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This paper has been minimally edited for clarity and style.

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SUMMARY

A Brief on the Forestry Outlook Study
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Rapid population growth is a major factor in the cycle of cumulative environmental degradation and poverty facing Lesotho. Population growth has resulted in reduced per capita availability of arable land and the use of unsustainable agricultural practices including overgrazing. These factors contribute to reducing the ability of the land to support the population.

Landlessness, a problem partly also attributable to land tenure insecurity, is also on the increase. Lesotho’s land tenure system has been identified as the major constraint to agricultural development, including tree growing. A strong lobby exists which argues that the system requires adjustment and modification to accommodate demographic patterns (increasing landlessness); address the need to raise agricultural productivity and environmental concerns (particularly overgrazing) of a common property resource.

While the livelihood provided by migrant labour is threatened, there is also a declining trend in the largest internal sector (agriculture) which has not been adequately compensated for by the development of other sectors. In the context of increasing population, reduced employment opportunities in the Republic of South Africa and the inability of the domestic non-agricultural sector to absorb labour and provide income, Lesotho’s economic and social development will increasingly depend upon the ability of policy makers to revitalise the agricultural sector. While natural events have certainly contributed to the sector’s decline, the lack of a facilitating and supporting policy environment has played a major role.

Forest issues in Lesotho are many and varied. Some are unique to this country while others are cross-cutting the national boundary. The daunting challenge facing both the remaining indigenous forest patches and the 485 Forest Reserves, is to implement a sustainable ecosystem management plan based on a sound understanding and integration of biological and socio-economic issues. Furthermore, there is an overriding need to assess and quantify the multiple benefits that the Basotho derive from forest resources. This data foundation is essential to establishing communal responsibilities towards sustainable forest management within the context of participatory decision making.
1 INTRODUCTION

1.1 Objective of the paper

The main objective of the country outlook paper is to take a forward look at the forestry sector in the country. Starting from present status of forestry in the country, the paper seeks to visualise the most likely situation that can develop as regards forests and forest industries during the next 20 years and to assess the likely implications-economic, social and environmental- of the developments in the sector. It identifies important forces of change, and based on a critical analysis of these, predicts how these are likely to affect the sector. It indicates the assumptions made about the policy and institutional changes. It also takes into consideration intersectoral linkages.

1.2 Background

Lesotho is predominantly grassland, and fossil pollen analyses indicate that the predominance of grassland and heatland has existed in the country for at least 23,000 years (Scott, 1984). According to missionaries records of 1833 closed low forests have been restricted to patches under escarpments and in some mountain valleys and they had difficulties in getting suitable trees for roofing as the trees were too short to make required trusses.

In the light of depleting vegetative cover, the colonial administration embarked upon a number of attempts to promote tree planting, particularly during 1930s. These campaigns had limited results when one considers the number of trees planted. Nonetheless many of the groves of poplars, willows and wattle dotting Lesotho’s countryside originate from this period.

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Forestry initiatives in Lesotho date back to 1855 (May, 1992). Overall their success record has been poor. Although millions of trees were planted, very few have survived to harvestable age. Both biophysical constraints, mainly harsh climatic conditions, and socio-economic factors were responsible for this limited impact. Most of the earlier efforts were directed at encouraging individuals to plant trees, either for provision of wood or for soil conservation. Plantings for soil conservation purposes intensified from 1942 to 1947, and changed focus on communal planting in dongas or other unproductive areas. This scheme was largely unsuccessful, as tree survival rates were constrained by sub-standard planting practices and the absence of supervision and protection of planted areas from human and natural damage.

Following the limited success of community plantings, the Lesotho Woodlot Project (LWP), which commenced in 1973, had as its intermediate objective the establishment of tree plantations that were owned and managed by the Government. LWP established woodlots, or forest reserves (FRs), with a total planted area of over 7,000 ha. It also produced tree seedlings for planting in catchment areas. In addition, LWP set up the infrastructure that formed the basis of the Forestry Division, provided extensive staff training and undertook basic forest research.
In spite of the expenditure and effort put into LWP, which included contributions by the UK Overseas Development Administration (ODA), the World Food Programme and the South African mining companies Anglo-American and De Beers Consolidated, serious doubts were raised about the sustainability of the programme by donors.

1980s witnessed the introduction of a number of area-based projects that included a significant forestry component (e.g. Plenty, Matelile Project etc). These projects have tried to involve people in tree planting activities both on a communal and individual basis. Following such experiences and in line with world-wide trends, considerable interest in community or social forestry has been generated in Lesotho. This essentially entails assisting local people to plant their own trees.
2  THE CHANGE DRIVERS

2.1 Socio-economic context

Lesotho is a Kingdom situated in the Eastern part of Southern Africa, and is surrounded by the Republic of South Africa (RSA). The kingdom covers 30,350 km$^2$ of 60% represents rangelands, 9% arable land and the remaining part mainly mountains and steep hills\(^1\). The country is divided into four regions; the lowlands along the western plateau, the Senqu valley, the foothills and the mountains. The altitudes vary from 1,500 metres to almost 3,400 metres. Due to the high altitudes, many houses need to be heated for large parts of the night.

It is estimated that Lesotho has a population of 2.6 million. The population growth rate is around 2.6% per annum. The average population density in Lesotho is 69 persons per km$^2$. This rises to 745 persons per km$^2$ on arable land. Literacy in Lesotho is among the highest in Africa. In 1997/8, the Lesotho Government successfully completed 239 classrooms at primary level, as well as 2 government high schools in the last fiscal year. Seventy five percent (75%) of all children are enrolled in the primary education. Nevertheless, the quality of primary education is reported to be declining. Additionally, problems with school dropouts and pupils repeating classes are growing. The primary health care system supports more than 80% of the population. As in most African countries, the prevalence of AIDS is increasing with 3,563 cases reported in December 1999 (Ministry of Health: Lesotho Disease Control STD / AIDS Unit). A prevention and control programme has been put into effect.

The country has rich water resources in the mountains. Some of this resource is utilised by the Lesotho Highlands Water Project (LHWP), which exports to industrial centres situated in RSA. In the 1996/7 financial year, the Lesotho Government received a royalty payment of M 142.8 million for these water exports. A 72 MW hydropower plant has been constructed at Muela in the northern part of the country and the plant came on stream in 1998 and now covers the major part Lesotho’s need for electrical power, thereby reducing the country’s dependence on imported coal-based power from SA.

