

FORESTRY and CLIMATE CHANGE

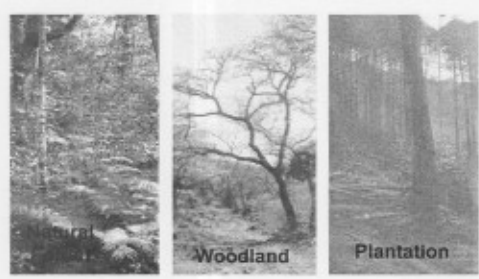
Presentation to the Portfolio Committee on Agriculture, Forestry & Fisheries
13 October 2009

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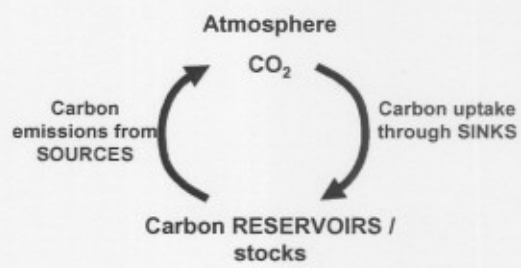
Introduction & Overview

- Part 1: Forestry – Climate Change Fundamentals
 - The role of trees and forests in the Carbon Cycle
- Part 2: Multilateral Negotiations

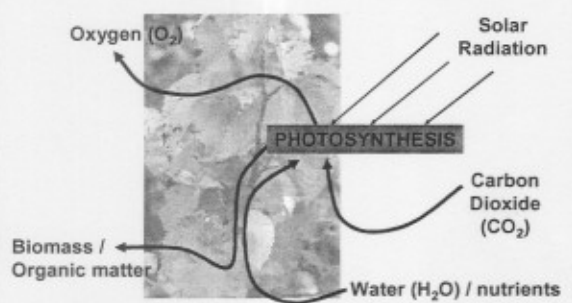
Forest Definitions



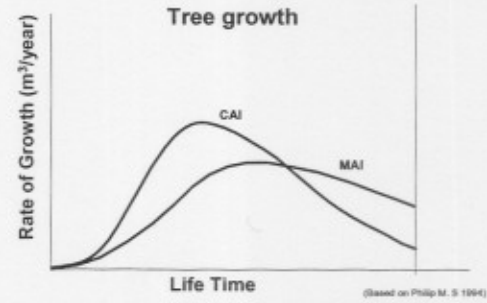
Simplified Carbon Cycle

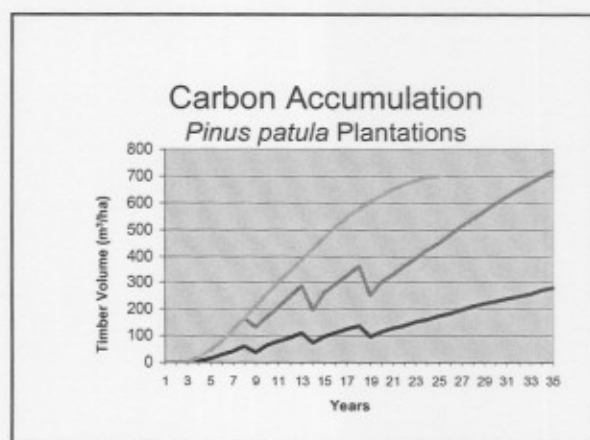
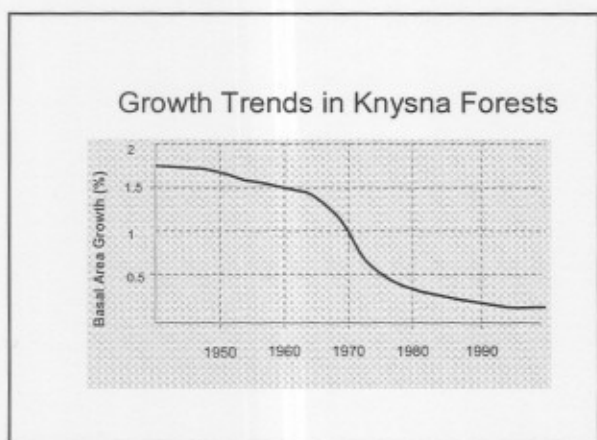
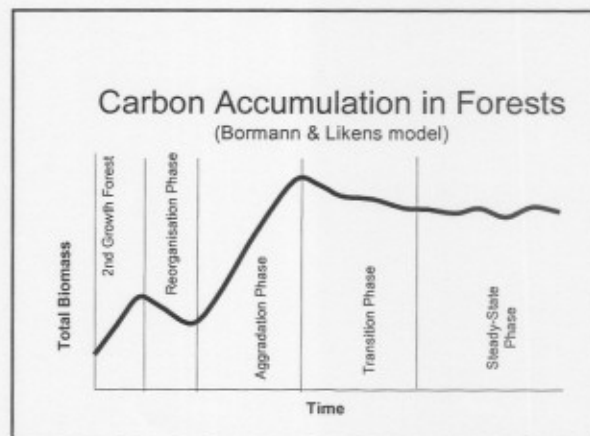
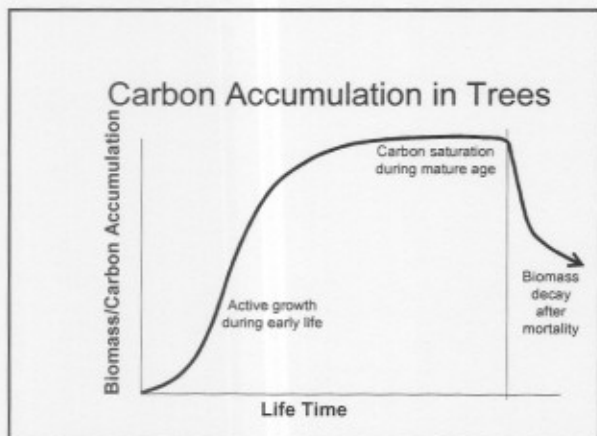


