 SGS Forestry QUALIFOR Programme	MAIN ASSESSMENT REPORT		SUMMARY PAGE
	Company:	SAPPI Forest Products	
	Forest Area:	Twello and Inkwasi Forest Districts	

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Forest Certification

Public Summary Report

Project Number:	6709ZA
Client:	SAPPI Forest Products
Country:	South Africa
Certified Area:	48,507 ha of pine and eucalyptus plantations in Twello and Inkwasi forest districts, Mpumalanga, South Africa
Main species/products:	Pine and eucalypt saw timber, pulpwood, and mining timber.
Annual production:	Ca. 484 600m ³
Assessment date:	11 – 15 October 1999
Certificate Number:	SGS-FM-0442
Date of Issue:	23 March 2000
Duration:	5 years
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Date:	13 March 2000


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SECTION I - PUBLIC SUMMARY REPORT

1. INTRODUCTION AND SCOPE

This report presents the results of an assessment of SAPPI Forest Products' forest management operations in the Inkwazi and Twello districts, Mpumalanga, South Africa, carried out by SGS Forestry from 11 to 15 October 1999.

The purpose was to assess the operations against the requirements of the QUALIFOR Programme, the SGS Group's forest certification programme accredited by Forest Stewardship Council. This includes all the Forest Stewardship Council's Principles and Criteria (FSC P&C) as well as locally applicable standards provided by the following:

- Forest Engineering Southern Africa (FESA), 1999. Guidelines for Forest Engineering Practices in South Africa.
- Forest Industry Environmental Committee, 1995. Guidelines for Environmental Conservation Management in Commercial Forests in South Africa.

The Assessment covered all forest management operations on the following plantation forest areas: (Production figures include *Pinus* and *Eucalyptus* species.)

Forest District/Region	Total planted area/ Total area of FMU (ha)	Average annual production (m ³)
Inkwasi/Lowveld	16 226/22 861	149 000 (Pulpwood)
		30 000 (Saw timber)
		54 600 (Mining timber)
		5 000 (Poles)
Twello/Highveld	13 081/25 646	146 000 (Pulpwood) 100 000 (Saw timber)
Total	29307/48 507	484 600

2. COMPANY BACKGROUND

Sappi Ltd. is a major international forest products and fine paper company. It consists of two operating divisions, Sappi Fine Paper plc, which is domiciled in London, and Sappi Forest Products, which manage the group's diversified commodities businesses from Johannesburg. Sappi Forest Products produces more than 1 million tons of market pulp, is the largest producer of dissolving pulp in the world and the major producer of containerboard in Africa. Sappi Forests owns and manages almost 500 000 hectares of tree farms (timber plantations) in southern Africa. These

plantations supply approximately 50% of this region's domestic wood and fibre requirements.

3. FOREST MANAGEMENT SYSTEM

3.1. Bio-physical setting

National context

Climate and effect of fires have confined indigenous forests to approximately 327,600 ha or 0.2% of South Africa's land area. Although the indigenous forests have been depleted over the past three centuries, some has survived. Most indigenous forests occur in the Southern and Eastern Cape (140,000 ha) and in KwaZulu-Natal (91,200 ha), followed by the Western Cape (60,000 ha) and the Northern Province and Mpumalanga (35,000 ha). The conservation value of natural forests is recognised and the areas as such preserved. Most of these forests are owned by the State and The Department of Water Affairs and Forestry (DWAF) and provincial conservation authorities are responsible for the management of indigenous forests.

Rainfall governs the extent of plantations, both directly and indirectly. Areas that receive more than 850 mm of rain per year and have a mean annual temperature greater than 14°C are preferred for pines and eucalyptus. In the past plantations were always established in the wettest and therefore highest altitude areas on former indigenous grassland (summer rainfall region) and fynbos (winter rainfall region). In recent years legislation controlling planting, based on concerns regarding water consumption by plantations, has increased significantly. Due to hydrological constraints, there are now relatively few areas where new timber plantations can be established. Those water catchments supplying conurbations, or important farming areas, have a total ban on tree planting. This will prevent the forestry sector from expanding significantly in specific water catchments for the foreseeable future.

Local context

Sappi Forests' Twello forest district, which forms part of the Highveld forest region, comprises Highlands and Montrose plantations. These plantations are situated between 30°50'E and 31°15'E and 25°45'S and 25°55'S. The area occupied by Twello ranges in altitude from ca. 1000m at the foothills near Barberton to 1903m at the highest point. The terrain consists of relatively steep river valleys and mountainous land, and represents the southern-most extent of the Mpumalanga Drakensberg escarpment. The mean annual rainfall for the area is about 960mm and falls mainly in the summer months. This area falls within the mistbelt. The geology is complex and of special interest, on account of the ancient rock formations and intrusive serpentine (also known as greenstone) outcrops present in the area. The serpentine soils have unique properties and the indigenous plant species have unusual characteristics that enable them to grow on these soils. Sandstone, shale and dolorite derived clayey soils occur in the area. The soils comprise red or yellow dystrophic apedal soils, lithosols and podzols. The Shiyalungubo River, Mlumati River and Mtsoli

River catchments occur on Twello. Most of Twello lies within the North-eastern Mountain Grassland vegetation type, which includes montane grassland, indigenous evergreen forest patches in sheltered ravines/gorges and riverine scrub forest in the valleys. This grassland type contains many rare, endemic, or near-endemic herbaceous plant species. About 45% of this vegetation type is transformed and only about 8% is officially conserved in South Africa. Apart from the relatively high rainfall and occurrence of mist, frost and fire are also important determinants of this vegetation type.

The Inkwasi forest district, which forms part of Sappi's Lowveld forest region, comprises Glenthorpe and Escarpment (the latter formerly known as Mapiep and Sabey) plantations. These plantations are situated between 30°45'E and 30°55'E and 25°35'S and 25°45'S. The area occupied by Inkwasi ranges in altitude from ca. 800m at Glenthorpe to ca. 1775m at Escarpment. The undulating mountainous topography includes steep river valleys and valley bottomlands. Granite and sandstone derived apedal and structured clayey soils occur in the area. The mean annual rainfall for the area is about 900mm and falls mainly in the summer months. The Noordkaap River and Suidkaap River catchments occur on Inkwasi. The higher-lying areas of Inkwasi fall within the North-eastern Mountain Grassland vegetation type, which includes montane grassland and indigenous evergreen forest patches. The low-lying areas fall within the Sour Lowveld Bushveld vegetation type, which includes savanna bushveld, riverine scrub forest and *Phragmites* dominated wetlands.

3.2. History of use

Evidence of pre-European settlement has been found, dating back to the Iron Age and subsequent inhabitation by the San (Bushmen) and Nguni tribes. After European settlement and prior to plantation forestry, Twello and Inkwasi were used for livestock grazing and other agricultural activities. Timber plantations were established during the 1950's. Sappi acquired Twello in 1996 and Inkwasi during 1990.

In South Africa commercial forestry was initiated in the last quarter of the nineteenth century with government afforestation projects. Planting was originally aimed at supplying the mining sector with pit props. Wattle, pines and eucalyptus were brought in from Australia, America and Europe at the turn of the century and the area under plantation increased rapidly from 1920 onwards. Until this time, the indigenous evergreen forests were exploited for their valuable all-purpose timber species, e.g. Yellowwood and Stinkwood.

By 1997, the area of commercial plantations had grown to about 1.49 million ha, comprising, 55% pine, 37% eucalyptus, 7% wattle and 0.6% other hardwoods. The largest plantation areas are in Mpumalanga Province (ca. 624 000ha) and KwaZulu-Natal (535 000ha). Other plantation areas include the Eastern Cape, Northern Province and Western Cape. The area currently afforested amounts to a significant fraction of the total area of these regions that are biologically suitable for forestry. Current establishment (afforestation) rate is approximately 11 000 ha per year, the majority of which comprises pine and eucalypt pulpwood and saw timber.