Other exportable natural resources include sandstone, diamonds and clay, the latter being processed into bricks and ceramic tiles. The closure of the De Beers large operation in 1982 has resulted in a decrease in diamond production: mining activity was left to small-scale diggers co-operatives at Liqhobong. Average production is now 11,000 carats per year, valued at M 7 million. These figures are expected to improve as the Letseng-la-Terae mine resumes its large-scale operations (a South African Company has been awarded the contract to manage this process).

Although the tourist industry is not fully developed, attractions such as bushman paintings, dinosaur footprints, wildlife and environmental parks and pony trekking could support an eco-tourism industry. Despite this potential, however, relatively few tourists are recorded each year. The recent licensing of gambling in many of SA towns is likely to affect the gambling-related revenues in the country as in the past the majority of tourists came to gamble at Lesotho’s hotels.

\(^1\) Arable land is reported to have fallen from 13% in 1966 to 9% due to residential encroachment and severe cases of soil erosion (15 million tons from cropland and 23 million tons from rangelands)
The Government sector is the main formal employer in the country. Its workforce consists of civil servants, teachers, daily paid workers and the armed forces. Employment in the manufacturing sub-sector is mostly accounted for by labour intensive, export-oriented companies assisted by the Lesotho National Development Corporation (LNDC). At the end of 1998, employment generated by these firms was estimated to have slightly declined from the 1997 level of 18,113 people. Firms assisted by the Basotho Enterprise Development Corporation (BEDCO) employed 692 people in 1998 compared with 616 in 1997. Agriculture and the informal sector in the rural and urban areas employ about 72% of the country labour force.

Unemployment is estimated at 42% of the labour force, and it is expected to grow further due to rising youth unemployment and the continuing retrenchment of Basotho migrant workers in the mines of RSA (see below). The problem is further exacerbated by the rapid migration from the rural to urban areas, and general increase in population. It is believed that 22,000 to 25,000 people enter the labour force every year, while the economy has the capacity to generate only 6,000 jobs per year. Job creation in the formal sector is about 1,000 new jobs per annum.

National development and economic objectives

The sixth National Development Plan (1996/97 - 1998/99) states that the primary objective of national policy is to enhance sustainable human development. It further outlines the objectives of human development as enabling people to:

- Lead long and healthy lives
- Acquire knowledge, and
- Have resources needed to accommodate acceptable levels of human needs

The Government of Lesotho’s Vision 2020 document (3) outlines the pathway to the achievement of its vision, which has been provisionally stated as follows: Lesotho shall be a democratic, peaceful prosperous, secure and self-reliant nation by the year 2020. These strategies will seek to promote:

- Employment creation. This should be achieved through the utilisation of labour intensive methods, creation of sustainable employment schemes and programmes, promotion of rural development opportunities and establishment of programmes targeted at small and medium scale enterprises.
- Sustainable human capacity enhancement. This should be achieved by ensuring that appropriate education and training and excellent health services are accessible to all.
- Sustainable development and growth from own resources. Aggressive programmes for entrepreneurship should be embarked upon, as well as programmes to intensify and diversify agricultural production. Local materials and resources should be cost-effectively used and aggressive environmental management practices should be adopted. The tourism industry should also be promoted.
- Reform, democratisation and empowerment. The democratic dispensation and modern institutions should be aligned with chieftainships. Law enforcement structures should be enforced, and plans to establish local governments should be given priority.

Poverty reduction continues to be the major national development objective and is seen as a major component of sustainable human development. Growth in employment is considered critical to sustainable human development.
2.2 Lesotho’s economy

In economic terms, Lesotho is one of the world’s least developed countries. The Gross National Product (GNP) in 1997 was Maloti 4,740 million, equivalent to about US$ 790 per capita. In 1998, the Gross Domestic Product (GDP) had declined in real terms by 5.5% to US$ 747. The nominal GDP, however, increased somewhat over the 1997 level, reflecting a domestic inflation rate of about 9%. The average nominal income per person amounted to M 3,133 (US$ 570), which was slightly lower than the 1997 level (Central Bank of Lesotho Annual Report 1999).

In 1996 / 97, manufacturing export grew at an average of about 18% per annum, but in 1997 / 98 dropped to 6% and to 2% in 1998 / 99. On the other hand, the sub-sector’s contribution to the Gross Domestic Product rose from 14% in 1993 / 94 to an average of 17% per annum during 1994 / 95 to 1997 / 98. This was largely attributable to the activities of the LHWP exports in 1998, which had shown a steady growth in earlier years declined by 7.6% in volume.

The country’s revenue base continues to depend disproportionately on customs revenue. For the past ten years customs receipts (including grants) have accounted, on average, for 54% of total government revenue, and has financed 78% of recurrent expenditures. Economic dependence on customs revenue is likely to be significantly affected by a number of events currently taking place in the world economy and including the outcome of the negotiations on the SACU Agreement, the European Union (EU) / South African Free Trade Agreement, the negotiations of a Post-Lorne relationship with the EU, the ratification and implementation of the SADC Trade Protocol and the anticipated next round of World Trade Organisation negotiations.

Lesotho’s economy is highly influenced by external factors. In general terms, the country’s overall economic performance is affected by trends in the world economy. The decline in world output from a growth rate of 4.2% in 1997 to 2.2% in 1998, for example, has resulted in decrease in volume of world trade from 9.9% in 1997 to 3.3% in 1998. In particular, Lesotho’s economy is influenced by the South African economy. The net income from abroad is largely derived from Basotho working in RSA’s mines. However, employment of migrant mine workers has been declining in the recent years. Current figures by The Employment Bureau of Africa (TEBA) offices show that the total number of contracts renewed in the first months of 1999 to be 22,8867 compared to 27,693 in the corresponding period last year. It is because of factors including:

- increased mechanisation of mines (coal mines in particular)
- mine closure due to escalating costs and falling mineral prices
- retirement of senior migrants without recruitment of novices
- offer of South African permanent residency to Lesotho migrant workers at their discretion
- relatively high mine wages which now attract black South Africans in larger numbers than previously

Lesotho’s economy is also affected by internal developments and constraints. It is argued, for instance, that the liquidation of the Lesotho Agricultural Development Bank and the restructuring of the Lesotho Bank have had a significant impact on domestic economic productivity. Declining activity of the Lesotho Highlands Water Project (LHWP) has also affected the economic growth, as have reduced agricultural production, poor performance in public sector utilities, and political instability.
The relative share of agriculture to GDP has declined from 45% at the time of Independence to just 10% in 1992. Even accounting for the impact of drought, it is apparent that the sector’s contribution to GDP is in persistent decline.

