EVALUATION OF LAND REFORM PROJECTS IN THE SOUTH-EASTERN FREE STATE

by

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DECLARATION

I, **HOSEA ERNEST GAETSEWE**, do hereby declare that this research project submitted for the degree **Master of Technology: Agriculture** is my own independent work that has not been submitted before to any institution by me or anyone else as part of any qualification.

.....

Signature of Student

15 FEBRUARY 2002.

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Abstract

The situation before the 1994 democratic general elections was that White commercial farmers, companies and government owned 87% of the land, while Black farmers who are in the majority, owned 13% of the land in South Africa.

After the elections, land reform gained a central place in the RDP, which envisioned the transfer of 30% of the land to the emerging farmers within 5 years, enabling them to participate in the economic mainstream of the country, and upgrade their living standards, enhance socio-economic upliftment and secure their tenure rights.

The objective of the research is to assess the following factors in relation to land reform: organisational framework, management structure, financial resources and usage, contribution of women in the projects, forms of legal entities, sources of conflict, government support, land potential and its usage, communication, and socio-economic benefits. The problem in land reform seems to be that production, socio-economic circumstances and resource management of the farms declined after the transfer of the land to the beneficiaries.

The study reveals that the failure of land reform in the South Eastern Free State is due to the fact that the natural resources on each of the projects, except Matsididi, are totally inadequate. Additional problems are: lack of common property management, lack of institutional support, lack of managerial skill and knowledge, lack of technical support, lack of financial support, neglect of institutional dimension, over-centralisation and rigidity, and lack of gender participation. The study also confirms the need for a new constructive process so as to allow groups as well as individuals to participate in the development process and also have greater control over their own destiny. It is obvious from the study that the process of review and restructuring of land reform will not be achieved without problems. To ensure a smooth process, not only will the participation of all parties involved be necessary, but substantial inputs from the Department of Land Affairs and Agriculture and other relevant government departments will also be required.

An integrated development approach in land reform will be needed, based on efficient land evaluation and on well-structured, controlled and strategic land reform programmes whereby social, economic and institutional capacity building are incorporated into a holistic development process.

Keywords: Land reform, rural development.

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EXECUTIVE SUMMARY

The study area of land reform projects is located in the South Eastern Free State. As a result of historical and political process, land distribution is characterized by unequal and distorted social, economic and land–use development.

The purpose of this study is to investigate land distribution and its socio-economic impact on the beneficiaries. Based on the findings of the study, options to improve the allocation, management and legal practices must be found. There is lack of beneficiary participation in management of the property, and the constitutions of the projects are not followed accordingly. Independent specialists who will guide the government intervention should further investigate the above-mentioned factors.

The primary research objective was to determine the factors that contributed to the failure of land reform projects in the South-eastern Free State. The land redistribution was initiated after the democratic election of April 1994. The government embarked on programmes to distribute 30% of agricultural land within five years. The aim of distribution was to create opportunities for small-scale farmers and emerging farmers to participate in the greater economy of the region.

The study was conducted on seven land reform redistribution projects in the South-eastern Free State where 137 households are beneficiaries.

The study revealed that the production, socio-economic circumstances and resource management of the farms declined after the transfer of the land to the beneficiaries. The failure of the projects is mainly due to inefficient assessment of natural resources. Additional factors are: lack of common property management, lack of institutional support, lack of managerial skills and knowledge on the part of the beneficiaries, lack of technical support, neglect of the institutional dimension, over-centralisation and rigidity, and lack of participation of women in management of the project.

The study revealed that more than 37% of beneficiaries do not have proper housing and still live under undesirable conditions. More than 41% of respondents are older than 51 years of age. Many of the beneficiaries (52%) still earn wages of less than R500 per

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month. A large proportion of re[illegible] say they do not have security of tenure and control over the land.

All beneficiaries say they are aware of the land reform programmes and that they participated in the establishment of the project, but they do not see any benefits. The majority of respondents say they do not understand the contents of the constitution and that it is not used in circumstances such as the resignation or death of people, or in project management.

A large number (74%) of the beneficiaries say they do not get assistance in terms of training and extension services, although 56% would like to be trained in project management.

Of the 27 respondents, more than 48% are aware of the conflict in the projects and all of them say that the conflict has not been resolved and that they do not know where to turn to for assistance. More that 40% say that the conflict is caused by decisions being taken by the leadership of the project without other beneficiaries being consulted.

A smaller portion of respondents (89%) feel that women had expectations that were not being realised, while 93% are of the opinion that women do not have any role at all to play in the project.

The land potential and its carrying capacity were not properly assessed when to project was launched. The findings reveal that 99% of the projects studied are not sustainable and cannot support and improve the lives of the participants and their families or contribute to the greater economy of the region.

The study has shown that the beneficiaries of land reform are willing to participate in the redistribution and land development process. If the situation is allowed to continue, it will aggravate the already poor living conditions of the beneficiaries.

The results from the study areas confirm the need for a new constructive process so as to allow both the people and individuals to participate in the process, and also to have greater control over their own destiny.

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It is obvious that from the study that the process of review and restructuring will not be achieved without problems. To ensure a smooth process, not only will participation of all partners involved be necessary, but also substantial assistance from Department of Land Affairs and relevant government departments will be required.

An integrated approach in land reform will be needed, based on efficient land evaluation and on well-structured and controlled and strategic land reform programmes whereby social, economic and institutional capacity building are incorporated into a holistic development process.

The above summary gives an indication of critical factors that have been the major contribution to the failure of land reform projects in the South-eastern Free State.

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BESTUURSOPSOMMING

Die ondersoekgebied van die grondhervormingsprojekte is geleë in die Suidoos-Vrystaat. As gevolg van historiese en politieke prosesse word grondverdeling gekenmerk aan ongelyke en verwronge sosiale en ekonomiese ontwikkeling van grondbenutting.

Die doelwit met hierdie ondersoek is om grondverdeling en die sosio-ekonomiese impak op die begunstigdes daarvan te ondersoek. Gebaseer op die bevindinge van die ondersoek moet keuses vir die verbetering van toewysing, bestuur en regspraktyke gevind word. Daar bestaan 'n gebrek aan deelname deur die begunstigdes aan die bestuur van die eiendom en die basiese beginsels van die projekte word nie nagevolg nie. Onafhanklike spesialiste wat die regering se tussenbeidetreding sal lei moet die bogenoemde faktore verder ondersoek.

Die primêre navorsingsoogmerk behels om vas te stel watter faktore bygedra het tot die mislukking van grondhervormingsprojekte in die Suidoos-Vrystaat. Grondherverdeling is ingestel na die demokratiese verkiesing van April 1994. Die regering het onderneem om programme daar te stel om 30% van die landbougrond binne 5 jaar te herverdeel. Die doelwit met die herverdeling was om moontlikhede vir kleinboere en opkomende boere te skep om aan die ekonomie van die streek deel te neem.

Die ondersoek is gedoen by sewe grondhervorming- en herverdelingsprojekte in die Suidoos-Vrystaat waarvan 137 huishoudings die begunstigdes is.

Die ondersoek het aan lig gebring dat die produksie, sosio-ekonomiese omstandighede en hulpbronbestuur van die plase afgeneem het na die oordrag van die grond na die begunstigdes. Die mislukking van die projekte kan hoofsaaklik aan ondoeltreffende evaluering van die natuurlike hulpbronne toegeskryf word. Ander faktore is: 'n gebrek aan algemene eiendomsbestuur, 'n gebrek aan institusionele ondersteuning, 'n gebrek aan bestuursvaardighede en kennis aan die kant van die begunstigdes en 'n gebrek aan tegniese ondersteuning, nalating van die institusionele dimensie, oorsentralisering en onbuigsaamheid en 'n gebrek aan deelname deur vroue aan die bestuur van die projek.

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Die ondersoek het aan die lig gebring dat 37% van die begunstigdes nie geskikte behuising het nie en steeds onder ongewenste toestande woon. Meer as 41% van die respondente is ouer as 51 jaar. Baie van die begunstigdes (52%) verdien steeds minder as R500 per maand. 'n Groot gedeelte van die respondente (74%) sê dat hulle geen eiendomsreg en kontrole oor die eiendom het nie.

Al die begunstigdes sê dat hulle bewus is van die grondhervormingsprogramme en dat hulle deelgeneem het aan die daarstel van die projek, maar dat hulle nog geen voordeel opmerk nie. Die meerderheid van die respondente sê dat hulle nie die inhoud van die grondwet verstaan nie en dat dit nie aangewend word by die bedanking of sterfte van persone, of by projekbestuur nie.

'n Groot aantal van die begunstigdes (74%) sê dat hulle geen hulp ontvang in die vorm van opleiding en uitbreiding van dienste nie, terwyl 56% graag opleiding in projekbestuur wil ontvang.

Meer as 48% van die 27 respondente is bewus van die konflik in die projekte en alhoewel almal voel dat die konflik nie opgelos word nie, weet hulle nie waar om hulp te kry nie. Meer as 40% sê dat die konflik veroorsaak word deur besluite wat deur die leiers van die projek geneem word, sonder om met die begunstigdes te konsulteer.

'n Kleiner aantal van die respondente (89%) voel dat vroue verwagtinge gehad het wat nie gerealiseer het nie, terwyl 93% voel dat vroue geen rol het om in die projek te speel nie.

Die grondpotensiaal en die drakrag van die grond is nie behoorlik geassesseer ten aanvang van die projek nie. Die bevindinge het aan die lig gebring dat 99% van die projekte wat ondersoek word nie lewensvatbaar is nie en glad nie die bestaan van die deelnemers en hul gesinne ondersteun en verbeter of tot die ekonomie van die streek bydra nie.

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Die ondersoek het aangetoon dat die begunstigdes gewillig is om deel te neem aan die herverdeling en grondontwikkelingsproses. Indien die toestand toegelaat word om voort te gaan, sal dit die reeds swak lewensomstandighede van die begunstigdes vererger.

Die uitslag van die ondersoek bevestig die behoefte aan 'n nuwe opbouende proses om beide begunstigdes en ander individue toe te laat om aan die proses deel te neem en groter kontrole oor hul eie lot uit te oefen.

Dit spreek vanself uit die ondersoek dat die doelwit met hersiening en herstrukturering nie sonder probleme bereik sal word nie. Om 'n vloeiende proses te verseker sal nie slegs die deelname van alle deelnemers nodig wees nie, maar genoegsame ondersteuning deur die Departement van Grondsake en ander toepaslike regeringsdepartemente word ook benodig.

'n Integrale benadering tot grondhervorming word benodig, gebaseer op doeltreffende evaluering van die natuurlike hulpbrone, 'n goedgestruktureerde en gekontroleerde strategiese program van grondhervorming waar ekonomiese produksie vermoeë asook sosiale en institusionele kapasiteitversterking ingesluit word in 'n holistiese ontwikkelingsproses.

Bogenoemde opsomming bied 'n aanduiding van die kritiese faktore wat die hoofoorsaak vir die mislukking van die grondhervormingsprojekte in die Suidoos-Vrystaat is.

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INTRODUCTION

1.1 BACKGROUND

Following the democratic election of April 1994, land reform took a central position in the Reconstruction and Development Programme (RDP) of the new Government of National Unity. The aim of the RDP was to redistribute 30% of the land traditionally owned by white people and the government, back to the African people of the country within five years of democratic rule (Van Zyl, Kirsten & Binswager, 1996).

The situation prior to 1994 was that 87% of the agricultural land in South Africa (excluding the former "homelands"), was owned by white farmers, companies and the government, while 13% was owned by black farmers (Van Zyl, *et al.*, 1996; Murray, 1996) who are demographically the majority group in South Africa.

In the Free State Province the Land Reform Programme was launched in the Southern Free State where the potential for success in terms of climate and soil potential for crop and livestock production could be realised. The aim was to create equity in terms of land tenure, in order to create the opportunity for small-scale and emerging farmers to participate in the greater economy of the province.

Almost three-quarters of the people in the rural areas of Southern Africa live below the poverty line (Van Zyl, 1998). Children younger than five years, the elderly and women are particularly vulnerable. The poorest 10% of the people account for just one percent of consumer spending (SALDRU, 1995). The highly skewed distribution of income in South Africa goes hand in hand with high illiteracy levels, low levels of education, poor health, poor housing facilities, and inadequate access to water and fuel. Land as the basic resource for agricultural production makes an important contribution towards creating industries and job opportunities for rural and urban citizens (Department of Land Affairs, 1997).

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In the Reconstruction and Development Programme of South Africa, land reform is envisaged as the driving force for rural development in general. Land reform is seen as proceeding in tandem with the restructuring of agriculture, to open opportunities for black producers, and for small-scale farming in particular (Cousins, 1994; Cousins, 1996).

The White Paper of the Department of Land Affairs (1997), sets out the vision and implementation strategy for South Africa's land policy - a policy that is just, which builds reconciliation and stability, which contributes to economic growth, and which bolsters household welfare. The Land Reform Programme also helps to create conditions of stability and certainty, both nationally and at household level, for sustainable growth and development (Department of Land Affairs, 1997). The Land Reform Programme is made up of the following principal components:

- Land restitution, which involves returning land (or otherwise compensating people for land dispossessed since 19 June 1913 as a result of past laws).
- Land redistribution makes it possible for disadvantaged people to purchase land with the help of a Settlement/Land Acquisition Grant.
- Land tenure reform is the most complex area of land reform. It aims to bring all people occupying land under a unitary, legally validated system of landholding. It devises secure forms of land tenure, helps to resolve land tenure disputes, and provides alternatives for those who are displaced in the process.

These principal components will subsequently be discussed.

1.1.1 Land restitution

Land restitution is done in such a way as to provide support for the process of reconciliation and development and also with regard to the over-arching consideration of fairness and justice for the individual, the community and the country as a whole (Department of Land Affairs, 1997).

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The government's policy and proc[illegible]ims are based on the provisions of the constitution and restitution of the Land Rights Act *(Act 22 of 1994)*. The Act elaborates on four aspects: qualification criteria, forms of restitution, compensation for both claimants and landowners, and urban claims.

A restitution claim qualifies for investigation by the Commissioner on Restitution of Land Rights provided that the claimant was dispossessed of a right to land after 19 June 1913 as a result of past laws or practices, or in cases where people were not justly and equitably compensated. Claims arising from dispossession prior to 1913 might be accommodated by the Minister in terms of preferential status in the redistribution programme, provided that claimants are disadvantaged and will benefit in a sustainable manner from the support.

Restitution can take the form of:

- Restoration of the land of which claimants were dispossessed;
- Provision of alternative land;
- Payment of compensation;
- Alternative relief comprising a combination of the above; or
- Priority access to government housing and land development programmes.

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1.1.2 Land redistribution

The purpose of the land redistribution programme is to provide the poor with land for residential and productive purposes so that they may ensure their livelihood. The government provides a single yet flexible redistribution mechanism that can embrace the wide variety of land needs of eligible applicants. Land redistribution is intended to assist the urban and rural poor, as well as farm workers, labour tenants and emergent farmers (Department of Land Affairs, 1997).

The redistribution programme enables eligible individuals and groups to obtain a Settlement/Land Acquisition Grant to a maximum of R15 000 per household for the purchase of the land directly from willing sellers, including the State.

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1.1.3 Land tenure reform

Land tenure reform involves interests in land as well as the form these interests should take. In South Africa, tenure reform must address different problems created in the past. The solutions to these problems may entail new systems of landholding, land rights and forms of ownership, and may therefore have far-reaching implications. For this reason policy has been developed. In order to ensure this process, a two-year period was set aside for consultation on tenure policy, for implementation of test cases, and for the preparation of legislation (Department of Land Affairs, 1997).

The Settlement/Land Acquisition Grant is set at a minimum of R15000 per beneficiary household, to be used for land acquisition, enhancement of tenure rights, investment in internal infrastructure, and home improvement.

The Grant for the Acquisition of Land for the Municipal Commonage enables primary municipalities to acquire land in order to extend or create a commonage for use by qualifying persons (Department of Land Affairs, 1997).

In all programmes there are settlement and planning grants to be used to employ the services of planners and other professionals, and to assist the beneficiaries in preparing project proposals and settlement plans (Department of Land Affairs, 1997).

This research project will assess the projects that were assisted by the government redistribution programme. The question is why have land reform redistribution projects in the South-eastern Free State failed?

1.2 PROBLEM

There is an indication that production, socio-economic conditions and resource management of farms declined after the transfer of land to the beneficiaries of land reform. Since the land was transferred to them, the beneficiaries have not been participating actively in the production activities as outlined in the project business plans. These problems cause agriculture to become the weakest link in the development chain in the

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Free State. The writer is of the [illegible] a period of five years, since the initial transfer of land, the overall standard of living of the people in the rural areas has declined seriously and the poverty level has risen. Many of the people involved have been forced to search for housing, jobs and food. Therefore the Land Reform Programme has not adequately addressed the problem of poverty in the rural areas.

The production potentail of the land allocated will play a major role in determining the success of any project. Before making any allocation, the productivity must be assessed in a reliable way. Based on this assessment, probable financial returns need to be estimated by experienced people. Using this information together with a pre-set target income per family, the number of people that each farm can support can be calculated. A good "safety margin", allowing for the possible inexperience of the beneficiaries and their lack of economic resources to withstand the inevitable variations in income due to rainfall variations, should be built into the estimate of how many people each farm can support. The success of any land reform project in which this process is not carried out efficiently will inevitably be jeopardised. Because this process is not in place at the moment, it is suspected that projects on redistributed land are not allocated on sound principles and that existing projects are not properly managed by the beneficiaries.

1.3 HYPOTHESIS

Land reform projects in the South Eastern Free State have failed due to insufficient and ineffective planning, together with mismanagement, lack of support systems, and lack of knowledge and experience amongst some of the beneficiaries.

1.4 OBJECTIVES

The primary research objective is to determine the influence of various factors on the failure of seven land reform projects in the South-eastern Free State. The specific objectives are the following:

(a) To describe the brief history of each project and its beneficiaries, as well as the organisational framework and the supporting systems for agricultural development;

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(b) To assess the management [illegible] way in which decisions are reached;

(c) To assess the sources of finance and the ways in which they have been used since the projects were designated;

(d) To investigate the contributions of rural women to land reform projects, as well as the changes that have occurred in the lives of these women;

(e) To identify the type of legal entities in the projects and explore their activities and the way in which they impact on the project;

(f) To identify the sources of conflict and how such conflict has impacted on the projects;

(g) To assess the support given by government departments to ensure project viability and sustainability;

(h) To assess whether present land use is sustainable;

(i) To investigate communication variables that may be constraints to the improvement of agricultural practices, and to launch other investigations that could lead to a better understanding of project operations and thereby assist in the planning of effective agricultural and agro-industrial development strategies;

(j) To examine the efficiency of agricultural production on each project in relation to its natural productivity;

(k) To give broad guidelines and recommendations aimed at promoting improved management, social-economic benefits, productivity, sustainability and development in the land reform projects in the area.

In Chapter 2 a literature review will be provided while Chapter 3 will focus on the methodological procedure. Chapter 4 will give details on the research area, especially the projects, and in Chapter 5 the results (mainly from the questionnaires) will be discussed. Chapter 6 will summarise the findings of the research by making conclusions and providing recommendations.

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LITERATURE REVIEW

2.1 INTRODUCTION

After reviewing the literature it seems that the lack of success of land reform in Africa has generally been due to one or more of the following factors (not necessarily in order of priority):

- Lack of understanding of complex institutional arrangements by project beneficiaries;
- Insufficient involvement and support by local institutions;
- Lack of farmer participation in the management of the project;
- Delay in transfer of land and implementation of production activities;
- Lack of intensive, strongly motivated and determined government commitment to the success of the project;
- Lack of common property management and conflict resolution skills among the beneficiaries;
- Unsatisfactory arrangement of financial assistance;
- Lack of efficient preliminary technical land-use planning (e.g. productivity of the land not assessed effectively) and follow-up technical support;
- Neglect of institutional dimension, together with over-centralisation and rigidity; and
- Lack of gender participation.

In this review, examples of the influence of these factors on land reform projects in different countries will be discussed accordingly.

2.2 LACK OF UNDERSTANDING OF COMPLEX INSTITUTIONAL ARRANGEMENTS BY PROJECT BENEFICIARIES

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At a minimum, common property [illegible] who is allowed access to resources and who is excluded. Membership criteria must therefore be clarified, including the rights and duties of absentee members of rural communities or groupings (Cousins, 1995).

2.2.1 Vulnerability of common property regimes

Lawry (1990) offered a "minimum" definition of common property, where group membership rules are well defined and normal members are excluded from common resources. Lawry further suggested that these arrangements have often been adequate when pressure on resources was not excessive, but that intensified control and their enforcement become necessary with population growth, technological changes, national economic integration, and decline in the political legitimacy of local institutions. Such evolution of more intensive common property regimes is problematic.

Lawry identified the two basic problems as incentives and authority. In relation to incentives, common past resources are not always of critical importance to local users, and people may respond to their increasing scarcity with attempts to appropriate them individually rather than collectively. Also user groups have become increasingly heterogeneous, leading to differences in strategies for use and degree of interest in these resources. In relation to authority problems, the integration of local economics into larger systems and the consequent decline in the importance of local political institutions has meant that even the ability of local groups to defend their commons from the encroachment of outsiders (i.e. the assertion of "minimum" common property rules) has been undermined. Traditional authorities and the local elite are no longer in a position to enforce rules and in any case often did not do so in an intensive manner before national economic integration occurred.

Where common property rules break down, or fail to evolve to fit changing conditions, several outcomes have been observed:

- Increased resource degradation as the property regime slips towards open access;
- "Spontaneous closure" or privatisation;
- The capture of the commons by groups of commercial producers who may pursue private accumulation strategies in the name of the community development.

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Individualisation in Massailand in [illegible] poorer Massai to be forced out of the pastoral economy altogether. Individual titles have led to land loss and dispossession for much of the community, as well as decreased rangeland productivity due to the fragmented holding and use of land for speculation rather than production (Galaty, 1993; Cousins, 1994).

The study by Scoones & Wilson (1989), Cheater (1990) and Ranger (1985; 1988) has pointed to the discrepancy between commonly held views on the nature of the "communal" tenure system, and actual practice in the past and present. They pointed out that traditional tenure is largely a colonial construction invented because it was useful to the shaper of the labour system in Zimbabwe.

2.2.2 Redistribution of State land in South Africa

The principal legacy of the segregation policy in South Africa through the twentieth century has been an extremely racially inequitable distribution of land. In 1994 approximately 87% of the land area of the country that fell outside the African reserves, or 'homelands', was owned by White people (Beinart, 1994). The redistribution of land as the most important single element of land reform policy refers to State-facilitated transactions through the market that promote a more equitable distribution. The principles governing redistribution policy are: (a) that the State will not itself initiate transfers of land but will rather seek to respond to public demand; (b) that there is no such thing as free land, and (c) that the 'poor' should be able to participate as beneficiaries. Partly as a policy compromise between these inevitably conflicting requirements, the State is willing to subsidise the purchase of State-owned land by individuals or groups by "writing off" the difference between the market value of that land and its actual agricultural value (ANC, 1994).

Since 1994, State-facilitated transactions via the market in South Africa have taken one of the several different forms. Firstly, the State may encourage individual Black entrepreneurs with forms of capital resources of their own, or with access to commercial credit, to buy previously White-owned land. Some transfers of this kind have taken place in the Free State mainly near the eastern border with Lesotho.

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Secondly, at the extreme of th[illegible] continuum, the State may facilitate schemes by which portions of White-owned land are transferred to Black farm-workers and their families. Through detailed discussions, perhaps with some of their own farm-workers who wish to pursue the opportunity and are prepared to take the risk, some farmers are willing to negotiate the sale of parts of their land by drawing on a State grant of R15000 available to qualifying households with a monthly income below a specific threshold. Alternatively, individuals may form a close corporation and negotiate land purchases themselves, similarly drawing on the R15000 grant, with the assistance of relevant government departments and the Agricultural Credit Board or Land Bank. Such transfers of private White-owned land, if at all widespread, would achieve redistribution of land in the sense intended by the policy, and would benefit some of the poor people. However, at present, there are also many questions pertaining to the motivations of the parties concerned. Are such farmers merely altruistic in seeking to encourage farm-workers to become farmers against what may be substantial opposition from other White farmers, or do they recognise long-term self-interest in adjusting to changing times? Do they seek to inflate the market price of their own land in circumstances where, without vigorous competition and without the 'artificial' boost of the State household grant, prices would stagnate or fall? Do they seek to transfer their own risk of debt and over-capitalisation onto farm-workers who are ill-equipped to undertake complex financial transactions for which they may now be collectively responsible? Are farm-workers indeed willing and active participants in such negotiations? All these questions remain to be resolved through practical experience (Murray, 1993; Bennart, 1994). Three of four such schemes were initiated broadly within the area of study in late 1995.

The third form of State-facilitated transactions concerns the significant areas of State-owned land, which are immediately available for redistribution. In the Free State, a swathe of the State-owned land north of Qwa-Qwa along the northern border of Lesotho was poised for sale at the end of 1995 to farmers and businessmen who had previously rented individual farms from the State, and who were able to use their own capital resources. There is some question, however, as to whether these people really should qualify as beneficiaries of the land redistribution policy. The people who really should qualify are variously described in ANC rhetoric as 'the historically disadvantaged people', 'the poorest of the poor' and so on. It is obvious that poor people without property cannot gain access to commercial credit, and even if they do, cannot muster the capital resources

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necessary to embark on farming operations. There is therefore a chasm of credibility with regard to the land redistribution policy between rhetoric, in terms of which 'poor' people are supposed to be able to take advantage of new farming opportunities, and reality, by which potential purchasers who emerge are businessmen or taxi operators or supermarket owners (Beinart & Murray, 1995).

This problem of policy credibility is the reason for continuing unresolved conflict over the allocation of another stretch of State-owned land on the western and southern periphery of the extensive township of Botshabelo (Murray, 1996). This problem is discussed in detail in this research.

According to the Department of Land Affairs (1997a), the beneficiaries can own land as individuals, as families and as groups. They can also establish legal entity through which they hold the land communally, for example a Trust, Company, Close Corporation, or Community Property Association.

The formation of the legal entity will be facilitated by government as a Presidential Lead Programme in each province in South Africa. These programmes will be funded by the State for land acquisition, survey/transfer costs, administration costs, evaluation of land, formation of legal entity, drawing up of the business plan, and provision of infrastructure, basic services and facilities. In order to promote the success of this programme the following structures were established:

- The Provincial Land Reform Steering Committee;
- The Department of Land Affairs;
- NGO's working with land reform and rural development;
- The financial officers of responsible departments, and the RDP representative in the province (Pilot Land Reform Programme, 1995. Also see Flow Chart Addendum I: Management of the Land Reform Pilot Programme in the Department of Land Affairs).

The Department of Agriculture and Environment in the Free State is responsible for the implementation of the Land Reform Programme in this province. A Thaba 'Nchu office of the Agricultural Development Co-operation acted as the Pilot Land Reform Office, and a

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Rural Strategic Unit will be responsible for planning and policy-making (Pilot Land Reform Programme, 1995).

The Provincial Steering Committee played a very important part in the Land Reform Programme in that it was responsible for the planning and management of funding, the selection of managers and facilitators for the programmes, service delivery, dispute resolution, and availability of information. It is also had to make recommendations regarding the expansion of the Land Reform Programmes to the Department of Land Affairs (Beinart, 1994; Murray, 1996).

2.3 INADEQUATE INVOLVEMENT AND SUPPORT BY LOCAL INSTITUTIONS

A classic example of this approach is Mexico's land reform in which land was administered and settled over a 50-year period, with the process controlled by an enormous land reform bureaucracy that withheld title from settlers for decades (Cousins and Robins, 1994).

Other examples include programmes in Indonesia, Zimbabwe, Ethiopia, Guatemala and Burkina Faso, and the irrigation resettlement in Kenya. Typically, the administering authority was not involved in every aspect of resettlement: from land acquisition to settler selection, infrastructure and irrigation development, and extension and post-production activities (Cousins and Robins, 1994).

