Swaziland: The myth of sustainable timber plantations

Wally Menne and Ricardo Carrere

March 2007

The authors: Wally Menne <plantnet@iafrica.com>
<www.timberwatch.org.za> works with the Timberwatch Coalition.
Ricardo Carrere <rcarrere@wrm.org.uy> is the World Rainforest Movement (WRM) international coordinator.

Edited by: Hersilia Fonseca
Cover design: Flavio Pazos
Photos: Wally Menne and Chris Lang

International Secretariat
Maldonado 1858, Montevideo, Uruguay
ph: +598 2 413 2989, fax: +598 2 410 0985
e-mail: wrm@wrm.org.uy
website: http://www.wrm.org.uy

European office:
1c Fosseway Business Centre, Stratford Road, Moreton in Marsh
GL56 9NQ, United Kingdom
ph: +44 1608 652893, fax: +44 1608 6512 878
e-mail: wrm@gn.apc.org

This publication is only available in English

 This case study was carried out in the framework of the World Rainforest Movement's PLANTATIONS WATCH project, with financial support from the Netherlands Ministry of Foreign Affairs/Directorate-General for International Cooperation (DGIS).

Published in: March 2007

ISBN: 978-9974-8030-1-5

This publication was made possible with support from NOVIB (The Netherlands) and the Swedish Society for Nature Conservation (SSNC). The views expressed, the information and material presented, and the geographical and geopolitical designations used in this product, exclusively imply the opinion of the authors.

n(o)vib
OXFAM NETHERLANDS

Svenska Naturskyddsföreningen

Swaziland: The myth of sustainable timber plantations

Wally Menne and Ricardo Carrere

WRM

TIMBERWATCH
COALITION

Contents

Chapter 1. Unveiling the myth of sustainable plantations in Swaziland 7

Chapter 2. The impacts of tree plantations and pulp production ... 11

- **Land appropriation and displacement** 11
- **Plantation history** 13
- **The socio-economic impacts of plantations** 14
  - *The country's basic resources in corporate hands* 14
  - *Exporting logs and importing food* 14
  - *The type of employment provided by plantations* 23
- **The environmental impacts** 24
  - *The water issue* 24
  - *Water and air pollution* 25
  - *Impacts on biodiversity and invasive species* 27
  - *Impacts on soils* 27
  - *The issue of certification* 28

Chapter 3. Not an exception to the rule 29

References 31

Chapter 1. Unveiling the myth of sustainable plantations in Swaziland

Although Swaziland is not a very well known country, many foresters not only know about its existence but are even able to use it as an example of "sustainable" plantation forestry. The person responsible for this is Professor Julian Evans – an English forester – who has for years been promoting the view that the Sappi Usutu Pulp Company's pine plantations in that country are "sustainable", both through research publications and public presentations at international events.

Swaziland has thus appeared to be an exception within a context of research findings in many other countries proving that this type of plantations is socially and environmentally unsustainable. WRM therefore decided to carry out research in Swaziland, which – as detailed in chapter 2 – demonstrated that the impacts of plantations in Swaziland were as negative as elsewhere.

The reasons for this apparent contradiction thus need to be analysed. A paper produced by Evans in 2000, can serve the purpose of helping the reader to understand what he means – in the first place – by "sustainability". There he explains that "The question of sustainability in plantation forestry has two components. There are the general or broad issues of whether using land and devoting resources to tree plantations is a sustainable activity from the economic, the environmental or from the social sense. Is such development unsustainable or is it a threat rather than a help to people's livelihoods and way of life? These, and related issues, are important and fundamentally depend on national policies governing plantation development, understanding their impacts, and ensuring full public participation in the process. They contribute to what is labelled 'broad sense' sustainability."

Labelled by whom? What he defines as "broad sense sustainability" is what people, academics and governments alike understand by "sustainability" – without having to add anything to it. However, adding the words "broad sense" allows Evans to introduce his concept of "narrow-sense" sustainability.

Instead of acknowledging that plantations in Swaziland are unsustainable, what he does is to look into one aspect of those plantations using a concept that he defines as "narrow-sense" sustainability of plantations. This simply means looking at wood yields over several rotations to determine if the trees "can be grown indefinitely rotation after rotation on the same site without serious risk of reduction in site quality or in crop yield".

What he is then looking at is just the capacity of the site to continue producing wood. There is of course nothing wrong with this, were it not for the fact that Evans continues spreading the message that plantations in Swaziland have proved to be "sustainable". For instance, at the launching of the FSC Plantation Certification Review Meeting held in September 2004 in Bonn, the WRM made a short presentation including a brief summary of the negative social and environmen-

tal impacts of large-scale tree plantations. Professor Evans was present at the meeting and raised his hand immediately after the WRM presentation to tell the audience that he had studied plantations in Swaziland and that he had evidence that they were sustainable. He did not explain that he meant "narrow-sense" sustainability, but only used the term "sustainable", thus misleading the audience about this crucial issue.

Professor Evans had done exactly the same in 1999 at an "International Experts Meeting on the Role of Planted Forests for Sustainable Development", organized in Chile by the United Nations Forum on Forests. In his presentation, he also said that pine plantations in Swaziland were "sustainable".

The fact is that Professor Evans has never studied the sustainability of plantations in Swaziland. What he has been doing is simply studying the "long-term productivity" of Sappi's Usutu pine plantations. He says that "for 32 years measurements have been made over three successive rotations of *Pinus patula* plantations, grown for pulpwood", simply recording "tree growth during each rotation resulting from normal forest management by SAPPI Usutu".