Potential productivity (yet to be fully realised) of these plantation forests is relatively high by world standards, averaging about 20m³ per ha per annum. They currently yield about 18.5 - 19 million m³ per year, which satisfies over 90% of domestic demand and provides for a surplus for export, largely as pulp, paper, wood chips and other products. The average realised yield of about 13m³ per ha per annum is lower than average potential productivity, because many plantations are still young. Neglect of some industrial forests, such as in the former homelands, also contributes to poor realised yields.

3.3. Planning process

The Vision of “First in Fibre” and Mission statements, which emphasise business performance, technical management excellence and opportunities for employees, guide Sappi Forests’ corporate strategy. The corporate environmental policy states Sappi Forests’ commitment to managing its tree farms (forestry plantations) on a sustainable, environmentally responsible and socially acceptable basis.

Management planning within Sappi Forests is carried out at three levels, viz. Strategic, Tactical and Operational planning. Forest management planning is based on sustained yield principles, i.e. to manipulate the age-class distribution of the forest in order to supply a consistent annual volume in perpetuity. Management objectives are defined at all three planning levels.

Strategic planning

This level of planning is done at the divisional level and is influenced by long-term, local and international timber supply and demand parameters. It also takes into account the available timber, natural and human resources, as well as the socio-political and economic conditions. This level of planning consists of 20-year yield regulation predictions, which permit the planning of expected production and long-term revenues for the Division. Global growth stock normalising and yield predictions are made on the basis of current compartment database data, growth data determined through on-going sampling and growth models developed by an industry-wide programme of PSPs and spacing trials.

Tactical planning

This level of planning is done at the regional level and covers a period of 3 to 5 years. Tactical working plans ensure that forestry districts are allocated sustainable harvesting quotas to meet the predicted timber demands and medium-term company business goals. These plans show which compartments are to be felled, thinned, pruned and replanted during this period.

Operational planning

This level of planning is done at the district/plantation level and is covered in the Annual Plan of Operations (APO). The APO consists of a compartment register detailing all compartments to be felled, thinned, pruned, planted, weeded, etc. for the current year. It contains the compartments planned for operations within the 3-5 year plan, plus any compartments that have been ‘left over’ from the previous year and any

unplanned operations. Road maintenance and construction are also included at this level of planning. The APO is updated monthly by the Regional Office, according to reports of operations provided by the plantation office.

Conservation Management Planning

Although environmental issues are traditionally not covered by the management planning process described above, noxious weeding (i.e. control of alien invasive plants) is integrated with the operational planning. These weedings, which take place inside timber compartments and adjacent conservation (unplanted) areas, are done concurrently with harvesting and silvicultural operations. Environmental Management Plans, or overviews, have been produced for each district, containing a description of the physical and biotic environment, main issues and priorities, and monitoring and management prescriptions. Ad hoc conservation research projects are also conducted as the need arises. Location-specific prescriptions for management and restoration of non-conformance areas, conservation areas and sites of special significance are then detailed annually, analogous to the APO process.

Conservation management planning and site prescriptions are based on existing information and field surveys in progress, undertaken as part of the process to classify the vegetation in all the unplanted/conservation areas. This information will be captured on the GIS-based mapping and database system. Once completed, this will permit integrated planning for timber production and conservation management.

3.4. Harvest and regeneration

Both of Sappi Forests' Mpumalanga regions have a Harvesting Manager and each district has a Forestry Manager with Management Foresters. The Harvesting Manager plays a tactical timber procurement role at the mills and plantations' interface. The Forestry Manager and Management Foresters typically controls harvesting, road maintenance and thinning operations by harvesting contractors, as well as silvicultural and conservation activities (also using contractors). Both eucalypt and pine final crops are clear-felled at harvest. Depending on species and product, regeneration is by means of planting (i.e. pine and eucalypt saw timber and pulpwood), or coppice (e.g. eucalypt mining timber and poles). Rotation lengths are 6 to 12 years (depending on site conditions and diameter requirements) for eucalypt species, 18 to 20 years for pine species pulpwood and 25 to 30 years for pine saw timber. Eucalypt species are gradually being phased out at both districts. Pine pulpwood will become the main timber product at Inkwasi and pine saw timber and pulpwood would be the main products at Twello.

Harvesting systems typically utilise articulated wheeled-skidders, tractors and three-wheeled log loaders, with the use of cable-yarding in steeper areas. Contractors operate short-haul transport systems between the harvesting compartments, log depots and mills. Harvesting operations are guided by the FESA Guidelines for Forest Engineering Practices in South Africa, which prescribes techniques and standards for harvest planning, mitigation of environmental impacts, felling, debranching, cross-cutting, extraction systems and loading. Requirements for compartment planning

and recommended terrain conditions for different methods of felling and extraction are described. Additional considerations regarding environmental management are contained in the Guidelines for Environmental Conservation Management. The application of these various guidelines is controlled by the harvesting contractors, in conjunction with the management forester. All plantations utilise compartment maps for pre-harvest planning (either hand-drawn or computer generated), and have introduced post-harvest audits.

An EIA is conducted prior to all regeneration operations. Regeneration is by means of seedlings and clonal plants that are planted in manually prepared planting pits. Regeneration methodology is described in the Sappi Silvicultural Practice Manual. Planting restrictions are provided in the Guidelines for Environmental Conservation Management and Sappi's site classification system. Trees are not to be planted on sub-marginal sites (shallow soil, dry aspects, rocky sites etc.), where profitability is questionable, and not closer than 50m from wetlands, or 30m from perennial streams and springs. Other sites that are left unplanted include steep slopes (angle not specified, but usually slopes $>30^\circ$ are not planted) and buffer zones of at least one mature tree length from edges of cliffs and indigenous forests, cultural sites, caves and sinkholes and conservation areas. The Bosch Model, which takes into consideration stream order, slope and stream bank profiles, is sometimes used to determine minimum riparian zone widths along drainage lines, especially during new afforestation. A new soil-based system for the identification and delineation of riparian zones is currently being tested by the forestry industry. Ratification and implementation by the forestry industry is expected in the first half of 2000. As compartments are felled and restocked, it is intended to return areas which should not be planted, but currently carry a commercial crop, to indigenous vegetation, and gradually integrate the management of unplanted areas with overall management planning.

3.5. Silviculture

The silvicultural systems employed by Sappi Forests are well defined, based on research and subject to frequent review. Research is conducted and disseminated by the forestry industry funded Institute of Commercial Forestry Research (ICFR), as well as Sappi's in-house R&D section. Plantations have a management forester in charge of all silvicultural work. The silvicultural systems, which include methods and regimes for re-establishment, site-species matching, planting espacement, fertilisation, tending, pruning and thinning, are described in the Silvicultural Practice Manual. A silvicultural audit system has been implemented to evaluate silvicultural performance as compared to the guidelines and standards set out in the Silvicultural Practice Manual.

A new silvicultural regime is being implemented at Twello, viz. pine planting espacement is now 3 x 2.5m, a selective thinning at 10 years from 1333 to 750 stems per ha, three prunings (viz. 2m, 3.5m and 5.5m) of *Pinus patula* at 4, 6 and 8 years, *P. taeda* at 5, 7 and 9 years and no pruning of *P. elliottii*, which will be grown for pulp only. Pine rotation length is being reduced from 25 to 23 years. Regeneration sites are prepared manually, i.e. slash is generally not burned and manually

dispersed, planting pits are made with hand-tools and weeding is done by means of manual herbicide application.

3.6. Monitoring processes

There are four strands to monitoring within Sappi Forests: growth and yield monitoring; operational monitoring (through contractors' self-audits, post-harvest and integrated silvicultural audits); annual environmental audits (through the ISO 14001 EMS) and long-term data collection.

Growth and yield monitoring is based on an on-going sampling programme involving repeated measurements on particular sites (PSPs) and stock enumeration surveys (cruising) of all timber compartments at one year stand age, at the respective site index ages of pines (15yr) and eucalypts (5yr) and at clear-felling.

Post-harvest operational monitoring is carried out by management foresters in conjunction with contractors, checking activities of the contractors against a standard checklist. An integrated checklist is used for monthly silvicultural and health and safety self-assessment by management foresters. The Forestry Contractors Association conduct annual integrated audits on their members.

Second party environmental audits are undertaken with the use of standard checklists by the Environmental Manager, in conjunction with the Forestry Managers.