Perhaps the most dominant and damaging characteristic in most of the administered programmes examined is the excessive paternalism on the part of the administering authority and associated personnel. The adverse consequences of paternalism are worse when it is centrally administered than when administration is local. The costs of centrally administered paternalism are seen most vividly in the case of Ethiopia, but evidence strongly suggests that central organisations perform rather poorly everywhere (Cousins and Robins, 1994). Support for this claim is also found in Indonesia, where resettlement performance improves when responsibility for administration is handed down from a

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central agency to the provincial [illegible] the end of project's first five years of operation (Cousins & Robins, 1994).

In South Africa studies have been made regarding rural development and land use patterns. The farming systems and how farmers can form partnerships with the private sector in development was assessed. The objective of the study was to find out how the private sector can help to further the interest of farmers from developing communities. It also presents a few comments on the possible contribution by the fertilizer industry to assist farmers from developing communities. The private sector initiative, formed in 1993 was aimed at developing activities that will integrate its clients into the main stream of commercial agriculture. Five activity areas are:

- Identification;
- Preparation and appraisal of the project;
- The mobilization of finance to fund projects both loans and equity;
- Granting of loan finance; participation as shareholders; and
- Management of project and implementation (Roux & Le Roux, 1996).

The involvement of local institutions is crucial in research and development. It was into this maelstrom that both the New South Wales Department of Agriculture and the Hawkesbury Agricultural College in Australia were to be thrown at the beginning of the 1890's (Bawden, 1992). Things became steadily worse when a savage drought occurred in the colony and lasted for more than a decade. During this time the population of the vital sheep flock was devastated, falling by more than 50% between 1891 and 1903. A similar fate unfortunately did not befall the population of rabbits, which became a rampant pest following its introduction to the continent. The two institutions jointly became responsible for introducing the farmers of New South Wales to new ways of dealing with their problems; at least those what were not intractable! Thus scientific agriculture was introduced, a mere one hundred years or so after agriculture was first practised in Australia (Bawden, 1992). Extension evaluation and research are emphasised. The work being done by a number of groups is encouraging the need to construct the whole concept of extension and technology transfer in Australia (Bawden & Russel, 1990; Bawden & Macadam, 1991).

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In 1980 Zimbabwe implemented a series of technological, service, and land reform programmes to reduce the inequalities in wealth between the urban industrial and agricultural sectors of the economy, as well as inequalities within the agriculture sectors between large and small-scale farming. The government's primary intention was to improve the socio-economic conditions of small-scale farmers in the communal agricultural area by implementing measures designed to increase annual household income. Justifiably, agricultural production was targeted, and success was immediate (Scott, 1995).

2.4 LACK OF FARMER PARTICIPATION IN PROJECT MANAGEMENT

According to Cousins and Robins (1994), if settlers (land reform beneficiaries) controlled purchases of inputs, of sales and of outputs, it would result in less favourable prices, due to the farmers' lack of experience and information. This concern, however, could also reflect a wish to control the harvest in order to ensure credit repayment and at least know the precise credit repayment capacity of each farmer. For example, in the programme of the Foundation del Cenavor (FUNDACEN or the Penny Foundation) in Guatemala, settlers are denied the knowledge and experience that would equip them to manage their own inputs, purchases and commodity marketing. FUNDACEN, a private foundation, has a committed field staff, but members tend to design paternalistic approaches irrespective of their sectoral affiliation.

Members of technical staff often fail to understand that they are participating in a new and different system. They fail to recognise that settlers are to be encouraged in their new role as owners and project-holders who are to be treated as independent decision makers who must learn to operate within the constraints imposed by nature, their skills, their assets and their access to markets. Instead, technicians often respond with dictatorial behaviour, as if they were foremen or overseers. For example, technical staff in Guatemala behaved as if settlers could be fired for minor or imagined infractions (Cousins & Robins, 1994).

2.5 DELAY IN TRANSFER OF THE LAND AND IMPLEMENTATION OF THE PRODUCTION ACTIVITIES

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By the end of the first decade of independence in Zimbabwe there were approximately 50 operational Model B schemes with a total of 34,000 members. Farm size ranged between 1163 and 3166 ha with between 17 and 90 settlers per scheme. Less than 6% of resettlement was under this model (Roth, 1990). Performance has been extremely disappointing, with only a few success stories where high levels of productivity have been attained. A government evaluation in 1988 (cited in Bruce, 1990) found that overall land use was less than 25% of potential, while scheme membership had not grown as anticipated, there were problems with the supply of machinery and inputs, and members often lacked management and agricultural skills. According to Cliffe (1986) the main reasons for the lack of success have been:

- A severe shortage of capital, with delays in some schemes that receive their establishment grants from the government. Major donors have been reluctant to fund co-operatives and many small NGO's have provided uncoordinated and often ineffective funding in an attempt to supplement government efforts;
- Limited managerial capacity and lack of support for the development of such capacity;
- Lack of technical and other forms of backup; and
- Insecurity of tenure.

The formal and legal manner in which the South African government chose to go about land reform resulted in a very time-consuming process having to be followed before the land could be transferred to beneficiaries, and this is not different from land reform in Zimbabwe and elsewhere.

According to Bruce (1990) the legal instrument for assignment of land in Zimbabwe was a permit to occupy, issued to the co-operative by the Minister. It was for an unspecified period and could be unilaterally revoked under certain conditions, e.g. if proper and beneficial use had not been made of the farm, or if the co-operative ceased to be registered as a co-operative society. As with Model A permits there was a requirement that conservation laws should be complied with, and there were restrictions on construction, trade, and the free felling of trees. The by-laws of the co-op could not be changed without the Minister's written approval. Bruce (1990) considers this to be very fragile tenure, which is likely to have a disincentive effect. Cliffe (1986) has suggested that clearer

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definition needs to be given not only to the rights of the co-operative as an entity, but also to the rights of individuals on entry and exit of the co-operative. Bruce (1990) agrees with Cliffe's recommendation of a review of co-operative law in Zimbabwe to accommodate the needs of production co-operatives, and also suggests that co-ops should be free to change their own by-laws and divide their assets as they see fit.

In Thailand where integrated policies of land reform were adopted, the socio-economic impact on agriculture and co-operative development was investigated. The project was located in the Ayutthaya Province, Thailand. The socio-economic variables were assessed for the targeted group inside the project within a specific life period of the project implementation during 1997 to 1981, with the expansion period of 1984 to 1987, and the completion period in 1991. The core indicators selected for impact assessment were crop productivity, changes in income, dependence on middleman, and quality of life in terms of savings and expenditure patterns. The findings show that there was a decrease in net income (total household income minus total household expenditure) and increase in dependence on middlemen during the pilot period, whereas there were decreases both in net income and dependence on middlemen during the completion period in the target group. Household savings of the target group increased with a rise in entertainment and social activity expenses during the expansion period. Savings declined sharply with a marked increase in housing improvement after the project was completed (Suksawang, Salokhe & Singh, 1994).

2.6 LACK OF INTENSIVE AND DETERMINED GOVERNMENT COMMITMENT TO THE SUCCESS OF THE PROJECT

It is clear that in land reform too, as in other sectors, rights and duties have been defined in such a manner as to make settlers extremely vulnerable to the decisions of officials. Perhaps the most serious problem, however, has been the underestimation by government of the complexity of the challenge facing producer co-operatives, and the consequent need for appropriate forms and levels of extended support for the development of managerial and institutional capacity. The most imaginative efforts in Zimbabwe have come from an NGO-funded initiative, the Collective Self-finance Scheme, which has involved innovative institutional relationships between co-ops, commercial banks and donors, and in providing

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finely tuned technical, managerial and training support services to overcome identified weaknesses. A limited number of members of Model B schemes in Zimbabwe have been affected by this new scheme, but government has, however, failed to respond positively to this kind of institutional innovation (Cousins & Robins, 1994).

According to Bromley & Cernea (1989), in the Senegal Livestock Development Project it was agreed that government would use its authority when needed to support the grazing association against outsiders. In a local land reform case study, Hornby (1996) argues that inadequate support from the State and the complete lack of higher authority involvement were the major factors impeding the successful functioning of the emergent common property institutions. Therefore, although direct responsibility for natural resource management should be allocated to local institutions, these cannot stand on their own. Without committed State support and appropriate structures to provide legitimacy to the common property regime institution, local-level initiatives will have limited success (IFAD, 1995). Recourse to higher authority is also important in that it can help remove the onus of difficult decision-making duties from the community. For example, some committees find it difficult to turn land-desperate people away. However, if the State intervenes, this transfers some of the responsibility from the community. The State also has the resources to seek alternative solutions to help such people (Shackleton, Von Maltitz & Evans, 1998).

Agrarian reform policy, involving both redistribution of land and development of complimentary credit, extension, infrastructure, pricing and research programmes. This policy has been central to the recent debate over political and social changes in Nepal. The policy raises the issues of socio-economic inequality in developing countries and the capacity of democratic regimes to effect redistribution reform. Reference is made to the historical and cultural variables that have shaped Nepali politics. A land reform congress was held and land reform was discussed in order to resolve how best it could be implemented. It was concluded that it there was to be a meaningful programme of land redistribution, the Congress Party of Nepal or the opposition Communist Parties must learn from the past failures and address the flaws in the more recent reform proposal (Reidinger, 1995)

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2.7 LACK OF COMMON PROPERTY MANAGEMENT AND CONFLICT-RESOLUTION SKILLS AMONG THE BENEFICIARIES

Apart from lack of political will on the part of government, other problems have inhibited the emergence of vibrant local-level institutions. Paraiwa (1992) in Zimbabwe identifies the relative under-utilisation of resettlement grazing land as another major factor underlying the weakness of local communal resource management institutions. The combination of a skewed distribution of livestock and the under-utilisation of communal pastures on resettlement schemes has created problems for such institutions. Given the relative abundance of grazing, owners of large livestock often successfully mobilise the oppositions to attempt to limit stock numbers. This makes it difficult to enforce the conditions of the permits when individuals have exceeded their livestock allocations. In addition, non-cattle owners have tended to be reluctant to participate in range management initiatives.

The under-utilisation of resettlement scheme grazing has also contributed towards some conflict between settlers and adjacent communal land farmers, who often resort to fence cutting and poaching on grazing on these schemes (Paraiwa, 1992; Gwebu & Sibanda, 1987). While resettlement grazing is generally under-utilised because of relatively low stocking rates, communal lands are usually seriously overstocked. The absence of mutually acceptable and effective local-level conflict resolution institutions has meant that resource struggles between resettlement and communal farmers have persisted (Cousins & Robins, 1994).

Zimbabwe's resettlement programme has resulted in significant numbers of destitute settlers who are unable to use all the land allocated to them (Republic of Zimbabwe, 1982). The review shows that restrictions on rental and sales can rarely be enforced and that if they are partially enforced, they tend to create a climate of insecurity of tenure leading to efficiency losses and idle land (Beavon, 1991).

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2.8 UNSATISFACTORY ARRANGEMENTS FOR FINANCIAL ASSISTANCE

The land reform debate in South Africa has also followed diverse routes. It changed from the "nationalise-the-land" debate of the 1950's to the pragmatic perspective of the 1980's, which conceded a justified State intervention within a market land reform programme (Binswanger & Dreininger, 1994). This view reflected the complexities of land reform under South African conditions, where large commercial farms co-exist with low-wage resident workers, external seasonal workers and a high unemployment rate. Under these conditions there could be no simple and single answer but rather a combination of mechanisms that should be followed.

The provision of financial support services to rural households in South Africa has to be seen against the background of past State intervention in the economy, which was characterised by distorted financial and institutional impediments. This led to a situation of extreme dualism in the rural finance sectors. On the one hand, there is a highly modern and sophisticated financial system that serves the full range of financial needs of a small proportion of the South African population. On the other hand, micro-lending and an informed sector attempted to serve the majority of the population both in urban and rural areas (Coetzee, Mbongwa & Nhlapo, 1994).

The policies, such as subsidised credit, were also a major reason for the poor performance of South African rural finance markets. Such policies distorted loan allocations by financial institutions. Low and negative real interest rate policies induced the commercial farmers to misallocate finances (Coetzee, *et al.*, 1994).

The distortions created a restrictive and unsustainable legal, financial and tax environment for micro-lenders. Legislation (in the form of the Banking Act, for instance) prohibits micro-lending institutions from mobilising funding, whilst the Usury Act has placed a ceiling on interest rates charged by micro-lenders. Micro-lenders have failed to fill the void left by the formal institutions in catering to the majority of rural people.

Available land financing catered only to commercial farmers in the past. The Land Bank played a major role, with commercial banks financing a very small portion of land

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acquisition, while the efforts of t redit Board were focused on farmers who did not qualify for assistance. All of these mainstream private and public financial institutions focused on White farmers only. Recently most of the public sector institutions have announced policy changes that extend their assistance to Black farmers.

For its own purposes, therefore, the old order managed to make adequate and appropriate provision for the policy legislation and institutional needs of the White rural and farming community regarding land purchases, agricultural growth and development issues. It follows that there will be problems when these old policies, institutions and legislation operate under a new constitutional order which requires different policies, legislation and administrative institutions to serve new rural clients. In other words, there is an urgent and pressing need for new policies, legislation and institutions to finance land reform and agricultural restructuring and development priorities (Coetzee, *et al.*, 1994).

Van Rooyen and Njobe-Mbuli (1996) proposed a possible set of criteria for selection of people to participate in the land reform programme. In the interest of attaining optimum productivity in land use, and recognising that apartheid policies resulted in poverty, it became important to offer special assistance in accessing appropriate services for the victims of apartheid. The proposed selection system is extended to apply to these criteria so as to facilitate the determination of the level of assistance. Important attributes to be tested at this level include health, age network, education level, gender, previous experience in farming entrepreneurial skills, and management attitude.

Land is just one of the factors of production. Land reform will therefore have to be completed by means of reorientation of support services towards beneficiaries, particularly research, extension and information, credit, input provision and output markets. The restructuring of rural finance will also be important to enable potential beneficiaries to access credit to purchase land through the market-assisted process. Without the proper functioning of the market for agricultural credit, the proposed land reform process will be doomed to failure.

Against this background, (Coetzee *et al.*, 1994) provided a framework for a new rural financial structure based on certain guidelines. A State financial assistance structure to ensure access to financial services in rural areas is proposed. The land reform mechanism

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should link into these mechanisms. No justification can be found for a separate financing structure just for the Land Reform Programme and the land reform beneficiaries. Only in the case of the disbursement of grants may there be a temporary role for district offices to act as a financial mechanism. The importance of programming development activities at the local level, and of programming macro-level activities, has also been urged. Proposals were made for an interim structure to accommodate the urgent need for a Land Reform Programme.

The role of the informal sector and savings mobilisation is extremely important in this regard. The importance of access to information cannot be emphasised enough. Land reform beneficiaries must have information on their rights and on what is being offered in the programme.

Financial intermediates must have information on which to base their decisions. Without information, the market-assisted approach could not be implemented (Van Zyl *et al.*, 1996; Bonti-Ankomah, 1999).

Agriculture financing in South Africa has been subject to changes for more than a decade. The trend over the last eight years is outlining the policy changes that have influenced, or will to great extend influence the planning and management of the commercial farmers. There have been discussions

around how best this can be achieved. It was concluded that in order to be successful the following factors must be taken into consideration:

- The interest rate;
- The recommendations of the Strauss Commission;
- Disaster and emergency aid;
- Development aid and services;
- Land reform;
- Marketing deregulation; and
- Organizational financing (Raath, 1996).

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2.9 NEGLECT OF THE INSTITUTIONAL DIMENSION, TOGETHER WITH OVER-CENTRALISATION AND RIGIDITY

As in South Africa, the land reform programme in Zimbabwe has been characterised by the relative neglect of the institutional dimension as compared to technical, economic and ecological factors. Much less attention has been paid to the questions discussed in this paper, than to those that have to do with planning models, infrastructure inputs, supply marketing arrangements, conservationist concerns and settler selection. Very few support services aimed at assisting the growth and local institutional capacity have been provided, and a considerable degree of ambiguity and confusion has been generated in respect of such issues as tenure right, resource management responsibilities, mechanisms of accountability, and representation. These issues have been belatedly recognised, but not adequately dealt with. Field staff such as resettlement officials have not been given clear responsibility for fostering institutional development, nor the training skills required (Beavon, 1991; Kinsey and Binswanger, 1992).

Kinsey and Binswanger (1992) call for greater flexibility in the implementation of resettlement for decentralisation of administration and for devolution of decision-making powers to the settlers themselves. They criticise regent and highly constraining tenure arrangements in which farmers' rights and duties are poorly defined, and call for programmes to be designed as "experiments that incorporate a range of possible approaches". Most schemes, in their view, have been characterised by excessive and highly centralised administration, motivated by a paternalistic stance which fails to recognise settlers as "owners or rights holders", and as independent decision makers (Kingsley & Binswanger, 1992). The bureaucratic and often authoritarian manner in which institutional issues in resettlement have been approached in the Zimbabwean context suggests a similar diagnosis, and perhaps prognosis. Although tainted to a degree by their bias towards individualised tenure systems, preferably freehold title, Kinsey and Binswanger's call for "greater local community participation and responsibility", as well as more flexibility in the planning and implementation of schemes, seems wise.

Flexibility suggests the possibility of learning from the mistakes, which according to Korten (1980) is often the hallmark of successful rural development. In his analysis, viable

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institutional arrangements are not designed, but emerge out of a learning process in which beneficiaries and assisting organisations "embrace" errors rather than deny them, and share their knowledge and resources to create a greater degree of compatibility between these elements. The programme characterises the beneficiaries' needs and the capacity of the assisting organisation. In contrast, in Zimbabwe the approach is to try to find the right "blueprint". There has been little room for local participation in a process of evolving viable institutions (Cousins & Robins, 1994; Beavon, 1991).

2.10 LACK OF GENDER PARTICIPATION

As in Zambia, Namibia, Zimbabwe and Kenya, South Africa has also entrenched in the constitution and administration certain clauses to implement gender policies. The aim is to ensure that gender issues are not isolated but rather treated as an integral part of all sectors. Zambia has a policy framework and bureaucratic structure for integrating women in development (Alexander, 1994; Levy & Beall, 1991; Moser, 1989; ANC, 1994).

Keller and Mbewe (1992) agree that the bureaucracy must be gender sensitised to increase women farmers' access to land required for the fulfilment of their practical gender needs. A strong advocacy presence is particularly necessary in the current situation of liberalisation of the economy, which previously undermined the women farmers' ability to ensure household food security and earn an income. Their level of political participation is low, and empowerment is not high on women's agendas in South Africa. A supportive bureaucratic structure is necessary to lay the basis for women's political participation in order to challenge the subordination. To overcome discrimination against women, the government will uphold the provisions of the constitution that outlaw discrimination against women. With the land distribution programme, the government will remove all legal restrictions that prevent the access of women. The government will uphold the procedures that promote the active participation of women in the decision-making process (Department of Land Affairs, 1997).

Women comprise the majority of the poor in South Africa (SALDRU, 1995; Departement of Land Affairs, 1997). Mechanisms to address the disempowerment of women and boost their role within the development process and economy must be implemented. The RDP

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must recognise and address existing [illegible]ies as they affect access to jobs, land, housing, etc. (ANC, 1994; Alexander, 1994).

2.11 SUMMARY

From the above it is clear that land reform is not a newly introduced concept, but has been practised in many countries over the last few decades with varying levels of success. In this study, special attention will be given to factors influencing the process in South Africa.

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METHODOLOGICAL PROCEDURE

3.1 EVALUATION

There are different types and methods of evaluating community development projects, such as Participatory Learning and Action, Rapid Rural Appraisal, and Participatory Action Research. These methods can be used to complement the conventional evaluation methods, which sought to answer certain relevant questions. Evaluators started with the original goals and attempted to compile a document regarding which goals had been realised (Staudt, 1985). This type of examination was focused on allocating a numerical value to the project outcomes by quantifying the input-effort, output sequence, and effectiveness. In other words, evaluation of community development worked on the premise that all projects should meet the requirements of economy, efficiency and effectiveness. Evaluation had to find ways to minimise costs and benefit in the pursuit of profitability (Marsden & Oakley, 1991). Even today the tendency is still to look at evaluation in terms of measurement. Literature on the subject addresses the problem of assigning a numerical value to the supposed results of the project.

The conventional method should be supplemented by all the methods discussed, so as to include a further dimension that can be called participatory communication, and which can contribute significantly to the methodologies used in evaluation (Altafin, 1991). Through participatory communication people can gain a better perception of reality - a fundamental part of evaluation. By encouraging people to question and understand their realities, participatory communication contributes to a more active role of the poor in the projects and their evaluation. It is a process based on people's creative potential. The self-expression of the poor people, reflecting upon reality and creating their interpretation of it, is a key element in the social development evaluation (Altafin, 1991).

Evaluation must be part of a process of discovery in which the local people are entirely involved. Through this process of discovery, an understanding of reality may be gained; and this understanding allows the participants to enjoy a learning experience, which allows

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further opportunities for capacity building. Fargas (1991) mentioned that a process of this nature is necessarily an educational process because each step helps to bring more comprehension of "what has been done, how and why". Evaluation should be regarded as participatory research in which the people, the development agency and/or the donor and one or more researchers are involved. The features of the participatory research technique as identified by Anyanwu (1988) should act as guiding principles for all those involved in evaluation.

It is very clear from the Reconstruction and Development Programme that there must be a partnership action between the government and the people in identifying needs and the obstacles to satisfying those needs, and that both will be involve in jointly implementing realistic strategies to overcome those obstacles (Cornwell, 1996a).

Few attempts have been made to evaluate the socio-economic factors and resource management of land reform in South Africa. Examples are the Qwa-Qwa studies done by Van Zyl (1998), and the Thaba Nchu and Botshabelo study done by Murray (1996) and Beinard (1994). Very little research on this topic has been done in general, and in the South-eastern Free State in particular. Similar evaluations have been done in Zimbabwe, Kenya, Namibia, Zambia, Tanzania and other countries in Africa. Internationally, land reform and land management have been evaluated in countries such as Colombia, Thailand, Mexico, Indonesia, Taiwan, Brazil and Bolivia (Kinsey & Binswanger, 1994) by means of various research procedures.

This paper aims to evaluate the factors that influence the choice of intervention measures in planning agricultural development, identifying constraints, assessing potential and identifying the land reform approach essential for development.

Socio-economic development systems are the result of a complex interaction among a number of interdependent components. The systems must be designed to identify the total matrix of problems related to land and agricultural production, so as to allow decision-makers to identify priority problems (Bembridge, 1982).

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In brief, the evaluation should focu[illegible] as the physical and human factors, as well as agricultural development and institutional factors such as agricultural policies, management, extension, marketing and employment.

3.2 GATHERING OF INFORMATION

The respondents were interviewed at their places of residence during non-working hours. A questionnaire with structured and open-ended questions were used to collect the information necessary for the research. A questionnaire developed by Van Zyl (1998) was used as a base and was supplemented with new questions to satisfy the objectives of this study.

The extension officers and the officials of the Department of Land Affairs and Agriculture were interviewed, but very limited information was obtained on policies and support strategies. Much of the information was gathered from the records in the District and Head Office of the Department of Land Affairs in Bloemfontein.

A total of seven projects were selected from a list of 33 in the South-Eastern Free State. Details regarding the projects are presented in Table 1.1. The higher number of respondents will ensure that the Participatory Rural Appraisal Procedure is effective.

Table 1.1: Details concerning the projects and the selection of respondents for the study

Project	Number of households in project	Number of respon-dents	Number of committee members	Number of women	Other respon-dents	%*
Nassau	22	5	1	1	3	23
Ikaheng	32	6	2	1	3	19
Itekeng	17	3	1	1	3	23
Ipopeng	42	6	1	1	2	14
Tsoha-O-Iketsetse	16	5	1	1	3	31
Dintlhwoane	2	1	0	0	1	50
Matsididi	1	1	0	0	1	100
Total	*132*	*27*	*6*	*5*	*16*	*20,5*

* Respondents as a % of the number of households

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3.3 SAMPLE SIZE

The sample population was obtained by means of drawing a stratified random sample according to projects and lists of beneficiaries associated with each project. The selected group consisted of one committee member, one or two women and three others. To ensure that all scenarios were included, projects with one or two households were also included in the sample.

In considering sample size, factors such as cost, resources, and desired levels of accuracy were considered. Available information from the Department of Land Affairs indicated that the population was fairly homogeneous and that similar principles and policies had been applied in the redistribution of land. On this basis it was decided that a 14 to 22 percent sample would be adequate.

According to a recent socio-economic study (Van Zyl, 1998), which used a sample of less than 10%, results were found to be significant at the 95% confidence level. Due to the large variable present in the current study, it was decided to use a considerably larger sample fraction. Stratification of the sample according to projects further adds to the efficiency of the sample procedure, which can be considered to be more adequate for determining the present situation and trends with reasonable accuracy.

3.4 INTERVIEWING AND PROCEDURE

The questionnaire for participants was pre-tested with four respondents with varying degrees of education and experience as judged by the interviewer. The general questions were easily understood and readily answered, but for the sake of clarity a number of questions were rephrased. The questionnaire was finalised on the basis of the pre-testing. Several studies were consulted to aid in the design and coding of the questionnaire (Van Zyl, 1998; Leedy, 1997).

Interviews with *de facto* heads of households took an average of an hour and 30 minutes to complete, and were completed in a single session. The interview moved from questions eliciting simple background information to more complex, open-ended questions about

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attitudes towards land reform and the family and the general standard of living of project beneficiaries, as well as with regard to the agricultural activities that are in place. The questions were phrased in Sesotho, the language generally spoken by the project participants.

The interview was supplemented by observations on what had been happening on the land during the period following the transferral of the land to the beneficiaries, i.e. 1995 to 1999.

3.5 QUANTITATIVE RELIABILITY

Every possible precaution was taken during the interviews to explain the objectives and background to the research, and questions were phrased in such a way as to avoid evoking attitudes of bias and prejudice among the respondents.

3.6 DATA ANALYSIS

With the presentation of these results the author wishes to point out that personal and socio-psychological characteristics, institutional factors, and adoption behaviour can certainly not be divided into watertight compartments. Statistics are only an aid to revealing a complex situation, and should be looked upon as providing qualitative approximations since figures have no emotional value (Bembridge, 1982). The data were analysed in the following phases:

- Through the initial computer tabulation it was possible to get a general appreciation of the survey data.
- Correlation analysis was used for the inter-correlation between variables.
- Multiple step-wise regression was used according to the least squares procedure to explore the variance in dependent variables.

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3.7 DATA-RELATED PROBLEMS ENCOUNTERED IN THE STUDY

The field research commenced in March 1999 and it took approximately ten months to complete.

Several problems were encountered in the research, with time being the most important limiting factor. Meetings were arranged with participants in different projects to explain to the respondents the aim and importance of the research. Many of the respondents, especially off-farm beneficiaries, were not easily located. Due to a high degree of suspicion and illiteracy, the answering of questions was a time-consuming process. Financial statements and other records were requested but could not be found. These were important for the purposes of the study. Some information was gathered by means of the inspection of salary slips of the respondents themselves. Management committees provided some inaccurate figures, and the correct information was found by comparing it with data that were found in the files at the Provincial Department of Land Affairs. Many sources of research previously conducted were consulted for information on, for example, climate, soil, rainfall, technology, and economic and socio-psychological factors. It is evident from the recommendations that little work has been done in this regard.

In this chapter the demographical properties of the projects (sample) were discussed as well as the methodological procedure followed. In Chapter 4 the geographical, climatical and economical characteristics of the projects are described while an overview of the infrastructure is also provided.

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RESEARCH AREA

4.1 BACKGROUND

Natural resources are the sum total of all the material components of the environment as well as their interaction. With respect to natural resources of the region the climate, rainfall, soil, vegetation and some human activities will be discussed with emphasis on resource management. If people live according to the ecological principles, their use of resources will be successful and they will survive (Krige, 1998).

The South-eastern Free State is characterised by a low potential for crop and livestock production (Eloff, 1984). The area, however, could in general produce enough food to feed a far larger population than that presently living in the rural areas, and at the same time produce excess for sale in larger amounts than is being sold now. Present production provides for only about one-third of the food requirements of the population (Krige, 1998).

