Department of Water Affairs and Forestry

NATIONAL FORESTRY ACTION PROGRAMME

WORKING GROUP:
INDUSTRIAL FORESTRY

SPECIALIST PAPER

"WORKSHOP PROCEEDINGS: SUPPLY AND DEMAND FOR FOREST PRODUCTS"

by

Anon
Private consultant
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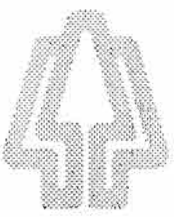
Department of Water Affairs and Forestry

NATIONAL FORESTRY ACTION PROGRAMME:
WORKING GROUP FOR INDUSTRIAL FORESTRY



PROCEEDINGS OF A WORKSHOP
MODELLING THE FUTURE OF THE FOREST SECTOR IN SOUTH AFRICA:
SUPPLY AND DEMAND FOR FOREST PRODUCTS

held on
15 and 16 January 1997
at the
CSIR Conference Centre, Pretoria

WHAT THIS DOCUMENT CONTAINS

The National Forestry Action Programme, which was initiated to provide an implementation plan for South Africa's new forest policy, organised a workshop for the Industrial Forestry Sector on 15 and 16 January 1997. The workshop was centred around the development of a supply and demand model for forest products in South Africa. It had the following objectives:

- to reach agreement on the need or otherwise for a scenario modelling approach to the forest sector;
- to discuss approaches to modelling the sector for policy analysis;
- to discuss key elements of the modelling sector, and
- to reach agreement on proposals for a plan of action.

This document summarises the proceedings and results of the workshop.

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DAY 1: 15 JANUARY 1997

FACILITATOR: DR MAX CLARK, GREYLING AND MANYAKA ASSOCIATION

1. WELCOME

- Mr Hennie Coetzee, Department of Water Affairs and Forestry (DWAF)

As facilitator of the workshop, Dr Max Clark (Greyling and Manyaka Association) introduced Mr Coetzee, who welcomed all participants. Mr Coetzee extended a particularly warm welcome to Mr Philip Wardle from the United Kingdom, who was acting as a specialist consultant on this project.

Mr Coetzee said that a forestry policy had been developed for South Africa, and the National Forestry Action Programme (NFAP) had been initiated to make policy changes a reality. He added that South Africans were living in times of change and that politics affected all areas of the forestry sector, including the industrial forestry sector.

Mr Coetzee said that it was essential to debate the options open to the industrial forestry community in a transparent, objective, unemotional and informed manner. He suggested that this could be assisted by the modelling process, for which the participants of the workshop had come together today. Mr Wardle would be assisting with this process as he had 24 years of experience with the Food and Agriculture Organisation (FAO) doing similar studies. He thanked Mr Wardle for coming to South Africa and wished all participants a fruitful workshop.

2. PURPOSE AND OBJECTIVES OF THE WORKSHOP

- Dr Fred Kruger, Environmentek, CSIR

Dr Kruger said that, in addition to outlining the objectives for the workshop, he wanted to set the context in which the workshop was taking place. He said that the overall objective of the forestry policy was to "promote a thriving forest sector, to be utilised for the lasting benefit of the nation, and developed and managed to protect the environment". This policy was linked to national strategies and goals, and should be integrated with other sectoral strategies and policies, such as trade and industry, water, environment and energy.

There were certain aspects of forestry policy that directly influenced the industrial forestry sector. For instance, forestry policy should:

- recognise the important role of the industrial forest sector in South Africa, including the wood processing industries;
- foster the continued competitiveness of the forestry sector locally and internationally within the bounds of acceptable environmental and social costs;
- promote equitable access to the opportunities and benefits arising from industrial forestry such as through equity-sharing arrangements, and facilitating land reform;
- counter and limit adverse effects of industrial forestry on water resources and biodiversity;
- ensure that afforestation permit allocations and integrated catchment management would be directed at equitable, efficient and sustainable allocation of resources, linked with economic development and resource-use plans;
- promote an industrial policy that would continually improve value-addition to forest products within South Africa;
- encourage further investment in the forest industry, including overseas interest;
- investigate the outlook for supply and demand for wood to establish the need for and desirability of further afforestation in the country;

- establish the districts within which new afforestation would be most beneficial, as well as the land-use and farming systems best suited to the needs of the people, and ways of assuring the supply of wood to capital intensive processing plants;
- involve the private sector in the improvement of a strategy to satisfy the growing demand for wood products;
- address all options to increase timber yields and improve efficiency through research, technological and managerial innovation, recycling and waste minimisation, and development of alternative fibre sources.

Dr Kruger added that the questions that required answering at the workshop were:
- what range of options were there for the sector?
- what forces would drive the direction in which the sector could develop?
- what would constrain this development, and how?
- which options would be most beneficial in terms of the national objectives?
- how could assumptions be tested and explored?
- what role could policy play in determining these futures?

Scenarios would have to be looked at in the context of these questions. Examples of such scenarios were: self-sufficiency, domestic growth with static exports, and maximum economic contribution.

Dr Kruger said that, during the workshop, the sector should be looking for ways to:
- progressively improve the ability to make informed policy choices about the options;
- contribute to a credible, agreed basis for evaluating policy choices;
- learn how to debate the future jointly and on common ground;
- continue building a system for modelling sector outlooks and for monitoring the sector's development;
- look for ways to build and sustain joint capacity to provide credible policy support of this kind

With this in mind, the objectives of the workshop were:
- to reach agreement on the need or otherwise for a scenario modelling approach to the forest sector;
- to discuss approaches to modelling the sector for policy analysis;
- to discuss key elements of the modelling sector, and
- to reach agreement on proposals for a plan of action.

3. SUPPLY AND DEMAND - IDEAS ABOUT AN APPROACH TO THE OUTLOOK FOR THE FORESTRY SECTOR

- Mr Philip Wardle, Private Consultant, United Kingdom

Mr Wardle presented a comprehensive paper on supply and demand in the forestry sector. The full paper is available in Appendix A of this document. Some additional points were made by him during his presentation and are outlined below.

Mr Wardle emphasised that "demand" comprised both the final demand for products such as were found in households, markets and schools, amongst others, and the derived demand. The derived demand was the demand for raw material (i.e. logs) that would go into making up these products.

Mr Wardle said that the supply of forestry products should be viewed as a schedule that relates the level of production to the price. Supply was a moving quantity that changed with the circumstances.

The same concept applied to demand. Demand was also strongly related to the level of wealth (or economic well-being) of a country. For example, world consumption had increased four- or

five-fold in the past 50 years. This increased consumption was probably directly related to the relative increase in global wealth

Mr Wardle added that it was important for industry to take competition from alternative products into account. This competition could be offset by ensuring that products on the market were transformed and that value was added to the final products. In general, quality products would have to be produced, at the same price, in order for South Africa to compete in global markets.

4. WHAT IS THE PRESENT ROLE AND PLACE OF INDUSTRIAL FORESTRY?

- Mr Tim Foy, Department of Water Affairs and Forestry, and ODA
  Dr Diek van der Zel, Department of Water Affairs and Forestry

Mr Foy and Dr Van der Zel gave a joint presentation to the workshop. Mr Foy said that the industrial forestry sector clearly had a place in South Africa due its major economic and social contributions. The sector had been successful, mainly due to:

- the availability of competitively produced fibre wood,
- a broadly conducive policy environment;
- complementary roles of private and public sector parties.

Mr Foy said that the future of the sector was unclear. It could grow along roughly the same lines as in the past, through the continued development of a local fibre resource. Alternatively, it could remain static, or grow using alternatively-sourced fibre resources. It was likely, however, that it would grow through a combination of these three options.

Changes in the industry would have to be seen in the context of:

- changing international conditions and circumstances in forest product markets;
- changing domestic circumstances and policy developments;
- changing orientation and focus of the forest industries themselves.

These were all factors that could fundamentally affect the competitiveness and requirements of the sector.

Mr Foy paid special attention to the changing domestic circumstances and policy developments as it was likely that the industrial forestry sector could have far greater control over these. The changes included:

- a new dispensation in which social, resource use and environmental issues have assumed a higher profile than they had done in the past;
- a new economic policy of growth with redistribution that created demands for products and jobs;
- a new forestry policy, which required that forestry development be not just internally efficient and profitable, but also equitable, sustainable, environmentally responsible and efficient in terms of national resource use.

This meant that the "political" debate about the future role and place of the sector had assumed a greater importance than in the past. This in turn required a balance and objective policy analysis to inform decisions on the basis of estimated costs and benefits of a particular course or courses of action.

Dr Van der Zel outlined the "costs" of industrial forestry as water use, land use, foregone biodiversity and aesthetics. However, there were difficulties related to quantifying these costs. Often the costs were intangible, and the valuation criteria for them could become individual and subjective. The valuations were often based on there being an alternative use (opportunity cost) for the resources that were consumed. There might also be a divergence between private and public costs and benefits. That forestry had an impact was not the issue that had to be addressed, but rather whether the extent of the impact balanced costs with benefits.

In conclusion, Dr Van der Zel said that benefits and costs were often highly localised and, although national aspects were often considered, provincial aspects could not be neglected. There was also a problem of resource conflict that had to be resolved - often in high forestry potential areas, there was also a high potential for agriculture, water yield and biodiversity.

Dr Van der Zel graphically presented some statistics to the participants in the form of overhead transparencies, which are available in Appendix B.

5. FORESTRY AND WATER: RECENT DEVELOPMENTS IN THE AFFORESTATION PERMIT SYSTEM (APS)

- Mr Mike Warren, Department of Water Affairs and Forestry

Mr Warren began by identifying shortcomings of the present APS as follows:

- It did not take into account the effect of afforestation on low water flows in catchments, nor of the drought cycle.
- It was still locked into determining areas available for afforestation based on the percentage reduction in flow regimes caused by tree planting, without detailed consideration of the effects on other water users.
- It was not transparent. There was little or no public accounting or procedures for appeal by affected parties. There was also no effective monitoring, control or auditing of compliance with permit conditions or expiry of permits.
- There was little or no consideration of environmental issues such as the effect of afforestation on rare or endangered flora and fauna, biodiversity or visual impacts on the landscape.
- No attention had been paid to addressing over-afforestation in certain catchments.
- There was no requirement for making an evaluation of the economic viability of the proposed forestry development, or to compare its value with that from alternative users of water.
- There was no provision for limited-term permits.

Following this, Mr Warren presented a prepared paper on the subject of the APS, highlighting some of the recent changes that have been made The full paper is available in Appendix C.

5.1 Discussion

On a question from Mr Mike Edwards (Forest Owners Association), Mr Warren said that, in the future, the APS might be scrapped to make way for a system of tradable water permits as suggested by the Water Law Review Committee. However, this was only now coming under the scrutiny of the Water Law review process and, in the meantime, industry would have to make do with the present system.

On a question from Mr Pieter Odendaal (SAFCOL), Mr Warren said that, up until recently, Environmental Impact Assessments (EIAs) had not been a strict requirement of the APS. The application of EIAs still had to be developed. He said that a recent EIA done for Nzinga Ranch in KwaZulu/Natal could act as a guideline for future EIAs.

6. INDIVIDUAL VIEWS ON APPROACHES AND ISSUES

Mr Wardle had, over the previous two weeks, visited various organisations involved in the forestry industry to get their opinion on issues concerning the industry. Organisations visited by him included the DWAF, SALMA, SAFCOL, CSIR, Department of Trade and Industry, Forest Owners Association, Industrial Development Corporation, and individuals in Pietermaritzburg. Some of the main roleplayers had not yet been visited. The opinions of the organisations would be compiled by Dr Wardle in a report, complementary to these proceedings, and are not documented here.

After Mr Wardle's presentation, Dr Clark requested that all workshop participants introduce themselves (a full attendance list is given in Appendix D), and give their individual views on the issues at hand, and the modelling approach to be taken.

Dr Fred Kruger (CSIR) said that the modelling approach should form the basis for a good, credible and authoritative contribution to forest policy in South Africa

Mr Roger Godsmark (Forest Owners Association) said that a supply and demand model would form an especially valuable contribution to policy development and implementation in the country. Mr Mike Gibbs (SALMA) confirmed this, saying that knowledge of supply and demand would be very valuable. Mr Tony Scheckle (Mondi Ltd) also supported this view.

