



**sappi**

Bio-energy

A Sustainable Alternative

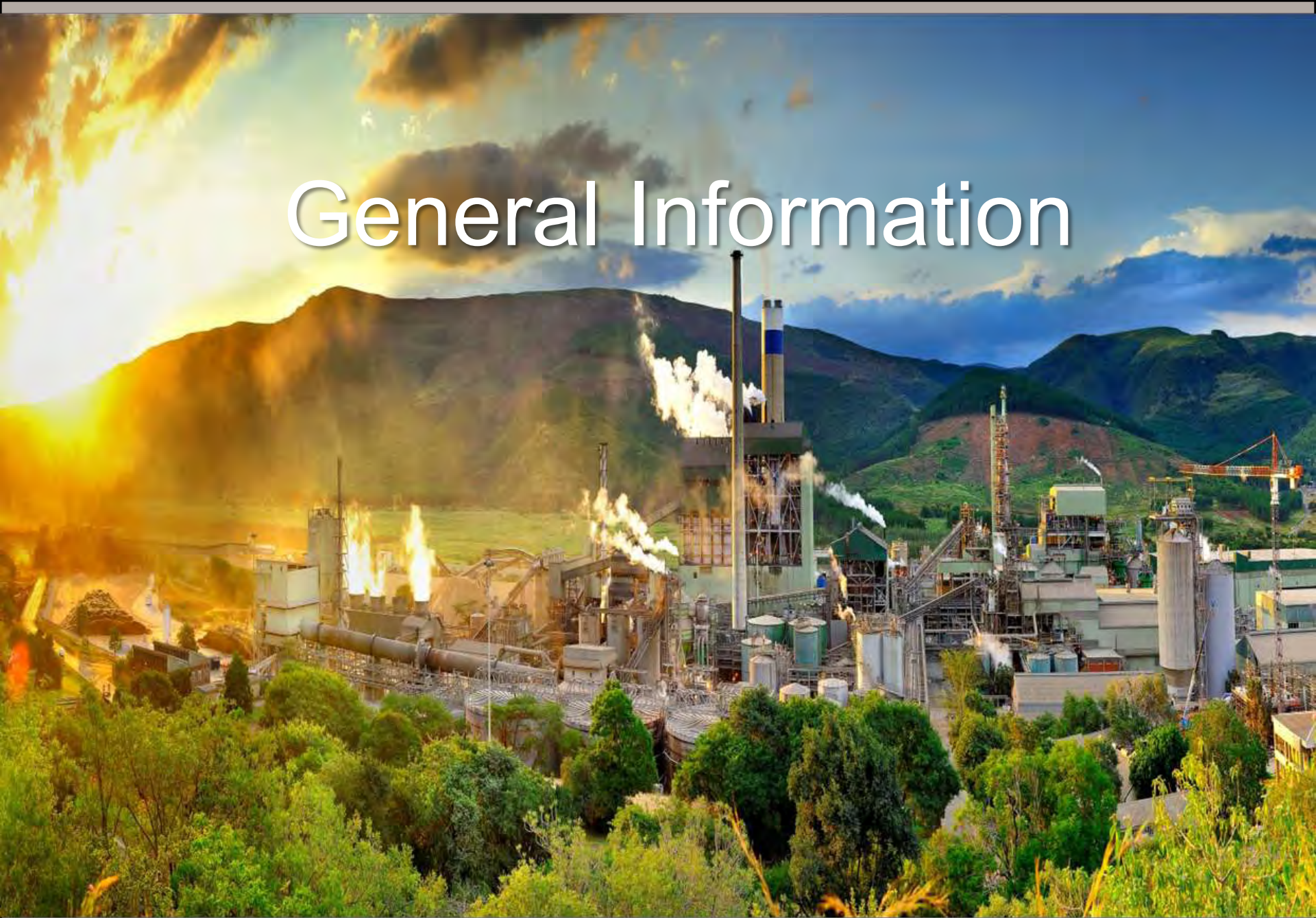
February 2013

Presented by D Roothman

# *Sappi Overview*

- General Information
- Footprint in the Province
- Sustainability
- Renewable Energy Sources & Projects
- Environment
- Conclusion

# General Information



# *Sappi by numbers*

- 14,000 employees in over 20 countries
- Manufacturing operations on three continents
- Paper production capacity of 6 million tons a year
- Paper pulp production of 3 million tons a year
- World's largest manufacturer of dissolving wood pulp with production capacity of 800,000 tons a year increasing to 1.3 million tons in 2013
- Sales in over 100 countries