The most important crops in the area are maize, wheat, and sunflowers. Vegetables (especially potatoes), and pastures such as lucerne and cultivated pastures for grazing are also kept. Meat, milk and wool are produced from animals such as cattle, sheep and goats, and to a limited extent, poultry.

4.2 DESCRIPTION OF THE PROJECTS

The research area is situated in the south-eastern region of the Free State Province, in the districts of Thaba 'Nchu, Excelsior and Ladybrand. The research was conducted on the pilot land reform projects, where the land was transferred to the participants during the period 1995 to 1999. The six selected projects consist of groups of people while the seventh project is an individual participant. The principle used to select these areas is the same as the one used by Nicholson & Hirschowitz (1988), namely that the areas were

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selected because of similarity in agricultural conditions prevailing in all projects. Their locations are described in Table 4.1.

Table 4.1: Co-ordinates describing the location of the projects

Project	Latitude (S)	Longitude (E)
Nassau Trust	29° 14'	27° 10'
Ikaheng Trust (Ethel's Hope)	29° 03'	27° 11'
Iketeng Trust (608 Frankfort)	29° 18'	27° 09'
Ipopeng Trust (Brakfontein)	29° 26'	27° 08'
Tsoha-O-Iketsetse (Constantia Drift)	29° 31'	29° 31'
Dintlhoane Trust (De Hoek)	29° 25'	26° 52'
Matsididi Trust (Khumo Flats)	29° 04'	26° 56'

The position of each project is shown in Table 4.1. Details regarding prices, areas of grazing and arable land will later be given in Table 4.3. The agricultural potential of the land types in this region was described by Eloff (1984) and the relevant information is presented in Table 4.2. A map showing the position of the farms superimposed on Eloff's land-type map is given in Addendum F.

Table 4.2: The agricultural potential of the farms according to Eloff (1984)

Project	Land Type	% Arable	MAR (mm)	Cropping Potential	Main Limiting Factors
Nassau	P1112wk (Wonderkop)	65	606	Medium	Rain
Ikaheng	P1112wk (Wonderkop)	65	606	Medium	Rain
Itekeng	P1112wk (Wonderkop)	65	606	Medium	Rain
Ipopeng	D112mb (Modderbult)	35	482	Low	Rain
Tsoha-O-Iketsetse	D112mb (Modderbult)	35	482	Low	Rain
Dintlhoane	D112mb (Modderbult)	35	482	Low	Rain
Matsididi	D1112sn (Sepane)	10	547	Low	Rain

* MAR= mean annual rainfall

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The location and characteristics of the projects studied in this research are the following:

4.2.1 Nassua Trust:

This project is situated in the Westminster area in the magisterial district of Excelsior. The project is located on the farm Nassau No. 346 on the gravel road 5km from the N8 between Tweespruit and Ladybrand at the Westminster crossroads to Hobhouse, south of Westminster station. The farm is bordered by the farms Luxenberg, Lunley South No. 662, and Brakfontein No. 71.

4.2.2 Ikaheng Trust:

This project is situated in the magisterial district of Ladybrand, 5km south east of Westminster Railway Station. The farm is called Ethel's Hope No. 607 and consists of a total of 176ha of land, of which 30ha are grazing, 65ha are low- to medium-potential arable land, and 75ha are high-potential arable land. The farm shares its borders with the farm Bighouse on the old Ladybrand road.

4.2.3 Itekeng Trust:

This project is situated on the farm Frankfort No. 71 in the Ladybrand district to the north east of Westminster Station, 14km from the N8 and 15km from the town of Tweespruit, on the left-hand side of the gravel road going towards Hobhouse. The Leeuw River passes along the eastern edge of the farm. The farm comprises a total of 226ha, of which 93ha are natural grazing and 100ha are planted with Eragrostis and Smuts finger-grass. The farm has 20ha irrigable land that have not been utilised.

4.2.4 Ipopeng Trust:

This project is situated on the farm Fullerton, 25km south of Tweespruit towards Hobhouse, and 23km south of Hobhouse. The farm is in the district of Ladybrand and is fed by irrigation water from the Armenia Dam. The farm has a total of 892ha, of which 216ha are planted with Eragrostis Carvula grass and 25ha with Lucerne, while a 20ha

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irrigable plot is utilised for grov... The water is listed under the quota system. The carrying capacity of the veld is equal to 218 LSU.

4.2.5 Tsoha-O-Iketsetse CPA:

This project is situated 500m north of the town of Hobhouse and 500m west of Dipelaneng Township on the left-hand side of the tarred road from Dewetsdorp to Ladybrand in the district of Ladybrand. The farm is known as Constantia Drift and comprises a total of 293ha, of which 208ha are for grazing, 38ha consist of planted grass and 47ha are irrigable land.

4.2.6 Dintlhoane Trust:

This project is situated on the farm De Hoek No. 651, 25km north of Thaba 'Nchu on the gravel road from Thaba 'Nchu to Hobhouse, 1km north of the village of Springfontein, and east of the village of Yorkford in the district of Thaba Nchu. The farm has 87ha of natural grazing and no arable land, with very limited water available for human and animal consumption.

4.2.7 Matsididi Project:

The project is situated on the farm Khumo 24 FP in the district of Thaba 'Nchu. It is situated 25km north of the town of Thaba 'Nchu on the left-hand side of the gravel road to Excelsior. The farm is one of the South African Development Trust farms, which was later held in trust by the Minister of Land Affairs and used for the settlement of commercial farmers. The farm consists of a total of 784ha used for livestock and crop production.

Table 4.3 contains a details summary of all the projects studied, listing name, number, size in hectares, cost price of the land, and number of households in each project.

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Table 4.3: Distribution of land acc[illegible] and beneficiaries

Project	Farm	Ha	Price (R)	House-holds
Nassau	Nassau 346	428	385 000	22
Ikaheng	Ethel's Hope 608	176	171 000	31
Itekeng	Frankfort 71	213	182 400	17
Ipopeng	Fullerton	892	600 000	42
Tsoha-O-Iketsetse	Constantia Drift	293	230 000	21
Dinthloane	De Hoek 651	87	25 000	2
Matsididi	Khumo Flats 288 FP	784	150 000	1
Total		***2 872***	***1 513 400***	***136***

4.3 INFRASTRUCTURE

The results of land reform have placed people in a better position and with a better infrastructure on farms that were previously owned by White farmers who were well supported by the previous government, which had the finances to build such infrastructure.

4.3.1 Roads

The roads between the farms and throughout the area are in a reasonable to good condition for public and private transport. There is also a railway line passing through the area from Bethlehem to Bloemfontein.

4.3.2 Water Supply

There are perennial and non-perennial rivers crossing the area from which irrigation systems and livestock can be supplied. The other water sources for human and animal consumption are windmills that are well installed in all farm camps except at Dintlhwane Trust where the water is very limited.

4.3.3 Housing

There are places where the beneficiaries can build houses and secure their land for their economic investment. The houses are frequently made of mud, while some are constructed

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from cement and corrugated iron. [illegible] of houses belonging to beneficiaries are well supplied with water and with electricity supplied by Escom or power engines. In some isolated cases power has not been connected due to a lack of finances on the part of the project.

4.3.4 Grazing-camps

The veld is of relatively high quality, containing rooigras and eriantha-type grasses. The carrying capacity varies between farms/projects but is generally in the region of 6ha/LSU.

4.4 CLIMATE

The climate of any region is one of the most important factors determining human activities and land use, and therefore economic potential. Rainfall is perhaps the most important climatic variable, followed by temperature, wind, sunshine duration, and evaporation. The research area falls within the transitional climatic area lying between the mountainous region of the South-eastern Free State with its high rainfall, and the drier plains of the central parts of the province. The area receives a summer rainfall of approximately 600mm per annum. Temperatures are extreme and the area experiences hot mid-summer conditions and freezing winters. The combination of erratic rainfall and cold winters has resulted in grassland vegetation cover, rather than woodland (Krige, 1998).

4.4.1 Annual rainfall distribution

Agricultural enterprises and water managers have special interest in the extent of the year-to-year variability or reliability of the annual rainfall. There is variability in the annual rainfall for the region (Krige, 1998). The monthly distribution of rainfall is presented in Table 4.4.

4.4.2 Temperature

Temperature values for the region are shown in Table 4.5. In the table, only mean temperatures are presented and it must be taken into consideration that the winters are cold

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with temperatures dropping well below 0°C, and the summers hot with maximums regularly exceeding 30°C. These abnormal temperatures have negative effects on humans, as well as on animal and crop production in the region (Krige, 1998).

The climate of the area of research is summarised in Table 4.4.

Table 4.4: Climatological data for Tweespruit (Krige, 1998)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	*Annual*
Average temperature T mean °C*	21.2	20.0	17.7	13.7	9.9	6.1	5.8	8.4	12.9	15.3	17.6	19.7	*14.0*
(P) Rainfall (mm)	68	93	72	58	19	17	8	25	2	75	76	57	*570*
Evaporation (mm) / month	260	199	171	129	109	81	87	127	171	220	222	251	*2027*
Aridity index **	0.26	0.47	0.42	0.45	0.17	0.21	0.09	0.20	0.12	0.34	0.34	0.22	*0.28*

* T mean = mean daily temperature

** Aridity index (AI) = P divided by evaporation

Average first day of frost: 26 April. Average number of days with frost: 102 days

Average last day of frost: 4 October.

Although the rainfall during the summer months is reasonably high by South African standards, evaporation is also very high, resulting in low aridity index (AI) values for most of the summer months. This is a serious disadvantage for crop production. The most favourable months for cropping (reasonable AI values of above 0,4) are from February to April. Crops with a short growing season, e.g. selected maize cultivars and sunflowers, should be planted early in January so that they flower in March, thereby yielding the best results (Hensley, Botha, Anderson, Van Staden & Du Toit, 2000).

4.5 ECONOMIC EVALUATION OF THE LAND ALLOCATED TO EACH PROJECT

4.5.1 Introduction

In any land settlement scheme it is extremely important that the area allocated is large enough to afford each household a satisfactory income. A satisfactory minimum income per household specified by the South African government (ANC, 1994) was R1500,00 per

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month, or R18600,00 per annum. (Continued annual increases in the cost of living need to be kept in mind in relation to this amount).

For a land settlement scheme to be successful, efficient economic evaluation of the land prior to its allocation to settlers is therefore of cardinal importance. Efficient economic evaluation depends on, amongst other things, reliable natural resource data, including climatological data, carrying capacity of the veld, which soils can be considered as arable on a sustainable basis, and the area occupied by the soils in the proposed settlement area. The area of land that was cultivated by the previous owner is an unsatisfactory estimate of the area of land cultivatable on a sustainable basis, and may be extremely biased. The delineation of land of this nature is a task for the experts - many of which are available in government departments of agriculture and especially in the government-controlled Agricultural Research Council. Failure to base land settlement projects on the results of efficient economic evaluation can lead to much hardship, disappointment and suffering, generally for settlers.

4.5.2 Maize production

Maize was found to be profitable in this region as compared to other crops (Information from the Department of Agriculture at Glen, as provided in Addendum G).
The cost of implements for crop production is also provided (by Bethlehem Small Grain Research Centre, in Addendum H). The probable income per household from maize is therefore calculated for all the projects.

For example, the calculation of the income per household from crop production for the Nassau project yields the following result:

200 ha x R263,30 net margin/ha
= R52660/project ÷ 22 project beneficiaries
= R2393,64 per beneficiary per annum/12 months
= R199.47 per month.

This income is not sufficient for a family to support an average of six households per month.

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4.5.3 Production of large livestock

As in paragraph 4.5.2 an attempt is made to calculate the probable or expected income per household (in this case with regard to the potential for livestock production).
The production of large livestock, as in Table 4.5, is calculated as follows:
Carrying capacity assumed to be 6ha/LSU
Average net margin for LSU (see Addendum F) = R181,50.

The production of large livestock in Table 4.5 was calculated as follows:
Nassau = 228ha ÷ 6ha/LSU = 38 LSU
38 LSU x R181.50/LSU
= R6897 ÷22 beneficiaries
= R313.50 net income per annum ÷ 12 months
= R26.14 per month per beneficiary.

4.5.4 Expected overall income per project

The net margins from both enterprises were added together to determine the total income of each household per annum. The results in Table 4.5 show that, with the exception of Matsididi, the income per household is far below that specified by RDP standards, even using a maize yield of 2,5t/ha (for Ladybrand district), which is too high for the Tweespruit district with its lower rainfall and lower level of management expected from the emerging farmers.

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Table 4.5: Distribution of land [illegible]ge in different projects, and income expected annually per household

Project	Arable (ha)	Grazing (ha)	No. of house-holds	Arable land (ha) per house-hold	Grazing (ha) per house-hold	Expected income R/house-hold Arable	Expected income R/house-hold Grazing	Total expected income per House-hold per annum
Nassau	200	228	22	9.1	10.4	2393	314	2707
Ikaheng	0	176	31	0	5.7	0	172	172
Itekeng	20	193	17	1.2	11.4	309	344	653
Inopeng	222	670	42	5.3	16.0	1386	483	1869
Tsoha-O-Iketsetse	47	246	21	2.2	11.7	589	355	944
Dintlhoane	0	87	2	0	43.5	0	1317	1317
Matsididi	315	469	1	315	469	82625	14195	96820
Total	***804***	***2069***	***136***					

Although the yield of 2,5t/ha may be applicable to the Ladybrand district where there is good soils and good management, with more rain than near Tweespruit, this seems too high for the conditions prevailing in most of the project areas. A more appropriate figure would be 1,5t/ha. At 1,5t/ha it would not be worth growing maize, using the costs that have been presented. According to Hensley, *et al.*, (2000), the long-term average yield at Glen (top management) is approximately 2t/ha. At this yield expenses are approximately balanced by income. It must also be taken into account that the producer's price of maize varies a lot between seasons and within a season. During the 2000/2001 production season the price (SAFEX) varied between ±R450 and R940/ton which will have a detrimental effect on profitability (Van der Westhuizen, C, personnel communication, 2001).

4.5.5 Home consumption benefits

There is, however, another aspect that throws a different light on this subject. These farmers most probably grow a considerable amount of maize for their own personal use. This maize then replaces that which they would have had to purchase from a shop. Mealie-meal is currently priced at approximately R1,48/kg (± R1,25/kg in bulk) (in retail shops like Pick-'n-Pay). Assuming the farmer (or co-operatively the Trust) has a small hand-grinder and is therefore able to process mealie-meal from maize at no cost, and each family (household) uses approximately 1kg of mealie-meal per day (or ± 500kg per annum), the value of this 500kg can be taken as R625. If it were possible to mill the maize

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himself and sell it to neighbours, ... rable land, at R1,25/kg, a farmer could make a reasonable profit even at a yield of 0,5t/ha.

4.5.6 Discussion

Results from the ARC research group at Glen (Hensley, *et al.*, 2000) show that yields from sunflower are better than maize on clay soils in these semi-arid areas, and that sunflower yields can be increased by 50% using water harvesting. Implementation of these strategies could possibly improve conditions for the settlers slightly. It is, however, quite clear that the natural resources on each of the projects are totally inadequate to provide the settlers with even a reasonable income.

More appropriate allocations could have been made if the soil of the projects studied had been properly tested and proper recommendations had been made with regard to land use before the land was allocated; such as the study done by the Department of Development Aid before the settlement of Black Commercial farmers on SADT land at Highflats and Taxes Valley (Department of Development Aid, 1988).

The land use problems experienced by small farmers in villages in the Eastern Cape must be taken into consideration when formulating policies for land redistribution and population resettlement (Mini, 1995).

The pendulum is now swinging back, this time with enquiry into the reasons for the failure of previous approaches and a determination not to repeat he mistakes of the past. The growing emphasis on environmental and resource management in development has resulted in a renewed focus on property rights, institutional arrangements and participatory (World Bank, 1992, Bromley & Cernea, 1989).

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RESULTS AND DISCUSSION

5.1 INTRODUCTION

Within the context of land reform, socio-economic indicators will be analysed in conjunction with natural, economic and institutional resources, with the aim of providing realistic guidelines in the process of addressing the unequal development of the past. The evaluation of land reform projects in the South-eastern Free State needs to be explained within a broader development framework shaped by historical, socio-economic, legal and decision-making processes.

The research has given a fair picture of burning issues regarding the evaluation of land reform in South Africa and the South-eastern Free State in particular. Many issues addressed in this research have much in common with land questions in other countries such as Kenya, Zimbabwe and Namibia. The land development issue in South Africa is both important and complex. It will require far greater national attention and open public debate than it has thus far received (Cousins, 1994).

Land reform is directed to the problem of poor rural families that do not have land on which to survive, let alone produce additional crops to sell. Usually, a part of the land held by rich farmers or landlords is purchased and distributed to emergent Black farmers and families. These families then work their new landholdings as small owner-farmers. A great deal of land reform took place in the 1950's and early 1960's in many different countries, from Mexico and Iran to India and the Phillipines. The objective of land reform is to prevent the rural elite - for example, the feudal system in the early centuries in Europe - from maintaining its stronghold over productive resources in poor rural areas. The policy of land reform in South Africa is based on there being a willing seller and a willing buyer, which is crucial to enable equal and harmonious redistribution of land resources (Cousins, 1994).

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5.1.1 Infrastructure and services ondents

The infrastructure and services available to the respondents were determined and are illustrated in Table 5.1.

Table 5.1: Indication of the infrastructure and services available to respondents

Infrastructure / Services	Respondents	%
Mud-with-iron-roof house	6	22.2
Cement-bricks-with-iron house	17	62.9
Wood-with-plastics house	0	0
Cardboard house	0	0
Wattle-and-daub house	0	0
Zinc house	4	14.8
Running water inside dwelling	23	85.0
Flush toilet in house	6	22.2
Car or bakkie	5	18.5
Electricity: Public supply	20	74.1
Engine (used)	3	11.1
Engine (not used)	4	14.8
Working radio	22	81.5
Working television	14	51.9

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According to the research the residents were allocated with a piece of land and provided with some rudimentary services. It is revealed in Table 5.1 that there are people who live on the farm and that 22.2% of the respondents live in mud houses while approximately 15% live in shacks. This is a reflection of not only the socio-economic status but also of priorities regarding affordability, taking into consideration the immediate needs of households. Eighty-five percent of respondents are supplied with water and 74.1% with public electricity. The high percentage results from the provision of the services by previous landholders, or the provision of services in farmhouses not owned by the farm workers. It was indicated in the research that the farm workers pay the commercial farmers every month for the use of these services. The research revealed that 11.1% of the respondents use motor engines to generate power, while 14.8% have power engines that are currently not in working condition.

The availability of flush toilets (22,2%) seems not to be significant when one takes into consideration that 85% of the residents have water available on site. It should also be

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remembered that adequate water has ...here the farm workers presently stay. If these services are not provided on the new farm this could prevent the farm workers from moving to the new farm.

From the study it is evident that there is a low private mobility of households, as only 19% of respondents own a car or bakkie. Transport is a very important factor in rural development and agriculture. Transport services provide a link between the town and service centres (such as markets, points of transport for supplies and produce), and are also important for the transport of farm workers. A good transport system has been identified as the second most important catalyst in the country's social and economic development. Transport, especially road transport, is central to development, because without physical access to jobs, health, and education, other qualities of life suffer. Without physical access to resources and markets, growth stagnates and poverty reduction cannot be sustained. A former administrator of the USA Federal Highway Administration stated: "It was not our wealth that made our good roads possible, but rather our good roads that made our wealth possible." This is an important message for South Africa and underlines the need for urgent and determined actions to be taken to preserve the interests of social and economic development in South Africa (O'Leary, Govind, Schwabe, Taylor, 1998).

It is apparent that 82% of the residents have radios and 52% have television sets. These two assets play an important role in the distribution of information, although the respondents might own them primarily for communication and leisure pursuits. It must be noted that electronic telecommunication is an important source of economic growth, and enables growth in other sectors. As a source of economic growth the sector itself offers opportunities for locally developed innovative products and services which, with appropriate transfer of skills and technologies, can contribute significantly to the economic empowerment of previously disadvantaged communities. These sectors can make an important contribution to export growth and import substitutions (O'Leary *et al.*, 1998).

5.1.2 Personal particulars of respondents, as well as their activities

The research reveals that all the *de facto* heads of households are legal citizens of South Africa who qualify as beneficiaries of the land reform government grant of R15000 per

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family. It was found that males are 8% of the beneficiaries while females are at the head of 22.2%.

Approximately 85.2% of household heads are on the farm on a full-time basis, while 14.8% are employed elsewhere on the neighbouring farms or else travel to work each day. Of the full-time respondents, 48% work for the commercial farmers and live on the farm. The full-time, on-farm beneficiaries could ensure the success of the project, since the absence of farmers from the daily management of the farm could lead to failure. The high percentage of beneficiaries on the farm could provide labour and self-employment and contribute to the productivity of the farm.

5.1.3 Marital status of respondents

The marital status of respondents was investigated and the results are shown in Table 5.2.

Table 5.2: Distribution of respondents according to marital status.

Marital status	Respondents	%
Married	23	85.2
Single	2	7.4
Widowed	2	7.4
Total	***27***	***100***

According to the research (Table 5.2) most of the respondents are married.

It is shown in the study that there are more than 23 women in the projects. The high number of unemployed persons and dependants can put pressure on the household income and also become a burden to the government. It will therefore be necessary that the extension and rural development programmes are developed in order to create rural industries to provide jobs for the unemployed women and other members of the households.

These findings underscore the need for adult education and training programmes to ensure that people are empowered and that they in turn participate in rural development programmes.

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In the context of the findings it is shown that there is a need for the training of women and spouses of heads of households in agricultural projects such as vegetable cultivation, and poultry and pig farming. The creation of home industries such as knitting, sewing, weaving, welding and woodwork is also important.

The agriculture and industrial development experience in Taiwan has been widely acknowledged as a successful model of growth. Details have been given, explaining the connections between rapid and equitable rural development in Taiwan and the explosive growth of small and medium scale enterprises focussing especially on domestic demand and human capital spill over effects (Park & Johnston, 1995).

It is also imperative to integrate home economics, health care, and knowledge of nutrition into the extension and rural development programmes of the Free State Department of Agriculture.

5.1.4 Age of respondents and their spouses

The age of respondents, grouped into certain age groups, is illustrated in Figure 1.1.

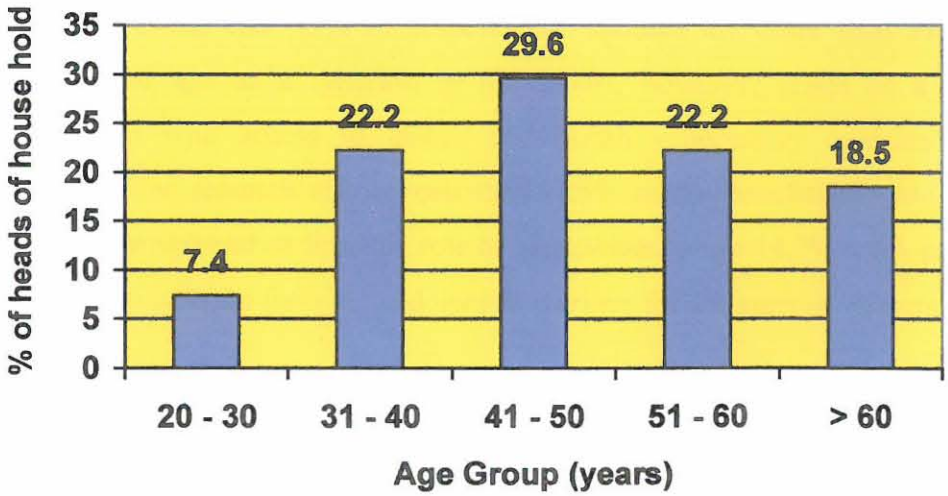

Figure 1.1: Distribution age of *de facto* heads of households and their spouses

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From the sample it is evident that [illegible]nts are younger than 40 years, with the same percentage in the 41 to 50 year group (average age of respondents is 48.8 years). This younger age group has the potential for learning and development and they could contribute to a large extent to the success of the project. The people in the 51 to 60 year category (22.2% of respondents) can also contribute in lighter agricultural projects and other businesses. It is important to make necessary resources available to all age groups, because they have the potential to contribute positively to the success of the project in the future - particularly the younger people. A large percentage of the respondents (40.7%) are older people (> 50 years) who may be too weak physically to be able to perform strenuous farming activities. Older people are more susceptible to ill health, which may hamper their willingness to participate actively in farming activities. The fewer people between the ages of 20 and 40 can be attributed to the fact that young people move to the urban areas to look for jobs or to attend educational institutions. This movement of young people to urban areas, leaving old people in the projects, will ultimately have a negative impact on agricultural production.

A large number (59.5%) of the spouses of households are between 20 and 40 years of age. Botha and Lombard (1992) found that farmers between the ages of 30 and 45 years have the best chance of success. The majority of the beneficiaries are between 30 and 50 years of age. When the beneficiaries are too young or too old it can have detrimental sociological effects on the age structure of the farming population and the community. The research reveals that 15% of respondents' spouses are older than 51 years. The consideration of age as a criterion in the report, however, arises as a result of its interrelationship with access to labour and health - necessary qualities of potential beneficiaries. The research also reveals that 81.5% of the beneficiaries are at home full time and are unemployed or fulfil the role of housewives, while 14.2% work part time or as seasonal labourers on the farm, or as domestic workers for commercial farmers.

International experience, highlighted by Kinsey and Binswager (1993), has shown that the agriculture and economic performance of households is strongly positively correlated with the number of family members able to work. The younger a person is, the less likely they are to have access and control over an adequately capable family labour source. Their own children would be of a school-going are (or younger), and they would rarely have authority over the other members of the extended family and or household. In a group or

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community environment it then becomes important to have a fair spread of older and younger people.

5.1.5 Education of respondents and their spouses

The highest levels of education of respondents (heads of households) and their spouses were also determined and are illustrated in Table 5.3.

Table 5.3: Distribution of respondents according to standard of education

Education	No. of respondents	%	Spouse	%
No schooling	9	33.3%	7	25,9%
Primary school	6	22.2%	9	33,3%
Std. 6-9	9	33.3%	9	33,3%
Std. 10	2	7.4%	1	3,7%
Tertiary education	1	3.7%	1	3,7%
Total	***27***	***100%***	***27***	***100%***

Most of the respondents have either no school training or Std. 6 to 9 as highest training. Only one person was in possession of a tertiary qualification, namely a Diploma in Engineering.

It was found that a large portion of respondents (33.3%) and their spouses (25.9%) are illiterate, while collective 29,6% is illiterate. Only 7.4% of the respondents have Matric as their highest level of training, while 33.3% of spouses have received at most primary schooling compared to 22,2% of their male counterparts.

The standard of education plays an important role in farming and indeed any business enterprise. Although it may be erroneous to assume that illiterate members of rural households (approximately 30%) do not act or think in quantitative terms, nevertheless the way in which rural people measure and interpret things concerned with their own wellbeing puts them at a disadvantage in any participation in the exchange economy and the development process in general. The magnitude of the problem suggests that functional numeracy and literacy training directly related to rural development programmes warrants attention in adult education programmes (Bembridge, 1982).

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Knowledgeability has also been positively linked with growth in agricultural production. Literacy increases the adoption of improved agricultural practice, and this increased knowledgeability appears helpful to farmers absorbing accurately recalling and evaluating the new technologies. It may also have a positive effect on farmers' attitudes towards innovations. High literacy could well be one of the reasons why rice yields in Sri Lanka were the highest in South Asia in 1960 and why Sri Lankan rice production increased by 5.8 per cent annually during the 1960's (Noor, 1980).

5.2 SOCIO-ECONOMIC FACTORS

5.2.1 Income of respondents and their spouses

The salaries of respondents and their spouses were also investigated and are illustrated in Table 5.4. It must be taken into consideration that the cash salary was determined and therefore excludes *in natura* remuneration.

Table 5.4: Distribution of respondents and spouses according to cash salary earned per month

Monthly Salary (Cash)	Respondents	%	Spouses	%
R 0 - 200	7	25.9	8	29.6
R 201 - 500	7	25.9	9	33.3
R 501 - 800	9	33.3	8	29.6
R 801 - 1100	1	3.7	1	7.4
R 1101 >	3	11.1	1	3.7
Total	***27***	***100***	***27***	***100***

The average monthly salary (after deductions) were R569,11 for respondents and R216,67 for spouses. On average respondents also received *in natura* remuneration to the value of R217,06 per month.