Mr Pieter Odendaal (SAFCOL) said that he was mainly interested in the development of the industry, in which the market (supply and demand) was a deciding factor. Mr Michael Pitcher (DWAF/ODA) said that he was interested in aspects that drove the market in South Africa.

Ms Barbara Bieldt (Department of Trade and Industry) said that strategies to enhance competitive advantage were essential for South Africa. To compile these, good data and information were required, as well as the co-operation of industry.

Mr Louis Heyl (Louis Heyl Associates) said that it was essential to understand South Africa's potential in terms of supply, as well as to understand the domestic demands, and trade in forestry products. Mr Lee Cunningham (CSIR) suggested that prediction of supply was important and that the relationship between supply and demand required understanding.

The importance of environmental constraints on the supply of forest products was bought up by Dr Dave Everard (CSIR). Mr David Mbulaheni (DWAF) supported this and said that internalisation of externalities was important for the protection of the environment. Mr Mike Warren (DWAF) was particularly concerned with the use of water by forestry. He said that the DWAF would like to act as a facilitator to reconcile the views of both proponents and opponents of afforestation.

Ms Sebueng Kelatwang (DWAF) said that her interests lay predominantly in the effect of alternative land use, and on how prices, both of forest products and substitutes, would affect future demand.

Mr Sam Bhemba (IDC) said that competition played an important role in markets. Adequate information on this would be valuable for the development of policy and strategic objectives.

Mr John Mortimer (SALMA) iterated the statement that sound scientific knowledge was required. He added that often information was not forthcoming from industry due to confidentiality. This difficulty needed to be overcome if accurate information was to be attained. Mr Rashid Hassan (CSIR) supported this view. He said that information should not remain confidential, but should be comprehensive, transparent and objective. Good information would assist in the development of forestry resources in the country.

Mr SW Engelbrecht (SAPPI) said that other issues needed to be addressed that impacted on supply and demand, especially with regard to regulation of the industry, which would affect both of these in the long run. He also expressed concern that there had been little advance warning for the meeting. Mr Louis van Zyl (Hans Merensky Holdings) added that there had been little time to prepare for this meeting, especially with regard to some of the information that might be required.

Mr Waldo Hinze (SAFCOL) expressed concern that the scenarios chosen for the model would, in themselves, affect the supply and demand. He said that there was not enough information on the quality of demand, and on regionalised demand.

Mr Louis van Zyl (Hans Merensky Holdings) said that the supply and demand in the forestry industry largely depended on the large corporations, market forces and the country's economy. Small players would have to find their own niches In the past, policy often restricted players in the field, but policies should be there to assist the industry.

Mr Mike Edwards (Forest Owners Association) said that it would be worthless going through the exercise laid out for the workshop if it was not accepted at the start that the industry should maximise its economic contribution. Issues such as global initiatives and comparative advantage had to be addressed. Studies had already been done on supply and demand. He said that often supply and demand were viewed as "fact and fiction" respectively. Information was generally available for quantification of supply, but not for demand He added that credibility was required if government wished to get accurate data from industry The need for a growth industry was supported by Mr Louis Heyl (Louis Heyl Associates), who said that if there was a conducive atmosphere there would be not limit to the demand.

Dr Diek van der Zel (DWAF) said that the forestry policy aimed at promoting a healthy industry. However, departmental capacity would have to be built up to ensure implementation of the policy. This was supported by Dr Fred Kruger (CSIR) who said that the government was positioning itself to play a new role, which would be more consultative. Mr Tim Foy (DWAF/ODA) said that it was important to use the views expressed during the workshop to assist in the building of capacity for the development of forestry policy in South Africa.

7. OBJECTIVES AND AGENDA

The objectives of the workshop, as outlined by Dr Kruger earlier, were repeated and the participants asked for comment. In general the objectives of the workshop were accepted by the participants. Several important issues were brought to the fore.

Mr Mortimer suggested that there needed to be clarification on where the industry was going before the workshop could proceed. Mr Hassan said that two components were important: an understanding of how the sector functioned and where the sector should be going. He suggested that an understanding of the sector, based on good knowledge, was the first step, whilst expounding a vision for the sector could follow. Mr Mortimer believed that a vision or scenario should be developed first. Mr Foy suggested that these two approaches were not divergent.

Mr Heyl supported the need for a situation analysis, but he said that the information was already collectively available amongst the participants.

Mr Edwards said that the focus of the workshop should be the ultimate development of policy to support and enable the industry. Mr Wardle added that the ultimate aim of the Department was to make decisions on how they were to operate to take the forestry industry in South Africa into the 21st Century. He added that the short-term vision of industry had to be complemented by a more long-term vision to ensure future sustainability.

It was agreed by the participants that a supply and demand model was required to assist policy development in South Africa. It was suggested by Dr Kruger and agreed by workshop participants that the components of such a model be further explored.

8. RESOURCE MODELLING: SUPPLY SIDE

A plenary discussion was held to determine the structure and relationships between the sector and the national economy on the supply side. For the purpose of the workshop, it was decided that the scope should not include all wood supplied in South Africa, but rather only that wood that

was supplied by industrial plantations (even if it was to be used for fuelwood). Additionally, the domestic market (including Swaziland) would be the primary focus of the discussion, and imports would be excluded.

8.1 Present supplies

Initially the discussion centred around how to determine the present supply of wood, and what the determining factors were. Present yields and growth increments could be determined from the following information:

- age class distributions and area per species, product, forestry economic zone, catchment area and bioclimatic zone. This would have to take into account such characteristics as regeneration modes (e.g. for *Eucalyptus* spp.);
- mean annual increments (MAI);
- average rotation ages.

Dr Everard suggested that vital factors to be taken into consideration were the yield parameters, or resources such as water, soil and air that allowed for forest growth. Mr Edwards said that political factors would also have to be taken into account, especially with regard to the provinces.

Dr Kruger said that the above information would give an indication on the physical availability of the resource, but not the supply of wood as this was related to pricing mechanisms. Mr Edwards supported this. He added that factors that reduced stocks such as fires, droughts, loss of fertility, pests and disease would have to be taken into account, as well as economic aspects that would affect the market. Mr Hassan added that the supply of wood depended on the rate of harvest of the present stock, which in turn was determined by the demand for wood, which in turn was determined by price.

On a question from Dr Kruger, Mr Heyl said that the information required was already available. Industrial plantations covered about 1,4 million hectares of land in South Africa, and production was about 20 million m^3 per annum. Consumption was presently estimated at 16 - 17 m^3 per annum. Mr Wardle said that information was not only required on the potential and actual growing stock, but also on how wood was released by the owners of the stock and the related pricing structure. Mr Heyl suggested that the responsibility be assigned at the workshop for someone to collect the information required to determine the present stock in South Africa.

8.2 Future supplies

Mr Edwards pointed out that, although it was important to know what the present stocks were, it was also important to determine future stocks, and identify those factors that would influence future supply. Much discussion revolved around the subject of future supply. Broadly, the following were thought to influence the future supply:

- potential yield improvement gained through both improved management and more advanced technology;
- yield reductions due to fire, drought, loss of fertility, pests and diseases;
- rates of new afforestation. This could include afforestation of virgin land, or crop conversion of other crops to forests;
- patterns and trends of harvesting. This would include the fact that harvesting would affect the future stock (e.g. the age class distribution would change). Growth models would also have to take the species variations into account;
- yield reductions due to conversions to other crops;
- policy and legislation;
- the production of other sources of supply such as alternative fibres; forest waste utilisation; waste processing; imports; recycling of waste paper; improving process recovery; use of industrial waste and the harvesting of non-plantation forests.

More specifically, the prediction of future afforestation rates would also have to take into account factors such as:

- the APS;
- the price of non-timber products (both dry-land and irrigated crops);
- the price of land;
- availability of money;
- insecurity in stock farming,
- prices of other resources such as water and capital;
- land availability and ownership (e.g. optional land tenure);
- the market demand for wood;
- perceptions of risk;
- availability of forests in neighbouring countries;
- substitution of wood for other products;
- value of biodiversity, and
- government regulations in terms of incentives and disincentives.

9. RESOURCE MODELLING: DEMAND SIDE

A plenary discussion was held to determine the structure and relationships between the sector and the national economy on the demand side. It was decided that the discussion should revolve around the final demand for products, from which the derived demand could be calculated.

Dr Kruger said that there were two apparent views with regard to demand. The one was that South Africa was a small player in the international market, and was essentially a price-taker. The market was, thus, based on international trends. The other view was that there was a need to understand the structure of demand, particularly in domestic markets. Because of these divergent opinions, it was decided to treat the local or domestic demand separately from the international demand.

Mr Edwards and Mr Mortimer put forward the view that, whether South Africa competed in the international market or relied mainly on the local market was determined by the country's competitiveness and ability to perform. Saw milling tended to be determined by the domestic market, while paper and pulp were more internationally based. Mr Mortimer added that even the log price was becoming more internationally based, and in future the industry would need to produce more high-value products.

9.1 Domestic demand

Domestic demand was discussed first. The wood products were divided into pulp and paper (e.g. communications paper such as newsprint, books and copying; packaging and tissue, as well as imported paper such as light-weight coated and liquid packaging), and solid wood (e.g. mining timber; furniture wood; packaging wood; structural timber; poles; fuelwood and charcoal; board products and plywood).

Factors that affect the domestic demand for pulp and paper products included:

- population growth and demographics;
- product prices (both import and domestic);
- GDP growth (related to literary levels) - there was a 99% correlation between GDP and paper consumption world wide;
- growth in the printing industry;
- commodity exports, which would affect packaging demands;
- growth of the services industry;
- changes in technology;
- government policy - for instance, there existed a duty on paper, but not on books, so it was often cheaper to have books printed outside the country.

Factors that affect the domestic demand for solid wood products, according to timber type, included:

- mining timber - gold and platinum prices
  technology (substitution, mining techniques)
  price of wood
- furniture wood - population and demographics
  housing
- packaging wood - growth of the manufacturing industry
  cost of transportation
- structural timber - housing
  bond or interest rates
  substitute products
  technology
- poles - steel prices (alternative products)
  electrification
  agricultural activity
  telecommunications
- fuelwood and charcoal - electrification
- board products - construction industry
  furniture industry.

Mr Wardle pointed out that the factors listed above were all rational, but in order to model them, information was required. Thus, it was important to include aspects for which data were available. There would have to be more pragmatism when determining what factors could be modelled.

9.2 International market

Pulp and paper products for the international market could be divided into products such as market pulp; newsprint; fine paper; fluting and liner board, and dissolving pulp. Factors that affect the world demand for these products were:

- the value of the Rand;
- buyer preferences (especially with regard to environmentally friendly products);
- cyclical nature of the price;
- world economic growth;
- opening up of new markets to which South Africa had access;
- relative costs and prices when comparing the South African market to the world market;
- world capacity to supply;
- South Africa's international competitiveness.

Mr Edwards said that three factors would affect South Africa's international competitiveness and performance. These were: the security of supply; price of the products and the quality of the products.

Wood products and roundwood for the international markets could be divided into the following products: logs; wood chips; sawn timber (rough); sawn timber (quality); re-manufactured products; charcoal; poles and wattle extract.

The three factors that would drive this market were essentially those outlined by Mr Edwards earlier: the security of supply; price of the products and the quality of the products. Additional factors that were relevant to specific products were:

- rough-sawn timber - Far Eastern economies
- quality-sawn timber - economies of the United States and Japan
- re-manufactured products - housing starts in the United States and Japan.

Mr Heyl said that there was general consensus in the industry that the Southern Hemisphere could have a competitive advantage in primary processing. South Africa should take advantage of this

DAY 2: 16 JANUARY 1997

FACILITATOR: DR MAX CLARK, GREYLING LIAISON CC

10. SUMMARY

A summary of the results of the previous day's workshop was presented by Mr Wardle. He said that the aim of the analysis that occurred was to gain an understanding of the structure and relationships between the sector and the national economy and internally within the sector, as well as the relationships with the rest of the world. The function of models was to reach logical conclusions about the relationships within the sector and with the rest of the economy, as well as to ensure consistent projections of future development.

Supply and demand consisted of the following components:
- demand for final products (both domestic and export);
- derived demand for inputs,
- supply of final products (both domestic and imports);
- supply of inputs.