In general, arable agriculture, which constitutes about 28% of agricultural GDP, is a low-input, low-output activity based upon cereal mono cropping for subsistence purposes. The most important crops are maize (the preferred staple), sorghum and wheat. Following a brief period of surplus at the turn of the century when Lesotho was a net grain exporter, productivity has persistently declined, accelerating alarmingly from the mid 1970s onwards. Yields have fallen and output growth since Independence (-1.5% per annum) has lagged far behind the dependence ratio of 32 in 1965 to 52 in 1990 (UNDP 1994). The prognosis is bleak, projections (Sechaba, 1994) indicate that, if present trends in population and agricultural production continue then, other things being equal, a continuing decline in Lesotho’s ability to feed itself is inevitable.

Livestock accounts for 78% of agricultural GDP and virtually all agricultural exports: mainly wool and mohair. Its contribution relative to arable agriculture has increased rapidly over the last thirty years. The increasingly skewed pattern of livestock ownership however means that the benefit of this activity is concentrated amongst relatively few Basotho.

2.3 The role and status of women

Women play a key role in household maintenance throughout the developing world - they collect water and fuel, and along with children are involved in agricultural production. In Lesotho, this role and the associated burden imposed on women are particularly acute given the large number of female headed households (27.6%) and the difficulties posed by a seriously degraded environment. Women undertake a substantial proportion of agricultural activities and are extensively involved in the informal business sector. This importance is not matched by control over most disadvantaged in terms of access to land having user rights only through their husbands although many women have found strategies to cope with this such as share cropping or (illegal) leasing.

2.4 Poverty

Definitions of poverty vary, although whichever criteria are adopted, a consensus emerges that poverty in Lesotho is widespread and increasing rapidly. UNDP estimates based on household income for 1990, suggest that 55% of all households (rural and urban) existed below the poverty line; a figure rising to 60% in 1994 (UNDP, 1994). A view was corroborated by a World Bank study completed in 1994 (World Bank, 1994a).

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2 The importance of agriculture to the livelihoods of the majority of rural people however greatly exceeds its contribution to national economic indicators

3 In the case of maize from 1,221 kg/ha in the period 1976/79 to an average of 697 kg/ha in the period 1989/91

4 By 2001 Lesotho’s estimated agricultural production would meet just 25% of national cereal requirements

5 Refer to UNICEF’s Situation Analysis of Children and Women in Lesotho (1994)
Perhaps the most comprehensive and compelling analysis of poverty in Lesotho has emerged from the local poverty mapping study, commissioned by government in 1990 (Sechaba Consultants, 1990). This survey, based on estimates of 20 indicators combining traditional and modern measures of wealth and poverty such as: food self sufficiency, cattle ownership, access to education and health facilities, ownership of household goods, the incidence of child malnutrition, revealed the following key dimensions of poverty:

• The incidence of poverty is unequally spread across Lesotho - it is greatest in the central Mountains, followed by the more remote areas of the Foothills and Lowlands
• Poverty is least in the urban areas, although it appears to be increasing rapidly in line with the expansion of population
• Female headed households are more prone to poverty than male headed households

An update of the exercise in 1994 concluded that the situation is deteriorating rapidly. Household incomes are falling as a result of retrenchment from the mines of RSA and to a lesser extent as a consequence of the implementation of the SAP, while agricultural production has continued its persistent long term decline.

The prognosis is equally bleak:
• without major improvements in agricultural productivity, per capita agricultural production will continue to decline
• retrenchment from the mines in RSA seems set to continue leaving an impoverished rural population with reduced access to its traditional coping strategy of migrant labour. With estimates indicating that each migrant supports himself and at least five dependants (Setsabi, et al. 1992), the impact on household incomes is self evident
• the domestic economy is unlikely to grow at a pace necessary to employ any more than 10 - 12,000 of the estimated 41,000 joining the labour force every year (World Bank, 1994).

2.5 Decentralisation

The Ministry of Local Government is responsible for the current decentralisation process, which is in line with the development of democracy in the country and interpreted in the Constitution of Lesotho (Section 106). The process has three phases: conceptualisation, transition and post-election. The major goal of the process is to realise sustainable development under the control and management of the people who are directly affected, thus ensuring better coordination of development efforts and full participation of communities in poverty reduction efforts. The three objectives to be pursued are:
• To ensure that decision making, resource allocation, district level planning, local development and public services move physically closer to the people

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6 In 1994 update the number of indicators was increased to 31
• To deepen and open access to the structure of government, to give the electorate greater
democratic control over the development planning process and to make public institutions more
accountable to the elected representatives
• To ensure equitable distribution of Lesotho’s human, institutional and infrastructure resources
and capacity building

2.6 Privatisation

Privatisation in Lesotho aims at transforming the economy of the country in order to create an
enabling environment for increased private sector participation in the development process, while
limiting direct government intervention. This will foster the partnership between government and
the private sector, labour and the public and generate economic activity. The objectives of the
process are:
• To phase out government subsidies and state control of commercial enterprises
• To concentrate government effort and spending on the creation of a suitable health, education,
legal and security environment for optimal economic growth
• To introduce competition and discipline to promote increased production and improved service
levels
• To attract foreign capital and expertise
• To broaden direct public participation in the economy

2.7 Policy Framework

Until very recently, Lesotho had never had a formally approved policy for its forestry sector.
Notwithstanding this policy gap, the Government had always assumed the lead role in the
development and maintenance of forest resources since 1876. This continues to be the case, with
very little planting being done outside of government and international NGO supported initiatives.
The adoption of a National Forestry Policy in 1997 marks a radical shift in direction by emphasising
the role of communities in forestry management. In this policy, the government has firmly
committed itself to local ownership of forest resources. To this effect, the Forestry Policy states:

It is the policy of the Lesotho Government to maximize, through actions consistent with other stated
policies and development goals, the contribution that forests can make to the alleviation of poverty,
livelihood security and environmental protection in Lesotho, and to enhance the participation and
contribution of women in this endeavour.