It was found from the research that most respondents and their spouses still earn a cash salary below the expected income of R1500 per household per month as proposed by the RDP Policy Framework to be an acceptable income (ANC, 1994).

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Despite this modern development, the study shows that in terms of income distribution and levels of nutrition, approximately 85% of rural farming families are living in a state of abject poverty. Their incomes are low and most of the products recommended by agricultural technology are beyond the range of their purchasing power. Add to these poverty-stricken families the increasing numbers of landless rural people who have an even lower income, e.g. between nil and R500 (as in Table 5.4). The farmers and some of the committee members have used other project members only to obtain the R15000 grant to purchase the land, but they do not earn a better income.

Approximately only 19% of the respondents earn a salary between R801 and R2500, excluding other benefits such as meals and transport. These groups include the partner commercial farmers or government employees who have joined the scheme as an equity or shareholder.

As a result of high unemployment and low labour force participation rates, patterns of income differ substantially among the poor, ultra-poor and the rest of society. Many people especially the poor, rely on multiple sources of income as a coping strategy. Regular wages (including wages from agricultural labour) is the main source of income for only about 39% of the poor and 32% of ultra-poor (RDF, 1995).

5.2.2 Land ownership, and its socio-economic impact on beneficiaries

The research reveals that in order to buy land the beneficiaries had to pool their collective wisdom and as a starting point organise themselves into groups to form legal entities in order to access the government grant of R15000 per family. The main objective of buying land was to enable the beneficiaries to have a place to live, farm, and practise any development activities that may alleviate their poverty and improve their quality of life.

It was found that 97% of legal entities were formed in order to hold land, while a lesser percentage has individual land ownership. It was found that the R15000 was insufficient for an individual to buy land and therefore they organised groups to collectively purchase the land. It is important in rural development to have social structures and groups of people with common interests in order to engage in effective identification of needs and

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discussion of problems of common interest, such as the purchasing of land and the organising of farming, imports, or the sale of products.

It is important to note that social structures have already been established in the form of legal entities to hold land, through which extension officers can work within rural development. Potential change can be considerably influenced by the utilisation of group action to reinforce individual efforts.

It is essential that the local people should develop a momentum of their own so that they can exert pressure on the government to bring about change that would create opportunities for them to participate in the development process.

As long as 81% of the respondents continue to earn an income less than R1500 per month per family (Table 5.4) people will continue to live in absolute poverty. The World Bank (1975) describes absolute poverty as a situation where incomes are so low that even a minimum standard of nutrition, shelter and personal necessities cannot be maintained. Another definition along similar lines describes absolute poverty as consisting of deprivation so acute that basic needs (at the minimum level necessary for survival) can hardly be satisfied (FAO 1982; Cornwell, 1991b).

The ultimate success of a South African rural land reform programme should be tested against its ability to address equity in land distribution, livelihood upgrading, reduction of poverty, creation of rural employment and income-generating opportunities, as well as, inter alia, the raising of the number of successful Black agricultural producers and the enhancing of overall productivity whilst maintaining natural resource management and utilisation (Van Rooyen & Njobe, 1996).

Options to broaden access of farm workers to equity in farming business could enhance redistribution efforts and save considerably on a range of transaction costs, such as infrastructure (to convert a large-scale commercial farm into smallholdings), mechanisation costs, etc. Equity schemes could also enhance the welfare position of farm workers considerably because, effectively, they put this group in a position to accumulate welfare while the present farming business is continuing, inter alia, due to continuation of

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the management factor and the availability of accumulated skills (McKenzie, Weiner & Vinkel, 1993).

Although the employment structure in terms of occupational groups was not covered in the questionnaire for land reform, it was sufficiently surveyed in previous years to explain the low average income of the head of the household as well as his/her partner (as in Table 5.4). In another study the structure plan (Van Zyl, 1998) revealed that 62.9% of employed workers are unskilled and earn an average salary of R569 per month.

The low economic status of the households is a reflection of low social conditions as indicated in various tables. Economically the individual semi-commercial and commercial farmers could maintain a better living standard than group farmers according to the findings given in Table 4.5. It was shown that individuals or projects with fewer beneficiaries could generate more profit than larger groups, e.g. Matsididi and Dintlhoane projects.

The implication of the farm worker's income as proceed income for the household is important. It was found that in 90% of the cases there is no income from the project. Less than 11% of the respondents receive a pension while 26% earn salaries from temporary employment. Thirty-three percent of the respondents are employed as farm workers and earn a salary of between R501 and R800 per month. It is found that the cash salaries earned by farm workers are relatively low in comparison to the salaries in other employment sectors (RDF, 1995).

The research has revealed that 37% of the respondents have an interest in operating a business liquor sales, welding, mechanics, knitting and sewing, etc., but have not been given the opportunity or supported in this.

In summary, it is apparent that there is a dire need for the creation of trade and industries from which people can be employed and earn supplementary income:

- The contribution from sources other than wages and salaries is very important for the survival of a community with low socio-economic status.

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- Trade is an alternative but will be limited by the fact that the farm workers are still living in houses belonging to commercial farmers, and they do not have the right to do as they please regarding business.
- Thirty-three percent of the respondents are farm workers who maintain a slightly better living standard than that of the unemployed land reform beneficiaries.
- The individual farmers, who composed 7% of respondents, maintain higher standards of living in terms of better housing, higher salaries, running water, electricity and a vehicle.
- It is important that programmes and strategies be developed in collaboration between local self-help groups, community development grants, community project funds, skills training, entrepreneurship development, and employment-generating projects to achieve an integrated approach to community development.

5.2.3 Access to land, as well as attitudes and future needs of beneficiaries

Identifying and supporting potential new farmers capable of establishing businesses through individual training in technical and business skills, assistance in identifying market opportunities and developing business plans, and after-care in implementing the plans and solving problems, are keys to land reform and agricultural development.

It is clearly revealed by the research that the initial goal of the government, namely to improve living standards of farm workers through land reform, is not being met. This is due to lack of participation on the part of the beneficiaries, as well as lack of organisational frameworks and support systems for agricultural development.

Information on access to land use, attitudes of beneficiaries towards land reform, as well as their future needs is presented in Table 5.5.

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Table 5.5: Access to land, as v... ...wards land reform and future needs of beneficiaries

Variable	Number of respondents	%
Household presently has access to land for growing crops	17	62.9
Household presently has no access to land for growing crops	10	37.0
Household presently has access to land for grazing	22	81.4
Household presently has no access to land for grazing	5	18.5
Household presently has enough security or control over land	7	25.9
Household presently does not have security or control over land	20	74.0
Household has enough freedom of choice regarding land	19	70.3
Household does not have enough freedom of choice regarding land	8	29.6
Household can lease land if it wishes to do so	13	48.1
Household cannot lease land if it wishes to do so	14	51.8
Household can use land for business purposes	11	40.7
Household cannot use land for business purposes	16	59.2
Household can purchase site on which it resides	12	44.4
Household rents site on which it resides	14	51.8
Household has no land of this type	1	3.7

The evaluation of land use problems in general must be seen against the background of the poor economic and natural resource capacity of the investigated areas. According to Table 5.5, the research reveals that 63% of the respondents have access to the land they purchased for crops, while 37% have no access. The fact that 63% of the beneficiaries have access to land may not necessarily mean that they can grow crops on their own, but it does mean that crop land was part of the land purchased, although they do not use it for their own benefit. This can be attributed to the fact that about 22% of the respondents say that they are excluded by the committee from the decision-making process. Thirty-seven percent of the respondents have no access to cropland for the reason stated in the question pertaining to problems with people's rights to land (see Table 5.5). Almost all the respondents mentioned various reasons that pose problems to their land rights.

It is revealed in Table 5.5 that 48.1% of the respondents may lease their land if they wish to do so, while less than half (41%) of the respondents are of the opinion that they may use the land for business purposes.

Of the 27 respondents 12 indicated that they do not own the house in which they currently reside. Fourteen respondents indicated that they only rent their houses, which belong to

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the employer. All of the respor[illegible] that the land has been purchased for livestock and crop production as well for as residential purposes.

It is shown by the research that 81% of the respondents have access to grazing land, while 19% has none. When asked if they could lease their land if they wished to do so, 52% of respondents reacted negatively, because the partner commercial farmer had decided as such by virtue of his influence on farm workers. The fact that 48% of respondents may lease land is based on the group and committee members being influenced by employer-employee relationships. This can also be proved by the question posed in 7.11 of the questionnaire (addendum A), i.e. whether or not the respondents understand the constitution of the project. Eighty-one percent indicated that they do not understand it.

Seventy per cent of the respondents have no freedom of choice concerning their land, and this is proven by the fact that in most cases, the committee, the commercial farmer and the selected group can make unilateral decisions and therefore exclude the majority of people when decisions are reached regarding the project. The words used, e.g. "deny access", "deny rights", "group decides", "group pressures", etc., may indicate that other members are not informed of what is happening in the projects.

It is apparent from the research that all the respondents have purchased land through government grants of R15000 per family, granted for the purchasing of land for crops and grazing, while 44% of respondents feel that they purchased land for residential purposes. Fifty-two percent of the beneficiaries rent their current residences from their employers whilst they are in employment.

Approximately 74.1% of respondents feel that they have no security of tenure or control over their land, because the land was leased out to commercial farmers without the management committee being consulted.

In summary

- No security of land tenure, and land loss through buying out of shares by commercial farmers from farm workers.

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- In some cases there is a lack of freedom of choice over land use due to commercial farmers imposing restrictions on the leasing of the land and on business development, since farm workers live on the commercial farmers' property.
- In most cases land reform programmes have not achieved the objectives of security of land tenure, and as such the improvement of the living standards of people through land reform programmes cannot be realised in many cases.

5.2.4 The type of land use required by beneficiaries

The respondents have identified different preferences with regard to land use, illustrated in Table 5.6.

Table 5.6: Distribution of respondents according to land-use preference

Variables	Residential	Crop	Grazing
Remain the same	15	15	15
Individual	8	9	10
Communal	1	0	0
Want land of their own as farm workers	1	2	1
Want to change groups	1	1	1
No response	1	0	0

From Table 5.6 it is evident that preference for land use and ownership according to the choice of respondents plays a vital role. It is very important that people indicate their land-use preferences before land is allocated to them.

It is apparent that a high number of the respondents (15) prefer group ownership as is currently in use, where people or farm workers have grouped themselves to form a legal entity through which the land is held and used. It is also indicated by the study that 10 respondents prefer individual ownership of residential areas, land for crops, and livestock. A higher percentage of the respondents (55.5%) have the same preference for group ownership of land for residential, crop and grazing purposes. This could be attributed to the limited State grant of R15000 for which each family qualifies. It is reasonable to assume that an amount of R15000 is insufficient to purchase land that can be economically viable, unless the aim of the project for which the land is purchased is intensive in nature. Thirty-seven percent of the respondents prefer individual ownership of grazing-land.

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It is important to have a clear understanding of the socio-economic structure and its effect on the resources. Heterogeneity of interests within user groups can present difficulties and potential conflicts between users of resources, and between different categories of users of resources. This arrangement requires that the complexity of various users and categories of users must be recognised and expressed within the institutional process (Cousins, 1994).

Hardin (1968), as quoted by Cousins (1994), argues that the private benefit of establishing grazing and additional animals on a common range exceeds the private cost, because the costs of maintaining the rangeland are shifted onto the group as a whole.

5.2.5 Future land requirements of the beneficiaries

The respondents were requested to indicate their preferences with regard to land usage and to prioritise their choices, as indicated in Table 5.7.

Table 5.7: Distribution of respondents according to importance of extra land

1st Important use for extra land	**Number of respondents**	**%**
Place to live	20	74.0
Land for grazing	2	7.4
Field for crops	3	11.1
Field for grazing	2	7.4
2nd Important use for extra land		
Place to live	1	3.7
Land for gardening	1	3.7
Field for crops	4	14.8
Field for grazing	20	74.0
Land for business	1	3.7

The research indicated in Table 5.7 has shown that a large number (20) of the respondents feel that their first preference regarding land use will be as a place to live. The second preference regarding land use is indicated by a small number of respondents as land for crops and grazing respectively. The respondents were asked to identify their second most important choice for land use, and the majority (20) of the beneficiaries identified land for grazing as the most important choice. Four respondents felt that their second choice would

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be land for crops, followed by 3 respondents who would each prefer land for residential, gardening and business purposes respectively.

Most of the respondents (66.7%) do not know how much land they require for residential and gardening purposes.

For the 37% of respondents who prefer individual ownership, support must be provided since it ensures self-determination, innovation and initiatives. A matrix of options ranging from farmer settlement, the provision of support services and out-grower schemes, to farm worker equity and outright purchase of land, could be linked to different types of land status and resource quality (Van Rooyen, Mbongwa, Matsetela & Van Zyl, 1994).

5.3 BENEFICIARIES' KNOWLEDGE OF LAND REFORM PROGRAMMES

The information on land reform was distributed in different ways, as illustrated in Table 5.8.

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Table 5.8: Distribution of respondents according to knowledge of land reform

Source of information	Number of respondents	%
Employer	3	11.11
Pilot office	23	85.19
Reading	1	3.70

The research reveals that all the respondents are aware of the land reform redistribution programme. All the respondents confirmed that the pilot land reform office, through its officials, contributed 85% to 100% of the information regarding the R15000 grant, and also provided programme packages dealing with such issues as helping people to draw up the project business plan, the formation and registration of legal entities, and the valuation of the land to determine the current market value.

More than 88.8% of respondents feel that they are involved as members of the project, while 11% feel that they have an important role to play as committee members or

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managers of the project. A lar[illegible]%) feel that they identified the land themselves, while the remainder say that the land was identified by the employer (22%) or by other people outside the projects (4%).

It was found that more than 70% of the respondents were properly informed about land reform programmes and that they actively participated in the process of land acquisition and settlement.

International experience shows that problems almost inevitably arise when groups are moved on a top-down basis into land-based schemes, with unrealistic expectations as to what is involved in resettlement and with little clarity on what they are expected to do for themselves, what will be done for them, and how long it will take to reach certain levels (De Beer, 1996, in Cornwell, 1996).

5.3.1 Problems that contribute to the failure of land reform projects

Various problems that contributed to the failure of land reform projects were identified and are indicated in Table 5.9.

Table 5.9: Problems experienced by respondents that contribute to the failure of projects

Description	Respondents	%
No work	4	14.8
Being denied rights and excluded from the decision-making process by the committee	1	3.7
Group pressure/not being able to do as one pleases	6	22.2
Lack of equipment	1	3.7
Unable to build houses on land	1	3.7
No benefit derived from the farm	1	3.7
Employer has too much power	1	3.7
No water on the farm	1	3.7
Afraid of the employer	9	33.3
Improper management	2	7.4

Table 5.9 shows that the respondents identified various factors and problems that could lead to failure of the projects. The results shows that 33.3% of respondents have problems that are very similar in nature in that the farm workers are afraid of the employer and as

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such this problem can be related t[illegible] which forces other members to accept an undesirable decision. The research further reveals that 14.8% of respondents feel that no work is provided by the projects. Six respondents feel that group pressure poses most problems in the projects. Other problems are said to be lack of equipment, no water, lack of management, and the fact that beneficiaries are not allowed to build houses.

It can be concluded that all these problems are related to management and therefore an approach must be developed at government level to bring about intervention. Strong non-governmental organisations must also be involved in the attempt to solve the problems.

5.3.2 Problems that have a negative impact on beneficiaries

In the questionnaire respondents were asked to mention what problems are hampering their operations. The results are shown in Table 5.10.

Table 5.10: Problems that have a negative impact on beneficiaries

Description	Respondents	%
Insufficient income to purchase farm inputs	19	70.4
Insufficient water	1	3.7
No problems	7	25.9
Total	27	100.0

The research has shown that there are other problems revealed by the respondents in their land use and which have a negative impact on beneficiaries. It is revealed that of the 27 respondents, more than 19 feel that the reason the land is not used is the lack of sufficient income to purchase production inputs. Seven of the respondents interviewed indicated that they do not have any problems in using the land, while only one beneficiary mentioned that there is no water on the farm.

5.3.3 Attitude towards migration of beneficiaries

The attitude of respondents towards migration or moving to other areas was investigated and is illustrated in Table 5.11.

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Table 5.11: Respondents' willingnes areas

Description	Number of respondents	%
Yes, will move to a place nearby	15	55.5
Yes, will move to another district	1	3.7
No, will not move	10	37.3
Do not know	5	18.5
Will not move due to a lack of income	18	66.7
Will not move due to a lack of water	5	18.5
Will not move because will lose new land	15	55.6
No problems with moving	10	37.3

Of the 27 respondents, more than half (55.5%) said that they would encounter problems if they were to move far from where they currently stay. Only 3.7% of respondents would prefer to move away to another district. More than 20 of the beneficiaries say they would not move, because they would encounter problems in terms of cost. A large proportion (67%) of respondents say that their reason for not moving is a lack of money to start a new life, while 18.5% state that they would not move due to a lack of water on the new farm. The insufficient supply of water on the new farm could be attributed to the discontinuation of the pumping of water by electricity on the farm due to non-payment of the ESCOM account by the beneficiaries. Any farming practice needs a sufficient supply of water and electricity, and it is therefore important that financial support is provided to farmers so that they may commence their farming practices. More than 66% of the respondents claimed that there is no income with which to purchase inputs for agricultural production. More than 55.6% of the respondents feel that if they had to move far away from their present location, they might lose their new land. A small number of respondents (37.3%) have no problem with moving to other areas.

5.3.4 Respondents' experience within different farming practices

The farming experience of respondents was investigated and the results are reflected in Table 5.12.

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Table 5.12: Distribution of respond[illegible] farming experience

Respondents' farming experience	Respondents	%
Crop farming	4	14.8
Vegetable farming	2	7.4
Livestock farming	6	22.2
Small-stock farming	3	11.1
All of the above	3	11.1
None of the above	5	18.5
Blank	4	14.8

According to Table 5.12, 14.8% of the respondents were involved in crop farming and 7.4% in vegetable production as labourers. A high proportion of respondents (22.2%) feel that they have experience in farming with large stock, while fewer beneficiaries were involved in farming with small stock. Although the respondents are currently not engaged in crop production on their own land they do have experience and can produce crops of their own if given the opportunity. It is also revealed that 39% of respondents are interested in other industries from which they can derive an income. Nineteen percent of the beneficiaries have no experience in any of the enterprises listed in Table 5.12. It will be the responsibility of members of the project and of the extension service to encourage other members to participate in projects where they have invested their R15000 land acquisition and settlement grant.

In Zimbabwe one the most powerful legacies of the settler colonial state has been an approach to development planning which seeks effective knowledge as located in the hands of trained experts, who are best qualified to make decisions on such matters as local patterns of land use or resource management rules (Drinkwater, 1989). It has proved difficult to persuade government officials at both the national policy making level and at intermediate or local levels, the value of "indigenous technical knowledge", even in the face of the wide spread failure of technocratic models such as rotational grazing schemes (Cousins, 1992).

5.3.5 The respondents' desire to create business

The respondents have shown some desire to engage in certain home business, as identified by the research. It was found that more than 38% of the respondents wish to become

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involved in a self-empowerment sch[illegible] formal business, shebeen, welding or mechanics business, knitting and sewing enterprise. Such aspirations need government support, however. At least 58% of the respondents see no chance of becoming involved in any type of business. This could be attributed to the fact that they are unsure of the degree of accessibility to their land and the approach to take to have access to land and resources.

This approach requires strong policy and government intervention and support in terms of rural finance and business development.

5.3.6 Lack of common property management

The general management of the projects was studied and it was found that there are certain deficiencies in common property management, along with a high incidence of resignation of beneficiaries. It is shown from the study that 85.2% of the respondents are aware that many beneficiaries are leaving the project area, while 11.1% do not know of any resignation by a beneficiary. It must be mentioned that some people who say they do not know of any such resignation do not live on the farm or are individual farmers who do not know what is happening on the other farms. It is essential that there is communication amongst the farmers and farm workers so that they can share common interests and advise each other. The farmers' association as a structure of emergent farmers can be of paramount importance, since a situation is created where farmers can learn and share knowledge and experience with each other.

A larger number of respondents, approximately 48.2%, feel that the reason for resignation from a project is a lack of jobs and income derived from the project. The beneficiaries were hoping that an additional income would be earned from the R15000 land investment. A small portion (15%) of respondents feel that conflict amongst the beneficiaries and between the employer and the employees results in employees resigning from the projects.

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5.3.7 Management structure of the projects

The research has shown that the management structure has an influence on the success of the project. The findings show that 81% of the respondents are aware of the existence of management structures and management committees. More than 50% of respondents are of the opinion that the committees are democratically elected, while 26.3% feel that some members are self-elected or imposed on management committees without being elected.

Approximately 78% of the respondents consider the committee to be playing a very important role in the life of the project. Fifty-nine percent of beneficiaries see a legal entity as an important body with several specific purposes, amongst which the guiding of decisions and the holding of land are prevalent. Approximately 59.3% of respondents know the purpose of a legal entity, while the remaining proportion does not know its purpose.

Some 40.7% of respondents are not aware of the existence of the constitution of the project. Very few respondents, about 19%, understand the constitution, while 81% claimed to have no understanding thereof. Of the 27 respondents, 19 said that the constitution is not useful. Eighty-five percent of respondents said that they have never referred to a constitution when trying to resolve problems.

The fact that 78% of respondents consider the committee to be playing an important role in the project, while 81% of the respondents not understand the contents of a deed of trust and 85% of the respondents have never referred to the constitution of the project, could give the committee an open hand to act unilaterally. The lack of effective communication in the projects must be regarded as a serious problem that requires urgent attention. Sixty-six percent of the respondents confirmed that meetings are held, while 33% denied that meetings are held. Thirty percent said that only annual general meetings are held. It can therefore be concluded that no project meetings are held, even though meetings are very important tools of communication amongst the members of the projects. The failure of the projects can to a large extend be attributed to non-communication of project issues to the members.

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Ninety-six percent of the respondents said that no government officials had ever attended their meetings, and as such all respondents mentioned that they do not receive any assistance, although 67% of the respondents say that meetings are held. It can be deduced from the findings of the research that any meetings held are of no relevance to the project management.

The findings have shown that 63% of respondents said that no reports are distributed at all, while only 30% said that they receive reports. Forty-eight percent of respondents said that they do not participate in the decision-making process, while 48% said that they do not participate in all the project activities.

The fact that no shareholder meetings are held allows the executive committee to act unilaterally and force certain decisions to suit their own personal circumstances. The non-distribution of information through written project reports violates any form of constitution drawn up in a democratic order. There is therefore no transparency surrounding the management of the project, which poses a high risk of mismanagement. Urgent government intervention is needed, especially from the Provincial Department of Agriculture and the National Department of Land Affairs and Agriculture. The engagement of NGO's to review projects is crucial at this stage.

5.3.8 Training and management support services

The research has investigated different management skills acquired by the beneficiaries, and the results are illustrated in Table 5.13.

Table 5.13: Distribution of respondents according to training in different project managerial skills

Training received in:	Respondents	%
Committee structures and procedures	5	18.52
Role and responsibilities of committee	1	3.70
Management skills	1	3.70
None of the above	20	74.07

Table 5.13 shows that only 7 beneficiaries have received training of any kind, while the majority (20 respondents) have not received training in record keeping, conflict

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management, and financial and farr... The research has further shown that 74.1% of respondents have not received training in how the committee is structured, the procedures and responsibilities of the committee, or management of the farm.

5.3.9 Distribution of respondents according to support received after transfer and training needs

The majority of respondents (23) mentioned that they have never received support. All beneficiaries claim that they have not yet benefited any profit from the assistance they have received. More than half the respondents (51,9%) say that they need training in how to operate the projects. Of the 27 respondents, 13 are prepared to attend training away from the project. Twelve respondents want to be trained in management skills. More than half the respondents (55.6%) said that they require additional training to what they already have.

Eighty-five percent of respondents indicated that they have not received any assistance regarding the project or resource management, and as such none of the beneficiaries have received the assistance they expected. It is clear (also from Table 5.10) that the land reform projects are on the brink of collapse due to lack of support and capacity building. Previous research has also shown that peasant farmers with some form of vocational training are likely to be more progressive than farmers with no training.

Farmers with a better standard of training and education have a significantly higher level of managerial aptitude and are significantly more progressive in terms of adoption of technology (Coombs & Ahmed, 1974).

5.4 SOURCES OF CONFLICT AND ITS CONTRIBUTION TO THE FAILURE OF LAND REFORM PROJECTS

Respondents were asked whether conflict exists in the project. One respondent was unsure while the rest was evenly split on whether conflict occur between members of the projects and members of the management committee and/or between the manager and the

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committee. People who are of the opinion that conflict occurs, where asked to specify the type of problem as listed in Table 5.14.

Table 5.14: Factors that cause conflict in projects.

	Respondents	%
Chairperson makes decisions alone	11	40,8
Others make decisions alone	4	14,8
No lease/term/arrangement	1	3,7
Fight for shares/no production anticipated	4	16,8
Absence of leadership	3	11,1
Lack of equipment	3	11,1
Lack of communication between management committee and other members	15	55,6

It was found that fifteen of the respondents (55,6%) feel that conflicts are caused by, *inter alia*, the chairpersons and management committees making decisions on their own. Four respondents (14,8%) feel that the conflict is caused by the lack of production, as anticipated by shareholders. Three respondents (11,1%) are of the opinion that conflict is caused by the lack of leadership in the projects. The mismanagement of the projects may be attribute to the fact that most of the beneficiaries are illiterate while others who have acquired higher standards of education have not received training in project management and leadership skills. More than half of respondents (55,6%) indicated that conflict is caused by lack of communication between the management committee and other project members. Eleven percent of respondents indicated that insufficient equipment and tools or capital to enable project production has a detrimental effect on project success.

All respondents admitted that they have not been able to find a solution to the problems and conflicts.

It is apparent that none of the beneficiaries are aware of any conflict resolution facilities that are available, such as the Independent Mediation and Conciliation Association of South Africa, or even the lawyer that helped to register the legal entity.

This finding underscores the importance of training the land reform beneficiaries in various aspects of project management in order to ensure success.

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5.5 CONTRIBUTION AND ROLE OF WOMEN IN LAND REFORM PROJECTS

Evidence shows that little attention has been paid to recognising women as essential contributors to the rural economy and integrating them into the development process. The role and participation of women in the land reform projects were also studied. The results regarding the anticipated benefits for women are indicated in Table 5.15.

Table 5.15: Distribution of respondents according to the benefit women anticipate from the land reform project

Benefits anticipated by women	**Respondents**	**%**
Money	13	48.2
Vegetable production	1	3.7
Chicken production	4	14.8
All of the above	1	3.7
No benefits anticipated	8	29.6
Total	***27***	***100***

According to the research approximately 70% of the beneficiaries reveal that the most important expectation of women is to earn money, including 18% that feel that women will have the opportunity to grow vegetables and raise chickens from which to earn an additional income (Table 5.15). One respondent feels that it is necessary to create a variety of agro-industrial enterprises for women, such as piggery, home crafts, or sheep and cattle production, so that women may have some kind of employment and earn an income.

The research also reveals that 11% of respondents feel that women have not benefited as much as they expected, while 89% of beneficiaries say that women have not benefited at all from the projects. It is apparent from the research that 93% of respondents do not see any role for women in the management and decision-making processes of their projects, while only a small number (2) say that women do take decisions that affect the community, while only 2 feel that women participate in the conflict resolution processes.

The research results show that in no way have attempts been made to empower women as expected by the government constitution. Women do not participate in most important

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affairs of the project, such as the financing, production and marketing of the produce, and this may also contribute to conflict within the projects.

Women have a vital role to play in their home, on domestic front, in the rearing of future generations, and in agriculture. Agriculture is regarded as the major employment sector for rural women in the Free State, and will be for several years to come. The recognition and strengthening of the existing contribution of women, combined with strategies to improve their skills and resources, are essential in extending their role in rural development.

