africans live in similarly have no market value. Thus, approached from a Western viewpoint, they invest in the third best alternative, in something to which they have well defined individual rights, that can be

exchanged, and whose use is legally policed and enforced (Rutman, 1976: 52). Because this alternative form of investment and accumulation of wealth usually leads to over-grazing and overstocking, at least part of the solution must be the provision of alternative investment opportunities, though not necessarily in land. Rural banking and credit institutions and agro-based rural industries may serve as examples.

The accusations that African smallholders are more interested in the colour of the cattle, regard quantity not quality as important are equally not true. The quantity aspect has already been discussed (a large herd is also a status symbol for a white farmer). Quality is mainly an ecological and managerial problem. Communal grazing fields without grazing management are simply unsuitable for breeding of stud animals by individual smallholders. The preference for indiginous breeds is a question of adaptability to local natural conditions including resistance to stock diseases in an area with poor veterinary services Haaland (1977: 179–192) approaches the same problem from a different angle. He starts with an institutional variation in the context of cattle management:

(i) animals are privately owned and exchangeable;;
(ii) pasture is communal or free and not exchangeable;
(iii) agricultural land is communal and not exchangeable;
(iv) the market for wage labour is limited in peasant communities.

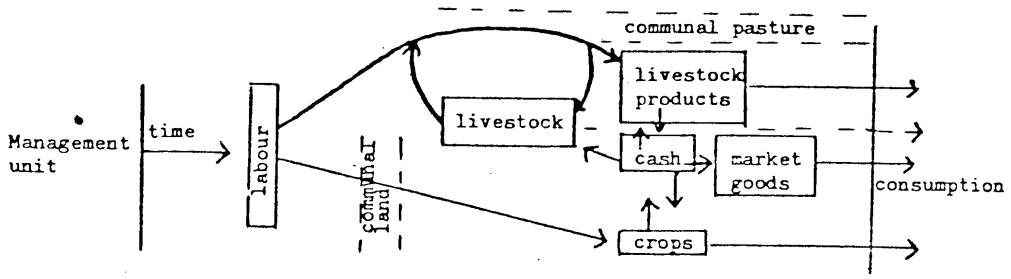


Fig. 7.3 *Economic alternatives available for the smallholder*

Source: adapted from Haaland (1977: 180).

Figure 7.3 shows the economic alternatives available to the smallholder. The boxes illustrate forms of value and the arrows transformation of value. The problem of the smallholder is to increase the allocations illustrated by arrows going into the box "livestock" and decrease allocations going out of it (except for unproductive animals). This implies keeping the consumption needs at as low a level as possible. How should an economising peasant react to price fluctuations? Obviously he should sell unproductive animals (infertile females and males not needed to maintain the fertility of the herd) when he anticipates the prices to be most favourable. Thus, one would expect normal supply responses for such animals. This also seems to be the case with the Lebowa smallholders. With productive females, the situation is more complex. Any sale of such animals would imply reduction of capital and thus less security. Haaland (1977: 181) argues that those who would sell productive females would be those whose herd had reached a size where marginal productivity on further investment approaches Zero. Small herd-owners may on the contrary have the so-called perverse supply response for female animals. Thus, irrespective of smallholders' cultural values it seems economically wise under certain circumstances to allocate resources in a way which to outsiders may look perverse or irrational.

An aggregate supply curve does not prove or disprove the perversity of managements supply behaviour unless it is disaggregated with reference to the sex of the animals supplied and the opportunity situation of the supplier. The commercial supply response is the outcome of the way the smallholder balances his demand for values realized through market transactions with his demand for values realized through non-market transactions.

7.5.2 Ecological aspects

It is obvious ecologically that the balance between man, animal and pasture is affected by the strategies adopted by the management units.

Two sets of balances define the characteristic problem of adaptation. Growth of the human population requires growth in livestock production. The growth of the animal population will, however, sooner or later reach the limit set by the carrying capacity of the land. The outcome of such processes depend on factors of organizational nature. Haaland (1977: 184–188) illustrates the point by distinguishing between pure pastoralists and mixed agricultural situations.

The level around which the stocking rate (the total number of animals held by the number of the tribal group exploiting a given pasture area) fluctuates depends on the character of:

(i) the sensitivity of the pasture to overgrazing; and

(ii) the consumption profile of the group.

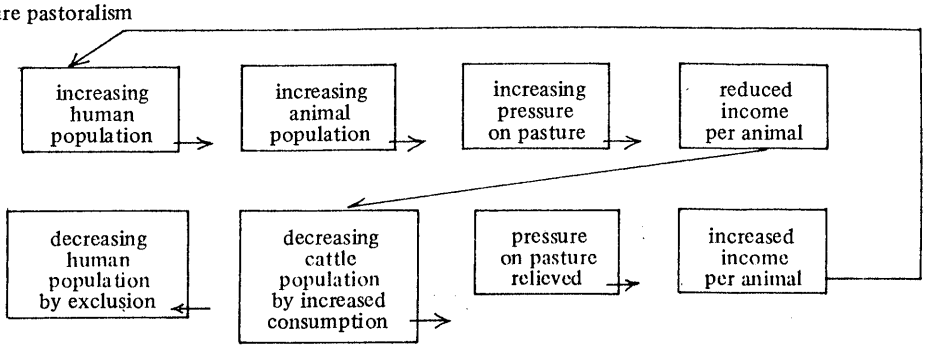
In general a pure pastoralist adaptation is self regulatory with reference to overgrazing.

Figure 7.4 illustrates the situation while pure pastoralism is self-regulatory, in mixed agriculture adaptation is not sensitive to pressur on pasture. Despite pressure on pasture, a growing human population may still keep a large animal population which may be of decreasing subsistence importance, but which still is of importance as a store of wealth.

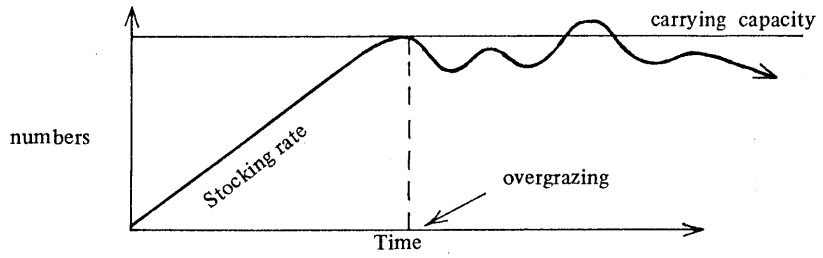
The problem, as demonstrated in Lebowa and most other Black areas in South Africa is that the lack of sensitivity to pressure on pasture leads to overgrazing and thus the serious reduction of carrying capacity. Attempts at relieving the pressure on pasture by increasing productivity (the main issue in most extention efforts) may thus have the opposite effect, namely increasing overstocking. This is likely to occur as long as arable and grazing land is communal or free, even in a situation where agricultural production is significantly directed towards the market. The policy implications of this situation is obvious: the direction of the flow of capital between the different sectors must be modified by creating opportunities to invest in agricultural and agro-based production or financial institutions (Van Rooyen *et al.*, 1981). Extention efforts should concentrate more on livestock quality which, coupled with progressive farming practices, should lead to reduction in livestock numbers.

Fig. 7.4 *Adaptation in pure pastoralism and in mixed agriculture*

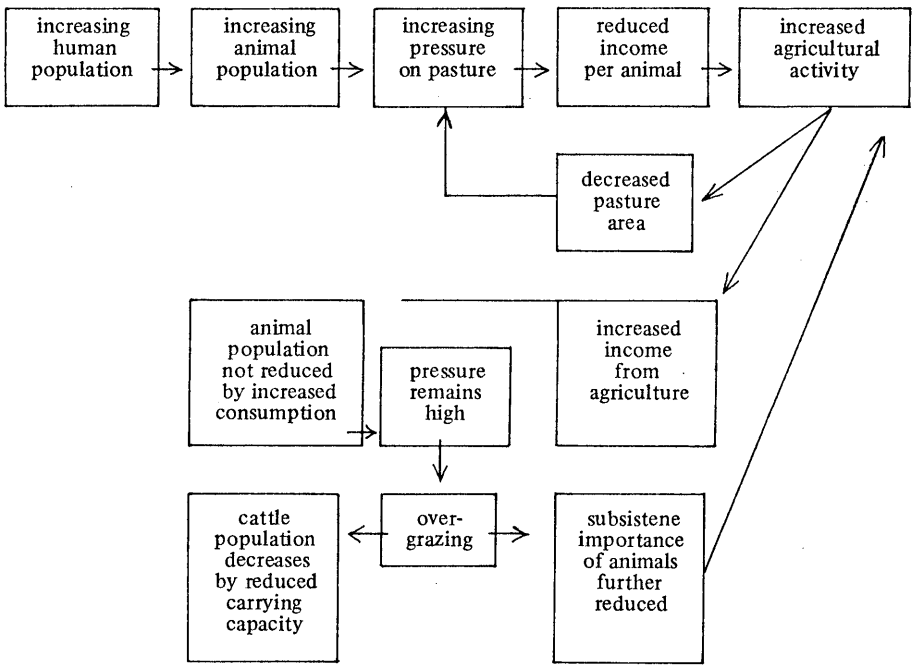
I. Pure pastoralism

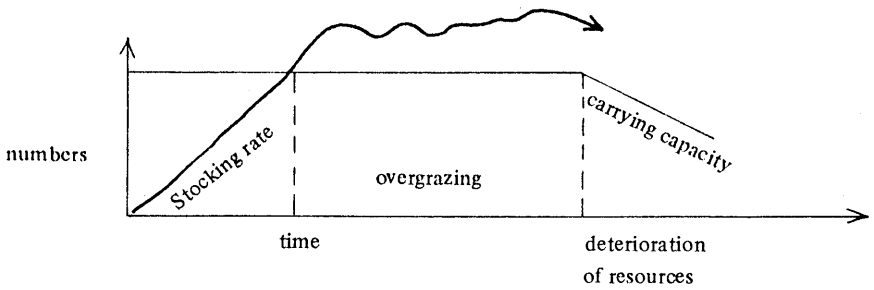


Self-regulatory with reference to maintenance of carrying capacity



II. Combination of agriculture and animal husbandry





Not self-regulatory with reference to maintenance of carrying capacity.

Source: Haaland (1977: 186–187).

CHAPTER 8

THE MARKETING SYSTEM

8.1 THE IMPORTANCE OF MARKETING IN DEVELOPMENT

The crucial role of marketing in the development of agriculture in Lebowa needs hardly be stressed. Markets are familiar and vital elements in the socio-economic life of contemporary African peoples. Indeed, some observers stress that the social and political importance of markets is as great as their economic significance (Bohannan and Curtin, 1971; Piault, 1971). While markets are greatly diversified in terms of size, locational attributes, timing and principal economic functions, all market places can be conceptualized economically as mechanisms designed to rationalize the fundamental problems of collection and distribution posed by spatial and temporal variations in supply and demand (Good, 1975: 49). African markets typically perform one or more of four primary economic functions. They serve as centers for collection and local exchange of produce such as foodstuffs, livestock and craft articles originating in the immediate hinterland of a market; they provide services such as selling or serving cooked meals and locally-made beer, tailoring, barbering, and the repair of bicycles, watches, and shoes; they are distribution points for goods imported from other areas such as manufactured consumer items and dietary staples; and they are bulking points for goods to be exported from the local region (Good, 1976: 365).

The development of markets must keep pace with the development of the agricultural sector as a whole (Heyer, 1976: 313). A prerequisite for development through improved marketing is that the smallholder should be interested in an income and that he should rate this income above his position in the framework of social relationships, and he must already have moved away from a backward – bending supply curve for labour (Fényes and Van Niekerk, 1979: 1). In this case market development can be a positive asset, acting as a strong encouragement to agricultural development. On the other end, the absence of markets or the lack of improvement of existing markets and marketing systems can be a real hindrance to development (Groenewald en Du Toit, 1981: 5). The same applies if increases in agricultural production are attained by capital intensification and the adaption of new technology: without the achievement of market orientation, development effort will be frustrated. If on the other hand, market opportunities are seized through which only the surplus produced by traditional methods is sold, little growth is generated (Parsons, 1971: 38).

In the economist's view, prices are important determinants of economic behaviour. Utilizing both economic theory and simple econometrics, several economists have argued that behaviour in traditional societies is highly amenable to analysis by economic theory.

Some writers, however, claim that the concept of a supply function is largely inapplicable in African societies. They argue that non-economic factors are of such overwhelming importance that the application of economic theory to the study of crop and labour supply must necessarily be misleading or, at best irrelevant (Dalton, 1962: 373–374). Others contend that economic theory is indeed applicable, but one must bear in mind that backward bending supply curves are entirely consistent with economic theory. In fact, such supply curves are common. (Berg 1961: 476, 491–92; Elkan, 1976). A further group of writers argue that backward bending supply curves are consistent with economic theory, at least in certain types of situations, but in fact forward bending supply curves are more common (Bauer and Yamey, 1959; Bauer, 1954; Krishna, 1963: 477–487; Barber, 1960: 237–251; Stern, 1959: 375–384; 1962: 202–207). Dean (1966: 7) mentions that in some parts of Africa smallholder's production decisions are random, and hence unrelated to price, or that they produce, by habit, a given amount year after year.

Wadinambiaratchi (1967: 41–49) argues that given the institutional settings of underdeveloped countries, it should be possible to understand the marketing structure in terms of their economic development. The position of the channels of distribution in developing countries is only a natural stage of the evolution: first from a non-monetary subsistence economy to a monetary economy, and later from an economy of scarcity, where demand exceeds supply, to one of comfort, if not opulence, where supply more than meets demand (C.f. Figure 5.1 and 5.2). It would seem then that the hypothesis that "the channels of distribution in a country reflect the stage of economic development in that country" is well founded. Leaders can introduce changes in the channels or in the type of institutions in the channels either in response to changes in the environment, or by attempting to change the environment, first by changing the socio-psychological, cultural, or anthropological variables as affecting the people in the country, and second, by changing the economic environment itself.

In this study it is found that the main issues amongst Lebowa smallholders are two-fold, namely the level of market orientation, which in turn depends largely on the existence of markets. It is concluded, that in the case of the farmers who produce for the market, there is no evidence which does not support the hypothesis that both labour supply curves and crop supply curves are positively sloped.

Aspects of market orientation are discussed elsewhere in the text and here attention will be given to the existence, effectiveness and regulation of the agricultural marketing system of Lebowa.

8.2 AGRICULTURAL AND CROP MARKETING IN LEBOWA

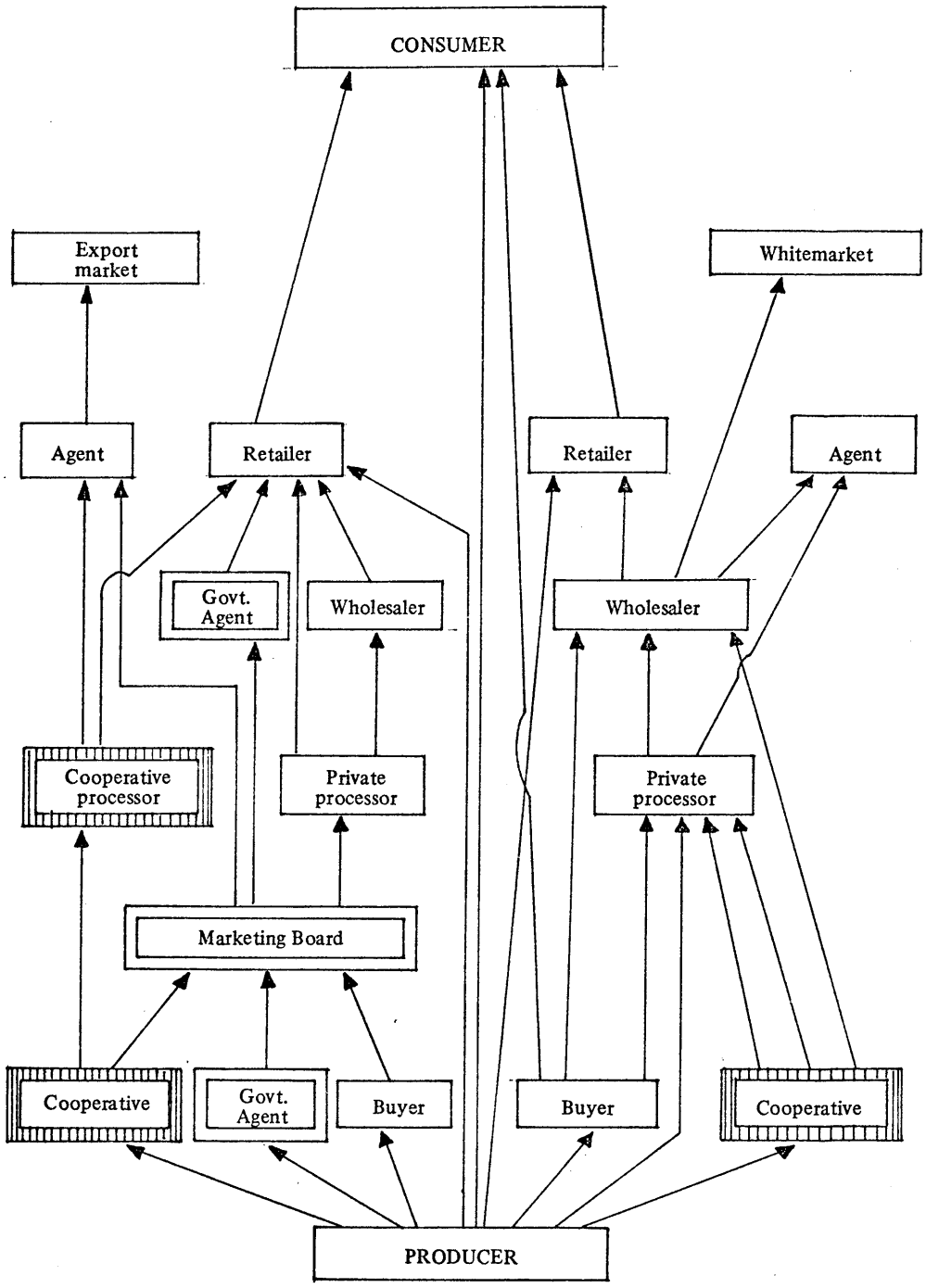
According to Lele (1977), the extent to which a market system performs the various functions effectively depends on the availability and quality of the physical infrastructure such as storage, marketing and processing facilities; the financial institutions; the communication network and the enterpreneurial and managerial manpower.

The agricultural marketing system of Lebowa can be categorized into private, co-operative and publicly-managed systems, as illustrated in Figue 8.1.

According to Mittendorf (1981: 132) retail markets alone account for more than 50 per cent of total food sales in developing countries. Evidence from other African countries point not only to the importance of private marketing systems but also show that they are , contrary to general belief, highly competitive and that they operate efficiently given the conditions in which they function (Alvis and Temu, 1968; Bauer, 1963; Jones, 1970; Kriesel *et al.*, 1970; Thoday, 1969). In general, rural markets form the main outlet for the small farmer. The price he receives there determines his income to a large extent. The extent to which rural markets can be developed as dynamic service centres for small farmers by providing such additional services as credit, marketing promotion, marketing extention and inputs requires much more investigation, trial and development work. Lele (1977: 502) states that facilitating efficiency in traditional trade is necessary as rural traders perform a number of important functions that cannot be replaced by government or co-operative agencies without incurring substantially greater costs in administrative manpower and finances than is implicit in allowing the private sector to operate. Traders function in the remotest and least accessible areas where government or co-operative machinery frequently does not reach, thus performing the important function of providing a market channel for the rural surpluses, and in many cases also fulfilling the consumption needs of the rural communities by selling consumer goods, thus providing further incentive to produce for the market.

Insufficient information concerning present and future market conditions is one of the most common shortcomings of less developed countries, due mainly to the large number of small producers, inefficient communications systems, low levels of education and ad-

Fig. 8.1 *Agricultural marketing system of Lebowa*



Key:

Private

Statutory and agent

Co-operative

ministrative problems related to the accumulation and distribution of marketing information (Lele, 1971). This is also the case in Lebowa. Collecting information on prices is difficult because open price-determination is rare in the retail markets. A recent study by Talane (1979: 3) also points to difficulties in obtaining information on the market structure e.g. the degree of seller concentration (number and size of sellers); degree of product differentiation (from buyers' viewpoint, considering the market information); and on conditions of entering and leaving the market (barriers, advantages and costs). He (Talane, 1979: 3) also mentions that it is ironical that there is little literature available on rural markets although for most of the population the local markets are the channels through which agricultural commodities enter exchange.

The information obtained for this study on markets and crop marketing is summarized in Tables 8.1 – 8.7.

If one considers the relatively small quantities offered for sale, the poor transport facilities and roads, and the concomitantly high transport costs, (monetary or social) the markets for cash crops are far away, an average 32,5 km (Table 8.1) and the farmers regard distance and facilities as by far the two overwhelming difficulties.[1] (Table 8.2)

Table 8.1 Average distances (km) of the markets from the homestead

		GROUP A	GROUP B	TOTAL (A + B)
1.	For cash crops	29,3	36,6	32,5
2.	For surplus food crops	1,3	1,7	2,0

1. Groenewald and du Toit (1981) found something similar with reference to livestock auctions in Bophuthatswana.

Table 8.2 Difficulties experienced in the marketing of products (Percentages of replies)

DIFFICULTIES	GROUP A	GROUP B	GROUP A + B
	N = 129	N = 143	N = 272
The market is too far away	50,0	44,0	47,0
Lack of means of transportation	44,6	48,7	46,6
Marketing regulations	5,4	1,9	3,7
Absence of buyers	0,0	5,4	2,7

According to Brown (1970: 69) in underdeveloped areas there are two markets which need to be organized to provide an incentive to the farmer as well as profit to the enterprneur, and these may or may not be closely linked.

The first is the market where the farmer can sell his crops and livestock; the second is the market in which he can buy his farm inputs and consumer goods. Both are essential and desirable. In an agricultural sector consisting largely of smallholders emerging from subsistence farming both markets should if possible be within easy walking distance say 6 or 8 kilometers apart.

The need for markets in the district, especially to sell produce, is strongly emphasised (Table 8.3). The co-operative, the trading store and market stall are the most important outlets for cash crops (Table 8.4) while nearly 40 per cent of the farmers sell their surplus food crops to the co-operative and a further 40 per cent sell through the trading store, market stall or by private sale. (Table 8.5). In response to a different question – without the subdivision of cash and food crops – traders and the co-operative seem to be the most important markets (Table 8.6).

Traditional leaders were in general not satisfied with existing marketing arrangements for crops and animals and argue for the establishment of marketing co-operatives near the villages (Table 8.6a).

As far as farming requisites are concerned some 57 per cent of farmers said that they were readily available, but 71 per cent said they were not available on credit (Table 8.7).

8.2.1 Marketing of livestock and livestock products

Section 7.5 referred to the extent of cattle marketing in Lebowa.

Although the cattle selling rates – conversion co-efficient for cattle (total sales over total number of cattle) – increased in the past three years (Table 7.23) it is still regarded as being very low, not only in comparison with that of the Republic of South Africa (24 per cent) but with the co-effients of e.g. Bophuthatswana (Groenewald and du Toit, 1981:4). According to this survey only 34,8 per cent of the farmers sell livestock products, but there exists considerable differences between the two Groups. Fourty two per cent of Group A farmers and only 28,6 per cent of Group B farmers market livestock products (Table 8.8). Private sale is the most important form of marketing for both groups although

Table 8.3 Need for district market

STATEMENT OF OPINION	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 139		N = 163		N = 302	
There is a need for a market	132	95,0	134	82,2	266	88,1
There is no need for a market	7	5,0	29	17,8	36	11,9
	N = 76		N = 86		N = 162	
The market is needed to sell produce	68	89,5	69	80,2	137	84,6
The market is needed to buy products	8	10,5	17	19,8	25	15,4

Table 8.4 **Marketing of cash crops: the form of marketing system available for the farmer**

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 144		N = 154		N = 298	
Co-operative	46	31,9	40	26,0	86	28,8
Trading store	44	30,5	53	34,4	97	32,5
Market stall	29	20,1	31	20,1	60	20,1
Private sale	12	8,3	21	13,6	33	11,1
Speculant	0	0,0	5	3,2	5	1,7
Call transport and send it to town	0	0,0	2	1,3	2	0,7
Milling companies	8	5,5	0	0,0	8	2,7
Sell to non-farmers	2	1,4	1	0,6	3	1,0
Own store	2	1,4	0	0,0	2	0,7
Sell at social gatherings	0	0,0	1	0,6	1	0,3
Sell to commercial travellers	1	0,7	0	0,0	1	0,3

Table 8.5 **Marketing of surplus food crops: the form of marketing system available for the farmer**

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 129		N = 113		N = 242	
Co-operative	57	44,2	39	34,5	96	39,7
Trading store	30	23,3	13	11,5	43	17,8
Market stall	10	7,8	11	9,7	21	8,7
Private sale	7	5,4	36	31,8	43	17,8
Call transport and send it to town	0	0,0	2	1,8	2	0,8
Barber	8	6,2	1	0,9	9	3,7
Milling companies	4	3,1	1	0,9	5	2,1
Store it for later sale	2	1,5	0	0,0	2	0,8
Sell to non-farmers	1	0,8	0	0,0	1	0,4
Commercial traveller	10	7,8	6	5,3	16	6,6
Speculant	0	0,0	1	0,9	1	0,4

Table 8.6 Marketing of crops: form of marketing (percentages of replies)

MARKETS	GROUP A	GROUP B	GROUP A + B
	N = 136	N = 144	N = 280
Traveller	33,3	49,1	41,2
Co-operative	47,1	35,6	41,3
Mills	6,5	3,6	5,1
Local buyer	13,1	11,7	12,4

Table 8.6a **Traditional leaders: opinions on marketing arrangements for crops and animals**

OPINIONS	Number of responses	Proportion (%)
	N = 97	
Satisfied with the marketing arrangements	32	33
Not satisfied	65	67
Marketing co-operatives should be established near villages	44	45,3
Want to sell livestock locally, not sending away	32	33,0
Marketing quota for cattle should be abolished	21	21,7

Table 8.7 Availability of farming requisites

AVAILABILITY OF REQUISITES	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 154		N = 186		N = 340	
Farming requisites like fertilizers and seed are readily available	80	51,9	114	61,3	194	57
Not readily available	74	48,0	72	38,7	146	42,9
	N = 151		N = 180		N = 331	
They are available on credit	30	19,9	65	36,1	95	28,7
Not available on credit	121	80,1	114	63,3	235	71,3

40 per cent of group B farmers sell at the market place compared to only 25 per cent of Group A (Table 8.9). Sale by auction is the most important institutional form of livestock marketing, followed by private sales. Direct sales to abattoirs and sales to speculators are unimportant (Table 8.10). The distances of markets from the homestead is shown in Table 8.11 and the form of farm to market transport in Table 8.12. According to Table 8.11, 40 per cent of the farmers are more than 10 km. from auction sites, 90 per cent are more than 10 km from an abattoir, 70 per cent are more than 10 km from a butcher while less than 5 per cent are more than 10 km from a private buyer. These distances become relevant when the mode of transport is taken into account: 87,1 per cent of farmers drive cattle in herds to the market place (Table 8.12). No significant differences concerning these practices exist between the two groups. Some 50 per cent of the respondents stated that they had taken cattle to auction and decided not to sell (Table 8.13).

The survey revealed only two causes for this selling behaviour (Table 8.14), but post-survey enquiries and other observers (Groenewald and Du Toit, 1981: 39) noted that another important reason may be that they have taken the cattle to the auction in the first place to get a better idea of the market price without really intending to sell.

Groenewald and Du Toit (1981: 71–74) prescribed certain conditions for a livestock marketing system for Bophuthatswana which could have relevance for Lebowa. These include:

- the necessary facilities for performing marketing functions as well as incentives for producers to adopt modern production practices and commercialize production;
- relatively large number of small scale butchers with optimal spatial distribution;
- that authorities should provide training, and business advice, financing etc. to these butchers;
- that provision of a well planned system for the transport of meat from wholesalers to the retail level;

Table 8.8 Marketing of livestock products

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 133		N = 154		N = 287	
Selling livestock products	56	42,1	44	28,6	100	34,8
Not selling livestock products	77	57,9	110	71,4	187	65,2

Table 8.9 Marketing of livestock products: form of marketing system available for the farmer

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 60		N = 50		N = 110	
Market place	15	25,0	20	40,0	35	31,8
Privately	43	71,7	29	58,0	72	65,5
At social gatherings	2	3,3	1	2,0	3	2,7

Table 8.10 Marketing of livestock: form of marketing system available for the farmer

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 229		N = 231		N = 460	
Auction	124	54,1	128	55,4	252	54,8
Abattoir	13	5,7	3	1,3	16	3,5
Butcher	29	12,7	29	12,6	58	12,6
Private sale	62	27,1	69	29,9	131	28,5
Speculator	1	0,4	2	0,9	3	0,7

Table 8.11 Marketing of livestock and livestock products: distances of markets from the homestead in km.

DISTANCE TO AUCTION		GROUP A		GROUP B		TOTAL (A + B)	
		Frequency	Proportion (%)	Frequency	Proportion (%)	Frequency	Proportion (%)
		N = 128		N = 137		N = 265	
0 – 5	km	47	36,7	41	29,9	88	32,2
6 – 10		27	21,1	44	32,1	71	26,8
11 – 15		22	17,2	13	9,5	35	13,2
16 – 20		11	8,6	14	10,2	25	9,4
21 – 25		7	5,5	5	3,6	12	4,5
26 – 30		0	0,0	13	9,5	13	4,9
31 – 35		6	4,6	0	0,0	6	2,3
36 – 40		7	5,5	5	3,6	12	4,5
41 – 45		1	0,8	1	0,7	2	0,8
46 – 50		0	0,0	1	0,7	1	0,4
51 – 55							
ABATTOIR		N = 19		N = 24		N = 43	
0 – 5	km	0	0,0	2	8,9	2	4,7
6 – 10		1	5,3	0	0,0	1	2,3
11 – 15		0	0,0	1	4,2	1	2,3
16 – 20		0	0,0	2	8,3	2	4,7
21 – 25		1	5,3	4	16,8	5	11,6
26 – 30		0	0,0	0	0,0	0	0,0
31 – 35		0	0,0	0	0,0	0	0,0
36 – 40		2	10,6	6	25,0	8	18,6
41 – 45		0	0,0	0	0,0	0	0,0
46 – 50		3	15,8	1	4,2	4	9,3
51 – 55		1	5,3	0	0,0	1	2,3

.../Continue

Table 8.11 (Continued)

		GROUP A		GROUP B		TOTAL (A + B)	
		Frequency	Proportion (%)	Frequency	Proportion (%)	Frequency	Proportion (%)
56 – 60	km	7	36,8	0	0,0	7	16,2
61 – 65		0	0,0	2	8,3	2	4,7
66 – 70		0	0,0	3	12,5	3	7,0
71 – 75		0	0,0	0	0,0	0	0,0
76 – 80		0	0,0	3	12,5	3	7,0
81 – 85		0	0,0	0	0,0	0	0,0
86 – 90		3	15,8	0	0,0	3	7,0
91 – 95		1	5,3	0	0,0	1	2,3
BUTCHER		N = 41		N = 51		N = 92	
0 – 5	km	14	34,2	22	43,1	36	39,1
6 – 10		18	43,9	9	17,6	27	29,3
11 – 15		5	12,2	12	23,6	17	18,5
16 – 20		1	2,4	1	2,0	2	2,2
21 – 25		2	4,9	2	3,9	2	2,2
26 – 30		0	0,0	0	0,0	4	4,3
31 – 35		0	0,0	2	3,9	2	2,2
36 – 40		0	0,0	2	3,9	1	1,1
41 – 45		0	0,0	1	0,0	0	0,0
46 – 50		1	2,4	0	2,0	1	1,1
PRIVATE BUYER		N = 31		N = 36		N = 67	
0 – 5	km	26	83,9	28	77,8	54	80,6
6 – 10		4	12,9	6	16,7	10	14,9
11 – 15		1	3,2	2	5,5	3	4,5

Table 8.12 Marketing of livestock: form of farm to market transport

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 128		N = 129		N = 257	
Without transport	107	83,6	117	90,7	224	87,1
By railway	4	3,1	0	0,0	4	1,5
By truck	9	7,0	7	5,4	16	6,2
By donkey-carts	8	6,3	5	3,9	13	5,0

Table 8.13 Marketing of livestock: selling behaviour on auction

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 152		N = 171		N = 323	
Cattle taken to auction and decided not to sell	79	52,0	80	46,8	159	49,2
Cattle taken to auction and sold at all times	73	48,0	91	53,2	164	50,8

Table 8.14 Marketing of livestock: reasons not to accept buying offers at auctions

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 73		N = 84		N = 157	
Low Price	67	91,8	83	98,8	150	95,5
The buyer is competitor	6	8,2	1	1,2	7	4,5

- that livestock auctions be transferred from the department of Agriculture to a new affiliate of the Development Corporation;
- the establishment of an Abbatoir corporation;
- the establishment of central feedlots;
- the institution of a price stabilization scheme for livestock;
- the institution of an independent consultative body for the livestock industry.

8.3 INSTITUTIONAL MARKET DEVELOPMENTS IN LEBOWA

Before turning to organizational and financial aspects of the marketing of agricultural products in Lebowa it is necessary to describe recent institutional developments.

8.3.1 Lebowa Marketing Act

An important development was the introduction of the Lebowa Marketing Act (Lebowa Act 14 of 1978) to provide for the establishment of an agricultural marketing board to deal with and to regulate matters relating to the production, manufacture, processing and sale of agricultural products, for the grading and standardization of agricultural products; and to provide for matters connected therewith.