# Divisions – Europe & North America

## Sappi Fine Paper Europe



- Corporate head office
- Regional head office
- ✱ Mill
- Sales office

## Sappi Fine Paper North America



- Corporate head office
- Regional head office
- ✱ Mill
- Sales office

53% of group sales

8 Mills  
16 Sales office

23% of group sales

3 Mills  
4 Sales offices

# Divisions – Trading & Sothern Africa

## Sappi Southern Africa

## Sappi Trading

### Sales offices

Bogotá  
Hong Kong  
Johannesburg  
Mexico City  
Nairobi  
São Paulo  
Shanghai  
Singapore  
Sydney  
Taipei  
Vienna

### Logistics offices

Durban  
New York

Sappi Trading operates a network for the sale and distribution of our products outside our core operating regions of North America, Europe and Southern Africa.

Sappi Trading also coordinates our shipping and logistical functions for exports from these regions.

**24% of group sales**

### Sappi Paper and Paper Packaging

5 Mills  
4 Sales offices

### Sappi Specialised Cellulose

1 Mill

### Sappi Forests

554,000ha  
1 Sawmill



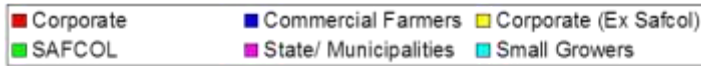
- Corporate head office
- Regional head office
- ★ Mill
- Sales office



# In the Province

# Plantation forests in South Africa

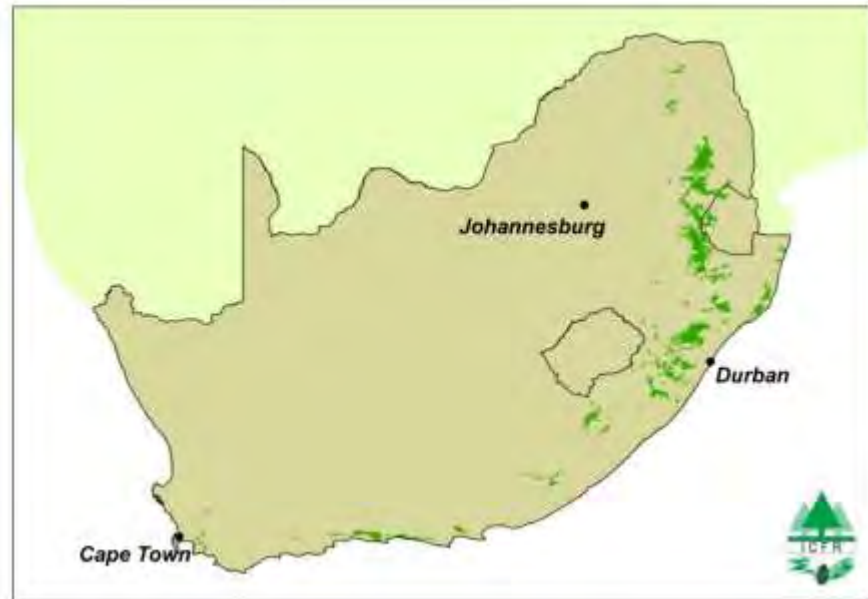
Source: Forestry South Africa (2012)