The models that needed to be developed included:
- the derived demand for wood input (domestic and export);
- potential supply from the forest;
- economic supply;
- econometric models of final demand for end products (domestic and export);
- econometric models of final product supply (domestic and import) - this was not thoroughly explored the previous day.

The information required included information on both the supply and demand sides, as well as pricing information. On the supply-side the following information was required:
- industry capacity;
- forest resource potential (plantations, and natural forest and woodland);
- land potential;
- opportunity costs.

On the demand-side the following information was required:
- accurate data or valid estimates on all important topics in consistent time series;
- domestic sales, imports and exports for major final products, informal sector products, intermediate products and raw material.

Information required on prices included:
- products (domestic and international);
- inputs;
- competing substitutes;
- land.

Key factors affecting supply and demand were:
- population;
- income (investment, construction, housing, industrial production, and services);

- prices (products, inputs and competitors)
- technology;
- policy.

Information required on these factors included:
- population and population growth;
- GNP;
- capital formation;
- construction;
- housing starts;
- the service sector GDP.

11. INDUSTRIAL DEVELOPMENT CORPORATION (IDC) PROJECT

Mr Dean Webster (IDC) was requested, on the spur of the moment, to address the workshop with regard to a recent study carried out by the IDC. Mr Webster said that, as its name implied, the IDC was concerned with the further development of the industry.

He said that the nature of the industry had changed in 1993 with the opening up of the South African economy. Now the level of competitiveness decided the success of the industry. The study undertaken by the IDC assessed the level of competitiveness of the South African forestry industry. Apparently, competitiveness did not rely on the amount of wood harvested, but rather on the quality of value-added forest products. Value could be added in the South African market through both mechanical wood processing and pulp and paper.

11.1 Discussion

In reply to a question from Mr Heyl, Mr Webster said that the forestry industry had potential, even in comparison to substitute products, and that it was worth backing. However, more efficiency was required if the industry was to be internationally competitive.

Mr Webster said that the GDP of a country was directly proportional to the paper consumption in that country. If the economy of South Africa were to pick up, then the paper industry would gain. At present South Africa's per capita consumption of paper per annum was 45 kg, as opposed to the United States with a per capita consumption of 400 kg per annum. The paper industry in South Africa was not competitive. Likewise saw milling was too reliant on low log prices, which would soon rise to international levels.

On a question from Mr Foy regarding the policy deficiencies within the industry, Mr Webster said that saw milling and pulp and paper had to be dealt with separately. He said that there were certain international competitive advantages in the South African pulp and paper industry. For example, wages, transport costs, electricity and wood costs were all relatively low. However, these advantages were often cancelled out because of the high cost of capital. It was unlikely that the present advantages would be maintained, and thus the industry would have to change. Other policy deficiencies included the lack of fibre resource management in the country, and the lack of incentives for further technology development.

12. SCENARIO BUILDING

Dr Kruger explained that a scenario building exercise would be used to try to apply some of the principles that were discussed the previous day. Several scenarios were suggested for the

exercise, the most popular being:

- Scenario 1 - the forestry sector should contribute to the growth of per capita income in South Africa. This would mean that a real growth of about 3,5% would need to be maintained until the year 2030 (i.e. the industry growth should be greater than GDP). The competitive advantage of the sector would have to be exploited.
- Scenario 2 - the forestry sector should contribute to growth of per capita income in South Africa, without increasing the acreage of plantation forests.

After some debate, it was decided that the two scenarios were similar, except that scenario 2 was slightly more narrow. It was decided that workshop participants would be divided into two groups, which would both explore scenario 1. The groups were requested to:

- establish the scenario - what would be needed in the sector to achieve the future scenario;
- identify drivers that would determine the development of the sector,
- identify constraints to development;
- identify the modelling requirements, and
- identify policy issues.

Before the groups split up, some basic figures on the forestry sector were outlined, for the groups' information. Table 1 gives the information required by the groups.

Table 1: Output of forestry sub-sectors in 1994/95

PRODUCT	AMOUNT (million m^3)	RAND VALUE (R millions)
Saw logs	3,5	670
Pulpwood	10,0	830
Mining timber	1,4	100
Chips	1,6	550
Other	0,5	80
TOTAL	±17	±2 000
SUB-SECTOR		
Saw milling		900
Furniture		?
Board		600
Mining		220
Pulp and paper		9000
Poles and charcoal		150

12.1 Report back - Group 1

- Rapporteur: Dr Fred Kruger

Dr Kruger reported that the group had begun by revisiting the information base. This had led to a lengthy debate that illustrated the need for a valid database.

He said that the scenario required the value of the industry to increase from the present value of about R 13 billion, to a value of R 30 billion in 25 years. Each of the sub-sectors was treated separately by the group.

Softwood sawlogs

The present supply of sawlogs was about 4,7 million m^3, with a sawn output of 1,5 million m^3. A yield of 8 million m^3 per annum would be needed for the required growth. The present timber stocks would be sufficient to cover this. However, saw mills that now had a low recovery, would have to improve their recovery as sawn board would have to increase from 1,5 million m^3 to 4 million m^3.

The value output would be determined by the price. The current price of sawn timber ranged between R 700/m^3 for lower grade board to R 900/m^3 for high-value board. For the aggregate output to change from R 780 million per annum to R 3,6 billion there would need to be an increase in the high-value exports. This would require an improvement in both management and technology.

Issues that needed to be taken into account were the large size of the global market, and the fact that an important international resource was pruned sawlogs, which South Africa produced. The driving factors would be the log prices, changing management practices and the major change required in capital investment. Constraints to the growth of the sub-sector would be historical trends, the lack of a cultural trend and the lack of a systems approach. Ultimately what would be required would be improved skills, technology and management.

Policy issues that might affect the market included:

- exchange controls;
- supply-side incentives, and
- a facilitator to gain common views in industry.

Hardwood sawlogs

At present South Africa was consuming 280 000 m^3 of hardwood sawn logs. There was, however, a large international market for this sub-sector. The major constraint for South Africa was the poor recovery on *Eucalyptus* logs. There was, however, potential for expansion into the SADC countries.

Mining timber

The need for mining timber was confined to gold and platinum mining. The outlook for this sector was poor and it would be expected that the demand would fall to about 800 000 m^3 per annum.

Pulp and paper

Two million tonnes of pulp and paper were consumed domestically, with imports reaching 300 000 tonnes per annum. If the per capita consumption of paper increased from 45 kg per annum to 60 kg and the population grew by 2,4%, then this consumption could be as much as 4,4 million tonnes in 2020. This would require 11 million tonnes of raw material.

There would also be a large change in the domestic market for market pulp. This would require major financing (in the region of R 20 billion in capital) in order to double capacity.

Conclusion

The scenario required a positive growth in the South African economy in terms of the real rate of return and the investment climate. It was likely that these would act as greater constraints to

the industry than resource restraints such as the environment, water and land. In conclusion, a 3,5% growth was modest and feasible, and could probably be exceeded.

12.2 Report back - Group 2

- Rapporteur: Mr Roger Godsmark

Mr Godsmark reported that the group had mainly concentrated on the scenario building for each sector. For each sector they had discussed the future required state, the financial viability and the raw material supply. Roughly the industry would double in 16 years (from R 13 billion to R 26 billion) at a 3,5% growth rate. This was similar to the figure calculated by Group 1.

Pulp and paper

It was assumed that the growth of this sub-sector would be more than 3,5% percent (probably closer to 5%). Thus, the intake volume would have to double over 25 years (from 10 million m^3 to 20 million m^3), and the output would have to be oriented towards value-added products. One of the strategies that could assist in the growth of this sub-sector would be the investments by South African corporations in overseas enterprises and in other African countries.

The group identified four new sources for the pulp and paper industry. They were:

- local and virgin fibre from afforestation, improved yield and latent supply;
- increased recycling (up to 50%)
- imports, and
- re-direction of imports. At present 1,6 million tonnes of chips were exported where they could be used for pulp and paper.

Saw milling

Growth in this sub-sector was thought to be less than in the pulp and paper sub-sector. Growth had been below average over the past few years, but future growth was possible through the production of value-added products.

In the short-term, the outlook was pessimistic due to old-fashioned management approaches and outdated technology. However, in the longer term there were good prospects for value addition and increasing log prices would encourage saw mills to become more efficient.

Mining timber

The group suggested that this was a shrinking market, with negative growth. It was estimated that the consumption would shrink to 800 000 m^3 per annum. The major benefit would be that this would release further fibre sources for the pulp and paper industry.

Wood-based panels

Historically there had been a growth in this industry, especially over the past four years. A 6% growth figure was assumed by the group for this sector. There was excellent export potential, but the supply of wood would compete directly with the pulp and paper sub-sector.

The increase in fibre demands from the different sectors is shown in Table 2.

Table 2: Present and possible future fibre demands for the various forestry sub-sectors

PRODUCT	1995 DEMAND (million m^3)	2020 DEMAND (million m^3)
Pulp and paper	10,0	24,0
Sawn timber	3,5	5,0
Panels	0,6	2,6
Mining timber	1,4	0,8
Chips	2,4	0,0

Drivers that influence the industry were considered to be the same as those identified in the workshop the previous day.

Supply constraints were identified for both the processing of the raw material and for the supply of fibre. Processing constraints included capital (cost and availability), the environment and water. Constraints for the supply of fibre were water, the environment, competing uses, capital (cost and availability) and land claims.

Information was required from both government and the private sector if modelling requirements were to be met. In both cases price and cost information was important, as well as economic data.

12.3 Plenary discussion

On a question from Mr Mortimer concerning the growth in the wood panels sector, Mr Edwards said that there was a large capacity for the increase of exports to Indonesia. Mr Wardle added that panels seemed to be the growth sector of solid wood on a world-wide basis. Mr Foy said that this trend was already obvious in the United Kingdom.

Mr Edwards said that the cost of capital was often too high for local investors and that overseas investment should be encouraged. Mr Wardle said that the cost of capital would still have to be taken into account.

Mr Foy said that the potential for growth in the industry was enormous, especially if some of the constraints could be overcome. The production of raw materials would certainly become more competitive in the future. This would create greater incentive to increase the value of products rather than the volume.

On a question from Dr Everard, Dr Kruger said that the industry could grow without increasing the area under afforestation. This allowed for the industry to become more environmentally responsible. Mr Scheckle said that it would be unwise not to plant any more forests. The extra forests would allow more leeway for growth in the industry.

On a question from Dr Kruger concerning the excess of sawn logs, Mr Edwards said that the yield improvement factor had to be taken into account. Yield improvement was difficult to assess because of the unpredictability of factors such as droughts, fires and disease. This would have to be built into the model.

On a question from Dr Kruger, Mr Scheckle said that, in terms of newsprint, it was unlikely that imports would increase over the next 10 to 15 years. The Richard's Bay pulp line was due to be

increased so that another approximately 400 000 tonnes could be produced. The board sub-sector might, however, have to rely on imports.

12.4 Global model

As a conclusion to the scenario building exercise, Mr Wardle presented the figures that had been generated for South Africa by a global model of supply and demand. The model was based on the global trends of countries similar to South Africa and was not sensitive to the South African situation, but gave a general projection of future economic behaviour. All the factors that could affect supply and demand were taken into account in this model. The results are given in Table 3.

Table 3: Results of demand for South African forestry products generated by the global model

PRODUCT	1993 DEMAND (million m^3)	% GROWTH	2010 DEMAND (million m^3)
Paper	1,5	6-3	3,7
Pulp	1,7	6-4	3,5
Sawn timber	1,7	1-0,7	2,1
Wood	13	2-1,7	18
Waste paper	0,6	9-6	1,9

Dr Clark noted that the figures in Table 3 were similar to those produced by the scenario building, and questioned whether drivers outside the forest industry were more important than internal ones. Mr Wardle said that it was obvious that information was required on what effect the economy would have on the industry. A supply and demand model should give some estimates of what this would be, which scenario building could not do.

Mr Mortimer said that the industry should not be constrained by the local economy only. He added that the sawmilling sub-sector had allowed itself to be constrained by the local economy, while the pulp and paper sub-sector had broken into the international market. Mr Foy said that the policy environment also determined the lack of sawmill growth.