8.3.1.1 *Objectives and function of the Agricultural Marketing Board*

The objects of the Board are to accomplish economic viability, stability and rationalization in the agricultural industry of Lebowa and generally to co-ordinate locally and with other countries and territories in Southern Africa all matters pertaining to the production, manufacture, processing and marketing of agricultural products.

The Board is empowered to:

- investigate or cause to be investigated marketing conditions in general or the conditions relating to any particular product on any market;

- examine, report and make proposals to the Minister on the desirability of the regulations concerning the marketing of any product, the promotion of the demand for any product, the promotion of research relating to any product and matters incidental thereto;

- advise the minister in regard to any matters within its purview under this Act;

- impose levies on products controlled in terms of this Act; and

- negotiate loans and accept donations to promote the objects of this Act.

The Board shall:

- control the production and marketing of any controlled product;

- perform any function and carry out any duty in the achievement of the objects for which it was established and for the purpose of achieving these objects, it shall have the powers conferred upon it by this Act.

8.3.1.2 *General Powers and Duties of the Board*

8.3.1.2.1 Administration, inspection and agents

The minister may, subject to the laws governing the Public Service of Lebowa appoint or designate such officers or employees as may be deemed necessary to assist the Board in the execution of its powers and the performance of its duties in terms of the provision of this Act.

Inspectors may be appointed for certain purposes.

An inspector may enter any place or vehicle occupied by any person who is, or is suspected to be, a producer or a person dealing in the course of trade with a controlled product or have kept, sold, manufactured, produced, processed, treated, prepared, graded, classified, packed or marked, any controlled product by any person, and may –

- inspect any such product and examine related books and documents;

- demand information concerning such product;

- seize any books, documents or articles or products which may afford evidence of the commission of an offence under this Act;

- take samples of products;

- grade, classify, pack or mark, in accordance with the requirements prescribed under this Act; direct and inspect these operations.

The Board may also, with the approval of the minister first having been obtained and subject to the conditions approved by him, appoint and terminate the appointment of such agents as it may consider necessary for the performance of its functions.

8.3.1.2.2 Registration of producers of controlled products

The Board may:

- require any producer of any controlled product to apply for registration as such a producer;

- render the continued validity of such registration subject to conditions determined by the Board.

8.3.1.2.3 Assistance to certain enterprises and research

The Board may assist, with the approval of the minister, by grant or loan or in any other manner –

- any enterprise for preserving, processing, manufacturing, storing or conditioning any controlled product or anything which is derived from such a product; and

- any research relating to the improvement, production, manufacture processing, storing or marketing of any such controlled product.

8.3.1.3 *Funds*

8.3.1.3.1 Levies on produce

The Board may, with the approval of the minister, by notice in the official gazette, impose a general or special levy on any controlled product.

8.3.1.3.2 General and Special funds

A General Fund is administered and controlled by the Board. Money derived from any general levy is to be credited to this general fund. All expenses of the Board are to be debited to the General Fund.

The Board may utilize any money credited to the General Fund which in the opinion of the Board and the Minister will be advantageous to the agricultural industry of Lebowa.

The Board may also establish special funds derived from special levies in respect of any controlled product and utilise these in the interest of the controlled product in respect of which the Special Fund was established.

8.3.1.4 *Regulatory Powers of the Board*

The Board may, with the approval of the Minister require that:

- Records to be kept and returns and information to be furnished to the Board.

The Board may, with the approval of the Minister prohibit:

- The selling and dealing in the course of trade with a controlled product;

- The sale of a product except to or through the Board or specified persons;

- The sale of a product, except a particular class or quantity thereof;
- The sale, purchase, supply, delivery or conveying of a product at specified times;
- The production, manufacture, processing, conveyance, purchase or sale of a product except under permit.

8.3.1.5 *Trading and other operational powers of the Board*

- The Board may purchase, sell or process controlled products;
- The Board may act as agent;
- The Board may deal in packing material and plant material;
- The Board may conduct a pool for the sale of any controlled product;
- The Board may take steps to stimulate the demand for any controlled product;
- The Board may furnish information concerning marketing matters to interesting parties;
- The Board may establish and conduct abbatoirs and produce markets.

8.3.1.6 *Special regulatory powers of the Minister*

These include:

- Fixing of prices;
- grading, packing and marking of products;
- prohibition of the sale under the name of a product of any article which is not that product;
- prohibition or control of the importation and exportation of products.

8.3.1.7 *Marketing arrangements*

- The Board may enter into arrangements with any marketing control board in the R S A;

- The Board may appoint any marketing control board in the Republic as agent to perform any of the Board's functions on behalf of the Board.

The Acts repeated in whole by the introduction of this Act are:
Marketing Act, 1968 (Act 59 of 1968)
Marketing Amendment Act, 1969 (Act 52 of 1969)
Egg Production Control Act, 1970 (Act 61 of 1970) and
Marketing Amendment Act, 1972.

8.4 LEBOWA CO-OPERATIVES ACT

Another important legal development in the agricultural sector was the institution of the Co-operatives Act (Lebowa Act 2 of 1980) to provide for the establishment, registration, management and dissolution of agricultural co-operatives in Lebowa and for matters connected therewith.

The Minister may from time to time appoint an officer as the Registrar of co-operatives in Lebowa, and primary and secondary agricultural co-operatives may be registered under this Act.

Any ten or more persons above the age of eighteen years who have adopted regulations which are not inconsistent with this Act, may . . . form a primary agricultural co-operative and apply to the Registrar for the registration thereof. Membership is limited to bona fide farmers.

Any two or more primary agricultural co-operatives may jointly form a secondary agricultural co-operative.

A primary or secondary agricultural co-operative may, subject to the provisions of this Act, be formed for all or any of the following objects:

(i) to collect, store and dispose of the agricultural products, livestock and livestock products of its members in the most advantageous manner;

(ii) to process or treat the livestock, agricultural or livestock products of its members and to dispose of the products so processed or partly processed in the most advantageous manner;

(iii) to purchase or otherwise acquire on behalf of, and to supply to its members agricultural implements and machinery, livestock, livestock feed, fertilizer, manure, fuel and other farming requisites;

(iv) to manufacture or handle agricultural implements and machinery, livestock feed, fertilizer, manure and other farming requisites;

(v) to purchase or otherwise acquire or to hire, and to use on behalf of its members, agricultural implements or machinery;

(vi) to purchase or otherwise acquire or hire and to use and control breeding stock on behalf of its members or to put it at the disposal of its members;

(vii) to undertake for its members farming operations such as crop-spraying, cleaning and ploughing of lands;

(viii) to give information and advice to its members in connection with farming practices;

(ix) to acquire by purchase or otherwise, or to hire movable or immovable property for the better carrying out of any of the objects of the co-operative, and to dispose of or lease such property;

(x) to acquire funds whether by the levying of membership fees or by the raising of loans and for that purpose to mortgage the movable and immovable property of the co-operative or to acquire funds in any matter approved of by the Registrar;

(xi) to deal in, handle, store or treat for or on behalf of the Lebowa Agricultural Marketing Board, any agricultural products, livestock or livestock products and generally to act for or on behalf of the said Board; and

(xii) to do all such other things as in the opinion of the Minister are connected with or conducive to the attainment of any of the above-mentioned objects.

It is still too early to draw any conclusions on the possible effect of these two acts on orderly marketing and the co-operative movement, but when one bears in mind the effects of similar steps (Marketing Act of 1936, Co-operative Act of 1939) on White agriculture, these must be regarded as positive attempts.

8.5 ORGANISATIONAL AND CREDIT ASPECTS

In the period covered by the survey there were 64 official markets and 19 co-operatives in Lebowa. By July 1980 the number of co-operatives had increased to 23 and another 11 were awaiting registration. On 30 June 1980 the total assets of these co-operative societies was R246 874. R105 364 of this came from membership fees. Audited Financial Statements show an amount of R88 936 in their respective Bank accounts, while the total value of unsold stock on hand was R83 936 (Philip, 1980: 11).

Vink (1981: 162) investigated the marketing system of two irrigation schemes in Lebowa and found that the wheat which is produced is sold via the Makgatheng Farmers Co-operative to either of the nearby Co-operative societies at a fixed price. The wheat is therefore included in the marketing scheme of the Marketing Board, who has appointed the Wheat Board of South Africa as agent. The condition for an available market is therefore satisfied in the case of wheat. Vegetables produced on the schemes are either consumed at home or sold out of hand or in the rural markets, while other crops such as maize and groundnuts follow the channels similar to that of wheat to the South African marketing system. It can therefore be seen that products which fall under the Marketing Act present no problem for farmers in terms of the availability of a market, while no market is guaranteed for other crops. In order to formulate proposals regarding the latter group of products as well as with regard to a marketing structure for internal distribution of farm products and for farming inputs, it is necessary to consider the role of co-operatives in the marketing of agricultural products in a developing economy.

It is a popular view that traditional markets in less developed economies don't provide efficient signals for resource allocation, and that marketing margins are too high. It is then argued that this situation can be remedied by changing the marketing system. This does not necessarily imply, however, that the introduction of government control or co-operative

marketing will ensure market efficiency (Vink, 1981: 170; Lele, 1977; 489). On the other hand, the lack of some form of control over the product does not guarantee price or supply stability or any return to farmer's investment. It has been shown that market deficiencies could increase the propensity of farmers in a less developed agriculture to maintain traditional practices (Fényes and Van Niekerk, 1979) so that price stability and the assurance of at least a minimum rate of return to farmers' investment are important objectives of such a marketing system.

Farmers who are prepared to accept risk could exploit an uncontrolled market, so that it is not necessary or desirable to take over private trade. The choice of a form of enterprise for marketing will therefore depend on which form will ensure the most profitable use of resources by the producers (Du Toit, 1980: 5, Vink, 1981:172) proposes perpetuation of the provision of a differentiated marketing structure and differentiation of the structure according to the products produced. Co-operative marketing should be provided mainly for products which can be channelled to the South African marketing structure on an agency basis (Van Rooyen 1980c: 7), while farmers should be free to market other products in any manner they see fit.

Co-operatives proved to be useful in increasing community participation in the development process (Hyden, 1976; Wilbrandt, 1972; Texier 1976; Van Rooyen, 1980b, c). The introduction of co-operative marketing coupled to e.g. a simple channel fixed price scheme therefore has the advantage that it ensures a certain price for the farmers' produce and also promotes mass participation. Efficient management of the co-operatives is important and the Government should consider subsidising salaries of personnel in order to get the necessary expertise (Van Rooyen, 1980b: 5n) or this expertise could be solicited from other sources in the form of management advice. This is legally feasible in terms of Section 22(2) of the Lebowa Co-operatives Act (Lebowa Act 2 of 1980).

According to this section, the Lebowa Minister of Agriculture and Forestry can appoint *ex officio* members to the management committee of a co-operative.

In these terms the co-operative has an easy role as an assembly agent for an established marketing system, with a sure outlet and no sales risk (Vink, 1981: 157). From this base it can expand its activities by providing inputs to farmers on credit as well as performing other related activities (c.f. also Abbott, 1981: 119). The proposal of Niewoudt (1981:145),

namely the subsidization of services such as soil tests instead of fertilizer prices may have a dramatic impact when one considers the general low level of existing technical knowledge. Farmers usually need credit, – either consumption or production credit – according to the purpose for which it is needed. In traditional agriculture this distinction is often not clear. Credit seemingly obtained for production (e.g. seed) which would in any case have been bought, could allow expenditure on consumption items which would not otherwise be purchased (Mellor, 1966: 315). It will be more useful to distinguish between types of credit which enable the maintenance of present levels of existence and those which allow expansion of farm inputs and hence expansion in production and the income base. Long (1968: 993–1000) considers a situation where the farmer is viewed as investing his original wealth ($\bar{w}$) in production capital (C) in order to maximize his income (Y). If opportunities justify the action, the farmer can increase his capital holdings by borrowing (B); if opportunities are unfavourable, he may choose to hold part of his wealth as cash (M).

Figure 8.2 depicts these conditions for a typical farmer operating in a traditional agriculture. The marginal-efficiency-of-capital Schedule (MEC) has been drawn to indicate decreasing returns to additional holdings of production capital (C) on the assumption that the farmer's managerial talents are limited and he cannot purchase more on the market. Production capital as defined here includes not only (cattle) and farm implements but also the liquid assets held as working capital at the outset of the production cycle (optimal allocation between physical capital and other inputs is assumed) and in a sense is turned into field crops as the growing season progresses. The borrowing curve (B) indicates the cost of debt. The line ($\bar{w}$) indicates the farmer's initial endowment of wealth; the amount of borrowed funds is measured from line $\bar{w}$, as axis to the right. If the return on production capital fell to zero before total investment of the farmer's wealth, the remainder would be held as cash (m), measured from $\bar{w}$, as axis, to the left.

This analysis, considers the certainty case only because it is found that subsistence farmers have a strong dislike for either borrowing or lending, but when they borrow, a relatively high degree of certainty according to their knowledge, must exist. The farmer would lend if the marginal return on production capital fell below the return on loans for values less than his original wealth endowment. In connection with borrowing, the situation can be considered where holding cash is the only alternative to investing in production capital.

To maximize his income, the farmer would equate the marginal return on capital invested in production with the costs of borrowing.

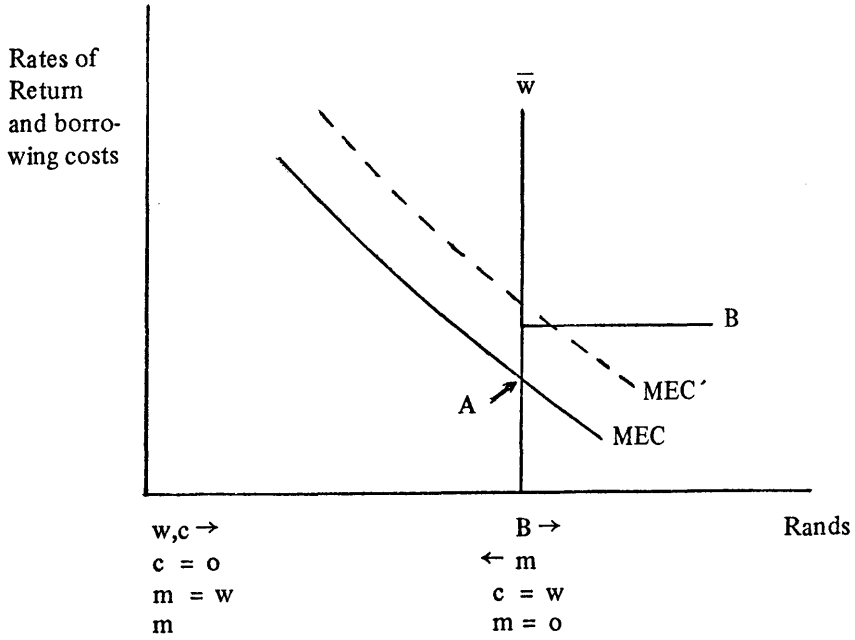


Fig. 8.2 *Borrowing under certainty*

$$\max Y = P \cdot q(C) - g(C) - R_b B$$

$$\text{subject to } \bar{w} = C - B$$

where:

P = the price of the output,

q(C) = the amount produced,

R_b = the interest rate of borrowed funds,

b = the amount borrowed

g(C) = operating costs, including allowance for depreciation of capital

If $dY/dC > R_b$ at $\bar{w} = C$, the farmer will borrow;
If $dY/dC < R_b$ but greater than zero at $\bar{w} = C$, the farmer will neither borrow, nor hold cash but will invest all his wealth in production capital including cattle.

In Figure 8.2 income is maximized by putting all wealth into production capital (point A). Better management, new opportunities etc. might cause the MEC curve to shift to the right and make borrowing profitable. A farmer, who could obtain funds at lower rates, (e.g. from government agency, Development Bank or Corporations, relatives) might find he could raise his income by borrowing. A downward shift in the B curve suggests that farmers will borrow at lower interest rates. In seasonal agriculture, short term borrowing – although

expensive – may be preferable to holding that much working capital. The rate variables for B and MEC in Figure 8.2 reflect analogous time periods, introducing loans of shorter duration than a crop year could be depicted as lowering the cost of borrowing. A newly established farmer with the same production function as others, but less wealth (e.g. no cattle) might also find it advantageous to borrow. This would be represented by a leftward shift of the $\bar{w}$ line, the other curves remaining unchanged.

Relevant data obtained in this survey shows a high preference for credit obtained from private peoples as against Banks (Table 8.15). Black friends and family members dominate the list amongst the preferred private credit sources (Table 8.16). On average only 3,6 per cent of the respondents said that they are paying interest on privately borrowed money (Table 8.17). The rate of interest paid on money borrowed from private people varies from 5 to 20 + per cent per year (Table 8.18). Credit sources available for farming requisites is shown in Table 8.19. More than 90 per cent obtained credit from relatives and the tribal authority, while co-operatives and development corporations account only for 6,5 per cent. The preference to keep saved money in bank or privately shows a slight favouring of private keeping (Table 8.20) and no considerable difference is found when the saved money is given in R50 intervals (Table 8.21). The possibility of success of a credit program designed to provide expansion of production will depend on the reasons why peasant farmers borrow. According to Vink (1981: 158) it is pointless to give credit to farmers who are unwilling to adopt new technologies or have poor incentives to do so. Also, where the necessary motivation has been provided in the form of improved infrastructure, input supplies and extention, it is unnecessary to provide credit at the adoption stage (Bottrall, 1976:359; Vink, 1981: 158) (i.e. at the stage where farmers break from the poverty equilibrium). Credit only becomes necessary as farmers extend their use of new technology (Long, 1968: 1006), so the question must be asked whether credit should be provided at all in the initial stages of development, given the difficulty and expense of a credit program (Hunter, 1978: 83; Love, 1977: 227). Vink (1981: 158) argues that the answer to this question will depend on the number of farmers who will make proper use of credit, the administrative ease in giving credit and the cost of a credit program.

Vink (1981: 157) proposes that certain crops be marketed through the local co-operative, so that the channels for credit provision already exist. It is further proposed that this co-operative be granted access to the same type of credit that the commercial agricultural sector of South Africa has access to, or the proposed Development Bank. This will have the effect of enabling more farmers to obtain credit for productive purposes. Also, the provision of credit

Table 8.15 Preferred sources of credit

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 130		N = 173		N = 303	
Bank	18	13,8	38	22,0	56	18,5
Private people	112	86,2	135	78,0	247	81,5

Table 8.16 Preference of individual credit sources

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 159		N = 174		N = 333	
Black friends	88	55,3	96	55,2	184	55,3
Family members	61	38,4	70	40,2	131	39,3
White friends	3	1,9	2	1,1	5	1,5
Employer	6	3,8	6	3,4	12	3,6
Church	1	0,6	0	0,0	1	0,3

Table 8.17 Interest on money borrowed from private people

	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 136		N = 171		N = 307	
Paying interest on money borrowed from private people	0	0,0	11	6,4	11	3,6
Not paying interest on money borrowed from private people	136	100,0	160	93,6	296	96,4

Table 8.18 Rate of interest paid per year on money borrowed from private people

PERCENTAGE OF INTEREST PAID PER YEAR	GROUP A		GROUP B		TOTAL (A + B)	
	Number	%	Number	%	Number	%
	N = 0		N = 11		N = 11	
5	0	0,0	4	36,4	4	36,4
6	0	0,0	0	0,0	0	0,0
7	0	0,0	1	9,1	1	9,1
8	0	0,0	1	9,1	1	9,1
9	0	0,0	0	0,0	0	0,0
10	0	0,0	2	18,2	2	18,2
11	0	0,0	0	0,0	0	0,0
15	0	0,0	1	9,1	1	9,1
20 +	0	0,0	2	18,2	2	18,2

Table 8.19 Sources of credit for farming requisites (Percentages of replies)

SOURCES OF CREDIT	GROUP A	GROUP B	GROUP (A + B)
	N = 159	N = 183	N = 342
Co-operative	1,9	6,6	4,3
Neighbours	0,6	3,7	2,1
Development corporation	0,8	3,6	2,2
Relatives	65,1	71,5	68,3
Tribal authority	31,6	14,6	23,1

Table 8.20 Preference to keep saved money in bank or privately

		GROUP A	GROUP B	GROUP A + B
Bank	Number of responses	40	63	103
	Proportion (%)	42,1	47,7	45,4
Privately	Number of responses	55	69	124
	Proportion (%)	57,9	52,3	54,6

Table 8.21 **Preference to keep saved money in bank or privately according to the amount of money in R50 intervals**

Intervals (R)			Group A	Group B	Group A + B
50	Bank	Number of responses	2	39	41
		Proportion (%)	4,4	52,7	34,5
	Privately	Number of responses	6	24	30
		Proportion (%)	13,3	32,4	25,2
100	Bank	Number of responses	6	8	14
		Proportion (%)	13,3	10,8	11,8
	Privately	Number of responses	2	1	3
		Proportion (%)	4,4	1,3	2,5
900	Bank	Number of responses	4	1	5
		Proportion (%)	8,9	1,3	4,2
	Privately	Number of responses	4	1	5
		Proportion (%)	8,9	1,3	4,2
1100	Bank	Number of responses	4	0	4
		Proportion (%)	8,9	0,0	3,4
	Privately	Number of responses	5	0	5
		Proportion (%)	11,1	0,0	4,2
1900	Bank	Number of responses	5	0	5
		Proportion (%)	11,1	0,0	4,2
	Privately	Number of responses	5	0	5
		Proportion (%)	11,1	0,0	4,2

by the co-operative only has the effect of lessening the cost of credit as monopoly control over its provision lessens the cost of loan recovery (Hunter, *et al.*, 1976: 46).

Various proposals have been put forward to overcome the problem of lacking collateral security in the form of land for loans. These include schemes such as that the land of the whole tribe be used as collateral (Brenner, 1971: 79–80) or that it be given to variously defined groups of farmers collectively (Yudelman, 1976: 29, Lewis J. van Dusen, 1978: 45–46, Riddell, 1981: 149) these proposals pose problems of their own, for example how the group should distribute the loan to individuals and the impossibility of foreclosing on a loan. One aspect which is important, however, is that traditional farmers don't necessarily rate opportunities of a given investment prospect in terms of the costs expanded and benefits accrued in a simple year, so that loans must be granted under conditions which fit within the particular cultural and institutional matrix of the farming area (Vink, 1981). Love's (1977:234) proposition seems to be a workable one, namely that loans be granted for the production period, and could be granted with the productive capacity of the farmer as security.

8.6 SAVINGS, INCOMES AND EXPENDITURES

The survey revealed significant differences in the level of savings between the two groups, 36,7 per cent of Group A farmers saved only up to R90 over the years while for Group B this is 96 per cent. (c.f. Table 8.22)

Total earnings from farming in the pre-survey year also shows a wide variation between the two groups, e.g. 19,2 per cent of Group A farmers earned only R50 and 62,9 per cent of Group B farmers (Table 8.23).

As far as total farming expenditures are concerned, the difference between the groups is large for farmers with low expenditure (e.g. 4,8 per cent and 36,9 per cent respectively in the R10 category) but smaller in the more realistic levels (e.g. 77,7 per cent and 91,9 per cent in the R100 category respectively). (Table 8.24).

Table 8.22 Amount of money saved over the years in R10 intervals

Interval (R)		GROUP A	GROUP B	GROUP (A + B)
10	Frequency	2	29	31
	Percentage	4,1	38,1	24,8
	Cumulative frequency	2	29	31
	Cumulative percentage	4,1	38,1	24,8
20	Frequency	1	13	14
	Percentage	2,0	17,1	11,2
	Cumulative frequency	3	42	45
	Cumulative percentage	6,1	55,3	36,0
30	Frequency	4	12	16
	Percentage	8,2	15,8	12,8
	Cumulative frequency	7	54	61
	Cumulative percentage	14,3	71,0	48,8
40	Frequency	1	2	3
	Percentage	2,0	2,6	2,4
	Cumulative frequency	8	56	64
	Cumulative percentage	16,3	73,7	51,2
50	Frequency	1	8	9
	Percentage	2,0	10,5	7,2
	Cumulative frequency	9	64	73
	Cumulative percentage	18,4	84,2	58,4
60	Frequency	2	5	7
	Percentage	4,1	6,6	5,6
	Cumulative frequency	11	69	80
	Cumulative percentage	22,4	90,8	64,0

..../Continue

Table 8.22 (Continued)

Interval (R)		GROUP A	GROUP B	GROUP (A + B)
70	Frequency	2	3	5
	Percentage	4,1	3,9	4,0
	Cumulative frequency	13	72	85
	Cumulative percentage	26,5	94,7	68,0
80	Frequency	2	0	2
	Percentage	4,1	0,0	1,6
	Cumulative frequency	15	72	87
	Cumulative percentage	30,6	94,7	69,6
90	Frequency	3	1	4
	Percentage	6,1	1,3	3,2
	Cumulative frequency	18	73	91
	Cumulative percentage	36,7	96,0	72,8
1010	Frequency	7	2	9
	Percentage	14,3	2,6	7,2
	Cumulative frequency	25	75	100
	Cumulative percentage	51,0	98,7	80,0
3000	Frequency	10	0	10
	Percentage	20,4	0,0	8,0
	Cumulative frequency	35	75	110
	Cumulative percentage	71,4	98,7	88,0
4000	Frequency	7	0	7
	Percentage	14,3	0,0	5,6
	Cumulative frequency	42	75	117
	Cumulative percentage	85,7	98,7	93,6

.../Continue

Table 8.22 (Continued)

Interval (R)		GROUP A	GROUP B	GROUP (A + B)
5000	Frequency	3	0	3
	Percentage	6,1	0,0	2,4
	Cumulative frequency	45	75	120
	Cumulative percentage	91,8	98,7	96,0
6000	Frequency	2	0	2
	Percentage	4,1	0,0	1,6
	Cumulative frequency	47	75	122
	Cumulative percentage	95,9	98,7	97,6
7000	Frequency	1	0	1
	Percentage	2,0	0,0	0,8
	Cumulative frequency	48	75	123
	Cumulative percentage	98,0	98,7	98,4
8000	Frequency	0	1	1
	Percentage	0,0	1,3	0,8
	Cumulative frequency	48	76	124
	Cumulative percentage	98,0	100,0	99,2
57000	Frequency	1	0	1
	Percentage	2,0	0,0	0,8
	Cumulative frequency	49	76	125
	Cumulative percentage	100,0	100,0	100,0

Table 8.23 Total earnings from farming in R50 intervals in the past year

Interval (R)		GROUP A	GROUP B	GROUP (A + B)
50	Frequency	15	56	71
	Percentage	19,2	62,9	42,5
	Cumulative frequency	15	56	71
	Cumulative percentage	19,2	62,9	42,5
100	Frequency	20	17	37
	Percentage	25,6	19,1	22,1
	Cumulative frequency	35	73	108
	Cumulative percentage	44,9	82,0	64,7
1050	Frequency	14	12	26
	Percentage	17,9	13,5	15,6
	Cumulative frequency	49	85	134
	Cumulative percentage	62,8	95,5	80,2
2050	Frequency	13	0	13
	Percentage	16,7	0,0	7,8
	Cumulative frequency	62	85	147
	Cumulative percentage	79,5	95,5	88,0
3050	Frequency	4	1	5
	Percentage	5,1	1,1	3,0
	Cumulative frequency	66	86	152
	Cumulative percentage	84,6	96,6	91,0

..../Continue

Table 8.23 (Continued)

Interval (R)		GROUP A	GROUP B	GROUP (A + B)
4050	Frequency	3	0	3
	Percentage	3,8	0,0	1,8
	Cumulative frequency	69	86	155
	Cumulative percentage	88,5	96,6	92,8
5050	Frequency	5	2	7
	Percentage	6,4	2,2	4,2
	Cumulative frequency	74	88	162
	Cumulative percentage	94,9	98,9	97,0
6050	Frequency	2	0	2
	Percentage	2,6	0,0	1,2
	Cumulative frequency	76	88	164
	Cumulative percentage	97,4	98,9	98,2
7050	Frequency	2	1	3
	Percentage	2,6	1,1	1,8
	Cumulative frequency	78	89	167
	Cumulative percentage	100,0	100,0	100,0

Table 8.24 Total farming expenditures in R10 intervals in the past year

Interval (R)		GROUP A	GROUP B	GROUP (A + B)
10	Frequency	5	41	46
	Percentage	4,8	36,9	21,5
	Cumulative frequency	5	41	46
	Cumulative percentage	4,8	36,9	21,5
20	Frequency	22	15	37
	Percentage	21,3	13,5	17,3
	Cumulative frequency	27	56	83
	Cumulative percentage	26,2	50,5	38,8
30	Frequency	12	14	26
	Percentage	11,7	12,6	12,1
	Cumulative frequency	39	70	109
	Cumulative percentage	37,9	63,1	50,9
40	Frequency	21	9	30
	Percentage	20,4	8,1	14,0
	Cumulative frequency	60	79	139
	Cumulative percentage	58,3	71,2	65,0
50	Frequency	8	5	13
	Percentage	7,8	4,5	6,1
	Cumulative frequency	68	84	152
	Cumulative percentage	66,0	75,7	71,0
60	Frequency	2	4	6
	Percentage	1,9	3,6	2,8
	Cumulative frequency	70	88	158
	Cumulative percentage	68,0	79,3	73,8

.../Continue

Table 8.24 (Continued)

Interval (R)		GROUP A	GROUP B	GROUP (A + B)
70	Frequency	4	7	11
	Percentage	3,9	6,3	5,1
	Cumulative frequency	74	95	169
	Cumulative percentage	71,8	85,6	79,0
80	Frequency	0	5	5
	Percentage	0,0	4,5	2,3
	Cumulative frequency	74	100	174
	Cumulative percentage	71,8	90,1	81,3
90	Frequency	2	1	3
	Percentage	1,9	0,9	1,4
	Cumulative frequency	76	101	177
	Cumulative percentage	73,8	91,0	82,7
100	Frequently	4	1	5
	Percentage	3,9	0,9	2,3
	Cumulative frequency	80	102	182
	Cumulative percentage	77,7	91,9	85,0
1010	Frequency	13	5	18
	Percentage	12,6	4,5	8,4
	Cumulative frequency	93	107	200
	Cumulative percentage	90,3	96,4	93,5
3000	Frequency	6	2	8
	Percentage	5,8	1,8	3,7
	Cumulative frequency	99	109	208
	Cumulative percentage	96,1	98,2	97,2
5000	Frequency	4	2	6
	Percentage	3,9	1,8	2,8
	Cumulative frequency	103	111	214
	Cumulative percentage	100,0	100,0	100,0

CHAPTER 9

LAND TENURE [1]

9.1 TRADITIONAL MAN/LAND RELATIONSHIP

Man's relationship to land, to patterns of landholding and to land use are shaped by the interactions of a complex of forces – climatic, economic, cultural, religious, political and legal. The right of the individual to own, sell and accummulate private property – including land – is one of the corner stones of the market economy. As far as disposing of land is concerned, much of Africa presents a different situation. According to the World Bank (1976: 17) traditional African communal tenure has the following characteristics:

- Low property concentration – the sovereign rights are vested in community, not in the individual.
- Decentralized cultivation – usufruct rights exist for members of group.
- Moderate or high socio-economic equality.
- Low labour productivity.
- Low land productivity.
- Low level of technology.
- Medium labour intensity.
- Low capital intensity
- Production mainly for subsistence.
- Supporting service structure underdeveloped.

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1. This term is used in this study to denote all the different types of rights to land e.g.: communal, individual possessors, lease etc.

The communal tenure in Lebowa is an adaptation of the traditional tribal system of land usage and is protected by legislation[1] (Tomlinson *et al.*, 1955: 70–71; Leseme *et al.*, 1980: 179–182).

Land that is not the property of an individual or group of Africans is the property of the Trust which holds it in trust for African occupation and use. Only a small portion of these areas is owned privately or communally and the rest is either owned by the Trust or under its control. Proclamation No. 188 of 1969 provides for the following ways of acquisition of rights to land in the African areas:

(1) Freehold Tenure
(2) Permission to occupy
(3) Quitrent tenure.

Freehold tenure embodies a system whereby rights in land, defined by survey, and identified from an approved diagram, are allocated or transferred to an individual as sole owner of such rights under a title deed registered in a deeds registry, and in which the conditions of grant are prescribed. The system of quitrent tenure is more or less similar to that of permission to occupy save for the fact that under this system plots are surveyed, are subject to annual quitrent and must be registered (see sections 14, 17 and 41).

The main features of the system of permission to occupy are as follows (Leseme, *et al.*, 1980: 182):

(1) Land is divided into residential, arable and grazing zones. Residential and arable plots are occupied individually (section 49) whereas the commonage is used communally for various purposes (section 10).

(2) Acquisition of rights to land is controlled by Commissioners (section 5, 10 and 47) in conjunction with *kgoši's* or headmen.

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1. Land Act, 1913 (Act no. 27 of 1913); Development Trust Land Act, 1936 (Act no. 18 of 1936)Proclamation no. 1 188 of 1969.

(3) The average size of residential plots is half a morgen (0,429 ha) and that of arable plots, 4 to 5 morgen (3,426 to 4,283 ha) (section 49(2)).

(4) The principle of one-man-one-plot is in vogue with the proviso that only married males and single women with family responsibilities are eligible for allocation (section 49(1)(a) and (b)).

(5) Individual holders are required to comply with conditions of grant laid down in the proclamation (section 47) and Departmental Policy (1971) par. 23.