2.8 Legal Framework

Land in Lesotho traditionally belongs to the people as a whole. The King as Head of State is vested
with the responsibility of allocating land on behalf of the nation. The Land Act of 1979 grants
Village Development Councils (VDCs) the authority to administer allocation of arable lands to
individuals by issuing a permit known as 'Form C'. In so doing, it guarantees exclusive rights for a
specified time period. Nonetheless, this license falls short of an officially registered title. The Land (Agricultural Lease) Regulations of 1992 enables a 90 year lease to be taken out on land, but this option is rarely applied to agricultural holdings.

Forestry activities and the status of tree ownership are governed by the Laws of Leretholi and Forest Act of 1978. The latter, however, was enacted mainly to support the development of woodlots or Forest Reserves and does not cater for ownership of trees by communities or individuals. A new Forestry Act was drafted in 1996, in response to the policy changes proposed in the National Forestry Action Programme of 1996. The draft Forestry Act was discussed and agreed upon at a forestry workshop in Mohale’s Hoek in July-August 1996, and formally approved by the parliament in December 1998. It places tree ownership in the hands of the individual or group who planted the tree. It also empowers the Ministry of Agriculture, through the Chief Forestry Officer (CFO), to transfer ownership of trees, forest plantations or indigenous forest / woodland to groups or individuals, for a specified number of years and subject to certain terms and conditions. The CFO is to scrutinize applications and ascertain that candidates have necessary resources and management skills. Successful applicants would be required to follow a management plan approved by the CFO. Transfer of title shall be effected by means of a written agreement between the holder and Government. If the holder breaches the terms of the agreement, for example, by failing to manage the woodlot in a sustainable way as prescribed by the management plan, the government has the right to repossess the resource.

3 STATE OF FORESTS AND PLANTATIONS

3.1 Existing Forests, Trees and Shrub Resources

Lesotho is one of the least forested countries in Africa. No recent comprehensive data on the extent of forest cover exist. Variations of estimates depend on the definition of forest employed. By the most favourable counts and taking into account all types of forestry resources, coverage is unlikely to exceed a few percentage points of total surface area.

Forest resources can be categorised into five main groups. These are essentially categorised according to patterns of ownership and consist of:

- Indigenous trees and shrubs
- Government owned plantations
- Private treelots
- Trees in individual homesteads
- Trees in the urban environment

3.1.1 Indigenous trees and shrubs

The extent, density and composition of indigenous forest and shrubland were determined in the course of the 1981-82 National Rangeland Inventory. Due to poor archiving procedures, however, detailed records by locality were subsequently lost. An extended programme has been underway since 1990 under which the trees and shrubs present in each forest patch are identified and its location plotted on a 1:20 000 maps (May, 1997).
Lesotho’s forest patches and woodlands have been, and continue to be subject to so many impacts. This makes it difficult to identify and evaluate their current status. Essentially, the forest patches and woodlands are of two basic types, but with a number of sub-types.

One main type comprises the mixed evergreen and deciduous forest patches of the Lowlands and Foothills. It is found below escarpments, in valleys and gullies and other similar localities. Thereby providing partial partial protection from the fierce post-winter bushfires that used to ravage the country before overgrazing became rampant. It is reported that some of the species that occur in Lesotho are found in mountain forests as far north Tanzania and beyond (May 1997). The emergent trees of this first type generally grow to maximum heights of 12-20 metres. They commonly include Celtis africana (Molutu), Olea europaea var. Africana (Mohloare), Kiggellaria africana (Lekhasi), Pittosporum viridiflorum (Phuku e nyenyane), with less commonly Ilex mitis (Phukhu) and Scolopia mundii (qoqolosi) which are shade demanding in youth. The canopy trees, of which only a few species may reach 11 metres or so in Lesotho, commonly include Maytenus heterophylla (Sefemaeba), M. undata, M. Acuminata, Halleria lucida (Lebetsa), Euclea crispa var. Crispa (Mohlakola), Diospyros lyciodes, Buddleja salvifolia (Lelothoane) and Grewia occidentalis (Lesika). Due to cutting and browsing, these species are more often of shrub form. Old trees of the pioneer tree, Leucosidea sericea (Cheche) may occur but are succeeded by those of the other species in closed canopy conditions.

The other main type is dominated by Leucosidea sericea which forms more or less homogeneous stands of trees and comparatively-extensive scrubby areas in the lower Mountains Zone up to 2500 metres or so, where it appears to be a dominant tree species. Depending on the degree of openness of the Leucosidea, its principal shrub associates may be Rhamnus prinoides (Mofifi), Diospyros austro-africana (Senokonoko), Rhus divaricata (Kolits=ana), R. dentata (Lebelebele), Euclea coriacea (Ralikokotoana), Buddleja salvifolia (below 2200 metres or so), Buddleja loricata (Lelora) (above 2200 metres or so), Artemesia afra (Lengana) and Myrsine africana (Moroka- pheleu) (May, 1994).

Using National Rangeland Inventory data, Mahlelebe calculated the total area dominated by the native trees as 34 685 ha only. The inventory’s two vegetation categories, Leucosidea-dominated and Rhus dominated were classified as shrubland types and in the final computation, the areas pervaded by the indigenous trees were incorporated into them.

It is not worthy that the national average crown cover (i.e. the part of the plant directly above and below the ground) of Leucosidea sericea and of the various Rhus species amounted to 10.88% and 11.32% respectively of the total land area. While, total crown cover of all woody plants in these categories was 21.24% and 12.90% respectively; revealing the overall openness of woody growth in much of Lesotho.

Although the naturally occurring extent of natural forest and woodland is low, it remains a valuable resource to many rural people, providing: fuel, wood for tools and house construction, medicines for both humans and livestock, sites for traditional ceremonies, browse and shelter for livestock. Almost all these areas are extensively used for grazing and firewood collection. Despite the existence of management schemes backed by regulatory measures, natural vegetation loss continues unabated. The rate of depletion, however, has not been quantified.
3.1.2 Government Owned Plantations

Much of the country’s existing woody biomass stock originates from planted trees by the Lesotho Woodlot Project between 1973 and 1987. Geographically woodlots have a skewed distribution with the majority located in the Lowlands and Foothills. By district, over half of the area established and survived is in Leribe (30%) and Maseru (26%). In terms of species: eucalyptus generally predominate in the north, pines in the drier south and cypress at higher elevations due to silvicultural reasons. The current distribution of woodlot by district is given in Table 2. Although the gazetted woodlot area is 12,988 ha, the actual stocked area is less than half this figure (6,130.9 ha).