13. INFORMATION MANAGEMENT

Participants emphasised the necessity to formulate a way to maintain, process and analyse information so that it could lead to sound policy advice.

The following needs were identified:

- a consolidated body of information that was available, accessible and valid (e.g. a well-designed database) - this should allow for the manipulation of data, and electronic copies of the data should be available to the public;
- a system for collecting the information - industry would only be willing to provide data if it was of benefit to them.;
- information dissemination - this would encourage industry to participate in the information gathering;
- good analysis and information presentation.

Mr Wardle said that the data- or information base should reside in a place where the people who

were responsible for the information had an interest in it. It was suggested by Ms Bieldt that the Department of Water Affairs and Forestry be responsible for it. This was agreed by the workshop participants. Mr Edwards said that the public should not have to pay for the database from government, especially if they provide that information in the first place.

There was a lengthy discussion over the need for the Department to analyse the data. Mr Edwards suggested that, as long as the data were available, industry could do their own analysis. Dr Kruger said that some analysis would still need to be done by the Department for policy development purposes. Special studies could be commissioned from outside parties if the need arose. He added that it was unlikely that the Department would be able to maintain a full team of analysts, however a small team would have to be maintained for the sake of continuity. Mr Foy added that, if good analysis was to take place, then the capacity would have to be built in the Department and the country. Good information could only result from neutral and objective analysis.

14. CONCLUSIONS

Dr Kruger outlined some of the future actions that would follow the workshop. He said that a key issue paper would be written that would include information on the current state the industry, the possible future state, the desired state and the policy required to get there. A conceptual framework would be required for this in the form of the database and the model, which would be developed by Mr Wardle. The conceptual model would be developed before May 1997. There would also be a facility set up that ensured ongoing data availability. Much of this would be done in conjunction with the IDC, who would be meeting with participants in the NFAP on 24 January and 6 February 1997.

Finally, Dr Clark thanked all participants for their contributions and closed the workshop.

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Supply and demand - Ideas about an approach to the outlook for the forestry sector

by Philip Wardle

Executive summary

Supply and demand

The $2 billion contributed by the forestry sector in South Africa is also about 2 percent of her GDP

This important contribution to the economy and society represents the convergence of supply and demand for forest products in South Africa. It is the sum of the value of the effort of people growing and harvesting wood from forests, and manufacturing products - the supply side. It is also the sum of the value of the products delivered for people to use, fuelwood, sawnwood, panels and paper - the demand side Supply and demand are dynamic Consumers and producers adjust the amount they want or will produce according to price and costs and their income over time.

Why do we need to know about supply and demand?

The land owner needs to know so that he can decide about tree planting, .. and when and how much wood to cut. The sawmiller needs to know both how much lumber he can expect to sell and how much wood he can buy and the prices, in order to decide on capacity and production; and similarly the pulp and paper miller.

Society as a whole is concerned to know whether its needs can be met at acceptable prices by the sector and that opportunities to improve well-being through its activities are able to be grasped. It needs to identify constraints and to recognise undesirable consequences, in order, if necessary, to set policies that will favour the best choices.

How do we find out?

All that we would like to know to make these decisions is how it will be in the future. As most of us don't have access to the forestry crystal ball, we resort to logic. The logic that we use is that our experience of the past is the most useful clue to the way things may be expected to happen in the future. To carry through this logic we need data about the sector to analyse and find relationships with the factors that affect the outlook and then use these in models to project the possible future development.

A possible strategy

My conclusion is that the following steps would be appropriate:-

1. Tackle the information issue moving towards the position where there are accurate data series or valid estimates on all important topics relating to the forestry sector.
2. Carry out careful analysis to gain understanding of the structure and relationships between the sector and the national economy and internally within the sector, as well as relationships with the rest of the world.
3. Build appropriate models to help towards logical conclusions about the sector in the economy and to make consistent projections relating to its future development.

It is important that the process is transparent, seen to be objective and soundly carried out and that the outcome - conclusions and projections - are credible to all concerned . It is likely to be greatly advantageous if the process is carried out in consultation and collaboration with all concerned with the sector.

Supply and demand - Ideas about an approach to the outlook for the forestry sector

by Philip Wardle

The global forestry sector generates annually some US$400 billion contribution to World Gross Domestic Product or 2 percent of all economic activity. The $2 billion contributed by the forestry sector in South Africa is also about 2 percent of her GDP.

What is this?

It is the sum of the value of the effort of people growing and harvesting wood from forests, transporting it to mills, markets and households, manufacturing products - sawnwood, panels, pulp, paper and paperboard and distributing them to users.

It is also the sum of the value of the products delivered - fuelwood for energy in households and industry, sawnwood and panels for housing, construction, and furniture, paper in information - in books, newspapers, in offices and schools and paper and paperboard for packaging.

Supply and demand

In very broad terms we may see the first group - growing, harvesting, manufacturing and distribution - as components of *supply* to meet the second group - final products - which are the components of *demand*. The system is a little bit more complicated by the fact that the final products of some enterprises, such as wood sold by the forest enterprise or pulp sold by the market pulp enterprise, are the raw material input of a manufacturing enterprise such as a sawmill or a paper mill. These products may best be viewed as intermediate products and the demand for them seen as a derived demand - demand arising from the demand for final products of the manufacturing enterprises. My object here is to hammer home the point that demand arises from the wants and preferences of the consumers of the final products of the production chain - newspaper readers, while the demand for inputs such as pulpwood from the forest arises from the pulp and paper manufacturer's (along with the media magnate's) anticipation of the consumers' demand.

Price , income and time

Two things about consumers, before we return to the equally important producer. The consumer makes his choice about buying newspapers and other wood products that she or he wants along with the whole gamut of other goods and services and allocates a limited budget among them. These consumers have a tendency to choose a little more of preferred items if the price is less - takes a weekly as well as a daily - and vice-versa if the price is more - cost of news up and somebody cancels a monthly. They are also looking over their shoulders at alternatives - a plastic door or a steel window frame may grab the market if the price is right. The second thing that happens to lucky consumers is that their income goes up and they have extended choice. No doubt they will think first of luxuries not previously available to them -this may be new housing or furniture with direct use of wood or as is fashionable in some societies electronic gizmos not paper - but don't forget the packaging and the glossy magazines which are the necessary adjuncts. So with rising income levels and rising GDP we may expect upward shifts in demand.

On the supply side if the price goes up the producers are willing to deliver more but in order to sell it they may have to bring the price down. In the longer run the higher price stimulates more producers but as they achieve full efficiency they can expand further but again may have to bring the price down.

be used to project future development of production and consumption, as was done in estimating future cut. A difference will be that the assumptions about the future economy are subject to much greater uncertainty than those about future productivity of the soil and the relationship between consumption/production of forest products and economic variables may be much less precise than that between site and yield

Data

In view of the fact that we have to confront uncertainty in the relationships, it is particularly important to ensure precise definition of the quantities to be considered and to collect as accurate and consistent data as possible. As the data are required over quite long periods of time to establish credible relationships this presents an added challenge.

What do we need

product data

The data required on products are time series of production, imports and exports and their related prices for each product considered. [Stock change information would be a further refinement]. Consumption may be defined as production minus exports plus imports.

The products would include final products of the sector - paper and paperboard, panels , sawnwood, fuelwood; intermediate products - pulp, recovered [waste] paper, chips and residues; primary products - roundwood - logs, pulpwood. [There will be choices about how these may be further differentiated].

Availability -Import and export volume and value are available in national trade statistics, though care would be needed to correctly interpret volume units particularly if unit value were used for average import and export prices Volume of production of roundwood according to industrial use and the output of sawnwood are available from Forestry Department plantation and roundwood processing statistics. Production statistics for pulp and paper are available from P&P industry association. Information on wood in energy, particularly household fuelwood and on informal sector use of industrial wood and production and use of sawnwood is weak or totally lacking.

Data on the economy

The second type of data will be that on dimensions of the national economy that may be related to supply and demand for these products:- population, domestic product, industrial production, investment, construction, housing. [Here there are choices of type of variable and particular details that may be available and relevant].
Availability - Bulletin of statistics, Central Statistical Services

International variables

A particular concern may be to find some way of representing the differential supply/demand of the rest of the world effecting imports and exports. [Price, exchange rate, GDP in trading partners]
Availability - international yearbooks UN/IMF

Cost elements and competing products

A third type of information that may improve the sensitivity of relationships is information on costs of inputs and the consumption and price of competing products.
Availability - unknown

Capacity

Finally among types of information that may help to an understanding of the state and potential of the sector are the information on the state and changes over time in the capacity of forests and forest industry.

Availability - Forest growing stock is assessed in Forest Department plantation statistics. Pulp and paper industry capacity is known to P&P Association. Sawmilling and panels - position not known

Relationships and models

There are many ways of approaching the matter of using the information on the past to make estimates of future development. This may range from informal personal judgement based on knowledge of the relevant information to the construction of mathematical models establishing logical relationships between components of the economic system. The latter includes structural models such as forest management models that predict yield from particular practices providing results mainly in physical quantities and econometric models that estimate the relationship between economic indicators and the performance in a particular area - forest product demand equations are in this class. All these are relevant components of a system for viewing the possible form of the future. Their use may depend on data availability, the resources available to interpret it both with respect to quantity and skills and the aspirations placed on the exercise with respect to general broad conclusions or fine detail.

Present position in South Africa

There is a long tradition of supply /demand forecasting in SA. Originally this was on the initiative of the Forestry Department, but was later discontinued. Later studies were carried out by consultants, particularly LHA and the Forest Owners Association on the initiative of SALMA and in turn the Forestry Council. LHA studies of demand involved analysis of end use markets, projections of historic trends, analysis of expected economic, population and consumption trends and evaluation of business plans in terms of capacity expansion and exports. The outcome was a forecast of the industry demand for roundwood. The Forest Owners Association assessed the balance between LHA demand for roundwood and the forecast potential yield of existing plantations Yield is calculated from area planted stratified by species, management objective and region [presumably from Forestry Department plantation survey] and the related yield [mai] Total yield appears to assume felling at standard rotation age according to species and management objective. This comparison indicates shortage or surplus and leads to consideration of the need for additional planting.

International supply / demand outlook studies

The FAO "Forest products: World outlook projections" [1995] uses simple econometric relationships between product consumption and major economic indicators such as GDP and product price as a basis for projecting consumption and supply in relation to forecast economic development. These projections deal with supply and demand for all major final products , intermediate products and the demand for the primary product - roundwood , to the year 2010. The analysis depends on data of the FAO "Yearbook of forest products" and economic indicators collected by the UN and World Bank / IMF.

The ECE/FAO "European Timber Trends and Prospects" 5th edition 1996 carries out individual country econometric studies of supply and demand. These tackle the same product range as FAO1995. Supply demand is related to appropriate price and economic variables A particular departure is an attempt to estimate the demand for domestic product and imports separately and likewise the supply for domestic and export markets separately. The demand for roundwood is compared with national estimates of the expected production from the forest. to the year 2020.

The FAO study "The outlook for pulp and paper to 1995" [1986] made use of the same modelling approach as FAO 1995 to project supply and demand of paper, pulp and fibre input. Both the method of estimating he projections and the projections themselves were subject to a thorough review by experts in the sector bringing out information about factors which helped to explain the relationships

that emerged or which might disturb the future development This process exposed the analysis to critical appraisal of people knowledgeable about the sector and, where the resulting projections met with their acceptance, helped to support the credibility of the results It also allowed the assembly of relevant descriptive material to support the presentation of the quantitative making the study more informative and interesting than bald tabulation and graphics.

A recent study by the European Forest Institute "Long term trends and prospects in World supply and Demand for wood" [1996] investigates the factors affecting the outlook for demand and supply and assesses that outlook on the basis of review of recent global studies of the sector develops scenarios of global outlook and considers implications for management.

National forestry sector and sub-sectoral studies, particularly in the United States, have used various structural models to ensure consistent behaviour of the various components of the chain of production and consistent treatment of constraints. The forest service has a comprehensive TAMM model. Madison in conjunction with Canadian researchers has developed comprehensive modelling of the pulp and paper sector particularly to understand the impact of developments in recycling of recovered paper. The IIASA forest products trade model has been used in several countries to study possible implications of international or regional trade movements for their industry.