In connection with these conditions Becker (1975: 18) states that these conditions are applicable to –

(a) Conservation of resources
(b) Injudicious fragmentation
(c) Consolidation of fragmented units
(d) Inheritance
(e) Stability of occupation
(f) Transfer of rights
(g) Payment of fees
(h) Compensation for disturbance of occupation.

(6) Rights of holders of land may be suspended or terminated by the authorities (section 58–60).

(7) In the case of suspension or termination of rights the holder is allowed to remove his improvements on the land provided he does not cause any damage to the land. Compensation is paid to the holder in certain instances. (section 58)

The provisions of sections 58 to 60 relating to suspension and termination of rights of a holder were supplemented by the following enactments:

- Section 5(1)(b) and (1) *ter* of the Black Administration Act (Act 38/1927)
- Prohibition of Black Interdicts Act, 1956 (Act no. 64 of 1956)
- Section 2(2) and (3A) of the Development Trust and Land Act, 1936 (Act no. 18 of 1936).

In essence these measures relate to issuing removal orders to Africans, prohibition of litigation intended to interdict such orders and the cessation of released areas as part of African areas.

The necessity for revision of the systems of land tenure is emphasised by the Tomlinson Commission (Tomlinson, *et al.*, 1955: 152, 153) by stating that in areas where the Africans desire, land should be granted under title deed in other words that the land, plus improvements if any, should be sold to the grantees at an economic valuation and that titles be issued to such grantees, the deeds to be subject to certain conditions in respect of the following types of holdings:

(i) town or village plots;

(ii) Agricultural units, namely:
  (a) mixed farming;
  (b) pastoral farming;
  (c) irrigation farming.

The Commission held the opinion, that the introduction of the new form of tenure would be possible without complication in the newly acquired Trust farms, while in Tribal areas and Trust farms which have already been settled under existing conditions it would be necessary to bring about a change-over in the forms of land tenure by a gradual process.

The abolition of the one-man-one-lot policy was accordingly recommended. The constitution of Land boards for selection of applicants for land grants – with the *Kgoši* as chairman – was also proposed. Following the appearance of the Commision's Report, the government prepared a White Paper in which its attitude towards many of the major findings and recommendatiions was set out in detail. On the question of the sale of land it stated as follows (White Paper 1956: 3, 4): "The Government is not prepared to do away with tribal tenure based on purchase, nor does it propose to give preference to individual acquisition of land above Tribal and Trust purchase in the released areas . . . desired aim of stable occupational rights on allotments in Tribal and Trust areas must be secured rather by modernizing the methods and the conditions which govern the allotment of land by tribal authorities. The Government is not in favour of the establishment of Land Boards and states that the African Authority system should undertake the task involved in this proposal". The present land tenure situation is shown in Map 9.1.

The relevance for development of the communal land tenure system is discussed in the following section.

MAP 9.1 Land Tenure

LEBOWA

Source: researcher

9.2 THE RELEVANCE FOR DEVELOPING COMMUNAL LAND TENURE

9.2.1 Advantageous aspects

According to Jeppe (1980: 38–41) the following five aspects of the communal land tenure system can be considered as being advantageous:

(1) Tribal unity and maintenance of authority are enhanced as communal tenure supports the socio-political unit (tribe and its tribal words) and therewith the traditional positions of authority. Jeppe quoted from the Kwazulu report (1975: 28, 38), referred to other sources (Podedworny, 1971: 96, 100, 104–5; Misfud, 1967:2; Parsons, 1971: 41). His own observations in Bophuthatswana were that the majority of the people were not in favour of a change in the present system mainly because it would interfere with the traditional social system and social structure.

The present survey does not support these observations (perhaps only in the case of the opinions of the traditional leaders; see later). Moreover, if the observations were true, then the Kwazulu Government has taken an undemocratic decision, namely that land tenure should be moved towards individual ownership. (Thorrington-Smith *et al.*, 1978: 199) (See also, Weinrich, 1975; Riddell, 1981; Hyden, 1980; Fair *et al.*, 1969; Colclough and Warriner, 1969; Elsenhans, 1979).

(2) Communal tenure guarantees a subsistence retreat. Jeppe (1980: 39) found that the security value of the traditional rights is strenghtened as the population pressure on land increases, with a resultant increase in the unwillingness to change the traditional system of rights to land. This is certainly true especially for absent tribesmen who want the best of two worlds (Hartzenberg, 1977: 71) but with a constantly increasing man/land ratio, further fragmentation of holdings, and the increasing number of landless a turning point must be reached and alternative ways pursued.

(3) The traditional system prevents undesirable concentration of individual land ownership. On the other hand like many other equalitarian measures the absence of incentives to invest in land may reduce the capital stock and the technological level of society and produce an equality of misery (Johnson, 1976: 5).

(4) It is sometimes argued that communal tenure is advantageous because it prevents speculation with land. In spite of the impressive list of possible harmful effects of land speculation (i.e. estrangement to outsiders, disintegration of the tribe, profit-seeking with land, purchasing of large units of land by individuals who do not necessarily utilize them) this argument is however not convincing, since some of these effects are inevitable and other can arguably be beneficient to society (e.g. the concentration of land in the hands of more efficient farmers).

(5) Communal tenure may benefit collective development.
Development strategies and enterprises of a collective nature which could benefit from the traditional tenure system, are probably those undertaken by means of community development (Du Preez, 1981a, 1981b) as well as through co-operatives. (Jeppe, 1980: 40). Traditional communal tenure may foster desirable ideals of mutual help and provide social security. This could offer a foundation for modern co-operative or collective agriculture (Fényes, 1981: 667).

9.2.2 Detrimental aspects

Aspects of the traditional tenure system detrimental to development are discussed in turn.

(1) Entrepreneurship and investment are discouraged.
The most important causes of poor agricultural enterprise in African traditional agriculture are too small fields and too low potential income and the lack of properly managed grazing areas (Jeppe, 1980: 42).

(2) Improved productivity is impeded.
This discouragement of entrepreneurship and investment which stems from the tenurial system impedes gains in productivity.

(3) No commercial value for land.
In the African traditional tenure system land cannot be used as collateral for financing farming operations. Usually no commercial distinction is therefore made between more or less suitable farming land with the resulting absence of production stimuli.

(4) Communal grazing is detrimental to cattle breeding.
The system of communal grazing rights renders the breeding of a better quality stock and the feeding thereof virtually impossible (c.f. Chapter 7).

9.3 ACQUISITION OF RIGHTS ON LAND

The low standard of living of the majority of Lebowa's population cannot be explained in terms of exploitation of the peasants by a landowning class. Rather, the explanation must be sought in the mechanisms that work within the peasant economy itself. The peasants in Africa and elsewhere control the land which they cultivate (Wolf, 1955: 503; Kerblay 1971: 151; Pearse, 1971: 69; Hyden, 1980: 210). Within the community the ways in which land is acquired change in a manner which parallels the evolution of rotational practice. As land becomes scarcer, communities exercise more stringent control over the acquisition of new areas by the individual; this is balanced by an increasing awareness of rights on the part of the individual. (Collinson, 1972: 151) At the same time, more formal tenurial practice emerges, usufruct giving way to inheritance and finally legal (individual, group or state) registration as the basis of land rights. About 20 per cent of the smallholders in this survey stated that additional land for extension of acreage per family is readily available (Table 9.1) and almost half of the farmers (47,5 per cent) said renting was the common method. One must remember however that the allocation of lands in the "rented" South African Development Trust (SADT) areas is controlled by the Tribal Authority. For all practical purposes this method should be read together with the second most numerous method of acquisition, namely communal decison on land distribution, to constitute about 82 per cent of allocation (Table 9.2). The only considerable differences in this respect are with reference to inheritance and clearing efforts by the family. 17,2 Per cent of Group A farmers acquired land by means of inheritance while only 1,8 per cent acquired it by bush clearing and cropping efforts of the family. The concomitant figures for Group B are 8,6 per cent and 9,1 per cent respectively. This can probably be attributed to the more permanent nature of Group A settlements.

Traditional leaders mentioned only two methods of land allocation i.e.: application by a tribesman to the *Kgoši* and inheritance (Table 9.3). The importance of factors such as the size of the household, social status of the head of the family, previous performance or experience and traditional custom is given in Table 9.4.

The responses again reflect the more traditional orientation of Group A farmers: 20 per cent of them are allocated land on ground of previous performance compared with 30,2 per cent for Group B. Also, 33,4 per cent of Group A acquire land according to traditional ways, while only 16,4 per cent of Group B farmers are so endowed (Table 9.4). Membership of the tribe and traditional custom dominates the response of traditional leaders (Table 9.5).

Table 9.1 Land availability according to smallholders

AVAILABILITY OF LAND	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 155		N = 181		N = 331	
Additional land available	25	16,7	41	22,7	66	19,9
Additional land not available	125	83,3	140	77,3	265	80,1

Table 9.2 Methods of land acquisition

FARMLAND OWNED OR RETAINED BY:	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 169		N = 197		N = 366	
Inheritance	29	17,2	17	8,6	46	12,6
Communal decision	59	34,9	66	33,5	125	34,2
Clearing efforts by Family	3	1,8	18	9,1	21	2,7
Renting	78	46,1	96	48,8	174	47,5

Table 9.3 Traditional leaders: the basis of land allocation

BASIS OF LAND ALLOCATION	Number of responses	Proportion (%)
	N = 97	
The applicant is a member of the tribe	41	42,3
Because he is a good farmer	8	8,2
Because farming is his only means of income	14	14,4
Because he is traditionally entitled to land	34	35,1

Table 9.4 The basis of land allocation to individual households

BASIS OF LAND ALLOCATION	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 75		N = 86		N = 161	
The size of the household	28	37,3	23	26,7	51	31,7
The social status of the head of the family	7	9,3	23	26,7	30	18,6
On ground of previous performance or experience	15	20,0	26	30,2	41	25,4
Traditionally – married persons	15	20,0	7	8,2	22	13,7
Traditionally, provided arable lands are available	10	13,4	7	8,2	17	10,6

Table 9.5 Traditional leaders: methods of land allocation

METHODS OF LAND ALLOCATION	Number of responses	Proportion (%)
	N = 97	
Application by a tribesman to the *Kgosi*	82	84,5
Inheritance	15	15,5
Other form of acquisition	0	0,0

Table 9.6 Land Tenure: Average area rented and average rental per year per ha paid

	GROUP A	GROUP B	AVERAGE (A + B)
Area rented (ha)	5,0	5,1	5,1
Rental paid per year per ha (R)	3,7	2,9	3,3

Table 9.7 Land Tenure: to whom is the rent paid?

RECEIVER OF RENT	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 118		N = 142		N = 260	
Headman/Chief (*Kgosi*)	3	2,6	18	12,7	21	8,1
S.A. Development Trust	114	96,6	124	87,3	238	91,6
Father	0	0,0	0	0,0	0	0,0
Other relative	1	0,8	0	0,0	1	0,3

The average area rented is about 5 ha, and the average rent paid per ha per annum is R3,30 (Table 9.6). More than 90 per cent pay the rent to the SADT while the rest pay the *Kgoši*, father or other relative. It is interesting to note that a larger percentage in a Group B pay the *Kgoši* (12,7 per cent) as in Group A (2,6 per cent).

9.4 POLICIES ON ALTERNATIVE LAND TENURE SYSTEMS OR ARRANGEMENTS

The contribution which an efficient land tenure system can make to economic development is no longer a subject of much debate (Uchendu, 1970: 479). However, what constitues an efficient tenure arrangement in Africa will be debated for a long time to come. Many attempts have already been made to reform the traditional system and remove what were seen as their fundamental deficiencies (c.f. Thomas and Whittington, 1969; Elsenhans, 1979). Nowhere has this been done on so large scale as in Kenya (individualization of tenure) and in Tanzania (socialist Ujamaa[1] Villages).

9.4.1 Kenya

In Kenya the Land Control Act (1967) spelled out the jurisdiction of Land Control Boards, and gave them power to refuse consent to dispositions regarding additional land on the grounds *inter alia* that:

> (i) the person to whom the land is to be disposed of . . . already has sufficient land; or
>
> (ii) the person to whom the share (in a land owning company or co-operative) is to be disposed of . . . already has sufficient shares in a private company or co-operative society owning agricultural land (Kenya, 1966: 126).

This provision gives power to prevent excessive accumulation of land, the most frequently mentioned fear of an individual tenurial system. In spite of this provision and the relative

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1. Ujamaa = familyhood (Swahili).

success of the exercise, some observers are not convinced that tenure reform is a necessary prerequisite for land development. Okoth-Ogendo (1976: 183), for instance, concludes that results with similar experiments elsewhere suggest that individualization of title *per se* seldom leads to a "revolution" in agriculture. Warriner (1964, 1969, 1973) argues that countries which are developed today, achieved it without land reform.

Although the attempt to bring customary land rights within a new tenurial system based on the registration of titles has encountered a number of difficulties (Coldham, 1978: 91 ff.) it might however be argued that the long-term advantages more than justify the effort and expense incurred (Coldham, 1979: 616).

In connection with socialistic tenurial systems two points of criticism arise:

(i) these units can display economic ineffectiveness; and

(ii) the involuntary nature of the transformation process[1] (Fényes, 1974, 1981; Fényes and Groenewald, 1975a, 1975b, 1976a, 1976b, 1976c, 1977a, 1977b; Groenewald, 1981).

9.4.2 Tanzania

Ergas (1980: 381–410) states that 13 years after its inception in 1967, it is now generally acknowledged that the policy of creating *Ujamaa* Villages in Tanzania has failed in terms of what they had been designed to achieve, namely the building of a socialist society in the rural areas where more than 90 per cent of the population lives. The policy failed especially on the production side but achieved some remarkable successes in the creation of social services such as schools, nurseries, water and electricity supplies etc.

On the voluntary formation of these villages Verhagen (1980: 286) avers that anyone who was unwilling to be re-located was "persuaded" to do so by the army or militia.[2]

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1. The only nationwide exception is probably Israel.
2. The paramilitary organization of TANU, the then national political Party.

Nearer to the homefront, historically and also at present, the policy of the Department of Co-operation and Development is to retain the system of tribal ownership of land in perpetuity. This should be read together with the provisions of Proclamation No. R 188 of 1969 relating to the commonage and permission to occupy (Leseme, *et al.*, 1980: 183; Fényes, *et al.*, 1980a: 9–13; Coetzee, 1977; Jeppe, 1980).

9.4.3 Zimbabwe

Three resettlement models have been proposed by the Government in Zimbabwe (Riddell, 1981: 148): intensive village settlements with individual arable allocations and communal grazing areas; intensive settlements with communal living and co-operative farming; individually allocated arable land with communal grazing in conjunction with a core estate operated on a communal basis.

The first alternative can be seen as a variation of the Moshav-Shitufi model as found in Israel, the second one is probably a further step in that direction, while the third one moves strongly to the Ujamaa strategy and represents an element of the Soviet and Eastern models of core estates plus household plots.

The Riddell Report (1981: 149) states that at the present time a widespread adoption of communal farming appears to be ruled out, both because many peasants do not want it and because the requisite managerial skills are not yet widely available. There are also a number of reasons why the widespread adoption of farming small individual plots, as is currently the practice in the peasant economy, would not provide a viable long-term solution to raising the income levels of peasant farmers. These include inefficient use of the land and the difficulty and cost of providing infrastructural and service supports. The development of large-scale units and a movement towards greater co-operative effort is seen as an interim measure.

In order to enable peasants to benefit from economies of scale, there is a need to relocate the land holdings of all villages from several villages (depending on the land quality and the agro-ecological region) into large blocks. One way in which this could be achieved is to give blocks of land to each village and then to divide this land into arable, grazing and residential areas. All the village land would be fenced off from the land of neighbouring villages. In the consolidated arable land of each village each peasant would be entitled to his own plot. In contrast to the present division of arable land in the peasant sector, the consolidated arable block should provide the necessary conditions for greater efficiency. Further-

more, it is necessary not only to consolidate land but also to join the people together in what would be a legal entity, with title to property and a capacity to secure credit. Regarding administration, it is envisaged that each village would elect a leadership committee to plan the whole life of the village under its jurisdiction in consultation with the relevant authorities. This embraces not only agricultural plans, but also social and economic services. The role of the tribal authorities is not clear; it seems that they will play a role only if elected to the village leadership committees or to the "relevant", probably party-based, authorities.

The village committee would be responsible for land allocation in the village which would be registered in *the title* held by the village. Another important function could be to assume responsibility for arranging credit facilities for the entire community from the Agricultural Finance Corporation (The Lebowa Development Corporation or the Development Bank in the case of Lebowa), with the village as a group being held responsible for repaying loans. The village committee would also be responsible for channeling the orders for inputs and the marketing of surpluses produced by the villagers.

The report (Riddell, 1981: 149) states that experience from other countries indicates that the key to the success of such villages is that they must be self-managed and self-motivated. This can only be achieved if the community as a whole remains actively involved in decision-making. Even so, there exists agreement that the major constraint on the development of peasant production and therefore on the growth and level of peasant incomes, is the inadequacy and poor quality of the land available for crop and animal production. The carrying capacity of peasant-occupied land has been stretched to limits which make neither ecological nor economic sense. With 675 000 family units, peasant land had in 1977 exceeded its ecologically safe carrying capacity by some two-and-a-half times. The "Rural Development Plan" published in 1979 indicated that in numbers, this amounted to an excess of 2,5 million people. Pressure for land has become so severe that soil conservation has been heavily discounted by people struggling to eke out a living: over 17 times too much land is currently being cultivated; this has been taken from the grazing land, half of which is either completely bare or heavily over-grazed (Riddell, 1980). By 1980 the number of peasant households had reached nearly 800 000, while Jordan (1979) has estimated that the peasant sector should carry only some 325 000 farming units. Samples also indicate that in some areas as many as 40 per cent of rural-based men aged 16 to 30 have no access to land at all.

The implementation of the proposed structural changes on a voluntary basis is further handicapped by the findings of the commission (Riddell, 1981: 34) on attitudes of the peasants:

most seemed to cling to past notions and to think merely of increasing the size of their small peasant holdings and communal grazing areas. When directly asked their opinion of co-operative and communal farming, the majority of peasants expressed ignorance as to what these organizational forms involved and recommended that new ventures be left to the youth to experiment with, showing great suspicion of such change.

Civil servants generally emphasized the advantages of individualism, private ownership of land and title deeds and mostly rejected communal production as unworkable. However, several African agricultural assistants stressed that communal farming was the only way in which peasants could improve their output and raise their living standards. Some of these respondents stated that such views were unacceptable to their seniors and added that they were not allowed to take part in the formulation of policy decisions. The Zimbabwe Government's position on land rights has resently been state and the proposed settlement schemes would come under the following provisions (Economic Policy Statement 1981: 4):

"The land is a common heritage and no one should enjoy absolute ownership of it. Government will therefore entrust certain rights in the use of land to private individuals or groups of individuals for as long as such trusteeship best serves the national interest. Indeed, landowners share their property with the state, which is the sole custodian of the nation's national assets and the state can restrict the uses and practices that are carried out on that land which are contrary to the national interest".

9.4.4 Botswana

In Botswana overgrazing of tribal land has been a matter of concern of the administration before and since independence. The Porter Report (1965: 10) commented as follows:

"If Control (over-grazing) is not secured . . . there will be a serious threat to the survival of the livestock industry . . . and the economy as a whole. Energetic efforts must be made at all levels to persuade the people to accept modifications to the present system of ownership of land in the tribal territories".

President Masire (1970) (then Vice-President) stated that whilst individual fencing of grazing is quite indefensible, communal fencing should not only be permitted, but encouraged. Colclough and McCarthy (1980: 117) concluded however that advocacy of voluntary communal grazing initially fell on deaf ears. Some experimental-group ranches along these lines were initiated a few years later; only three got started and none has so far been successful.

The essentials of proposals in a report by international consultants (Chambers and Feldman, 1973) was made official policy and a White Paper, (White Paper, 1975) was published in July 1975. The policy was based on the concept of the opening up of new grazing land. This soon proved to be ill-founded, mainly because of the unsuitability of these new areas for livestock farming. The policy is nevertheless pursued. The opening up of new lands for commercial ranching has largely become a conversion of the *de facto* rights which owners of large herds had already acquired around their boreholes into *de jure* rights enshrined in a lease. In general it seems unlikely that the programme will help to conserve the extremely harsh ecology of the land.

An alternative solution has been proposed with the aim of meeting the objectives of both equity and conservation, namely to turn tribal grazing land over to a public company in which each tribesman would have a single inalienable share (Reynolds, 1977: 12–19). The company would assess the grazing potential of the land each year and then auction off grazing rights to the shareholders, whether or not the tribesman owned cattle. It has been asserted that while the rich and powerful would no doubt quickly gain control of the company's management the proposal would be less susceptible to manipulation and distortion than the vague guarantees of the present policy (Colclough and McCarthy, 1980: 120).

9.4.5 Bophuthatswana

Jeppe (1980: 254–281) advocates government policy to give preference to one or more of the following systems:

(i) promotion of individual enterprise and initiative and as such to give preference to rights of ownership;

(ii) promotion of enterprise by the government and government control in some or other form over economic activities e.g. government controlled collective farming, government farms, etc. which are variations of centralised government control; and

(iii) traditional (communal) tribal farming under the system characteristic of Africa and the tribal areas in Bophuthatswana.

All these systems are already applied in Bophuthatswana in some form or other. Decisions on the reform of the communal system should determine:

(i) whether the communal (tribal) system will be retained completely or partly;

(ii) whether it will be reformed with preference to individualization and private enterprise;

(iii) whether it will be reformed by promoting collective farming enterprises;

(iv) whether it will be reformed by launching short or long term government farming projects in tribal areas as a transitional method;

(v) whether it will be reformed through government planning and support by which rights to use are reallocated to promote agricultural production, which in fact means partial reform of the communal system by increasing the size of the farming units (field) and the method of co-operative cultivation by private entrepreneurs; and

(vi) whether changes will be approached in the same way for the different tribal areas.

Jeppe (1980: 256) states that in Bophuthatswana, private enterprise is promoted wherever possible and there are strong indications that the government is in favour of evolutionary reforms of rights to land and means of land use in tribal areas. Policy decisions will thus have to be made on:

(i) the means of reforming the system of communal (tribal) rights to land and land use on a national (country-wide) or *ad hoc* basis;

(ii) the means to promote individual enterprise and land use on state land and existing private land and;

(iii) the means to promote ownership (tenure) or other means of individual rights to existing state land, additionally added state land (as a result of land consolidation) and possibly also on tribal areas.

Other policy aspects include those of growth and/or equity as objectives, which will in turn, influence the ultimate character of the agricultural sector (capitalist or socialist); and

executive policy decisions on the way of implementing reform which in turn will probably effect the future status of and role played by the tribal authorities; individual ownership as against leasing or particular rights to use; national uniformity or locally adaptable implementation; changing (adaptation) of existing executive machinery or the establishment of new institutions and posts; and on the granting of auxiliary government aid to farmers, e.g. credit, marketing, etc.

9.4.6 Lesotho

The land tenure system of Lesotho has received much attention ever since it was first examined in 1873. (Cape Parliament, 1873). Works authored by economists, sociologists, anthropologists and others constitute descriptive or analytical material generated by interest in this unique example of a Southern African tribal land institution. From the legal perspective, in Lesotho there is a co-existence of both tribal and Roman-Dutch legal systems, both being involved in various facets of land law and land use litigation. (Hamnett, 1975: 63–85)

In the pre-independence period Sheddick (1954) provides an essentially sympathetic anthropological examination of the system in operation. More recently the University of Chicago Team (1963) provides a strong counterpoint that the traditional system could have been salvaged through improvements in its legal basis and administration. Eckert (1980) denotes significance thereto that this report was prepared for the Paramount chief (now King). Since independence, the general theme of professional writings emphasises the unsuitability of traditional tenurial institutions. (Anon., 1966; Cowen, 1967. 55–74; Jenness, 1968; Sefali, 1976; Seape, 1976; Turner, 1978, 1979; UNDP, 1980; Williams, 1972).

In defence of traditional tenure a few articles constitute the smallest subset of the literature, but their importance is enhanced by the fact that only here do Basotho authors appear (see Eckert, 1980; Phororo, 1979).

One of the distinctive characteristics of Lesotho's land tenure is its youth. The Laws of Lerotholi[1] were partially codified only in 1903 by the Basuto-land council and confirmed

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1. The Laws of Lerotholi do not have legal status since at no time did the Basutoland Council nor the Paramount Chief have the power to legislate. However, they have been widely accepted as binding by the people and by the traditional lines of authority.

by Paramount Chief Lerotholi. Eckert (1980: 3) states that the Laws of Lerotholi have been subjected to serious criticism and at one point in 1979 donor agencies were being quoted in the press as demanding land tenure reform as a precondition for further development assistance. Eckert and Wykstra (1980) shows that during the mid-1970's the mining industry in South Africa increased wage rates by 500 per cent in the space of 30 months. This resulted in a unprecedented increase in household incomes and a sharp decline (38 per cent) in planted area, and a tendency to slight proper husbandry practices on remaining land. The general stagnation in the agricultural sector and the depressed incentives for serious farming may, however, contribute to declining stock numbers and the regulation of the ecological balance.

The most often voiced concern is the inadequacy of the security of tenure to provide incentives for investment in modern agriculture, soil conservation or soil fertility improvement. Section 7(3) of the Laws of Lerotholi e.g. provides for taking away land which has not been "properly cultivated" for two successive years. The subsistence orientation is manifested by the provision of section 7(2) "to take away land from people who have more lands than are necessary for their own and their families subsistence". This section establishes the basic concept of equality in land allocation as well as its utilisation to ensure subsistence welfare levels. A man is allocated one field upon marriage, receives up to two more as his family grows, and then one field is reallocated away from the household upon each of the death of the husband and/or the maturity or marriage of the children. A household's land base thus presumably swells and then shrinks as do its needs. (Eckert, 1980: 6). This section ensures the "equal distribution of poverty" which in turn is probably more acceptable to the poor and less degrading than poverty amidst wealth and affluence (c.f. Parsons, 1973: 4).

Historical fact does not support the contention that section 7(2) prevents new crops or marketable surpluses. Wheat was introduced as a cash crop early in this century and Lesotho historically served as an exporter of cereals to South Africa and has only become foodgrain deficit in recent decades (Murray, 1976). The objective of equality in land distribution has not been achieved; in fact, it shows a birth ratio of 0,38 and there is a considerable concentration of farmers and acreage – farmers at the lower end and acreages at the top end (I.L.O., 1979).

One of the costs of the widespread distribution of land has been the long-term decline in farm size, constituting 1,7 hectares of of arable land per rural land holding[1] household in

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1. Landlessness characterizes only 15 per cent of the rural population of Lesotho.

1980 (Eckert and Mohapi, 1980). Land use rights under the Laws of Lerotholi provide for several types of grazing. There are, however, no effective controls on herd numbers and the result has been severe over-grazing and a noticeable deterioration of the range. It has recently been suggested that range resources in the mountains might just be adequate to support resident animals and that the annual transhumance should be phased out (F.A.O., 1980). To do so would require a major change in present treatment of rights to grazing (Eckert, 1980: 9). In connection with fencing, – which is traditionally not permitted – Phororo (1979) establishes an economic case that fencing with stone could contribute to grazing control and employment objectives simultaneously.

It is noteworthy that there is no general agreement amongst authors from Lesotho on basic issues of land tenure and development. Makhanya (1979) for instance, concludes that there was no cause for feelings of insecurity of land tenure in Lesotho as far as crop production was concerned; while Motsoene (1974) takes the opposite line in stating that there is no security of tenure and concludes that sophisticated farming methods are incompatible with traditional land use patterns. He recommends land reallocation and a change in the land allocation procedure. He based his recommendations on the view – which is probably compatible with the aim of forming a permanent farming class – that there are two classes of land holders, both earning salaries elsewhere, for whom land is only a source of "extra income" while there are many others forced to work in the R S A due to land shortage. Phororo (1979) states that "land tenure in Lesotho means more to a Mosotho than most people appreciate and should not be superficially dismissed as an impediment to agricultural development". He emphasises the flexibility of the traditional system to respond to rural community needs, its role in ensuring welfare at the subsistence level and to act as a catalyst for the integration of the village social fabric and land tenure's role in spreading the considerable risk inherent in Lesotho's agriculture. The main thrust in his recommendations is that whatever land tenure changes occur they must be so planned as to not create more problems than they solve.

According to Turner (1978), the main function of land tenure in Lesotho is to provide as many Basotho households as possible with some share of the basic subsistance resources offered by arable land. Thus he finds it more a welfare institution than a growth institution, a circumstance he feels "reflects the economic realities of contemporary rural life". Another report (UNDP, 1980) concludes that Lesotho's agriculture could be transformed to some 100 000 viable small farm units by the end of the century. (There are presently 225 000 holdings). A rather optimistic work by the World Bank (1975) states that the lack of security of tenure and the inability to use land as security for credit are less an obstacle than pre-

viously believed, but a further report by the same source (World Bank, 1980) reaches the standard conclusion that the possibility of having land taken away and reallocated if not plowed every two years "Contributed to the low level of farming practices by many families for whom cultivation is little more than a means of maintaining access to a continuing social security asset".

An important development in the search of a effective tenure system was the introduction of the Land Act 1979 (Act No. 17 of 1979). Key features of this Act include:

(a) Vesting the power to grant and revoke titles to land in:

  (i) Land committees chaired by the Chiefs in rural areas;
  (ii) Urban Land Committees chaired by the Principal Chiefs for Urban areas;

(b) Rules of inheritance;

(c) Definitions of explicit types of rights in land;

(d) Procedures for taking land for public purposes;

(e) Establishment of a land Tribunal;

(f) Provisions for declaring "Selected Development Areas" (for non-agricultural uses) and "Selected Agricultural Areas";

(g) Requirements for annual land revenue payable to the state under certain circumstances.

Three types of rights in land are specified. They are leases, allocations and licenses. Leases provide right to use and occupy land exclusively providing terms and conditions of the lease are met; they apply principally to urban areas, are transferable and inheritable. An allocation, drawing from traditional practice is a land use right in rural areas for farming, gardening and other traditional purposes. Allocations are inheritable. Licences are non-exclusive rights to specified uses of land; they cannot be transfered or inherited.

The Act's main contribution to security of tenure is found in the provision for leasing. A leasehold should permit enclosure by fencing, and this combined with the inheritance provisions should remove most disincentives to investment in land improvements by the serious farmer. The Act contains no restrictions on the accumulation of land. Effective with implementation the long-term trend toward ever smaller holdings has been arrested. Eckert (1980: 43) concludes that if rural employment is successfully provided for the landless, it seems likely that the nature of rural Sesotho society will change rapidly, away from its present agrarian structure and towards a nation of wage earners employed in industry, commerce, informal and service sectors. He regards the Land Act of 1979 as potentially the most fundamental element of change that will affect the nation of Lesotho throughout the rest of this century.

9.4.7 Venda

Perhaps the latest development in the search for more effective tenurial arrangements in the Southern African orbit is the submission of the interim report by the Commission of Inquiry into Land Tenure and Ownership in Venda (Van Rhyn Commission, 1980).

This interim report was submitted to the President on August 1, 1981 and states:

1. That Chiefs and Headman in general have no objection to the letting of land or property in conjunction with traditional land tenure and a few are not opposed to private land tenure;

2. That virtually all the other witnesses with the accent on expert witnesses are in favour of private land tenure and ownership in conjunction with traditional land tenure and ownership; for the reason that absence of private land tenure and ownership is counter-productive and a hindrance and affects the development of Venda and its economy;

3. That the majority of witnesses are in agreement that there is insufficient land to provide land in the future to every Venda family in terms of the traditional system; Therefore the Commission is presently convinced that it is advisable:

   (i) that private land tenure and ownership initially be permitted to a limited degree and be extended in an evolutionary fashion;

(ii) that the letting of land be permitted and expanded;

(iii) that traditional land tenure continues in existence subject to the above principles;

(iv) that land transactions and letting not be done except after consultation with the Chiefs and Headmen;

(v) that all forms of possessory and ownership rights, except for private residential purposes, be restricted to Venda citizens with the proviso, that in view of the need for foreign capital, companies, which are registered in Venda be regarded as Venda citizens;

(vi) that legislation be drafted in terms of which –

(a) above mentioned forms of land tenure and ownership are recognized;

(b) certain defined areas may be made available by the Government for any or all the intended forms of land tenure and ownership by way of Proclamation as and when circumstances so dictate.

It is stated that this report is subject to the hearing of further evidence and is purely an interim one.

9.5 OPINIONS OF SMALLHOLDERS AND LEADERS

The introduction of tenurial changes, usually implies a radically different economic and social organizational form among peasants. Therefore, it can be expected that in the context of a mixed and usually struggling economy in which the driving force of either political coercion or ideological fervor is absent it will create a set of problems that requires special analysis.

Changes in the direction of either private tenure or modern forms of communal production represent a clear divergence from present structures. It is almost always a new experience for the participants, and frequently for the government as well. A positive commitment to participate and meet problems as they arise is probably the most important element for success.

The first requirement to ensure success ought to be the assessment of the degree of satisfaction of the smallholders themselves with the present state of affairs as well as their perception and preference for alternative land tenure and land use patterns. The same procedure should be followed with regard to traditional and non-traditional leaders because – depending on the method of implementation – they may play a vital role in participant mobilization.

Table 9.8 shows the opinions of smallholders included in the survey regarding land tenure systems. Nearly 68 per cent are of the opinion that another system of tenure would improve productivity of farming. The highest percentage (27,3 per cent) prefers development of Tribal lands on an agency basis, while a large group (18,3 per cent) prefer land development corporations to use the trust lands. It is remarkable that more of the less traditional Group B farmers prefer this alternative.