The data in this study suggest that it is important to apply a more systematic, and at the same time a more relevant, approach to involving women in improving the farming system. Incentives for production, including credit, should be channelled through women and in proportion to the contribution made by both men and women. There should be an increase in the number of female extension officers and home-economists who can give special attention to the participation of women in the projects and the training of women in different agro-business enterprises, as well as in agricultural skills, management skills and conflict resolution skills.

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SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 SUMMARY

The research has shown that little has been done so far along the lines of integrated rural development. The tendency is still towards central development programmes based on government blueprints. However, some government departments are trying to move away from rigidly sectoral top-down development towards a more integrated approach and bottom-up decision making. This dramatic change cannot be achieved overnight, and in the Southern African context some time will elapse before integrated rural development becomes established, (Cousins, 1994).

The results of this study show that land reform in the South-eastern Free State has not improved the livelihood of the beneficiaries. The rural poor, at whom land reform was directed, remain poor under unbearable socio-economic conditions. Their income is lower now than in 1994. The research shows that although the standard of living and inflation have been rising over the past five years, the salaries and general income per household of the beneficiaries in the projects studied have not increased accordingly, (Cousins, 1994).

6.1.1 Socio-economic factors

The following conditions are associated with the failure of the projects:

- Unsatisfactory land evaluation prior to the allocation of land to the settler.
- Unsatisfactory socio-economic conditions in the rural areas and on farms in particular.
- Unemployment and low income is posing a serious problem and this will probably increase the deterioration of economic conditions and natural resources.
- Approximately 40% of the beneficiaries (heads of household) are ageing (51 years and more), and they are physically not able to do hard labour on the farm.
- There are fewer people between the ages of 20 and 40 years. This leaves only old people to work on the farm, which may lead to non-productivity of the project.

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- More than 80% of people on the [illegible] earning less than R500 per month.
- Most of the farm workers and farmers still earn a cash wage of less than R500 (excluding *in natura* remuneration), which may not be enough to support the family and also purchase agricultural inputs.
- The respondents want to engage in other business ventures but are prevented by a lack of infrastructure and knowledge on how to initiate such ventures.
- It is expected that the social and economic conditions will decline in future for the households involved and therefore impose an increasing burden on the government.

6.1.2 Access to land, as well as attitudes and future needs of beneficiaries

Although the beneficiaries have purchased the land, they do not have access to it due to the rules imposed by the deed of trust or the management of the projects. The farmer has his own conditions of employment and this affects the relationship between him and his farm workers.

More than 70% of the beneficiaries do not have freedom of access to their land to practise any farming activity or business as they wish. There is no security of tenure rights. Approximately 74% of respondents have indicated that there is no security and control over their land and 85% of respondents are aware that many beneficiaries have sold their shares and left the project.

6.1.3 Participation of women in land reform projects

The results of the research has shown that more than 88% of respondents were of the opinion that they have not benefited as they expected when they joined the project. Project implementation has failed to empower women although there is a clear national policy for integrating women into mainstream development activities and ensuring that they benefit. It is possible to have a conforming impact on the national agencies responsible for producing agricultural services and resources. Non-access of women to land, credit and agricultural extension services is likely to increase if government does not pay attention to it.

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Agriculture is regarded as the majo[illegible]or for rural women in the Free State, and will be for several years to come. The recognition and strengthening of women's existing contribution, combined with strategies to improve their skills and resources, are essential in extending their role in rural development.

6.1.4 Land use and lack of technical support

The research has shown that 90% of respondents say that land has not been used for the purposes for which it was purchased. The climate has the potential for livestock production and necessary infrastructures are in place, but in most cases the land is voluntarily leased to the previous owner for his own use. Relatively small portions of the land are used by the beneficiaries, e.g. in the Nassau, Itekeng, and Ipopeng projects. This is due to beneficiaries having no financial support for management, production and marketing capacity. Lack of equipment, technical support and committed government departments has contributed to the total failure of some of the projects.

6.1.5 Management and support services

Although management support was a priority during the initiation phase of the projects, all the respondents mentioned that no additional support was provided to the projects. All respondents also stated that the projects were not supported by any government department in terms of additional finance, management, marketing and training. The committee has in various instances excluded some beneficiaries from the decision-making process by making decisions on its own. In some projects where the commercial farmer is in partnership with the farm workers, there is a tendency for him to reach decisions on his own and implement his decisions without consulting other beneficiaries.

Improper management has resulted in conflict amongst the project members, and no conflict resolution efforts have been made to normalise the situation in the projects. Seventy percent of the respondents indicated that conflict is due to lack of good management and lack of communication between the committee and project members.

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The lack of support from non-go sations in forming a partnership with small emergent farmers and providing capacity in terms of training and facilitation will also promote failure.

As long as land reform projects are not given attention and the necessary support, there will be no agricultural production and therefore no income from which people can market their products and generate more money, causing the beneficiaries to live under continuing poor socio-economic conditions.

6.2 CONCLUSIONS

The research report has argued that questions of common property management are likely to be of importance within land reform programmes in South Africa and in relation to common ownership in particular. Given the fundamental transformations in economy and society, which have affected land ownership systems in the region for the past 150 years, critical issues arise in relation both to incentives for rural groupings to engage in collective action, as well as appropriate structures of authority. However, these can be addressed in large part by approaching common property problems with an adequate understanding of the central issues involved and by making institutional development a central concern of developing agencies. Central to this understanding must be a disintegration of "community" and an analysis of competing interests within an essentially political process. The influence of ecological dynamics is another crucial factor to take into account.

The understanding of the problems has been enhanced through an examination of relevant literature of a theoretical nature, and of lessons in the wider African and international context. How can these lessons be applied in South Africa, and what modifications and adoptions will this require? These challenging questions require a response from both theory and practice. Some affiliates of the National Land Committee, as a non-governmental body, must begin to take up the practical challenges. The government departments responsible for land reform and rural development will soon engage in a similar process in future.

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It can be concluded that 48% c uld like to become involved in other businesses such as shebeens, welding and mechanics operations, and knitting and sewing enterprises as indicated by respondents.

For a land settlement scheme to be successful, efficient economic evaluation of the land prior to its allocation to settlers is therefore of cardinal importance. Efficient economic evaluation depends on, amongst other things, reliable natural resource data, including climatological data, carrying capacity of the veld, which soils can be considered as arable on a sustainable basis, and the area occupied by the soils in the proposed settlement area. The area of land that was cultivated by the previous owner is an unsatisfactory estimate of the area of land cultivatable on a sustainable basis, and may be extremely biased.

The delineation of land of this nature is a task for the experts - many of which are available in government departments of agriculture and especially in the government-controlled Agricultural Research Council. Failure to base land settlement projects on the results of efficient economic evaluation can lead to much hardship, disappointment and suffering, generally for settlers.

6.3 RECOMMENDATIONS

The following recommendation can be made:

- All commercial farmers must be withdrawn from the scheme, and they should not be allowed to be part of the scheme in future if the process cannot be monitored properly by a third party (e.g. an extension officer). It is however recommended that commercial farmers act as mentors for emergent farmers.

- All deeds of trust should be revised by the competent legal advisors so that they focus on the needs of the farm workers.

- Before and after farmers engage in the farming business, they should be properly trained in matters such as the concept of a legal entity, conducting meetings, marketing as well as financial and production management.

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- The government should provide necessary support in the form of regular visits to the projects to ensure that they are being managed according to agreements entered into and relevant business plans.

- The involvement of individual experts from local structures and NGO's is essential to empower the committees.

- An intensive programme should be developed in which women will participate and take responsibility for projects where necessary.

- The government must make funds available for current projects to enable them to purchase equipment and the necessary agricultural inputs.

- The projects must be re-evaluated to assess whether the land potential can truly carry and sustain the livelihood of the beneficiaries involved.

- Experts should be used to evaluate the land and make recommendations before any new land is purchased.

- Efficient land-use planning and formulation of technical aspects is of paramount importance before any settlement takes place.

- The business plan must be reviewed to eliminate impractical and unscientific assumptions.

- The use of universities and technikons is very important in the evaluation and development of projects and the implementation of programmes, by virtue of their expertise and impartiality.

- Lack of socio-economic development in the land reform projects is due to failure of the government to enforce the implementation of integrated rural development strategies. In this regard the government must engage and mobilise its resources in partnership

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with non-governmental orga[illegible]ement its policies at all levels of government.

- Cooperatives should be encouraged for the supply of inputs and to organise finance for members.

- Study groups between projects should be established.

- Programme extension for agriculture production should be reintroduced.

- Retraining of extension offices to deal with emerging farmers should be established.

- Land Bank loans should be user friendly towards emerging farmers.

- The time used to process applications from project members towards CPF-funds must be shortened.

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ADDENDUM A

QUESTIONNAIRE TO EVALUATE LAND REFORM PROJECTS IN THE SOUTH-EASTERN FREE STATE

TECHNIKON
VRYSTAAT/FREE STATE

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EVALUATION OF LAND REFORM PROJECTS IN THE SOUTH-EASTERN FREE STATE

SECTION 1: QUESTIONNAIRE

1. Information on household

1.1 Respondent's number: ..... ☐☐ 1
Unique household ID (to be assigned by data entry supervisor)

1.2 Project: ..... ☐ 2

1.3 Status of household residency 0 (encircle):
1 = South African
2 = don't know ☐ 3
3 = other (specify) .....

1.4 Permanency of residents:
4 = permanent
5 = temporary ☐ 4

1.5 Presence in house/on plot

Are the walls mostly made of: mud =1, cement = 2, wood or plastic or cardboard = 3, wattle and daub = 4, zinc = 5		5
1 = YES, 0 = NO		
Do you have running tap water inside the dwelling or on site?		6
Do you have a flush toilet in the house or on site?		7
Is there a car or bakkie?		8
Does this house receive electricity from the public supply?		9
Is there a (working) radio?		10
Is there a (working) television?		11

1.6 Does the household use wood for cooking, lighting or heating? ☐ 12
If so –
How many trips per week are needed to collect wood? ☐☐ 13
How long does each round trip take in minutes (including the time it takes to actually collect the wood)? ☐☐☐ 14

1.7 Does the household have to fetch water and carry it to the house? ☐ 15
If so –
How many trips per day are needed to collect water? ☐ 16
How long does each round trip take in minutes (including the time it takes to wait in the queue? ☐☐☐ 17
* Head of household – marital status: ..... ☐ 18
* Date of marriage (Year): ..... ☐☐☐☐ 19

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2. People in the household

Instructions to interviewer: We are interested in the number of people who are regularly present in the household. "Full-time" means that the individual's usual residence is the household. "Part-time" means that the individual uses the household as one of his/her places of residence, but is not always resident there. This is so as to capture migrants and commuters, so ask about frequency of residence during non-working periods. An example of a part-time resident is someone who lives in the household once a month or during every holiday from work. Please use extra sheets as necessary. **BEGIN WITH THE HEAD OF THE HOUSEHOLD.**

Codes only.

No.	Head of household and relationship to head Name Code		Age in years	Gender M = 1 F = 2	Resident full-time or part-time	If part-time: Frequency in days per month	Highest educational qualification	If part-time, where does this person stay when not resident in the household?	
1									20-26
2									27-33
3									34-40
4									41-47
5									48-54
6									55-61
7									62-68
8									69-75
9									76-82
10									83-89

1 = Person is head
2 = Wife/husband
3 = Mother/father
4 = Mother-in-law/ father-in-law
5 = Son/daughter
6 = Son-in-law/daughter-in-law
7 = Other relative
8 = Not a relative

Full-time = 1
Part-time = 2

1 = No school
2 = Primary
3 = Std. 6-9
4 = Std. 10
5 = Std. 10 + Dip.

1 = Gauteng
2 = Other urban area
3 = Rural area
4 = Bloemfontein
5 = Thaba 'Nchu
6 = Hobhouse
7 = Ladybrand

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3. Questions on wages and salaries

1) Wage employment earnings. Interviewer: ask this question of each adult and child listed under question one for people in the household. Include all employment for wages, including seasonal and temporary work. Remember that a person can appear more than once. Where in-kind values are asked for, have the respondent estimate what he/she would have had to pay.

Use more than one page if necessary. **REMEMBER - QUESTIONS ARE FOR THE LAST MONTH.**

No.	Name: Keep the same sequence as on the previous page Name	Code	How much were they paid for the last month's work, after deductions?	How much did they receive in the form of free transport in the last month?	How much did they receive in the form of free food?	How much did they receive in the form of free housing?	
1							90-94
2							95-99
3							100-104
4							105-109
5							110-114
6							115-119
7							120-124
8							125-129
9							130-134
10							135-139

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4. Questions on current land access (1 = yes, 0 = no)

4.1 Does this household presently have access to land to grow crops? ☐ 140

4.2 Does this household presently have access to land for grazing? ☐ 141

4.3 How did the household acquire – (tick applicable box)

	No land of this type = 1	Allocated by = 2	Inherited = 3	Purchased = 4	Leased = 5	Informal = 6	
The site currently occupied?							☐ 142
The land used for crops?							☐ 143
The land used for grazing?							☐ 144

4.4 Do you have sufficient security or control over your land? ☐ 145

4.5 Do you have enough freedom of choice concerning what you may do on your land? ☐ 146

4.6 Could you lease your land if you wished to do so? ☐ 147

4.7 Are you able to use the land for business purposes? ☐ 148

4.8 Are there any other problems regarding your rights to the land? ☐ 149

.....

.....

4.9 If you had the choice, what type of ownership would you prefer over your current ownership?

4.9.1 Residential site a) stay same b) individual c) communal d) other (describe) ☐ 150
.....

4.9.2 Cropland a) stay same b) individual c) communal d) other (describe) ☐ 151
.....

4.9.3 Grazing a) stay same b) individual c) communal d) other (describe) ☐ 152
.....

4.10 If you were to receive extra land, what would be your two most important uses for it?
(Circle two of the following)

a) A place to live
b) Land for gardening
c) Fields for crops
d) Fields for grazing
e) Land for business

☐ 153
☐ 154

4.11 How much land do you need (in ha – a hectare is the size of about 2 soccer fields)?

a) use 4.10.a ha ..... ☐☐☐ 155-157
b) use 4.10.b ha ..... ☐☐☐ 158-160

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5. Questions on land reform (1 = yes, 0 = no)

5.1.1 Do you know about the government's land reform programme? ☐ 161
If yes – describe what you know ..... ☐ 162
a) Grant of R15 000 .....
b) Pilot office .....
c) Officials .....

5.1.2 How did you come by this information? ..... ☐ 163
a) Employer.....
b) Pilot official.....
c) Radio .....
d) Read about it .....
e) Other .....

5.1.3 Are you involved in a land reform project at present? ..... ☐ 164
If yes – please describe your role ..... ☐ 165
a) Member .....
b) Committee .....
c) Manager

5.1.4 Has the land been identified? Describe ..... ☐ 166
a) By yourself ..... ☐ 167
b) By employer .....
c) Other .....

5.2 Given a grant of R15 000, how much would you use for the following:

a) Housing, residential infrastructure (e.g. water-pipes)	b) Land		168-171
			172-175

5.3 Would you use the extra land for farming? ..... ☐ 176
If yes – Would you have any problems using the land for farming? ☐ 177
If yes, why? ☐ 178
a) Insufficient income to buy inputs
b) Insufficient water
c) Theft
d) Not enough time/no labour available
e) Harvest/outputs would be too small

5.4 If necessary, would you be prepared to move to acquire land?
(Circle one answer)
a) Yes, but only near to where I presently stay ☐ 179
b) Yes, but only within the same district
c) Yes, to another district ☐ 180
d) No, I would not move

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5.5 Would you have any problems with moving? ..... ☐ 181

If yes – why?

a) Lose current land/be far from current land ☐ 182
b) Cost too much to move
c) Be parted from family/friends
d) Problems getting to work/employment
e) Worried about what people are like in new area
f) Other (describe) .....

5.6 Who should allocate new land? ☐ 183

a) The people being moved
b) Chiefs
c) The government
d) Other (describe) .....

5.7 For how many years have you been involved in farming?

5.7.1 Have you been involved in the following farming practices? ☐ 184

a) Crop farming ☐ 185
b) Vegetable farming
c) Large stock
d) Small stock
e) Chickens
f) All of the above
g) None of the above

5.7.2 Is there anything else you can do personally to generate an income? ☐ 186

a) Small business ☐ 187
b) Shebeen
c) Welding
d) Mechanics
e) Knitting/sewing
f) Other

5.7.3 Have any members left the project? ☐ 188

5.7.4 What was their reason for leaving? ☐ 189

a) No jobs
b) Conflict within the project
c) Sold shares
d) No place of residence
e) Expelled from project
f) Other

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6. Agricultural Income

* Ask only if the household cultivated crops or kept livestock in the last year*

Crop name	Crop - See codes	In what unit does the household usually measure the crop? See codes	How many units of the crop were harvested in the past 12 months?	How many units of the crop did the household sell in the past 12 months?		How many units of the crop were given to pay for labour?	How many units of the crop were given to pay for use of the land?	
				Number	Average price per unit			
								190-197
								198-204
								205-211
								212-219
								220-227
								228-234
								235-242
								243-249

Crops:

01 = Maize - grain	07 = Bananas	13 = Madimbe/tubes	19 = Pasture crop (e.g. Lucerne)
02 = Maize - fresh	08 = Grapes	14 = Peanuts/nuts	20 = Commercial flowers
03 = Sorghum	09 = Dry beans	15 = Tomatoes	21 = Imifino, morogo, berries
04 = Wheat	10 = Pumpkins/squash	16 = Onions	22 = Other (specify)
05 = Potatoes	11 = Green vegetables	17 = Sugar/cane	
06 = Orchard fruit	12 = Millet	18 = Other vegetables	

Units:

01 = kilograms	07 = boxes
02 = 10-kg bags	08= 25-litre drums
03 = 25-kg bags	09 = pieces/ears
04 = 50-kg bags	10 = basins (specify size)
05 = 80-kg bags	11 = bunches
06 = tons	12 = other (specify)

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7. Livestock Income

* Ask only if the household owns any livestock or poultry*

	Cattle	Sheep	Goats	Pigs	Poultry	Project Cattle	
How many does the household have?							250-255
In the past year, how many, if any, were born?							256-262
In the past year, how many, if any, were sold?							263-268
What was the TOTAL value sold?							269-274
In the past year, how many, if any, did the household buy?							275-280
In the past year, how many, if any, did the household slaughter?							281-286
In the past year, how many were stolen, died or were lost?							287-292
At present, how many of the household's animals are on loan to other people?							293-298
At present, how many animals does the household have on loan from other people?							299-304

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7.1 Ask everyone with cattle or goats:

a) How many litres of milk were obtained from your herd during the past week? ☐☐☐☐ 305-308

b) And how much was for use by the household? (in litres) ☐☐☐ 309-311

c) And how much was for sale or exchange? ☐☐ 312-313

d) What was the value of milk sold or exchanged in **Rand**? ☐☐☐ 314-316

7.2 Ask everyone with hens, ducks or other poultry:

a) Approximately how many eggs were obtained from your poultry during the past week? ☐☐☐ 317-319

b) And how many of these did the household use? ☐☐☐ 320-322

c) And how many of these were for sale or exchange? ☐☐☐ 323-325

d) What was the value of eggs sold or exchanged in **Rand**? ☐☐☐ 326-328

7.3 Ask everyone with sheep or goats:

a) In the past 12 months, what, if anything, did the household make from the sale of wool or mohair in **Rand**? ☐☐☐ 329-331

7.4 Ask everyone who owns animals:

a) In the past 12 months, what, if anything, did the household make from the sale of animal skins and hides in **Rand**? ☐☐☐ 332-334

b) What was the cost of veterinary services, including medication and dip, in **Rand**? ☐☐☐☐ 335-338

8. Farming Assets

8.1 Does this household own any tractors or other farming vehicles? ☐☐☐☐☐ 339-344
If yes – for what amount could you sell them? R.....

8.2 Does this household own mechanised farming equipment/pumps? ☐☐☐☐ 345-348
If yes – for what amount could you sell them? R.....

8.3 Does this household own any other non-mechanical farming tools (spades, etc.)? ☐☐☐☐☐ 349-353
If yes – for what amount could you sell them? R.....

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9. Farming Costs

In the last 12 months, how much did the household pay in cash and credit for:

	Cash	Credit	
Wages for workers who helped with farming			354-35
Farming materials such as seed, fertiliser and pesticides			356-35
Petrol, diesel and oil for farming machinery (not for normal transport)			358-35
Food for animals or poultry			360-36
Farm land that was leased from somebody else			362-36
Other payments made in the last year to gain access to land			364-36
Land taxes			366-36
Various services, for example tractors and oxen used for ploughing			368-36
Interest on loans			370-37
Any other costs (describe)			372-37

10. Other Income

10.1 How much did the household members receive in cash in the last month as remittances from non-residents (i.e. people not in the table in Section 1)? ☐☐☐ 383-38

10.2 How much did household members receive in kind in the last month from non-residents? (Ask value in amount) ☐☐☐ 386-38

10.3 How much income was received from the rental of buildings or land in the last month? ☐☐☐ 389-391

10.4 How much income was received from pensions or other government grants in the last month? ☐☐☐☐ 392-39

10.5 How much revenue was earned from trading or self-employment in the last month? ☐☐☐ 396-39

10.6 How much was spent (costs) on inputs for trading or self-employment in the last month? ☐☐☐ 399-401

10.7 Do you receive any other income? ☐ 402
If so, describe .....
.....

How much is received per month? ☐☐☐ 403-405

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11. MANAGEMENT STRUCTURES AI

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11.1 Does a management structure exist? ☐ 406

11.2 Is there a representative committee for the project? ☐ 407

11.3 If yes, how was the committee established?

a) Democratically..... ☐ 408
b) Self-elected..... ☐ 409
c) Co-opted ..... ☐

11.4 What is your role in the project?

a) Committee member ..... ☐ 410
b) Ordinary member..... ☐ 411
c) Manager

11.5 What is the purpose of the legal entity?

a) To guide how project operates ..... ☐ 412
b) To hold land ..... ☐ 413
c) Other .....

11.6 Are there parts of the constitution that you do not understand?

a) Understand ..... ☐ 414
b) Don't understand ..... ☐ 415
c) Other .....

11.7 Do you think that the constitution is useful to this project?

a) Controls behaviour..... ☐ 416
b) Gives guidance for operation ..... ☐ 417

11.8 Have you ever had to use/refer to the constitution to settle matters within the project?
If yes, when and why?
.....

a) During dispute/conflict ..... ☐ 418
b) Death ..... ☐ 419
c) Resignation .....
d) Operation/management .....
e) Meetings .....
f) Other

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12. PARTICIPATION

12.1 Do you hold meetings for the project? ☐ 420

12.2 How often? ☐ 421

1)	2)	3)	4)	5)
Fortnightly	Weekly	Monthly	Every 2 months	Every 3 months

12.3 Who is/are invited to the meetings?
- a) Agriculture ..... ☐ 422
- b) Social worker ..... ☐ 423
- c) DLA .....
- d) Health .....
- e) NGO .....

12.4 Do they help you? How?
- a) Finance ..... ☐ 424
- b) Advice ..... ☐ 425
- c) Management .....

12.5 How are people invited?
- a) Verbally ..... ☐ 426
- b) Letters ..... ☐ 427
- c) Other .....

12.6 Who attends the meetings?
- a) Members ..... ☐ 428
- b) Outsiders ..... ☐ 429
- c) Officials of departments .....

12.7 Do you keep minutes of all meetings? Explain how:
- a) Secretary ..... ☐ 430
- b) Chairperson ..... ☐ 431
- c) No minutes are taken

12.8 Do non-project members visit the project?
- a) Monthly ..... ☐ 432
- b) Twice per month..... ☐ 433
- c) Daily ..... ☐ 434

12.9 Do non-project members attend meetings?
- a) Once per month ..... ☐ 435
- b) Twice per month ..... ☐ 436
- c) Do not attend .....

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12.10 Do you keep records of:

	Yes	No	Explain		
Production					437
Meetings					438
Finances available					439
Finances utilised					440
All of the above					441
					442

12.11 Do you provide those that attend the meetings with reports? ☐ 443

12.12 Do you provide members not present at the meetings with reports? ☐ 444

a) Distribute them ..... ☐ 445

b) Read them in the meeting .....

c) Do not distribute them ..... ☐

12.13 Do project members participate in the following?

Process	**Yes**	**No**	**Explain**		
Decision making					446-447
Identification of project needs					448-449
Use of funds / finances					450-451
Type of production (crop)					452-453
Type of production (livestock)					454-455
Selection/election of committee					456-457
Discussion and choice of outside assistance					458-459
Operational management					460-461
Provision of labour					462-463
Marketing and selling of produce					464-465
Lease agreement negotiations					466-467
Other/all of the above					468-469

12.14 Do you feel/think that your level of participation is sufficient? ☐ 470

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13. TRAINING AND ASSISTANCE

13.1 Have you ever received training? 480

If yes, what type of training have you received?

Description of training	Yes	No	When (date)	By whom		
Committee structure & procedure						481-48
Roles and responsibilities of committee members						484-48
Management skills						487-48
Record keeping						490-49
Conflict resolution						493-49
Financial management						496-49
Farming						599-50

13.2 Have you received any assistance since the project was handed over?

Assistance	Yes	No	From whom	Details		
Financial						503-50
Land management						506-50
Product marketing						509-51
Land use and viability						512-51
Conflict resolution						515-51
Record keeping						518-52
Roles & responsibilities of committee members						521-52
Other						524-52
Other						527-52

13.3 Did the assistance benefit the project members and/or the project?

a) Increased profit ..... [ ] 530
b) Better management ..... [ ] 531
c) Reduced conflict ..... [ ]

13.4 Do the project members need to develop additional skills in order to contribute to the success of the project?

a) Taken to training ..... [ ] 532
b) On-farm training ..... [ ] 533
c) Both ..... [ ] 534

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14. PARTICIPATION OF WOMEN

14.1 Composition of committee

	Total
Females	
Males	

☐ 535
☐ 536

14.2 How many project beneficiaries are women? ☐ 537

14.3 What type of benefits do women anticipate?

☐ 538
☐ 539

a) Money .....
b) Vegetables .....
c) Chickens .....
d) Pigs .....
e) Home crafts .....
f) Cattle .....
g) Sheep .....
h) All of the above .....

14.4 Have women benefited from the project?

☐ 540
☐ 541

a) Money .....
b) Vegetables .....
c) Chickens .....
d) Pigs .....
e) Home crafts.....
f) Cattle .....
g) Sheep .....
h) All of the above .....

14.5 Do women play a role in the management committee?

☐ 542
☐ 543

a) Management .....
b) Secretariat .....
c) Treasurer .....
d) Chairperson .....
e) Additional members .....

14.6 Are there any decisions made by women that relate to the project or which have affected the community?

☐ 544
☐ 545

a) Development empowerment of women.....
b) Financial .....
c) Production .....
d) Marketing .....
e) Conflict resolution .....
f) All of the above .....

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15. CONFLICT RESOLUTION

15.1 Does conflict exist in the project?

15.1.1 If yes, what is the nature of the conflict?

Nature of conflict	Yes	No	Explain		
Management / Leadership					546-547
Marketing / Selling					548-549
Profit sharing and use					550-551
Finance utilisation / Decisions					552-553
Labour					354-555
Production					556-557

15.2 Does conflict exist amongst the project representative committee members?

15.2.1 If yes, what is the nature of the conflict?

Nature of conflict	Yes	No	Explain		
Management / Leadership					558-559
Marketing / Selling					560-561
Profit sharing and use					562-563
Finance utilisation / Decisions					564-565
Labour					566-567
Production					568-569

15.3 Has there been any effort to settle the matter where conflict exists? ☐ 571

a) Meeting of committee ..... ☐ 572
b) Mediation / lawyer .....
c) Call DLA .....
d) Call Agriculture .....
e) General meeting .....

15.4 Was external assistant required?

a) Committee ..... ☐ 573
b) Extension office ..... ☐ 574
c) DLA officials .....
d) Other .....
e) All of the above .....

15.5 Was the conflict resolved? ..... ☐ 575

15.6 Are you aware of the IMSSA mediation facilities? ..... ☐ 576

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6. LAND USE

16.1 Was there a land use plan in the project proposal? If so, what?

a) Crop production ..... ☐ 577
b) Livestock ..... ☐
c) Settlement .....
d) All of the above .....