Long-term data collection initiatives include the bio-monitoring of aquatic indicators, biological control agents in conjunction with the Plant Protection Research Institute (PPRI), bird monitoring by the annual Big Birding Day event and tree growth monitoring of the permanent sample plots (PSPs).

4. SOCIO-ECONOMIC AND ENVIRONMENTAL CONTEXT

4.1. Social aspects

In South Africa all the major forestry companies have social responsibility programmes. The social benefits for forestry workers are in the form of land (for cultivation and grazing), housing, water and sanitation, transport, primary and adult education and opportunities for sport and recreation. Individuals in neighbouring communities are supported with technical know-how, finance and a guaranteed market for timber. Most of these "small-grower" schemes are in KwaZulu-Natal. Commercial plantation forests supply about 10% of the 11 million tons annual fuel wood needs in South Africa. Most of this fuel wood is supplied to local communities in forestry areas. In some areas forestry companies allow local communities to grow crops, especially legumes such as groundnuts, between newly planted timber trees. This practice benefits the local community from having access to additional land on which to grow food and possibly earn an income, and the forestry companies benefit from improved weed control and soil fertility. Most timber plantations belonging to the major forest companies are also accessible to the public for hiking, mountain biking, picnicking and bird-watching.

South Africa is currently undergoing a phase of rapid and far-reaching socio-political transformation, as a direct result of the election of the country's first democratic government in 1994. The new government has embarked on an ambitious programme of policy and legislative reform for national reconstruction and development. The translation of changing policy and legislation into a clear set of acceptable social norms and standards for the forestry industry is being implemented at all levels of forest management. Key social issues in forestry in South Africa are land tenure, contract workers and unionisation.

Land tenure

Legislation has been recently passed in South Africa to protect vulnerable rural communities who occupy privately owned land from random evictions by landowners, and to restore land rights to those who were evicted from land in the past. Forestry companies have in the past been guilty of evictions. The White Paper on South African Land Policy (1997) lays out a national land reform programme. Procedures for lodging land restitution claims are in place in all provinces and the period for South Africans to lodge land claims has expired. All claims have to be screened by Regional Land Claims commissioners and the landowner informed. At that point the parties are urged to negotiate a solution, failing which the case will go before the land claims court. The high number of land claims will take years to be processed and resolved.

Contractor workers

Since the mid 1980s, forestry companies have been moving towards a system of contracting out forestry operations to independent operators and reducing the number of company employees. This trend has caused major concern amongst labour rights groups nationally, among suspicions that contracting is a means for companies to reduce labour costs by paying less, passing responsibility for health and safety, pensions and insurance on to contractors, who do not necessarily provide adequate cover and benefits. Sappi Forests now contracts out all of its silvicultural and harvesting operations. Sappi Forests' employees are limited to its management, administration, nursery and R&D functions. The contractors have collective representation through the South African Forestry Contractors Association trading as Forestry Services and Facilitators.

Unionisation

Unions are free to represent forestry workers but require a certain proportion of workers as members to acquire rights to represent them in negotiation. There is currently one trade union, SAAPAWU, representing forestry contractors' employees. Only a few contractors' employees are unionised.

4.2. Economic aspects

The forestry industry creates wealth by growing trees and converting the timber into value-added products such as paper, industrial lumber, mining timber, particleboard, furniture, poles, charcoal and matches. In Mpumalanga, the major timber growing province, plantation forestry contributes about 2% of the gross domestic product (GDP). Plantation forest products contribute about 8% to the gross value of the country's

manufacturing output. In Mpumalanga alone, about 40 000 people are employed in the forestry industry. These workers and their dependants comprise about 10% of the population of the province. Forestry workers are paid about twice as much as their peers in the agricultural sector, but earn about half the average national wage. Being a developing country, the demand for timber is expected to grow in the long-term.

4.3. Environmental aspects

In South Africa climate controls the location of plantation forests and suitable climatic conditions exist in only about 2.5% of the country. Unfortunately, the areas of high forestry potential are also often the areas of high potential for agriculture, water yield and conservation. These factors give rise to conflict and there are several major environmental issues concerning plantation forestry in South Africa. These issues are briefly discussed below.

4.3.1. Water quantity and quality

Plantation forestry as a land-use is an acknowledged stream-flow reduction activity and reduces the amount of water entering rivers (runoff) by the equivalent of 100 to 200 mm of rainfall per year. Depending on the timber species, tree age, climatic and edaphic factors, a mature plantation can reduce stream-flow by up to 500mm a year. The average annual stream-flow reduction taken over the full lifespan of a plantation is about 120mm. The effects of timber plantations on the amount of water in rivers are most noticeable in the dry season and in drought years. In 1996, the commercial plantation forests in South Africa were estimated to consume about 1.65 billion cubic metres of water that would otherwise have entered rivers and streams, and been available for other uses. This volume equated to about 15% of the amount used for urban and industrial purposes, or about 5% of the volume used in irrigated agriculture.

Afforested catchments, which are well managed, generally release very good quality water to streams. However, harvested areas, roads and wildfires contribute to sedimentation of streams. The typical erosion rates from forestry land are about ten times lower than those for agricultural land. Water pollution also occurs during the timber processing stages, e.g. pulp and paper production. The forestry industry use relatively small amounts of chemical fertilisers and pesticides, with consequent low impact of leached chemicals reaching streams and threatening aquatic organisms.

The value of wood produced per cubic metre of water consumed is higher than that yielded by many forms of agriculture. However, plantation forestry is only practised in the wetter areas, needing a minimum of 800 mm per annum to be viable. The water consumed is a cost required to support the forestry sector. Forestry competes with both agriculture and domestic water use further down stream.

At the macro landscape level, new planting is restricted or banned in particular catchments where river systems supply conurbations or important agricultural areas. New planting can only take place if granted a permit and all planting permits are subject to a full Environmental Impact Assessment and the approval of the government's Department of Water

Affairs and Forestry. The aim of the permit system for afforestation is to disperse afforestation amongst catchments, rather than to limit afforestation generally; permits are administered at the level of quaternary catchments. The intention is that the increased water use anticipated from a proposed forestry development should be assessed in relation to all demands for water downstream of the development. The decision is based on the most favourable use of the water in economic terms after the provision of community needs; the needs of downstream countries on international rivers; and the requirement to maintain aquatic ecosystems.

On a smaller scale, riparian zones and drainage lines must be kept free of all commercially grown trees. This encourages run off and increased stream flow. Until about five years ago, the tradition has been, however, for plantations to be planted right up to and through drainage lines. Although legislation has stopped this practice it is difficult to enforce on a national scale. However, currently a much greater awareness prevails in the forestry industry to maintain adequate buffer zones of indigenous vegetation along hydrologically sensitive sites. Guidelines on riparian buffer zone widths are given in the "Guidelines for Environmental Conservation Management in Commercial Forests in South Africa".

4.3.2. Weeds

Arguably the worst forestry weeds in South Africa are Black Wattle (*Acacia mearnsii*) and Silver Wattle (*Acacia dealbata*). These commercial forestry species were introduced to South Africa from Australia at a time there was a major international market for tannin manufactured from bark. However with the fall in the world price of tannin, numerous plantations have been abandoned and left unmanaged. Wattle is an effective competitor with local flora, its seeds are readily dispersed and can remain dormant for many years.

Unmanaged wattle has now spread to many areas; particularly drainage lines where it kills indigenous vegetation; increases erosion on slopes and decreases water supplies. It is one of South Africa's most important weed problems. Where it regenerates in an uncontrolled fashion it quickly becomes an impenetrable thicket that is difficult to eradicate. Immature wattle coppices when cut. Seed dormancy is broken by fire, which is one of the main management tools for open grassland areas; hence fire stimulates a fresh flush of seedling growth rather than controlling the problem.

Apart from Black and Silver Wattle, several other commercially grown timber species are also invasive, the problematic species being *Pinus patula*, *P. pinaster* and *Eucalyptus grandis*. Other important, non-timber, alien invasive plants that thrive in plantation areas are *Solanum mauritianum*, *Lantana camara*, *Caesalpinia decapetala* and *Chromolaena odorata*. These species readily invade disturbed areas, timber compartments, riparian zones and indigenous forests. Infestations of these species pose a serious threat to biodiversity and water sources, if it is not controlled. Sappi Forests have a programme to control these weeds.