Next in line of popularity is the allocation of plots on a more permanent basis e.g. 99 year lease, (17,3 per cent) and private ownership of arable land with communal ownership of grazing land (16,2 per cent). This table also shows that more Group A farmers (21,4 per cent versus 12,8 per cent) prefer allocation of plots on a more permanent basis e.g. 99 year lease while more Group B farmers (23,5 per cent versus 13,6 per cent) prefer the use of Trust lands by land development corporations. This behaviour can probably be ascribed to the fact that Group A farmers attach more importance to permanence.

By comparison about 73 per cent of the traditional leaders thought that another land tenure system would improve productivity of farming (Table 9.9) and 69 per cent of them said it would also improve the satisfaction of the farmers. In connection with improved productivity the development of tribal lands (e.g. irrigation or other agricultural projects) on an agency basis attracted the highest preference (22,7 per cent). The security aspect i.e. allocation of plots on a more permanent basis e.g. 99 year lease (20,3 per cent) and family ownership of land without the right of alienation came second and third. Regarding tenurial change and improved farmer satisfaction about 50 per cent of the traditional leaders were in favour of private land ownership exclusively for commercial farmers, but when asked if they were in favour of the present system of land allocation 73,2 per cent also replied affirmatively. In reply to another set of questions 67 per cent were in favour of leasing land to private farmers producing 30 bags of grain per hectare. Sixteen and a half per cent proposed land sale and the same percentage were in favour of retaining the present system.

In reply to similar questions the smallholders also favoured leasing (52,3 per cent), sale (24,5 per cent) and for the maintaining the present system (20,4 per cent). Only 2,8 per cent propagated the establishment of production cooperatives. Considerably more Group B farmers (29,1 per cent as against 18,8 per cent of Group A) favoured the sale of land to few progressive farmers, and fewer of them (Group B 17,7 per cent, Group A 23,6 per cent) stated that the present system of low yields should continue (Table 9.10).

Table 9.8 Opinions on alternative land tenure systems

OPINIONS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of responses	Proportion (%)	Number of responses	Proportion (%)	Number of responses	Proportion (%)
	N = 148		N = 178		N = 326	
Another land tenure system would improve productivity of farming	100	67,6	121	68,0	221	67,8
It would not	48	32,4	57	32,0	105	32,2
	N = 243		N = 226		N = 469	
Prefer allocation of plots on a more permanent basis with regard to possession e.g. 99 year lease.	52	21,4	29	12,8	81	17,3
Prefer family ownership of land without the right of alienation	34	14,0	34	15,0	68	14,5
Prefer utilization of land exclusively by the tribal authority	19	7,8	11	4,9	30	6,4
The use of Trust lands by land development corporations	33	13,6	53	23,5	86	18,3
The development of tribal lands on a agency basis (e.g. irrigation or other agricultural projects)	66	27,2	62	27,4	128	27,3
Prefer private ownership of arable land and communal ownership of grazing land	39	16,0	37	16,4	76	16,2

Table 9.9 Traditional leaders: opinions on land tenure

OPINION	Number of responses	Proportion (%)
Another land tenure system will improve productivity of farming	71	73,2
Another land tenure system will not improve productivity of farming	26	26,8
Preferring change in land tenure:		
Allocation of plots on a more permanent basis with regard to possession e.g. 99 years lease	51	20,3
Family ownership of land without the right of alienation.	40	15,9
Family ownership of land with the right of alienation	32	12,7
Utilization of land exclusively by the Tribal authority	18	7,2
Land development by the Lebowa Development Corporation on Trust Lands	11	4,4
Development of Tribal Lands (e.g. irrigation or other agricultural projects) on a agency basis	57	22,7
Private ownership of arable land and communal ownership of grazing fields	26	10,4
State ownership of all agricultural lands	6	2,4
Co-operative ownership of all agricultural lands	10	4,0
Another land tenure system would improve the satisfaction of the farmers:		
Yes	67	69,0
No	30	31,0
In favour of private land ownership exclusively for commercial farmers (e.g. 300 ha and more)	48	49,5
Not in favour of the above	49	50,5
Favour the allocation of land as is done presently	71	73,2
Not in favour of the above	26	26,8
Land should be leased to private farmers producing 30 bags of grain per hectare	65	67,0
Land should be sold to a few members of the tribe producing 30 bags of grain per hectare	16	16,5
The present system should continue with crop yield of 3 bags per hectare	16	16,5

Some 80 per cent of the smallholders agreed that more land should be allocated to progressive farmers; nearly 13 per cent preferred private ownership and the rest (6,4 per cent) sought solutions in the modernization of the traditional system (Table 9.11). This table also shows that more group A farmers (12,0 per cent) wanted to maintain the traditional system of land ownership with modifications to meet modern requirements than did Group B farmers (1,4 per cent). Concomitantly then, 98,6 per cent of Group B farmers preferred that more land should be allocated to individual progressive farmers, whether by renting or private tenure. Only 88 per cent of Group A farmers were of this opinion. When asked specifically on their preference between private and collective use of land, the majority of farmers were in favour of private land ownership (57,1 per cent). On average 35,7 per cent were in favour of collective use of arable land (Table 9.12). It turned out that 38,7 per cent motivated their favouring of private ownership by stating that they want to maintain full rights over the farming activities and products. 21,8 per cent said they favoured production co-operatives or collective enterprises because co-operation leads to progress and help in educating and motivating people. It is noteworthy that considerably more Group B farmers are in favour of production co-operatives or collective enterprises (29,8 per cent of Group B as against 14,9 per cent of Group A). Another 17,7 per cent favoured collective enterprises because of marketing, equality, modernised practices and because the people of Lebowa did not have sufficient land, capital and enterpreneurship to be able to produce economically within the present system. 5,8 per cent favoured private ownership because of decreasing initiative and productivity within the collective system and 16 per cent favoured private ownership as practised by the white farmers.

Approximately 70 per cent of the non-traditional leaders were not satisfied with the present system of land allocation. Their opinions are given in Table 9.13, 30,9 per cent prefer individual tenure, while another 27,9 per cent favour more land for progressive farmers.

In response to questions regarding private enterprise 82,3 per cent (79 non-traditional leaders) prefer individuals to possess farms in Lebowa and the most important reasons given are that it will lead to scientific crop production and animal husbandry (26,6 per cent) and that it will lead to the selection of good farmers (Table 9.14). 68,4 per cent of the non-traditional leaders are of the opinion that private enterprise together with ownership of land will increase agricultural output, while 31,6 per cent believe that output of a few farmers will increase, but not total output, and in addition it will lead to greater inequality. The most important reasons for belief in increasing output are that farmers who cannot cope with modern practices will be forced to leave farming (23,1 per cent) and private enterprise will increase productivity (provided financial assistence is available) (18,5 per cent) and private landowners will form co-operatives and produce more (13,8 per cent) (Table 9.15).

Table 9.10 Proposals on land tenure arrangements

PROPOSALS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 144		N = 175		N = 319	
Land should be leased to private farmers producing 30 bags of grain/ha	79	54,9	88	50,3	167	52,3
Land should be sold to a few members of the tribe producing 30 bags of grain/ha	27	18,8	51	29,1	78	24,5
The present system should continue with a crop yield of 3 bags/ha	34	23,6	31	17,7	65	20,4
Production co-operatives should be established in all trust lands	4	2,8	5	2,9	9	2,8

Table 9.11 Agricultural land allocation: preferred alternatives and reasons

ALTERNATIVES/REASONS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 67		N = 74		N = 141	
More land should be allocated to progressive farmers, they will then produce more, sell more, educate people and create jobs.	51	76,0	63	85,1	114	80,8
Private ownership of land will lead to competition and thereby progress and ultimately only the good farmers will own land but they will produce more than enough for the whole population.	8	12,0	10	13,5	18	12,8
The traditional ownership of land should be maintained but modernized to meet modern requirements e.g. co-operative or collective farming.	8	12,0	1	1,4	9	6,4

Table 9.12 Private vs. Collective use of land

OPINIONS	GROUP A		GROUP B		TOTAL (A + B)	
	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)	Number of respondents	Proportion (%)
	N = 150		N = 179		N = 329	
In favour of private land ownership exclusively for commercial farming purposes (e.g. 300 ha and more)	91	60,7	97	54,2	188	57,1
Not in favour of the above	59	39,3	82	45,8	141	42,9
MOTIVATIONS	N = 144		N = 167		N = 311	
In favour of collective use arable land like for instance the Kibbutz system in Israel or the Soviet system of large scale collective and/or state enterprises.	44	30,5	67	40,1	111	35,7
Not in favour of the above.	100	69,5	100	59,9	200	64,3
	N = 121		N = 104		N = 225	
Favour production co-operatives or collectives enterprises because co-operation leads to progress and help in educating and motivating people	18	14,9	31	29,8	49	21,8
Favour private ownership, management and planning and want to maintain full rights over the farming activities and products.	48	39,7	39	37,5	87	38,7
Favour collective enterprises mainly because of marketing reasons: easier and cheaper to market collectively.	2	1,7	12	11,5	14	6,2
Favour private ownership because collective systems leads to decreasing initiative and productivity.	8	6,6	5	4,8	13	5,8
Favour private ownership as practised by the Whites	25	20,7	11	10,5	36	16,0
Favour collective production because it will lead to equality and modernized farming practices	5	4,0	2	1,9	7	3,1
Favour collective production because the people of Lebowa do not have sufficient land, capital and enterpreneurship to be able to produce economically within the present socio-economic framework.	15	12,4	4	3,8	19	8,4

Table 9.13 Non-traditional leaders: opinions on land allocation

OPINION	Number of respondents	Proportion (%)
Satisfied with the present system of agricultural land allocation	29	29,9
Not satisfied	68	70,1
Prefer individual tenure and title deed which will lead to increased production and commercialization of agriculture.	21	30,9
Progressive farmers should get more land, they will-employ people and produce for the whole population	19	27,9
Each Lebowa citizen should be alotted one hectare arable land because the number of landless rural people is increasing.	4	5,9
Government assistance should be given to develop state and/or tribal irrigation projects	7	10,3
Good farmers should get bigger lands, others only one hectare	3	4,4
All people should share in the tribal projects because of land shortage	2	2,9
Trust lands should be developed as co-operative enterprises	4	5,9
The Department of Agriculture should allocate the land because they have scientific knowledge of farming	5	7,4
Land should be sold to able farmers	3	4,4

Table 9.14 Non-traditional leaders: opinions on private enterprise and ownership of land

OPINION	Number of respondents	Proportion (%)
Private enterprise together with ownership of land will increase agricultural output	65	68,4
Output of a few will increase but not total output and it will lead to gross inequality	30	31,6
Output will increase, given financial assistance at the beginning	12	18,5
Productivity will increase	8	12,3
Private landowners will form co-operatives and produce more	9	13,8
The income from farming will serve as a incentive for higher production	6	9,2
It will promote the spirit of competition	10	15,4
Farmers who cannot cope with modern practices will be forced to leave farming	15	23,1
Ownership generates love for land	2	3,1
It will lead to specialization	3	4,6

Table 9.15 Non-traditional leaders: preference and reasons for individual possession of farms

PREFERENCE/REASON	Number of respondents	Proportion (%)
Prefer individuals to possess farms in Lebowa for agricultural purposes	79	82,3
Against individual possession of farms because it will cause social disorder	18	17,7
Prefer individual holdings because traditional allocation is outdated	4	5,0
Man/land ratio is worsening	12	15,2
All of us cannot be farmers	10	12,6
It will lead to the selection good farmers	18	22,8
It will provide security to get loans	9	11,3
It will lead to capital accumulation	2	2,5
It will lead to scientific crop production and animal husbandry	21	26,6
Private farmers will motivate others	3	4,0

The opinions of traditional leaders on land allocation and development are given in Table 9.16. 66 per cent of them are in favour of the traditional land allocation system. The majority (70,1 per cent) think that it will be agriculturally more profitable if bigger lands are allocated to commercial-farmers only. 90,7 per cent expressed themselves as being in favour of new developments in the agricultural field and nearly as many agreed that controlling the numbers of livestock is necessary in order to improve the quality of grazing land. They also propagate the use of fertilizers, thorough ploughing and the use of new seed varieties and new crops. 17,6 per cent of them said that they make use of mechanized harvesting.

Only 23,7 per cent of them expressed themselves of being in favour of collective use of arable land in systems such as the Kibbutz in Israel or the Soviet system of large scale collective and/or state agricultural production (Table 9.17).

The reaction of traditional leaders to a possible situation in which land would be worked by a few landowners with agricultural knowledge and who increase production is significant: 64,5 per cent would be satisfied with such a state of affairs but 68,0 per cent of them gave the opinion that it would not gain the approval of the tribe. If compared with answers for questions of a similar nature, the impression is gained that they may be trying to channel the responsibility of resistance to the tribe as a whole and to maintain the image of having a progressive outlook for themselves while attempting to perpetuate a situation of privilege.

The response of 72,2 per cent of them that they do not think that a small plot is an economically viable proposition, and that at least ten hectares of cropland are needed provided there is enough water for partial irrigation, represents a modestly realistic assessment (Table 9.18).

9.6 "EFFICIENT" TENURE REVISITED

The search for a efficient tenure system goes on in large parts of the continent of Africa. The Lebowa smallholders, their traditional leaders and the non-traditional leaders realise that the present system is ineffective and must somehow be altered, modernised or reformed. This process is supposed to be developmental by nature, but development is an ambiguous process, in which the risk of loss is often as great as the prospects of gain.

Table 9.16 Traditional leaders: opinions on land allocation and development

OPINION	Number of respondents	Proportion (%)
In favour of allocation of land in the traditional manner	64	66,0
Not in favour of traditional land allocation	33	34,0
It will be agriculturally more profitable if bigger lands are to be allocated for commercial farmers only	68	70,1
Disagree with the above statement	29	29,9
In favour of new developments in agriculture	88	90,7
Not in favour of new developments in agriculture	9	9,3
Propagate the use of fertilizers	83	85,5
Do not propagate the use of fertilizers	14	14,5
Propagate thorough ploughing of lands	78	80,4
Do not propagate ploughing of lands	19	19,6
The tribe make use of mechanized harvesting	17	17,6
The tribe do not make use of mechanized harvesting	80	82,4
Propagate the use of new seed varieties and new crops	83	85,5
Do not propagate use of new seed varieties and new crops	14	14,5
In favour of controlling the amount of animals to improve grazing	80	17
Not in favour of the above	82,4	17,6

Table 9.17 Traditional leaders: opinions on collective use of arable land

OPINION	Number of respondents	Proportion (%)
	N = 97	
Favour collective use of arable land such as the Kibbutz system in Israel or the Soviet system of large scale collective and/or state agricultural production	23	23,7
Not in favour	74	76,3

Table 9.18 Traditional leaders: opinions on land size

If agricultural output will be increased when land is worked by a few landowners with agricultural knowledge:	Number of respondents	Proportion (%)
The respondents will be satisfied	63	64,9
The respondents will not be satisfied	34	35,1
It will have the approval of the tribe	31	32,0
It will not have the approval of the tribe	66	68,0
Think that a small plot of land is an economically viable proposition to make a good living, all depends on intensive scientific production	27	27,8
Do not think so, at least ten hectares of cropland are needed, provided there is enough water for partial irrigation	70	72,2

Development is not only a matter of improvement of material conditions. It is also a question of losses in respect of other values and above all, it is a matter of trading social autonomy for increased dependence on other social classes. And this dependence means a great deal more for African smallholders because they are the only social class that has not yet today been captured by capitalist or socialist classes (Hyden, 1980). They operate according to the law of subsistence rather than the law of value (Chayanov, 1966). According to Polanyi (1957: 163–4) these societies are more human than those where the law of value prevails, but they are at the same time less efficient. Their economic action is not motivated by individual profit alone, but is embedded in a range of social considerations that allow for redistribution of opportunities and benefits in a manner which is impossible where modern capitalism or socialism prevails and formalized state action dominates the process (Hyden, 1980: 19). This explains largely the relative unsuccessfulness of both capitalist and socialist tenurial reforms in Africa. Hyden (1980: 32) refers to the paradox which is probably valid also for Lebowa, that those with power in Africa are not necessarily those in control of the State; but those in power are rather those who remain outside control of the State. The dilemma of how to make the smallholder more responsive to official policies still remains a burning question because the economic structures of the smallholder mode have not been transformed in most African countries. Referring to Schumacher's famous phrase Hyden (1980: 219) says that: having their hands full with the problem of making the many small producers in the rural areas more productive, African officials are not very likely to support the notion that "Small is beautiful". Their experience is that small is powerful and as such constitutes an obstacle to development.

He concludes further (Hyden, 1980: 231–260) that it is time it was recognised that there is a fundamental contradiction between the modern development logic, and the social logic of the peasant mode. The problem is not that peasants are uninterested in development but rather that they are interested only in those aspects of development that cost money – that is, policies aimed at facilitating social reproduction – and much less so in policies that change the parameters of the peasant mode; and the pace at which they are prepared to transform their means of production is too slow in relation to the macro-developmental needs of the economy at large.

The means of attracting smallholder interest in issues relating to development are twofold: firstly the provision of reliable services by the various institutions that are necessary to serve modern agriculture and secondly to approach the peasant as a consumer and not only as a producer. To this end it is necessary to base all policy measures intended to attack the problem of productivity or tenurial arrangements soundly on a intimate knowledge of the

human system. Farmer *et al's* (1977) whole study in India and Bangladesh proved the futility of doing it otherwise. For this reason the accent in this study has been on gathering socio-economic information at the farm level and the testing of the acceptibility of possible proposals.

Coldham (1979: 625) showed how futile it is to expect people to change their behaviour simply because there is a law on the statute book which requires or encourages them to do so. At least two further conditions need to be satisfied: the law must be effectively communicated to those at whom it is directed, and they must be made to see that the balance of advantage favours the adoption of the new modes of behaviour; they must perceive that it is in their interest to conform, and the more fundamental the changes in behaviour desired, the greater the compensation must appear. For this too, we must know in the first place the present behaviour, modes of production-distribution, aspirations etc. before any reasonable degree of success is to be excepted.

With reference to the system to be applied, no less an authority than Goran Hyden (1980: 205) concludes that socialism, rather than capitalism will be invited to perform the task of modernization in Africa. Hughes (1971:71) believes that there is hope of agricultural advance under "tribal" systems of tenure, provided the tribal groups are prepared to make essential adjustments to their own customary land law. He submits that "multicentered" societies have been successful in the past so there is no obvious reason why a "multicentered" pattern of development may not be economically successful in African societies.

In conclusion it may be stated that these brief comments on the search for efficient tenure systems in Africa are admittedly both inconclusive and inadequate. Many notable experiences have not been even mentioned. However, even these few notes may suggest something of the quality, extent and significance of the many attempts in parts of Africa in the past decades to break out of the mould of traditional agriculture and particularly of customary tenures and move toward a condition of greater productivity for people on the land.

According to Parsons (1971: 82) traditional agriculture and customary tenures has no future. New systems of agriculture will be devised. It is this necessity, not the perfection of the schemes, which gives significance to the bold attempts at organizational innovation now under way.

CHAPTER 10

SUMMARY AND CONCLUSIONS

10.1 INTRODUCTION

The basic assumption of this study is that the smallholders of Lebowa – by far the dominant production unit in agriculture – are not idealists engaged in farming for the good of the nation; they are farming for survival. They will participate in a program or respond to a policy in accordance with the degree to which according to their beliefs, such programs or policies will improve their probability of survival. Thus, any plan for the agricultural sector, constructed at the regional or national level, must be in harmony with the hopes and aspirations of farm people. It will inevitably fail otherwise.

The main purpose of this investigation was to gain more knowledge and understanding on the working of the smallholder agricultural sector of Lebowa, and thereby to assist in the development process. The conceptional background for this study was built around Moshers' philosophy of areas with different growth potentials and the Lebowa Government's declared development policy. (see White Paper, 1979, pp 3 – 4). Moshers' methodology of the division of areas was adjusted to place more emphasis on the human factor.

Questionnaires were used to obtain information regarding:

- the general social and living conditions and the agricultural activities of the smallholders;
- the nature and structure of decision-making in various agricultural operations;
- communal activities and obligations and their significance on agriculture;
- knowledge on the presence and the use of facilities such as tools and implements, storage, transport, marketing, credit, extention etc.;
- Perceptions on possible agricultural development;
- the degree of preference for farming compared to other occupations;

- contact with more modern farming practices;
- perceptions on soil conservation, modern farming techniques and commercial agriculture;
- preferences and acceptability of different land tenure systems and community co-operation; and
- preferences for potential marketing channels, obtaining of inputs and financing organizations.

The whole area of Lebowa was included in the surveys. Following Moshers' (1971b: 21–22) guidelines an attempt was made to divide Lebowa into three area types according to different growth potentials:

(i) Immediate growth potential areas (IGP)

(ii) Future growth potential areas (FGP) and

(iii) Low growth potential areas (LGP).

The IGP areas are defined as areas where agricultural growth is possible within the next three years. These are areas where:

(i) growing conditions, including soil, climate and water availability, are favourable;

(ii) where new technologies that hold the promise of substantially higher production of at least one major crop now being grown or of increasing cattle turnover are already available;

(iii) efficient transport links with the national economy (i.e. with towns containing established commercial facilities) exist,
and

(iv) where the general attitude of the smallholders and their leaders were *ex ante* based on experience of agricultural officers, thought to be conducive to commercially-orientated agriculture and to co-operation in planning and modernisation efforts.

Further in the text these areas where referred to as Group A (IGP areas) and Group B (FGP areas). The LGP areas are thought to be fairly small and form a subset of Group B and also includes non-agricultural land.

The surveys commenced in April 1979 and – including post survey visits – were completed in March 1980.

10.2 FINDINGS OF THE SURVEYS

10.2.1 Social details

No considerable ethnic differences were found between Groups A and B although Ndebele and Swazi seem to make out a larger percentage in Group A than Group B. In total, average 83,1 per cent of the farmers are Northern Sotho, with Ndebele 8,3 per cent forming the second largest group. Among the traditional leaders the percentage Northern Sotho is, as could be expected, highest (92,8 per cent), followed by Ndebele (5,2 per cent) and Southern Sotho (2,0 per cent). The majority of these leaders are Headman (68,0 per cent) followed by *Kgoši* (Chiefs) (22,7 per cent) and Councillors (9,3 per cent). Teachers, progressive farmers, evangelists, businessmen and clerks dominate the list of occupations of non-traditional leaders surveyed. 90,6 per cent of them are Northern Sotho and 9,4 per cent Ndebele. The majority of the smallholders are ordinary farmers.

In Group A 88 per cent of the household heads were males. From the twenty cases where the family was headed by a woman, 12 were widows, 4 divorced and in another 4 cases the husband was in permanent urban employment. These proportions were roughly similar in Group B. The average age of the head was 57 years and the average number of wives 1,15. About 90 per cent of the smallholders surveyed live in traditional *lapas* or in *lapas* with a galvanized iron roofs. It is interesting to note that more farmers in Group B live in western type houses. More periodic household movements were found among Group B farmers; it appears that people tend to build less traditional structures on new sites.

Group A respondents seem to be more settled in the sense that they have had fewer homestead movements (41) than those in Group B (78). The most important reason for moving to the present place of residence (Table 4.11) in both groups (26,4 and 41,0 respectively) was found to be resettlement. More of group A respondents (93 per cent) are satisfied with their present place compared to only 66,1 per cent of Group B. These factors are probably

the main contributors thereto that nearly 20 per cent of group B farmers live in temporary homesteads, compared to less than 3 per cent in Group A.

Family rights over fallow land is considerably higher in Group A, probably because of their more settled pattern of occupation(Tables 4.16 and 4.10).

10.2.2 Farmers' opinions regarding progress

Respondents, both in the A and B groups regard improved crop husbandry as the most important innovation. This, taken together with processing of crops and improved crop storage constitutes approximately 60 per cent of accepted innovations. Group A respondents attached less weight to the problems of crop production (39,0 per cent as against 44,9 per cent of Group B) and laid greater emphasis on problems concerning animal production (46,4 per cent and 30,6 per cent respectively).

Respectively 14,6 per cent of Group A and 24,5 per cent of Group B respondents regard factors involved general progress (e.g. shortages) as the main bottleneck. These considerable differences may probably be explained by factors such as larger stock holdings and higher welfare levels of Group A farmers (Table 5.2b). When questioned on local availability of farming information, Group A farmers indicated that they regard farm management information as most readily available (72,5 per cent) while still in the first place only 28,6 per cent of the B group held the same opinion. For them the allocation of lands as a result of planning by the Lebowa Department of Agriculture and Forestry was almost as important (23,9 per cent) (Table 5.4).

Forty farmers in Group A introduced ten new cash crops during the past eleven years, while in Group B 67 farmers introduced 18 new crops (Figure 5.3 and Table 5.5). Reasons given for introducing new crops (for home consumption or market sale) show a slightly higher market orientation for the A group.

Both Groups A and B (78,5 per cent and 61,9 percent respectively) mentioned shortage of land as the most important reason for putting fallow land back to crops before regaining a satisfactory level of fertility (Table 5.8). 92,9 per cent of the farmers interviewed indicated a desire to obtain higher yields from their existing land units, but only 22,0 per cent of them desire higher yields exclusively for market production.

The market orientation nevertheless seems to be somewhat higher in Group A. This is concluded therefrom that in Group A 32 per cent mentioned more food alone as motivation compared to 48,5 per cent in Group B. In addition 41,2 per cent farmers in Group A mentioned the combination of more food and sales as their motive, compared with only 29,6 per cent of Group B interviewers. The conclusion of higher market orientation of Group A farmers must, however, be handled with care. One may argue that this orientation is mainly the result of better infrastructure, geographic location and therefore better marketing opportunities.

Nearly 70 per cent of the farmers regard 5 ha of land as satisfactory to get a higher yield and be able to make a living as a farmer (Table 5.13). The stated number of livestock units necessary does however not correspond with the ecologically possible carrying capacity: the majority (56,6 per cent) regard a herd of 35 cattle as sufficient. If it is assumed that under present grazing management practices, the natural grazing of Lebowa can sustain 220 168 cattle, then this would imply that only 6 290 smallholders will be able to engage in profitable commercial cattle farming.

Respondents were asked for reasons for the difference between crop yield per ha in Lebowa and in the adjoining White farming areas. Lack of capital is regarded higher in Group A (61,3 per cent as against 50,2 per cent in Group B) while non-scientific farming methods accounts for 31,8 per cent in Group B and only 20,6 per cent in Group A. These differences may to a certain extent point at the more permanent and more traditional nature of Group A settlements (Table 5.15).

Opinions given by the non-traditional leaders differ notably from these already mentioned. The highest percentage (43,2 per cent) chose lack of incentives i.e. too small arable lands, lack of markets, credit etc. and the fact that the present social order is based on subsistence as the major causes for low productivity with regard to animal husbandry, besides lack of capital (21,6 per cent) non-traditional leaders regard the fact that cattle provide security for unforeseen occurrences, with the implication that they are hesitant to sell as second most important with 20 per cent (Table 5.18).

Respondents were asked to give reasons for the ability of the best farmers to farm well and earn a good living. Group B respondents laid more stress on incentive than those in Group A (Table 5.20).

Table 5.23 and 5.24 give the opinions of the smallholders and non-traditional leaders on the availability of human material (enough or not enough to develop agriculture) in Lebowa. It is interesting to note that only 50 per cent of Group B farmers give negative answer, as opposed to 63,0 per cent of Group A and 73,2 per cent of the non-traditional leaders. In this respect Group A probably demonstrate more rational perception. Advice by the Lebowa government and the introduction of new agricultural enterprises are regarded somewhat higher by Group B.

Reasons for shortage of human material given by non-traditional leaders are significant: 42,3 per cent of them blame the lack of preference for agricultural subjects at schools, mostly because the low image of tribal agriculture and lack of employment opportunities. The opinions of smallholders on the usefulness of the extension advice are shown in Table 5.25. Group A shows higher profit orientation and a higher propensity to borrow, probably because of better opportunities to do so. Group A also regard the visit by the extension officer much higher than Group B (which probably point at better co-operation with Government agencies), while respondents in Group B attach more value to information obtained from other farmers. Slightly more Group B farmers use registered and approved bulls than Group A farmers (Table 5.30), more than 60 per cent of the farmers perceived problems in livestock production (Table 5.32). It is probably significant that Group A farmers seem to be somewhat more realistic in this regard. 80,1 per cent of them perceived such problems as against only 67,3 per cent of Group B farmers. A greater willingness to sell livestock is apparent by Group A (Table 5.34), probably because of larger stock holding, better marketing opportunities and possible differences in household income-expenditure patterns.

(Pietersburg, for instance, has more than 70 furniture shops, apparently serving the African market, smallholders located nearby and frequenting the town more often may be influenced by this and change old buying patterns. See also what Leistner (1970: 14) found in connection with German peasants exposure to urban living after World War II.)

Group A farmers exhibited a larger concentration of preference for more land in privately titled holdings and less for communal farms than is the case in Group B. This attitude may be interpreted as more rational, but also as more traditional or conservative.

Non-traditional leaders are divided on the issue of land allocation by the tribal authority, but the great majority of them prefer that the jurisdiction of the tribal authority should exclude the decision when to plant and matters concerning agricultural development

(Table 5.43). In general they seem to have a very low opinion of traditional leadership (Table 5.44).

10.2.3 Labour use

Results obtained in this investigation clearly reflect the demise of the traditional division of tasks (Table 6.1). The responsibility for decisions regarding food crop production is now mainly that of the husband (Table 6.2) while decisions regarding food storage is more a joint (husband/wife) task with the husband still in a decisive role (Table 6.3).

Fewer farmers in Group A could be classified as fulltime farmers.

In Lebowa, average hours per day spent by four age groups has been calculated at 7,46. Surprisedly only 7 of the total of 55 hired labourers are employed by Group A farmers (Table 6.10). Only 9 smallholders of Group A are engaged in off-farm work and only one of them in industrial (plumbing) work. Forty five of Group B farmers held employment outside the farm and 25 of them are employed in industrial skilled or semi-skilled employment. The situation is similar in connection with occasional off-farm labour and income (Table 6.14). According to this survey farmers in Lebowa compare somewhat unfavourably with rural employment situations in tropical Africa, where non-farm activity provides a source of primary or secondary employment for 30 – 50 per cent of the rural male labour force.

10.3 THE FOOD PRODUCTION SYSTEM

10.3.1 Crops

Lebowa smallholders cultivate more than 50 different plants – a good example for diversification, so much advocated for commercial agriculture – and intercropping is more the rule than the exception.

Three relevant aspects received attention in this survey, each stemming from the pre-occupation of the peasant with survival:

(i) the range of food produced and how they are combined in consumption: the order of preference, insurance crops, influence on decision-making and re-

source allocation in terms of the quality and timing of labour required;

(ii) reciprocal obligations between household and community; and

(iii) a description of the food production system.

Notable differences between the two groups are as follows: Group B reported a much higher occurrence of total crop failure due to lack of rain than Group A (Tables 7.4 and 7.5). The custom to share and mutual aid still seems to be high and considerably more so in Group B than in Group A, both in respect of food and labour. This difference may indicate attitudian changes in Group A corresponding with its higher level of commercialization and welfare. Over 80 per cent of farmers in Group A do not have any control over fallow land for further cropping or grazing, while more than 30 per cent of Group B farmers have such control (Table 7.12).

Almost 70 per cent of this latter group have this control on ground of previous performance or experience, while 55 per cent of group A farmers have this control on ground of social status of the household head (Table 7.13). This discrepancy is probably due to the more permanent nature of Group A farmer settlements which is more conducive for the maintainance of traditional social structures.

According to traditional leaders, decisions when to plant are mostly the responsibility of either individual smallholders or the *Kgoši*, with or without consulting with the *Kgoro*. The husband decide which crops to grow and what their position on the farm should be in almost two thirds of the cases (Tables 7.19, 7.20). It is however significant that 17,4 per cent of respondents in Group B let such decisions be made by the extention officer as opposed to 13 per cent in Group A. Over 20 per cent of the wives in this latter group carry the responsibility for these decisions compared to less than 10 per cent of the farmer group.

10.3.2 Stock farming

Cattle are a store of wealth for the Lebowa smallholder in the same way as a house or a plot of land for members of advanced societies.

Lebowa data from the past three years show a positive supply response to price changes both in absolute numbers and in terms of percentage of stock sold (Table 7.23). A potential problem in Lebowa is that the pursuance of a production oriented livestock (and to a certain extent also crop) development programme may be counterproductive because this enables smallholders to build up larger herds. While the African has a relatively high marginal propensity to save, he has few profitable investment opportunities. Land has no market value and gives a very low rate of return from private investment. Neither do the houses rural Africans live in have any market value. Thus, approached from a western viewpoint, they invest in the remaining alternative, in something to which they have well defined individual rights, that can be exchanged, and whose use is legally policed and enforced.

Because this alternative form of investment and accumulation of wealth usually leads to over-grazing and overstocking, at least part of the solution must be the provision of alternative investment opportunities, though not necessarily in land. Rural banking and credit institutions and agro-based rural industries may serve as examples.

Attempts at relieving the pressure on pasture by increasing productivity (the main issue in most extention efforts) may thus be self-defeating due to increased overstocking. This is likely to occur as long as arable and grazing land is communal or free, even in a situation where agricultural production is significantly directed towards the market. If, for instance, an extension programme is successful, productivity, market orientation and cash earnings should increase. The increased income is invested in the only available alternative (cattle) which in turn destroy the ecological balance. Taken into account that it takes 15 to 30 years until natural grazing restores its carrying capacity the cost-benefit ratio of such programmes will, to say the least, be dubious.