16.1.1 How is the land currently being used?

Land use	Yes	No	Hectares		
Residential				☐☐	578-579
Church				☐☐	580-581
School				☐☐	582-583
Forestry				☐☐	584-585
Business (explain)				☐☐	586-587
Grazing				☐☐	588-589
Crops				☐☐	590-591

16.2 No. of animals

		On-farm	Off-farm	
1)	Chickens	☐	☐	592
2)	Pigs	☐	☐	593
3)	Cattle	☐	☐	594
4)	Sheep	☐	☐	595
5)	Goats	☐	☐	596
6)	Horses	☐	☐	597
7)	Other	☐	☐	698

16.3 Is all the livestock on the farm owned by the project members? ☐ 599

Why off-farm? ☐ 600

a) No access to land .....
b) Refused access to land .....
c) Insufficient land .....
d) Other .....

16.4 Is land being used to its fullest capacity?

a) Grazing ☐ 601
b) Arable ☐ 602
c) Vegetable
d) Housing

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17. Support by Department of Agricu Officer

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	Yes	No	How it is done		
Extension					603-604
Training					605-606
Finance					607-608
Management					609-610
Technical					611-612
Information					613-614
Visit					615-616
Advise					617-618
Publications					629-620
					621-622

18. How often do you visit the project?

Twice per month	Once per month	Once every 2 months		
				624-625
				626-627

19. Do you communicate with the farmers through the following means?

	Yes	No	How often		
Farmers' days					628-629
Conferences					630-631
Lectures					632-633
Pamphlets					634-635
Periodicals					636-637
Leaflets					638-639
Electronic media					640-641
Leader farmers					642-643
Training					644-645
Visits					646-647

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ADDENDUM B

CODE LIST TO TABULATE THE DATA GATHERED FROM THE RESEARCH

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Code list

a	=	1
b	=	2
c	=	3
d	=	4
e	=	5
f	=	6
g	=	7
h	=	8

1	=	Ipopeng
2	=	Hekeng
3	=	Tsoha- O Ketsetse
4	=	Ikaneng
5	=	Nassau
6	=	Dinthane
7	=	Khuno Flats

18	:	Married	=	1
		Widow/er	=	2
25	:	Agric. Eng.-degree	=	5
26	:	Work at Verkeerdevlei	=	1
		Police	=	2
		School	=	3
40/47/54/61	:	Stay at school in other town	=	1
93	:	80kg maize meal, 25kg potatoes, 3 cabbages	=	1
149	:	No work / conflicts / deny access	=	1
	:	Being denied the rights by Committee / Excluded in decisions by Committee	=	2
	:	Group pressure / you can't do as you want	=	3
	:	Group decides	=	4
	:	Lack equipment	=	5
	:	Can't build house on land	=	6
	:	Don't benefit from the farm	=	7
	:	Employer has the power	=	8
	:	No water on the farm	=	9
	:	No proper management	=	10

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150	:	Want land of their own as farm workers	=	4
	:	Want to go away to other group	=	5
151		Want land of their own as farm workers	=	4
	:	Want to go away to other group	=	5
152	:	Want land of their own as farm workers	=	4
	:	Want to go away to other group	=	5
155	:	Already have land	=	1
	:	Already enough land	=	2

Q 5.8 : "Years experience" becomes 175

345 becomes 354

361 becomes 371

379 becomes 376

373 becomes 377

377 becomes 378

413	:	Don't know	=	3
415	:	Never saw it	=	3
417	:	People do as they like	=	3
421	:	Annual general meeting	=	3
437	:	delete		
438	:	Don't know	=	2
	:	Auditor at coop.	=	3
504	:	Land affairs	=	1

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533	:	Management	=	3
539	:	Housing	=	9

547 / 549 / 551 / 553 / 555 / 557

	:	Chairperson makes decision alone	=	1
	:	Others make decision alone	=	2
	:	No shares	=	3
	:	They are not informed of decision	=	4
	:	No lease term/arrangement	=	5
	:	Limited understanding	=	6
	:	Fight for share / no production as anticipated	=	7
	:	No leadership	=	8
	:	No equipment	=	9

559 / 561 / 563 / 565 / 567 / 570

	:	Chairperson makes decision alone	=	1
	:	Committee decides on their own	=	2
	:	Manager does not listen to grievance of members	=	3
	:	Afraid of employer	=	4
	:	No shares	=	5
	:	Control by boss / oppression	=	6
	:	No management	=	7
574	:	Rural Foundation	=	3
577	:	Crop & Livestock	=	5
	:	Not to their advantage	=	6
579	:	5 families	=	1
591	:	Lucerne only	=	1
	:	Leased land	=	2
600	:	Conflicts	=	4
602	:	Shortage of equipment and material	=	6
	:	Land leased to owner	=	7

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ADDENDUM C

PROJECT LOCATION MAP TO IDENTIFY THE LOCATION OF PROJECTS

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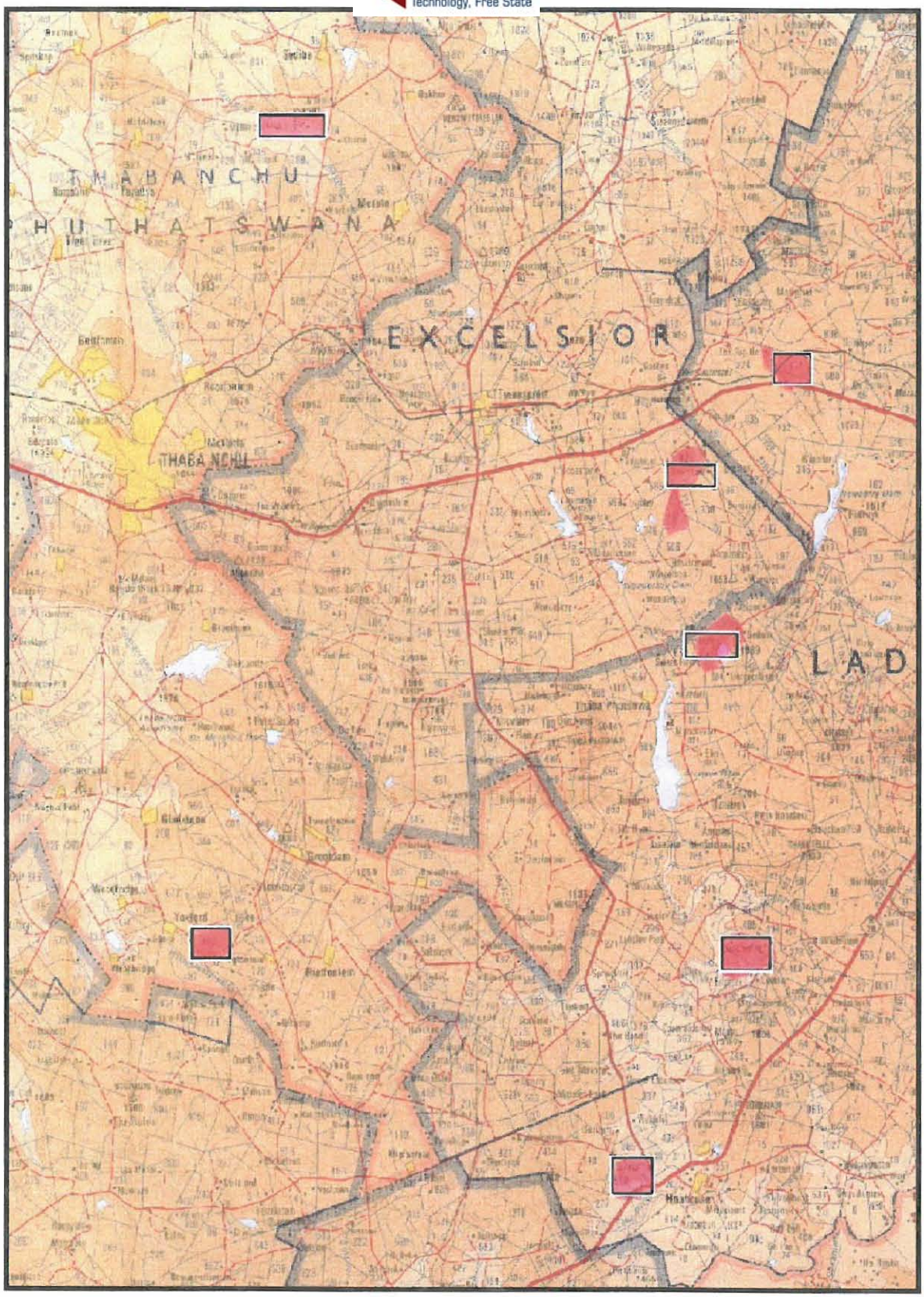

(Projects/farms indicated by red blocks)

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ADDENDUM D

TABLES TO DETERMINE AGRICULTURAL POTENTIAL

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TABEL 6.8 vervolg

Grondassosiasie	Pedosisteem	Kaartsimbool	Bewerkbare oppervlakte van pedosisteem %	Akkerboupotensiaal van bewerkbare oppervlakte	Toegekende waarde: Reënval	Diepte	Tekstuur: sand	Tekstuur: leem	Tekstuur: klei	Ander beperkings: Helling*	Ander beperkings: Winderosie
PIII	Egmont	PIII1em	70	Medium	3	1	(2)	3		Effens/Matig	Laag
Grys en geel gronde met hooglopende duplekstronde al gemeen	Senekal	PIII1se	70	Medium	3	1	2			Effens/Matig	Laag
	Wesselskop	PIII1wl	70	Medium	3	1		3		Effens	Laag
	→ Wonderkop	PIII2wk	65	Medium	3	1-2	2			Effens/Matig	Laag
	Belvedere	PIII4bd	70	Medium/Hoog	3	1-2	(2)	3		Effens/Matig	Laag
	Genadeberg	PIII4gn	45	Medium	3	1	2			Effens/Matig	Laag
	Paul Roux	PIII4pr	70	Medium	3	1		3		Effens/Matig	Laag
DI	Frosie	DI1es	10	Laag	2	1	2			Gelyk	Geen
Duplekstronde met B-horisonte oorwegend rooi	Rooikop	DI1rk	15	Laag	2	1	2			Gelyk/Effens	Geen
DII	Caledon	DII1cl	10	Laag	2	1	2			Gelyk	Laag
Duplekstronde met B-horisonte oorwegend rooi-rooi	Lengana	DII1lg	15	Medium	2	1		3		Gelyk/Effens	Geen
	Rouxville	DII1rx	20	Laag	2	1	2			Gelyk/Effens	Geen
	Smithfield	DII1sf	20	Laag	1	1	2	(3)		Gelyk	Geen
	Wepener	DII1wp	15	Laag	2	1	2			Gelyk	Geen
	Heurgla	DII2gg	55	Medium	3	1		3		Gelyk	Geen
	X Modderbult	DII2mb	35	Laag	1	1		3		Gelyk	Laag
DIII	Modderrivier	DIII1mr	25	Laag	2	1			2	Gelyk	Geen
Duplekstronde met swart kleie	Roelofsberg	DIII1rg	30	Medium	2	1		3		Gelyk/Effens	Geen
	Rooibloem	DIII1rb	15	Laag	1	1	(2)	3		Gelyk	Laag
	Saryna	DIII1sr	30	Medium	2	1		3		Effens	Geen
	→ Sepane	DIII2sn	10	Laag	2	1			2-1	Gelyk/Effens	Geen
KI	Mazelspoort	KI2mp	20	Laag	2	1-2	2		1	Gelyk	Laag
Swart en rooi kleigronde	Erfenis	KI4ef	10	Laag	2	1			1	Gelyk/Effens	Geen

*Gelyk: <3%; Effens: 3-7%; Matig: 7-15%; Sterk: >15% geen bewerking moontlik

Eloff (1989)

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TABEL 4.12 Vervolg

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Legende									Algemene kenmerke						
Breë grondpatroon	Grondassosiasie	Pedosisteem	Terreintipeklas	Kaartsimbool	Oppervlakte in ha: Totaal	In Vrystaatstreek	Onbeskikbaar vir landbou[1]	% Ploegbaar[2]	Beperkings[3]: Megaries	Fisies	Sigbare erosie: Wind	Water	Topografie (Terreinmorfologie)	Gem. jaarlikse reënval in mm
Plintiese gronde	PIII Grys en geel gronde met hooggeleë duplekse gronde algemeen	Egmont	1	PIII1em	95 610	95 610	2 610	70	-	++	Min	Hoog	Gelyk vlaktes met verspreide rante en koppe	606
		Senekal	1	PIII1se	352 250	35 500	3 000	70	-	++	Min	Hoog	Gelyk vlaktes met verspreide rante en koppe	602
		Wesselskop	1	PIII1wl	62 950	61 300	1 950	70	-	++	Min	Hoog	Gelyk vlaktes met verspreide rante en koppe	606
		Wonderkop	2	PIII2wk	129 250	44 810	1 500	65	-	++	Min	Hoog	Gelyk vlaktes met verspreide hoë rante en koppe	606
		Belvedere	4	PIII4bd	33 490	1 910	500	70	-	++	Min	Hoog	Ongelyk vlaktes met verspreide hoë rante en koppe	705
		Genadeberg	4	PIII4gn	88 980	88 980	2 680	45	+	++	Min	Hoog	Tafellande met matige reliëf	606
		Paul Roux	4	PIII4pr	29 740	940	170	70	-	++	Min	Hoog	Ongelyk vlaktes met verspreide hoë rante en koppe	606
Duplekse gronde	DI B-horisonte oorwegend rooi	Erosie	1	DI1es	29 370	29 370	770	10	-	+++	Geen	Hoog	Gelyk vlaktes	543
		Knapsak	1	DI1ks	43 060	43 060	1 060	0	-	+++	Geen	Matig	Gelyk vlaktes met verspreide rante en koppe	401
		Rooikop	1	DI1rk	13 270	13 270	400	15	+	++	Geen	Matig	Gelyk vlaktes	543
		Dwarsrivier	2	DI2dr	101 940	101 940	3 940	0	-	+++	Geen	Matig	Gelyk vlaktes met verspreide hoë rante en koppe	400
		Carmel	4	DI4cm	139 040	139 040	5 040	0	-	+++	Geen	Hoog	Ongelyk vlaktes met verspreide hoë rante en koppe	429
		Oorlogspoort	4	DI4op	146 350	146 350	5 350	0	-	+++	Geen	Matig	Ongelyk vlaktes met verspreide hoë rante en koppe	397
		Zuurplaat	4	DI4zp	57 780	57 780	1 780	0	-	+++	Geen	Hoog	Ongelyk vlaktes met verspreide hoë rante en koppe	474

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TABEL 4.12 Vervolg

Legende					Oppervlakte in ha			% Ploegbaar [2]	Algemene kenmerke					
Breë grondpatroon	Grondassosiasie	Pedosisteem	Terreintipeklas	Kaartsimbool	Totaal	In Vrystaatstreek	Onbeskikbaar vir landbou [1]		Beperkings [3] Megaries	Beperkings [3] Fisies	Sigbare erosie Wind	Sigbare erosie Water	Topografie (Terreinmorfologie)	Gem. jaarlikse reënval in mm
Dupleksgronde	DII B-horisonte oorwegend rooi	Caledon	1	DII1cl	15 290	15 290	290	10	-	++	Min	Matig	Gelyk vlaktes	543
		Lengana	1	DII1lg	94 220	58 380	2 220	15	-	+++	Geen	Matig	Gelyk vlaktes met verspreide rante en koppe	547
		Rouxville	1	DII1rx	105 390	105 390	3 390	20	-	++	Geen	Matig	Gelyk vlaktes met verspreide rante en koppe	543
		Smithfield	1	DII1sf	123 420	123 420	3 420	0	-	+++	Geen	Matig	Gelyk vlaktes	482
		Wepener	1	DII1wp	47 430	47 430	1 430	15	-	++	Geen	Matig	Gelyk vlaktes	543
		Wolwespruit	1	DII1ws	248 810	248 810	4 810	0	+	+++	Geen	Min	Gelyk vlaktes	430
		Georgia	2	DII2gg	29 160	20 990	960	55	-	+++	Geen	Hoog	Gelyk vlaktes met verspreide hoë rante en koppe	606
		Modderhult	x 2	DII2mb	214 560	213 000	5 100	35	-	++	Min	Min	Gelyk vlaktes met verspreide rante en koppe	482
		Slangfontein	2	DII2st	302 600	302 600	9 100	0	-	+++	Geen	Min	Gelyk vlaktes met verspreide hoë rante en koppe	446
		Spitskop	2	DII2sk	345 380	345 380	10 380	0	-	+++	Geen	Min	Gelyk vlaktes met verspreide hoë rante en koppe	401
	DIII Dupleksgronde en swartkleie	Modderrivier	1	DIII1mr	63 980	63 980	980	25	-	++	Geen	Matig	Gelyk vlaktes	500
		Roelofsberg	1	DIII1rg	127 720	127 720	4 720	30	+	++	Geen	Matig	Gelyk vlaktes met verspreide rante en koppe	500
		Rooibloem	1	DIII1rb	223 190	109 890	6 000	15	-	++	Min	Min	Gelyk vlaktes	430
		Saryna	1	DIII1sr	202 500	80 480	5 000	30	-	++	Geen	Matig	Gelyk vlaktes met verspreide rante en koppe	549
		Vetrivier	1	DIII1vr	95 410	70 660	5 000	20	-	+++	Geen	Matig	Gelyk vlaktes	495
		Sepane	x 2	DIII2sn	239 080	174 200	4 080	10	+	++	Geen	Matig	Gelyk vlaktes met verspreide hoë rante en koppe	547
		Glen Rock	5	DIII5gr	21 180	21 180	880	0	+++	+	Geen	Hoog	Tafellande met hoë reliëf	543

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ADDENDUM E

LAND-TYPE MAP BY ELOFF (1984) USED TO DESCRIBE SOIL TYPE OF THE PROJECTS

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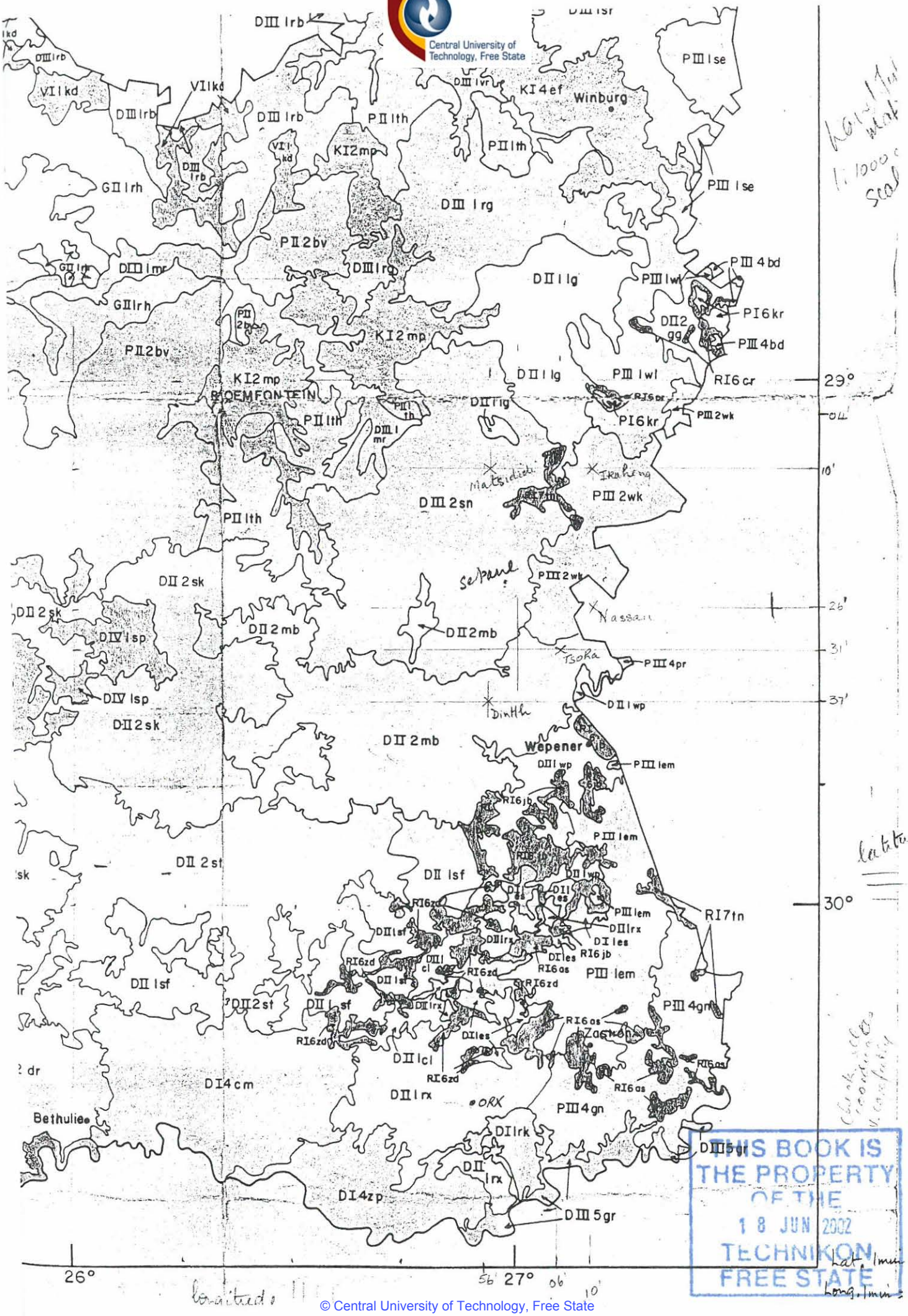

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ADDENDUM F

LARGE-STOCK BUDGET FROM GLEN AGRICULTURE TO DETERMINE THE AREA POTENTIAL

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VEEBOERDERY - GESAMENTLIKE RESULTATE -1998/99

Jansen 86111 6
Hans v Rensburg
86 111 63

A. VLEISBEESTE	LDBR/FXBR	SUIDOOS	RHODES
- Gemiddelde aantal GVE	279.92	398.17	428.25
- Kalfpersentasie	83.38	76.33	83.88
- Gemiddelde prys van verkope	1384.71	1148.67	1150.06
BRUTO PRODUKSIEWAARDE			
- Totale BPW	667.25	617.53	633.70
DIREK TOEDEEL. VERAND.KOSTE			
- Totale DTVK	249.87	168.80	126.22
BRUTO MARGE	417.38	448.73	507.57
OORHOOFSE KOSTE	235.88	216.62	185.49
TOTALE KOSTE	485.75	385.43	311.71
NETTO MARGE	181.50	232.11	322.06

B. MELKBEESTE	LDBR/FXBR	SUIDOOS	RHODES
- Gemiddelde aantal GVE	255.42		
- Gemid. aantal koeie in stal	122.25		
- Stalgemiddeld kg/dag	17.32		
- Gemid. prys per kg melk	1.16		
- Gemid. botervet	3.56		
- Gemiddelde proteien	3.40		
- Kalfpersentasie	84.50		
BRUTO PRODUKSIEWAARDE			
- Totale BPW	4766.66		
DIREK TOEDEEL. VERAND.KOSTE			
- Totale DTVK	3429.44		
BRUTO MARGE	1357.22		
OORHOOFSE KOSTE	441.87		
TOTALE KOSTE	3871.31		
NETTO MARGE	915.35		

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ADDENDUM G

MAIZE PRODUCTION BUDGET TO DETERMINE MAIZE YIELD IN THE AREA OF RESEARCH

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LADYBRAND DISTRICT
MEALIE BUDGET - JANUARY 2000*

Gross margin	Unit	Price/unit	Quantity	Per ha (R)	Value income/unit (R)
Grain	Ton	550.00	2.500	1375.00	550.00
Total income				**1375.00**	**550.00**
Seed	Kg	14.80	8.00	118.40	47.36
Fertiliser					
KAN	Ton	1064.00	0.050	53.20	21.28
6.2.1(30)	Ton	1827.00	0.145	284.92	113.97
Lime	Ton	150.00	0.200	30.00	12.00
Pesticides					
Fenon	Litre	237.40	0.100	23.74	9.50
Insurance	Ton	20.16	3.000	64.47	25.79
Cost of Implements					
Ploughing				149.69	59.88
Disc				107.04	43.00
Planting				57.18	21.87
Cultivation (R35 x 2)				70.00	28.00
Transport				130.00	52.00
Labour		6 days	60.15	24.06	9.62
Total cost				**R1112.70**	**R444.27**
Margin (net)				**R 262.30**	**R105.73**

(* Source: Provincial Department of Agriculture: Glen)

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ADDENDUM H

COST-LIST OF MACHINERY PROVIDED BY BETHLEHEM SMALL-GRAIN CENTRE

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TECHNIKON VRYSTAAT/FREE STATE

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TREKKERGROOTTE 57 kW

FABRIKAAT : JOHN DEERE MODEL : 5415 TWD
LEEFTYD : 12000 UUR GROOTTE : 54 kW
DIESELPRYS : R 3.46 /L URE PER JAAR : 1000
PRYS : R 157,039 RENTEKOERS : 11.00%

