SW4SW AND THE BIOECONOMY

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BIO-ECONOMY STRATEGY SA DEFINES THE BIOECONOMY AS:

“Activities that make use of bio-innovations, based on biological sources, materials and processes to generate sustainable economic, social and environmental development. In the bio-economy the entire innovation system/network, ranging from ideas, research, development, productisation and manufacturing to commercialisation, should be used to its full potential in a coordinated manner.”
Forestry industry in SA

Forestry sector is a key role player in SA contributing to the **three pillars of sustainable development**: social, environment and economic development.

**Social**
- **More than 150,000** jobs across value chain; **25,000 through small-scale timber grower initiatives**
- Outgrower scheme initiative
- Community forestry + value add projects (e.g. honey)
- Recreation and ecotourism

**Environment**
- Unplanted areas reserved for biodiversity conservation
- Carbon sequestration

**Economic**
- Contribution to GDP = R69bn, 1.5%
- Export value = R29.1bn
- Everyday products
Area planted has declined steadily since 2006. Now covers area of **1.2 million hectares.**

Key constraints include:

- Onerous **water licensing** process for establishing new plantations.
- Impacts of **climate change** (esp. pests & disease).
- **Financial barriers to entry** of smaller growers
  - Also contributes to focus on hardwood, which has shorter rotation periods and quicker return on investment.
Forestry contribution to low carbon economy
Forestry contribution to low carbon economy

Although the trend in area planted has declined steadily, carbon stocks have remained relatively constant from about 2008.

Increase biomass growth per hectare of planted land – valuable contribution to SA’s transition to a low carbon economy.

- Attributable to increased growth rates through breeding and intensive forest management programmes, including species-site matching
- Challenge is to develop new processes and biomaterials to extract more value from each tree – increase recovery rate from about 40% to 90%.
Bio-processes

PULP, PAPER & PACKAGING
Contributing R23.68 billion to economy
10 - 12% to manufacturing GDP

PAPER RECYCLING
Active paper recycling programme 70% recovery rate

SAWMILLS
Employs 30,000 people in predominantly in rural communities

CONSTRUCTION
Innovative developments in engineered wood
Opportunity for high-rise built environment and low-cost housing
Bio-processes

**BIO-ENERGY**
Renewable energy from either bark, black liquor or sludge

REIPP programme
25 MW biomass project at Sappi Ngodwana

Fuel rod manufacturing – biomass and coal fines

**BIOMATERIALS**
Lignosulphonate - improve flow of concrete; dust suppressant

Extraction of hemicellulose sugar and lignin to make higher value products e.g organic acids, glycols and sugar alcohols, xylitol

**WASTE BENEFICIATION**
Composting, brick manufacture, anaerobic digestion

Research projects: enzymatic and pyrolysis techniques to create ethanol, bio-oils and char; bioethanol production; manufacture of bio-composites products that can be used in construction
Opportunities and potential abound!

Make the country more competitive internationally.

- Create more jobs
- Create a greener economy as the country shifts towards a low-carbon economy.
- Promote the circular economy.

Reconcile economic growth with environmentally responsible action.
What do we need to do to promote a South African bio-economy?

- Overcome regulatory barriers to increasing afforestation – we need to plant more trees!
- Grow and extend value chains – make more things from wood!
- Invest in and develop high level of research and technical skills – explore the wonder of wood!
- Develop business skills – entrepreneurs and businesses create jobs!
- Scaling up research to commercial implementation – costly.
I talked to someone about *climate change*, and they told me: “Sooner or later we’ll invest in a machine that can capture carbon from the atmosphere in an efficient way.”

I told them that it already exists.

It’s called A TREE.

Author unknown.
THANK YOU.

“Everything that can be made from fossils can also be made from wood, at least in the future.”

Innventia Annual Report, 2015