The policy implications of this situation is obvious: the direction of the flow of capital between the different sectors must be modified by creating opportunities to invest in agricultural and agro-based production or financial institutions. Extension efforts should concentrate more on livestock quality which, coupled with progressive farming practices should lead to reduction in livestock numbers.

10.4 THE MARKETING SYSTEM

The level of market orientation in areas such as Lebowa depends largely on the existence of markets. In the case of those farmers who produce for the market, there is no evidence

contrary to the hypothesis that both labour supply curves and crop supply curves are positively sloped.

The markets are mostly too far away, an average 32,5 km (Table 8.1) and the farmers regard distance and facilities as by far the two overwhelming difficulties in marketing (Table 8.2). This is particularly serious when one considers the relatively small quantities offered for sale, the poor transport facilities and roads and the concomitantly high transport costs, (monetary or social). The need for markets in the district, especially to sell produce, is strongly emphasized (Table 8.3). The co-operative trading store and market stall are the most important outlets for cash crops (Table 8.4) while nearly 40 per cent of the farmers sell their surplus food crops to the co-operative and a further 40 per cent sell through the trading store, market stall or by private sale (Table 8.5). In general, traders and the co-operative seem to be the most important markets (Table 8.6).

Traditional leaders were in general not satisfied with existing marketing arrangements for crops and animals; they argue for the establishment of marketing co-operatives near the villages. (Table 8.6a) As far as farming requisites are concerned some 57 per cent of farmers said that they were readily available, but 71 per cent said they were not available on credit (Table 8.7).

Although the cattle selling rates increased in the past three years (Table 7.23) it is still regarded as being very low. According to this survey only 34,8 per cent of the farmers sell livestock products, but there exist considerable differences between the two groups. Forty two per cent of Group A farmers and only 28,6 per cent of Group B farmers market livestock products (Table 8.8). Private sale is the most important form of marketing for both groups although 40 per cent of Group B farmers sell at the market place compared to only 25 per cent of Group A (Table 8.9). Sale by auction is the most important institutional form of livestock marketing, followed by private sales (Table 8.10). Recent institutional developments include the introduction of the Lebowa Marketing Act and the Lebowa Co-operatives Act as discussed in Chapter 8.

As far as credit is concerned, relevant data obtained in this study shows a high preference for credit obtained from private people as against banks (Table 8.15). On average only 3,6 per cent of the respondents said they are paying interest on privately borrowed money (Table 8.17). The rate of interest paid on money borrowed from private people varies from 5 to over 20 per cent per year (Table 8.18). Credit sources available for farming requisites is shown in Table 8.19. More than 90 per cent obtained credit from relatives and the tribal authority, while co-operatives and development corporations account only for 6,5 per cent.

10.5 FINANCIAL POSITION OF FARMERS

The survey revealed significant differences in the level of savings between the two groups, 36,7 per cent of Group A farmers and 96 per cent of Group B farmers saved only R90 or less over the years. (Table 8.22) Total earnings from farming in the pre-survey year also shows a big difference between the two Groups. For example, 19,2 per cent of Group A farmers and 62,9 per cent of Group B farmers earned R50 and less. 5,1 per cent of Group A and 1,1 per cent of Group B farmers were in the R3 050 bracket (Table 8.23). As far as total expenditures are concerned, the difference between the groups is large for farmers with relatively low expenditure level (e.g. 4,8 per cent and 36,9 per cent respectively for A and B groups in the R10 category), but smaller in the more realistic levels (e.g. 77,7 per cent for Group A and 91,9 per cent for Group B in the R100 expenditure category (Table 8.24).

10.6 LAND TENURE

The low standard of living of the majority of Lebowa's population cannot be explained in terms of exploitation of the peasants by a landowning class. Rather, the explanation must be sought in the mechanisms that work within the peasant economy itself. An important aspect in this regard is the traditional land tenure and land use.

About 20 per cent of the smallholders in this survey stated that additional land for extension of acreage per family is readily available (Table 9.1) and almost half of the farmers (47,5 per cent) said renting was the common method. One must remember however that the allocation of lands in the "rented" South African Development Trust (SADT) areas is controlled by the Tribal Authority. The importance of factors such as the size of the household, social status of the head of the family, previous performance or experience and traditional custom was given in Table 9.4. The responses reflect the more traditional orientation of Group A farmers: 20 per cent of them are allocated land on ground of previous performance compared with 30,2 per cent for Group B. Also, 33,4 per cent of Group A acquire land according to traditional ways while only 16,4 per cent of Group B farmers are so endowed (Table 10.4). Membership of the tribe and traditional custom dominates the response of traditional leaders (Table 9.5).

Changes in the direction of either private tenure or modern forms of communal production represent a clear divergence from present structures. The first requirement for success ought to be the assessment of the degree of satisfaction of the smallholders themselves with the

present state of affairs and their perception and preference for alternative land tenure and land use patterns. The same procedure should be followed with regard to traditional and non-traditional leaders because – depending on the method of implementation – they may play a vital role in participant mobilization.

Nearly 68 per cent of the smallholders were of the opinion that another system of tenure would improve productivity of farming. The highest percentage (27,3 per cent) preferred development of tribal lands on an agency basis, while a large group (18,3 per cent) preferred land development corporations to use the lands. It is remarkable that more of the less traditional Group B farmers preferred this alternative. Next in line of popularity is the allocation of plots on a more permanent basis e.g. 99 year lease (17,3 per cent) and private ownership of arable land with communal ownership of grazing land (16,2 per cent).

In comparison 73 per cent of the traditional leaders thought that another land tenure system would improve productivity of farming (Table 10.9) and 69 per cent of them said it would also improve the satisfaction of the farmers. Some 80 per cent of the smallholders agreed that more land should be allocated to progressive farmers; nearly 13 per cent preferred private ownership and the rest (6,4 per cent) sought solutions in the modernization of the traditional system (Table 9.11).

Considerably more Group B farmers (29,1 per cent) as against 18,8 per cent of Group A favoured the sale of land to few progressive farmers, and fewer of them (Group B 17,7 per cent, Group A 23,6 per cent) stated that the present system of low yields should continue (Table 9.10). When asked specifically on their preference between private and collective use of land, the majority of farmers were in favour of private land ownership (57,1 per cent). On the average 35,7 per cent were in favour of collective use of arable land (Table 9.12). It is noteworthy that considerably more Group B farmers are in favour of production co-operatives or collective enterprises (29,8 per cent of Group B as against 14,9 per cent of Group A). Approximately 70 per cent of the non-traditional leaders were not satisfied with the present system of land allocation (Table 9.13).

As could be expected, the majority (66 per cent) of the traditional leaders were in favour of the traditional land allocation system. The reaction of traditional leaders to a possible situation in which land would be worked by a few landowners with agricultural knowledge and who increase production is significant: 64,5 per cent would be satisfied with such a state of affairs but 68,0 per cent of them gave the opinion that it would not gain the approval of the tribe. If compared with answers for questions of a similar nature, the impression

is gained that they may be trying to channel the responsibility of resistance to the tribe as a whole and maintain the image of having a proggressive outlook for themselves while at the same time attempting to perpetuate a situation of privilege.

10.7 SUMMARY OF THE CONCLUSIONS

The basic premises of the study, namely that the smallholders of Lebowa are not idealists engaged in farming for the good of the nation but they are farming for survival, are borne out by empirical findings. It is found that Group A farmers are more settled with stronger traditional structures and generally speaking are more satisfied with the present state of affairs, and have a higher level of welfare.

With reference to innovations, Group B farmers seem to be more progressive. The smallholders have very little knowledge on the ecologically possible carrying capacity of grazing. Non-traditional leaders regard lack of incentives i.e. too small arable lands, lack of markets, credit etc. and the fact that the present social order is based on subsistence as the major causes of low productivity. In general they seem to have a very low opinion of traditional leadership. The level of rural off-farm employment is very low and compares unfavourably with many African countries. (This is especially true for Group A farmers).

The Lebowa smallholders grow more than 50 different plants and intercropping is very common.

With reference to stock farming Lebowa data from the past three years show positive response to price changes both in absolute numbers and in terms of percentage of stock sold, hence over-grazing increasing. Therefore the conclusion can be reached that the pursuance of a production oriented extention programme may be counterproductive because this enables the smallholders to build up larger herds. This is likely to occur as long as arable and grazing land is communal or free, even in a situation where agricultural production is significantly directed towards the market. The policy implications of this situation are obvious: the direction of the flow of capital between the different sectors must be modified by creating opportunities to invest in agricultural and agro-based production or financial institutions. Extension efforts should concentrate more on livestock quality which, coupled with progressive farming practices (including livestock feeding and feed production) should lead to reduction in livestock numbers.

The low level of market orientation can partly be explained by underdeveloped marketing and credit institutions.

To use political jargon, the Lebowa smallholders and their non-traditional leaders gave a clear mandate for land tenure reform. The traditional leaders were more hesitant in this regard.

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APPENDIX 1

LEBOWA PROJECT FOR AGRICULTURAL DEVELOPMENT
MORERO WA LEBOWA WA TŠWELETŠOPELE YA TEMO

Questionnaire
Lenaneopotšišo

Date Tšatšikgwedi	Interviewer Mmotšišiši	Controller Molaki

Name
Leina: _____

Address
Aterese: _____

1 6

				0	1

Social details
Tša kagišano ka botlalo

1. Tribe?
   Setšhaba?

7

1. Northern Sotho / Mosotho wa Lebowa	01
2. Ndebele / Letebele	02
3. Swazi / Leswatse	03
4. Other (specify) / Ba bangwe (Bolela/Laetsa)	

2. Where is your place of origin?
   Naa o hlolegile kae?

9

1. Same village / Motseng wona wo	01
2. Same chieftainship / Kgošing yona ye	02
3. Same district	03
4. Other Lebowa district / Seleteng se sengwe sa Lebowa	04
5. Outside Lebowa / Ka ntle ga Lebowa	05

3. (If answer to question 2 other than 1)
(Ge e le karabo ya potšišo 2 e sego ya potšišo 1)

Why did you move?
Naa o hudugile ka baka lang?

		11
1.	Family moved / Lapa le hudugile	01
2.	Better soil / Mobu o mokaone	02
3.	Conflict with headman or other villagers / Phapano le kgošana goba le baagišani ba bangwe	03
4.	Education for children / Thuto ya bana	04
5.	Proximity to hospital / Go batamela sepetlele	05
6.	Marketing reasons / Mabaka a kgwebišo/papatšo	06
7.	Marriage / Nyalo	07
8.	Racial oppression / Kgatello ya morafe	08
9.	Resettlement / Khudušo	09
10.	To get employment / Go humana mošomo	10
11.	Better conditions for cattle / Mabaka a kaone a dikgomo	11
12.	To get more land / Go humana temo e kgolonyana	12
13.	Closer to transport / Go batamela dinamelwa	13
14.	Other (specify) / Tše dingwe (Bolela)	

4. What is your status in the village?
Na maemo a gago mo setšhabeng ke afe?

		13
1.	Headman / Kgošana/Rammotwana	01
2.	Assistant Headman / Letsogo la Kgosana/Rammotwana	02
3.	Elder / Mogolo	03
4.	Rural councillor / Molekgotla	04
5.	Other (specify) / Tše dingwe (Bolela)	
6.	None / Ga o selo	

Labour available
Modiro wo o hwetšegago

1. Family
Lapa

Who is the head of the family?
Naa hlogo ya lapa ke mang?

15	17	19	21	23
	Sex Bong	Age Nywaga	Marital status O nyetše goba Aowa	Number of wives Palo ya basadi

If the head of the family is a woman,
Ge hlogo ya lapa e le mosadi,

State:
Bolela:

25

1. Single / Ga a a nyalwa	01
2. Married / O nyetšwe	02
3. Widowed / Ke mohlologadi	03
4. Divorced / O hladilwe	04

Age Group
Sehlopa sa Matswalo

No of family members Palo ya ba lapa	Under 10 yrs Ka tlase ga nywaga ye 10 27	10-14 yrs nywaga ye 10-14 29	15-19 yrs nywaga ye 15-19 31	20-50 yrs nywaga ye 20-50 33	Over 50 yrs Go feta nywaga ye 50 35
Male Tona/Banna	37	39	41	43	45
Female Tshadi/Basadi					

2. When hired labour used or available
Ge go dirišwa tirokhiro goba go le tirokhiro:

Class of hired labour Sehlopha sa tirokhiro	For what work Mošomo ofe 47	Average of persons Nywaga ya bašomi ka kakaretšo 49	Male Tona/ Banna 51	Female Tshadi/ Basadi 53	Cost per day Tefo ka letšatši 55
Regular Ya ka mehla	57	59	61	63	65
Seasonal Ya sehla	67	69	71	73	75
Casual Ya sewelo					

No. of days of hired labour used per month
Palo ya Matšatši a tirokhiro mo kgweding

Class Sehlopha	Average age of persons Nywaga ya batho ka kakaretso 77	J J 79	F F 81	M M 83	A A 85	M M 87	J J 89	J J 91	A A 93	S S 95	O O 97	N N 99	D D 101	Total Palomoka
Regular Ka mehla	103	105	107	109	111	113	115	117	119	121	123	125	127	
Seasonal Ka sehla	7	9	11	13	15	17	19	21	23	25	27	29	31	
Casual Ka sewelo														
Total per month Palomoka ya kgwedi														

3. Normal number of hours worked per day per person
Palo ya diiri tše tlwaelegile yeo motho o tee a e šomago ka letšatši

in the field throughout the year
mašemong mo ngwageng

	J 33	F 35	M 37	A 39	M 41	J 43	J 45	A 47	S 49	O 51	N 53	D 55
Hours work per day Diiri tša modiro ka letšatši	J 57	F 59	M 61	A 63	M 65	J 67	J 69	A 71	S 73	O 75	N 77	D 79
* Variation reason Mabaka a phetošo												

* Insert either:

1 = arduous work,
1 = Modiro o thata,

2 = light work,
2 = Modiro o bonolo,

3 = slack period,
3 = Nako ya phokotšego ya modiro,

4 = climatically arduous conditions, e.g. very hot/humid,
4 = Mabaka a mathata a klimate bj.k. phišo/bošidi,

5 = food shortage period,
5 = tlhokego ya dijo (nako)

6 = seasonal period when illness common,
6 = nako ya malwetši mo sehleng,

7 = peak demand labour period.
7 = nako ya tlalelano ya modiro.

Labour use
Tirišo ya badiri/bašomi

1. Which family members carry out domestic household work;
   Na ke ditho dife tša lapa tšeo di šomago ka gae;

   e.g. water collecting, cooking, going to market, other (specify)
   bj.ka. go ga meetse, go apea, go ya papatsong, tše dingwe (bolela)

	Approx. age of each person Ngwaga ya e mongwe le e mongwe ka go batametsa	Task Modiro	Insert full-time or hours per day Ngwala : Nako ye e tletšego goba diiri ka letšatši
81	83	85	87
89	91	93	95
97	99	101	103
105	107	109	111
113	115	117	119
121	123	125	127
7	9	11	13
15	17	19	21
23	25	27	29
31	33	35	37
39	41	43	45
47	49	51	53

continued on page 7

55	Approx. age of each person Ngwaga ya e mongwe le e mongwe ka go batametsa 57	Task Modiro 59	Insert full-time or hours per day Ngwala : Nako ye e tletšego goba diiri ka letšatši 61
63	65	67	69
71	73	75	77
79	81	83	85
95	97	99	101
103	105	107	109
111	113	115	117

2. Where members of the family are engaged full-time or part-time
Moo ditho tša lapa di šomago nako yohle goba ka sebaka

on livestock enterprises, specify below:
mo leruong bolela ka tlase:

6

				0	4

Family member Setho sa lapa 7	Age Nywaga 9	Insert 30 = full-time, or no. of days per month Tlatsa 30 = Nako yohle, goba palo ya matsatsi ka kgwedi J 11	F 13	M 15	A 17	M 19	J 21	J 23	A 25	S 27	O 29	N 31	D 33
35	37	39	41	43	45	47	49	51	53	55	57	59	61
63	65	67	69	71	73	75	77	79	81	83	85	87	89
91	93	95	97	99	101	103	105	017	109	111	113	115	117
119	121	123	125	127	7	9	11	13	15	17	19	21	23
25	27	29	31	33	35	37	39	41	43	45	47	49	51
53	55	57	59	61	63	65	67	69	71	73	75	77	79
81	83	85	87	89	91	93	95	97	99	101	103	105	107
109	111	113	115	117	119	121	123	125	127	7	9	11	13
15	17	19	21	23	25	27	29	31	33	35	37	39	41

3. Is the whole family engaged full-time on production work on the family farm
Naa lapa lohle le šoma nako yohle mošomong wa tšweletšo mo polaseng ya lapa

and/or communal farms/activities
le/goba dipolaseng tša motse/medirong ya motse

43

Yes Ee	No Aowa
01	02

If no, indicate the percentage participate
Ge e le aowa, bontšha phesente ya bao ba šomago

45 %

4. Where "off farm" employment is carried out
Polasa yeo mošomo o dirwago go yona

State:
Bolela

Family member Setho sa lapa 47	Age Nywaga 49	Kind of work Mohuta wa modiro 51	Rate of pay in cash and/or in kind Kelo ya tefo ka kheše goba ka dimpho 53

No. of days "off farm employed" per month Palo ya matšatši ao go šongwago ka ona moo polaseng ka kgwedi											
J	F	M	A	M	J	J	A	S	O	N	D
55	57	59	61	63	65	67	69	71	73	75	77

Family member Setho sa lapa 79	Age Nywaga 81	Kind of work Mohuta wa modiro 83	Rate of pay in cash and/or in kind Kelo ya tefo ka kheše goba ka dimpho 85

No. of days "off farm employed" per month Palo ya matšatši ao go šongwago ka ona moo polaseng ka kgwedi											
J	F	M	A	M	J	J	A	S	O	N	D
87	89	91	93	95	97	99	101	103	105	107	109

Family member Setho sa lapa 111	Age Nywaga 113	Kind of work Mohuta wa modiro 115	Rate of pay in cash and/or in kind Kelo ya tefo ka kheše goba ka dimpho 117

No. of days "off farm employed" per month Palo ya matšatši ao go šongwago ka ona moo polaseng ka kgwedi											
J	F	M	A	M	J	J	A	S	O	N	D
119	121	123	125	127	7	9	11	13	15	17	19

Family member Setho sa lapa 21	Age Nywaga 23	Kind of work Mohuta wa modiro 25	Rate of pay in cash and/or in kind Kelo ya tefo ka kheše goba ka dimpho 27

No. of days "off farm employed" per month Palo ya matšatši ao go šongwago ka ona moo polaseng ka kgwedi											
J	F	M	A	M	J	J	A	S	O	N	D
29	31	33	35	37	39	41	43	45	47	49	51

Family member Setho sa lapa 53	Age Nywaga 55	Kind of work Mohuta wa modiro 57	Rate of pay in cash and/or in kind Kelo ya tefo ka kheše goba ka dimpho 59

No. of days "off farm employed" per month Palo ya matšatši ao go šongwago ka ona moo polaseng ka kgwedi											
J	F	M	A	M	J	J	A	S	O	N	D
61	63	65	67	69	71	73	75	77	79	81	83

Family member Setho sa lapa 85	Age Nywaga 87	Kind of work Mohuta wa modiro 89	Rate of pay in cash and/or in kind Kelo ya tefo ka kheše goba ka dimpho 91

No. of days "off farm employed" per month Palo ya matšatši ao go šongwago ka ona moo polaseng ka kgwedi											
J	F	M	A	M	J	J	A	S	O	N	D
93	95	97	99	101	103	105	107	109	111	113	115

Family member Setho sa lapa 117	Age Nywaga 119	Kind of work Mohuta wa modiro 121	Rate of pay in cash and/or in kind Kelo ya tefo ka kheše goba ka dimpho 123

No. of days "off farm employed" per month Palo ya matšatši ao go šongwago ka ona moo polaseng ka kgwedi											
J	F	M	A	M	J	J	A	S	O	N	D
125	127	7	9	11	13	15	17	19	21	23	25

Family member Setho sa lapa 27	Age Nywaga 29	Kind of work Mohuta wa modiro 31	Rate of pay in cash and/or in kind Kelo ya tefo ka kheše goba ka dimpho 33

No. of days "off farm employed" per month Palo ya matšatši ao go šongwago ka ona moo polaseng ka kgwedi											
J	F	M	A	M	J	J	A	S	O	N	D
35	37	39	41	43	45	47	49	51	53	55	57

Family member Setho sa lapa 59	Age Nywaga 61	Kind of work Mohuta wa modiro 63	Rate of pay in cash and/or in kind Kelo ya tefo ka kheše goba ka dimpho 65

No. of days "off farm employed" per month Palo ya matšatši ao go šongwago ka ona moo polaseng ka kgwedi											
J	F	M	A	M	J	J	A	S	O	N	D
67	69	71	73	75	77	79	81	83	85	87	89

Family member Setho sa lapa 91	Age Nywaga 93	Kind of work Mohuta wa modiro 95	Rate of pay in cash and/or in kind Kelo ya tefo ka kheše goba ka dimpho 97

No. of days "off farm employed" per month Palo ya matšatši ao go šongwago ka ona moo polaseng ka kgwedi											
J	F	M	A	M	J	J	A	S	O	N	D
99	101	103	105	107	109	111	113	115	117	119	121

1 6

5. Does the family run any business which is separate from farm activities?
Naa lapa le dira kgwebo yeo e aroganego le mediro ya polasa?

7

Yes Ee	No Aowa
01	02

If yes,
Ge e le ee,

9

1. Trading / Thekišo/Papatšo	01
2. Contracting / Kontraka	02
3. Transporting / Thwalophahlo	03
4. Other (specify) / Tše dingwe (bolela)	

State:
Bolela:

Family member Setho sa lapa	Age Nywaga	Kind of business Mohuta wa kgwebo	No of days of business Palo ya matsatsi a kgwebo											
			J J	F F	M M	A A	M M	J J	J J	A A	S S	O O	N N	D D
11	13	15	17	19	21	23	25	27	29	31	33	35	37	39
41	43	45	47	49	51	53	55	57	59	61	63	65	67	69
71	73	75	77	79	81	83	85	87	89	91	93	95	97	99
101	103	105	107	109	111	113	115	117	119	121	123	125	127	7
9	11	13	15	17	19	21	23	25	27	29	31	33	35	37

Homestead
Legae

1. Is the homestead permanent?
Naa legae ke la ruri?

39

Yes Ee	No Aowa
01	02

2. Describe construction of homestead buildings?
Laodiša ka ga kago ya legae dintlo?

41

1. Lapa traditional Dintlo tša setlogo	01
2. Lapa with galvanized iron roof Dintlo tša masenke	02
3. Manifold room structure Dintlo tša phaphoši tše ntši	03
4. Western type of house Dintlo tša mohuta wa sekgowa	04
5. Other (specify) Tše dingwe (Bolela)	

3. If homestead moved periodically,
Ge e ba lapa le hudugile ka nako tše dingwe

a. How often, and to what distance
Ga kae, le monabo wo mokaakang

from previous position during the past 15 years?
go tloga mo le begole le gona pele nywageng ye 15 ye e fetilego?

1. Once in each 3 years
Gatee nywageng ye 3

43

5- 15 km	01
16-.50 km	02
51-100 km	03
101-150 km	04
151-200 km	05
201-250 km	06

2. Once in every 5 years
Gatee nywageng ye 5

45

5- 15 km	01
16- 50 km	02
51-100 km	03
101-150 km	04
151-200 km	05
201-250 km	06

3. Once in every 15 years
Gatee nywageng ye 15

47

5- 15 km	01
16- 50 km	02
51-100 km	03
101-150 km	04
151-200 km	05
201-250 km	06

b. Was homestead moved to:
Naa legae le hudušeditšwe go:

49

Yes Ee	No Aowa
01	02

1. Virgin land, or
Naga ye ntshwa, goba

51

Yes Ee	No Aowa
01	02

2. within long-term shifting
nageng ye e lemilwego nywaga ye
cropping/fallow pattern
metši ka phetošo ya pšalo/moo go letšego

Household
Lapa

1. Household water requirement obtained from
Meetse a lapa a hwetšwa go

53

1. Dam / Letamo	01
2. Rain water / Meetse a pula	02
3. Borehole / Petse	03
4. River / Noka	04
5. Other (specify) / Tše dingwe (bolela)	

Distance of the water source in km:
Bikgole bja mothopo wa meetse ka km:

55

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16+
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17

Quantity of water used per day in liters:
Bokaakang bja meetse bjo bo diriswago ka letšatši ka dilitara:

57

10	20	30	40	50	60	70	80	90	100	101+
01	02	03	04	05	06	07	08	09	10	11

2. Who decides what crops to grow, and their position on the farm
Ke mang yo a akanyago gore go bjalwe eng, le mo di ka bjalwago gona polaseng

59

1. Headman/Chief / Kgošana/Kgoši	01
2. Husband / Monna	02
3. Wife / Mosadi	03
4. Extention officer / Molemiši	04
5. Other (specify) / Ba bangwe (bolela)	

3. Who decides policy on livestock enterprises?
Naa tshepedišo go tša thuo e akanywa ke mang?

		61
1.	Headman/Chief / Kgošana/Kgoši	01
2.	Husband / Monna	02
3.	Wife / Mosadi	03
4.	Extention officer / Molemiši	04
5.	Other (specify) / Ba banwe (bolela)	

4. Who is responsible for production of food crops?
Naa ke mang yo a nago le boikarabelo mo go tšweletšo ya dijo tša temo?

		63
1.	Husband / Monna	01
2.	Wife / Mosadi	02
3.	Children / Bana	03
4.	Other (specify) / Ba bangwe (bolela)	

5. Who decides on cash crop production?
Naa ke mang yo a akanyago tšweletšo ya dibjalo tša thekišo?

		65
1.	Headman/Chief / Rammotwana/Kgosi	01
2.	Husband / Monna	02
3.	Wife / Mosadi	03
4.	Other (specify) / Ba bangwe (bolela)	

6. Where individual family members are allocated certain production
Mo maloko a lapa a abetswego mediro ye itsego ya tsweletso

activities, give details below:
boela ka botlalo ka mo tlase:

Household member Leloko la lapa/legae 67	Responsible for which crop/lovestock production Le na le boikarabelo go sebjalo sefe/ tšweletšo ya lerao 69	Rights of member to proceeds % of total Tokelo tša leloko go dipoelo % ya palomoka 71	% of proceeds contributed to household % ya dipoela tše di neetšwego lapa 73
75	77	79	81
83	85	87	89
91	93	95	97
99	101	103	105
107	109	111	113
115	117	119	121
123	125	127	7
9	11	13	15
17	19	21	23
25	27	29	31
33	35	37	39

continued on page 20

Household member Leloko la lapa/legae 41	Responsible for which crop/livestock production Le na le boikarabelo go sebjalo sefe/ tšweletšo ya lerao 43	Rights of member to proceeds % of total Tokelo tša leloko go dipoelo % ya palomoka 45	% of proceeds contributed to household % ya dipoela tše di neetšwego lapa 47
49	51	53	55
57	59	61	63
65	67	69	71
73	75	77	79
81	83	85	87
89	91	93	95
97	99	101	103

7. Who is responsible for care of food storage
Naa ke mang yo a nago le boikarabelo mo polokong ya dijo

and food distribution
le phatlalatšo/kabo ya dijo

	105
1. Headman/Chief / Rammotwana/Kgoši	01
2. Husband / Monna	02
3. Wife / Mosadi	03
4. Other (specify) / Ba bangwe (bolela)	04

Land tenure
Bongmabu/tšhemo

Is the farmland owned or retained by:
Naa setsha sa temo ke sa goba se humanwe ka:

	Yes Ee	No Aowa	
1. Inheritance Bojalefa	01	02	107
2. Communal decision on land distribution Phetho ya motse go kabo ya mašemo			109
3. Bush clearing and cropping efforts of family Go rema dithokgwa le maitshwenyo a lapa go tša pšalo	01	02	111
4. Renting Khiriso	01	02	113
5. Are there family rights over fallow land? Naa go na le ditokelo tša lapa mo go mašemo a letšego			115

If the farmland is rented, specify area in Ha.
Ge tšhemo e hirišitšwe, bolela bogolo bja yona ka ha (dihektare)

117

0,1	0,2	0,5	1	2	3	4	5	6	7	8	9	10	11-20	21-50	50+
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16

Rent paid per annum in cash R/ha
Rente ye e lefšago ka ngwaga ka kheše R/ha

119

1	2	3	4	5	6	7	8	9	10	10+
01	02	03	04	05	06	07	08	09	10	11

To whom is the rent paid?
Naa rente e lefša go mang?

121

1. Headman/Chief / Rammotwana/Kgoši	01
2. S.A. Bantu Trust / Trasete ya Babaso ya Afrika-Borwa	02
3. Father / Tate	03
4. Other relative / Notswalele e mongwe	04
5. White farmer / Rapolasa e mošweu	05
6. Other Black farmer / Yo mongwe wa borapolasa ba baso	06
7. Other (specify) / Ba bangwe (bolela)	

8. Are there family rights over fallow land?
Naa go na le ditokelo tša selapa mo go tšhemo ye e letšego?

123

Yes Ee	No Aowa
01	02

Communal Activities/Obligations
Mediro/ditshwanelo tša motse

1. Does the community control or have regulations concerning
Naa motse o laola goba o na le melawana mabapi le ye nngwe

any of the following:
ya tše di latelago:

a. Allocation of land to individual households
Kabo ya mašemo go malapa

125

Yes Ee	No Aowa
01	02

If yes, on what basis?
Ge e le Ee, ka tsela efe?

127

1. The size of the household
   Bogolo bja lapa — 01
2. The social status of the head of the family
   Maemo a hlogo ya lapa mo setshabeng — 02
3. On ground of previous performance or experience
   Ka mabaka a tšhomišo ye botse ya pele gobe boitemogelo — 03
4. Other (specify)
   Tše dingwe (bolela)

1 6

b. Use of fallow land for further cropping or grazing
Tirišetšo ya tšhemo ye e letšego go tšwelele tša temo goba phulo

7

Yes Ee	No Aowa
01	02

If yes, on what basis
Ge e le ee, ka tsela efe?

9

1. The size of the household
   Bogolo bja lapa — 01
2. The social status of the head
   Maemo a hlogo ya lapa mo setšhabeng — 02
3. On ground of previous performance or experience
   Ka mabaka a tirišo ye botse ya pele goba boitemogelo — 03
4. Other (specify)
   Tše dingwe (bolela)

c. The clearing of new land
Kgothakgotho ya tšhemo e mpsha

11

Yes Ee	No Aowa
01	02

If yes, on what basis?
Ge e le ee, ka Tsela efe?

13

	01
	02
	03

1. The size of the household
   Bogolo bja lapa
2. The social status of the head of the family
   Maemo a hlogo ya lapa mo setšhabeng
3. On ground of previous performance or experience
   Ka mabaka a tirišo ye botse ya pele goba boitemogelo
4. Other (specify)
   Tše dingwe (bolela)

d. Grazing of cattle according to area or season
Phudišo ya dikgomo go ya ka tikologo goba sehla

15

Yes Ee	No Aowa
01	02

If yes, on what basis?
Ge e le ee, ka tsela efe?

17

	01
	02

1. The number of cattle owned
   Palo ya dikgomo tšeo e mongwe a nago natšo
2. According to the size of the grazing
   Go ya ka bogolo bja phulo
3. Other (specify)
   Tše dingwe (bolela)

2. Describe any communal activities in which the household members are required to participate each year?
Laodiša ka ga mediro ye e itšego yeo ditho tša lapa di swanetšego go e dira ngwaga ka ngwaga?

Activity Modiro	Period in which month(s) Lebaka kgweding efe? 19	Household members and age of each Ditho tša lapa le nywaga ya e mongwe le mongwe 21 23	Usual no. of days taken to complete activity Palo ya ka mehla ya matšatši a a tšewago go phetha modiro 25
Road building Kago ya ditsela	27	29 31	33
House building Kago ya nywako	35	37 39	41
Grazing Phulo	43	45 47	49
Weeding Go hlagola	51	53 55	57
Planting Go bjala	59	61 63	65
Harvesting Go buna	67	69 71	73
Other (specify) Tše dingwe (bolela)			

3. Is the household required to contribute food
Naa ba lapa ba swanetše go thuša ka dijo

75

Yes Ee	No Aowa
01	02

or labour
goba diatla

77

Yes Ee	No Aowa
01	02

to other members of the community who have had poor crop yields through
goba ditho tše dingwe tša motse tšeo di bilego le puno ye e fokolago ka

sickness or some other misfortune (specify if relevant)
baka la bolwetši goba madimabe a itšego tše dingwe ge di lebane

4. Specify any communal facilities abailable to the household e.g.
Bolela dinolofatši dife kapa dife tše di lego gona tša lapa bj.k.

1.	Storage Polokelo	79
2.	Transport Thwalo	81
3.	Communally owned tools Didiriswa tše e lego tša motse	83
4.	Communally owned machines Metšhene ye e lego ya setšhaba	85
5.	Crop processing Go khuŝwa ga dibjalo	87
6.	Other(s)(specify) Tše dingwe (bolela)	89

Area of Farm, Field size, Soil Type and Topography
Bogolo bja polasa, bogolo bja tšhemo, mohuta wa mobu le bogodimo

1. Total farm area (crops and fallow) in ha.
Palomoka ya sekgoba sa polasa/boikalo bja polasa (dibjalo le molala) ka ha.

91 |_____|_____|

2. Grazing area, if owned or rented (not communal) and additional to
Sekgala sa phulo, ge e le sa mong goba se hirilwe (e se bago sa setšhaba)

area given in 1. above in ha.
gomme se oketša sekgoba se se neilwego mo go 1. ka godimo in ha.