4.3.3. Plantation forestry and biodiversity

In South Africa, an essentially dry country, there is a limited indigenous forest resource and plantation forests provide the country of its timber needs. Indigenous evergreen forests occur in areas that are either protected from fire, or situated in a humid environment. Virtually all plantations have been established in areas that were previously occupied by montane grassland of the Grassland Biome and mountain fynbos of the Fynbos Biome. The so-called fynbos comprises a low, sclerophyllous, shrubby vegetation and occurs in the winter rainfall region of South Africa. It is a fire-climax vegetation type and is the most species-rich vegetation type in South Africa. Initially it was assumed that montane grassland is low in terms of biodiversity, but later it was discovered that montane grassland has a relatively high biodiversity, with several rare and endemic species. It is now being seen as an important element of the local ecology and one that warrants management even within a forest plantation setting. Many of the remnant indigenous vegetation areas are completely enclosed by plantation compartments. These pockets or corridors of indigenous vegetation are protected by law and therefore need to be respected in day-to-day plantation forest management.

About 11% of the montane grasslands and higher-lying parts of South Africa are afforested, resulting in fundamental, irreversible habitat changes that impact negatively on biodiversity. Although forestry displaces most of the original species, it does provide semi-natural habitats for species suited to arboreal habitats (e.g. some raptors, rodents, primates and antelopes). Nevertheless, biodiversity in plantations is lower than that found in the climax vegetation, except when compared with many agricultural monocultures (e.g. sugarcane, maize etc.) and degraded land.

Legislation has been implemented to prohibit the establishment of timber plantations up to the edge of watercourses and wetlands. The aim is to encourage the re-establishment of indigenous vegetation in riparian buffer zones. In well-managed plantations where such buffer zones do exist, a degree of biodiversity is maintained. To restore riparian areas that have been planted up in the past, many of these areas are now being cleared of trees and allowed to return to herbaceous (i.e. fynbos, grassland and wetland), or woody vegetation (i.e. shrubland and riverine scrub forest). The herbaceous vegetation types are then actively managed under an ecologically sound fire regime, since the montane grasslands and wetlands in South Africa are fire-climax vegetation types. Shrublands and forests are climax vegetation types that need to be protected against the invasion of alien plants, including invasive commercial timber species.

Although plantation forestry and its impact on biodiversity are being debated intensely in South Africa, the South African forestry industry acknowledges that past afforestation has irreversibly displaced grassland and its associated biodiversity. However, there are concerns that alternative stewardship over these environmentally sensitive areas will not necessarily mean an improvement to their conservation status. During 1998, the Forest Owners Association (FOA) has funded research into the "Contribution of the Commercial Forestry Industry to Preserving Biodiversity". The researchers concluded that the forestry industry plays a vital role in conserving and preserving South Africa's biodiversity by setting

aside representative ecosystems and habitats for conservation purposes. The forestry industry has accepted responsibility to conserve and actively manage areas of its land holdings by proclaiming Natural Heritage Sites, Sites of Conservation Significance and by conserving areas that are ecologically sensitive, such as riparian zones, wetlands and montane grasslands.

4.3.4. Landscaping

Landscape planning is a relatively new concept in South African forestry. The FESA Code of Practice and Guidelines for Environmental Conservation Management mention the issue and indicate acceptable practice regarding the spatial arrangement of compartments and visual impacts. These practices include, where possible, the linking, by means of wildlife corridors and/or consolidation, of natural areas, limiting the size of clear-cut areas, not planting where plantations can obscure scenic views and maintaining a mosaic of different aged timber compartments and natural skylines. Sappi Forests take due cognisance of landscape issues during pre-plant EIA's, which are carried out prior to the re-establishment of all timber compartments.

4.4. Regulations

Plantation forestry activities in South Africa are controlled by State Legislation and controlling bodies. The main Acts of relevance are:

- National Forests Act (Act 84 of 1998)
- National Water Act (Act 35 of 1998)
- National Veld and Forest Fires Act (Act 101 of 1998)
- National Environmental Management Act (Act 107 of 1998)
- National Heritage Resources Act (Act 25 of 1999)
- Occupational Health and Safety Act (Act 85 of 1993)
- Basic Conditions of Employment Act (1997)
- Labour Relations Act (1996)
- Restitution of Land Rights Act (Act 22 of 1994)
- Land Reform (Labour Tenants) Act (1996)
- Extension of Security of Tenure Act (1997)
- Employment Equity Bill (1997)
- Skills Development Bill (1999)

South Africa is a signatory to the Convention on Biological Diversity, the Convention on the International Trade in Endangered Species (CITES) and the International Labour Organisation (ILO). These international agreements, where relevant, are addressed in existing South African legislation.

The negative environmental impacts of plantations have caused the industry to have a poor public image and to be potentially subject to new

legislation. The new National Water Act aims to control and regulate all streamflow reduction activities, which therefore includes forestry as a land-use. Some sector associations have reacted by producing guides for their members, including:

Guidelines for Forest Engineering Practices in South Africa. (Forest Engineering Working Group of South Africa, 1999);

Guidelines for Environmental Conservation Management in Commercial Forests in South Africa. (Forestry Industry Environmental Committee, 1995);

Wattle Control. Plant Protection Research Institute Handbook No. 3. (Sponsored by South African Wattle Growers' Union & Directorate Resource Conservation, 1993).

5. LOCAL STANDARDS

In the absence of a South African FSC standard, the SGS Group's forest management certification QUALIFOR main assessment checklist was used as the (interim) required performance standards. The following documents were referred to as part of the local standards for the assessment:

- Relevant national legislation, i.e. environmental, labour, health and safety and land rights legislation.
- Guidelines for Environmental Conservation Management in Commercial Forests in South Africa (Forest Industry Environmental Committee, 1995).
- Guidelines for Forest Engineering Practices in South Africa (Forest Engineering Working Group of South Africa, 1999).
- Workshop on Criteria and Indicators for Sustainable Management of Plantations (Department of Water Affairs and Forestry, March 1997).

The checklist was available four weeks before the assessment for comment and was sent to any organisation that requested a copy, following receipt of the stakeholder consultation letter.

6. THE ASSESSMENT

6.1. Schedule

The Assessment was preceded by a pre-assessment by SGS Forestry during 21 to 22 April 1999. This examined the management systems and identified any gaps that might preclude certification. Information gathered was used to plan the main assessment. Key stakeholders were identified.

The main assessment was carried out during the period 11 to 15 October 1999. A detailed schedule is shown in Appendix I of the full report.

6.2. Team

- Lead Assessor: Pieter Viljoen, SGS Forestry Contractor.
- Local Environmental Specialist: Dr. Dave Scott, CSIR Division of Water, Environment and Forestry Technology.
- Local Social Specialist: Johann Hamman, Hamman and Schumann CC.
- Local Labour Practitioner and Interpreter: George Phiri, Gouws and Associates.

Curricula vitae are provided in Appendix II of the full report.

6.3. Peer Reviewers

Three independent specialists have been selected to review this report. They include one from academia, one from the forest industry and one from an environmental organisation.

6.4. Process

The Main Assessment was conducted in the steps outlined below.

6.4.1. Preparation

Using the results from the pre-assessment and the local standard, a checklist was prepared from the generic QUALIFOR checklist.

6.4.2. Stakeholder notification

A wide range of stakeholders was contacted by letter to inform them of the planned assessment and to ask for their views on relevant SAPPI forest management issues. These included environmental interest groups, local government agencies and forestry authorities, forest user groups, neighbours and workers' unions (see Appendix V for stakeholder list).

6.4.3. Opening meeting

An opening meeting was held on 11 October at SAPPI Forests' Head Office in Pietermaritzburg, KwaZulu-Natal. The scope of the assessment was explained and schedules were determined (see Appendix I of full report for attendance sheets).