Although he acknowledges that "First rotation growth data were derived from stem analysis and from paired plots and are less accurate" than measurements data for second and third rotation growth that was "obtained from plots on exactly the same sites", this does not seem to impair his capacity to reach the following conclusions:

- Over most of the forest [sic] where granite derived soils occur third rotation height growth is significantly superior to second and volume per hectare almost so.
- There had been little difference between first and second rotation.
- On a small part of the forest (about 13% of area), on phosphate-poor soils … a decline had occurred between first and second rotation, but this has not continued nto the third rotation where there is no significant difference between rotations."

It is quite revealing that he uses the expression "On a small part of the forest", when in reality this implies over 9,000 hectares of plantations. As we shall see below, Sappi Usutu's forestry management did not think that this was "small" and decided that fertilisation was necessary.

It is particularly interesting to note that after highlighting that "The importance of the Swaziland data … is that no fertiliser addition or other ameliorative treatment has been applied to any long-term productivity plot from one rotation to the next", he adds that "according to Morris (1987) some third rotation *P. patula* is probably genetically superior to the second rotation." Why "according to Morris"? Why "probably"? Is Evans unaware about whether the company has introduced "genetically superior" pines to the third rotation? Is this not a major issue when comparing yields?

According to his own words, Professor Evans has been monitoring these plots since 1968. He should thus know if the third rotation pines where "genetically superior to the second rotation".

Moreover, it is difficult to understand how a person so closely-linked to this company could ignore that, according to Usutu forest manager Peter Whitfield, "the research effort is concentrated on two issues" and that the second issue is focused "on increasing forest yields through tree breeding, and improved silviculture practices. The tree-breeding programme was initiated in 1985, with a strategy for species and provenance selection and the genetic improvement of pine species for the forest … Seed orchards established over the past 6 years will make the company self sufficient in improved seed by the year 2000." (Whitfield 1996). All this was obviously a reality when Evans produced his year 2000 paper quoted here. Why did he choose not to mention any of those issues?

Instead, he tries to counteract the argument that the genetically improved trees might be the cause of the increased or sustained yields, by saying that "The limited [why "limited"?] genetic improvement of some of the third rotation could have disguised a small decline, but evidence is weak [why "weak"?]. Also, it can be strongly argued that without the severe and abnormal drought [Evans says that "the 1980s and especially the period 1989-92 have been particularly dry"] growth would have been even better than it is." Were there no other droughts since the plantations were established that may have affected the growth of first and second rotation plantations?

Moreover, it is important to underscore that the company's tree breeding programme, was not simply a decision to improve yields, but, as Whitfield says "silviculture research has been focused on addressing second rotation yield declines due to phosphate deficiencies on about 15% of the forest" (2% more than quoted by Evans). Were those phosphate deficiencies the result of nutrient loss resulting from the plantations? Should not this issue be taken on board even within a 'narrow-sense' approach to sustainability of plantations?

More importantly, Whitfield himself strongly erodes Evans' credibility when he says that "more recently the issue of organic matter accumulation on the forest floor and subsequent potential yield declines has been addressed through the application of nitrogen fertiliser." In spite of this – written in 1996 – Evans claims 4 years later that "these plantations are managed as intensively as anywhere and, so far, there is no evidence to point to declining yield."

Unaware of the contradiction, Whitfield (1996) quotes Evans as stating that "There is no general evidence of declining yields resulting from intensive plantation forestry of cultivation of three crops of the same species on the same site. The prospects for this continuing are good. With good husbandry Usutu's plantation forestry is demonstrably and wholly sustainable (Evans 1995)". Of course both Whitfield and Evans "forget" to mention that the term "sustainable" means, in Evans' terms, only 'narrow-sense' sustainability".

The above make it quite clear that the example of the Usutu plantations as being "sustainable" is not "sustained" by evidence. They don't even appear to have a "narrow-sense" sustainability.

WRM therefore decided to take a closer look at those plantations from a broader perspective than the simplistic "sustained yield" approach. In 2003 we got in contact with Wally Menne, from

the South African Timberwatch Coalition, who has a long experience regarding the impacts of plantations and requested him to carry out research on the issue in neighbouring Swaziland.

The main objective of the study was to gather information and to present that information in the form of a preliminary report. This report would also attempt to evaluate the information, to arrive at conclusions, and where possible to suggest actions to address the issues highlighted by those conclusions.

In order to obtain a better understanding of the scale and nature of the impacts of large–scale tree plantations in Swaziland, visits were made to the main timber growing areas, and interviews were conducted with a range of individuals drawn from interested and affected groups. As far as was practicably possible, similar numbers of individuals from each group were interviewed.

Questions to establish whether there was an awareness of impacts, which specific impacts, and how great those impacts were considered to be were asked. In addition, other relevant comments and suggestions were also recorded. The groups from which representatives were interviewed are:

- Community members
- Environmentalists
- NGO representatives
- Government employees
- Industry representatives

Wally Menne, Maria Rydlund (SSNC) and Chris Lang carried out a complementary visit to Swaziland in October 2004. Incidentally, while they drove through Swaziland, they noticed (and photographed) recently felled clear cuts being burned. A 1999 report that Evans wrote for the UK Department for International Development includes a photograph, with the following caption:

> "Burning debris after clear-felling in Swaziland led to loss of nitrogen from the site and death of replanted pine seedlings from Rhizina fungal infection. This undesirable practice was discontinued in 1973." (Evans 1999).

Menne's report was made public in December 2004 and copies were disseminated to people in Swaziland that participated in the study.[1] In contrast with Julian Evans' approach, the author of the study recommends "that this report be treated as an introduction to the topic, which is vast and complex, and requires much more investigative study."

The following chapter is to a large extent based on the findings of that study and also incorporates other relevant information.