## Plantation ownership



## Plantation management



## Wood harvest 2011 million m<sup>3</sup>

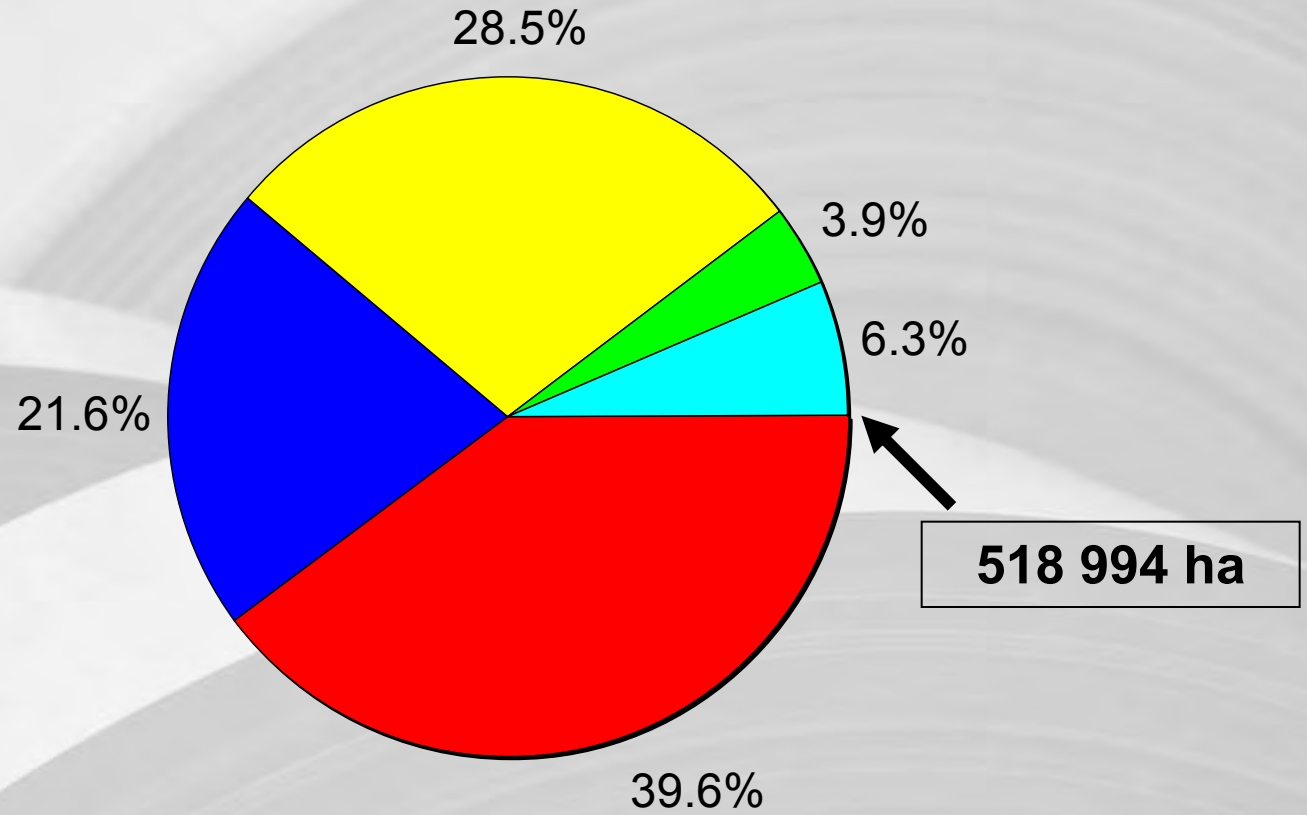
Pulpwood	12.6
Saw logs	4.2
Other	1.7

R5bn contribution to GDP  
 1.3 million hectares planted  
 Less than 1% of the national area  
 Employs 170 000 people



# Land Use in Mpumalanga

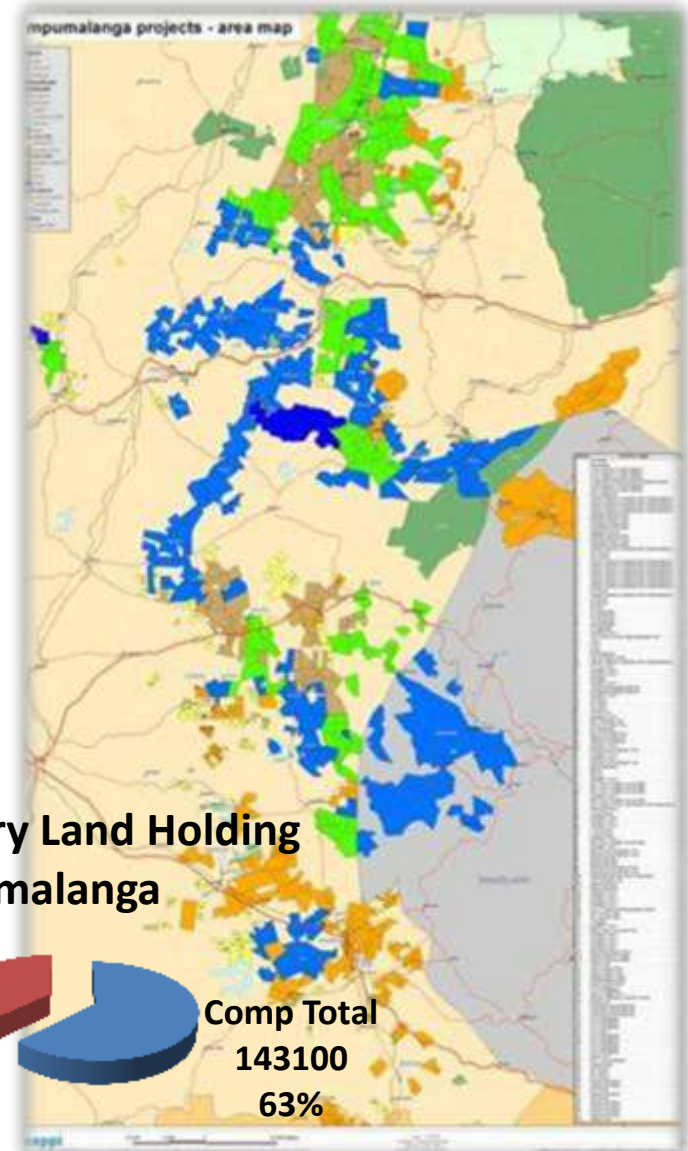
■ Grazing ■ Arable ■ Nature Conservation ■ Other ■ Forestry