93 |_____|_____|

3. Total area cropped per year in ha.
Palomoka ya sekgoba se se bjetšwego ka ngwaga ka ha.

95 |_____|_____|

4. Indicate number, approximate size, and whereabouts of separate fields
Laetša palo, bogolo ka kakanyo, le lefelo la mašemo a mangwe goba

or plots on the farm, also noting soil type and topography as follows:
ditsha tša mo polaseng, go bile go hlokomelwa mohuta wa mobu le
bogodimo ka mo go latelago:

Approximate size of fields Bogolo bja masemo ka kakanyo ditsha	No. of fields/plots and distance of each from homestead in km. Palo ya mašemo ditsha le bokgole bja se sengwe le se sengwe go tloga gae ka km.	Soil type Mohuta wa mobu	Topography* Bogodimo
Under ½ acre Ka tlase ga ½ akere or 0,2 ha or goba 0,2 ha goba equivalent go lekana	97	99	101
	103	105	107
	109	111	113
	115	117	119
	121	123	125
	127	7	9
½ acre - 3 acre ½ akere - 3 Akere or 0,2 ha - 1 ha goba 0,2 ha - 1 ha or equivalent goba go lekana	11	13	15
	17	19	21
	23	25	27
	29	31	33
	35	37	39
	41	43	45
Over 3 acres Ka godimo ga diakere tše 3 or 1 ha or goba 1 ha goba equivalent go lekana	47	49	51
	53	55	57
	59	61	63
	65	67	69
	71	73	75
	77	79	81

* Insert one or more of the following for each field/plot as appropriate
Tlatša e tee goba go feta ya tše di latelago mo go tšhemo e nngwe le e nngwe/goba setsha se sengwe le se sengwe

1 = valley bottom
tlase moeding

2 = level land
naga ye e ikadilego

3 = gently sloping (give % slope)
naga ye e theogang (ngwala % ya motheoga)

4 = hillside (give % slope)
Mmotong (ngwala % ya motheoga)

5 = hill top
godimo ga mmoto

6 = year-round high water table
Meetse a mantši ngwaga ka moka

7 = irrigated land
Naga ye e nošetšwago

8 = land subject to seasonal flooding
Naga ye e felago e eba le mafula a meetse

Soil fertility trend/land availability
Mobu wo o nonnego/Naga ye e hwetšegago/Mašemo a a hwetšegago

1. Is fallow land being put back to crops
Naa mašemo a a laditšwego a dirišetšwa gape dibjalo

before satisfactory fertility level regained due to
pele ga ge a fihlišitšwe maemong a a kgotsofatšago a nontšho ka baka la

83

1. Land shortage Tlhaelelo ya mašemo	01
2. Population pressure Go gola/oketšèga ga badudi	02
3. Other (specify) Tše dingwe (bolela)	

2. Is natural grazing land deteriorating due to overstocking
Naa phuto ya tlhago e a fokola ka baka la kimetsaphulo/thuontši

85

Yes Ee	No Aowa
01	02

If yes, are any measures being taken by
Ge e le ee, naa go na le dikgato tše tšewang ke

87

1. Household Lapa	01
2. Community Motse	02
3. Local authorities Dipušogae	03
4. Others (specify) to rectify the situation Tše dingwe (bolela) go kaonefatša maemo	

3. Is additional land for extension of acreage per family readily available?
Naa naga ye nngwe ya katološo ya temo ya lapa e ka humanega gabonolo?

89

Yes Ee	No Aowa
01	02

If yes, specify:
Ge e le ee, bolela:

General soil type Mohuta wa mobu ka kakaretso 71	Vegetation cover Kobo ye e dirilwego ke dimela 93	Distance of such available land from homestead in km Bokgole bja naga yeo, go tloga gae ka km 95
97	99	101
103	105	107
109	111	113

4. Do village headmen, community elders, or older farmers re-collect
Naa boRammotwana, baetapele ba metse, goba balemi ba kgale ba elelwa

any significant progressive changes in soil productivity, vegetation type, diphetogo dife kapa dife tše tšweleletšego tše bohlokwa mabapi le tlhagišo

areas for grazing, seasonal stream or river flow/flooding
puno ya mobu, mohuta wa dimela mafelo a phulo, dinoka tše elago ka sebaka goba dinoka tša mafula

115

Yes Ee	No Aowa
01	02

If yes, specify:
Ge e le ee, bolela:

	Progressive changes in Diphetogo tše tšweleletšego mo go		
	Soil productivity Tlhagišopuno ya mobu	Vegetation type Mohuta wa dimela	Flooding Mafula a meetse
	117 19..... 19..... 119	125 19..... 19..... 127	11 19..... 19..... 13
1. Village headmen Rammotwana	121	7	15
2. Community elders Baetapele ba metse	123	9	17
3. Older farmers Balemi ba kgale			

Soil Conservation/Erosion
Pabalelo ya mobu/Kgogolego

1. Specify any general soil conservation practices used, e.g.
Bolela mediro efe kapa efe ya pabalelo ya mobu ye e latelwago bj.k.

1.	Strip cropping / Pšalo ka meseto		19
2.	Banks / Mariba		21
3.	Terraces / Ditherese		23
4.	Ridging / Mekekema		25
5.	Soil tillage practices such as use of Mekgwa ya go menola/phethola mobu bjalo ka pointed or tined (non-soil inverting) tools tirišo ya ditlabole tša dintlha goba tša go for land preparation dirwa ka thini (go sephethole mobu) go lokiša mašemo		27
6.	Surface trash/crop residu left on surface Mašaledi a dibjalo ao a setšego godimo ga mobu		29
7.	Other (specify) / Tše dingwe (bolela)		31

2. If soil erosion is evident, specify to what degree (sheet, gully) occurring on what soil type and % land slope
Ge kgogolego ya mobu e iponatša, bolela gore naa e tšweleletše mo go kaakang (bogodimo, moedi) le gore naa ke mohuteng ofe wa mobu le % ya motheoga wa naga/tšhemo

Degree Kgato 33	Soil type Mohuta wa mobu 35	% land slope % ya motheoga 37

Rainfall pattern/reliability
Lenaneo la pula/tshepagalo

1. Insert average rainfall pattern below in millimeters
Feleletša lenaneo le ka tlase la kakaretšo ya pula ka dimilimitere

39 J	41 F	43 M	45 A	47 M	49 J	51 J	53 A	55 S	57 O	59 N	61 D

2. Is replanting
Naa temollo e

63

1. Common / Tlwaelegile	01
2. Moderately common / Tlwaelegile gosenene	02
3. Very occassional / Dirwa ka sewelo	03

Due to a lack of:
Ka baka la tlhaelo ya:

65

1. Rain / Pula	01
2. Late rain / Pula ya go na morago ga lebaka	02
3. Other (specify) / Tše dingwe (bolela)	

3. Has there been a total crop failure due to lack of rain
Naa go kile gwa ba le tlhaelo ya dibjalo ka baka la tlhokego ya pula
during the past 7 years
nywageng ye 7 ye e fetilego

67

Yes Ee	No Aowa
01	02

If yes, how many times?
Ge e le ee, naa ebile gakae?

69

1	2	3	4	5	6	7

Cropping pattern
Lenaneo la Pšalo

1. When new land is cleared for the first time, describe the sequence
Ge tšhemo e mpsha e kgothwa la mathomo, laodiša ka ga tatelano
and time of clearing operation
le nako ya modiro wa go kgotha

Vegetation type Mohuto wa dimela 71	Clearing method tools and sequence Mokgwa wa go kgotha, ditlabele le tatelano 73	During month(s) Ka kgwedi olife 75	Man/days per * mist area cleared Matšatši ao seripa se kgothilwego ka ona 77
79	81	83	85
87	89	91	93
95	97	99	101
103	105	107	109

* Information on family and hired labour available can be converted into
Ge go na le tsebo mabapi le diatla tša ba lapa le tša khiro di ka fetolelwa
man Equivalent for example:
go monna (1) mosadi (1) bjalo ka:

Age group (years) Sehlopha ka nywaga	10 - 14	15 - 19	20 - 50	Over 50 Ka godimo ga 50
Male (1) Monna (1)	0,25	0,67	1·	0,67
Female (1) Mosadi (1)	0,25	',50	0,67	0,50

2. Are any crops grown every year adjacent to homestead compound,
Naa go na le dibjalo tše di bjalwago kganswi le lapa/motse ngwaga ka ngwaga,

specify (include details of inter-cropping)
bolela (tsentšha tšeo di ka bjalwago magareng ka botlalo)

_____

_____

3. General cropping patterns
Lenaneo la Pšalo ka kakaretšo

Soil type Mohuta wa mobu	Insert 1st crop(s), followed by crop(s)/fallow in sequence, putting in ( ) the number of years of each crop(s) or fallow to show the total length of land use cycle* Tsentšha Sebjalo sa, go latele dibjalo tše dingwe/goba go latša ka tatelano, o bea ka ( ) palo ya mengwaga ya sebjalo se sengwe le se sengwe goba go latša go laetša palomoka ya leboyo la tirišo ya tšhemo*

* (a) Where inter-cropping occurs, denote by inserting "IC" against the
Mo go nago le pšalo-magareng, bontšha ka go tsentšha "IC" kganswi

the crop concerned in the particular point of the land sequence.
le sebjalo seo e se amago mo hlogong ye itšego ya tatelano ya tšhemo.

(b) Specify if fallow is a "Crop" fallow as distinct from natural
Naa ge go laditšwe, dibjalo tša ge go laditšwe di fapana le

regeneration grass/bush fallow
tšošološo ya tlhago ya bjang/dithokgwa

4. Have any new cash crops been introduced during the past 10 years,
Naa go hlagišitšwe dibjalo tše difsa tša thekiso nywageng ye 10 ye e

specify crop and when introduced
fetilego, bolela sebjalo le gore na se hlagišitšwe neng

Crop Sebjalo	Year introduced Ngwaga wo se hlagišitšwego										
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
111	113										
115	117										
119	121										
123	125										
127	7										
9	11										

5. During "peak-demand" labour periods, which crop(s) are considered the
Ka nako tša tlalelano ya modiro na ke dibjalo dife tšeo di akanywago

most important and receive priority for allocation of available labour,
gore ke tše bohlokwa gomme tša etišwa kabong ya matsogo a a lego ntshe,

specify crop(s) and the particular operation which receives priority
bolela dibjalo le modiro wo itšego wo o etišwago pele/humanago

attention.
tlhokomelo pele.

Crop Sebjalo 13	Operation which receives priority attention Modiro wo o humanago tlhaokomelo pele 15
17	19
21	23
25	27
29	31
33	35

6. Are there any special weeds which are difficult to eradicate;
Naa go na le mefero ye e itšego ye e lego bothata go e fediša;

specify weed, soil and topography of that weed problem area.
bolela mofero, mobu le bogodimo bja tikologo yeo ya mathata a mofero.

Weed Mofero/sekoro 37	Soil type Mohuta wa mobu 39	Topography of the area Bogodimo bja tikologo 41
43	45	47
49	51	53
55	57	59
61	63	65

Food pattern
Lenaneo la dijo

1. What are the staple food crops grown and quantity consumed
Naa dibjalo tša dijokgolo tše bjalwago ke dife le bokaakang bjo bo lewago

Category Kgoro	Crops Dibjalo	Estimated quantity consumed by household each year in kg Bokaakang bjo bo lewago ka kakanyo ke ba lapa ngwaga wo mongwe le wo mongwe ka kg
Grain Leroro	67	69
	71	73
	75	77
Root starch Digwere	79	81
	83	85
	87	89
Legume Menawa	91	93
	95	97
	99	101
Fruits Dienywa	103	105
	107	109
	111	113
Vegetables Merogo	115	117
	119	121
	123	125
Others (specify) Tše dingwe (bolela)	127	7
	9	11
	13	15

2. Have any new food crops been introduced during the past 10 years,
Naa go hlagišitšwe dibjalo tše difsa tše di lewago nywageng e lesome
specify crop(s) when introduced and for what reason e.a. for household ye e fetilego, Bolela go re dibjalo tšeo di hlagišitšwe neng le go re
consumption and/or market
naa ke ka baka lang di hlagišitšwe bj.k. go lewa ka gae goba go rekišwa/ bapatšwa

Crops Dibjalo	In which year introduced Ngwaga wo di hlagišitšwego ka wona											For what reason * Labaka la tlhagišo	
	'68	'69	'70	'71	'72	'73	'74	'75	'76	'77	'78	Consumption Go lewa	Market Go bapatšwa
17	19											21	23
25	27											29	31
33	35											37	39
41	43											45	47
49	51											53	55

* If for both reasons, give approximate % for each.
Ge eba di hlagišeditšwe mabaka a mabedi a, ngwala % ya se sengwe le se sengwe ka kakanyo.

3. Which of the staple food crops, or mixtures of them, are distinctly
Naa ke dibjalo dife tša dijokgolo, goba tlhakantšho ya tšona, tše di

preferred; list in order of preference
rategago kudu; di ngwale go ya ka mo di rategago ka gona

Crops or
Dibjalo goba

crop mixtures in order of preference
motswako wa dibjalo go ya ka mo di rategago ka gona

1. _____ | | | 5
2. _____ | | | 5
3. _____ | | | 6
4. _____ | | | 6
5. _____ | | | 6

4. Usual availability and periods of consumption of staple foods (produced)
Go ba ga tšona le dinako tša go lewa ga dijokgolo tše di hlagišitswego

Food or Food mixtures Dijo goba motšwako wa tšona	Period of availability and consumption Nako ya go ba gona ga tšona le go lewa											
	J	F	M	A	M	J	J	A	S	O	N	D
67	69	71	73	75	77	79	81	83	85	87	89	91
93	95	97	99	101	103	105	107	109	111	113	115	117
119	121	123	125	127	7	9	11	13	15	17	19	21
23	25	27	29	31	33	35	37	39	41	43	45	47
49	51	53	55	57	59	61	63	65	67	69	71	73
75	77	79	81	83	85	87	89	91	93	95	97	99
101	103	105	107	109	111	113	115	117	119	121	123	125
127	7	9	11	13	15	17	19	21	23	25	27	29

5. Is there any period of general food (produced) shortage
Naa go na le nako ya tlhaelelo ya dijo (tše hlagišitšwego) ka kakaretšo

J	F	M	A	M	J	J	A	S	O	N	D
31	33	35	37	39	41	43	45	47	49	51	53

6. What crops are grown and classified as family-relief reserve food crops
Naa ke dibjalo dife tše di bjalwago gomme tša hlopšha gore ke dibjalo tša go bolokelwa thušo ya lapa ka mehla e thata

1. _____ 55
2. _____ 57
3. _____ 59
4. _____ 61
5. _____ 63

7. In a bad year of food crop shortfall/failure what measures are Nywageng ya puno ye e fokolago, naa lapa le tšea magato afe go

taken by the family to economise on consumption or obtain food from elsewhere seketša dijo le go humana dijo mafelong a mangwe

1. _____ 65
2. _____ 67
3. _____ 69

Marketing of crops
Papatšo ya puno

1. Describe the form of marketing systems available for the farmer
Laodiša ka ga mokgwa wa papatšo wo o latelwago ke balemi

a) Cash crops
Dibjalo tša thekišo

1. _____ 71
2. _____ 73
3. _____ 75

b) Surplus food crops
Dibjalo tše beelwago go lewa

1. _____ 77
2. _____ 79
3. _____ 81

2. At what distances are the markets from the homestead
Naa mebaraka e bokgole bjo ba kaakang go tloga gae

a) For cash crops 83
Mebaraka ya puno ya kgwebišo _____ km

b) For surplus food crops 85
Ya puno ye e beetšwego go lewa _____ km

Marketing of livestock and livestock products
Papatšo ya diruo le ditšweletšwa tša thuo

1. Describe the form of marketing system available for the farmer
Laodiša ka ga mokgwa wa papatšo wo o dirišwago ke barui

1.	Auction / Fantisi	87
2.	Abattoir / Selagapale	89
3.	Butcher / Leselaga	91
4.	Private sale / Thekišo ya seng	93
5.	Other (specify) / Tše dingwe (bolela)	95

2. At what distances are the markets from the homestead
Naa mebaraka e bokgole bjo bokaakang go tloga gae

1.	Auction / Fantisi	97
2.	Abattoir / Selagapale	99
3.	Butcher / Leselaga	101
4.	Private buyer / Bareki	103
5.	Other (specify) / Tše dingwe (bolela)	105

Have you ever taken cattle to auction and decided not to sell?
Naa o kile wa iša dikgomo fantising gomme wa rera go di rekiša?

107

Yes Ee	No Aowa
01	02

If yes, why?
Ge e le ee, ka baka lang?

109

1. Low price / Tshelete ya tlaše	01
2. Other (specify) / Tše dingwe (bolela)	02

Do you sell livestock products?
Naa o rekiša ditšweletšwa tša leruo?

111

Yes Ee	No Aowa

If yes, where?
Ge e le ee, kae?

1. Market place / Lefelo la mmaraka	113
2. Private / Ka bong	115
3. Other (specify) / Tše dingwe (bolela)	117

How do you get your livestock to the market place?
Naa o iša lerno la gago bjang papatšong?

1. Without transport / Tlhokego ya dirwadi	119
2. Transport by railway / Thwalo ka setimela	121
3. Transport by truck / Thwalo ka dilori	123
4. Other (specify) / Tše dingwe (bolela)	125

Who decides to sell livestock?
Naa go rera mang go rekiša lerno?

127

1. Headman/Chief / Rammotwana/Kgoši	01
2. Husband / Monna	02
3. Wife / Mosadi	03
4. Other (specify) / E mongwe (bolela)	

1 6

How many livestock sold in the past year?
Naa o rekišitše lerno le le kaakang ngwagola?

	Number Kgoboko	Price received Theko ye e amogetswego	Total Palomoka
Cattle Dikgomo	7	9	
Goats Dipudi	11	13	
Sheep Dinku	15	17	
Pigs Dikolobe	19	21	
Poultry Tša mafofa	23	25	
Horses Dipere	27	29	
Donkey Ditonki	31	33	

What was your total earnings from crop production in the past year?
Naa o gotše palomoka ya bokae mo go tšweletšo ya puno ngwageng wo o fetilego?

35
R.....

What was your total expenditures on farming in the past year?
Naa palomoka ya ditshenyegelo tša gago mo temong ngwagola e bile bokae?

37
R.....

How much money have you saved over the years?
Naa o bolokile bokae nywageng ye e fetilego?

39

R.....

Where do you keep it?
Naa o boloka kae?

1. Bank / Pankeng		41
2. Privately / Ka gae		43
3. Other (specify) / Mo gongwe (bolela)		45

If you need credit, where do you prefer to get it?
Naa ge o nyaka go adingwa na o nyaka go adingwa kae?

47

1. From the Bank / Pankeng	01
2. From private people / Bathong fela	02

When you borrow money from private people do you pay
Ge o adingwa tšhelete mo bathong fela, naa o lefa dinamane go interest on the borrowed money
tšhelete ye o e adimilego?

49

Yes Ee	Aowa
01	02

If yes, what is the rate of interest per year?
Ge e le ee, naa kelo ya dinamane ke bokae ka ngwaga?

51

				%				
5	6	7	8	9	10	11	15	20+
01	02	03	04	05	06	07	08	09

If you borrow money from private individuals, what is your preference
Naa ge o nyaka go adima tšhelete go batho fela, o rata go

to borrow from?
adingwa go?

53

1.	Black friends / Bankane ba baso	01
2.	Family members / Ditho tša lapa	02
3.	Your white friend / Go bagwera ba bašweu	03
4.	Your employer / Go mong wa gago	04
5.	Other (specify) / Ba bangwe (Bolela)	

Current change/Innovations
Diphetogo tša bjale/Tše mpsha

a)	Improved crop husbandry Temo ye e kaonefaditšwego (ya dibjalo)	55
b)	Improved animal husbandry Thuo ye e kaonefaditšwego	57
c)	Processing crops/livestock products Tšhomelelo ya dibjalo/Ditšweletswa tša thuo	59
d)	Improved storage of crops Poloko ye e kaonefaditšwego ya puno	61
e)	New tools/equipment/power sources Ditlabele tše mpsha/Didirišwa/mothopo wa maatla	63

If you find anyone of the above-mentioned in the past 10 years
Ge eba o kile wa leka efe kapa efe ya tša ka godimo mo nywageng

which one did not gain acceptance give likely reasons
ye 10 ye e fetilego, naa ke efe ye o ilego wa se e rate
bolela mabaka ao a ka bago gona

67

_____

_____

What kind (if any) of local information is available for your advantage?
Naa ke tsebo efe (ge e le gona) ya tikologo yeo e kgonago go go thuša?

_____ 69 ☐

_____

What kind of training facilities, craftmenship are available to you?
Naa ke mehuta efe ya dinolofatši tša tlhatlho, tiroatla tšeo di ka go holago?

_____ 71 ☐

_____

Give general reasons for crop failure (if applicable)
Hlagiša mabaka a bofokodi bja puno ka kakaretšo (ge e swanela)

1.	Frost / Tšhwaane	73
2.	Pests / Diji	75
3.	Drought / Komelelo	77
4.	Lack of manpower / Tlhokego ya diatla	79
5.	Theft / Bohodu	81
6.	No fertiliser / Tlhokego ya dinontšha	83
7.	Lack of amenities to cultivate property / Tlhokego ya didirišwa tša go lema gabotse	85
8.	Lack of knowledge / Tlhokego ya tsebo	87
9.	Lack of good seed / Tlhokego ya peu ye e lokilego	89
10.	Other (specify) / Tse dingwe (bolela)	91

* If more than one, indicate it in percentage.
Ge e le go feta tee, laetša ka phesente.

How and from whom did you get your knowledge of farming?
Naa o amogetse tsebo ya gago ya bolemi go mang, bjang?

1. Agricultural officer
   Molemiši
   1. Black
      Mothomoso — 93
   2. White
      Lekgowa — 95

2. Self, through experience
   Ka noši, ka boitemogelo
   1. On white farm
      Polaseng ya lekgowa — 97
   2. Own farm
      Polaseng ya lekgowa — 99
   3. Commonage
      Mašemong a setšhaba/ motse — 101

3. Friends
   Bagwera — 103
4. Chief
   Kgoši — 105
5. Other (specify) / Ba bangwe (bolela) — 107

* If more than one, indicate it in percentage.
Ge go feta e tee, laetša ka phesente.

Would you like to stay at a place other than your present residence?
Naa o ka kganyoga go dula lefelong le lengwe ka ntle ga mo o dulago gona bjale?

109

Yes Ee	No Aowa
01	02

If yes, where?
Ge e le ee, kae?

111

	01
	02
	03
	04

1. In other area inside Lebowa
   Lefelong le lengwe ka gare ga Lebowa
2. In other area outside Lebowa
   Lefelong le lengwe ka ntle ga Lebowa
3. In a white area
   Lefelong la Babašweu/makgowa
4. In a Black urban area
   Lefelong la ditoropong la Babaso

Why do you prefer the other area?
Naa ke ka baka lang o rata lefelo le lengwe?

113

	01
	02
	03
	04

1. To get bigger land
   Go ba le tšhemo/naga ye kgolo
2. To get bigger grazing
   Go ba le phulo e kgolo
3. To be nearer to a big city
   Ga ba kgaufsi le metsemegolo
4. Do you want better transport, communication and
   Naa o nyaka dinolofatši tše kaone mabapi le thwalo,
   market facilities
   tlemagano le papatšo
5. Other (specify)
   Tše dingwe bolela

Have you experienced any specific problems in livestock production?
Naa o bile le boitemogelo bja mathata a itšego mabapi le tšweletšo ya tša thuo?

115

Yes Ee	No Aowa
01	02

If yes, what problem?
Ge e le ee, naa ke nathata afe?

1.	Over grazing / Phetšaphulo		117
2.	Illness of livestock / Malwetši a leruo		119
3.	Lack of water / Tlhokego ya meetse		121
4.	Other (specify) / Tše dingwe (bolela)		123

* If more than one, indicate in percentage
Ge go feta e tee, laetša ka phesente

What measures do you think are necessary to enable you to get a higher yield?
Ge o akanya, naa ke magato afe a a ka nyakegago go dira gore o be le puno e ntši?

125

1.	0.5 ha		01
2.	1 ha		02
3.	2 ha		03
4.	3 ha		04
5.	5 ha		05
6.	More than 5 ha (specify) Go feta 5 ha (bolela)		

Do you want to obtain a higher production from your land unit than at present?
Naa o kganyoga go humana puno e ntši tšhemong ya gago go feta gabjale?

127

Yes Ee	No Aowa
01	02

1 6

If yes, why?
Ge e le ee, ka baka lang?

1. To get more food
   Go humana dijo tse ntsi 7
2. To sell more
   Go rekisa go feta 9
3. Other (specify)
   Tše dingwe (bolela) 11

If not, why not?
Ge go se bjalo, ka baka lang?

13

1. Satisfied / Kgotsofetse
2. Other (specify) / Tše dingwe (bolela)

Difficulties experienced in the marketing of products
Mathata a a hlagilego papatšong ya ditšweletšwa

a) The market is too far away
   Mmaraka o kgole ka kudu km 15
b) The lack of means of transportation
   Tlhokego ya tša go rwala 17
c) Other (specify)
   Tše dingwe (bolela) 19

* If more than one, please indicate it in percentage.
Ge e feta e tee, hle a nke o laetše ka phesente.

To whom do you normally sell your crop produce?
Ka tlwaelo, naa puno ya gago o e rekišetša mang?

a) Trader / Rakgwebo 21
b) Co-operative / Koporasi 23
c) Other (specify) / Tše dingwe (bolela) 25

* If more than one please indicate it in percentage.
Ge e feta e tee, hle a nke o laetše ka phesente.

Number of years of farming experience
Palo ya nywaga ya boitemogelo bja temo

	Years Nywaga	
a) Own farm in Homeland Polaseng/tšhemong kua Dinagamagaeng		27
b) Labourer on white farm Modiredi polaseng ya Babašweu		29
c) Formal agricultural training Tlhahlilwe ka ga tša temo (sekolong)		31

* If more than one source indicate it separately.
Ge methopo e feta o tee, laetša e nngwe le e nngwe thoko.

Are the farming requisites like fertilizers and seed always readily
Naa dinyakwa tša temo bjalo ka menontšha le peu, di humanega gabonolo

available?
ka mehla?

33

Yes Ee	No Aowa
01	02

Can you get the above farming requisites on credit?
Naa o ka kgona go humana dinyakwa tša ka godimo tsa temo ka molato?

35

Yes Ee	No Aowa
01	02

If yes, from who?
Ge e le ee, go mang?

			km
a) Co-operative / Koporasi		37	
b) Neighbours / Baagišani		39	
c) Development Corporation / Koporasi ya tlhabollo		41	
d) Relatives / Malokong		43	
e) Others / Ba bangwe*		45	

* If more than one source, indicate the percentage for each and the
Ge go feta mothopo o tee, laetša ka phesente go wo mongwe le wo mongwe

distance in km.
le bokgole ka km.

Do you think there is a need for a market in your district to:
Ge o gopola, na go na le nyakego ya mmaraka seleteng sa geno go:

	Yes Ee	No Aowa	
a) Sell your produce Rekiša ditšweletšwa tša gago	01	02	47
b) Buy products (e.g. vegetables) Reka ditšweletšwa (bj.k. merogo)	01	02	49

Where do you get the seed you are planting?
Naa o humana kae peu ye o e bjalang?

	Cash Khese	Credit Molato	Gift Mpho	
a) Trader / Rakgwebo	01	02	03	51
b) Own production / Puno ya gago	01	02	03	53
c) Neighbours / Baagišani	01	02	03	55
d) Co-operative / Koporasi	01	02	03	57
e) Relatives / Melokong	01	02	03	59

* If more when one source indicate the percentages of each.
Ge e le go feta mothopo o tee, laetša ka phesente go wo mongwe le wo mongwe.

Do you make use of registered bulls? *
Naa o diriša dipoo tše di rejistarilweng/ngwadišitšweng?

61

Yes Ee	No Aowa
01	02

If yes:
Ge e le ee:

Do you get a better price for your cattle since you make use of registered bulls?
Naa o humana theko ye kaone ya dikgomo go tloga mola o thomago go diriša dipoo tše di ngwadiši tšweng?

63

Yes Ee	No Aowa
01	02

* For approved bulls see later.
Go dipoo tše di amogetšwego bona ka morago.

Do you dip your cattle regularly?
Naa o tipa dikgomo tša gago ka mehla?

65

Yes Ee	No Aowa
01	02

If yes
Ge e le ee

67

1. Every week Beke ka Beke	01
2. Every month Kgwedi ka kgwedi	02
3. Every two months Kgwedi tše dingwe le tše dingwe tše pedi	03
4. Every three months Kgwedi tše dingwe le tše dingwe tše tharo	04
5. Twice a year Gabedi ka ngwaga	05

How do you expect to obtain higher yield?
Naa o letetše puno ya godimo bjang?

69

a) By using a bigger unit Ka go diriša tšhemo e kgolo	01
b) Increasing the yield per unit Go oketša puno tšhemo ka tšhemo	02
c) a + b	03
d) Other (specify) Tše dingwe (bolela)	

Do you make use of approved bulls?
Naa o diriša dipoo tše di dumeletšwego?

71

Yes Ee	No Aowa
01	02

If yes:
Ge e le ee:

Do you get better prices for your cattle since you make use of
Naa o humana theko ye kaone mo dikgomong tša gago ka ge o diriša

approved bulls?
dipoo tše di amogetšwego?

73

Yes Ee	No Aowa
01	02

Do you think you can make a good living as a farmer?
Naa o akanya gore o ka phela gabotse ge o le molemi?

75

Yes Ee	No Aowa
01	02

How much land will you need?
Naa o ka nyaka naga e kaakang?

77 ha [ ]

How many cattle
Naa o nyaka dikgomo [ ] 81
sheep
dinku [ ] 83
goats
dipudi [ ] 85
horses
dipere [ ] 87
donkeys
ditonki [ ] 89
Others (specify) will you need
tše dingwe (bolela) [ ] 91

Do you want to make money from cattle?
Naa o nyaka go dira tšhelete ka dikgomo?

93

Yes Ee	No Aowa
01	02

Are you satisfied with the prices you can get for your products?
Naa o kgotsofatšwa ke diporeisi tše o di amogelago ditšweletšeng tša gago?

95

Yes Ee	No Aowa
01	02

Are you satisfied with the present system of agricultural
Naa o kgotsofatšwa ke lenaneo la bjale la

land allocation in Lebowa?
kabo ya temo mono Lebowa?

97

Yes Ee	No Aowa
01	02

If not, what alternative would you prefer and why?
Ge go se bjalo, na o ka kganyoga phelošа efe le gore ka baka lang?

99 101

Do you think that private enterprise together with ownership
Naa o nagana gore tšhomanoši gammogo le bongmabu bo ka tutuetša

in land will increase agricultural output?
tšweletšo ya tša temo?

103

Yes Ee	No Aowa
01	02

Why do you think is there such a difference between crop yield in hectar
Naa ke ka baka lang o gopola gore go na le phapano ya puno ka ha

in Lebowa and the white farm areas? *
magareng a Lebowa le dipolasa tša Babasweu/Makgowa?

1. Would you say it is because of lack of capital?
   Naa o ka bolela gore ke ka baka la tlhokego ya letlotlo? 105
2. Non-scientific farming methods
   Mekgwa ya temo ye e sa yego ka Saense 107
3. Uneconomical land units
   Dikgao tša mašemo a a sa tšwelele tšego 109
4. Traditional usages
   Mekgwa ya bolemi ya setšo 111
5. Other (specify)
   Tše dingwe (bolela) 113

* If more than one indicate in percentage.
  Ge e feta e tee, laetša ka phesente.

It appears from statistics that the animal husbandry compares
Go bonala mo dipalopalong gore thuo ga e lekalekane le ya dinageng

unfavourably with that of the white areas.
tša Babašweu.

In your opinion is that because:
Go ya ka monagano wa gago naa ke ke gore: *

1. Lack of capital
   Go hlokega letlotlo ☐ 115
2. Non-scientific farming methods
   Mekgwa ya temo ye e sego ya Saense ☐ 117
3. Uneconomical grazing camps
   Dikampa tša phulo tše di se nago pabalelo ☐ 119
4. Too many head of animals per capita
   Mahlape ye megolo go ya ka hlogo ya motho ☐ 121
5. Too few head of animals per capita
   Mehlape ye menyenyane go ya ka hlogo ya motho ☐ 123
6. Negative tribal usages (specify)
   Tlwaelo tša setšo tše sa nepagalago (bolela) ☐ 125

* If more than one, indicate in percentage.
Ge go feta e tee, laetša ka phesente.

What is your opinion with regard to the following:
Mogopolo wa gago ke ofe mabapi le tše di latelago:

1. The Chief and tribal authority's powers where the
   Maatla a kgoši le pušosetšhaba mabapi

   usage of land is concerned
   le tirišo ya naga ☐ 127

1 ☐☐☐☐☐☐ 6

2. Do you think that the jurisdiction of the tribal authority
   Naa o akanya gore taolo ya pušosetšhaba e swanetše

   should exclude:
   go tlogela:

1. The allocation of land
   Kabo ya temo

2. Decision when to plant
   Phetho ya gore go lengwe neng

3. Any matter concerning development (specify)
   Taba ye nngwe le ye nngwe ye e amago tšweletšopele (bolela)

	7
	9
	11

In your mind is there enough human material with scientific
Go ya ka kgopolo ya gago, na go na le batho ba ba lekanego ba ba

knowledge to place agricultural output in Lebowa on a sound
nago le tsebe ya tša saense bao ba ka beago puno ya Lebowa ya tša temo

and competitive footing?
moo e ka phegišanago le mafelo a mangwe?