[1] The report is available on the internet at: http://www.wrm.org.uy/countries/Swaziland/Plantations.pdf

Chapter 2. The impacts of tree plantations and pulp production

Before the implementation of large-scale timber plantations in Swaziland, the area that they now occupy was grassland, interspersed with patches of evergreen forest growing in moist, sheltered spots. The characteristic climax grasslands evolved over thousands of years with human influence and fire playing an important part in their development.

Swazi people farmed cattle and other livestock as well as some food crops. Their domestic crops and animals, hunting, and natural resources from the forest and grassland provided all they needed to survive.

• Land appropriation and displacement

Things began to change in the 1870s when Europeans flocked to Swaziland and through different means obtained rights to settle on vast portions of the country. In 1899 the Anglo-Boer war broke out and in 1902 the British took control of Swaziland. The country remained under British colonial rule until September 1968 when Swaziland gained independence.

In 1907 the British enacted the Land Proclamation Act. According to Mndzebele (2001), "This legislation reserved 1/3 of the land, 37.6% of the total land area for the exclusive use and occupation by the Swazi people. This land came to be known as the Swazi Nation Land. The 63% of land with good soil and best land, very good for grazing was expropriated from the Swazis for settler use and become title land and crown land. About 58% of the Swazi population were situated in the reserves whilst 42% were on the settler's land. The Swazi in the settler's land were given five years to move voluntarily to the reserved areas after which they could be allowed to stay on the title land at the discretion of the landowners. Since then conflict between Swazis (called squatters) and landowners became the order of the day."

The Swazis protested over the seizure of their land and strongly opposed the private land ownership concept. The Swazi areas became overstocked and land degradation started to emerge, not to mention the growing problem of Swazis who became landless. Land shortage became acute for Swazis by 1939 when the Second World War broke out. Most people lived in reserves (Mndzebele 2001).

After 1940, two important and contradictory developments occurred. On the one hand, the British government started to seek ways of increasing land available to Swazis and policies were put in place to that effect. On the other hand, the colonial government appropriated some of the land to sell to afforestation companies (Mndzebele 2001).

The situation summarized above regarding access to land explains the two different positions regarding the impacts of timber plantations on local people. A strong supporter of plantations in Swaziland (Julian Evans), writing about CDC's (Colonial Development Corporation) Usutu plantations says: "An important feature of the project is that afforestation took place on high veld land which was purchased directly from European settlers and, more recently, absentee South African farmers – both groups having been using the land mainly for sheep grazing. Virtually no Swazi villagers were displaced." (Evans, 1988).

According to Nhlanhla Msweli from the NGO Swaziland Campaign against Poverty and Economic Inequality (SCAPEI) "Timber plantations have been created by means of evictions in Swaziland. It is the land that used to be home to hundreds of people. These people were given as little as R1000 for vast land as part of their compensation and then were pushed away in the mountains, where they were given places that are not conducive for human survival. If you drive through Bhunya you are shocked to see where the people are staying; they are staying in rock mountains. The companies have done nothing to try and meet the socio-economic demands of the people, their stock which was a source of income and livelihood disappeared because of disappearing grasslands and drinking water." (Msweli 2003).

What elements are there to decide on who is right on this crucial issue? It is interesting to note the careful language used by Evans when he states that: "Virtually no Swazi villagers were displaced". That is absolutely true, because no villages were allowed outside reserves and there were therefore no "villagers" to be displaced. But there certainly were two types of people living in areas where tree plantations were established. On the one hand, a large number of so-called "squatters" (Swazis) living outside the reserves and on the other hand the Swazi people that were allowed to stay on the title land "at the discretion of the land owners" (meaning that they worked for free for the owner). Most of these Swazi people were displaced to give way to plantations, first when the colonial government appropriated the land to sell to 'forestry' companies and later on, when other plantation companies settled in the country.

The South African experience is useful to explain the process. In 1996, in "Pulping the South" we summarized the situation as follows "Subsistence farmers, too, experience a decline in the quality of life following the planting of large forest monocrops. In the most common scenario, people living on a farm offer their labour to a white landowner in exchange for the right to plant their own crops and keep livestock. Even though many such farmers are descendants of people who had occupied the land before the colonisers arrived, they have no legal title to it. When landowners sell out to timber companies, such farmers' circumstances change dramatically. The companies buy the land to plant trees and, in the face of strong resistance, try to oust families who have lived there for generations. In some cases the firms and the local people come to an agreement, but dispossession is still one of the most difficult social problems created by forestry development".

It is therefore evident that many Swazi people were displaced by timber plantations although the total figures – hundreds, thousands? – are unknown.

• Plantation history

Large-scale tree plantations and the associated industrial activities have a long history in southern Africa, starting in the mid-1800s in the Southern Cape. In Swaziland, plantations of Black Wattle (*Acacia mearnsii)* were first established during the early 1900s, mainly for tannin derived from their bark, which was used in the leather industry. Wattle poles were used as mine-props in local tin mines, which were thriving at that time and wattle timber became later widely used as building material and fuel wood. Pine trees and eucalyptus were subsequently introduced as the main plantation species.

At present, timber plantations cover an estimated total area of almost 135,000 hectares (8% of the total land area), which occur mostly in the high rainfall, deep soiled, Highveld grassland zone in the western part of the country, where adequate timber growing conditions exist. Most plantations (78%) are composed of pines trees, while an important area has been planted with eucalyptus (20%) and a smaller area with wattles (2%). Additionally, there are some 25,000 hectares of so-called "wattle forests", which are areas invaded by alien acacias (The Swaziland Environment Action Plan, 1997).