Forests as Carbon Sinks



Carbon Accumulation in Trees



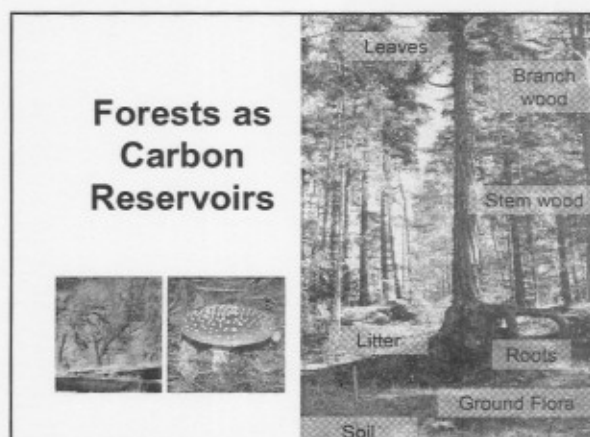


Forests as Carbon Sinks

Type of Forest	Tc / ha / yr
Plantations (Pine)	1.875 ^a
Plantations (Eucalyptus)	6.568 ^a
Natural Forests (Knysna)	0.46 ^b
Tropical Rainforest (Amazon)	0.61 ^b
Savannah (Nylsvlei)	3.9 ^c
Northern Temperate Forests	0.239 – 0.789 ^a
Grassland	1.9 ^c

Carbon Storage Density

The Commercial Forestry Industry in South Africa stores an estimated total of 3.69×10^{12} g (MT) carbon per year – equivalent to 3.8% of South Africa's annual CO₂ emissions