Out of 10,362 ha of woodlot established until 1992 only 60% or 6,131 ha are stocked at present (60%). Replanting of 4,231 ha is required to re-establish the originally planted area. The currently stocked area of 6,131 consists of: 2,979 ha of eucalyptus, 2,786 ha of *Pinus* species and 371 ha of other tree species (see Table 2). The quality of existing pine stands is superior to eucalyptus stands as well as other tree species. The stands require regular pruning and thinning. *Pinus radiata* and *Pinus pinaster* show the best growth rates compared to *Pinus halpensis*. Although the latter has a good survival rate it grows slowly. In most cases *Pinus* species are suitable for erosion control but not particularly appropriate for wood production. The most performing eucalyptus species has remained throughout to be *Eucalyptus rubida*.

The inventory also identifies the following management problems:

- inadequate management and control of the woodlot by the foresters due to lack of funds and other resources to carry out certain tending operations;
- poor access to most of the woodlot situated on plateaux due to deteriorated roads condition;
- meagre harvesting and illegal felling resulting in declining quality and stocking of the woodlot;
- large losses of stocking and tree quality due to drought, fire and grazing by animals in small stands; and decline in reforestation activities since late 1980s due to inadequate resources available for Afforestation programme (Runze, 1997).

Other problems that limit the range of species which can be grown and contribute to low survival and growth rates, even amongst well-adapted species are harsh climatic conditions and infertile soils.

3.1.3 Private woodlot - individual and community

No comprehensive survey of private tree planting or ownership has ever been conducted. In the main, they consist of small groves or patches of grey poplar (*Populus canescens*) or silver wattle (*Acacia dealbata*) often planted in dongas. These include areas compulsorily established under the Tree Planting Scheme of 1994-47, and from government-paid planting for soil stabilisation undertaken as part of wider conservation programmes, dating from around the same period. Although many of the community woodlot are not systematically managed they have been able to regenerate themselves into well utilised resource base. This is significant in view of the heavy grazing impacts by livestock.
3.1.4 Individually owned trees in Homesteads

Individually owned trees in homesteads also constitute valuable forest resource. The undisputed tenure of the homestead has provided individuals with security to plant trees for amenity, shade and fruit. Peach trees in particular are a ubiquitous feature of villages. Most homesteads have at least some trees: For example, a 1989 surveys found that 86% of all rural households had one tree, 66% of which were fruit trees. Most of these (87%) were planted around the home, (Hall and Green,1989).

3.1.5 Trees in the urban environment

Almost all towns in Lesotho have quite a number of trees in their surroundings. These trees play such an important role in improving the urban environment and the well-being of urban dwellers. Among other things they ensure a clean water supply for the city; protect the towns against strong winds; provide shade and a cooling effect in hot climate and provide a habitat for urban wildlife. Unfortunately, there are no figures to indicate the extent of trees found in the urban areas.

3.2 State of forest industries

Given the small scale of the resource Lesotho has few forest based industrial activities. Firewood and poles are produced in three government owned facilities and a number of small wood using enterprises such as furniture making (using imported timber) do exist. The forestry sector consequently generates little employment and is not a major contributor to national income.

3.2.1 Wood Demand - supply situation

Data on the import of forest products into Lesotho are limited in coverage and content. However, the value of total imports in 1994 was estimated at around 15 million Maluti. The extent of dependency in quantity terms cannot be determined from the available statistics, but it is readily apparent that Lesotho is:

- entirely dependant upon imports for sawn timber, boards (plywood and other similar products)
- heavily dependant upon imports for treated (i.e. preserved) posts used in building and fencing
- heavily dependant upon imports of firewood - particularly (although not exclusively) that used in urban areas

In addition, the limited availability of domestically produced firewood has clearly resulted in considerable imports of fossil fuels.

3.3 Social and Economic Implications

In common with most developing countries Lesotho’s rural population is dependent upon biomass resources including shrubs, cow dung and crop residues to meet their own energy needs. Lesotho’s, harsh winters has meant that people require substantial energy for warmth in addition to food preparation. The overwhelming reliance of rural households on biomass fuels has placed tremendous pressure on this resource. While the use of dung and crop residues as alternatives to fuel wood has had adverse implications on soil fertility. In real terms, firewood provides 64% of the
household energy in rural areas, with cow dung and crop residues accounting for over 27% of the balance (May, 1997).

Basotho utilise trees for a wide range of uses in addition to fuel. The survey work of Hall and Green (1989) indicates that trees are used for: fruit (especially peaches), windbreaks and shelter for houses, people and livestock, tools and furniture, fencing; browse for animals and medicines.

It is important to understand the multi-purpose value of trees and forests for conservation of forests and development of other community forestry activities. Beekeeping is a clear way of exploiting forests and trees without destruction. The financial outcome from beekeeping gives beekeepers a financial reason to protect forests and trees.

One source of forest fires causing tremendous tree destruction are honey hunters, but involvement of beekeepers in forest related activity will subdue this destruction through bee protection and assisting honey hunters in honey collection.

Also when given a choice for planting in forestry programme, farmers usually request fruit trees or trees from which they can obtain harvest within a very short time and many of these fruit trees depend on bees for pollination to produce high quality fruits and for fruit and seed set.

3.4 Forestry and environment

3.4.1 Soil Stabilisation

The importance of trees is not limited to their provision of wood. Trees play a pivotal role in environmental protection. Stabilising soil, preventing erosion, controlling water run-off in catchment areas, providing shelter from wind and the sun’s scorching heat, are some of the important purposes for which trees are widely planted and much needed in Lesotho. Trees around homesteads play a vital role in providing shade for houses and act as windbreaks during the strong August winds. In many countries loss of vegetative cover has spurred increased and more violent flooding, accelerated siltation of dams and propelled phenomenal soil erosion rates leading to all-out desertification.