What do we do - A possible strategy

My conclusion from this review is that the following steps would be appropriate:-

1. Tackle the information issue moving towards the position where there are accurate data series or valid estimates on all important topics relating to the forestry sector.
2. Carry out careful analysis to gain understanding of the structure and relationships between the sector and the national economy and internally within the sector, as well as relationships with the rest of the world.
3 Build appropriate models to help towards logical conclusions about the sector in the economy and to make consistent projections relating to its future development.

As the outcome of this sort of process is likely to be used as a basis for policy it important that it is transparent, seen to be objective and soundly carried out and that the outcome - conclusions and projections - are credible to all concerned . It is likely to be greatly advantageous if the process is carried out in consultation and collaboration with all concerned with the sector as this will foster support for information exchange, facilitate transparency and strengthen their confidence in the process and the prospect of credibility of the results. The results should not only be available but should be widely disseminated in appropriate forms for the divers groups concerned with the sector.

The process should be a continuing one in which new information arriving over time is used to revise relationships, used in rerunning the models and updating the projections to reflect changed situations.

Data

An important priority for any work on sector modelling is to establish the necessary data base, covering the relevant topics accurately and consistently

A suggested first step in tackling the information issue could be to review basic production and trade data and bring them to conform with the international standard provided by the FAO Yearbook of forest products This would achieve two objectives First it would allow a check of existing series to see that they cover a minimum requirement. Second it would facilitate a check on FAO data which is certainly deficient in the case of data for South Africa for many products.

Reviewing the check list of products provided by the FAO Yearbook will allow the selection of products which are relevant to SA conditions. In certain cases it will be appropriate to dis-aggregate further to meet local requirements An important consideration in this process will be the inclusion of estimates of informal sector production. In some countries data on informal sector production are maintained in separate series and aggregated in global totals. The establishment of complementary price series may present a challenge for some products.

The pulp and paper sector may also consider examining the FAO series "Pulp and Paper Capacities" and check that data in this area are correct and up to date in the international domain

In dealing with forest resource statistics the SA statistics currently concentrate attention on the plantation resource The detail in these statistics appears well designed to meet needs of production and yield estimation. In addition national coverage of natural forest and other wooded land is relevant to informal sector production and to other concerns relating to the role of forestry

Analysis

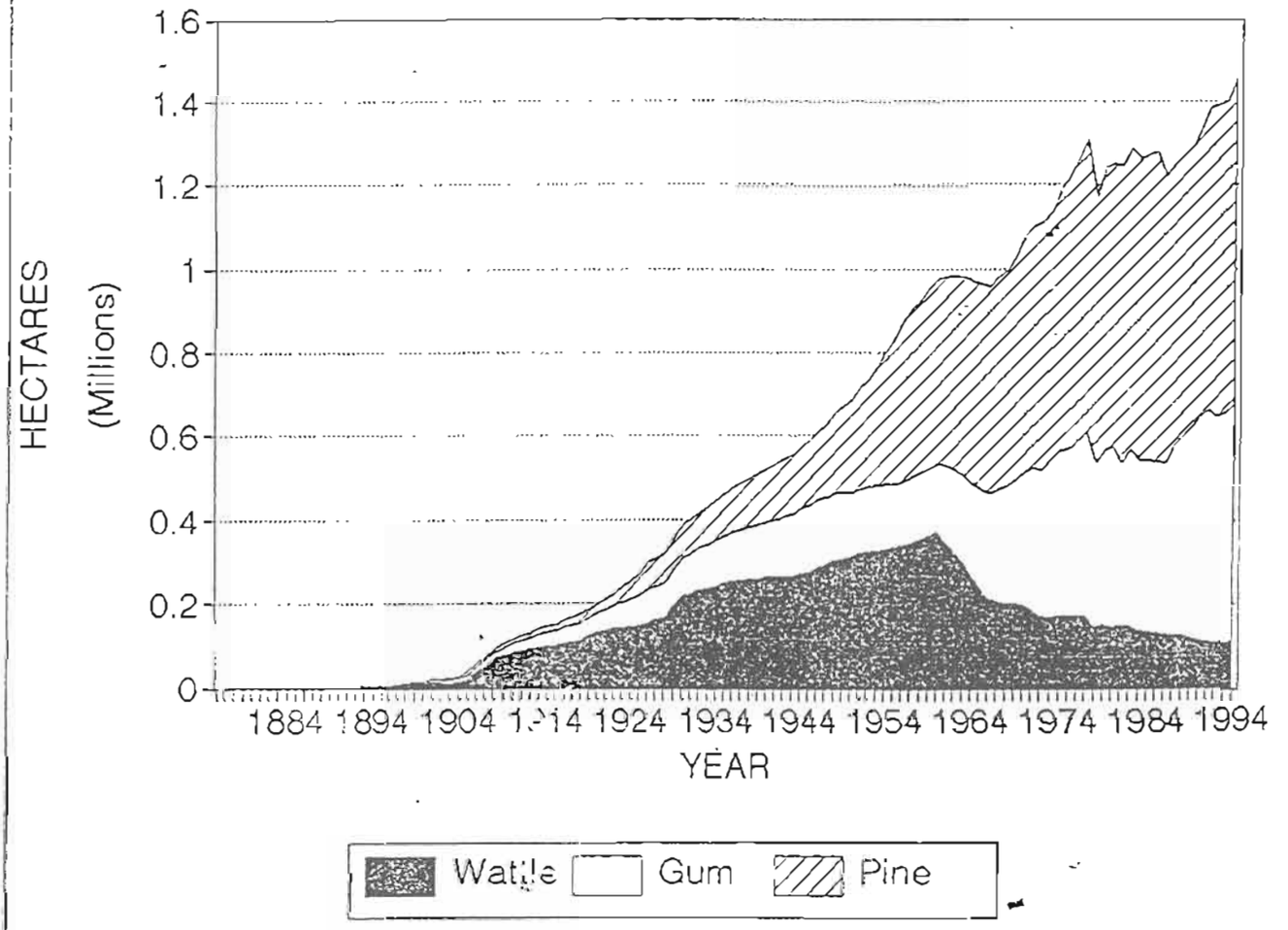
Many studies have examined particular trends and relationships in the SA forestry sector. These have often concentrated on assessing the requirement for industrial roundwood and the potential supply to meet that need.

Priority in future effort in analysis should focus on final demand and its supply.- 1] on the **final demand in the domestic economy**; 2] **supply** from **domestic production** and **imports** to meet domestic final demand; 3] **domestic supply** to external final consumption i.e. to **exports**. The second stage considers the **derived demand** of domestic production for intermediate products and reaching back to the derived demand for wood from the forest. The third stage looks at **supply** of wood from the land base A useful approach to this type of analysis may be through a sectoral input output model.

Models

The analysis had the function of identifying the main components consumption and production and their relationship to branches of activity in the economy This establishes the basis for a first approach to modelling which is to estimate econometric demand and supply relationships. These will consider economic variables such as population and income as well as prices of products, of inputs and of substitutes which are the key factors relating to the outlook.

FIG.2.1: COMMERCIAL TIMBER PLANTATIONS IN SOUTH AFRICA AND SWAZILAND



TABLES AND FIGURES

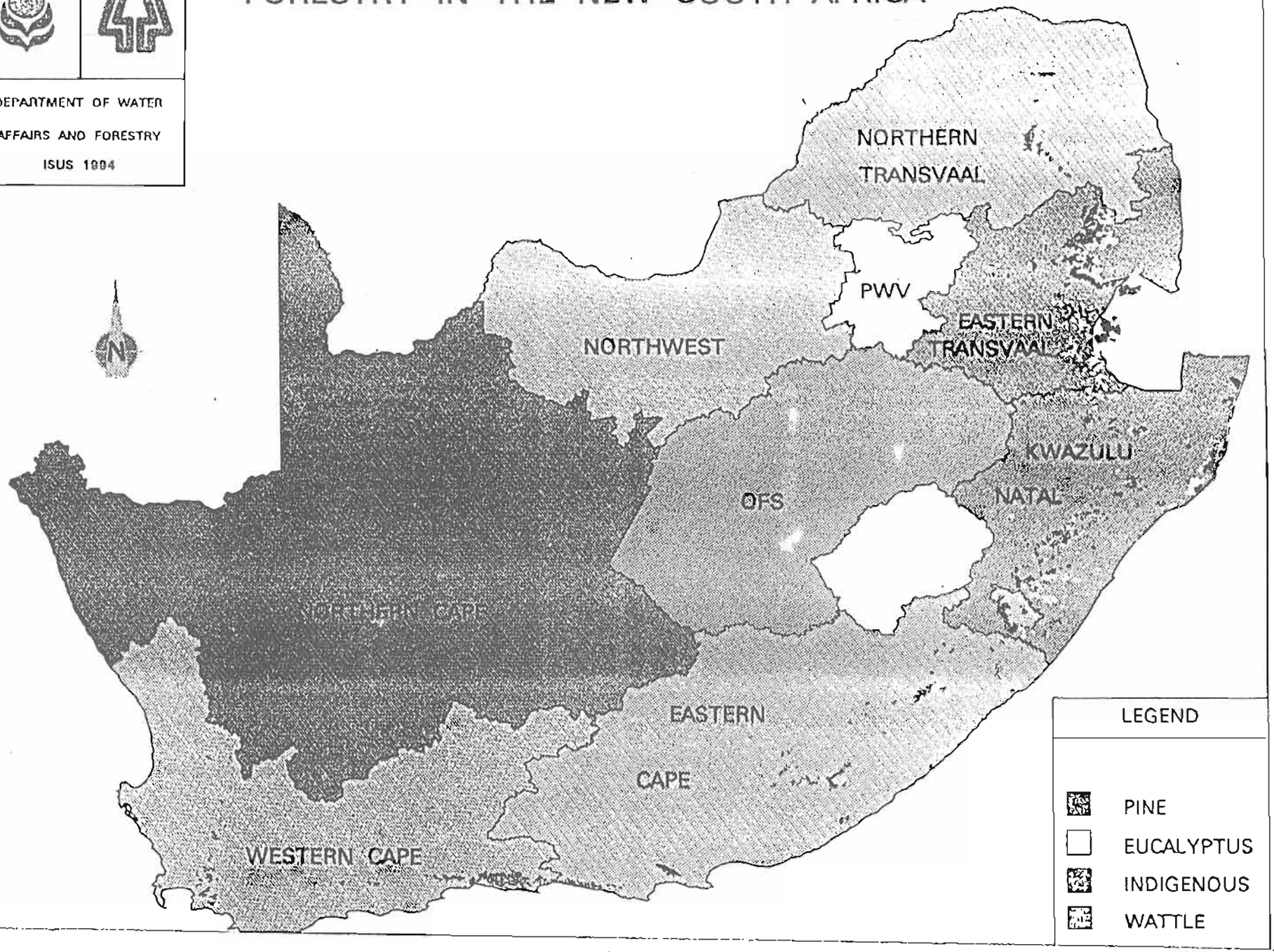
Table 1. Industrial plantation area per SA Province

Province	Area in hectares	Percentage of total
Northern	63 870	4.4
Mpumalanga	589 318	41.2
KwaZulu-Natal	531 860	37.2
Free State	108	0.0
Eastern Cape	161 012	11.2
Western Cape	82 462	6.0
RSA	1 428 630	100.0