The main industry players in Swaziland are South African companies: Sappi, Mondi and the Transvaal Wattle Growers Co-operative. Sappi Usutu, owning more than half the plantations in Swaziland (70,000 ha), and the only pulp mill, employs about 3,000 people directly and indirectly. Mondi Peak employs 1,044 people in two sawmills and 20,000 ha of plantations. Shiselweni, the third largest plantation area covers about 12,000 ha. The Mondi and Sappi plantations were originally established about 50 years ago by the UK government-owned Colonial Development Corporation (CDC, which changed its name to the Commonwealth Development Corporation, and is now called the CDC Group), that also started the Usutu pulp mill at Bhunya. These were sold to the present owners quite recently – Mondi in 1984, and Sappi in 1992. The Shiselweni plantations were established in 1967, also by CDC, but later sold to the Transvaal Wattle Growers Co-operative (TWK) also based in South Africa.

The first large-scale industrial timber plantations (now owned by Mondi), were established around Pigg's Peak in the north in 1947. There are now about 30,000 hectares of plantations in the Pigg's Peak area, made up of approximately 25% pine and 75% eucalyptus. Most eucalyptus is grown for pulp production and is sent by road and rail to the Mondi paper mill at Richards Bay in South Africa (some 400 km away). The rest of the timber, mainly pine, is planked for construction and furniture at local sawmills. Mondi Peak, a subsidiary of Mondi in South Africa since 1984, owns most of the plantations in the Pigg's Peak area (some 20,000 hectares within a 31,600-hectare land holding), with Swazi Plantations owning the bulk of the remainder.

The first of the Usutu pine plantations around Mhlambanyatsi in the western part of the country were planted soon after 1950. They have belonged to Sappi Usutu, part of Sappi Kraft in South Africa, since 1988, and now cover about 75,000 hectares. Before the Sappi take-over, this

vast plantation was controlled by Courtaulds, a British company, and financed by the UK government-owned CDC. The Sappi Usutu pulp mill at Bhunya, situated on the Lusutfu River, processes the wood produced here into unbleached pulp. Most of the nearly 200,000 tonne annual production is exported to south-eastern Asia via an agent in Hong Kong.

The Shiselweni Forestry Company's plantations near Nhlangano in the South, owned by the Transvaal Wattle Growers Co-operative (TWK) in South Africa, are a mix of pine and eucalyptus, and cover 12,000 hectares. Most of the timber produced here is exported to or via South Africa.

In spite of the vast amounts of timber produced in Swaziland, the country imports most of its finished timber products from South Africa, whilst nearly all of the local timber production leaves the country as logs, pulp or rough-cut planks.

• The socio-economic impacts of plantations

- The country's basic resources in corporate hands

The first impact of large-scale tree plantations relates to ownership of and access to resources. If soil and water are considered to be the basic resources needed to sustain ecosystems and people, there can be little doubt that timber plantations have appropriated a disproportionate share of those resources in Swaziland. Nearly all timber plantations in Swaziland have been established in the high rainfall, deep-soiled 'High Veld' region in the West of the country. The high water consumption of these plantations reduces the flow in rivers and streams that have their sources in those areas. Even though many of the plantations were originally established nearly 50 years ago, the exclusion of nearly 120,000 hectares of the most productive land in the country has far reaching implications. The fact is that these lands are now in foreign corporate hands, while many local people are struggling to meet their survival needs from much less productive land.

Ownership of land under timber plantations in Swaziland is an issue that needs thorough examination. Mondi Peak say that their plantation land is held in freehold title, but Sappi Usutu maintain that they only hold title to the towns at Bhunya and Mhlambanyatsi and that the Usutu plantation land was given back to the Swazi Nation ten years ago, and is now leased back. But regardless of legal terms, the fact is that 8% of the Swazi land is in the hands of powerful South African plantation companies.

- Exporting logs and importing food

Nhlanhla Msweli (SCAPEI) explains that the establishment of plantations has caused a reduction in traditional herding of cattle, hunting, harvesting wild plants and growing traditional food. The best land in good rainfall areas is mostly under timber plantations, and subsistence farmers have been forced to move to marginal areas that are poorly suited to agriculture and food produc-

A clearcut plantation in Swaziland. This is what FSC claims is well managed.

Another clearcut plantation in Swaziland. In July 2006, the Soil Association certified Sappi's Usutu plantations as well managed under the FSC system. March 2007.

Sappi's clearcut plantation. Swaziland, March 2007.

Food aid in Swaziland.

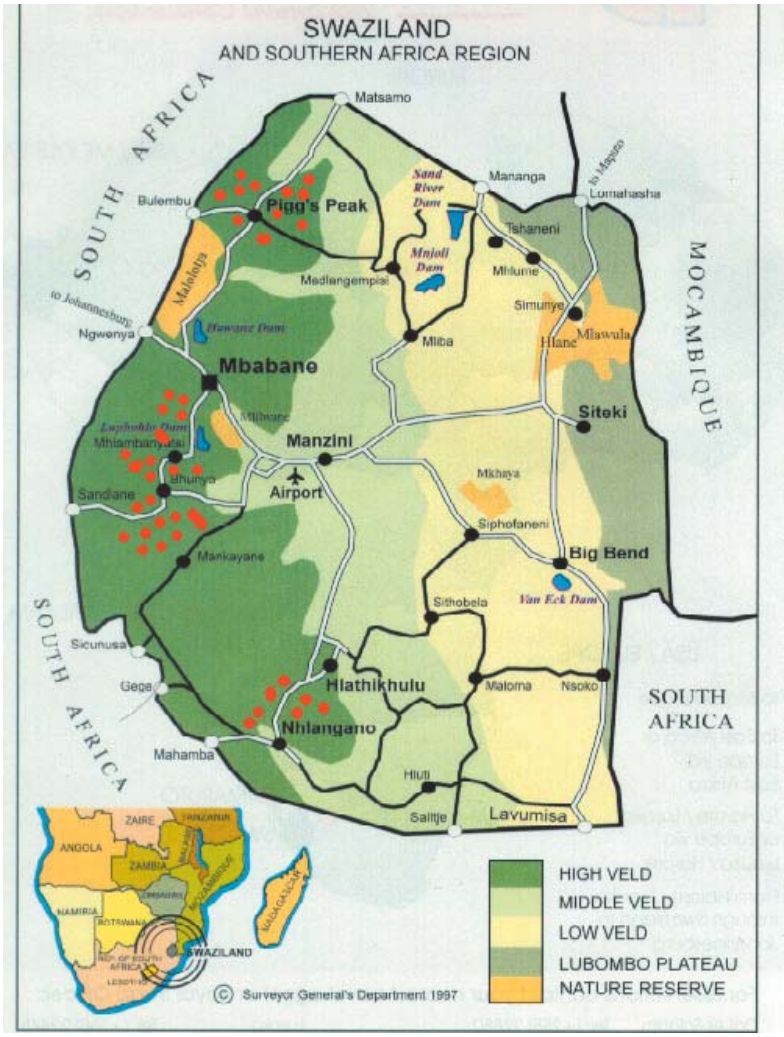
Food aid delivery. About one third of the people in Swaziland rely on food aid to survive.