BEWERKINGS:	WERK-WYDTE (M)	WERK DIEPTE (mm)	SPOED (Km/h)	N	WERKTEMPO HA/DAG	WERKTEMPO DAE\ 100 HA	PRYS (R)	WAARDEVERMINDERING R/HA TREKKER	WAARDEVERMINDERING R/HA IMPLEMENT	RENTEKOSTE R/HA TREKKER	RENTEKOSTE R/HA IMPLEMENT	DIVERSE KOSTE R/HA TREKKER	DIVERSE KOSTE R/HA IMPLEMENT	TOT VASTE KOSTE R/HA	BRAND-STOF L/Ha	BRANDSTOF KOSTE R/HA	HERSTEL & ONDERH R/HA TREKKER	HERSTEL & ONDERH R/HA IMPLEMENT	TOT LOOP KOSTE R/HA	TOTALE KOSTE R/HA
PLOEG :																				
JD 100 (3\400)	1.2	200-250	6.50	0.83	6.47	15.45	13315	18.19	6.17	0.15	0.05	7.28	0.82	32.66	15.01	51.95	24.26	10.28	86.49	119.15
JD 100 (3\450)	1.35	200-250	6.50	0.83	7.28	13.73	13315	16.17	5.48	0.13	0.04	6.47	0.73	29.03	13.35	46.18	21.56	9.14	76.88	105.91
JD 975 (2\400)	0.8	200-250	6.50	0.83	4.32	23.17	27809	27.29	19.33	0.22	0.16	10.92	2.58	60.49	22.52	77.92	36.39	32.22	146.52	207.01
JD 975 (3\400)	1.2	200-250	6.50	0.83	6.47	15.45	36784	18.19	17.05	0.15	0.14	7.28	2.27	45.07	15.01	51.95	24.26	28.41	104.61	149.69
DIEP TAND :																				
1TD RIPPER	0.9	450	5.50	0.78	3.86	25.90	5600	30.50	4.35	0.25	0.04	12.20	0.58	47.92	25.17	87.10	40.67	3.63	131.40	179.32
1TD RIPPER	1.5	450	5.50	0.78	6.44	15.54	5600	18.30	2.61	0.15	0.02	7.32	0.35	28.75	15.10	52.26	24.40	2.18	78.84	107.59
1TD RIPPER	2.1	450	5.50	0.78	9.01	11.10	5600	13.07	1.86	0.11	0.02	5.23	0.25	20.54	10.79	37.33	17.43	1.55	56.32	76.85
SKOTTEL :																				
JS WISSELGANG DP	1.8	75-125	6.00	0.79	8.53	11.72	14200	13.80	5.99	0.11	0.04	5.52	0.67	26.14	9.97	34.49	18.41	7.99	60.89	87.02
JS WISSELGANG SL	2.1	75-125	6.00	0.79	9.95	10.05	46400	11.83	16.78	0.10	0.11	4.73	1.86	35.42	8.54	29.56	15.78	22.37	67.71	103.13
VLAK TAND :																				
JD 960 SKOFFEL	1.8	100-120	8.00	0.84	12.10	8.27	9240	9.74	2.75	0.08	0.02	3.89	0.31	16.78	7.03	24.33	12.98	3.06	40.37	57.15
JD 960 SKOFFEL	3	100-120	7.50	0.84	18.90	5.29	14591	6.23	2.78	0.05	0.02	2.49	0.31	11.88	4.50	15.57	8.31	3.09	26.97	38.85
JS TRASH HANDICULT 7	1.6	100-120	7.50	0.84	10.08	9.92	10540	11.68	3.76	0.09	0.03	4.67	0.42	20.66	8.44	29.19	15.58	4.18	48.96	69.62
PLANT :																				
JD 1750 3RY 1.5 K	4.5	65	7.50	0.60	20.25	4.94	82330	5.82	18.30	0.05	0.12	2.33	2.03	28.64	4.20	14.53	7.76	16.26	38.55	67.19
JD 1750 3RY 1.5 V	4.5	65	7.50	0.65	21.94	4.56	87800	5.37	18.01	0.04	0.12	2.15	2.00	27.69	3.88	13.41	7.16	16.01	36.58	64.27
JD 1750 4RY 0.9 K	3.6	65	7.50	0.60	16.20	6.17	87088	7.27	24.19	0.06	0.16	2.91	2.69	37.28	5.25	18.17	9.69	21.50	49.36	86.64
JD 1750 4RY 0.9 V	3.6	65	7.50	0.65	17.55	5.70	92393	6.71	23.69	0.05	0.16	2.68	2.63	35.93	4.85	16.77	8.95	21.06	46.77	82.71
JD 1750 2RY 2.3 K	4.6	65	7.50	0.60	20.70	4.83	69250	5.69	15.05	0.05	0.10	2.28	1.67	24.84	4.11	14.22	7.59	13.38	35.18	60.02
JD 1750 2RY 2.3 V	4.6	65	7.50	0.65	22.43	4.46	73654	5.25	14.78	0.04	0.10	2.10	1.64	23.92	3.79	13.12	7.00	13.14	33.26	57.18
PLANT (KORING):																				
BRAMLEY 8 RY 14"	2.84	65-120	6.50	0.60	11.09	9.01	36000	10.62	14.60	0.09	0.13	4.25	2.16	31.84	7.67	26.52	14.15	12.98	53.66	85.50
BRAMLEY 8 RY 16"	3.25	65-120	6.50	0.60	12.68	7.89	36000	9.29	12.78	0.07	0.11	3.72	1.89	27.86	6.71	23.21	12.39	11.36	46.95	74.81
ONKRUID & PLAAG :																				
TEC 300 L	7.2		8.50	0.60	36.72	2.72	12100	3.21	1.65	0.03	0.01	1.28	0.18	6.36	2.06	7.12	4.28	1.46	12.86	19.22
TEC 400 L	7.2		8.50	0.60	36.72	2.72	13200	3.21	1.80	0.03	0.01	1.28	0.20	6.53	2.06	7.12	4.28	1.60	13.00	19.52
TEC 600 L	7.2		8.50	0.60	36.72	2.72	15700	3.21	2.14	0.03	0.01	1.28	0.24	6.91	2.06	7.12	4.28	1.90	13.30	20.21
JD 825 4RY SKOFFEL	3.6	66-120	4.00	0.83	11.95	8.37	16576	9.85	4.99	0.08	0.03	3.94	0.55	19.46	7.12	24.62	13.14	5.55	43.31	62.76
JD 825 4RY SKOFFEL	3.6	66-120	7.50	0.83	22.41	4.46	16576	5.26	2.66	0.04	0.02	2.10	0.30	10.38	3.80	13.13	7.01	2.96	23.10	33.47
JD 825 3RY SKOFFEL	4.5	66-120	4.00	0.83	14.94	6.69	21357	7.88	5.15	0.06	0.03	3.15	0.57	16.85	5.69	19.70	10.51	5.72	35.93	52.78
JD 825 3RY SKOFFEL	4.5	66-120	7.50	0.83	28.01	3.57	21357	4.20	2.74	0.03	0.02	1.68	0.30	8.99	3.04	10.51	5.61	3.05	19.16	28.15
JD 825 2RY SKOFFEL	4.6	66-120	4.00	0.83	15.27	6.55	23089	7.71	5.44	0.06	0.04	3.08	0.60	16.94	5.57	19.27	10.28	6.05	35.60	52.54
JD 825 2RY SKOFFEL	4.6	66-120	7.50	0.83	28.64	3.49	23089	4.11	2.90	0.03	0.02	1.65	0.32	9.04	2.97	10.28	5.48	3.23	18.99	28.02

KOPIEREG VOORBEHOU VKB EKONOMIESE DIENSTE

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FABRIKAAT : JOHN DEERE MODEL : 5415 TWD
LEEFTYD : 12000 UUR GROOTTE : 54 kW
DIESELPRYS : R 3.46 /L URE PER JAAR : 1000
PRYS : R 157,039 RENTEKOERS : 11.00%

BEWERKINGS:	WERK-WYDTE (M)	WERK DIEPTE (mm)	SPOED (Km/h)	N	WERKTEMPO HA/DAG	WERKTEMPO DAE\ 100 HA	PRYS (R)	WAARDEVERMINDERING R/HA TREKKER	WAARDEVERMINDERING R/HA IMPLEMENT	RENTEKOSTE R/HA TREKKER	RENTEKOSTE R/HA IMPLEMENT	DIVERSE KOSTE R/HA TREKKER	DIVERSE KOSTE R/HA IMPLEMENT	TOT VASTE KOSTE R/HA	BRAND-STOF L/Ha	BRANDSTOF KOSTE R/HA	HERSTEL & ONDERH R/HA TREKKER	HERSTEL & ONDERH R/HA IMPLEMENT	TOT LOOP KOSTE R/HA	TOTALE KOSTE R/HA
KUNSMIS & KALK :																				
AMAZONE ZA-F 403	12		9.50	0.50	57.00	1.75	9580	2.07	0.76	0.02	0.01	0.83	0.08	3.75	1.49	5.16	2.76	0.42	8.34	12.09
AMAZONE ZA-F 604	12		9.50	0.60	68.40	1.46	13630	1.72	0.90	0.01	0.01	0.69	0.10	3.43	1.24	4.30	2.30	0.50	7.10	10.52
STAALLAND B100	6		9.00	0.42	22.68	4.41	27680	5.19	5.49	0.04	0.04	2.08	0.61	13.45	3.75	12.98	6.92	3.05	22.95	36.40
STAALLAND B100	12		9.00	0.50	54.00	1.85	27680	2.18	2.31	0.02	0.02	0.87	0.26	5.65	1.58	5.45	2.91	1.28	9.64	15.29
STAALLAND B200	12		9.00	0.50	54.00	1.85	39275	2.18	3.27	0.02	0.02	0.87	0.36	6.73	1.58	5.45	2.91	1.82	10.18	16.91
JD 825 4RY N	3.6		7.50	0.60	16.20	6.17	30792	7.27	6.84	5.86	4.60	2.91	0.76	28.25	5.25	18.17	9.69	7.60	35.46	63.71
JD 825 3RY N	4.5		7.50	0.60	20.25	4.94	35573	5.82	6.32	4.69	4.25	2.33	0.70	24.11	4.20	14.53	7.76	7.03	29.31	53.43
JD 825 2RY N	4.6		7.50	0.60	20.70	4.83	37305	5.69	6.49	4.59	4.36	2.28	0.72	24.13	4.11	14.22	7.59	7.21	29.01	53.14
HOOISNY :																				
FALCON SWAAI F50/120V	1.2		6.00	0.75	5.40	18.52	10550	21.81	8.79	0.18	0.06	8.72	0.98	40.54	18.00	62.28	29.08	15.63	106.99	147.53
FALCON SWAAI F80/150V	1.5		6.00	0.75	6.75	14.81	14300	17.45	9.53	0.14	0.06	6.98	1.06	35.23	14.40	49.82	23.27	16.95	90.04	125.26
KUHN GMD 400 SKYF	1.6		7.00	0.75	8.40	11.90	31100	14.02	16.66	0.11	0.11	5.61	1.85	38.37	11.57	40.04	18.70	27.77	86.50	124.87
KUHN GMD 500 SKYF	2		7.00	0.75	10.50	9.52	36200	11.22	15.51	0.09	0.10	4.49	1.72	33.14	9.26	32.03	14.96	25.86	72.84	105.98
HARK :																				
TONUTTI 4 WIEL	2.3		8.50	0.80	15.64	6.39	4150	7.53	2.39	0.06	0.02	3.01	0.27	13.27	4.83	16.72	10.04	2.65	29.42	42.69
TONUTTI 5 WIEL	2.9		8.50	0.80	19.72	5.07	5050	5.97	2.30	0.05	0.02	2.39	0.26	10.99	3.83	13.26	7.96	2.56	23.79	34.77
BAAL :																				
JD 359 (REGHOEK)	6		5.50	0.50	16.50	6.06	90138	7.14	32.78	0.06	0.22	2.86	3.64	46.69	5.15	17.83	9.52	29.14	56.49	103.18
JD 359 (REGHOEK)	6		6.80	0.50	20.40	4.90	90138	5.77	26.51	0.05	0.18	2.31	2.95	37.76	4.17	14.43	7.70	23.57	45.69	83.45
JD 359 (REGHOEK)	9.6		5.50	0.50	26.40	3.79	90138	4.46	20.49	0.04	0.14	1.78	2.28	29.18	3.22	11.15	5.95	18.21	35.30	64.49
JD 359 (REGHOEK)	9.6		6.80	0.50	32.64	3.06	90138	3.61	16.57	0.03	0.11	1.44	1.84	23.60	2.61	9.02	4.81	14.73	28.56	52.16
JD 565 (1.25M DIA)	3		5.50	0.60	9.90	10.10	127750	11.90	77.42	0.10	0.52	4.76	8.60	103.30	8.59	29.72	15.86	68.82	114.41	217.71
JD 565 (1.25M DIA)	3		6.80	0.60	12.24	8.17	127750	9.62	62.62	0.08	0.42	3.85	6.96	83.55	6.95	24.04	12.83	55.66	92.54	176.09
JD 565 (1.25M DIA)	6		5.50	0.60	19.80	5.05	127750	5.95	38.71	0.05	0.26	2.38	4.30	51.65	4.30	14.86	7.93	34.41	57.20	108.85
JD 565 (1.25M DIA)	6		6.80	0.60	24.48	4.08	127750	4.81	31.31	0.04	0.21	1.92	3.48	41.78	3.47	12.02	6.41	27.83	46.27	88.04
JD 565 (1.25M DIA)	9		5.50	0.60	29.70	3.37	127750	3.97	25.81	0.03	0.17	1.59	2.87	34.43	2.86	9.91	5.29	22.94	38.14	72.57
JD 565 (1.25M DIA)	9		6.80	0.60	36.72	2.72	127750	3.21	20.87	0.03	0.14	1.28	2.32	27.85	2.32	8.01	4.28	18.55	30.85	58.70
KRONE KR130 (1.2M DIA)	3		5.50	0.60	9.90	10.10	127500	11.90	77.27	0.10	0.52	4.76	8.59	103.13	8.59	29.72	15.86	68.69	114.27	217.40
KRONE KR130 (1.2M DIA)	3		6.80	0.60	12.24	8.17	127500	9.62	62.50	0.08	0.42	3.85	6.94	83.41	6.95	24.04	12.83	55.56	92.43	175.84
KRONE KR130 (1.2M DIA)	6		5.50	0.60	19.80	5.05	127500	5.95	38.64	0.05	0.26	2.38	4.29	51.56	4.30	14.86	7.93	34.34	57.14	108.70
KRONE KR130 (1.2M DIA)	6		6.80	0.60	24.48	4.08	127500	4.81	31.25	0.04	0.21	1.92	3.47	41.71	3.47	12.02	6.41	27.78	46.21	87.92
KRONE KR130 (1.2M DIA)	9		5.50	0.60	29.70	3.37	127500	3.97	25.76	0.03	0.17	1.59	2.86	34.38	2.86	9.91	5.29	22.90	38.09	72.47
KRONE KR130 (1.2M DIA)	9		6.80	0.60	36.72	2.72	127500	3.21	20.83	0.03	0.14	1.28	2.31	27.80	2.32	8.01	4.28	18.52	30.81	58.61

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FABRIKAAT : JOHN DEERE MODEL : 5415 TWD
LEEFTYD : 12000 UUR GROOTTE : 54 kW
DIESELPRYS : R 3.46 /L URE PER JAAR : 1000
PRYS : R 157,039 RENTEKOERS : 11.00%

BEWERKINGS:	WERK-WYDTE (M)	WERK DIEPTE (mm)	SPOED (Km/h)	N	WERKTEMPO HA/DAG	WERKTEMPO DAE\ 100 HA	PRYS (R)	WAARDEVERMINDERING R/HA TREKKER	WAARDEVERMINDERING R/HA IMPLEMENT	RENTEKOSTE R/HA TREKKER	RENTEKOSTE R/HA IMPLEMENT	DIVERSE KOSTE R/HA TREKKER	DIVERSE KOSTE R/HA IMPLEMENT	TOT VASTE KOSTE R/HA	BRAND-STOF L/Ha	BRANDSTOF KOSTE R/HA	HERSTEL & ONDERH R/HA TREKKER	HERSTEL & ONDERH R/HA IMPLEMENT	TOT LOOP KOSTE R/HA	TOTALE KOSTE R/HA
KUILVOER :																				
MENGELE	0.9		5.00	0.70	3.15	31.75	52000	37.39	74.29	0.30	0.50	14.96	8.25	135.69	30.86	106.77	49.85	66.03	222.65	358.34
MENGELE	1.5		5.00	0.70	5.25	19.05	52000	22.43	44.57	0.18	0.30	8.97	4.95	81.41	18.51	64.06	29.91	39.62	133.59	215.00
MENGELE	2.1		5.00	0.70	7.35	13.61	52000	16.02	31.84	0.13	0.21	6.41	3.54	58.15	13.22	45.76	21.37	28.30	95.42	153.57
HAMERMEUL : (R/TON)					T/DAG															R/TON
DROSKY M16C	HOOI				10.00		9800	11.78	2.21	0.10	0.03	4.71	0.49	19.31	9.72	33.63	15.70	1.23	50.56	69.87
DROSKY M16C	MEEL				30.00		9800	3.93	0.74	0.03	0.01	1.57	0.16	6.44	3.24	11.21	5.23	0.41	16.85	23.29
SLEEPSTROPER MET OORLAAIWA:																				
AGRITEC 2 RY 2.1 m	4.2		5.00	0.75	15.75	6.35	175800	7.48	33.49	0.06	0.23	2.99	3.72	47.96	5.40	18.68	9.97	29.77	58.42	106.38
AGRITEC 4 RY 0.9 m	3.6		5.00	0.75	13.50	7.41	198450	8.72	44.10	0.07	0.30	3.49	4.90	61.58	6.30	21.80	11.63	39.20	72.63	134.21
AGRITEC 3 RY 1.5 m	4.5		5.00	0.75	16.88	5.93	191200	6.98	33.99	0.06	0.23	2.79	3.78	47.82	5.04	17.44	9.31	30.21	56.96	104.78
SLEEPSTROPER SONDER OORLAAIWA:																				
AGRITEC 2 RY 2.1 m	4.2		5.00	0.60	12.60	7.94	175800	9.35	41.86	0.08	0.28	3.74	4.65	59.95	6.75	23.36	12.46	37.21	73.02	132.98
AGRITEC 4 RY 0.9 m	3.6		5.00	0.60	10.80	9.26	198450	10.91	55.13	0.09	0.37	4.36	6.13	76.98	7.88	27.25	14.54	49.00	90.79	167.76
AGRITEC 3 RY 1.5 m	4.5		5.00	0.60	13.50	7.41	191200	8.72	42.49	0.07	0.29	3.49	4.72	59.78	6.30	21.80	11.63	37.77	71.20	130.98
VERVOER : (R/KM)						KM/D														(R/KM)
10 TON			10.00			100.00	42500	1.18	0.38	0.01	0.01	0.47	0.09	2.13	0.63	2.18	1.57	0.13	3.88	6.01

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ADDENDUM I

MANAGEMENT OF THE LAND REFORM PILOT PROGRAMME IN THE DEPARTMENT OF LAND AFFAIRS

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PILOT PROGRA OF AIRS

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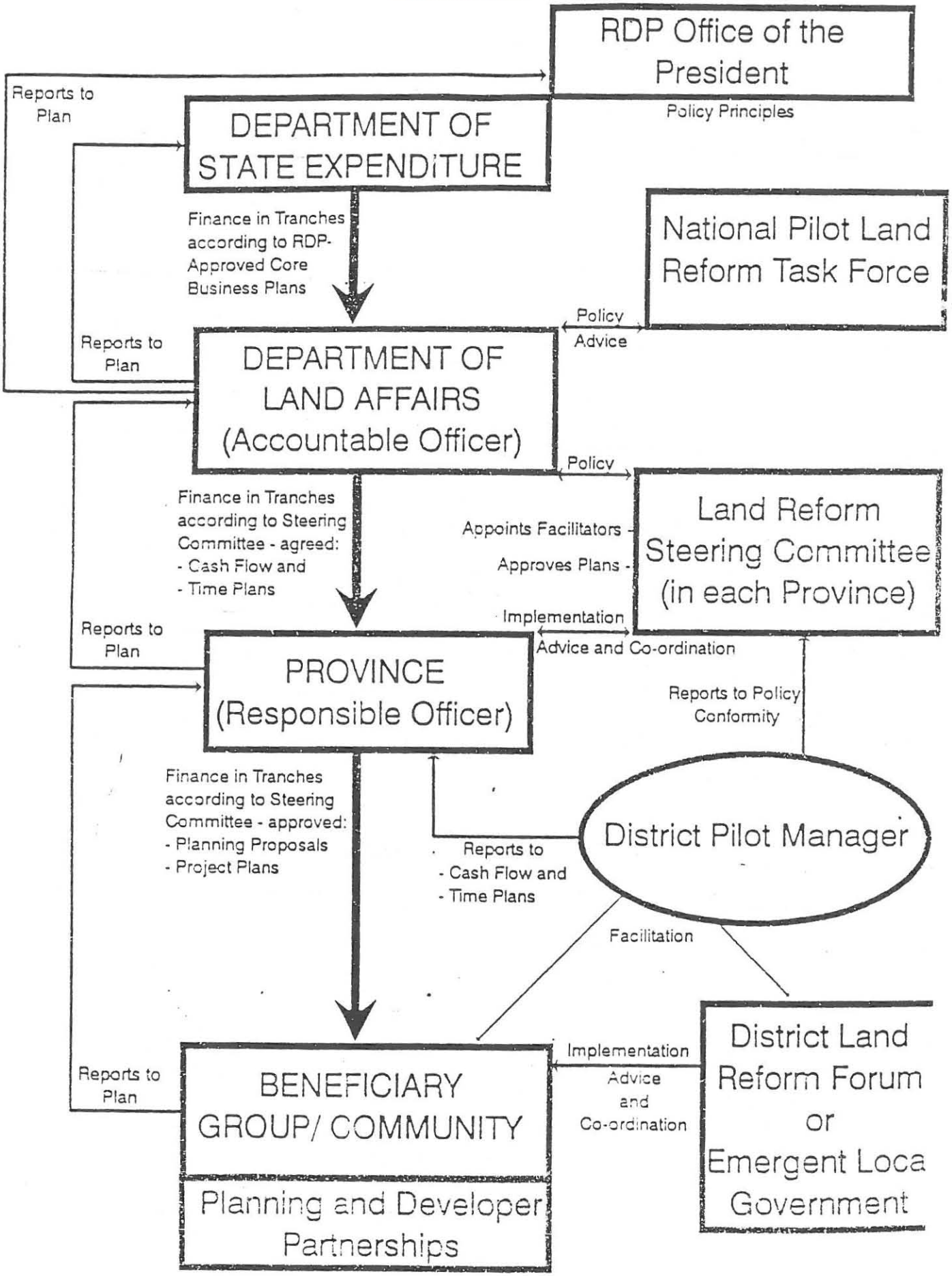

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ADDENDUM J

SUMMARISED DATA FROM THE RESEARCH

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Gaetsewe: Data (2000/01/11)

Code			Frequency of:										
1	Average	SD	Blanks	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Code 7	Code 8	Code 9	Code 10
2	3.2963	1.70553	0	6	3	5	6	5	1	1	0	0	0
3	1	0	0	27	0	0	0	0	0	0	0	0	0
4	4	0	0	0	0	0	27	0	0	0	0	0	0
5	2.22222	1.25064	0	6	17	0	0	4	0	0	0	0	0
6	0.85185	0.36201	0	23	0	0	0	0	0	0	0	0	0
7	0.22222	0.42366	0	6	0	0	0	0	0	0	0	0	0
8	0.18519	0.39585	0	5	0	0	0	0	0	0	0	0	0
9	0.74074	0.44658	0	20	0	0	0	0	0	0	0	0	0
10	0.81481	0.39585	0	22	0	0	0	0	0	0	0	0	0
11	0.51852	0.50918	0	14	0	0	0	0	0	0	0	0	0
12	0.81481	0.39585	0	22	0	0	0	0	0	0	0	0	0
13	1.00926	0.99151	0	10	4	3	0	0	0	0	0	0	0
14	59.6296	67.1669	0	0	0	0	0	0	0	0	0	0	0
15	0.22222	0.50637	0	4	1	0	0	0	0	0	0	0	0
16	0.25926	0.6559	0	1	3	0	0	0	0	0	0	0	0
17	4.44444	10.8604	0	0	0	0	0	0	0	0	0	0	0
18	1	0.39223	0	23	2	0	0	0	0	0	0	0	0
19	1686.1111	715.79355	0	0	4	0	0	0	0	0	0	0	0
20	1.03704	0.19245	0	26	1	0	0	0	0	0	0	0	0
21	48.8889	14.2838	0	0	0	0	0	0	0	0	0	0	0
22	1.18519	0.39585	0	22	5	0	0	0	0	0	0	0	0
23	1.14815	0.36201	0	23	4	0	0	0	0	0	0	0	0
24	2.62963	1.66752	0	0	19	0	0	3	3	0	0	0	0
25	2.25926	1.02254	0	7	9	9	1	1	0	0	0	0	0
26	0.11111	0.42366	0	1	1	0	0	0	0	0	0	0	0
27	2.7037	1.58878	0	0	20	0	0	3	3	0	0	0	0
28	35.1111	15.914	0	0	0	0	0	0	0	0	0	0	0
29	1.77778	0.50637	0	4	22	0	0	0	0	0	0	0	0
30	1.11111	0.42366	0	22	4	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0
32	2.51852	1.05139	0	1	13	9	1	2	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0
34	4.14815	2.29889	0	0	0	0	0	14	7	0	0	0	0
35	13.1111	10.349	0	0	0	0	1	1	0	1	0	0	2
36	1.25926	0.813	0	8	13	0	0	0	0	0	0	0	0
37	1	0.7338	0	13	7	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0
39	2.03704	1.42725	0	3	6	9	2	1	0	0	0	0	0
40	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
41	3.62963	2.6479	0	0	0	0	0	10	8	0	0	0	0
42	9.40741	9.77146	0	1	0	1	0	1	1	0	1	1	1
43	1.14815	0.90739	0	5	13	0	0	0	0	0	0	0	0
44	0.92593	0.78082	0	11	7	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0
46	1.51852	1.42425	0	6	4	5	3	0	0	0	0	0	0
47	0.07407	0.26688	0	2	0	0	0	0	0	0	0	0	0
48	1.66667	2.63117	0	0	0	0	0	3	5	0	0	0	0
49	4	7.44208	0	0	0	0	0	1	0	1	0	1	0
50	0.40741	0.69389	0	5	3	0	0	0	0	0	0	0	0
51	0.40741	0.69389	0	5	3	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0.66667	1.14354	0	2	2	4	0	0	0	0	0	0	0
54	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
55	1.7037	2.70064	0	0	0	0	0	3	4	1	0	0	0
56	3.85185	6.99837	0	0	0	1	0	0	0	0	0	0	3

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57	0.51852	0.849	0	2	6	[illegible]	[illegible]	[illegible]	0	0	0	0	0
58	0.33333	0.5547	0	7	1	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0.7037	1.17063	0	1	3	4	0	0	0	0	0	0	0
61	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
62	0.81481	2.00071	0	0	0	0	0	2	2	0	0	0	0
63	1.18519	3.28208	0	0	1	0	0	0	0	1	0	0	0
64	0.18519	0.48334	0	3	1	0	0	0	0	0	0	0	0
65	0.18519	0.48334	0	3	1	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0.14815	0.45605	0	2	1	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0.11111	0.57735	0	0	0	1	0	0	0	0	0	0	0
70	2.40741	12.5093	0	0	0	0	0	0	0	0	0	0	0
71	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
72	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	0	0	0
81	0	0	0	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	0	0	0	0	0
83	0	0	0	0	0	0	0	0	0	0	0	0	0
84	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
86	0	0	0	0	0	0	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0
90	1	0	0	27	0	0	0	0	0	0	0	0	0
91	569.11111	575.59162	0	0	0	0	0	0	0	0	0	0	0
92	1.11111	5.7735	0	0	0	0	0	0	0	0	0	0	0
93	1.44444	0.57735	0	13	13	0	0	0	0	0	0	0	0
94	13.1852	21.0659	0	0	8	0	0	0	0	0	0	0	0
95	1.48148	0.50918	0	14	13	0	0	0	0	0	0	0	0
96	0.62963	0.88353	0	3	7	0	0	0	0	0	0	0	0
97	1.11111	5.7735	0	0	0	0	0	0	0	0	0	0	0
98	25.3333	82.9383	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0	0	0	0	0	0	0
139	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0.62963	0.4921	0	17	0	0	0	0	0	0	0	0	0
141	0.81481	0.39585	0	22	0	0	0	0	0	0	0	0	0
142	4.40741	0.84395	0	1	0	0	12	14	0	0	0	0	0
143	4	0	0	0	0	0	27	0	0	0	0	0	0
144	4.03704	0.19245	0	0	0	0	26	1	0	0	0	0	0
145	0.74074	0.44658	0	20	0	0	0	0	0	0	0	0	0
146	0.7037	0.46532	0	19	0	0	0	0	0	0	0	0	0
147	0.48148	0.50918	0	13	0	0	0	0	0	0	0	0	0
148	0.40741	0.50071	0	11	0	0	0	0	0	0	0	0	0
149	5.14815	3.02176	0	3	1	6	0	5	1	1	5	2	2
150	1.51852	1.01414	0	16	8	0	1	1	0	0	0	0	0
151	1.59259	0.97109	0	16	9	0	1	1	0	0	0	0	0
152	1.62963	0.96668	0	15	10	0	1	1	0	0	0	0	0
153	1.51852	0.97548	0	20	2	3	2	0	0	0	0	0	0
154	3.74074	0.76423	0	1	1	3	21	1	0	0	0	0	0