**Total Mpum. land area – 8.2 million ha (6.7% of total) (FSA 2013)**

# Sappi in Mpumalanga

- Ngodwana Mill (Employs 1000+500)
  - Intake 1800 000 tons of timber
  - Current :
    - KLB, WTL, Newsprint & FBSW
  - Future:
    - Dissolving Wood Pulp (Cellulose)
    - KLB
- Lomati Saw Mill (Employs 490 + 150)
  - Intake 180 000 m<sup>3</sup> to 240 000 m<sup>3</sup>
- ReFibre
  - 50 000 tons of recycled paper
- Forests (Employs 120 + 4200 by 33 SME)
  - Production 2 million tons
  - SW 1.4 million tons
  - HW 600 000 tons



B  
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# Sustainability

# *Sustainability Charter*

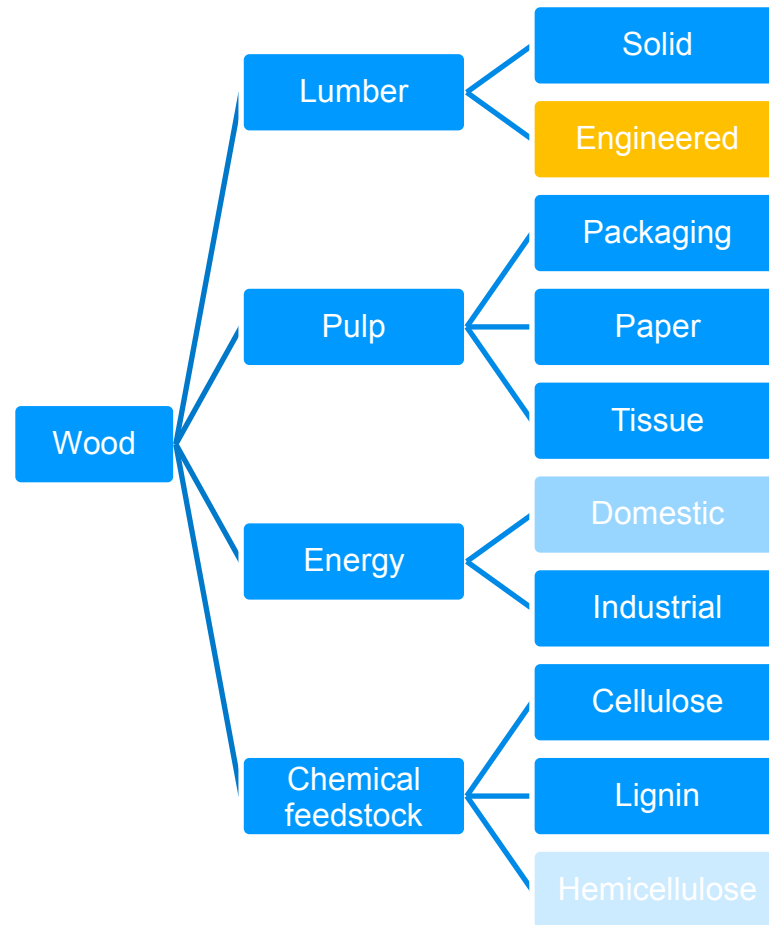
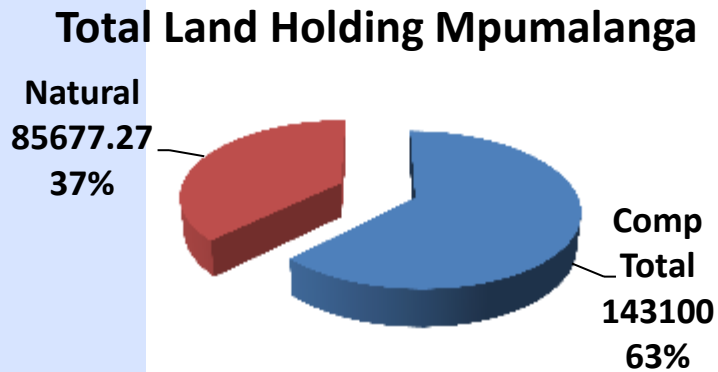
- Our approach to sustainability is based on a holistic view of Prosperity, People and Planet (the 3Ps). Being a sustainable organisation means that we balance and integrate the 3Ps into our business decisions, strategies and processes to help us add more value for all our stakeholders.
- **At the heart of our business is a renewable, recyclable natural resource – wood fibre.** We use this to create pulp, paper and chemical cellulose solutions which enhance the lives of consumers around the world.