FORESTRY IN THE NEW SOUTH AFRICA

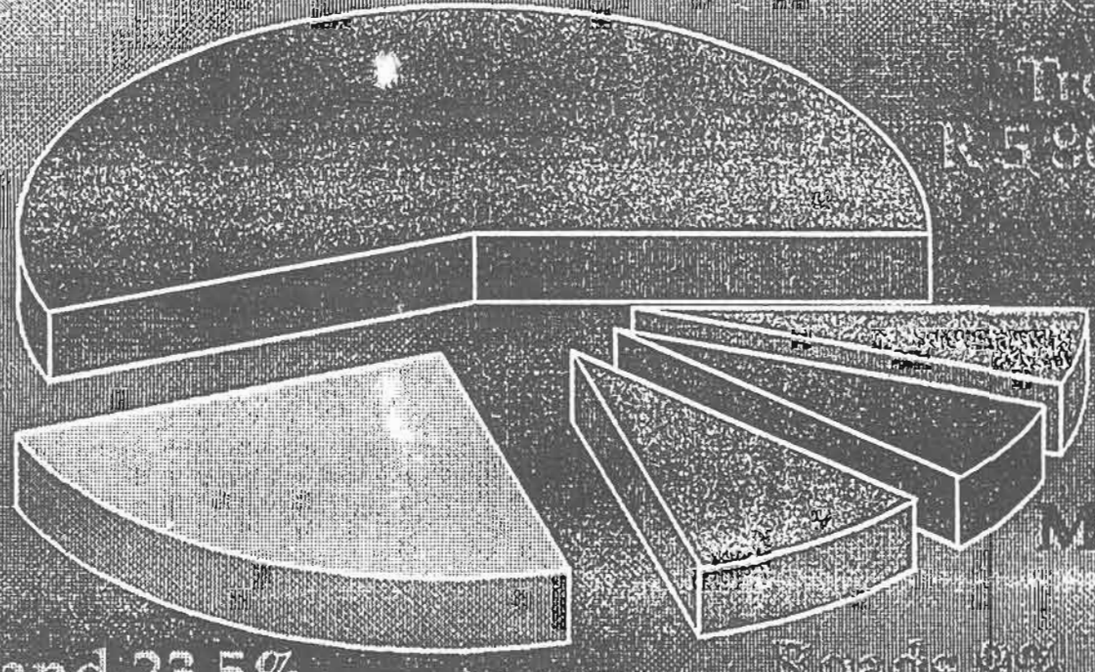
DEPARTMENT OF WATER AFFAIRS AND FORESTRY

ISUS 1994



CAPITAL INVESTMENT IN THE FORESTRY PLANTATIONS INDUSTRY

(At Current Market Prices - 1992)



Trees 56%
R 5 800 Million

Fixed Assets 5.5%
R 550 Million

Movable Assets 6%
R 620 Million

Roads 9%
R 930 Million

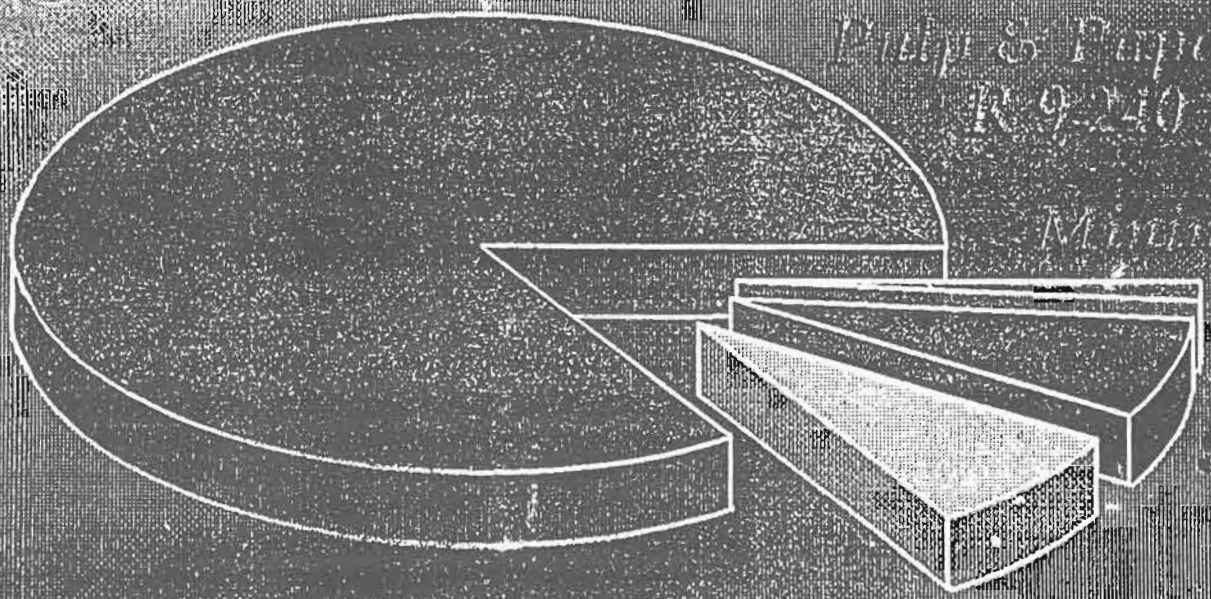
Land 23.5%
R 2 400 Million

TOTAL INVESTMENT = R 10 300 MILLION BASED ON AREA OF 1 870 893 ha

G12-094-92

CAPITAL INVESTMENT IN THE FORESTRY PROCESSING INDUSTRY

(At Current Market Prices - 1992)



Pulp & Paper Mills 54%
R 9 240 Million

Mining Timber Mills 1.4%
R 154 Million

Sawmills 7.2%
R 792 million

Other 7.4%
R 814 Million

TOTAL INVESTMENT - R 11 000 MILLION

G13-094-92

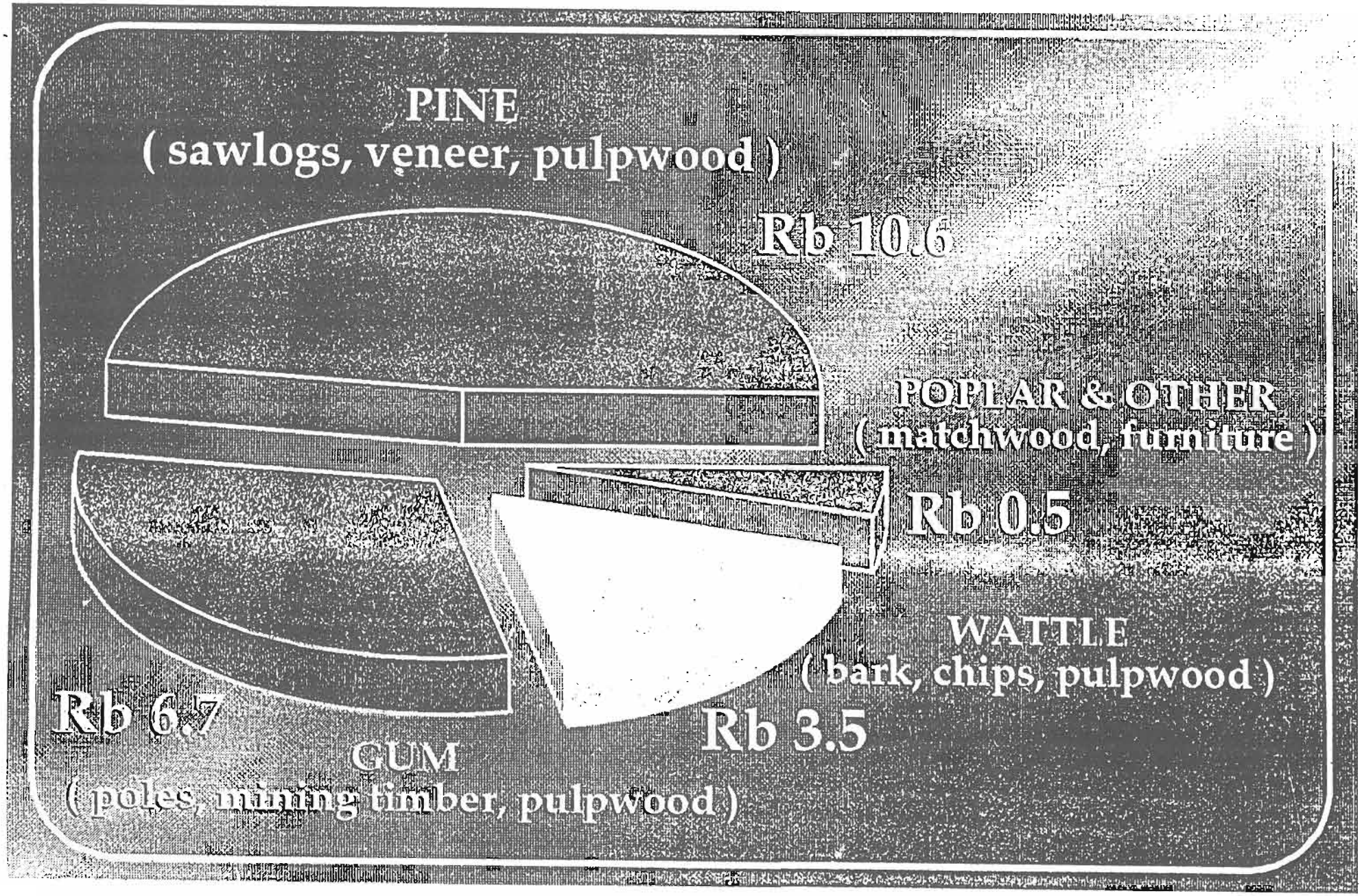

PINE
(sawlogs, veneer, pulpwood)
Rb 10.6
POPLAR & OTHER
(matchwood, furniture)
Rb 0.5
WATTLE
(bark, chips, pulpwood)
Rb 3.5
Rb 6.7
GUM
(poles, mining timber, pulpwood)

Table 3.1 Contribution of forestry and forest product industry to GDP (Expressed in nominal terms)

ITEM	1991/92	1992/93	1993/94	CHANGE ON PREVIOUS YEAR	GROWTH PER ANNUM
	Rand (million)				
TOTAL RSA GDP	296 128	326 067	363 775	11,6%	15,0%
Agriculture, Forestry & Fisheries GDP	15 427	13 777	16 988	23,3%	11,5%
Manufacturing GDP	71 670	77 444	84 979	9,7%	15,6%
Forestry GDP	10 715	10 190	10 634	4,4%	14,3%
Forest Product GDP	56 586	50 905	62 524	22,8%	17,0%
Forestry as % to Agricultural GDP	6,9%	7,4%	6,3%	-15,4%	2,5%
Forestry Product as % to Manufacturing GDP	7,9%	6,6%	7,4%	11,9%	1,2%
Forest Product as % to Total GDP	1,9%	1,6%	1,7%	10,1%	1,7%