Afforestation for protective purposes need not conflict with wood production. The poplars and willows planted throughout the country supply poles and fuelwood as well as abate soil erosion. Nevertheless, it is true that many plantings in Lesotho were not necessarily undertaken with water catchment protection and firewood generation intentions in mind. A good example is that of a huge donga near Berea Mission in Teyateyaneng district. In this instance, local people had attributed the donga formation to the removal of shrubs from the upstream valley sides, recalling when it was a stream that one could step across. Another example is that of Tsereone near the Main South I road, where Lesotho Agricultural College students reclaimed a massive donga nearly ten years ago.

3.4.2 Amelioration of local climate

A good example of environmental protection rendered by trees has been cited above the Chesi Stream near Ha Khoeli (May, 1997). In this largely undisturbed forest, no run-off or erosion is reported during heavy thunderstorms even on gradients greater than 100%. Some indigenous tree species and exotics (e.g Pinus halpensis at Tenane and Leloaleng woodlot) are able to grow quite well on stony, bouldery slopes because their roots can spread underneath them. Not only do stabilise such slopes better than grasses but also full utilisation of the hillsides potential is made. It has also
been noted that trees were able to grow at over 3000m on the open hillside at Lestseng la Trai as long as they were protected from fire and grazing. This indicates that shelterbelts for livestock could in effect be established in mountain cattle post areas provided that support and cooperation of herders is forthcoming. By reducing wind speeds and therefore the >wind chill= factor, animals require less of their food just to keep warm, and this can also provides them with shelter from driving snow.

A major environmental aspect of plantations and indeed tree planting is its integration with farming. Such practice is commonly referred to as agroforestry. It is now widely recognised that agroforestry systems, where wood and food are grown together on the same piece of land, are the key to sustainable land management in fragile mountain ecosystems such as that of Lesotho. The practice, however, is yet to be explored in this country. The main challenge is to identify tree species that are compatible with other food crops; especially considering that moisture availability is almost invariably regarded as the critical limiting factor for crop growth. Since 1980, livestock and trees have been co-existing in harmony at the Leshoboro Plateau and other woodlot. Chiefs would regulate entry into woodlot by issuing grazing permits admitting specified numbers of animals for certain time periods. Unfortunately, the situation today is dramatically at odds with that which prevailed in the late 1980s as the woodlot are now overgrazed again.

3.4.3 Impact on Water Supply

In Leshoboro Plateau, where most of the trees are eucalypts some springs below the plateau have started to dry up earlier in the year than usual while some have disappeared altogether. This confirms the widely debated fact that forested catchments usually reduce the amount of water in ground water reserves because they use more than non-forested catchments. However, they regulate the water flow more efficiently, preventing the extremes of flow that are characteristic of deforested catchments in areas of high rainfall.

3.4.4 Impact on other plants

Eucalyptus is also known to produce chemicals that inhibit germination and growth of other plants (e.g. Eucalyptus sideroxylon). This may influence the choice of species when erosion control or grazing is important function of the plantation. These are some of the controversial aspects of eucalyptus and it should also be noted that the ecological effects of planting eucalyptus as single trees, rows of trees or in small woodlot, may be very different from those produced by plantations in extensive blocks.

3.4.5 Aesthetics

Trees are the only forms of life larger than mankind that are encountered everyday. The streets of Maseru and other towns would be monotonous and ugly without trees. The amenity and recreation value of trees and green spaces in Maseru is widely recognised by the city dwellers for the same reason that trees give them a breathing space during their spare time.

3.4.6 Carbon Sinks and Climate Change

Roughly 50% of forest vegetation consists of the chemical element, carbon. This is why they are referred to as Carbon sinks. Conversely, biomass represents the potential amount of carbon that can be added to the atmosphere as carbon dioxide when forest is cleared or burned. By estimating the biomass density of forests it is possible to determine the quantity of carbon absorbed in forest
vegetation. Data on the changing status of carbon pools is critical for informed policies and strategies on global atmospheric change.

Lesotho has ratified the Convention on Climate Change and has already carried out a national greenhouse gas emission inventory.

3.5 **Institutional framework for forestry**

Primary responsibility for national forestry development within the government lies with the Forestry Division, which is institutionally situated under the Department of Conservation, Forestry and Land Use Planning within the Ministry of Agriculture Cooperatives and Land Reclamation. The Forestry Division is responsible for the management of more than 400 forest reserves established under the Lesotho Woodlot Project. It is also mandated with the provision of technical backstopping to district level staff; including research and information dissemination activities.

Although the Forestry Division has a reasonable complement of professional staff, a majority of these are located at Headquarters. Delivery of forestry extension through the Ministry’s unified extension service is often poor. The service is particularly weak in the mountain districts, where there are fewer extension messages to offer and professional foresters are absent or in short supply. Many people rely on the Division for supply of planting materials, and shortages often occur at key times of the year. Apart from Forestry Division there are several other government Ministries and Departments as well as NGOs that also have a stake in Lesotho’s forestry development

**Governmental institutions are:**

**National Environment Secretariat** is the overriding policy maker and coordinator of all environment-linked activities, including those on indigenous forests, trees, shrubs and afforestation.

**Ministry of Local Government** has an overriding control under the Land Act of all land for indigenous forests, trees and shrubs and afforestation as well as forestry planning under the Town and Country planning Act. They also control communally-owned plantations on land not allocated under Land Act, control of firewood in Aleboella areas, effectively in control of all wild trees and shrubs as liremo even if contrary to the Liremo Control Order.

**Ministry of Agriculture**

Department of Field Services (DFS) has the primary responsibility in the districts for forestry extension, and social forestry development through the Unified Extension service and most of the forestry Division’s former staff establishment was transferred to this Department.

Department of Youth Affairs is also carrying out afforestation activities through the National Environment Youth Corps and Youth in general. In 1995 / 6 the Teyateyaneng Youth (Boys Scouts) had a target of 50,000 trees for the entire district and they managed to plant 20,000 trees.

**Lesotho Agricultural College** - forestry staff development and with the DFS, forestry training of individuals, groups and communities.

**Department of Agricultural Research** through an IFAD-funded project called Soil and Water Conservation and Agroforestry Programme (SwaCAP) has been distributing seed of a number of species for trials and has carried out some trials with fruit tree orchards.

**Ministry of Natural Resources:**
The Department of Energy carried out an in-depth study into energy consumption in Lesotho, following which a National Energy Master Plan was drawn up. The use of trees and shrubs, crop residues and dung as fuels was quantified on a national basis.