Extract from Sappi Sustainability Charter 2011

# Use of Fibre Resource

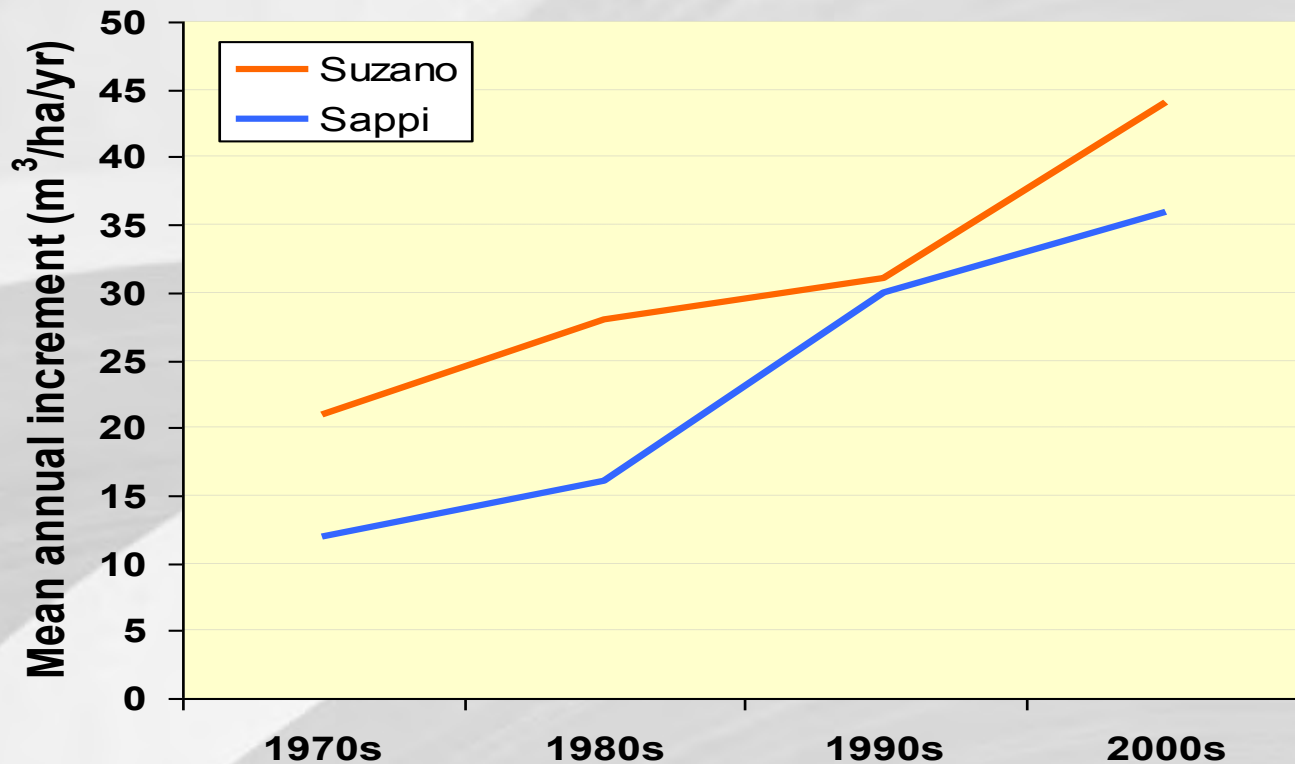
Wood the most versatile renewable resource  
Where does Sappi operate?