Teachers and pupils at Bhunya Secondari.

Sr Badly eroded bank at Hlatikhulu.

Sawmill, Swaziland, March 2007.

Sr Bhunya waste dump.



Main ecological zones of Swaziland and distribution of large scale tree plantations.

Sr Bhunya leachate pond.

The Sappi Usutu pulp mill needs 70 000 hectares of pine plantations to produce 200 000 tonnes of pulp a year.

A recently replanted FSC-certified monoculture. Swaziland, March 2007.

The Sappi Usutu pulp mill is situated on the Lusutfu river, into which waste effluent from the mill is regularly released.

Effects of overgrazing near Hlatikulu.

A precariously loaded timber truck carrying pine logs down the road from Mhlambanyatsi to the Sappi Usutu pulp mill at Bhunya.

Young men without adequate protective clothing or masks spraying chemical herbicides to kill native vegetation in an area at Bhunya newly planted with alien timber trees.

tion. According to Kate Braun, an applied biologist/ecologist, the numbers of cattle are already too high in some areas as a direct result of the occupation of land by tree plantations.

Swaziland is a recipient of a substantial amount of food aid. Although the official explanation is that the problem of food shortages is a result of an interminable drought, there are other major factors that have contributed to the situation, among which, the occupation of good agricultural land by tree plantations.

As a direct result of the reduction of food producing activities, Swaziland imports nearly 100,000 tons of food (80% of its needs) and receives 15,000 tons in the form of donated food aid per annum. It is debatable whether this would be necessary if the land and water resources that have been appropriated for timber plantations were available for food production in the country. To make matters worse, the exportation of unprocessed logs and pulpwood bring in the lowest possible return to the country, with very few people employed locally.

- *The type of employment provided by plantations*

Employment offered by the timber industry is often far more hazardous than conventional agricultural jobs. The danger of injury to workers is especially high in certain activities, especially when timber from plantations is being cut and transported. Other dangers include exposure to toxic chemicals and dangerous machinery in pulp and saw mills. This is substantiated by a report of the United Nations International Labour Organisation (ILO 1988) that States that "Forestry continues to be one of the most hazardous industrial sectors in most countries. Around the world, there are often discouraging trends of rising accident rates and a high incidence of occupational diseases and of early retirement among forestry workers."

A recent trend by the big timber plantation companies in both South Africa and Swaziland is the outsourcing of labour as a means of increasing profitability and reducing the risk of labour action. The contract labour system was introduced during the last decade when Mondi and Sappi retrenched large numbers of permanent workers. Most of these retrenched workers were re-employed at lower wages offered through temporary employment by contractors, who had been encouraged and assisted by the timber companies to establish their own businesses.

Workers that had previously been in the permanent employ of the timber companies, and had enjoyed all the normal benefits now had no choice but to become contract workers. The companies concerned were thus able to cut their labour costs. The extra profit that the reduction in staff expenses realised for the companies was achieved at the expense of Swazi society and the State.

SCAPEI's Nhlanhla Msweli states that worker unions have had difficulty getting established in Swaziland. Privatisation has undermined the effectiveness of the labour movement, and retrenchments and high unemployment have disrupted opportunities to establish stable structures for organised labour. He adds that around 1997 there were major retrenchments in the timber

industry – both Sappi and Mondi claimed economic hardship as the reason for reducing staff – but at the same time the work was outsourced to contractors, who were often ex-employees who had been assisted in establishing their own contract businesses. This has led to an extremely competitive labour market. Contract work is temporary and pay is very low.

Msweli also says that the timber industry has not contributed meaningfully to the economic upliftment of their workers. The system has kept people poor and dependant. Outsourcing of activities by companies has not benefited many people, because it is really a way of passing on risks and costs to the new companies that are established. When they eventually fail, and investments made with retrenchment payouts are lost, poverty becomes greater.

The relationship between the labour movement and the Swaziland government is a controversial issue. Swaziland is an absolute Monarchy, and King Mswati III has been reluctant to recognise the legitimacy of worker unions in the country. This has led to considerable conflict. Workers also claim that they have been excessively exploited as a consequence of not being properly organised.

The above situation raises a number of questions. How many sustainable rural livelihoods have been lost to give way to tree plantations? How many jobs in food farming and ecotourism might have been created if the plantation industry had not taken such a large share of Swaziland's land and water resources? More importantly: are the Swazi people benefiting from the timber industry? In this regard, Mrs. Duduzile (Matilda) Zwane, School Principal at the Ekuthuleni Primary School (Mondi Peak main sawmill worker village), holds a negative view of timber plantations. She believes that the community has not benefited much from their establishment, either from the point of view of people working in the industry or living in the area. Labourers receive low pay although some rations were also received. The poverty in the community is causing young girls to become prostitutes. There is very little done by the company to help the community.