13

Please motivate your answer
A nke o šitlele karabo ya gago

15

Would in your opinion another land tenure system improve productivity
Go ya ka kgopolo ya gago naa lenaneo le lengwe la kabonaga le ka

of farming?
kaonefatša puno ya temo?

17

Yes Ee	No Aowa
01	02

If yes, *
Ge e le ee,

1. Allocation of plots on a more permanent basis with regard to possession e.g. 99 year lease.
Kabo ya dipoloto gore e be ya neng le neng mabapi le bomong bjalo ka nywaga ye 99 ya khiro 19 ☐

2. Family ownership of land without the right of aletriation.
Kabelo ya bomong bja naga go malapa ka ntle ga tokelo ya kamogo. 21 ☐

3. Utilization of land exclusively by the Tribal authority.
Tirišo ya naga ke pušosetšhaba fela. 23 ☐

4. Are you in favour of land development corporation on Trust lands?
Naa o kwana le Koporasi ya tšweleletšo ya naga mo go dinaga tša Terasete? 25 ☐

5. Don't you think Tribal land should also be developed (e.g. irrigation or other agricultural projects) on a agency basis.
Naa ga o akanye gore anga ya Setšhaba le yona e swanetše go tšweletšwa pele (bjalo ka nošetšo goba tše dingwe tša merero ya temo) ka tirišo ya mekgatlo e mengwe? 27 ☐

6. Are you in favour of private ownership of arable land and communal ownership of grazing land?
Naa o kwana le gore motho a itlhokomelele temo ya gagwe gore phulo yona e be ya setšhaba ka moka? 29 ☐

7. Any other alternative tenure system.
Mokgwa wo mongwe le wo wo mongwe wa tlhatlolano ya bomong naga. 31 ☐

* Motivate your answer.
Tiišetša karabo ya gago.

Are you in favour of private land ownership exclusively
Naa o kwana le bomongnoši bja naga e le fela bja temo-thuo

for commercial farming purposes (e.g. 300ha and more).
kgwebo (bjalo ka 300ha le go feta).

33

Yes Ee	No Aowa
01	02

Do you favour collective use of arable land like for instance the
Naa o kwana le tirišommogo ya temo bjalo ka, go fa mohlala, lenaneo

Kibbutz system in Israel or the Soviet system of large scale
la "Kibbutz" kua Israel goba lenaneo la "Soviet" la punokgolo

collective and/or State production.
ya kopanelo le/goba ya mmušo.

35

Yes Ee	No Aowa
01	02

Motivate your answer
Tiiša karabo ya gago

37

Is part of the crops supposed to be given to the Chief/tribe?
Naa karolo ya puno e swanetše go newa Kgoši/Setšhaba?

Indicate the percentage
Laetša phesente

39

%

What would be your choice:
Naa o ka kgetha efe:

1. If land is leased to private farmers producing
   Ge tšhemo/temo e hirišeditšwe baleminoši ba ba
   30 bags of grain per ha.
   bunago mekotla ye 30 ya leroro ka ha. 41 [01]

2. If land is sold to a few members of the tribe
   Ge naga e rekišeditšwe ditho di seng kae tša
   producing 30 bags of grain per ha.
   setšhaba gomme di buna mekotla ye 30 ya leroro ka ha. [02]

3. If the present system continues with a crop yield
   Ge lenaneo la gona bjale le tšwela pele ka puno ya
   of 3 bags per ha.
   mekotla ye 3 ka ha. [03]

4. Other possibility
   Dikgonego tse dingwe [04]

   Motivate your answer
   Tiiša karabo ya gago

Attitudes
Meoya/Maikutlo

Statement of opinion
Polelo ya kgopolo/kakanyo

1. Doctors trained in European methods and well acquainted with African
   Dingaka tše di hlahlilwego ka mekgwa ya Sekgowa gomme di tseba mabaka

   conditions are better at curing diseases than native healers?
   a Afrika di kaone kalafong ya malwetši go phala bafodiši ba Babaso?

43

Yes Ee	No Aowa
01	02

2. I enjoy discarding the old and accepting the new.
   Ke ipshina ka go lahla tša kgale gomme ka amogela tše difsa.

45

Yes Ee	No Aowa
01	02

3. There will be much harmony in Lebowa if you leave things as they
   Go tla ba le kwano mono Lebowa ge o tlogela dilo ka tsela ye di

   are and follow old and proven ways.
   lego ka yona gomme wa latela mekgwa ya kgale yeo e kgonthišitšwego.

47

Yes Ee	No Aowa
01	02

4. Traditional authority has grown up over a long period of time so there
   Pušo ya setšo e tšweleletše lebaka le letelele bjale e swanetše go ba

   is bound to be much wisdom in it.
   le bohlale bjo bontši mo go yona.

49

Yes Ee	No Aowa
01	02

5. Becoming a success is a matter of hard work; luck has little or
   Go ba le katlego ke taba ya go šoma ka kudu, mahlatse ga dire goba

   nothing to do with this.
   ga a thuše mo tabeng ye.

51

Yes Ee	No Aowa
01	02

6. In Lebowa the average citizen can have an influence on the way
Mono Lebowa moagi yo mongwe le yo mongwe a ka ba le tutuetšo

government is run.
mabapi le ka moo mmušo o sepelago ka gona.

53

Yes Ee	No Aowa
01	02

7. It is sheer luck if your conditions improve; there is not much you
Ke mahlatse fela ge mabaka a gago a Kaonafala; ga go se sentši se

can do about success or failure.
o ka se dirago mabapi le katlego goba go palelwa.

55

Yes Ee	No Aowa
01	02

8. This world is run by the few people in power; there is not much the
Lefase le le sepedišwa ke batho ba se ba kae bao ba nago le maatla,

ordinary man can do about it.
ga go na se sentši se motho ofe kapa ofe a ka se dirago.

57

Yes Ee	No Aowa
01	02

If yes, please motivate your answer.
Ge e le ee, a nke tiišetše karabo ya gago.

59

Do you need help in practising improved methods in farming?
Naa o nyaka thušo go leka makgwa ye e kaonafaditšwego thuo-temong?*

61

Yes Ee	No Aowa
01	02

If yes, what help do you need?
Ge e le ee, naa o nyaka thušo efe?

1.	Loans Dikadimo	63
2.	Advice Keletšo	65
3.	More oxen Pholo tše ntši	67
4.	More land Naga ye kgolo	69
5.	More labour Diatla tše ntši	71
6.	Tractors and implements Diterekere le didirišwa	73
7.	To be aboe to hire tractors and implements Go kgona go hira diterekere le didirišwa	75
8.	Other (specify) Tše dingwe (bolela)	77

* If more than one, indicate in percentage.
Ge e feta e tee, laetša ka phesente.

What do you think makes a farmer rich? *
Naa, ge o gopola molemiši o humišwa ke eng?

1.	Hard work Mošomo wo boima	79
2.	Good land Naga e botse	81
3.	Much land Naga e ntši	83
4.	Medicine Dihlare	85
5.	Much labour Mošomo wo montši	87
6.	Loans Dikadimo	89
7.	Good knowledge of farming Tsebo ye botse ya temo	91
8.	Good seed Peu ye botse	93
9.	Oxen and/or equipment Dipholo le/goba didirišwa	95
10.	God Modimo	97
11.	Other (specify) Tše dingwe (bolela)	99

* If more than one, indicate it in percentage.
Ge e feta e tee, laetša ka phesente.

How is the best farmer able to do good farming?
Naa molemi yo mokaonekaone o kgona go dira bjang temo e botse?*

1.	Has knowledge of progressive methods O na le tsebe ya mekgwa ya tšwelopele	101
2.	Uses witchcraft O diriša boloi	103
3.	Physically strong O kgwahlile kudu	105
4.	Has a large family - large labour force O na le lapa le legolo - matsogo a mantši	107
5.	Started farming with sufficient capital to farm progressively O thomile go lema ka letlotlo le le lekanego gore a leme ka tšwelopele	109
6.	Strong incentive O na le tutuetšo e kgolo	111
7.	Other (specify) Tše dingwe (bolela)	113

* If more than one, indicate in percentage.
Ge e feta e tee, laetša ka phesente.

Why have you been unable to do so? *
Naa ke ka baka lang o kgonne go dira bjalo?

1.	No capital Go se na letlotlo	115
2.	Insufficient labour Bašomi ba ba sa lekanago	117
3.	No tractor Go se na trekere	119
4.	No oxen Go se na dikgomo	121
5.	Cannot afford fertilizer Go palelwa ke go reka menontšha	123
6.	Not enough land Go hloka naga ye e lekanego	125
7.	Land is poor Naga e tšhonne	127
8.	Cannot get a loan Palelwa ke go humana kadimo	7
9.	No equipment Go hlokega ga didirišwa	9
10.	Insufficient knowledge of farming Tsebo ye e sa lekanago ya temo	11
11.	Other (specify) Tše dingwe (bolela)	

* If more than one, indicate in percentage.
Ge e feta e tee, laetša ka phesente.

If you become rich through farming, what will your plans be?*
Naa ge o ka humišwa ke bolemi naa maano a gago e tla ba afe?

1.	Leave farming Tlogela bolemi	13
2.	Buy tractor or equipment Reka trekere goba ditlabele	15
3.	Move to town Suthela toropong	17
4.	Buy a car Reka mmotoro	19
5.	Build a house Aga ntlo	21
6.	Educate children Ruta bana	23
7.	Invest the money to earn interest Boloka tšhelete gore e be le dinamane	25
8.	Start additional enterprises Thoma dikgwebo tša koketšo	27
9.	Other (specify) Tše dingwe (bolela)	29

* If more than one, indicate in percentage.
Ge e feta e tee, laetša ka phesente.

What farming input or results show that a man is a good farmer? *
Naa ke ditsenyo dife goba dipoelo dife temong tše di bontšhago gore monna ke molemi yo botse?

1.	Good yield Puno ye botse	31
2.	Works hard Šoma kudu	33
3.	Much equipment Ditlabele tše ntši	35
4.	Tractor Trekere	37
5.	Oxen Dipholo	39
6.	Fertilizer Menontšha	41
7.	Good land Naga ye botse	43
8.	Much land Naga ye kgolo	45
9.	Uses hybrid seed Diriša peu ya ka pejana	47
10.	Hires labour Diriša bašomi	49
11.	Growing cash crops Bjala dienywa tša thekišo	51
12.	Good management Hlokomela gabotse	53
13.	Grows many crops Bjala dipšalo tše ntši	55
14.	Hires tractor Hira ditrekere	57
15.	Other (specify) Tše dingwe (bolela)	59

* If more than one, indicate in percentage.
Ge e feta e tee, laetša ka phesente.

How does the Lebowa Department of Agriculture's advice help you?*
Naa keletšo ya Kgoro ya Temo ya Lebowa e go thuša bjang?

1.	Improves methods E kaonafatša mekgwa	61
2.	Improves profits E kaonafatša dipoelo	63
3.	Learn how to get a loan E go ruta go humana kadimo	65
4.	Does not Ga e thuše	67
5.	Other (specify) Tše dingwe (bolela)	69

* If more than one, indicate in percentage.
Ge e feta e tee, laetša ka phesente.

Do you think that training or advice can help you? *
Naa o gopola gore tlhahlo goba keletšo e ka go thuša?

71

Yes Ee	No Aowa
01	02

If yes, on what subjects do you need training or advice? *
Ge e le ee, naa ke dithutong dife tše o nyakang tlhahlo goba keletso?

1.	Cultivation Tribollo mobu	73
2.	Cattle Dikgomo	75
3.	Fertilizers Menontsha	77
4.	Poultry Dimafofa	79
5.	Pigs/goats Dikolobe/dipudi	81
6.	Crop rotation Phetolanyo ya pšalo	83
7.	Farm management Taolo ya temo	85
8.	Tractors Ditrekere	87
9.	Accounting and record keeping Tšhupatlotlo le tshwaro ya direkoto	89
10.	Other (specify) Tše dingwe (bolela)	91

* If more than one, indicate in percentage.
Ge e feta e tee, laetša ka phesente.

How do you think you can get this training or advice?
Naa o gopola gore o ka humana bjang tlhahlo le keletšo ye?*

1.	Visit by extension officer Ketelo ya mohlankedi wa tša katološo	93
2.	Training courses Dithuto tša tlhahlo	95
3.	Schooling Tseno sekolo	97
4.	Field days Matšatši a tiro	99
5.	From other farmers Go naga tše dingwe	101
6.	Forming of farmers cooperative societies Tiro ya mekgatlo ya balemi	103
7.	Other (specify) Tše dingwe (bolela)	105

* If more than one indicate in percentage.
Ge e feta e tee, laetša ka phesente.

What is the most important reason preventing you from doing good
Naa ke lebaka lefe le bohlokwahlokwa le le go thibelang gore o dire

i.e. progressive farming?
gabotse ke gore temo ye e tšweleletšego?

107

1.	Insufficient labour Tlhokego ya bašomi	01
2.	I have no tractor Ke hloka trekere	02
3.	Insufficient capital Tlhokego ya letlotlo	03
4.	Lack of knowledge Tlhokego ya tsebo	04
5.	Marketing/transport difficulties Papatšo/mathata a thwalo	05
6.	Not given loans Go se fiwe dikadimo	06
7.	Land too small Tšhemo ke ye nyennyane	07
8.	Lack of equipment Tlhokego ya ditlabele	08
9.	No cattle/insufficient cattle Ga go dikgomo/dikgomo dinnyane	09
10.	Farming is unprofitable Temo ga e tšweleletše	10
11.	Lack of motivation Tlhokego ya tutuetšo	11
12.	Other (specify) Tše dingwe (bolela)	12

Would you like to become a real commercial farmer?
Naa o nyaka go ba molemi wa mmapatši wa nnete?

109

Yes Ee	No Aowa
01	02

If yes,
Ge e le ee,

111

1. as an individual
   ka bonoši — 01
2. as a member of a production co-operation
   o le setho sa tšweletšo ya koporasi — 02

If as an individual, why?
Ge o le noši, ka baka lang?

113

1. Like to be my own boss
   Nyaka go itaola — 01
2. If in a co-op, I would receive too much direction from others
   Ge ke le setho sa koporasi, ke tla humana taolo e ntši go ba bangwe — 02
3. Too much credit is troublesome
   Molato wo mogolo o a tshwenya — 03
4. Co-ops have failed
   Dikoporasi di paletšwe — 04
5. Other (specify)
   Tše dingwe (bolela) — 05

If as a member of a production co-operation, why?
Ge o le setho sa koporasi, ka baka lang?

115

1. Easier to work in a co-op
   Go bolelo go šomela koporasi — 01
2. Chance to be part of a big concern
   Sebaka sa go ba leloko la kgwebokgolo — 02
3. Prefer to work co-operatively
   Duma go šoma le ba bangwe — 03
4. It is our tradition to work together
   Ke setšo sa rena go šoma mmogo — 04
5. Easier to get a loan
   Go bonolo go humana kadimo — 05
6. Chance to get good housing
   Go bolelo go humana madulo a mabotse — 06
7. Would get more advice
   Tla humana keletše tše ntši — 07
8. Other (specify)
   Tše dingwe (bolela) — 08

B. QUESTIONNAIRE - CROPS

N.B. Complete a separate sheet for each crop plot/field / Ela hloko: Tlaletša serapa/tshemo ye nngwe le ye nngwe letlakala la yona.

Crop (51) / Sebjalo — Area of Field (ha) (53) / Sekgoba sa Tšhemo — Av. Yield (kg/ha) (57) / Puno ka kakaretšo — Soil Type (61) / Mohuta wa Mobu

Following; Fallow (63) (Type Specify) of / Tše latelago; Latšwa/kgathwa (Laetša mohuta) wa — (65) year(s) duration / lebaka ka nywaga

or, Crop (67) (Type Specify) grown in same field for (69) year(s) / goba, Sebjalo (Laetša mohuta) wo bjetšwego tšhemong yona yeo nywaga

if Inter-cropped, specify (71) / ge Go bjetšwe-tše dingwe magareng, bolela

Grown as; Food Crop (73) consumed over what period (75) / Bjaletšwe go ba; Puno ya dilewa e tla lewa lebakeng lefe

if Cash Crop, sold where (77) when (79) at price of (81) per unit. / ge e le Puno ya papatšo, e tlo rekišwa kae neng (month) ka kelo ya

Operation / Tiro	During week(s) of month(s) (specify) Mo bekeng goba kgweding (bolela)	Description of tools/equipment, method used Tlhalo so ya didiriŠwa/ditlabele mokgwa wo o diriŠwago: Tools/equipment DidiriŠwa/ditlabele	Method Mokgwa	Carried out by O dirwa ke: Communial work Mosomo wa kopanelo Men Banna	Communial work Women Basadi	Hired labour Modiro wa khiro Men Banna	Hired labour Women Basadi	Age Nywaga	Time taken to complete operation Nako ye e tšewago tiro: No. of people Palo ya batho	No. of days Palo ya matšatši
Preparing land up to final seed bed: Tokišo, ya temo go fihla ka seloto sa mafelelo: (83)	85	89	91	93	95	97	99	101	103	105
flat / papetla 01										
ridge / mopopotlo 02										
furrow / mokero 03										
mound / mmoto 04										
pit / molete 05										
other (specify) / tše dingwe (bolela)										
(107) soil inverted / mobu o ribolotšwego 01										
soil not inverted / mobu wo sa ribollwago 02										
trash/crop residue left on surface / mašalela a puno a a setšego fase (109) Yes Ee 01 / No Aowa 02										
Nursery beds: Diloto:	117	119	121	123	125	127	7	9	11	13
specify preparation of seedlings (111)										
bolela tokišetšo ya dimpšanyana/dimelana tša peu (113)										
(115)										
Sowing/Planting specify whether Pšalo/Pšalo bolela ge eba ke ka	33	35	37	39	41	43	45	47	49	51
transplanting / pšalollo 15										
cuttings / dithupana 17										
broadcast / kgaso 19										
row planting / go rothetša 21										
spacing in cm/katologano ka cm 23										
quantity used (kg or number) Go dirišitšwe e kaakang (kg goba palo) 27										
Mulching / Go khupetša — Type Mohuta (53) / Quantity Bokaakang (55)	57	59	61	63	65	67	69	71	73	75
Tree pruning / Go poma mehlare	79	81	83	85	87	89	91	93	95	97
Describe / Laodiša (77)										
Manuring / Nontšho — Type Mohuta (99) / Quantity Bokaakang (101)	103	105	107	109	111	113	115	117	119	121
Weeding: separate operations: Tlhagolo: mediro ye e aroganego:										
1st / Wa pele	123	125	127	7	9	11	13	15	17	19
2nd / Wa bobedi	21	23	25	27	29	31	33	35	37	39
3rd / Wa Boraro	41	43	45	47	49	51	53	55	57	59
(specify where combined with thinning, earthing up, topping) (bolela mo go kopantswego le go fokotša motlele, go tšheletša, go ripa bogodimo)										
Spraying / Fotšhetšo	73	75	77	79	81	83	85	87	89	91
number / ga kae 61										
rate/quantity / kelo 63										
fungicide / sebolaya mouta 65										
insecticide / moupakhukhu 67										
herbicide / moupopšalo 69										
nutrient / monontšha pšalo 71										
Crop protection e.g. / Tšhireletšo pšalo b.k.	99	101	103	105	107	109	111	113	115	117
vermin / dilomi 93										
birds / dinonyana 95										
other (specify) / tše dingwe (bolela) 97										
Harvesting / Puno/Kotulo: (119)	121	123	125	127	7	9	11	13	15	17
picking / go topa 01										
lifting / go kukela godimo 02										
cutting / go ripa 03										
reaping / go buna 04										
heaping/strooking / go kgobela 05										
crop uprooting / go tumola dipšalo 06										
residue disposal / phatlalatšo ya mašaledi 07										
other (specify) / tše dingwe (bolela)										
Transport: specify purpose / Thwalo: bolela morero	25	27	29	31	33	35	37	39	41	43
homestead / legae 19										
market / mmaraka 21										
distance in km / bokgole ka km 23										
Crop processing / Tšhomo ya puno:	65	67	69	71	73	75	77	79	81	83
shelling / go ebola 45										
threshing / go fola 47										
winnowing / go neetša 49										
drying / go omiša 51										
sorting/grading / go hlaola/kgetha 53										
for food / tša dijo 55										
grinding / tša tšhilo 57										
milling, where / tšhilo, kae 59										
and distance in km / le bokgole ka km 61										
Storage / Poloko:	91	93	95	97	99	101	103	105	107	109
method / mokgwa 85										
where / kae 87										
for what period (months) / sebaka se se kaakang (dikgwedi) 89										

A. QUESTIONNAIRE - CROPS

N.B. Complete a separate sheet for each crop plot/field / Ela hloko: Tlaletsa serapa/tshemo ye nngwe le ye nngwe letlakala la yona.

Crop / Sebjalo 117 | Area of Field (ha) / Sekgoba sa Tshemo 119 | Av. Yield (kg/ha) / Puno ka kakaretšo 123 | Soil Type / Mohuta wa Mobu 127

Following; Fallow / Tše latelago; Latšwa/kgathwa 7 (Type Specify) of / (Laetša mohuta) wa 9 year(s) duration / lebaka ka nywaga

or, Crop / goba, Sebjalo 11 (Type Specify) grown in same field for / (Laetša mohuta) wo bjetšwego tšhemong yona yeo 13 year(s) / nywaga

if Inter-cropped, specify / ge Go bjetšwe-tše dingwe magareng, bolela 15

Grown as; Food Crop / Bjaletšwe go ba; Puno ya dilewa 17 consumed over what period / e tla lewa lebakeng lefe 19

if Cash Crop, sold where / ge e le Puno ya papatšo, e tlo rekišwa kae 21 when / neng (month) 23 at price of / ka kelo ya 25 per unit.

Operation / Tiro	During week(s) of month(s) (specify) Mo bekeng goba kgweding (bolela)	Description of tools/equipment, method used Tlhalo so ya didirišwa/ditlabele mokgwa wo o dirišwago: Tools/equipment Didirišwa/ditlabele	Method Mokgwa	Carried out by O dirwa ke: Communial work Mosomo wa kopanelo: Men Banna	Communial work: Women Basadi	Hired labour Modiro wa khiro: Men Banna	Hired labour: Women Basadi	Age Nywaga	Time taken to complete operation Nako ye e tšewago tiro: No. of people Palo ya batho	No. of days Palo ya matšatši
Preparing land up to final seed bed: Tokišo, ya temo go fihla ka seloto sa mafelelo: 27	29	33	35	37	39	41	43	45	47	49
flat / papetla 01										
ridge / mopopotlo 02										
furrow / mokero 03										
mound / mmoto 04										
pit / molete 05										
other (specify) / tše dingwe (bolela) 51										
soil inverted / mobu o ribolotšwego 01										
soil not inverted / mobu wo sa ripollwago 02										
trash/crop residue left on surface / mašalela a puno a a setšego fase 53 Yes Ee 01 / No Aowa 02										
Nursery beds: Diloto:	61	63	65	67	69	71	73	75	77	79
specify preparation of seedlings 55										
bolela tokišetšo ya dimpšanyana/dimelana tša peu 57										
59										
Sowing/Planting specify whether Pšalo/Pšalo bolela ge eba ke ka	95	97	99	101	103	105	107	109	111	113
transplanting / pšalollo 81										
cuttings / dithupana 83										
broadcast / kgaso 85										
row planting / go rothetša 87										
spacing in cm/katologano ka cm 89										
quantity used (kg or number) Go dirišitšwe e kaakang (kg goba palo) 91										
Mulching / Go khupetša — Type / Mohuta 115; Quantity / Bokaakang 117	119	121	123	125	127	7	9	11	13	15
Tree pruning / Go poma mehlare	19	21	23	25	27	29	31	33	35	37
Describe / Laodiša 17										
Manuring / Montšho — Type / Mohuta 39; Quantity / Bokaakang 41	43	45	47	49	51	53	55	57	59	61
Weeding: separate operations: Tlhagolo: mediro ye e aroganego:										
1st / Wa pele	63	65	67	69	71	73	75	77	79	81
2nd / Wa bobedi	83	85	87	89	91	93	95	97	99	101
3rd / Wa Boraro	103	105	107	109	111	113	115	117	119	121
(specify where combined with thinning, earthing up, topping) (bolela mo go kopantswego le go fokotša motlele, go tšheletša, go ripa bogodimo)										
Spraying / Fotšhetšo	13	15	17	19	21	23	25	27	29	31
number / ga kae 123										
rate/quantity / kelo 125										
fungicide / sebolaya mouta 127										
insecticide / moupakhukhu 7										
herbicide / moupopšalo 9										
nutrient / monontšha pšalo 11										
Crop protection e.g. / Tšhireletšo pšalo b.k.	39	41	43	45	47	49	51	53	55	57
vermin / dilomi 33										
birds / dinonyana 35										
other (specify) / tše dingwe (bolela) 37										
Harvesting / Puno/Kotulo: 59	61	63	65	67	69	71	73	75	77	79
picking / go topa 01										
lifting / go kukela godimo 02										
cutting / go ripa 03										
reaping / go buna 04										
heaping/strooking / go kgobela 05										
crop uprooting / go tumola dipšalo 06										
residue disposal / phatlalatšo ya mašaledi 07										
other (specify) / tše dingwe (bolela)										
Transport: specify purpose / Thwalo: bolela morero	87	89	91	93	95	97	99	101	103	105
homestead / legae 81										
market / mmaraka 83										
distance in km / bokgole ka km 85										
Crop processing / Tšhomo ya puno:	127	7	9	11	13	15	17	19	21	23
shelling / go ebola 107										
threshing / go fola 109										
winnowing / go neetša 111										
drying / go omiša 113										
sorting/grading / go hlaola/kgetha 115										
for food / tša dijo 117										
grinding / tša tšhilo 119										
milling, where / tšhilo kae 121										
and distance in km / le bokgole ka km 123										
Storage / Poloko:	31	33	35	37	39	41	43	45	47	49
method / mokgwa 25										
where / kae 27										
for what period (months) / sebaka se se kaakang (dikgwedi) 29										

C. QUESTIONNAIRE - CROPS

N.B. Complete a separate sheet for each crop plot/field / Ela hloko: Tlaletša serapa/tshemo ye nngwe le ye nngwe letlakala la yona.

Crop 111 / Sebjalo — Area of Field (ha) 113 / Sekgoba sa Tšhemo — Av. Yield (kg/ha) 117 / Puno ka kakaretšo — Soil Type 121 / Mohuta wa Mobu

Following; Tše latelago; Fallow 123 / Latšwa/kgathwa (Type Specify) of / (Laetša mohuta) wa 125 year(s) duration / lebaka ka nywaga

or, goba, Crop 127 / Sebjalo (Type Specify) grown in same field for / (Laetša mohuta) wo bjetšwego tšhemong yona yeo 7 year(s) / nywaga

if ge Inter-cropped, specify 9 / Go bjetšwe-tše dingwe magareng, bolela

Grown as; Bjaletšwe go ba; Food Crop 11 / Puno ya dilewa — consumed over what period 13 / e tla lewa lebakeng lefe

if ge e le Cash Crop, sold where 15 / Puno ya papatšo, e tlo rekišwa kae — when 17 / neng (month) — at price of 19 / ka kelo ya — per unit.

Operation / Tiro	During week(s) of month(s) (specify) Mo bekeng goba kgweding (bolela)	Description of tools/equipment, method used Tlhalo so ya didirišwa/ditlabele mokgwa wo o dirišwago: Tools/equipment Didirišwa/ditlabele	Method Mokgwa	Carried out by O dirwa ke: Communial work Mosomo wa kopanelo: Men Banna	Communial work: Women Basadi	Hired labour Modiro wa khiro: Men Banna	Hired labour: Women Basadi	Age Nywaga	Time taken to complete operation Nako ye e tšewago tiro: No. of people Palo ya batho	No. of days Palo ya matšatši
Preparing land up to final seed bed: Tokišo, ya temo go fihla ka seloto sa mafelelo: 21	23	27	29	31	33	35	37	39	41	43
flat / papetla 01										
ridge / mopopotlo 02										
furrow / mokero 03										
mound / mmoto 04										
pit / molete 05										
other (specify) / tše dingwe (bolela) 45										
soil inverted / mobu o ribolotšwego 01										
soil not inverted / mobu wo sa ribollwago 02										
trash/crop residue left on surface / mašalela a puno a a setšego fase 47 (Yes Ee 01 / No Aowa 02)										
Nursery beds: Diloto:	55	57	59	61	63	65	67	69	71	73
specify preparation of seedlings bolela tokišetšo ya dimpšanyana/dimelana tša peu 49 / 51 / 53										

Sowing/Planting specify whether Pšalo/Pšalo bolela ge eba ke ka	89	91	93	95	97	99	101	103	105	107
transplanting / pšalollo 75										
cuttings / dithupana 77										
broadcast / kgaso 79										
row planting / go rothetša 81										
spacing in cm/katologano ka cm 83										
quantity used (kg or number) Go dirišitšwe e kaakang (kg goba palo) 85										
Mulching / Go khupetša (Type Mohuta 109 / Quantity Bokaakang 111)	113	115	117	119	121	123	125	127	7	9
Tree pruning / Go poma mehlare	13	15	17	19	21	23	25	27	29	31
Describe / Laodiša 11										
Manuring / Nontšho (Type Mohuta 33 / Quantity Bokaakang 35)	37	39	41	43	45	47	49	51	53	55
Weeding: separate operations: Tlhagolo: mediro ye e aroganego:										
1st / Wa pele	57	59	61	63	65	67	69	71	73	75
2nd / Wa bobedi	77	79	81	83	85	87	89	91	93	95
3rd / Wa Boraro	97	99	101	103	105	107	109	111	113	115
(specify where combined with thinning, earthing up, topping) (bolela mo go kopantswego le go fokotša motlele, go tšheletša, go ripa bogodimo)										
Spraying / Fotšhetšo	7	9	11	13	15	17	19	21	23	25
number / ga kae 117										
rate/quantity / kelo 119										
fungicide / sebolaya mouta 121										
insecticide / moupakhukhu 123										
herbicide / moupopšalo 125										
nutrient / monontšha pšalo 127										
Crop protection e.g. / Tšhireletšo pšalo b.k.	33	35	37	39	41	43	45	47	49	51
vermin / dilomi 27										
birds / dinonyana 29										
other (specify) / tše dingwe (bolela) 31										

Harvesting / Puno/Kotulo: 53	55	57	59	61	63	65	67	69	71	73
picking / go topa 01										
lifting / go kukela godimo 02										
cutting / go ripa 03										
reaping / go buna 04										
heaping/strooking / go kgobela 05										
crop uprooting / go tumola dipšalo 06										
residue disposal / phatlalatšo ya mašaledi 07										
other (specify) / tše dingwe (bolela)										
Transport: specify purpose / Thwalo: bolela morero	81	83	85	87	89	91	93	95	97	99
homestead / legae 75										
market / mmaraka 77										
distance in km / bokgole ka km 79										
Crop processing / Tšhomo ya puno:	121	123	125	127	7	9	11	13	15	17
shelling / go ebola 101										
threshing / go fola 103										
winnowing / go neetša 105										
drying / go omiša 107										
sorting/grading / go hlaola/kgetha 109										
for food / tša dijo 111										
grinding / tša tšhilo 113										
milling, where / tšhilo, kae 115										
and distance in km / le bokgole ka km 117										
Storage / Poloko:	25	27	29	31	33	35	37	39	41	43
method / mokgwa 19										
where / kae 21										
for what period (months) / sebaka se se kaakang (dikgwedi) 23										

D. QUESTIONNAIRE - CROPS

N.B. Complete a separate sheet for each crop plot/field / Ela hloko: Tlaletša serapa/tshemo ye nngwe le ye nngwe letlakala la yona.

Crop (45) / Sebjalo — Area of Field (ha) (47) / Sekgoba sa Tšhemo — Av. Yield (kg/ha) (51) / Puno ka kakaretšo — Soil Type (55) / Mohuta wa Mobu

Following; Fallow (57) / Tše latelago; Latšwa/kgathwa — (Type Specify) of / (Laetša mohuta) wa (59) — year(s) duration / lebaka ka nywaga

or, Crop (61) / goba, Sebjalo — (Type Specify) grown in same field for / (Laetša mohuta) wo bjetšwego tšhemong yona yeo (63) — year(s) / nywaga

if Inter-cropped, specify (65) / ge Go bjetšwe-tše dingwe magareng, bolela

Grown as; Food Crop (67) / Bjaletšwe go ba; Puno ya dilewa — consumed over what period (69) / e tla lewa lebakeng lefe

if Cash Crop, sold where (71) / ge e le Puno ya papatšo, e tlo rekišwa kae — when (73) / neng (month) — at price of (75) / ka kelo ya — per unit.