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155	0.55556	0.75107	0	7	4	0	0	0	0	0	0	0	0
156	0	0	0	0	0	0	0	0	0	0	0	0	0
157	0	0	0	0	0	0	0	0	0	0	0	0	0
158	37.037	154.79055	0	0	0	0	0	0	0	0	0	0	0
159	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0
161	1	0	0	27	0	0	0	0	0	0	0	0	0
162	1.55556	0.50637	0	12	15	0	0	0	0	0	0	0	0
163	1.96296	0.5175	0	3	23	0	1	0	0	0	0	0	0
164	1	0	0	27	0	0	0	0	0	0	0	0	0
165	1.14815	0.45605	0	24	2	1	0	0	0	0	0	0	0
166	1	0	0	27	0	0	0	0	0	0	0	0	0
167	0.66667	0.96077	0	3	6	1	0	0	0	0	0	0	0
168	7152.1739	3559.35	0	0	0	0	0	0	0	0	0	0	0
169	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0
171	0	0	0	0	0	0	0	0	0	0	0	0	0
172	8673.0769	4071.7129	0	0	0	0	0	0	0	0	0	0	0
173	0	0	0	0	0	0	0	0	0	0	0	0	0
174	0	0	0	0	0	0	0	0	0	0	0	0	0
175	19.5926	15.4777	0	0	0	0	0	1	0	2	0	1	2
176	0.92593	0.26688	0	25	0	0	0	0	0	0	0	0	0
177	0.85185	0.45605	0	21	1	0	0	0	0	0	0	0	0
178	1.07407	0.54954	0	19	5	0	0	0	0	0	0	0	0
179	0.59259	0.50071	0	16	0	0	0	0	0	0	0	0	0
180	2.25926	1.43024	0	14	2	1	10	0	0	0	0	0	0
181	0.77778	0.42366	0	21	0	0	0	0	0	0	0	0	0
182	1.59259	1.55066	0	14	2	1	4	0	1	0	0	0	0
183	2.88889	0.57735	0	0	0	26	0	0	0	0	0	0	0
184	1.03704	0.64935	0	22	0	2	0	0	0	0	0	0	0
185	4	2.05688	0	3	0	6	3	4	8	1	0	0	0
186	0.51852	0.50918	0	14	0	0	0	0	0	0	0	0	0
187	1.55556	1.94804	0	6	2	1	1	5	0	0	0	0	0
188	0.88889	0.32026	0	24	0	0	0	0	0	0	0	0	0
189	1.92593	1.43918	0	13	3	6	0	3	0	0	0	0	0
190	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
191	0.22222	1.1547	0	0	0	0	0	0	1	0	0	0	0
192	0.51852	2.6943	0	0	0	0	0	0	0	0	0	0	0
193	0	0	0	0	0	0	0	0	0	0	0	0	0
194	0	0	0	0	0	0	0	0	0	0	0	0	0
195	0	0	0	0	0	0	0	0	0	0	0	0	0
196	0.09259	0.48113	0	0	0	0	0	0	0	0	0	0	0
197	0	0	0	0	0	0	0	0	0	0	0	0	0
198	0.14815	0.7698	0	0	0	0	1	0	0	0	0	0	0
199	0.44444	2.3094	0	0	0	0	0	0	0	0	0	0	0
200	0	0	0	0	0	0	0	0	0	0	0	0	0
248	0	0	0	0	0	0	0	0	0	0	0	0	0
249	0	0	0	0	0	0	0	0	0	0	0	0	0
250	10.259259	28.037876	0	4	4	3	3	0	0	0	0	0	0
251	16.407407	60.012985	0	0	0	0	0	0	0	0	0	0	0
252	0.5185185	1.8681618	0	0	0	0	0	0	0	2	0	0	0
253	0.3333333	1.2709778	0	0	0	1	0	0	1	0	0	0	0
254	23.074074	47.526451	0	0	1	0	0	1	0	1	0	0	1
255	18.157895	29.350872	0	0	0	0	0	0	0	0	0	0	0
256	7.3703704	21.424551	0	3	7	1	0	0	0	0	0	0	0
257	7.037037	24.42647	0	0	0	0	0	0	0	0	0	0	0
258	0.3333333	1.2709778	0	0	0	1	0	0	1	0	0	0	0
259	1.037037	5.3886025	0	0	0	0	0	0	0	0	0	0	0
260	1.4444444	5.1316014	0	0	0	0	1	0	0	0	0	0	1

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261	3.0740741	9.3517827	0	0	0	0	0	0	0	0	0	0	0
262	0	0	0	0	0	0	0	0	0	0	0	0	0
263	4.3703704	14.686855	0	0	2	0	1	0	0	0	0	0	0
264	2.2222222	9.7402153	0	0	0	0	0	0	0	0	0	0	1
265	0	0	0	0	0	0	0	0	0	0	0	0	0
266	0	0	0	0	0	0	0	0	0	0	0	0	0
267	12.074074	35.324785	0	0	0	0	0	0	0	0	0	0	0
268	3.0740741	10.358668	0	0	0	0	0	0	0	0	0	0	0
269	5288.8889	17195.468	0	0	0	0	0	0	0	0	0	0	0
270	103.7037	538.86025	0	0	0	0	0	0	0	0	0	0	0
271	0	0	0	0	0	0	0	0	0	0	0	0	0
272	0	0	0	0	0	0	0	0	0	0	0	0	0
273	283.33333	879.35728	0	0	0	0	0	0	0	0	0	0	0
274	755.55556	3925.9818	0	0	0	0	0	0	0	0	0	0	0
275	0.1851852	0.9622504	0	0	0	0	0	1	0	0	0	0	0
276	0.11111	0.57735	0	0	0	1	0	0	0	0	0	0	0
277	0	0	0	0	0	0	0	0	0	0	0	0	0
278	0	0	0	0	0	0	0	0	0	0	0	0	0
279	7.40741	38.49	0	0	0	0	0	0	0	0	0	0	0
280	0	0	0	0	0	0	0	0	0	0	0	0	0
281	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
282	0.88889	2.95262	0	0	1	0	0	0	0	0	0	0	1
283	0	0	0	0	0	0	0	0	0	0	0	0	0
284	0	0	0	0	0	0	0	0	0	0	0	0	0
285	0.55556	2.1183	0	0	0	0	0	1	0	0	0	0	1
286	0.11111	0.57735	0	0	0	1	0	0	0	0	0	0	0
287	0.88889	3.25025	0	0	1	0	0	0	1	0	0	0	0
288	4.74074	15.2002	0	0	0	0	0	0	0	0	0	0	0
289	0	0	0	0	0	0	0	0	0	0	0	0	0
290	0	0	0	0	0	0	0	0	0	0	0	0	0
291	8.25926	22.8971	0	1	1	0	1	0	0	1	0	0	0
292	0.77778	4.04145	0	0	0	0	0	0	0	0	0	0	0
293	0	0	0	0	0	0	0	0	0	0	0	0	0
294	0	0	0	0	0	0	0	0	0	0	0	0	0
295	0	0	0	0	0	0	0	0	0	0	0	0	0
296	0	0	0	0	0	0	0	0	0	0	0	0	0
297	0	0	0	0	0	0	0	0	0	0	0	0	0
298	0	0	0	0	0	0	0	0	0	0	0	0	0
299	0.37037	1.9245	0	0	0	0	0	0	0	0	0	0	1
300	0	0	0	0	0	0	0	0	0	0	0	0	0
301	0	0	0	0	0	0	0	0	0	0	0	0	0
302	0	0	0	0	0	0	0	0	0	0	0	0	0
303	0.22222	1.1547	0	0	0	0	0	0	1	0	0	0	0
304	0	0	0	0	0	0	0	0	0	0	0	0	0
305	12.1852	57.5774	0	0	1	0	0	2	0	1	0	0	1
306	0	0	0	0	0	0	0	0	0	0	0	0	0
307	0	0	0	0	0	0	0	0	0	0	0	0	0
308	0	0	0	0	0	0	0	0	0	0	0	0	0
309	1.07407	3.8623	0	2	2	1	0	0	0	0	0	0	0
310	0	0	0	0	0	0	0	0	0	0	0	0	0
311	0	0	0	0	0	0	0	0	0	0	0	0	0
312	11.1111	53.779	0	0	1	1	0	0	1	0	0	1	0
313	0	0	0	0	0	0	0	0	0	0	0	0	0
314	15.1481	76.9189	0	1	2	0	1	0	0	0	0	0	0
315	0	0	0	0	0	0	0	0	0	0	0	0	0
316	0	0	0	0	0	0	0	0	0	0	0	0	0
317	3.33333	10.7417	0	0	0	0	0	0	0	0	0	0	0
318	0	0	0	0	0	0	0	0	0	0	0	0	0
319	0	0	0	0	0	0	0	0	0	0	0	0	0

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320	1.85185	9.6225	0	0	0	0	0	0	0	0	0	0	0
321	0	0	0	0	0	0	0	0	0	0	0	0	0
322	0	0	0	0	0	0	0	0	0	0	0	0	0
323	0	0	0	0	0	0	0	0	0	0	0	0	0
324	0	0	0	0	0	0	0	0	0	0	0	0	0
325	0	0	0	0	0	0	0	0	0	0	0	0	0
326	0	0	0	0	0	0	0	0	0	0	0	0	0
327	0	0	0	0	0	0	0	0	0	0	0	0	0
328	0	0	0	0	0	0	0	0	0	0	0	0	0
329	522.22222	1887.6794	0	0	0	0	0	0	0	0	0	0	0
330	0	0	0	0	0	0	0	0	0	0	0	0	0
331	0	0	0	0	0	0	0	0	0	0	0	0	0
332	7.4074074	38.490018	0	0	0	0	0	0	0	0	0	0	0
333	0	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0	0
335	441.44444	1625.1233	0	0	0	0	0	0	0	0	0	0	0
336	0	0	0	0	0	0	0	0	0	0	0	0	0
337	0	0	0	0	0	0	0	0	0	0	0	0	0
338	0	0	0	0	0	0	0	0	0	0	0	0	0
339	18777.778	69108.239	0	0	0	0	0	0	0	0	0	0	0
340	0	0	0	0	0	0	0	0	0	0	0	0	0
341	0	0	0	0	0	0	0	0	0	0	0	0	0
342	0	0	0	0	0	0	0	0	0	0	0	0	0
343	0	0	0	0	0	0	0	0	0	0	0	0	0
344	0	0	0	0	0	0	0	0	0	0	0	0	0
345	10548.148	34551.927	0	0	0	0	0	0	0	0	0	0	0
346	0	0	0	0	0	0	0	0	0	0	0	0	0
347	0	0	0	0	0	0	0	0	0	0	0	0	0
348	0	0	0	0	0	0	0	0	0	0	0	0	0
349	6338.8889	31623.367	0	0	0	0	0	0	0	0	0	0	0
350	0	0	0	0	0	0	0	0	0	0	0	0	0
351	0	0	0	0	0	0	0	0	0	0	0	0	0
352	0	0	0	0	0	0	0	0	0	0	0	0	0
353	0	0	0	0	0	0	0	0	0	0	0	0	0
354	773.33333	3370.752	0	0	0	0	0	0	0	0	0	0	0
355	0	0	0	0	0	0	0	0	0	0	0	0	0
356	0	0	0	0	0	0	0	0	0	0	0	0	0
357	0	0	0	0	0	0	0	0	0	0	0	0	0
358	0	0	0	0	0	0	0	0	0	0	0	0	0
359	1002.4832	5086.7311	0	0	0	0	0	0	0	0	0	0	0
360	0	0	0	0	0	0	0	0	0	0	0	0	0
361	0	0	0	0	0	0	0	0	0	0	0	0	0
362	0	0	0	0	0	0	0	0	0	0	0	0	0
363	185.18519	962.25045	0	0	0	0	0	0	0	0	0	0	0
364	0	0	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0	0	0
366	0	0	0	0	0	0	0	0	0	0	0	0	0
367	112.59259	585.04827	0	0	0	0	0	0	0	0	0	0	0
368	0	0	0	0	0	0	0	0	0	0	0	0	0
369	0	0	0	0	0	0	0	0	0	0	0	0	0
370	0	0	0	0	0	0	0	0	0	0	0	0	0
371	0	0	0	0	0	0	0	0	0	0	0	0	0
372	0	0	0	0	0	0	0	0	0	0	0	0	0
373	0	0	0	0	0	0	0	0	0	0	0	0	0
374	0	0	0	0	0	0	0	0	0	0	0	0	0
375	0	0	0	0	0	0	0	0	0	0	0	0	0
376	0	0	0	0	0	0	0	0	0	0	0	0	0
377	0	0	0	0	0	0	0	0	0	0	0	0	0
378	0	0	0	0	0	0	0	0	0	0	0	0	0

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379	8.88889	46.188	0	0	0	0	0	0	0	0	0	0	0
380	0	0	0	0	0	0	0	0	0	0	0	0	0
381	0	0	0	0	0	0	0	0	0	0	0	0	0
382	0	0	0	0	0	0	0	0	0	0	0	0	0
383	33.3333	138.67505	0	0	0	0	0	0	0	0	0	0	0
384	0	0	0	0	0	0	0	0	0	0	0	0	0
385	0	0	0	0	0	0	0	0	0	0	0	0	0
386	0	0	0	0	0	0	0	0	0	0	0	0	0
387	0	0	0	0	0	0	0	0	0	0	0	0	0
388	0	0	0	0	0	0	0	0	0	0	0	0	0
389	2.14815	11.1621	0	0	0	0	0	0	0	0	0	0	0
390	0	0	0	0	0	0	0	0	0	0	0	0	0
391	0	0	0	0	0	0	0	0	0	0	0	0	0
392	278.51852	1163.1512	0	0	0	0	0	0	0	0	0	0	0
393	0	0	0	0	0	0	0	0	0	0	0	0	0
394	0	0	0	0	0	0	0	0	0	0	0	0	0
395	0	0	0	0	0	0	0	0	0	0	0	0	0
396	24.0741	69.8492	0	0	0	0	0	0	0	0	0	0	0
397	0	0	0	0	0	0	0	0	0	0	0	0	0
398	0	0	0	0	0	0	0	0	0	0	0	0	0
399	7.40741	38.49	0	0	0	0	0	0	0	0	0	0	0
400	0	0	0	0	0	0	0	0	0	0	0	0	0
401	0	0	0	0	0	0	0	0	0	0	0	0	0
402	0	0	0	0	0	0	0	0	0	0	0	0	0
403	0	0	0	0	0	0	0	0	0	0	0	0	0
404	0	0	0	0	0	0	0	0	0	0	0	0	0
405	0	0	0	0	0	0	0	0	0	0	0	0	0
406	0.81481	0.39585	0	22	0	0	0	0	0	0	0	0	0
407	0.66667	0.48038	0	18	0	0	0	0	0	0	0	0	0
408	0.77778	0.42366	0	21	0	0	0	0	0	0	0	0	0
409	1.25926	0.6559	0	17	7	1	0	0	0	0	0	0	0
410	0.81481	0.39585	0	22	0	0	0	0	0	0	0	0	0
411	1.7037	0.82345	0	11	10	5	0	0	0	0	0	0	0
412	0.59259	0.50071	0	16	0	0	0	0	0	0	0	0	0
413	1.77778	1.01274	0	8	8	8	0	0	0	0	0	0	0
414	0.51852	0.97548	0	5	0	3	0	0	0	0	0	0	0
415	1.81481	0.55726	0	4	21	1	0	0	0	0	0	0	0
416	0.2963	0.46532	0	8	0	0	0	0	0	0	0	0	0
417	0.81481	1.11068	0	3	5	3	0	0	0	0	0	0	0
418	0.14815	0.36201	0	4	0	0	0	0	0	0	0	0	0
419	1.62963	2.07824	0	3	2	0	3	5	0	0	0	0	0
420	0.66667	0.48038	0	18	0	0	0	0	0	0	0	0	0
421	2.85185	2.05134	0	0	1	4	8	5	1	0	0	0	0
422	0.51852	1.39698	0	1	0	0	2	1	0	0	0	0	0
423	0.22222	0.80064	0	0	0	2	0	0	0	0	0	0	0
424	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
425	0.07407	0.3849	0	0	1	0	0	0	0	0	0	0	0
426	0.66667	0.48038	0	18	0	0	0	0	0	0	0	0	0
427	0.7037	0.77533	0	9	5	0	0	0	0	0	0	0	0
428	0.66667	0.48038	0	18	0	0	0	0	0	0	0	0	0
429	0.48148	0.57981	0	11	1	0	0	0	0	0	0	0	0
430	0.18519	0.39585	0	5	0	0	0	0	0	0	0	0	0
431	0.22222	0.64051	0	3	0	1	0	0	0	0	0	0	0
432	0.22222	0.42366	0	6	0	0	0	0	0	0	0	0	0
433	0.14815	0.36201	0	4	0	0	0	0	0	0	0	0	0
434	0	0	0	0	0	0	0	0	0	0	0	0	0
435	0.07407	0.26688	0	2	0	0	0	0	0	0	0	0	0
436	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
437	0	0	0	0	0	0	0	0	0	0	0	0	0

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438	1.44444	1.01274	0	13	9				0	0	0	0	0
439	0.48148	0.75296	0	8	1	1	0	0	0	0	0	0	0
440	0.55556	0.57735	0	13	1	0	0	0	0	0	0	0	0
441	0.66667	0.7338	0	13	1	1	0	0	0	0	0	0	0
442	0.37037	0.74152	0	5	1	1	0	0	0	0	0	0	0
443	0.14815	0.36201	0	4	0	0	0	0	0	0	0	0	0
444	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
445	0.07407	0.3849	0	0	1	0	0	0	0	0	0	0	0
446	0.51852	0.50918	0	14	0	0	0	0	0	0	0	0	0
447	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
448	0.55556	0.50637	0	15	0	0	0	0	0	0	0	0	0
449	0	0	0	0	0	0	0	0	0	0	0	0	0
450	0.51852	0.50918	0	14	0	0	0	0	0	0	0	0	0
451	0	0	0	0	0	0	0	0	0	0	0	0	0
452	0.44444	0.50637	0	12	0	0	0	0	0	0	0	0	0
453	0	0	0	0	0	0	0	0	0	0	0	0	0
454	0.55556	0.50637	0	15	0	0	0	0	0	0	0	0	0
455	0	0	0	0	0	0	0	0	0	0	0	0	0
456	0.55556	0.50637	0	15	0	0	0	0	0	0	0	0	0
457	0	0	0	0	0	0	0	0	0	0	0	0	0
458	0.40741	0.50071	0	11	0	0	0	0	0	0	0	0	0
459	0	0	0	0	0	0	0	0	0	0	0	0	0
460	0.37037	0.4921	0	10	0	0	0	0	0	0	0	0	0
461	0	0	0	0	0	0	0	0	0	0	0	0	0
462	0.48148	0.50918	0	13	0	0	0	0	0	0	0	0	0
463	0	0	0	0	0	0	0	0	0	0	0	0	0
464	0.44444	0.50637	0	12	0	0	0	0	0	0	0	0	0
465	0	0	0	0	0	0	0	0	0	0	0	0	0
466	0.33333	0.48038	0	9	0	0	0	0	0	0	0	0	0
467	0	0	0	0	0	0	0	0	0	0	0	0	0
468	0.25926	0.44658	0	7	0	0	0	0	0	0	0	0	0
469	0	0	0	0	0	0	0	0	0	0	0	0	0
470	0.48148	0.50918	0	13	0	0	0	0	0	0	0	0	0
471	0	0	0	0	0	0	0	0	0	0	0	0	0
472	0	0	0	0	0	0	0	0	0	0	0	0	0
473	0	0	0	0	0	0	0	0	0	0	0	0	0
474	0	0	0	0	0	0	0	0	0	0	0	0	0
475	0	0	0	0	0	0	0	0	0	0	0	0	0
476	0	0	0	0	0	0	0	0	0	0	0	0	0
477	0	0	0	0	0	0	0	0	0	0	0	0	0
478	0	0	0	0	0	0	0	0	0	0	0	0	0
479	0	0	0	0	0	0	0	0	0	0	0	0	0
480	0.07407	0.26688	0	2	0	0	0	0	0	0	0	0	0
481	0.66667	2.40192	0	0	0	0	0	0	0	0	0	2	0
482	0	0	0	0	0	0	0	0	0	0	0	0	0
483	0	0	0	0	0	0	0	0	0	0	0	0	0
484	0	0	0	0	0	0	0	0	0	0	0	0	0
485	0	0	0	0	0	0	0	0	0	0	0	0	0
486	0	0	0	0	0	0	0	0	0	0	0	0	0
487	0	0	0	0	0	0	0	0	0	0	0	0	0
488	0	0	0	0	0	0	0	0	0	0	0	0	0
489	0	0	0	0	0	0	0	0	0	0	0	0	0
490	0	0	0	0	0	0	0	0	0	0	0	0	0
491	0	0	0	0	0	0	0	0	0	0	0	0	0
492	0	0	0	0	0	0	0	0	0	0	0	0	0
493	0	0	0	0	0	0	0	0	0	0	0	0	0
494	0	0	0	0	0	0	0	0	0	0	0	0	0
495	0	0	0	0	0	0	0	0	0	0	0	0	0
496	0	0	0	0	0	0	0	0	0	0	0	0	0

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497	0	0	0	0	0				0	0	0	0	0
498	0	0	0	0	0	0	0	0	0	0	0	0	0
499	0.07407	0.26688	0	2	0	0	0	0	0	0	0	0	0
500	0	0	0	0	0	0	0	0	0	0	0	0	0
501	0	0	0	0	0	0	0	0	0	0	0	0	0
502	0	0	0	0	0	0	0	0	0	0	0	0	0
503	0.18519	0.39585	0	5	0	0	0	0	0	0	0	0	0
504	0.25926	0.44658	0	7	0	0	0	0	0	0	0	0	0
505	555.55556	2886.7513	0	0	0	0	0	0	0	0	0	0	0
506	0	0	0	0	0	0	0	0	0	0	0	0	0
531	0	0	0	0	0	0	0	0	0	0	0	0	0
532	0.59259	0.50071	0	16	0	0	0	0	0	0	0	0	0
533	2.51852	1.01414	0	1	2	21	0	0	0	0	0	0	0
534	0	0	0	0	0	0	0	0	0	0	0	0	0
535	1.2963	1.03086	0	12	4	5	0	0	0	0	0	0	0
536	1.7037	1.85669	0	7	1	2	4	3	0	0	0	0	0
537	1.14815	2.12501	0	2	0	2	0	1	3	0	0	0	0
538	1.25926	1.6075	0	15	1	3	0	0	0	0	1	0	0
539	4.55556	3.12968	0	7	1	4	0	3	1	0	9	1	0
540	0.11111	0.32026	0	3	0	0	0	0	0	0	0	0	0
541	0.2963	1.17063	0	2	0	0	0	0	1	0	0	0	0
542	0.07407	0.26688	0	2	0	0	0	0	0	0	0	0	0
543	0.07407	0.26688	0	2	0	0	0	0	0	0	0	0	0
544	0.07407	0.26688	0	2	0	0	0	0	0	0	0	0	0
545	0.51852	1.60217	0	2	0	0	0	0	2	0	0	0	0
546	0.55556	0.50637	0	15	0	0	0	0	0	0	0	0	0
547	2.88889	2.70801	0	11	5	0	2	1	1	3	1	1	0
548	0.59259	0.50071	0	16	0	0	0	0	0	0	0	0	0
549	3.44444	3.22649	0	11	4	0	0	1	1	4	1	3	0
550	1.2963	1.68283	0	21	0	0	0	0	0	2	0	0	0
551	2.85185	2.97041	0	14	2	1	1	1	1	2	0	3	0
552	0.88889	1.31071	0	17	0	0	0	0	0	1	0	0	0
553	2.07407	2.11089	0	9	3	4	1	1	1	2	0	0	0
554	0.81481	1.33119	0	15	0	0	0	0	0	1	0	0	0
555	4.96296	3.65304	0	5	3	1	0	1	1	4	0	9	0
556	0.92593	1.38469	0	15	0	1	0	0	0	1	0	0	0
557	3.92593	3.50742	0	6	4	2	0	1	2	1	1	6	0
558	0.7037	0.82345	0	15	0	0	1	0	0	0	0	0	0
559	2.66667	2.33699	0	9	8	1	1	0	2	4	0	0	0
560	0.66667	1.1767	0	12	0	0	0	0	1	0	0	0	0
561	3.88889	2.439	0	5	2	1	7	2	1	7	0	0	0
562	0.7037	0.99285	0	14	0	0	0	1	0	0	0	0	0
563	3.81481	2.71799	0	7	2	3	1	2	1	9	0	0	0
564	0.62963	0.62929	0	13	2	0	0	0	0	0	0	0	0
565	3.66667	2.73158	0	7	2	1	2	2	3	7	0	0	0
566	1	1.4676	0	13	0	1	0	1	1	0	0	0	0
567	3.59259	2.69271	0	5	2	5	3	2	2	3	0	2	0
568	3.48148	2.87389	0	12	0	0	4	5	0	2	0	3	0
569	0.51852	0.50918	0	14	0	0	0	0	0	0	0	0	0
570	3.37037	2.66239	0	9	3	1	2	2	1	7	0	0	0
571	0.07407	0.26688	0	2	0	0	0	0	0	0	0	0	0
572	0.25926	1.02254	0	0	1	0	0	1	0	0	0	0	0
573	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
574	0.14815	0.60152	0	1	0	1	0	0	0	0	0	0	0
575	0	0	0	0	0	0	0	0	0	0	0	0	0
576	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
577	2.7037	1.91783	0	3	9	0	6	2	3	0	0	0	0
578	0.66667	1.35873	0	8	0	0	1	0	1	0	0	0	0
579	3.48148	2.20786	0	3	3	7	1	0	10	0	0	0	0

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580	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
581	0	0	0	0	0	0	0	0	0	0	0	0	0
582	0.11111	0.32026	0	3	0	0	0	0	0	0	0	0	0
583	0	0	0	0	0	0	0	0	0	0	0	0	0
584	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
585	0	0	0	0	0	0	0	0	0	0	0	0	0
586	0	0	0	0	0	0	0	0	0	0	0	0	0
587	0	0	0	0	0	0	0	0	0	0	0	0	0
588	0.92593	0.26688	0	25	0	0	0	0	0	0	0	0	0
589	0	0	0	0	0	0	0	0	0	0	0	0	0
590	0.55556	1.01274	0	10	0	0	0	1	0	0	0	0	0
591	2.14815	1.02671	0	6	5	14	0	0	0	0	0	0	0
592	0.14815	0.36201	0	4	0	0	0	0	0	0	0	0	0
593	2.7037	0.72403	0	4	0	23	0	0	0	0	0	0	0
594	0.96296	0.19245	0	26	0	0	0	0	0	0	0	0	0
595	0	0	0	0	0	0	0	0	0	0	0	0	0
596	0	0	0	0	0	0	0	0	0	0	0	0	0
597	0.11111	0.32026	0	3	0	0	0	0	0	0	0	0	0
598	0	0	0	0	0	0	0	0	0	0	0	0	0
599	0.96296	0.19245	0	26	0	0	0	0	0	0	0	0	0
600	1.2963	1.1373	0	23	1	0	1	0	1	0	0	0	0
601	0.59259	1.36605	0	9	0	0	0	0	0	1	0	0	0
602	4.77778	2.76424	0	9	0	0	0	1	4	13	0	0	0
603	0.22222	0.42366	0	6	0	0	0	0	0	0	0	0	0
604	0	0	0	0	0	0	0	0	0	0	0	0	0
605	0	0	0	0	0	0	0	0	0	0	0	0	0
606	0	0	0	0	0	0	0	0	0	0	0	0	0
607	0.07407	0.26688	0	2	0	0	0	0	0	0	0	0	0
608	0	0	0	0	0	0	0	0	0	0	0	0	0
609	0.03704	0.19245	0	1	0	0	0	0	0	0	0	0	0
610	0	0	0	0	0	0	0	0	0	0	0	0	0
611	0	0	0	0	0	0	0	0	0	0	0	0	0
612	0.18519	0.39585	0	5	0	0	0	0	0	0	0	0	0
613	0	0	0	0	0	0	0	0	0	0	0	0	0
614	0.11111	0.32026	0	3	0	0	0	0	0	0	0	0	0
615	0	0	0	0	0	0	0	0	0	0	0	0	0
616	0.11111	0.32026	0	3	0	0	0	0	0	0	0	0	0
617	0	0	0	0	0	0	0	0	0	0	0	0	0
618	0.11111	0.32026	0	3	0	0	0	0	0	0	0	0	0
619	0	0	0	0	0	0	0	0	0	0	0	0	0
620	0.07407	0.26688	0	2	0	0	0	0	0	0	0	0	0
621	0	0	0	0	0	0	0	0	0	0	0	0	0
622	0	0	0	0	0	0	0	0	0	0	0	0	0
623	0	0	0	0	0	0	0	0	0	0	0	0	0
624	0.18519	0.39585	0	5	0	0	0	0	0	0	0	0	0
625	1.22222	3.52282	0	0	0	0	0	0	0	0	0	0	0
626	0.48148	1.05139	0	0	2	3	0	0	0	0	0	0	0
627	0	0	0	0	0	0	0	0	0	0	0	0	0
642	0	0	0	0	0	0	0	0	0	0	0	0	0
643	0	0	0	0	0	0	0	0	0	0	0	0	0
644	0	0	0	0	0	0	0	0	0	0	0	0	0
645	0	0	0	0	0	0	0	0	0	0	0	0	0
646	0.14815	0.36201	0	4	0	0	0	0	0	0	0	0	0

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