Source: FOA

RESEARCH INSTITUTES

FORESTEK, PRETORIA

ICFR, PIETERMARITZBURG

FACULTY OF FORESTRY : STELLENBOSCH

FABI, PRETORIA

FACULTY OF PATHOLOGY, BLOEMFONTEIN

Fig. 2 Employment in the S.A. Forestry Industry

A Rural based Community

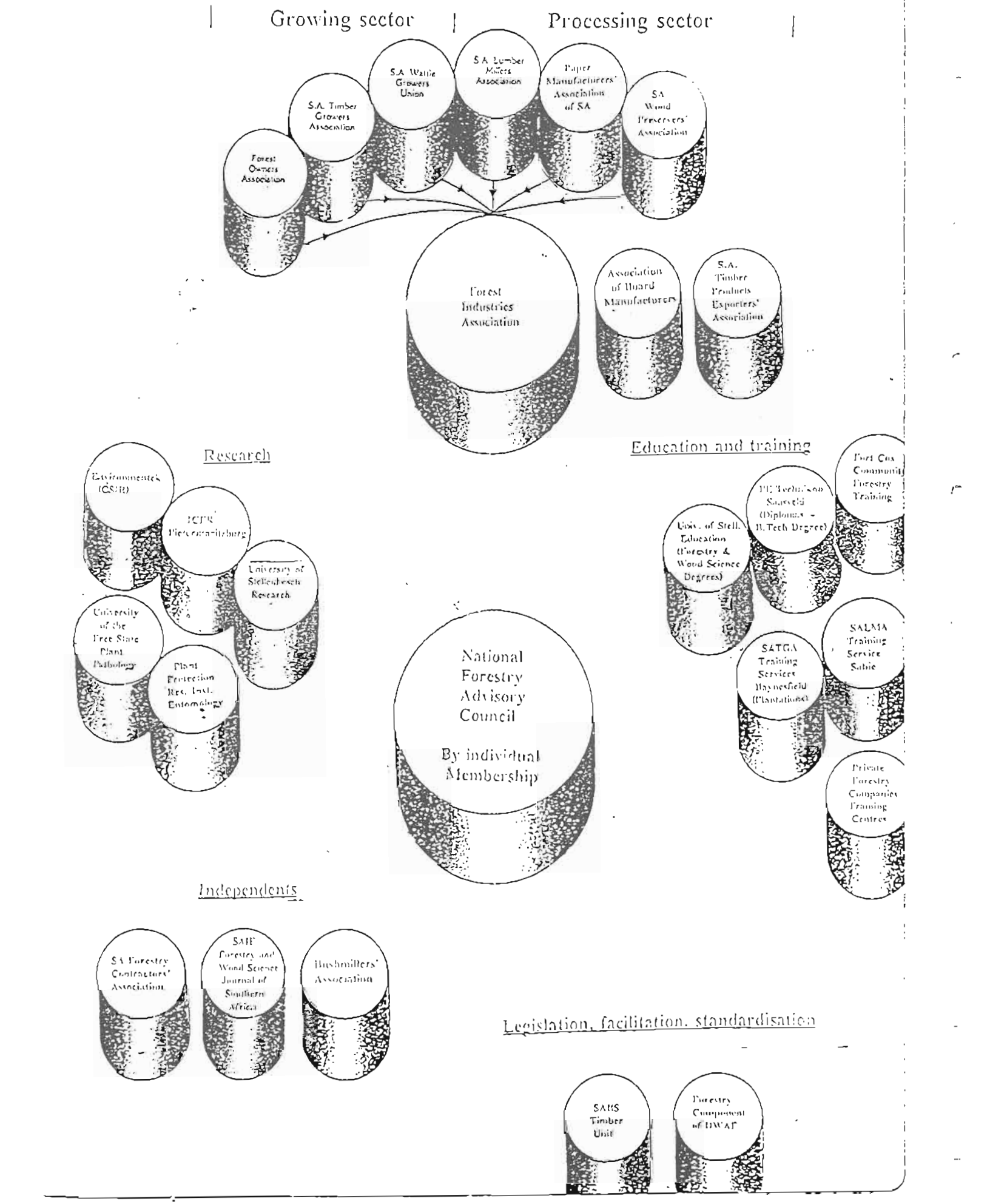
SAFCOL

- 1,4 million ha of commercial forests (about 1% of land area).
- 16 million tons of timber harvested per annum.
- 143,000 direct jobs.

  46,000 - growing sector.
  97,000 - harvesting, transport and processing sectors.

- An average family size of 4 and a multiplier effect of 5 results in 2,8 million people deriving benefits from this industry.
- 6,8% of a population of 41 million.

Structure of the Forestry Industry



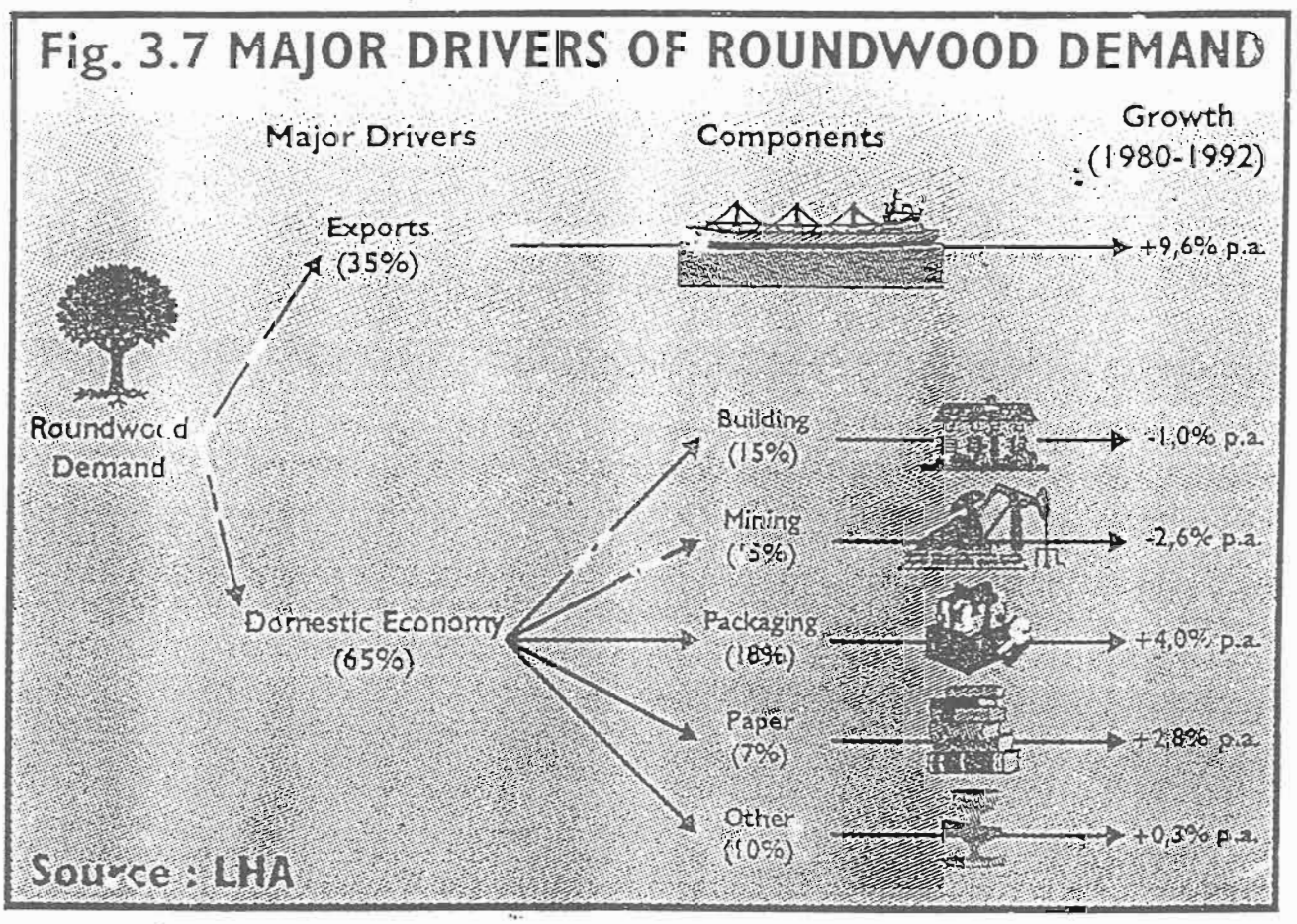


FIG. : NETT TRADE VALUE OF WOOD AND WOOD PRODUCTS IN SA

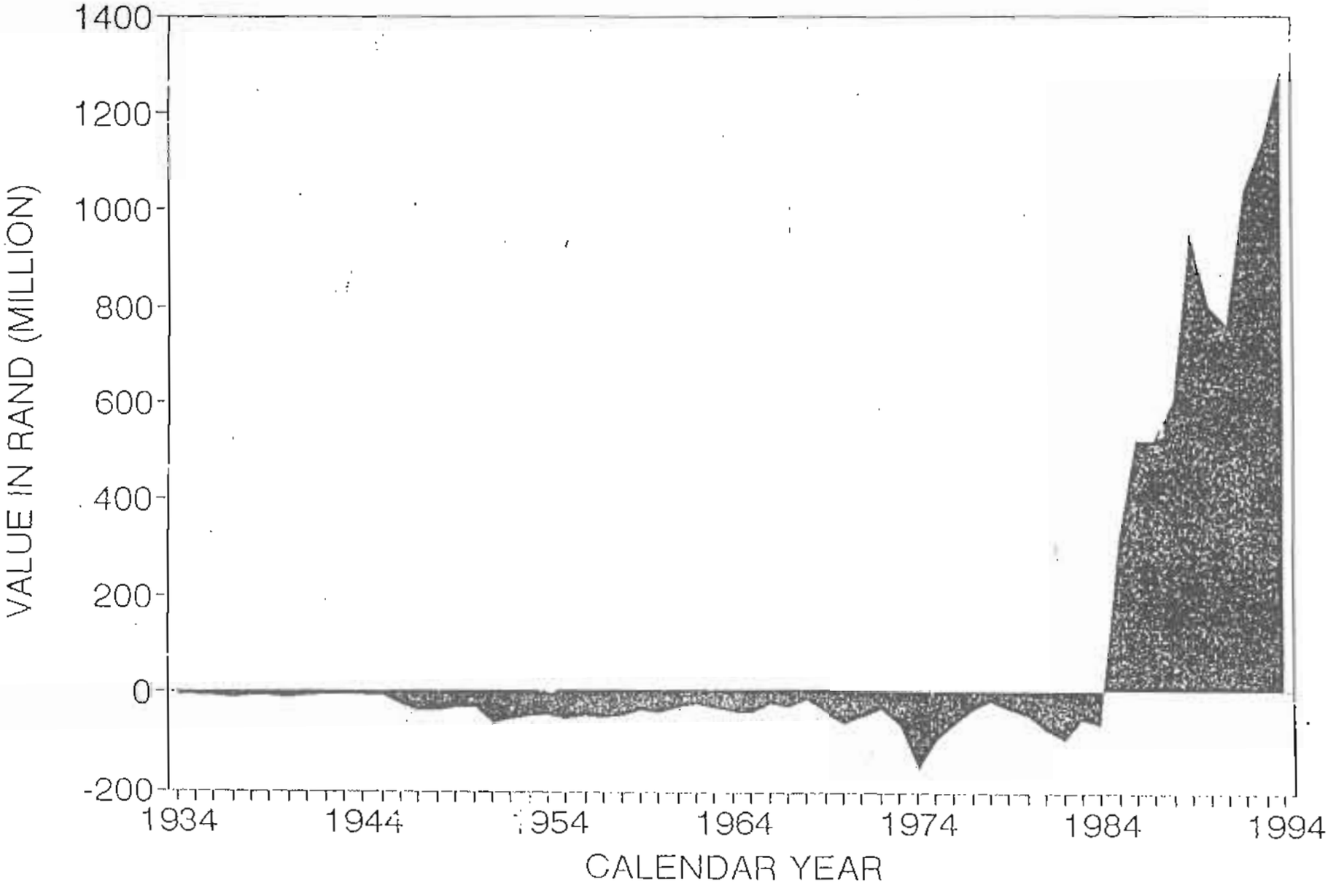
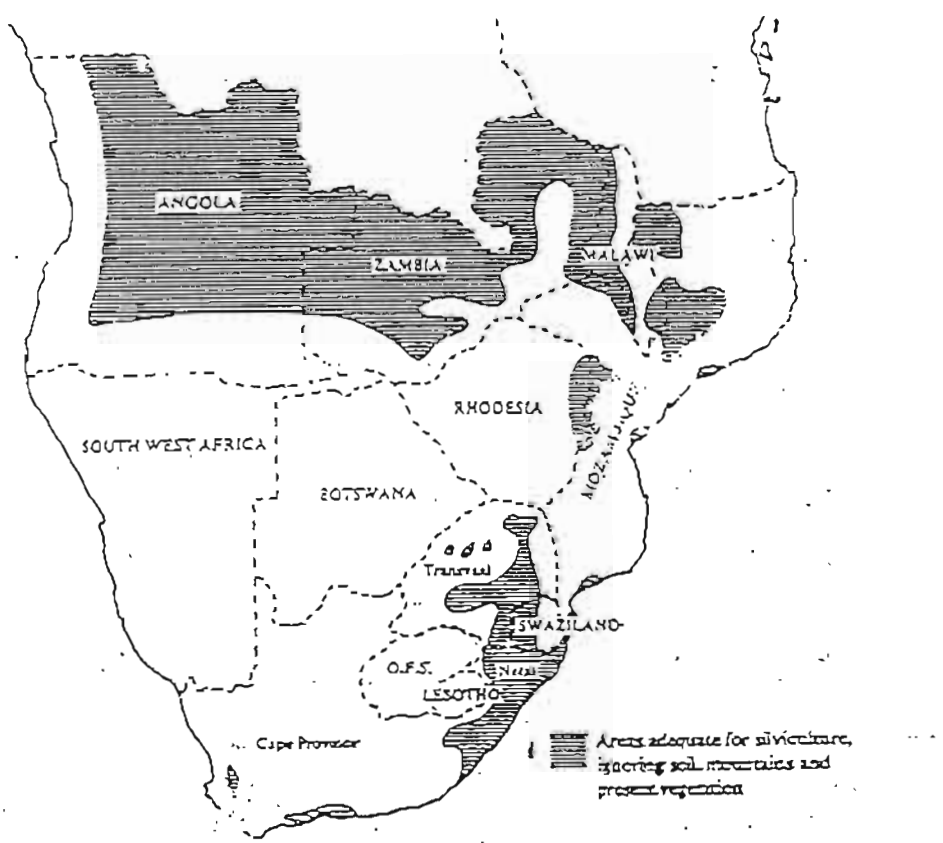
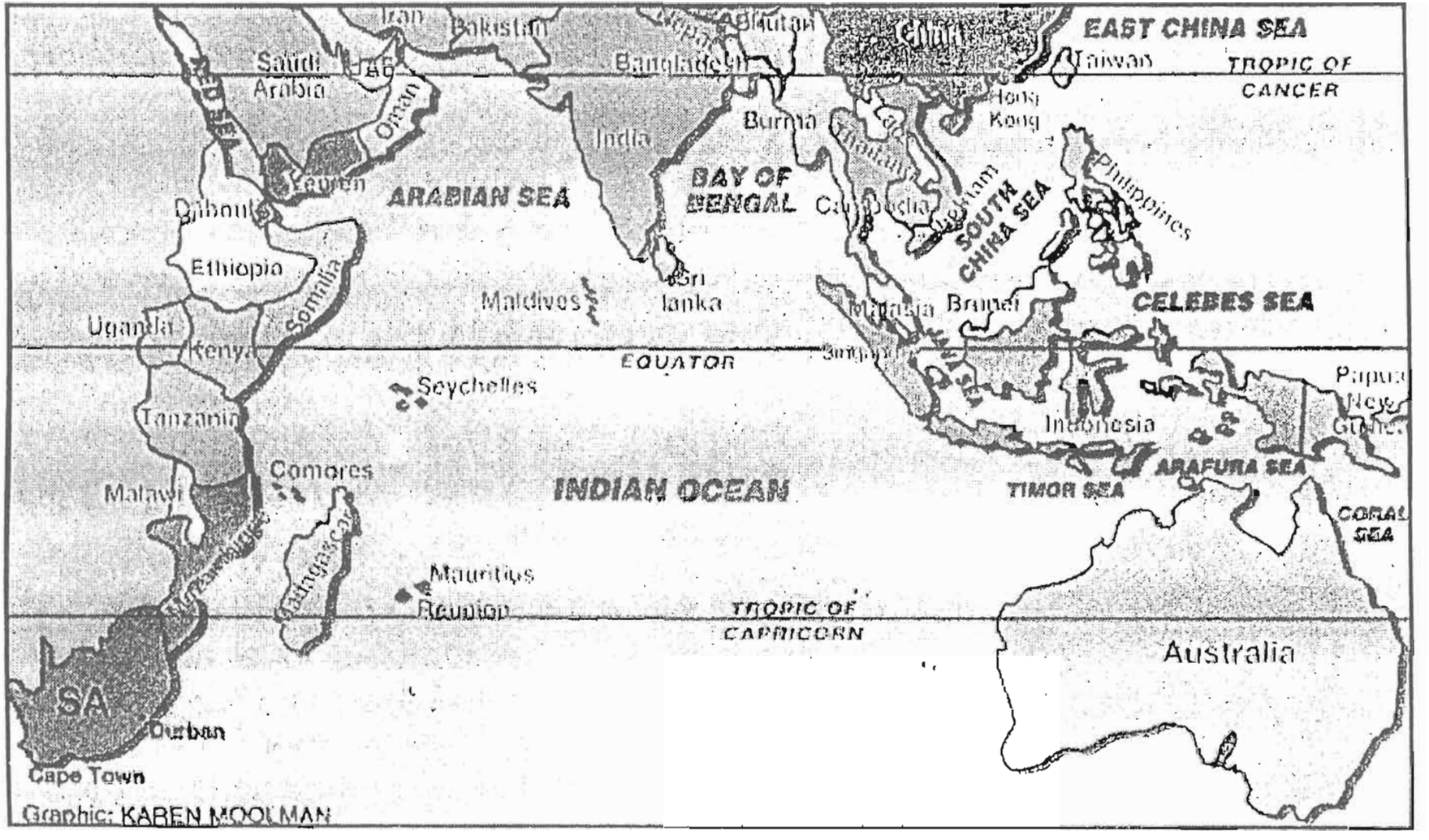