**Lesotho Highlands Development Authority (LHDA)** in collaboration with government line ministries has a responsibility for all natural resource management and development (including indigenous forests, trees, shrubs and afforestation) in the Katse and Mohale Catchments.

**Non Governmental Organisations (NGOs)**

At least 10 NGOs are now active in forestry field such as Care- Lesotho, Plenty, Lesotho Durham Link, Lesotho Red Cross, World Vision etc
4  CHANGE FACILITATION WHAT NEEDS TO BE DONE?

4.1  Forestry development as a national priority

Increasing rural poverty, environmental degradation and a worsening rural energy situation provide the rationale for forestry to be treated as a national development priority. In addressing the future, clear and realistic objectives for forestry development must set a basis for strategy which employs limited resources most productively and removes institutional impediments to development.

4.1.1 The Role of Forestry in National Development

The role and future direction of forestry in Lesotho must reflect:

- the physical extent of the existing resource
- the realistic potential to develop the forestry resource base given the environmental context and people’s priorities, particularly in respect of wider land use decisions

The following fundamentals must therefore be recognised:

- Lesotho’s forestry sector is unusual in terms of the sparseness of the resource - there is little natural forest to utilise
- the opportunity for developing large commercial scale plantations and emulating an industrial scale model of forestry development seen elsewhere in the region (e.g. RSA and Swaziland) is poor
- decisions about tree planting, as with all other land use decisions, are the responsibility and prerogative of land users themselves.

The need for trees and forestry expertise is in no way diminished by these observations. What is required however, is a rational focus which places emphasis on enhancing the role of forestry in terms of:

- meeting the basic needs of local people for fuel, poles and timber - a need which remains unmet and is increasing so aggravating environmental degradation and poverty
- contributing to the conservation of soil and water which will underpin the revitalisation of Lesotho’s agricultural sector which remains the only realistic route for the alleviation of poverty for the majority of the population
- improving the productivity of agricultural systems, both arable and pastoral
- providing income through the sale of forest products and the development of appropriate forest industries
- reducing dependency on fuel imports, the rate of use of which will rise, particularly as urbanisation continues

Relative roles in national forestry in Lesotho requires a partnership between the government, NGOs, the private sector and people who should ultimately benefit from that development. Identification of relative responsibilities is central to the definition of clear roles in the development process.

4.1.2 Government
The primary role of government in Lesotho’s forestry development should not be to establish, manage or control forest resources itself. Neither should government be directly involved in commercial activities in the forestry sector which can be left to private enterprise.

Consequently government should:

- establish no new state forest reserves
- make genuine efforts to transfer the benefits, management responsibility and ultimately ownership of existing state forest reserves to local people and assist those communities in the management of these areas
- withdraw from commercial activities in the forestry sector
- concentrate efforts on creating an enabling policy and legal environment - including security of land and tree tenure - which supports individual initiative
- provide appropriate supporting services which respond to and reflect people’s needs

In performing this role government service providers should recognise:

- the complementary part that NGOs play in supporting the development of forestry nationally
- the need to fully integrate forestry extension into the mainstream of other agricultural and conservation promotion efforts
- the need to focus on core activities to ensure that best value for money is achieved with the resources available

NGOs have a responsibility to assist local communities in the development of forest resources through the provision of appropriate and focused services. Their frequent command of local people’s trust should allow them to be actively involved in the process of empowerment.

In undertaking this role NGOs should:

- strive for the highest quality service provision
- coordinate their activities with other services providers - government and NGOs
- be consistent amongst themselves and with government in their approaches

4.1.3 The private commercial sector

The private commercial sector can play a significant role in the development of forestry resources in Lesotho. The private sector is diverse, ranging from individuals involved in the propagation of planting material to sell to their neighbours, through to those selling and utilising wood and wood products.
The private sector can best be supported through the establishment of a framework of legislation and policy, which supports its development. In return, the private sector should act in a responsible manner with respect to environmental issues, safety and the development of human skills.

**People**

A review of past forestry development efforts in Lesotho indicates that sustainable benefits will only accrue to people when they themselves assume responsibility of the development of forest resources. This is the principle of social forestry.

4.1.4 **The primacy of Social Forestry**

This definition of responsibilities and roles represents a significant shift in the emphasis and orientation of forestry development in Lesotho. It marks the adoption of social forestry as the basic approach to national forestry development.

To be executed fully this changed orientation will require:

- officers in government to accepts the need for change
- a willingness amongst NGOs to work closely with each other and government
- a greater awareness amongst local people of their individual and collective responsibilities
- a commitment from government to support these efforts and to effect legislative and specific policy changes as required

4.2 **Strategy for and approach to social forestry development**

In developing this concept of social forestry the following guiding principles should be followed by government and NGO service providers reflecting the experience of the past:

- the primary objective must be to empower local people to undertake tree planting and management by assisting them to secure undisputed access to land and ownership of trees and in transferring and developing necessary skills

- sustainability and self-reliance must be nurtured by phasing out subsidised inputs and services. Payment in either cash or food should not be made to those developing (either individually or communally) forestry resources for their own benefit

- models of forestry development which focus on individual (family) ownership should be emphasised rather than larger communal (village) activities where uncertainty regarding allocation of future benefits has been consistently shown to act against people’s willingness to protect and manage the resource
• efforts must be made to integrate trees fully into farming and livelihood systems - forestry development must be wider than the simple promotion of blocks of trees without recognition of limited land resources and alternative land uses

5 SUMMARY AND CONCLUSIONS

Rapid population growth is a major factor in the cycle of cumulative environmental degradation and poverty in which Lesotho finds itself. Rising population has resulted in reduced per capita availability of arable land; the use of unsustainable agricultural practices including overgrazing, all of which contribute to a reduction in its ability of the land to support the population. Landlessness is also increasing from an estimated 12.7% of rural households in 1970 to over 1986 (25% of all households, rural and urban are classified as landless); a problem at least in some part also attributable to land tenure.

Lesotho’s land tenure system has been identified as major constraint to development of agriculture, including tree growing. A strong lobby exists which argues that the system requires adjustment and modification to accommodate: demographic patterns (increasing landlessness); the need to raise agricultural productivity; and environmental concerns (particularly overgrazing) of a common property resource.