# Sustainability of Fibre Resource

## Increasing plantation productivity

Eucalypt in Brazil & South Africa



Sappi  
Eucalyptus  
Yields increase  
60% over the  
past 15 years



# Renewable Energy Sources and Projects

# Bio-Energy

- Traditionally include:
  - wood, wood chippings and straw
  - pellets or liquids made from wood
  - biogas (methane) from animal excrement
  - ethanol, diesel or other liquid fuels made from processing plant material or waste oil.



# Sources of Bio and Renewable Energy

## Current

- Black Liquor
  - By-product of pulping process
  - Organic extractives from wood and Inorganic chemicals added during cooking process
  - Fired in boiler during “recovery process”
  - Heat → Steam → Turbine → Electricity
  - Total operations resulting in 50.3% of energy consumed
  - SA operations 38-40%, (US operations >80% from renewable sources)
- Unutilised Forestry Bio-mass
  - Bark, Tops, Branches
  - Co-firing Small amounts at Ngodwana

# Bio- and Renewable Energy Projects

## Current Developments and Approved Projects

- **Bio-fuel Power Plant (8MWH)**
  - At Lomati Saw Mill in Barberton
  - 100% wood rests, sawdust other bio-mass
  - Majority for export to the Eskom grid
- **Bio-mass Boiler**
  - Option being evaluated at Ngodwana Mill
- **Bio-diesel**
  - Project in initial stages of evaluation of submitted proposal

# Bio- and Renewable Energy Projects

## Current Developments and Approved Projects

- Biomass sales to Sugar Mills
  - Supply agreements in KZN
- Eco-briquettes and Pellets
  - Project in final stages of implementation
  - Feedstock = Alien Invasive Plants
  - Focus on Leisure Market
  - Domestic Use potential for low cost market
  - Bio-gas as by-product → Domestic Electrification

# Presented - a 2 step Process:

## Step 1 - BCCP: Coverts Biomass into Value

Products of Step 1 = Charcoal, Oil & Gas

Benefits of Step 1 = Job Creation, Poverty Alleviation,  
Rural Economic Development & Eradication of IAP's

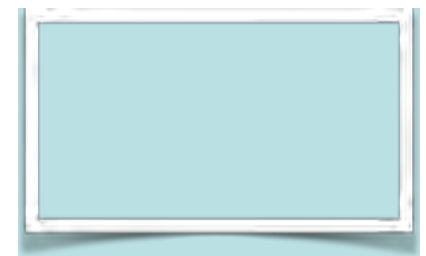
## Step 2 - JEP: Coverts Charcoal into Energy