• The environmental impacts

- The water issue

The areas under the more than 120,000 ha of timber plantations in Swaziland are already deprived of water. They consume more than the natural rainfall supply to the area that they occupy, even drawing additional water from surrounding aquifers and streams. The extent to which plantations impact on water resources have had serious consequences for people relying on water from streams and rivers flowing from the Highveld catchment area. Some people, born in the area before plantations arrived, can remember waterfalls and deep streams that no longer exist. Such is the case of Mrs Zwane, who states that she has noticed that rivers in the timber growing areas had dried up over the years. She can remember places where people could swim when she was a child, that are now dry.

Rex Brown, from the Environmental Consulting Services, Swaziland's first environmental consulting firm, expresses the concern that the establishment of the three main plantations in the

country (Shiselweni, Usutu and Mondi) happened with little consideration given to their short and long term impacts on the environment, livelihoods, water and pollution. The plantations occur in important upland catchments – essential areas for the provision of water for equally important irrigation activities in the Swaziland Lowveld. The plantations absorb great quantities of water that is not released into the rivers and streams. This combined with ever increasing water demands within the catchments, leads to annual shortages of water.

In a report about desertification in Swaziland, Brown's company ECS wrote, "Afforestation may be as detrimental as deforestation especially if water-depleting tree species are planted. Eucalyptus trees and other types of trees with a high water demand deplete ground water if planted on a large scale and close to water sources."[2]

According to the Swaziland Environment Action Plan (1997), "High evapotranspiration rates of trees in large commercial forestry plantations of eucalyptus and pine may exceed the rate of replenishment of ground water, causing drying up of some surface water sources in adjoining communities."

The progressive dehydration of the landscape must result in a range of knock-on or sequential impacts – mostly relating to food production and human health issues. These impacts also affect the state of the biodiversity resources and their associated natural habitat, that play an extremely important part in providing food, medicine and building materials to rural communities.

In this respect, Kate Braun – an applied biologist/ecologist – says that on issues associated with the conversion of land into timber plantations, water is the big issue and that people are not able to grow the food they need. She adds that the Highveld area in Swaziland is of vital importance with regard to water availability in the country, and that the numerous small wetlands are of major importance in this regard. According to Braun, the establishment of plantations has impacted negatively on them.

- *Water and air pollution*

Air and water pollution from pulp and paper mills, is often the subject of complaints by communities. The community of Bhunya where the Sappi Usutu pulp mill is situated appears to have suffered considerably from the polluted state of the air in the vicinity of the mill where the worker village is situated.

---

[2] "The Convention to Combat Desertification Swaziland National Action Programme", Environmental Consulting Services, http://www.ecs.co.sz/ccd/env_articles_policy_ccd_nap_section2.htm

Mr Phillip Vilikati, Principal at Bhunya High School, says that because of the pollution emitted from the Sappi Usutu mill, people with asthma have had to leave the school. Fumes from the mill enter the school buildings regularly. He moved his home to Mbabane because of sores in his nose that he believes were caused by the air pollution and now travels 90 km daily to do his work at the school.

Mrs Nkonyane, Principal at Bhunya Secondary School, explains that there are 350 children attending the school, and about 10 % are affected by asthma. Most children have to wear spectacles, she believes as a result of the pollution from the Sappi Usutu mill. It also causes corrosion of cars and of roofing iron. There is pollution in the form of black dust getting into the school.

Recently the Swazi environmental NGO, Yonge Nawe, initiated a project at Bhunya to monitor air quality by having air-samples analysed for pollutants. Although there are complaints of the air pollution causing health problems to humans in the area, it is not known what the effect might be on the wildlife and livestock.

The Sappi Usutu mill is notorious for regular releases of effluent into the nearby Lusutfu River. Additional pollution comes from the industrial waste dump that is situated in the worker village. Leachate from this unprotected dump flows into a pond that is not fenced to prevent access by children and animals, and which apparently overflows into a stream that feeds into the nearby river during rains.

Rex Brown points out that the Sappi Usutu pulp mill continues to be a significant source of regular water pollution. Spills of chemicals into the river occur on a fairly regular basis – say 6 times a year – and the company appears to have no obligation to either prevent these spills or clean up its impacts. Downstream communities are seriously affected by the water pollution in the river caused by effluents released by Sappi Usutu, especially during drought times. They receive no warning of contaminated water coming their way nor have they been given any instructions on what they should or shouldn't do when their water supply is contaminated.

Kim Roques, from the Swaziland National Trust Commission mentioned that there have been sudden surges in chemical effluent releases from the Sappi Usutu mill at Bhunya. As far as he knew there was no monitoring of water quality in the river.

Although the levels of pollution produced by sawmills are less obvious the cumulative effect of the use of toxic wood preservatives in an area can be considerable. The disposal of waste materials into nearby streams appears to be a common practice, which can have negative implications for aquatic organisms and human communities.

During the establishment and maintenance of plantations, numerous toxic agricultural chemicals, mainly herbicides such as *Garlon* and *Round-up* are employed to eradicate so-called pests that threaten to damage or compete with young plantation trees. Plants and animals, both indigenous and alien are targeted, and the pesticides used present a threat to both the workers that are

exposed to them during their application, as well as non-target plants, birds, mammals, reptiles, fish and insects.

- *Impacts on biodiversity and invasive species*

Kim Roques said that regarding timber plantations, the most obvious impact was the destruction of natural vegetation when large-scale plantations are first established. However, he adds that a recent forest assessment exercise had identified fragmentation of highveld grassland as a problem, which had negative implications for the conservation of biodiversity.