6.4.4. Document review

A review of the main forest management documentation was conducted to evaluate the adequacy of compliance with the QUALIFOR Programme requirements. This involved examination of policies, management plans, systems, procedures, instructions, controls and records. This review took place at the divisional (Pietermaritzburg) and district (Twello and Inkwasi) levels.

6.4.5. Field assessments

Field assessments aimed to determine how closely activities in the field complied with documented management systems and QUALIFOR Programme requirements. Interviews with staff, operators and contractors were conducted to determine their familiarity with and their application of policies, procedures and practices that are relevant to their activities. A

randomly selected sample of sites was visited to evaluate whether practices met the required performance levels.

6.4.6. Stakeholder interviews

Meetings with workers' representatives and telephone, or e-mail interviews were held with stakeholders as determined by the responses to notification letters. These aimed to clarify any issues raised and the company's responses to them.

6.4.7. Summing up and closing meeting

At the conclusion of the field assessment, findings were presented to company management at a closing meeting. Any areas of non-conformance with the QUALIFOR Programme were raised as one of two types of Corrective Action Request (CAR), or an Observation:

- **Major CAR** - is raised when there is an absence, or a total breakdown of a key management system procedure or element. It must be addressed within an agreed time frame and re-assessed before certification can proceed.
- **Minor CAR** - is raised when a single observed lapse has been identified in the management system's procedures. It will become a major CAR if not appropriately addressed. It does not preclude certification, but must be addressed within an agreed time frame, and will be checked at the first surveillance visit.
- **Observation** – an event that is currently not serious, but can become a corrective action request, if not addressed. Resulting actions taken by the company should be followed up at the next surveillance visit.

6.5. Sampling

A randomly selected sample of sites, covering both Inkwasi and Twello districts, was visited to evaluate whether management practices met the required performance standards. The following field sites were visited:

6.5.1. Ongoing operations

- Harvesting and extraction at Escarpment (Sabey) M4, O2 and O3, Glenthorpe U2 and Highlands O72.

6.5.2. Completed operations

- Post-harvest at Highlands W24c and H90, Glenthorpe T7/8
- Road maintenance/construction at Highlands H44, Welgelegen Kloof and Glenthorpe B118 and M4.
- Site preparation (weeding) at Highlands W8b.
- Newly regenerated and tended compartment at Highlands.

6.5.3. Other sites

- Chemical storage areas at Highlands, Glenthorpe and Escarpment nursery.
- Pedlar's Bush indigenous forest.
- Biological control agent (for *Lantana camara*) release site.

- Workers' village, gravesite and Pedlar's Bush at Highlands.
- Mechanical workshop at Glenthorpe and Highlands.
- Miscellaneous ad lib stops, en route to sample sites, to observe and discuss environmental issues such as water yield monitoring, stream health (i.e. water quality and sediment load), road drainage/design and riparian zone management.

7. ASSESSMENT RESULTS

Detailed assessment findings are included in the full report (see Assessment checklist in section II). For each QUALIFOR requirement, these show the related findings, and any observations or corrective actions raised.

The main issues are discussed below.

7.1. Findings related to the general QUALIFOR Programme

7.1.1. Principle #1: Compliance with laws and FSC principles

The SAPPI Environmental Policy specifies compliance with applicable legal requirements and the ISO 14001 standard. It also contains statements that commit the company to forest management practices consistent with the FSC P&C. The policy is signed by the Managing Directors of SAPPI Forests and SAPPI Southern Africa, and is revised biennially. SAPPI's environmental policy is displayed at offices and the policy is given to contractors. All interviewed staff and contractors were aware of the contents of the policy. SAPPI's Intranet contains the comprehensive company policy, including human resources policy and terms and conditions of service. Written company policies include the Disciplinary code and procedures, Retrenchment guidelines and a Strike checklist. Legal environmental requirements are implemented through the ISO 14001 EMS guidelines and Best Environmental Practice (BEP) procedures.

The Divisional Human Resources department at the SAPPI Forests Head Office in Pietermaritzburg keep up-to-date summaries of labour legislation. The Regional Personnel Managers also have a full set. The Basic Conditions of Employment Act and the Occupational Safety and Health Act were kept at district level and implemented by the Personnel and Forestry Managers. The Divisional Environmental Section keeps a legal register with a set of the relevant environmental conservation and forestry legislation. SAPPI Forests subscribe to an annual legal updating service. An Environmental Law Consultancy is contracted to summarise amendments and proposed amendments to selected Acts and Ordinances on a monthly basis. These changes are incorporated into the BEP guidelines and environmental impacts and aspects database. SAPPI does not have a system of monitoring contractors' legal compliance and several incidences of contractors not complying to labour legislation were noted. A major CAR was raised to address this non-compliance.

Due to SAPPI's outsourcing policy, contractors employ the majority of economically active people on the Forest Management Units. It is basically only R&D and nursery operations that use Sappi employees.

Contractors are encouraged to employ local communities and preferential treatment is given to persons who are retrenched former SAPPI employees. Hence, the company has very low internal labour requirements. In order to address racial imbalances, the company is introducing a 'fast track' programme to employ more Black workers in senior positions.

All the applicable international agreements (e.g. Convention on Biological Diversity, CITES and ILO convention) are respected by abiding with national legislation which enshrines these conventions. The SAPPI Forests ISO 14001 EMS also covers all legal requirements of the relevant international agreements. Environmental Impact Assessments (EIA's) are carried out when land-use changes, re-establishment and certain CAPEX developments take place.

7.1.2. Principle #2: Tenure and use rights and responsibilities

The timber farms that are to be certified belong to SAPPI and they have title to it. A small portion is leased in terms of a long-term lease. There are no registered land claims against the properties and SAPPI has a policy to deal with potential claims. No local communities or other stakeholders have legal or customary tenure rights over the forest management units. The Department of Mineral and Energy Affairs hold mining rights separately to Sappi's surface rights.

7.1.3. Principle #3: Indigenous peoples' rights

Indigenous people have no legal or customary rights on these farms. Sites of cultural/historical and ecological significance have been identified and mapped. However, management objectives and prescriptions for cultural/historical sites are not documented in co-operation with interested stakeholders. A minor CAR was raised in this regard.

7.1.4. Principle #4: Community relations and worker's rights

The Environmental Manager (at Divisional level), Forestry Managers and Personnel Managers (at district level) and Public Relations staff (at the Sappi group level) liaise with national and local stakeholders. Stakeholders get the quarterly newsletters LEAFLET and a monthly newsletter E-News. Community Liaison Officers communicate with disputants (e.g. pensioners living on Highlands plantation). Attempts are made to resolve any disputes through negotiation. Stakeholder lists are maintained at plantation/district and company level, and records are kept of all communication with stakeholders. The number of forest services that the organisation provides suggests that local communities have a role in the identification of services that SAPPI Forests provide. Contractors are encouraged to employ local communities and about 20% of the contractors are from previously disadvantaged groups. A minor CAR was raised because documented management objectives and prescriptions, which have been developed in conjunction with stakeholders, for gravesites and cultural-historical sites were not available.

No evidence of victimisation of employees (SAPPI and contractors) for trade union activities was found. The relevant union (SAPAAWU) is recognised by SAPPI and the contractors, and they negotiate regularly on wages and working conditions. There is no evidence that issues raised by

workers' organisations are ignored. The staff village on the FMU (now used by contractors) is supported by SAPPI in that it built a clinic and pre-school facilities as well as sports facilities. The walking trails and other amenities (clubhouse and other recreational facilities) are open to the public.

Although the majority of contractors have effective operational procedures to meet health and safety requirements, there were instances of inadequate training and implementation of health and safety operational procedures at the workplace. A minor CAR was raised. Each contractor has safety representatives (although not all elected) and monthly safety meetings are held.

7.1.5. Principle # 5: Benefits from the forest

SAPPI's financial reporting is based on South African Generally Accepted Accounting Practice (GAAP) and audited by independent Chartered Accountants (Deloitte and Touche). Financial statements, which show the group's economic viability, are contained in the Annual Report.