The overriding challenge and problem of Lesotho’s economy is that while the external base of livelihoods provided by migrant labour is threatened, there has also been a declining trend in the largest internal sector (agriculture) which has not been adequately compensated by developments in the other sectors. In the context of increasing population, reduced employment opportunities in RSA and the inability of the domestic non-agricultural sector to absorb labour and provide livelihoods, Lesotho’s economic and social development will increasingly depend upon the ability of policy makers to revitalise the agricultural sector. While natural events have certainly contributed to the sector’s decline, the lack of a facilitating and supporting policy environment has played a major part.

The forest issues of Lesotho are many and varied. Some are unique to this country while others are clearly cross national boundaries. The daunting challenge facing both the remaining indigenous forest patches and the 485 Forest Reserves, is to implement a sustainable ecosystem management plan based on a sound understanding and integration of biological and socio-economic issues. Furthermore, there is an overriding need to assess and quantify the multiple benefits that Basotho society derives from forest resources. This data foundation is essential to establishing communal responsibility towards sustainable forest management within the context of participatory decision making.
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Setsabi et al 1992. The socio-economic characteristics of the Lesotho migrants, National University of Lesotho, Roma


World Bank, 1993. 1993 World Development Report, USA
Annex

List of the major studies/reports on forestry and related areas produced within the last ten years


4. Harvesting and Marketing study


6. Hall, D and Green, T. 1989. Community Forestry in Lesotho. The peoples perspective. A report on the social forestry study for a community forestry programme for the Kingdom of Lesotho, Maseru


8. Leslie, A.D 1990. Indigenous forest and woodland in the Kingdom of Lesotho, Siud Afrikaanse Bosboutydskril no.158


18. GoL 1999. Forestry Division Team Building Workshop Report


ANNEX

Population Size and Growth

During the intercensal period, 1986 to 1996, the de jure population increased by 367,167 from 1,592,902 in 1986 to 1,960,069 in 1996. This shows a growth rate of 2.0 percent per annum. The projection estimated the population in the year 2001 to be 2,182,743, which is an increase of 222,674 (10.2%) over the 1996 de jure census figure.

There was an unusually large number of females, when compared to their male counterparts in 1986 with a sex ratio of 95 males per 100 females as compared to that of 1996 which estimated the sex ratio to be 96 males per 100 females.

The age structure shows that the young population dominates. It is estimated that as many as 43.1% of the population were aged between 0-14 years, 42.6% aged between 15-44 years and 10.9% aged between 45-64 years. This clearly brings out two observations; that the birth rate is high and that the majority of the people fall in the age group that is eligible for employment. This type of age structure has special implications on the available resources especially in terms of educational facilities and job opportunities.

The dependency ratio, that is, the number of persons aged under fifteen and over sixty five years, as a proportion of the number of persons between the ages of 15 and 64 years was 87% in 1996.

TABLES:

Table 1: De Jure Population by Age Groups and Sex

<table>
<thead>
<tr>
<th>Age Group</th>
<th>1986</th>
<th>1996</th>
<th>2001*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
</tr>
<tr>
<td>00-14</td>
<td>329,534</td>
<td>326,180</td>
<td>655,714</td>
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<tr>
<td>25-34</td>
<td>101,764</td>
<td>110,011</td>
<td>211,775</td>
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<tr>
<td>35-44</td>
<td>72,128</td>
<td>70,811</td>
<td>142,939</td>
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<tr>
<td>45-54</td>
<td>58,882</td>
<td>58,945</td>
<td>117,827</td>
</tr>
<tr>
<td>55-64</td>
<td>34,532</td>
<td>37,128</td>
<td>71,660</td>
</tr>
<tr>
<td>65+</td>
<td>33,468</td>
<td>50,546</td>
<td>84,014</td>
</tr>
<tr>
<td>Total</td>
<td>777,427</td>
<td>815,475</td>
<td>1,592,902</td>
</tr>
</tbody>
</table>

* Projected Population (Medium Variant)

Source: 1996 Population Census Analytical Reports Volumes IIIA and IIIB
Table 2. Distribution of woodlot according to districts in Lesotho

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>Plantable Area (hectares)</th>
<th>Planted Areas up to 1993/94</th>
<th>Survived or Actually Stocked</th>
<th>Area Stocked with EUCS</th>
<th>Area Stocked with Pine</th>
<th>Area Stocked with other</th>
<th>Number of woodlot -10</th>
<th>Number of woodlot -20</th>
<th>Number of woodlot 21 - 50</th>
<th>Number of woodlot &gt;50</th>
<th>Total Number of woodlot</th>
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</thead>
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<tr>
<td>MASERU</td>
<td>3,953.20</td>
<td>2,478.40</td>
<td>1,590.65</td>
<td>534.20</td>
<td>927.15</td>
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<td>68</td>
<td>89</td>
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<td>3</td>
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<td>BERET</td>
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<td>1,111.70</td>
<td>807.75</td>
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<td>288.70</td>
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<td>50</td>
<td>63</td>
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<td>2</td>
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<tr>
<td>LERIBE</td>
<td>3,186.25</td>
<td>3,064.80</td>
<td>1,798.75</td>
<td>1,241.05</td>
<td>495.20</td>
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<td>38</td>
<td>56</td>
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<td>BUTHA BUTHE</td>
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<td>946.15</td>
<td>507.15</td>
<td>351.30</td>
<td>128.00</td>
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<td>15</td>
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<td>QACHAS NEK</td>
<td>461.40</td>
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<td>1.50</td>
<td>29.10</td>
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<td>23</td>
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<td>23</td>
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<tr>
<td>QUTHING</td>
<td>955.70</td>
<td>925.40</td>
<td>426.55</td>
<td>48.05</td>
<td>350.30</td>
<td>28.20</td>
<td>57</td>
<td>66</td>
<td>1</td>
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<td>MOHALES HOEK</td>
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<td>441.25</td>
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<td>24</td>
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<td>51</td>
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<tr>
<td>MAFETENG</td>
<td>1,078.00</td>
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<td>4,54.50</td>
<td>126.65</td>
<td>288.90</td>
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<td>18</td>
<td>31</td>
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<td>TOTAL</td>
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<td>10,362.55</td>
<td>6,130.9</td>
<td>2,979.15</td>
<td>2,783.9</td>
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<td>411</td>
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Source: Forestry Division Woodlot Inventory 95/96