Table 7.18 Estimated industrial afforestation potential in SADC countries

Country	Estimated industrial afforestation potential (ha)
Angola	1 400 000
Botswana	1 000
Lesotho	1 000
Malawi	120 000
Mauritius	6 000
Moçambique	300 000
Namibia	2 000
South Africa	750 000
Swaziland	60 000
Tanzania	900 000
Zambia	450 000
Zimbabwe	70 000
Total	4 110 000


ANGOLA
ZAMBIA
MALAWI
RHODESIA
SOUTH WEST AFRICA
BOTSWANA
MOZAMBIQUE
Transvaal
SWAZILAND
O.F.S.
Natal
LESOTHO
Cape Province
Areas adequate for silviculture, ignoring soil, mountains and present vegetation

FORESTRY IN THE INDIAN OCEAN RIM



APPENDIX C

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PRESENTATION TO THE NATIONAL FORESTRY ACTION PROGRAMME
15 JANUARY 1997

RECENT DEVELOPMENTS WITHIN THE AFFORESTATION PERMIT SYSTEM (APS)

Presented by Mike Warren

Department of Water Affairs and Forestry
Private Bag X313
Pretoria
0001

1. INTRODUCTION

The control of afforestation is a water resources management issue, rather than related to forestry development.

The new procedure developed in consultation with major role-players, embodies the Department's commitment to openness, transparency and accountability in all its activities.

Applicants publicise their intention to apply for a permit and also provide opportunities for the involvement of a number of State and Provincial Departments and as wide a spectrum of interested and affected parties as possible in the process of evaluating permit applications.

Applicants may also be required to undertake assessments of the environmental impacts of afforestation. The extent and detail of such assessments will be determined by a Regional Afforestation Permit Review Panel comprising a broad range of local interests, after considering all comments and objections.

Each application will be considered in detail by the relevant Regional Director, who will recommend to the Manager: Water Resources, whether a permit should be issued.

However, in certain steps of the new procedure, various problems/ shortcomings have been encountered, which have been exacerbated by the lack of staffing capacity and a dramatic increase in the number of applications experienced in all forestry-related regions.

What follows is an outline to highlight these shortcomings in the APS procedure and present a plan of action with concurrent time periods, in an attempt to further streamline the process.

At a mid-year workshop to pre-empt a future backlog of applications in the Eastern Cape, the appointment of a six-man Task Team (two from DWAF) was tasked to do the following:

(i) To make recommendations regarding methods of funding the drawing up of a protocol for catchment-based decision-making with regard to forestry development.

(ii) To compile a Terms of Reference for the Task Team.

(iii) To compile a Terms of Reference for work to be done (by consultants) to achieve the development of an afforestation protocol, and to test its implementation.

This Task Team held a workshop in September 1996, to discuss Terms of Reference and to establish a common understanding with respect to a protocol to streamline the APS in the Eastern Cape.

An approach to the development of a protocol was decided upon in broad terms, implying both information needs and decision-making at a catchment or sub-catchment scale (high level and low detail), in line with the principles of Strategic Environmental Assessment (SEA).

Low level and high detail studies (EIA's) which may be required to follow upon catchment level planning will then be simplified as a consequence of the prior strategic approach.

2.2 PROPOSED REGIONAL STRATEGIES

2.2.1 KwaZulu-Natal Region

In KwaZulu-Natal, applications are received at a rate of 20 per month. About 380 applications are at various stages of investigation with a backlog of about 60 which still require site inspections. The re-ispection backlog stands at about 1 200 (figures are for the end of November 1996).

A work study investigation was carried out to determine staffing requirements that would be necessary to carry out efficient processing of applications in terms of the present approved procedure. A staff structure of 12 at an annual cost of R 520 530 at present price levels was seen to be the answer.

The problem is that the above structure still has to be approved, posts advertised, prospective incumbents interviewed, selected and appointed and it could take up to 12 months to have the full staff structure in place.

Another problem is that newly recruited staff members will require time to develop skills to become fully effective.

Permission has been obtained for existing staff to be paid for up to 60 hours per month overtime.

The Department is not planning to duplicate professional skills that are already available in other government organisations. This approach may cause delays, but it would also be unfair on such specialist staff to work in an organisation where they have limited advancement opportunities.

The proposed staff structure is designed to cater for routine reinspections. It is intended that the backlog will be addressed by consultants. Terms of Reference for these consultants have been drawn up, and are now under review.

2.2.2 Eastern Cape Region

In the Eastern Cape, it is estimated that up to 1 000 (mostly black land tenants) permit applications will be submitted in the next 24 months in specific catchments such as the Mzimvubu River (the figure above is given for end of November 1996). Even with the additional staff now working on permits in this Region, difficulty is already being experienced in keeping up with the present, relatively low rate of application submissions. It must be noted that a solution to the above could be the granting of permits in batches per quaternary catchment, as is done in KwaZulu-Natal.

In addition to this, the specially allotted staff try to handle the forestry issues over and above their normal day-to-day work, resulting in a backlog of other Regional work (e.g. abstraction permits).

The financial losses to forestry developers owing to delays in permit processing are not in the interests of the country.

The Eastern Cape Regional Office agreed with the decision taken at the provincial workshop that consultants ought to be appointed, to establish and implement a catchment-based decision-making protocol for forestry development, thus streamlining the current APS process, and thereby easing the management and decision-making required in dealing with the expected increase in the rate of permit applications.

The forestry decision protocol will benefit not only the Eastern Cape, but all the forestry regions in the country. The envisaged work is, however, of such a nature that the DWAF itself neither has the staff nor the funding, nor the specific expertise, to do the work as an in-house task.

Consultants would have to be appointed by the Department but the cost of the investigation should be borne by the organised forestry institutions, driving the development.

2.2.2.1 Proposed protocol for Eastern Cape catchments

The Eastern Cape Task Team decided that the best solution to the problem would be firstly the design of a protocol for decision-making with regard to forestry development. This would have to carry the approval of the various Interested and Affected parties.

Decision-making on the basis of this protocol would then require the production of information on a macro scale which would indicate the likelihood of an afforestation permit being allowed in a specified catchment.

Such information will already give the developer an idea of where afforestation development will probably be allowed, to what extent forestry has already taken place, or will still be allowed to take place, and the chances of an application for a permit being successful.

Insofar as land management in general is concerned, it is felt that such information for all major land uses ought eventually to be made available, to facilitate good planning with a minimum of wasted expenditure on highly speculative applications.

The proposed tasks for the Consultant or team of Consultants are as follows:

(i) To draw up a Terms of Reference for the whole study (which will have to be approved by the Task Team, the Review Panel, and any Steering Committee which may be elected.)

(ii) Develop the protocol and test this against national and regional planners, together with national, regional and local land users.

(iii) To devise efficient method(s) of gaining the input needed for the information database.

(iv) To carry out fieldwork needed to gather relevant information.

(v) To carry out all technical work and calculations (e.g. hydrology), needed for the study.

(vi) To arrange and facilitate all workshops needed to gain broad-based input and to test public opinion.

(vii) To devise the best way in which the results (i.e. information database) should be made available to Forestry developers and Interested and Affected Parties (e.g. GIS software; maps, etc.)

(viii) To hold information meetings to share and discuss project progress with Interested and Affected Parties.

(ix) To produce a complete set of reports on the project, with instruction manuals, software, or other products necessary to make the results usable and easily understood.

(x) To hold workshops for the training of all parties on how to use the results, if necessary.

2.2.2.2 Study area

Catchments where block applications for afforestation permits can be expected in the Eastern Cape Province to the north and east of East London, with an emphasis on the former Ciskei and Transkei, but including the North Eastern Cape.

2.2.2.3 Estimated cost and time frame

Owing to the expected imminent increase in the submission of applications, it is imperative that the study gets off the ground as soon as possible.

It is thus envisaged that consultants be appointed at the beginning of January 1997 and complete the study by the end of December 1997.

The estimated cost amounts to R 720 000 of which R 100 000 is required in the 1996/ 97 financial year.

This study can only proceed if the necessary funding can be procured from forestry development institutions.