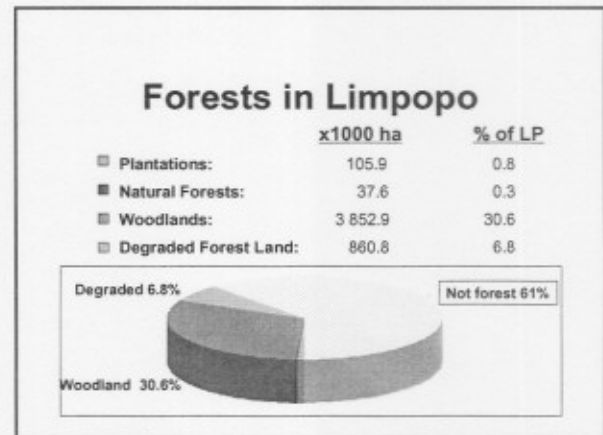
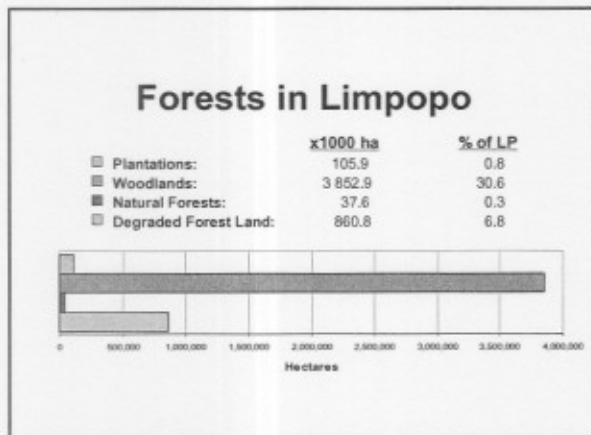
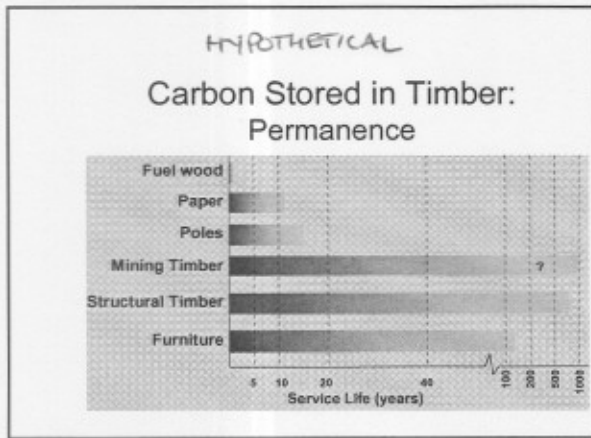
Carbon Stored in Forests

	Spekboom Thicket	Savannah (Nylsvlei)*	Pinus* (20 year)	Euc* (7-8 years)
Leaves	52 (T/ha)	(0.8 T/ha)	1.5%	2.95%
Branches		(15.5 T/ha)	10.1%	6.05%
Stem			70.7%	70.9%
Bark			5.9%	7.3%
Roots	25 (T/ha)		(7.1 T/ha)	11.5%
Ground Flora		(1.5 T/ha)	little - none	little
Litter		little	< 68 (T/ha)	
Soil	168 (T/ha)	10.5 - 103		

Carbon Stock in Forests

Type of Forest	Tc / ha
Plantations (Pine - age 35years)	88**
Plantations (Eucalypts - 25 yrs)	97**
Natural Forests (Afr. Temp)	99**
Tropical Rainforest	120 - 200
Dry Savannah / Nylsvlei	11.3 / 25*
Grassland (high altitude)	6*

*Excludes SOC, but includes below ground biomass ** Excludes both SOC and below ground biomass



Forest as Sources: GHG Emissions

- Combustion (Forest Fires)
 - $N_2O = 216 \times CO_2$
- Decomposition of forest litter
 - $CH_4 = 26 \times CO_2$
- Respiration
 - Plants / Animals
- Mechanical Forestry Operations



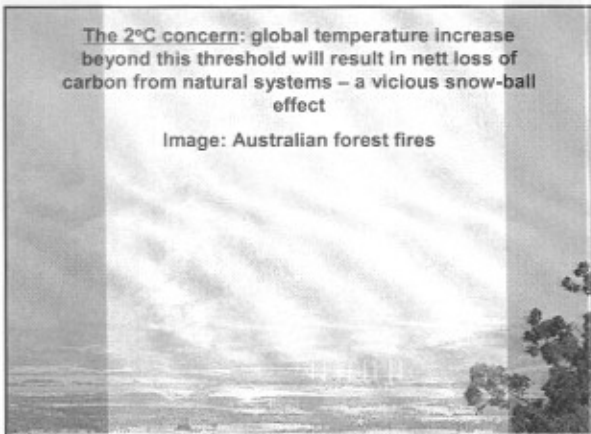
Fire Extent : Limpopo

Year	Hectares (ha)*	% of Province*
2003	240 631	1.91
2004	351 440	2.79
2005	540 320	4.30
2006	377 925	3.01
2007	325 137	2.59