The tree species commonly used in plantations are all highly invasive. For many years, the timber industry has allowed their trees (acacia, pine and eucalyptus) to spread into watercourses, wetlands and steep inaccessible areas. This results in the displacement of natural species mostly through shading or suffocation, and further destruction of habitat through ongoing impacts such as the dehydration of streams and wetland areas.

One of the most damaging aspects of the spread of plantations into grasslands is the effect of shading. Grassland plants are not accustomed to the shady conditions that are created by tall plantation trees such as pine, eucalyptus and wattle, and before long they die from lack of sunlight. Over time there are changes in soil acidity (pH), particularly where pine needles accumulate. Under these disturbed conditions plants that prefer higher soil acidity, and can tolerate shady conditions – usually invading aliens such as *Lantana camara* and *Solanum mauritianum*, introduced from South America, establish and spread into natural areas and agricultural lands. In this regard, Mrs Zwane comments that Lantana is a big problem and has spread into areas outside the plantations. Lantana is highly toxic to cattle and humans. But Lantana is not the only problem. Kim Roques – who until recently was in charge of the government's Biodiversity Corridor Project under the Swaziland National Trust Commission, funded by the World Bank – has reported that the Mlilwane–Mantenga area is invaded by eucalyptus and has expressed the need for them to be removed.

Rex Brown stresses that contamination of areas adjacent to plantations with plantation species is a form of pollution that the plantation owners appear to have no obligation to redress. There is proliferation of plantation species and other invasives in drainage lines. It would appear from visits made into some of the plantation areas, that owners do little to prevent their plantations from entering riverine areas despite legal requirements that prohibit "developments" within 30 m of a drainage line. The impacts on the ecology of these areas must be noticeable and significant.

- *Impacts on soils*

Timber plantations have impacted directly and indirectly on soils. Regarding direct impacts, Kim Roques stated that the direct environmental impacts of plantations are not reversible – especially soil erosion. However, there are further impacts such as nutrient depletion, changes in soil structure, and acidification that have yet to be studied in Swaziland.

Forestry activities are highlighted in the assessment of the Swaziland Environment Action Plan (1997): "Depletion of soil resources is caused by unsustainable management practices in agriculture, **forestry**, mining, industry and road construction. Chemical, biological and physical degradation appears through **loss of nutrients, trace elements, organic matter, soil flora and fauna, soil structure** etc. It may also become apparent through concentration of substances such as salts, acids, heavy metals and other toxic elements, as caused by mining, waste disposal, **use of fertilizers and pesticides**, dipping chemicals, irrigation, **leaf litter from plantations,** or acid rain. **Soil compaction is a degradation phenomenon caused by machinery** and cattle traffic, reducing permeability and water holding capacity. All these aspects of degradation can be monitored in soils.

Indirect impacts are related to the appropriation of the best land by plantation companies. As a result, traditional agriculture and cattle grazing were displaced onto drier, steeper areas where shallow soils have higher erosion potential and less capacity for water and nutrient retention. A relatively larger number of people now need to subsist off a smaller area of less arable and productive land. These factors result in downstream impacts such as more severe flooding, soil erosion, soil nutrient depletion, and siltation of streams and wetlands, with consequent food shortages and impacts on health.

- The issue of certification

The above illustrates how large-scale tree plantations in Swaziland have resulted in serious impacts on people and the environment, both at present and in the past. It is difficult to understand how the three of them have been certified by the Forest Stewardship Council. According to the FSC web page, there are only two certified plantations in Swaziland, both certified by The Soil Association-Woodmark: Shiselweni Forestry Company (17,018 hectares) and Sappi Usutu (69,856). In the case of Mondi's 20,000 hectares, they has been certified as part of the Mondi owned plantations in South Africa, and are not shown separately on the FSC website. From the FSC website, it thus appears that Mondi has no certified plantations in Swaziland.

According to its mandate, "the Forest Stewardship Council (FSC) shall promote environmentally appropriate, socially beneficial, and economically viable management of the world's forests". Apart from the fact that these plantations are obviously not forests, it is clear from the findings of this research that they are neither environmentally appropriate nor socially beneficial and that their economic viability depends on the externalisation of social and environmental costs.

Chapter 3. Not an exception to the rule

The impacts described in the previous chapter show that these plantations can in no way be defined as "sustainable".

An activity that occupies almost 10% of the land area and uses up its most valuable resources – soil and water – should at least bring social and economic benefits to the country's people. However, statistics tell a different story. Unemployment in Swaziland stands at 40 per cent. More than two-thirds of the people in Swaziland live on an income of less than US$1 a day. About one third of the people in Swaziland rely on food aid to survive. Nearly 40 per cent of the population is infected with HIV – one of the highest rates in the world. Life expectancy has fallen to 33 years for men and 35 for women.

Clearly not all of Swaziland's woes can be blamed on industrial tree plantations. But more than fifty years of development by the pulp and paper industry has failed to bring benefits to the majority of Swaziland's population. Instead it has made matters worse.

Researcher Chris Lang visited Swaziland with Wally Menne in October 2004. He says: "At the border, we saw new Volvo and Mercedes trucks loaded with eucalyptus logs waiting to leave the country. We drove through seemingly endless monoculture plantations and past huge clear-cut moonscapes. We saw farmers' dry fields and we saw villagers lining up for maize donated by the World Food Programme. We saw, and smelled, Sappi's Usutu pulp mill. We saw the smoke from the mill drifting over the workers' village immediately next to the mill."