Operation / Tiro		During week(s) of month(s) (specify) Mo bekeng goba kgweding (bolela)	Description of tools/equipment, method used Tlhalo so ya didirišwa/ditlabele mokgwa wo o dirišwago: Tools/equipment Didirišwa/ditlabele	Method Mokgwa	Carried out by O dirwa ke: Communial work Mosomo wa kopanelo: Men Banna	Communial work: Women Basadi	Hired labour Modiro wa khiro: Men Banna	Hired labour: Women Basadi	Age Nywaga	Time taken to complete operation Nako ye e tšewago tiro: No. of people Palo ya batho	No. of days Palo ya matšatši
Preparing land up to final seed bed: Tokišo, ya temo go fihla ka seloto sa mafelelo:	(77)	79	83	85	87	89	91	93	95	97	99
flat / papetla	01										
ridge / mopopotlo	02										
furrow / mokero	03										
mound / mmoto	04										
pit / molete	05										
other (specify) / tše dingwe (bolela)											
soil inverted / mobu o ribolotšwego	(101) 01										
soil not inverted / mobu wo sa ribollwago	02										
trash/crop residue left on surface / mašalela a puno a a setšego fase (103) Yes Ee 01 / No Aowa 02											
Nursery beds: Diloto:		111	113	115	117	119	121	123	125	127	7
specify preparation of seedlings (105)											
bolela tokišetšo ya dimpšanyana/dimelana tša peu (107)											
(109)											
Sowing/Planting specify whether Pšalo/Pšalo bolela ge eba ke ka		23	25	27	29	31	33	35	37	39	41
transplanting / pšalollo	9										
cuttings / dithupana	11										
broadcast / kgaso	13										
row planting / go rothetša	15										
spacing in cm/katologano ka cm	17										
quantity used (kg or number) Go dirišitšwe e kaakang (kg goba palo)	21										
Mulching / Go khupetša — Type Mohuta (43) / Quantity Bokaakang (45)		47	49	51	53	55	57	59	61	63	65
Tree pruning / Go poma mehlare		69	71	73	75	77	79	81	83	85	87
Describe / Laodiša	67										
Manuring / Nontšho — Type Mohuta (89) / Quantity Bokaakang (91)		93	95	97	99	101	103	105	107	109	111
Weeding: separate operations: Tlhagolo: mediro ye e aroganego:											
1st / Wa pele		113	115	117	119	121	123	125	127	7	9
2nd / Wa bobedi		11	13	15	17	19	21	23	25	27	29
3rd / Wa Boraro		31	33	35	37	39	41	43	45	47	49
(specify where combined with thinning, earthing up, topping) (bolela mo go kopantswego le go fokotša motlele, go tšheletša, go ripa bogodimo)											
Spraying / Fotšhetšo		63	65	67	69	71	73	75	77	79	81
number / ga kae	51										
rate/quantity / kelo	53										
fungicide / sebolaya mouta	55										
insecticide / moupakhukhu	57										
herbicide / moupopšalo	59										
nutrient / monontšha pšalo	61										
Crop protection e.g. / Tšhireletšo pšalo b.k.		89	91	93	95	97	99	101	103	105	107
vermin / dilomi	83										
birds / dinonyana	85										
other (specify) / tše dingwe (bolela)	87										
Harvesting / Puno/Kotulo:	(109)	111	113	115	117	119	121	123	125	127	7
picking / go topa	01										
lifting / go kukela godimo	02										
cutting / go ripa	03										
reaping / go buna	04										
heaping/strooking / go kgobela	05										
crop uprooting / go tumola dipšalo	06										
residue disposal / phatlalatšo ya mašaledi	07										
other (specify) / tše dingwe (bolela)											
Transport: specify purpose / Thwalo: bolela morero		15	17	19	21	23	25	27	29	31	33
homestead / legae	9										
market / mmaraka	11										
distance in km / bokgole ka km	13										
Crop processing / Tšhomo ya puno:		53	55	57	59	61	63	65	67	69	71
shelling / go ebola	35										
threshing / go fola	37										
winnowing / go neetša	39										
drying / go omiša	41										
sorting/grading / go hlaola/kgetha	43										
for food / tša dijo	45										
grinding / tša tšhilo	47										
milling, where / tšhilo, kae	49										
and distance in km / le bokgole ka km	51										
Storage / Poloko:		79	81	83	85	87	89	91	93	95	97
method / mokgwa	73										
where / kae	75										
for what period (months) / sebaka se se kaakang (dikgwedi)	77										

E. QUESTIONNAIRE - CROPS

N.B. Complete a separate sheet for each crop plot/field / Ela hloko: Tlaletša serapa/tshemo ye nngwe le ye nngwe letlakala la yona.

Crop 99 / Sebjalo — Area of Field (ha) 101 / Sekgoba sa Tšhemo — Av. Yield (kg/ha) 105 / Puno ka kakaretšo — Soil Type 109 / Mohuta wa Mobu

Following; Fallow 111 (Type Specify) of 113 year(s) duration
Tše latelago; Latšwa/kgathwa (Laetša mohuta) wa lebaka ka nywaga

or, Crop 115 (Type Specify) grown in same field for 117 year(s)
goba, Sebjalo (Laetša mohuta) wo bjetšwego tšhemong yona yeo nywaga

if Inter-cropped, specify 119
ge Go bjetšwe-tše dingwe magareng, bolela

Grown as; Food Crop 121 consumed over what period 123
Bjaletšwe go ba; Puno ya dilewa e tla lewa lebakeng lefe

if Cash Crop, sold where 125 when 127 at price of 7 per unit.
ge e le Puno ya papatšo, e tlo rekišwa kae neng (month) ka kelo ya

Operation / Tiro	During week(s) of month(s) (specify) Mo bekeng goba kgweding (bolela)	Description of tools/equipment, method used Tlhalo so ya didirišwa/ditlabele mokgwa wo o dirišwago: Tools/equipment Didirišwa/ditlabele	Method Mokgwa	Carried out by O dirwa ke: Communial work Moscmo wa kopanelo: Men Banna	Communial work: Women Basadi	Hired labour Modiro wa khiro: Men Banna	Hired labour: Women Basadi	Age Nywaga	Time taken to complete operation Nako ye e tšewago tiro: No. of people Palo ya batho	No. of days Palo ya matšatši
Preparing land up to final seed bed: Tokišo, ya temo go fihla ka seloto sa mafelelo: 9	11	13	15	17	19	21	23	25	27	29
flat / papetla 01										
ridge / mopopotlo 02										
furrow / mokero 03										
mound / mmoto 04										
pit / molete 05										
other (specify) / tše dingwe (bolela)										
31										
soil inverted / mobu o ribolotšwego 01										
soil not inverted / mobu wo sa ribollwago 02										
trash/crop residue left on surface / mašalela a puno a a setšego fase 33 — Yes Ee 01 / No Aowa 02										
Nursery beds: Diloto:	41	43	45	47	49	51	53	55	57	59
specify preparation of seedlings 35										
bolela tokišetšo ya dimpšanyana/dimelana tša peu 37										
39										
Sowing/Planting specify whether Pšalo/Pšalo bolela ge eba ke ka	73	75	77	79	81	83	85	87	89	91
transplanting / pšalollo 61										
cuttings / dithupana 63										
broadcast / kgaso 65										
row planting / go rothetša 67										
spacing in cm/katologano ka cm 69										
quantity used (kg or number) Go dirišitšwe e kaakang (kg goba palo) 71										
Mulching / Go khupetša — Type Mohuta 93 / Quantity Bokaakang 95	97	99	101	103	105	107	109	111	113	115
Tree pruning / Go poma mehlare	119	121	123	125	127	7	9	11	13	15
Describe / Laodiša 117										
Manuring / Nontšho — Type Mohuta 17 / Quantity Bokaakang 19	21	23	25	27	29	31	33	35	37	39
Weeding: separate operations: Tlhagolo: mediro ye e aroganego:										
1st / Wa pele	41	43	45	47	49	51	53	55	57	59
2nd / Wa bobedi	61	63	65	67	69	71	73	75	77	79
3rd / Wa Boraro	81	83	85	87	89	91	93	95	97	99
(specify where combined with thinning, earthing up, topping) (bolela mo go kopantswego le go fokotša motlele, go tšheletša, go ripa bogodimo)										
Spraying / Fotšhetšo	113	115	117	119	121	123	125	127	7	9
number / ga kae 101										
rate/quantity / kelo 103										
fungicide / sebolaya mouta 105										
insecticide / moupakhukhu 107										
herbicide / moupopšalo 109										
nutrient / monontšha pšalo 111										
Crop protection e.g. / Tšhireletšo pšalo b.k.	17	19	21	23	25	27	29	31	33	35
vermin / dilomi 11										
birds / dinonyana 13										
other (specify) / tše dingwe (bolela) 15										
Harvesting / Puno/Kotulo: 37	39	41	43	45	47	49	51	53	55	57
picking / go topa 01										
lifting / go kukela godimo 02										
cutting / go ripa 03										
reaping / go buna 04										
heaping/strooking / go kgobela 05										
crop uprooting / go tumola dipšalo 06										
residue disposal / phatlalatšo ya mašaledi 07										
other (specify) / tše dingwe (bolela)										
Transport: specify purpose / Thwalo: bolela morero	65	67	69	71	73	75	77	79	81	83
homestead / legae 59										
market / mmaraka 61										
distance in km / bokgole ka km 63										
Crop processing / Tšhomo ya puno:	103	105	107	109	111	113	115	117	119	121
shelling / go ebola 85										
threshing / go fola 87										
winnowing / go neetša 89										
drying / go omiša 91										
sorting/grading / go hlaola/kgetha 93										
for food / tša dijo 95										
grinding / tša tšhilo 97										
milling, where / tšhilo, kae 99										
and distance in km / le bokgole ka km 101										
Storage / Poloko:	7	9	11	13	15	17	19	21	23	25
method / mokgwa 123										
where / kae 125										
for what period (months) / sebaka se se kaakang (dikgwedi) 127										

F. QUESTIONNAIRE - LIVESTOCK ENTERPRISES

Number: indicate age groups of livestock/ Palo: laetša dihlopha ka matšwalo a diruiwa		Cattle/Dikgomo: Bullocks, cows, milkcows, young stock, calves Dipowana, ditshadi, tša maswi, diruiwa tše nyennyane — under 1 yr. ka tlase ga nywaga	1-2 yrs. nywaga 1-2	over 2 yrs. ka godimo ga nywaga	Total	Goats/ Dipudi, Sheep/ Dinku	Donkeys/ Dintonki, Horses/ Dipere, others/ tše dingwe specify/ bolela	Poultry/ Tša mafofa
		41	45	49	53	57	61	65
Grazing type / Mohuta wa phulo								
extensive / ye e ikadilego	67	69	71	73	75	77	79	81
rotational/seasonal / ya tlhatlamano/ya sehla	83	85	87	89	91	93	95	97
other (specify) / ye nngwe (bolela)	99	101	103	105	107	109	111	113
Area in ha Boikalo ka ha ----------		115	119	123	127	7	11	15
Where Kae ----------		17	19	21	23	25	27	29
Communal (describe) Ya bohle (laodiša) ----------		31	33	35	37	39	41	43
Housing / Meago								
type of construction / mohuta wa kago		45	47	49	51	53	55	57
where / kae ----------		59	61	63	65	67	69	71
If intensive / Ga e le ka botlalo:								
describe housing / laodiša ka ga meago ----------		73	75	77	79	81	83	85
use of litter/bedding / tirišo ya bobeelo		87	89	91	93	95	97	99
collection of fodder, / kgobokanyo ya furu		101	103	105	107	109	111	113
feeding / type, quantity in kg. phepo mohuta, bokae ka kg.		115	117	119	121	123	125	127
Water availability / Go ba gona ga meetsa								
source / mothopo:								
river / noka		7	9	11	13	15	17	19
rain / pula		21	23	25	27	29	31	33
borehole / petsi		35	37	39	41	43	45	47
other (specify) / tše dingwe (bolela) ----------		49	51	53	55	57	59	61
abundant / ka bontši		63	65	67	69	71	73	75
seasonal / ka sehla		77	79	81	83	85	87	89
where located / na a mo kae		91	93	95	97	99	101	103
distance in km / bokgole ka km		105	107	109	111	113	115	117
how often livestock watered / ga kae diruiwa tše nošwago		119	121	123	125	127	7	9
Labour / Bašomi:								
herdsmen/livestock tending / badisi/diruiwa tše dišwago:								
no. of men / palo ya banna		11	13	15	17	19	21	23
no. of women / palo ya basadi		25	27	29	31	33	35	37
no. of children / palo ya bana		39	41	43	45	47	49	51
hours of grazing/tending/day / matšatši ao go/diswago/ka ona		53	55	57	59	61	63	65
Manure / Morole:								
collected / kgobokantšwego		67	69	71	73	75	77	79
made / dirilwego		81	83	85	87	89	91	93
where / kae		95	97	99	101	103	105	107
when / neng		109	111	113	115	117	119	121
how transported / o rwalwa bjang		123	125	127	7	9	11	13
by whom / ke mang		15	17	19	21	23	25	27
Breeding / Tswadiso:								
controlled / laotšwego		29	31	33	35	37	39	41
random / sa laolwago		43	45	47	49	51	53	55
describe / laodiša ----------		57	59	61	63	65	67	69
Mortality rate / Kele ya dinkhu ---------- %		71	73	75	77	79	81	83
Main diseases / Malwetši a bohlokwa		85	87	89	91	93	95	97
		99	101	103	105	107	109	111
		113	115	117	119	121	123	125
		127	7	9	11	13	15	17
Disease prevention / Thibelo ya malwetši								
specify measures / bolela mekgwa		19	21	23	25	27	29	31
Livestock use / Tirišo ya diruiwa*								
for security / mo go tšhireletšo		33	35	37	39	41	43	45
for barter / mo go kananyo		47	49	51	53	55	57	59
for market / mo go kgwebo		61	63	65	67	69	71	73
*If more than one indicate in % Ge e feta e tee laetša ka %		75	77	79	81	83	85	87
Livestock produce / Tsweletšo ya leruo								
per year / ka ngwaga		89	91	93	95	97	99	101
Sales: total income received for sale Dithekišo: ditseno ka moka tše amogetšwego go rekišwa								
of/tša stock / diruiwa		103	105	107	109	111	113	115
meat / nama		117	119	121	123	125	127	7
hides / matlato		9	11	13	15	17	19	21
milk products / ditšweletšwa tša mafsi		23	25	27	29	31	33	35
poultry products / ditšweletšwa tša tša mafofa		37	39	41	43	45	47	49
etc. specify / b.b. bolela		51	53	55	57	59	61	63
Produce processing / Tshomo ya puno		65	67	69	71	73	75	77
describe any farm / laodiša ka ga polasa efe kapa efe		79	81	83	85	87	89	91
processing of livestock products / tšhomo ya ditšweletšwa tša diruiwa		93	95	97	99	101	103	105

APPENDIX 2

Questionnaire
Lenanepotšišo

Traditional leaders
Baetapele ba setšo

1. Name
Leina: _____

Address
Aterese: _____

Date	Interviewer	Controller
Tšatšikgwedi	Mmotšišiši	Molaki

1 6

7

2. Tribal position (e.g. Chief, headman etc.)
Maemo setšhabeng (bjalo ka Kgoši, tona bjalobjalo)

9

Ethnical grouping
Peakanyo ka merafe

11

Name of tribe
Leina la setšhaba

13

Totum of tribe
Moeno wa setšhaba

How many people are under your jurisdiction?
Naa ke batho ba bakae ba ba lego ka tlase ga pušo ya gago?

Men:
Banna:

a. Old age pensioners
Baamogedi ba penshene ya batšofadi 15

b. Married
Nyetše 19

c. Single
Se a nyalwa 23

d. Children up to 16 years of age
Bana go fihla ka ba nywaga ye 16 27

Women:
Basadi:

a.	Old age pensioners Baamogedi ba phenšene ya batšofadi	31
b.	Married Nyetšwe	35
c.	Single Ga se a nyalwa	39
d.	Children up to 16 years of age Bana go fihla ka nywaga ye 16	43

Constitutional position
Maemo ka theo

Is your tribe officially recognized by the Lebowa government?
Naa Setšhaba sa gago se amogetšwe semmušo ke mmušo wa Lebowa?

47

Yes Ee	No Aowa
01	02

If yes,
Ge e le ee,

Are you represented in the Lebowa Assembly?
Naa o na le baemedi palamenteng ya Lebowa?

49

Yes Ee	No Aowa
01	02

How many headmen do you have under your jurisdiction?
Naa o na le ditona tše kae taolong ya gago? 51

Do you have civil and criminal jurisdiction?
Naa o neilwe taolo ya segae le ya madi?

53

Yes Ee	No Aowa
01	02

How many lands have been allocated for crops?
Naa ke mašemo a makae a a abetšwego dibjalo? 55

Are they all the same size?
Naa a a lekana ka moka?

59

Yes Ee	No Aowa
01	02

If yes, extent in ha.
Ge e le ee, tekanyo ka ha.

61

Have the farms under your jurisdiction been planned?
Naa dipolasa tše di leng ka tlase ga taolo ya gago di beakantšwe?

65

Yes Ee	No Aowa
01	02

On what basis is the land allocation being done?
Naa kabo ya dipolasa e dirilwe ka theo efe?

67

1. Application by a tribesman to the chief? 01
   Kgopelo ya leloko la Setšhaba go Kgoši?
2. Inheritance 02
   Bohwa
3. Other forms of aquisition (specify)
   Dipolasa tše dingwe tše amogetšwego (bolela)

On what basis is a land allocated?*
Naa naga e abilwe ka theo efe?

1. Because the applicant is a member of the tribe 69
   Ka gobane mokgopedi ke leloko la Setšhaba
2. Because he is a good farmer 71
   Ka gobane ke molemi yo botse
3. Because farming is his only means of income 73
   Ka gobane temo ke tsela e tee fela ya go amogela ditseno
4. Because he is traditionally entitled to land 75
   Ka gobane ka setšo o swanetše go abelwa tšhemo
5. Other (specify) 77
   Tše dingwe (bolela)

* If more than one, indicate the importance in percentage.
  Ge e le go feta e tee, laetša mohola ka phesente.

Are you in favour of allocation of land in the traditional manner?
Naa o rata kabelo ya mašemo go ya ka setšo?

79

Yes Ee	No Aowa
01	02

Don't you think that it will be agriculturally more profitable if
Naa ga o gopole gore go ya ka tša temo o tla boelwa kudu ge o neilwe

bigger lands are to be allocated for commercial farmers only?
mašemo a magolo mo dinageng tša dikgwebo fela?

81

Yes Ee	No Aowa
01	02

Are you in favour of new developments in the agricultural field?
Naa o rata dikaonafatšo tše difsa mo mašemong?

83

Yes Ee	No Aowa
01	02

Are you in favour of controlling the amount of animals to improve
Naa o rata go lada palo ya diruiwa go kaonafatša

the grazing field?
mafulo/phulo?

85

Yes Ee	No Aowa
01	02

Do you propagate the use of fertilizers?
Naa o duduetša tirišo ya menontšha?

87

Yes Ee	No Aowa
01	02

Do you propagate thorough ploughing of lands (e.g. contour or
Naa o gaša ka go lema mašemo (bjalo ka thapalalo goba mabapi

with regard to depth)?
le botebo)?

89

Yes Ee	No Aowa
01	02

91

1.	Contour Thapalalo	01
2.	Depth Botebo	02
3.	By tractor Ka trekere	03
4.	By cattle Ka dikgomo	04
5.	Other (specify) Tše dingwe (bolela)	

Are you satisfied with marketing arrangements for crops and animals?
Naa o kgotsofatšwa ke thulaganyo ya kgwebišo ya dibjalo le dikgomo?

93

Yes Ee	No Aowa
01	02

If no, what improvements do you desire?
Ge e le aowa, naa o nyaka dikaonafatšo dife?

95

Does your tribe in any way make use of mechanized harvesting?
Naa Setšhaba sa geno ka tsela efe kapa efe se ke se diriše puno ka metshene?

97

Yes Ee	No Aowa
01	02

Do you propagate the use of new seed varieties and new crops?
Naa o duduetša tirišo ya mehuta ya dipeu tse difsa le dibjalo tše difsa?

99

Yes Ee	No Aowa
01	02

Who decides when planting should be done?
Naa ke mang yo a beago gore pšalo e be neng?

101

1. Chief
   Kgoši — 01
2. Chief and Kgoro
   Kgoši le kgoro — 02
3. Individual "landowners"
   Bengnoši — 03
4. Agricultural overseer
   Molemiši — 04
5. Other (specify)
   Ba bangwe (bolela)

Do you think this is correct?
Naa o nagana gore se se lokile?

103

Yes Ee	No Aowa
01	02

Motivate your answer.
Šitlela karabo ya gago.

105

If agricultural output will be increased when land is worked by a
Ge puno e ka oketšwa ge mašemo a šongwa ke bengnaga ba ba nago le

few landowners with agricultural knowledge
tsebo ya temo

1. will you be satisfied
o ka kgotsofala

107

Yes Ee	No Aowa
01	02

2. will it have the approval of the tribe?
e ke ba le tumelelo ya setšhaba

109

Yes Ee	No Aowa
01	02

Do you think that a small plot of land is an economic viable
Naa o gopola gore karolwana ya naga e ka ba kakanyo ye e

proposition? (that is enough to make a good living)
nepagetšego? (e lekane go dira phelo bjo botse)

111

Yes Ee	No Aowa
01	02

Motivate your answer.
Šitlela karabo ya gago.

113

Would in your opinion another land tenure system improve productivity
Go ya ka kgopolo ya gago naa mohuta wo mongwe wa bongnaga o ka

of farming?
kaonafatsa tšweletšo ya temo?

115

Yes Ee	No Aowa
01	02

If yes, which one do you favour *
Ge e le ee, ke efe ye o e ratago

1. allocation of plots on a more permanent basis
   Kabo ya dipoloto/dirapa ka peakanyo ya neng
   with regard to possession e.g. 99 years lease
   le neng bjalo ka nywaga ye 99 ya khiro — 117 ☐

2. family ownership of land without the right
   bongnaga e be bja lapa ka ntle ga tokelo
   of aleriation
   ya kamogo — 119 ☐

3. family ownership of land with the right of
   bongnaga bja lapa ka tokelo ya
   aleriation
   kamogo — 121 ☐

4. utilization of land exclusively by the
   tirišo ya naga ke Pušosetšhaba
   Tribal authority
   fela — 123 ☐

5. land development by the Lebowa Development
   tšwetšopele ya naga ke Koporasi ya Lebowa ya
   Corporation on Trust Lands
   tšwetšopele ya dinaga tša Terasete — 125 ☐

6. Development of Tribal Lands (e.g. irrigation
   Kaonafatšo ya dinaga tša Setšhaba (bjalo ka
   or other agricultural projects) on a agency
   nošetšo goba merero ye mengwe ya temo) ka tsela
   basis
   ya tirišo — 127 ☐

7. Private ownership of arable land and communal
Bongnoši bja mašemo a temo le bomong bja
ownership of grazing fields
setšhaba bja phulo

7 ☐

8. State ownership of all agricultural lands
Bolela bomong bja temo yohle

9 ☐

9. Co-operative ownership of all agricultural lands
Bomong bja temo yohle ka koporasi

11 ☐

10. Any other alternative tenure system
Bomong bofe kapa bofe bja tlhahlolano

13 ☐

* If more than one, indicate your preference in percentage.
Ge e feta e tee, laetša kganyogo ya gago ka phesente.

Motivate your answer.
Tiiša karabo ya gago.

Would in your opinion another land tenure system improve the
Go ya ka kgopolo ya gago naa mohuta wo mongwe wa bongnaga o ka
satisfaction of the farmers?
kaonafatša kgotsofatšo ya balemi?

15

Yes Ee	No Aowa
01	02

Are you in favour of private land ownership exclusively for
Naa o rata bomongnoši bja naga go balemela kgwebišo fela
commercial farmers (e.g. 300 ha. and more)
(bjalo ka 300 ha le go feta)

17

Yes Ee	No Aowa
01	02

Do you favour the allocation of land as is done in your tribe
Naa o kwana le kabo ya naga bjalo ka ge e dirwa bjale setšhabeng
at present?
sa geno?

19

Yes Ee	No Aowa
01	02

Motivate your answer.
Sitlela karabo ya gago.

21 ☐

Do you favour collective use of arable land like for instance
Naa o kwana le tirišommogo ya temo go swana le, go fa mohlala,

the Kibbutz system in Israel or the Soviet system of large scale
lenaneo le "Kibbutz" la Israel goba lenaneo la "Soviet" la

collective and/or state agricultural production?
punokgolo ya kopanelo le/goba ya mmušo?

23

Yes Ee	No Aowa
01	02

Motivate your answer.
Šitlela karabo ya gago.

25 ☐

Do you think that the annual crops provide in the need of the farmers?
Naa o gopola gore dipšalo tša ngwaga ka ngwaga di phetha dikganyogo tša balemi?

27

Yes Ee	No Aowa
01	02

Is part of the crops supposed to be given to the chief/tribe?
Naa karolo ye nngwe ya dipsalo e gopolelwa go newa kgoši/setšhaba?

29

Yes Ee	No Aowa
01	02

If yes, indicate the percentages.
Ge e le ee, laetša ka phesente.

31 %

What in your opinion constitutes the fact that agricultural output
Go ya ka monagano wa gago, naa ke eng seo se dirago kgopolo ya

in the Black areas is lower than in the rest of the R.S.A. *
gore tšweletšo ya temo mo dinageng tša Bathobaso e ka tlase ga yeo ya dinaga tše dingwe tša R.S.A.

1. Lack of know how
   Tlhokego ya botsebi/tsebo — 33
2. Lack of capital
   Tlhokego ya letlotlo — 35
3. Exaggerated sub-division of land
   Kabo ya naga ye e sa lokago — 37
4. Lack of private initiative because of present structure of land allocation
   Tlhokego ya tutuetšonoši ka baka la mokgwa wa bjale wa kabo ya naga — 39
5. Tribal customs like using seed over and over again, wrong ploughing methods, no use of fertilizers etc.
   Mekgwa ya setšo e rata go diriša peu gape le gape, mekgwa ye e phošagetsego ya temo, go se diriše menontšha bjalobjalo — 41
6. Other (specify)
   Tše dingwe (bolela) — 43

* If more than one, indicate in percentage.
  Ge e feta e tee, laetša ka phesente.

What would be your choice:

45

1. If land is leased to private farmers producing 30 bags
   Ge tšhemo e ka hirišetšwa baleminoši ba ba bunago

   of grain per hectar
   mekotla ye 30 ya leroro ka hektare — 01

2. If land is sold to a few members of the tribe
   Ge tšhemo e ka rekišetšwa batho ba se ba kae ba

   producing 30 bags of grain per hectar
   ba setšhaba gomme ba buna mekotla e 30 ya leroro
   mo hektareng — 02

3. If the present system continues with a crop yield of
   Ge lenaneo la bjale le tšwela pele ka puno ya mekotla

   3 bags per hectar
   ye meraro ka hektare — 03

4. Other possibility
   Kgonego ye nngwe

Motivate your answer.
Tiiša karabo ya gago.

What factors in your opinion can be ascribed as substantial for
Naa ke mabaka afe, go ya ka kgopolo ya gago, a ka tšewago gore

the low agricultural output in your area?
ke a bohlokwa mo go puno ye e fokolago ya tikologo ya geno?

1. _____ 47

2. _____ 49

3. _____ 51

4. _____ 53

5. _____ 55

6. _____ 57

7. _____ 59

APPENDIX 3

Questionnaire
Lenaneopatšišo

Non-traditional leaders
Baetapele ba e sego ba setšo

Date Tšatšikgwedi	Interviewer Mmotšišiši	Controller Molaki

1. Name
   Leina: _____

2. Address
   Aterese: _____

3. Occupation
   Mošomo: _____ 7 [ ]

4. Tribal connection
   Tswalanyo le setšhaba: _____ 9 [ ]

5. Ethnical grouping
   Peakanyo ka merafe

		11
1.	Northern Sotho Mopedi	01
2.	Ndebele Letebele	02
3.	Swazi Leswatse	03
4.	Other (specify) Ba bangwe (bolela)	

Have you any relation domiciled in Lebowa?
Naa o na le leloko leo le dulago Lebowa?

13	
Yes Ee	No Aowa
01	02

Are you yourself domiciled in Lebowa?
Naa wena ka noši o dula Lebowa?

15	
Yes Ee	No Aowa
01	02

What connections do you have with Lebowa?
Naa o na le ditlemaganyo dife le Lebowa?

17 ☐

Are you satisfied with the present system of agricultural land
Naa o kgotsofatšwa ke thulaganyo ya bjale malebana le kabo ya

allocation in Lebowa?
tema mono Lebowa?

19

Yes Ee	No Aowa
01	02

If not, what alternative do you prefer and why?
Ge go se bjalo, naa o nyaka tlhatlolano efe, ka baka lang?

☐ 21

☐ 23

Would you prefer individuals to possess farms in Lebowa for
Naa o ka rata ge bangwe ba eba le mašemo (a temo) mono

agricultural purposes?
Lebowa?

25

Yes Ee	No Aowa
01	02

Motivate your answer.
Tiiša karabo ya gago.

27 ☐

Do you think that private enterprise together with ownership in
Naa o bona eka tšhomonoši gammogo le bongnaga di tla oketša

Land will increase agricultural output?
puno?

29

Yes Ee	No Aowa
01	02

Motivate your answer.
Tiiša karabo ya gago.

31 ☐

Why do you think is there such a difference between crop yields in
Naa ke ka baka lang o akanya gore go na le phapano e kaalo magareng

hectar in Lebowa and the white farming areas nearby? *
a puno ya Lebowa ka hektare le ya ditikologo tša temo tša makgowa
tša kgauswi?

1. Lack of capital
   Tlhokego ya letlotlo ☐ 33
2. Non-scientific farming methods
   Mekgwa ya go lema ye e sa yego ka saense ☐ 35
3. Traditional usages
   Mekgwa ya setšo ☐ 37
4. Other (specify)
   Tše dingwe (bolela) ☐ 39

* If more than one, indicate in percentage.
  Ge e feta e tee, laetsa ka phesente.

It appears from statistics that the animal husbandry compares
Go ya ka dipalopalo go bonala e ka borui ga bo lekalekane le

unfavourably with that of the white areas.
bja ditikologo tša Makgowa.

In your opinion is that because:
Naa, ka kgopolo ya gago, ke ka baka la go re: *

1. lack of capital
   go hlokega letlotlo ____ 41
2. non-scientific farming methods
   go dirišwa mekgwa ye e sa yego ka saense ____ 43
3. uneconomical grazing camps
   dikampa tša phulo tšeo di se nago tšwetšopele ____ 45
4. too much head of animals per capita
   mehlape ye megolo ya diruiwa ka hlogo ____ 47
5. too little head of animals per capita
   dikgomo tše nyennyane ka hlogo ____ 49
6. over grazing
   phetšophulo ____ 51
7. negative tribal usages (specify)
   ditlwaelo tše di sa lokago tša setšhabe (bolela) ____ 53
8. other (specify)
   tše dingwe (bolela) ____ 55

* If more than one, indicate in percentage.
  Ge e feta e tee, laetša ka phesente.

What is your opinion with regard to the following:
Naa mogopolo wa gago mabapi le tše latelago ke ofe:

1. The chief and triabl authorities' powers where the usage of
   Maatla a kgoši le pušosetšhaba moo tirišo ya naga

   land is concerned
   e angwago ____ 57

2. Do you think that the jurisdiction of the tribal authority
Naa o gopola gore taolo ya pušosetšhaba

should exclude:
e tlogele:

		Yes Ee	No Aowa	
(i)	the allocation of land kabo ya temo	01	02	59
(ii)	decision when to plant Phetho gore go bjalwe neng	01	02	61
(iii)	any matter concerning development of agricultural increment taba ye nngwe le ye nngwe mabapi le tšwetšopele ya temo	01	02	63

In your mind is there enough human material with scientifif knowledge
Go ya ka kgopolo ya gago, naa go na le batho ba ba lekanego ba tsebo

to place agricultural output in Lebowa on a sound footing?
ya bosaense go bea puno ya Lebowa mo maemong a a lokilego?

65

Yes Ee	No Aowa
01	02

Motivate your answer.
Tiiša karabo ya gago.

67 ☐

APPENDIX 4 : LIST OF CROPS GROWN IN LEBOWA

Maize
Babala
Amadumbi
Jugobeans
Cowpeas
Groundnuts
Bananas
Pawpaws
Guavas
Tomatos
Cabbages
Onions
Sweet potatos
Pumpkins
Potatos
Avocado
Sugar cane
Salad
Chillies
Sugarbeans
Mango
Kaffirbeans
Beetroot
Sorghum
Peaches
Spinach
Manna
China Peas
Wheat
Carrots
Water melons
Sunflower
Rice
Tobacco
Cucumber
Drybeans
Oranges
Grapes
White harricot
Millet
Mosehla (herb)
Greenbeans
Gazabaroot
Pineapple
Figs
Grenadella
Leachies
Soyabeans
Pears
Cotton
Lucern

APPENDIX 4 : LIST OF CROPS GROWN IN LEBOWA

Maize
Babala
Amadumbi
Jugobeans
Cowpeas
Groundnuts
Bananas
Pawpaws
Guavas
Tomatos
Cabbages
Onions
Sweet potatos
Pumpkins
Potatos
Avocado
Sugar cane
Salad
Chillies
Sugarbeans
Mango
Kaffirbeans
Beetroot
Sorghum
Peaches
Spinach
Manna
China Peas
Wheat
Carrots
Water melons
Sunflower
Rice
Tobacco
Cucumber
Drybeans
Oranges
Grapes
White harricot
Millet
Mosehla (herb)
Greenbeans
Gazabaroot
Pineapple
Figs
Grenadella
Leachies
Soyabeans
Pears
Cotton
Lucern