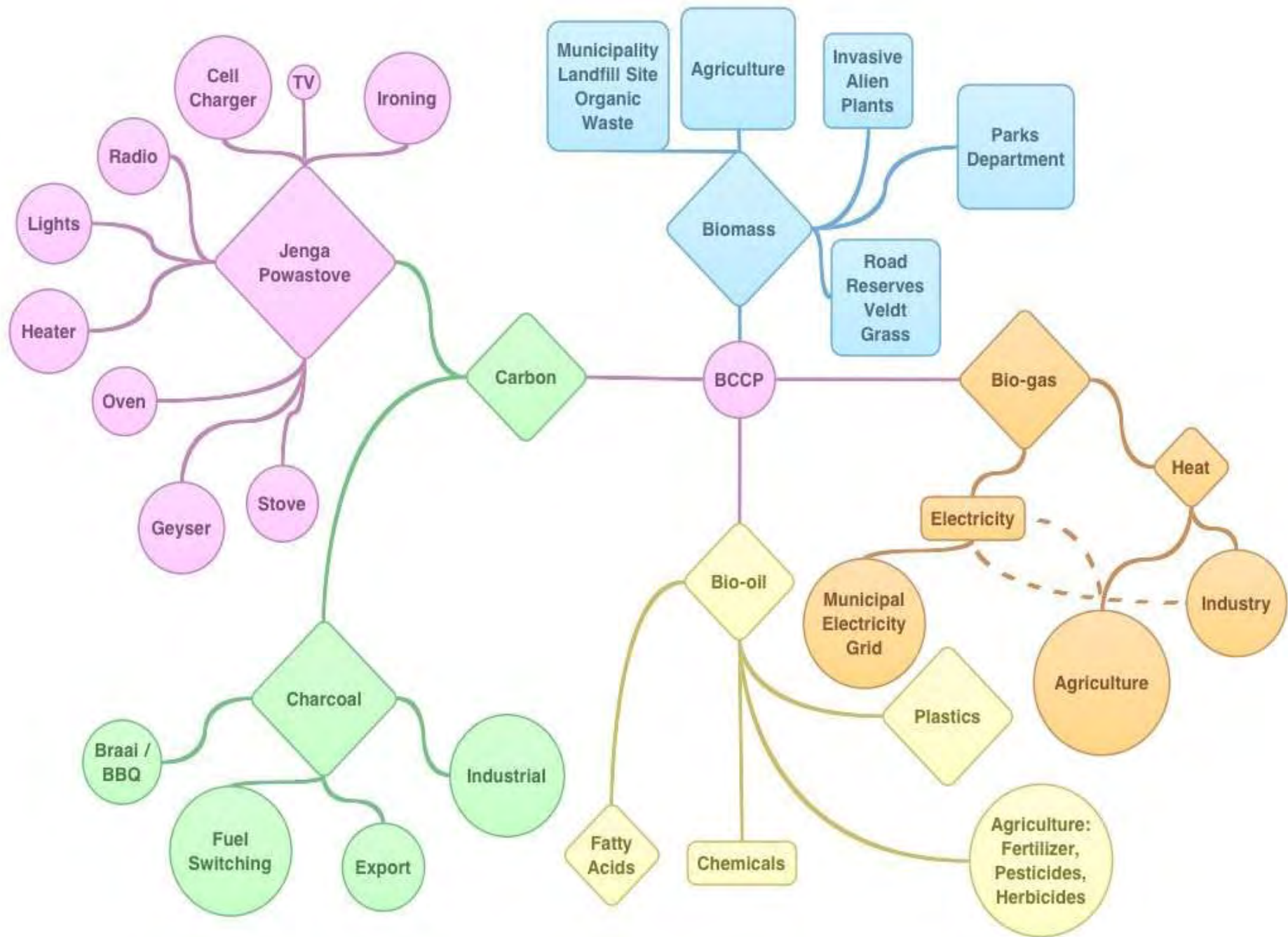
Products of Step 2 = Heat for: Stove, Oven, Space Heater, Geyser,  
Refrigerator,  
Electricity for: Lights, Radio, TV, Cell & Laptop Charger

Benefits of Step 2 = Service Delivery, Off-Grid electrification, Reduced  
Ambient Pollution, Eliminates Indoor Pollution, No Open or Shack  
Fires, No Grid Required

**sappi**

Inspired by life





# Bio- and Renewable Energy Projects

## Future Projects

- **Bio-gas**
  - Methane from Macro Dumps at Mills
- **Hydro Electric Sites**
  - Three potential sites identified
  - Initial studies completed at one

A close-up photograph of a green flower petal, showing its intricate vein structure. The petal is the central focus, with a soft, out-of-focus white background. The lighting is bright, highlighting the texture and color of the flower.

# Environment

# Environment

## Added benefits from Sappi Operations

- CO<sub>2</sub> sequestration – 13 million tons
- O<sub>2</sub> generation – 8 million tons
- Carbon Positive

### Sappi Carbon Balance (CRADLE TO GATE)

#### 1. Balance CO<sub>2</sub> (million tonne/a)

- a. CO<sub>2</sub> from atmosphere      b. CO<sub>2</sub> to atmosphere

12.5 – By Plantations  
12.5 total from atmosphere

2.5 – Own biofuels combusted  
2.5 - Coal, oil gas combustion (scope 1)  
1.5 – Purch. power, steam (scope 2)  
0.7 – All scope 3  
4.0 – Plantation decay, fires, disease  
11.2 – total to Atmosphere

#### 2. Net Balance CO<sub>2</sub> To Atmosphere

Net entering atmosphere = 12.5 – 11.2 = 1.3  
= net amount absorbed  
= **CARBON POSITIVE**

#### 3. % renewable Energy

2.5 – Own biofuels (renewable)  
2.5 - Coal, oil gas combustion (fossil)  
1.5 – Purch. power, steam (fossil)  
6.5 – total energy  
% renewable =  $100 \times (2.5 / (2.5 + 2.5 + 1.5))$   
= 38.5%