In a country where the majority of people are landless, industrial tree plantations cover almost 10 per cent of the land. Even worse, they occupy the land with the most productive potential, at the expense of other agricultural land uses. Although many of the plantations were established during colonial rule, their continued existence is today a means of "freezing" the unjust distribution of land ordered by the British imperial rulers. As a result, the corporate appropriation of land for industrial tree plantations still has a profound effect on society and the environment and will continue to do so as long as the plantations remain.

Today, two South African pulp and paper companies control most of the 120,000 hectares of industrial tree plantations in Swaziland. Mondi owns 30,000 hectares of eucalyptus and pine trees in the north of the country, while Sappi, leases 70,000 hectares of plantation land in western Swaziland. Mondi exports it eucalyptus wood to its pulp mill at Richards Bay, 400 kilometres away in South Africa. The pine goes to local sawmills. Sappi owns a pulp mill which produces 220,000 tons of pulp each year, most of which is exported to Southeast Asia.

Although the forestry sector – including plantations, a pulp mill and sawmills – accounts for as much as nine per cent of Swaziland's GDP, it employs only 8,000 people directly. To make matters

worse, in recent years, much of the plantation work has been outsourced to contractors, resulting in even lower wages and worse working conditions.

Additionally, the impacts of these plantations are far-reaching and can be traced far away from the plantation areas. People forcibly evicted from their land had to carry out their agricultural and pastoral activities on insufficient and unsuitable land, resulting in soil degradation. Water depletion, plantation-related invasive weed species, and biodiversity loss also affect areas far removed from the plantations.

In sum, large-scale monoculture tree plantations in Swaziland have similar negative impacts as elsewhere and are no exception to the rule.

References

- Carrere, Ricardo & Lohmann, Larry (1996). Pulping the South: Industrial Tree Plantations and the World Paper Economy. London, Zed Books.

- Evans, Julian (1988). The Usutu forest: Twenty years later. Unasylva 159, http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/s5780e/s5780e04.htm

- Evans, Julian (1999). Sustainability of Forest Plantations: The evidence. A review of evidence concerning the narrow sense sustainability of planted forests, UK Department for International Development (DFID).

- Evans, Julian (2000). Sustainability of Productivity in Successive Rotations. Paper prepared for FAO within the framework of the Forest Resources Assessment 2000. Proc. ITTO/FAO International Conference on Timber Plantation Development. Manila, Philippines, 7 – 9 November 2000, http://www.fao.org/forestry/webview/media?mediaId=5084&langId=1

- Forest Stewardship Council.- FSC certified forests, http://www.fsc.org/keepout/en/content_areas/92/1/files/2007_02_23_Certified_Forests.pdf

- ILO (1998). Safety and health in forestry work, http://www.ilo.org/public/english/support/publ/pdf/forestry.pdf

- Lang, Chris (2005). Swaziland: The impact of 50 years of industrial forestry**.** WRM Bulletin 90, January.

- Mndzebele, Alfred (2001). A presentation on Land Issues and Land Reform in Swaziland. Paper presented at the SARPN conference on Land Reform and Poverty Alleviation in Southern Africa, http://www.sarpn.org.za/EventPapers/Land/20010604Mndzebele.pdf

- Nhlanhla Msweli (2003). Impacts of timber plantations on rural people of Swaziland. Presentation at the "Timber Plantations: Impacts, Future Visions and Global Trends" event was hosted by GEASPHERE in association with the TimberWatch Coalition, South Africa, Nelspruit, 13 November, http://www.fishingowl.co.za/allenbusters9.html

- Swaziland. The Swaziland Environment Action Plan (1997), http://www.ecs.co.sz/seap/projects_seap_full.htm

- Whitfield, Peter (1996). Usutu Pulp Company Limited, Swaziland. A successful Integrated Industrial Forestry Project. Case study prepared for the UNEP/World Bank Africa Forest Policy Forum. Nairobi, 29-30 August, http://www.worldbank.org/afr/afr_for/fulltext/swazlnd.doc

Other titles in this Series:

No. 1 - Granda, Patricia. *Carbon Sink Plantations in the Ecuadorian Andes. Impacts of the Dutch FACE-PROFAFOR monoculture tree plantations' project on indigenous and peasant communities.* 2005. (Also available in Spanish).

No. 2 - De'Nadai, Alacir; Overbeek, Winfridus; Soares, Luiz Alberto. *Eucalyptus Plantations and Pulp Production. Promises of Jobs and Destruction of Work. The case of Aracruz cellulose in Brazil*. 2005. (Also available in Spanish and Portuguese).

No. 3 - Navarro, René; Carrasco Henríquez, Noelia; Araya Cornejo, José. *The economic and social context of monoculture tree plantations in Chile. The case of the Commune of Lumaco, Araucania Region.* 2005. (Also available in Spanish).

No. 4 - The *death of the forest: a report on Wuzhishan's and Green Rich's tree plantation activities in Cambodia*. 2005. (Only available in English).

No. 5 - Carrere, Ricardo. *Greenwash. Critical analysis of FSC certification of industrial tree monocultures in Uruguay.* 2006. (Also available in Spanish).

No. 6 - John Blessing Karumbidza. *A Study of the Social and Economic Impacts of Industrial Tree Plantations in the KwaZulu-Natal Province of South Africa.* 2006. (Only available in English).

No. 7 - Granda, Patricia. M*onoculture tree plantations in Ecuador.* 2006. (Also available in Spanish).

No. 8 - Noor, Rivani; Syumanda, Rully. *Social conflict and environmental disaster: A reporto n Asia Pulp and paper's operations in Sumatra, Indonesia.* 2006. (Only available in English).

No. 9 - Lang, Chris; Byakola, Timothy. *"A funny place to store carbon": UWA-FACE Foundation's tree planting project in Mount Elgon National Park, Uganda*. 2006. (Only available in English).