Sappi supply its own Lomati sawmill and Glenthorpe mill with saw logs and mining timber. Pulpwood is supplied to the Ngodwana pulp mill. Laths are supplied to the local communities for hut construction and eucalypt poles are also produced. Local communities can collect firewood from harvesting waste, free of charge. Timber waste is minimised as much as possible, by utilising timber from a thin-end diameter of 8cm and thicker. Post-harvest residue analyses are conducted to quantify and qualify the utilisable waste that remains in the compartment, so as to determine whether timber removal was adequate.

SAPPI recognises the full range of plantation forest services, as evidenced by its environmental and forest engineering policy and the contents of the environmental management plans. There is demonstrable awareness of other non-timber forest products and services from plantation forests, including water, wildlife (controlled hunting of certain game species), mushrooms, livestock grazing, weaving grass and recreation (e.g. bird-watching and hiking). Since it was found that inadequate measures were in place to ensure that hunting does not exceed sustainable levels, a minor CAR was raised.

7.1.6. Principle #6: Environmental impact

SAPPI's Environmental policy states that preventative action will be taken in managing their operational environmental impacts; environmental performance will be monitored and continually improved and all employees and contractors whose work can have a significant impact on the environment will receive appropriate training. The company complies with the national legal requirements and the international ISO 14001 standard for environmental management. This EMS provides a comprehensive systems approach to the monitoring, mitigation and management of all the identified operational impacts. The FESA Guidelines for Forest Engineering Practices and the Forestry Industry Environmental Committee's Guidelines for Environmental Conservation Management in Commercial Forestry are reflected in the EMS. The EMS identifies when environmental impact assessments must be carried out,

i.e. prior to re-establishment, harvesting, road building, certain capital expenditure (CAPEX) developments and land-use changes.

Due to SAPPI's disagreement with some aspects of the FESA Forest Engineering Guidelines, these guidelines (which are regarded as the local standards) are not entirely adhered to. It was found that these and the SAPPI harvesting and roads standards were inadequately implemented, with consequent unacceptable impacts on soils, indigenous vegetation and stream courses (see checklist for details). A major CAR was raised in this regard to ensure that appropriate operational standards are implemented and operational controls are in place. The lack of site-specific information on site sensitivity, e.g. compaction and erosion risks associated with different soil types, was raised as an observation. Since herbicides and pesticides are used and SAPPI does not have a programme to record chemical use over time, and to regularly analyse trends, a minor CAR was raised to ensure that the use of chemicals does not increase per unit area.

Conservation zones, which include grassland, riparian zones and indigenous forests, are demarcated and appear to be appropriate to the scale of the forest operations and the importance of the habitats. About 49% of Twello and 29% of Inkwasi is set aside for conservation purposes. This proportion of the FMU that is excluded from timber production, exceeds the local forestry industry average of 25%. By not cultivating and maintaining the natural vegetation on a significant proportion of the FMU, the biodiversity and ecological values of these areas are conserved.

All non-conformance areas, i.e. areas that were planted too close to riparian zones, indigenous forests and on sub-marginal sites, are being identified and systematically withdrawn from production and restored to indigenous vegetation. Although serious infestations of alien invasive plants occur in some riparian zones, rehabilitation work is ongoing to restore these natural areas. The Bosch Model is applied to determine appropriate riparian buffer zone widths and a 50m buffer zone is left unplanted along wetlands. The impacts of commercial timber species escaping into surrounding natural areas are monitored and managed.

7.1.7. Principle #7: Management plan

Management plans consist of stand-alone documents and are not summarised as an overview that links the different planning activities, and which is publicly available. The planning horizons comprise three levels, i.e., operational (the annual plan of operations - APO), tactical (3 – 5 years) and strategic (20years). See section 3.3 for more detail. Operational planning and budgets include all the annual forest management operations at plantation and district level. Global normalising, control of sustainable timber stock and supply and demand parameters influence tactics and strategies at regional and divisional level. The monitoring results of timber production (i.e. yields), growth rates, environmental impacts and operational costs are incorporated into the management planning process.

SAPPI has a standing crop stock management system (IPMS), based on periodic growth and yield measurement. It comprises a database of compartment age, size and species, which is used for yield predictions

and scheduling harvesting, thinnings and prunings. The silvicultural system is detailed by site and species-specific procedures that are documented in the SSP manual. Silviculture is based on sound science and technology, which involves a complex sequence of planting, tending, pruning and thinning, to produce the crop that is being aimed at.

Plantation road network plans are maintained at regional level on an Arc Info-based GIS. Plantation maps, which show the road networks, plantation compartments, unplanted conservation areas, firebreaks and infrastructure, have a 1:10000 scale. The roads engineer and foresters tasked with roads, maintain road maintenance plans for each plantation. All staff and contractors are instructed to report any road problem, which is then marked on a map and scheduled for repair. The harvesting systems (i.e. equipment and techniques) were defined in all the pre-harvest plans that were assessed. The rationale for the chosen systems was based on the FESA Harvesting Guidelines, which takes account of topography and soils. SAPPI has a no-burn policy for slash management and slash remains on the site. Integrated pest management is practiced w.r.t. weed control, i.e. combining biological, manual and chemical weed control techniques.

7.1.8. Principle #8: Monitoring and assessment

Annual environmental (EMS) audits are conducted at each plantation and a system of corrective actions is applied to manage and improve environmental performance. Post-harvest audits are also conducted per harvested compartment, to ensure that the necessary remedial measures were taken after adverse site impacts. Bio-monitoring of streams is conducted regularly to monitor the health of and impacts on aquatic systems. The annual SAPPI Big Birding Day provides a crude measure of monitoring avi-faunal diversity on the plantations. Although forestry has a significant impact on water runoff (stream flow), SAPPI does not monitor the impacts of their timber farming operations on water yield. Furthermore, key conservation elements, e.g. Red Data List species and Pedlar's Bush, which is regarded as a high conservation value forest, are not monitored either. A minor CAR was raised to ensure that appropriate and adequate monitoring is conducted to provide feedback on the efficacy of the various measures that the company is taking to mitigate its impacts on the environment.

7.1.9. Principle #9: Maintenance of high conservation value forests

Indigenous forests are not replaced with exotic plantation forests, nor are exotic timber species planted within indigenous forests. Where present, ALL indigenous forests are conserved and protected against the harmful effects of plantation forestry.

7.1.10. Principle # 10: Plantations

Plantation management objectives are stated in management plans and operating procedures are appropriate for achieving the management objectives. The design and layout of plantations takes cognisance of natural landscape features and provision is made for natural wildlife corridors and habitat, e.g. riparian zones, wetlands, indigenous forests, grasslands, shrub lands and rocky areas. Plantations have significant

species, age-class, rotation period and stand size/shape variation. Selection of species and provenances are based on documented trials that demonstrate their suitability to the sites planted and for the planned end-uses. Furthermore, the growth performances of these species have been compared with that of native species, as part of the South African forestry research history.

In terms of local industry standards, appropriate proportions of the forest management units are maintained for grazing and/or conserved as unplanted areas. The unplanted proportion may increase over time for all farms, as historically injudicious plantings are gradually withdrawn from ecologically sensitive sites. By removing invasive alien plants and timber crop species from non-production areas, such areas (e.g. indigenous forests, wetlands and riparian zones) are restored. Measures to maintain soil structure and fertility and water quality, include contour planting, road construction planning and maintenance, improved harvesting planning and practices, and reduced burning practices. By maintaining adequate unplanted buffer zones along drainage lines and wetlands, the adverse impacts of afforestation on water resources are mitigated.

Integrated pest and weed management principles are followed and Sappi are actively engaged in tree breeding programmes to select for disease resistant trees. Sappi is involved in fire protection systems, in conjunction with neighbouring landowners and district/county fire fighting associations.

Although conservation management plans exist, the planning and implementation of protection and management activities of conservation areas were found to be inadequate. A minor CAR was raised to ensure that ecological insights and associated management prescription details are developed for all unplanted areas. Conservation management operations consist mainly of the control of alien invader plants in the unplanted areas and grassland vegetation management by means of burning. Routine weedings of unplanted areas are carried out in conjunction with scheduled harvesting and silvicultural operations. Ad hoc conservation projects to restore specific, high priority riparian zones are conducted independently. Conservation management planning and research are also conducted on an ad hoc basis, as needs dictate, e.g. the Barberton grassland project. Conservation management data (e.g. indigenous vegetation and weeds data) is being captured on GIS to enable an integrated approach to the management of unplanted areas. A holistic approach to plantation layout, which will integrate production, conservation areas and landscape considerations, is being implemented.