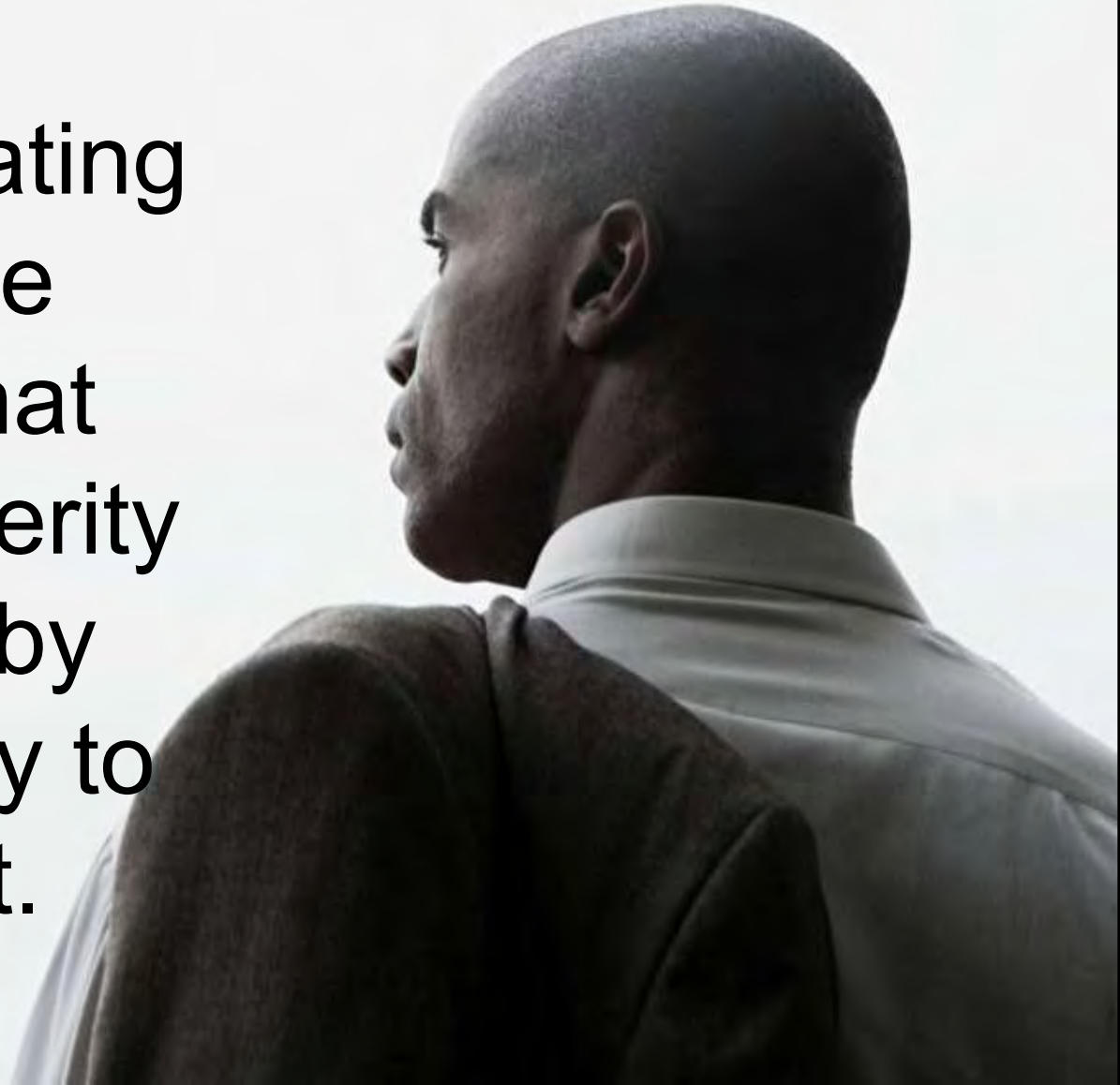
# ***Environment and Safety***

- FSC accreditation (April 2003)
- Integrated Risk Management System, OHSAS 18001 and FSC (Implemented November 2002)
- In Our Plantations
  - 18 natural heritage sites
  - 54 sites of conservation significance
  - >400 bird species
  - >50 Red Data Listed Species

Photographer: Dr. Gauri Bhojap

# Conclusion

All about creating sustainable solutions that create Prosperity for People by being friendly to the Planet.





**sappi**

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