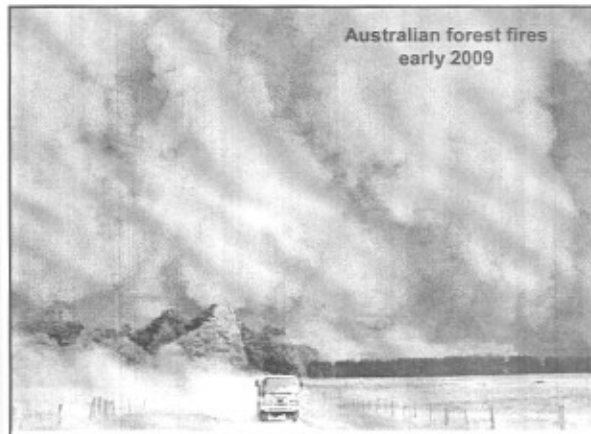
* Based on "Full Size" data

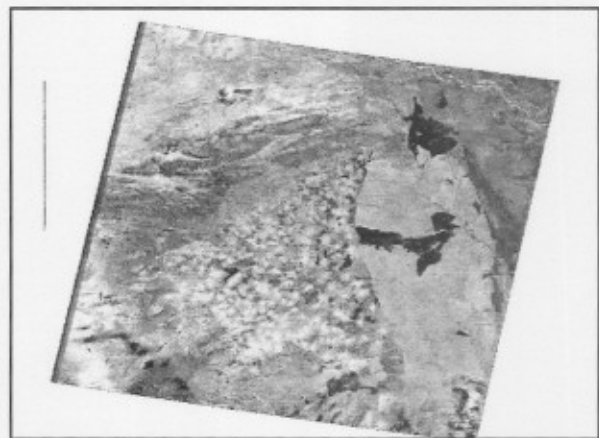
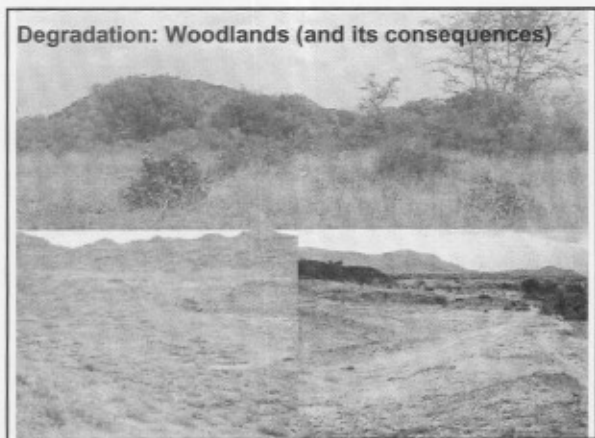
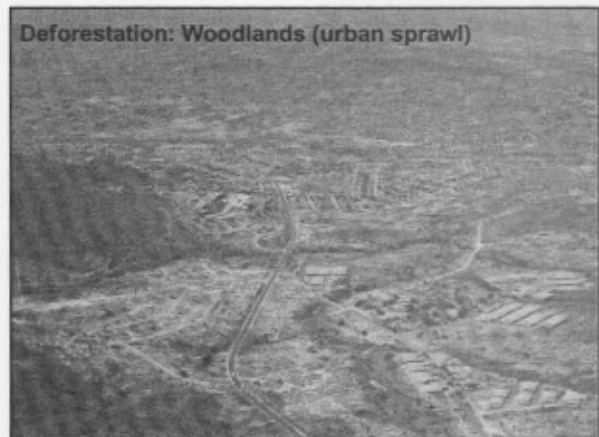
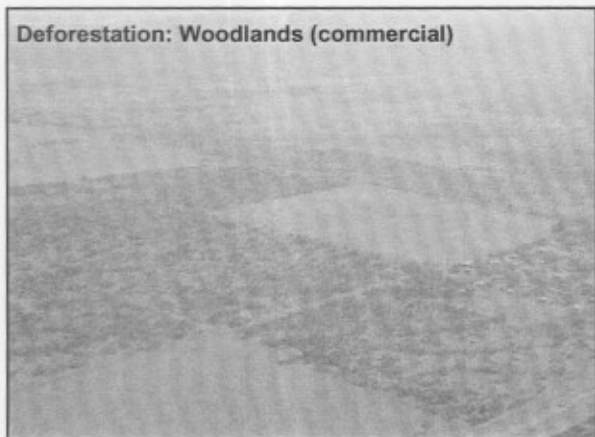
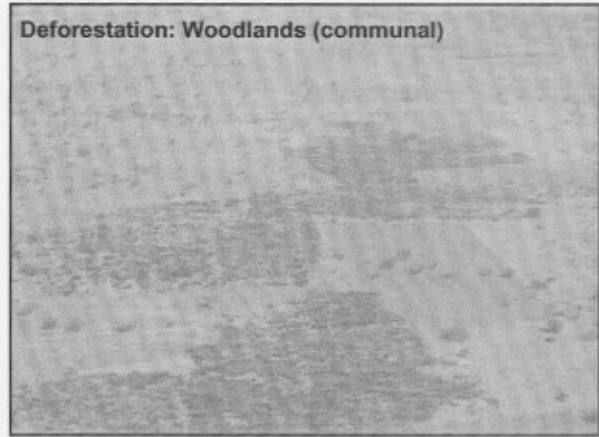
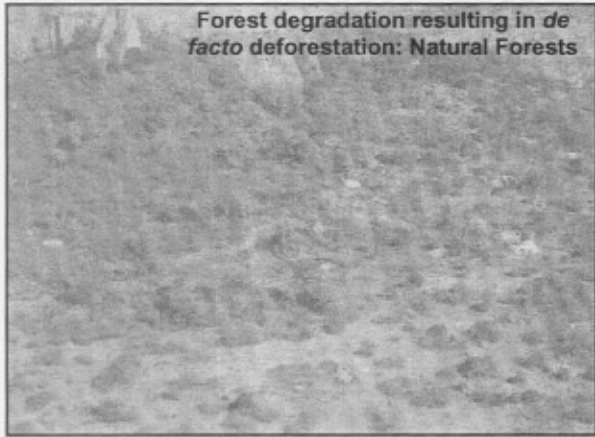
The 2°C concern: global temperature increase beyond this threshold will result in nett loss of carbon from natural systems – a vicious snow-ball effect