7.2. Issues raised by Stakeholders

Stakeholders raised the following issues/concerns and comments during the consultation process:

Issue	Response
<p>A. It was commented that:</p> <p>A Sappi contractor's short-haul transport equipment is responsible for in-field oil spills at SAFCOL's Nelshoogte plantation. Written requests by SAFCOL to both Sappi</p>	<p>This issue was raised too late to be addressed during the assessment and will be followed-up during the first</p>

<p>and the contractor to address the problem were unsuccessful.</p>	<p>surveillance visit.</p>
<p>B. It was commented that:</p> <p>Planning: During 1996, the Highlands soil survey was of a poor standard, probably not implemented, and the site-classification system was not properly structured and lacked a meaningful coding system.</p> <p>Silviculture: Off-site plantings were observed during a field visit in 1996.</p> <p>Road maintenance: Some roads were seriously eroded.</p> <p>EIA's obviously not done for recent plantings (although probably not required at that stage). It is clear that some areas area not suitable to support economically viable forestry. This should have been highlighted in EIA.</p> <p>Some hydromorphic soils afforested; will have an impact on hydrology.</p> <p>Little has been done to improve visual qualities of plantation.</p>	<p>Sappi responded that:</p> <ol style="list-style-type: none"> 1. Their site-classification system is continuously being improved as new information is collected. 2. The resolution of site-species matching is being refined from the land-type level to the compartment, or site level. 3. Off-site plantings are being identified and withdrawn from production. 4. The recently implemented ISO EMS ensures that EIAs are conducted prior to regeneration. 5. Erosion of roads is receiving attention and new road maintenance standards are being developed. 6. Improving the visual qualities of plantations at the landscape level is a long-term undertaking and is systematically being redressed during re-establishment.
<p>C. It was commented that SGS Forestry should take note of the following during the assessment:</p> <ol style="list-style-type: none"> 1. There are professional contractors and "other" contractors. It will be good if SGS assesses the "other" contractors re. compliance to statutory requirements and quality of work. 2. Assess the sustainability of contractors in an economic sense. 	<p>Contractors' operational performance and work quality were generally of an acceptable standard, but some contractors were not compliant with labour legislation.</p> <p>Major CAR 01 was raised to ensure that Sappi monitor the legal compliance, re. labour legislation, of all contractors.</p> <p>Assessing the economic viability of contractors does not form part of the certification requirements.</p>
<p>D. It was commented that:</p> <p>W.r.t. road maintenance, increased use of the short-haul option in some areas has resulted directly in poor road maintenance.</p>	<p>Road construction and maintenance standards are receiving attention. Major CAR 06 was raised to ensure that adequate road maintenance and</p>

	construction standards are achieved.
<p>E. It was commented that:</p> <p>“Sappi has been very involved in activities related to assessing and improving standards of environmental management for some time now, including participation in the ISO 14001 EMS. The fact that Sappi has decided to seek FSC accreditation by SGS against FSC requirements is further indication of their commitment to meeting these requirements. In this regard, Sappi has employed professional personnel well qualified and experienced in the environmental field to carry out the task, backed up by professional forestry staff.”</p>	
<p>F. It as commented that:</p> <p>“Sappi as a member of this association, is fully involved in issues dealing with Environmental matters and is one of the leaders in promoting the sustainable forest management, both through the Associations own Environmental Affairs Committee and through the Committee of Sustainable Forest Management of the National Forests Advisory Council. It is Sappi that often takes the lead in these Committees and it is Sappi’s approach to SFM (sustainable forest management) matters that sets the benchmark for other Industry participants to follow.</p> <p>The focus and priority that Sappi places on sound environmental management practices is furthermore substantiated through the structures that they have put in place in the Company to deal with Environmental issues. I would in fact go so far as to say that they are leaders in the field in South Africa, again being substantiated by the number of awards that they have received both locally and from overseas in this regard. Their involvement in the Working for Water Programme, the National Heritage Site programme and their ongoing support and commitment to a wide range of rural environmental initiatives is further proof of their absolute commitment to ensuring the best possible environmental practice in Forestry.”</p>	
<p>G. The following concerns were raised about the management and protection of Pedlar’s Bush at Highlands plantation:</p> <ol style="list-style-type: none"> 1. Pines are planted right up to the forest margin on all sides except the upper margin. No clear buffer-zone has been allowed around the forest where normal ecotonal dynamic processes can take place. 2. Exotic invader plants are evident sporadically throughout clearings in the forest and along forest margins, notably bugweed (<i>Solanum mauritianum</i>) and oaks (<i>Quercus robur</i>). Some pine and wattle have also been observed. All these species pose a serious threat to the integrity of the forest and <u>must be</u> strictly eradicated and controlled. 3. A large amount of 'muti' (medicinal plant) collecting is 	<p>Although these comments were received too late to be addressed during the assessment, the Minor CARs 05 and 09 that were raised to ensure that planning, monitoring and implementation of protection and management activities of conservation areas are adequate, cover this issue.</p>

currently taking place throughout the forest. Bark-collection is rife and several large trees (such as <i>Calodendrum capense</i>) have been completely debarked and killed. If this practice is not controlled or eradicated, the species-composition of this forest will ultimately be radically changed and much of it destroyed.	
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7.3 Issues raised by Peer Reviewers

Three peer reviewers were invited to review the comprehensiveness of the main assessment process and the correctness of the technical findings. The peer reviewers raised a number of issues concerning factual errors or omissions in the draft report, which have been corrected. In addition, there were two issues raised that require specific response:

Peer Reviewer Issue	Response
<p>A. There is inadequate reference to the planning and management of open areas. It appears that the assessment team did not visit these. The company claims to contribute to bio-diversity conservation, and if this is to be credited to them, then their commitment should be measured or assessed in some way. The mere collection of species lists by visiting interest groups is insufficient. Clearly articulated management objectives and processes should be evident. In view of this apparent shortcoming in the Sappi management system, it is suggested that minor CAR No. 05 should be a major CAR.</p>	<p>The assessment found that:</p> <p>Environmental management plans were available for both districts, but lacked conservation management objectives, ecological insights and associated management and monitoring prescriptions. Despite the inadequacies of these management plans, there is evidence of a basic conservation management planning and implementation process. Considering the balance of these shortcomings on the one hand, but demonstrating basic conservation planning and implementation on the other, minor CARs 05 and 09 were raised.</p> <p>The first surveillance visit will include an evaluation of the revised conservation management plans and whether implementation of management prescriptions is effective in meeting the conservation objectives. If the corrective actions taken by Sappi are found to be inadequate, these minor CAR's will be raised to major CAR's. Further consultation with local conservation authorities, to ensure that all perspectives have been examined, will be pursued during future surveillance.</p>
<p>B. The report fails to place the two forestry districts into a local context. Broad</p>	<p>Some additional local context has been provided in the final report.</p>

<p>issues/debates are discussed at a national level, reference to other biomes for example, but much more information could be provided on the plantations in question and their surrounds. The boundaries of the assessment are not clear and should be identified up front. This is a recognised principle of environmental science.</p>	<p>Broad issues are included for the sake of an international audience and stakeholders, e.g. the FSC and WWF.</p>
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8. STRENGTHS AND WEAKNESSES

8.1. Strengths

Sappi Forests demonstrates a strong commitment to sustainable forestry, as well as a scientific and technical approach to several aspects of forest management. In particular:

- The company is ISO 14001 certified and the Environmental Management System (EMS) provides a comprehensive basis for the control of environmental impacts and continuous improvement of environmental performance, hence ensuring the sound management of the natural environmental components of their plantation forests.
- The Research and Development section that enables the availability of genetically improved planting stock and site-species matching, as well as the provision of technology transfer and support.
- The Divisional Information Management System (DIMS), which enables the management and monitoring of internal productivity.
- The silvicultural system, which is based on sound science and technology, involves a complex sequence of site preparation, planting, tending, pruning and thinning. Silvicultural best operating procedures are documented in the SSP manual. A new, more holistic approach to regeneration planning, the so-called “Rolls Royce” regeneration model, is currently being developed. The purpose of the new system is to maximise the yield of the crop that is being aimed at, in a more economically efficient and ecologically sound manner.
- The Oracle/Citrix-based Integrated Plantation Management System (IPMS), which enables a thorough database of the standing timber stock, i.e. species by compartment, age, area in hectares and site quality. This database, which is currently under revision, is integrated with the management planning process. Records are kept of tree growth that is based on periodic measurement of stock, i.e. at tree ages of one year (all species), 5 year (eucalypts), 15 year (pines) and a final enumeration at clear-felling of all species. Actual timber yields are also compared with predicted yields and recorded. Planning of harvesting is based on a sound knowledge of the size, age, type, growth rate (MAI) of stands and scientific growth and yield models. Sappi is a member of the South African industry-wide Mensuration and Modelling Research Consortium and Working Group. The Consortium maintains a permanent sample plot programme (PSP) that is data-driven and it

caters for tree measurement data as well as details about disease incidence and severity, pest attack, defects and utilisation.

- The three-tiered forest management planning levels, viz. annual plan of operations (APO), tactical (3-5 years) and strategic (20 years). Local and global timber supply and demand parameters influence the planning horizons. Regional offices update the APO for each district/plantation every year. The APO, which is derived from the 5-year Tactical Management Plan, includes harvest schedules, predicted timber yields and silvicultural activities for the year. Planning activities related to species/product working circles, yield normalisation, benchmarking of cost entities and plantation budget guidelines are carried out at the Divisional level.
- A sound GIS infrastructure (ArcInfo) in the divisional, regional and district offices. The GIS system enables the capture and integration of land-type information (i.e. altitude, geology, pedology, rainfall and temperature) with timber crop types. It also enables plantation and land-type maps and digital terrain model production. Conservation areas, riparian zones, sites of special interest and terrain classification and limitations are also included in this system.
- The identification and systematic ecological restoration of so-called non-conformance areas where commercial trees have been planted too close to hydrological sensitive and marginal sites. Projects to clear riparian zones from alien invader plants and to consolidate these zones with indigenous forests, woodlands and grasslands to enable wildlife corridors.

8.2. Weaknesses

Two Major and seven Minor Corrective Action Requests (CARs), as described below, were raised. In the following table the requirement number refers to the indicator used in the QUALIFOR Programme to test each criterion from the FSC P&C.

CAR No	QUALIFOR requirement (FSC P&C)	Description
1. (Major)	1.1.3; 1.1.5; 1.1.6	Absence of a system to monitor and correct legal compliance by contractors, resulting in illegal and unlawful labour practices.
2. (Minor)	3.3.1; 3.3.2; 3.3.4	The absence of documented management objectives and prescriptions, which have been developed in conjunction with stakeholders, for gravesites and cultural-historical sites.
3. (Minor)	4.2.2; 4.2.6; 6.6.4; 6.6.5; 6.6.6; 7.3.2	Inadequate training in and implementation of health and safety operational procedures at work place.
4. (Minor)	6.2.6	Inadequate measures to ensure hunting do not exceed sustainable levels.
5. (Minor)	6.4.2; 6.4.2.1; 7.1.7; 9.3.2; 10.5.1.1;	Inadequate planning and implementation of protection and management activities of conservation areas.

CAR No	QUALIFOR requirement (FSC P&C)	Description
	10.8.1	
6. (Major)	6.5; 6.1.1; 6.1.3; 7.3.5; 10.6.3; 10.6.4; 10.6.7	Inadequate implementation of the South African Forest Industry and/or SAPPI harvesting and road works standards, with consequent unacceptable damage to soils, indigenous vegetation and watercourses.
7. (Minor)	6.6.3	There is no programme to record chemical use over time and to regularly analyse trends.
8. (Minor)	7.1.1; 7.4.1; 10.1.1	There is no complete publicly available summary of the primary elements of the management plan that links the different management activities.
9. (Minor)	8.1.1; 8.2.3; 8.2.4; 9.4	Absence of monitoring of water yield and key conservation elements, e.g. Red Data List species and Pedlar's Bush.

Sappi Forests' action plans to address the two Major CARs 01 and 06 are presented in Appendix VI. A follow-up visit was conducted on 24 and 25 February 2000 to assess the adequacy of the corrective actions, to ensure that operational performance has improved and the non-compliances are rectified. The close-out visit report is presented in Appendix VII; a summary of the conclusions is presented in section 9, below.

9. CLOSE-OUT OF MAJOR CARs

The close-out visit examined operational and administrative compliance with the submitted action plans.

CAR 01. Absence of a system to monitor and correct legal compliance by contractors resulting in illegal and unlawful labour practices.

The Sappi Forests' management representative presented the revised company policy on contractors, as well as the revised "General Forestry Contractors Agreement". The company policy states that Sappi will adhere to its obligations in terms of the legal compliance of its contractors and will put the necessary controls and incentives in place. An independent external auditor, Forestry Services & Facilitators (FS & F), will conduct annual audits on most of Sappi Forests' contractors to check, amongst others, their compliance with labour legislation. In addition, Sappi's Safety Officer and Personnel Manager will conduct *ad hoc* audits (same as FS & F) throughout the year, at a minimum frequency of one audit per annum per contractor, to monitor their compliance. The contractors that are not covered by the FS & F audits will be included in these internal audits. If contractors are found to be temporarily legally non-compliant, the breach clause of the contractors contract agreement specify Sappi's right to terminate the agreement if the various breach conditions are not met.

The Highveld Regional Personnel Manager presented the results of an audit he had conducted to determine the legal compliance of all Highveld's contractors in respect of labour practices. Those contractors that were not compliant were empowered to achieve compliance with Labour Legislation. In the Lowveld forest region, contractors were given a deadline to be compliant with labour legislation by mid-December 1999. The Personnel Manager found that two contractors were not compliant and their contracts were terminated.

In view of the above, the system Sappi has put in place to monitor and correct legal compliance of contractors was considered adequate and Major CAR 01 was closed out.

Major CAR 06. Inadequate implementation of the South African Forest Industry and/or Sappi harvesting and road works standards, with consequent unacceptable damage to soils, indigenous vegetation and watercourses.

A policy decision was taken by Sappi Forests to, in the interim, adopt the FESA Guidelines for Forest Engineering Practices in South Africa (May 1999) in its entirety. Sappi conducted a technical workshop on 8 February 2000, where the FESA Guidelines/Standards and the applicable FSC requirements were presented and discussed. All harvesting and roads contractors, field supervisors and Sappi management foresters were involved in the workshop. Copies of the new FESA Guidelines were given to all the harvesting and roads contractors. Harvesting contractors were also supplied with Sappi's own Timber Harvesting Operational Guidelines, which serve as written work instructions. The draft Sappi Road Standards were available and will be implemented by May 2000. Until the Road Standards are finalised and ratified, the FESA Guidelines and standards will apply.

Ground skidding and cable yarding operations were inspected. In view of the extensive training efforts, perceived commitment from management, operational staff environmental awareness levels and convincing evidence of conformance with FESA Standards at the harvesting sites, Major CAR 06 was closed-out.

10. CERTIFICATION RECOMMENDATION

The two Major Corrective Action Requests raised, which initially precluded certification of SAPPI Forests' Twello and Inkwasi districts, were closed out after a two-day audit was conducted at both these districts to determine whether adequate corrective actions were taken. SAPPI Forest Products' Twello and Inkwasi districts are therefore recommended for forest management certification.

The outstanding Minor Corrective Action Requests do not preclude certification, but SAPPI Forest Products is required to take the agreed actions before the first surveillance audit is carried out. SGS Forestry will verify compliance with the QUALIFOR requirements associated with these CARs at the first surveillance, which is to be carried out about 6 months from the date of the issuance of the certificate. If satisfactory actions have

been taken the minor CARs will be 'closed out'; otherwise Minor CARs will be raised to Major CARs.