Image: Australian forest fires



Australian forest fires
early 2009





Conclusion – Main Messages

- **Natural carbon cycle:** Trees / forests play a key role
 - As carbon sinks – trees grow fastest when young and accumulate carbon as long as they are alive.
 - As carbon reservoirs – plant biomass accumulated over time occurs in various 'carbon pools' of the forest ecosystem. In plantations about 70% of above ground biomass is contained in stems
 - As sources – carbon is released through combustion and decay of forest biomass. This can make a substantial natural contribution to greenhouse gas emissions
- **Control deforestation / degradation:** The vast extent of woodlands in South Africa represent an important carbon sink and reservoir – maintain extent / vitality
- **Improved fire control** especially during Sep – Oct can enhance the uptake of CO₂ in woodlands
- **Reforestation / rehabilitation:** Substantial potential exist to revitalise degraded woodlands: – multiple co-benefits
- Fast growing **plantations** offer excellent carbon benefits

Part 2

Climate Change Negotiations

Main Themes in the Negotiations

- REDD = Reduce Emissions from Deforestation (and forest degradation) in Developing Countries
- LULUCF = Land Use, Land Use Change and Forestry
 - AFOLU (Agriculture, Forestry, Land Use)
- CDM – Clean Development Mechanism
 - Small Scale Afforestation / Reforestation

REDD

Main negotiation tracks:

- **AWG-LCA**
 - How forests fit into new global climate deal
- **AWG-KP**
 - Expansion of existing 'offset' mechanisms to include REDD
- **SBSTA**
 - Methodological issues, definitions, etc.

REDD

- Decision 2/CP13:
 - inclusion of forest degradation
 - agreement on "pilot projects"
- Copenhagen:
 - **REDD-plus:** Should other elements be added; e.g. forest conservation, enhancement of forest carbon stocks, SFM
 - **Technical definitions:** forests, degradation, SFM
 - **MRV:** Measurable, Reportable and Verifiable
 - Reference scenario / Baseline
 - **Funding:** market / fund for REDD compensation

Contentious issues

- Scope of REDD; REDD+
- Funding; REDD included in carbon offset market, CDM
- Issues around permanence and displacement of emissions
- Approaches / Methodologies for measuring and reporting deforestation and forest degradation
- Reference / Baseline