

REDD+ and opportunities for the *Thicket*

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Energy Research Centre



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Lots of acronyms

The IPCC 4th Assessment Report identified

three broad categories for **mitigation of GHGs**:

1. Reducing emissions

2. Avoiding (or displacing) emissions

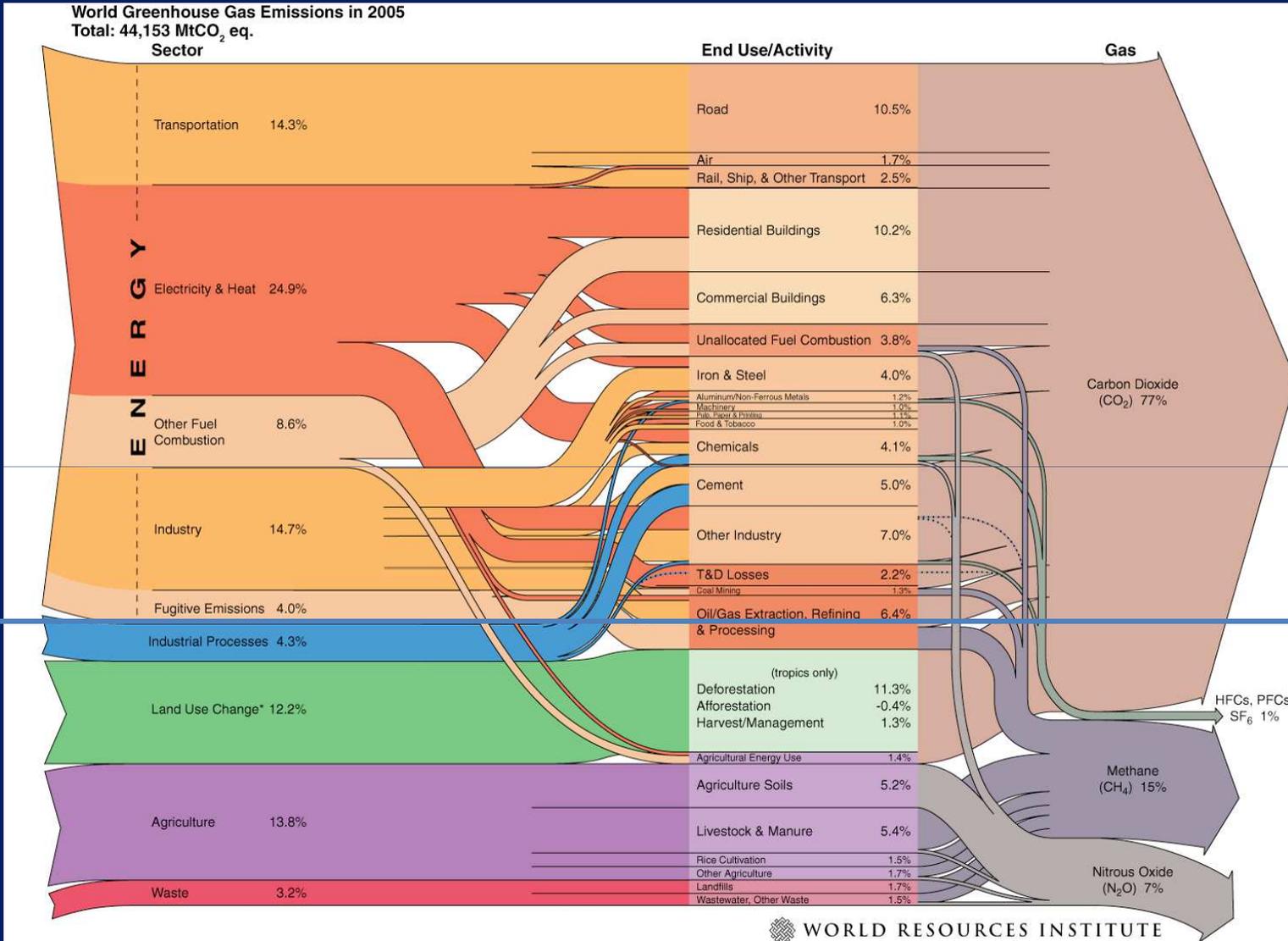
1. Removing emissions – sinks

Global GHG emissions – 2005

World Greenhouse Gas Emissions in 2005
Total: 44,153 MtCO₂ eq.

Energy

Non-energy



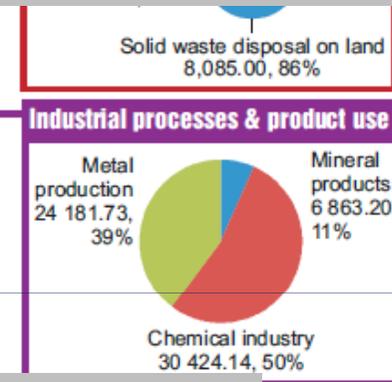
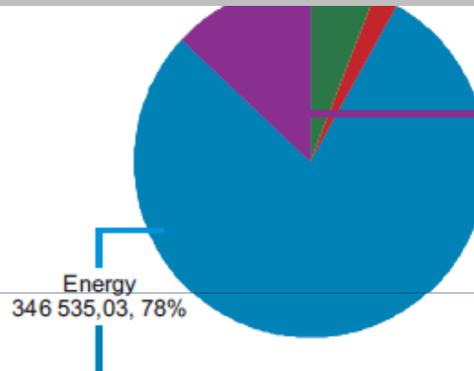
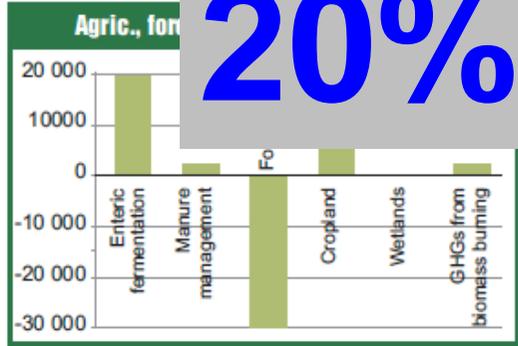
66%

34%

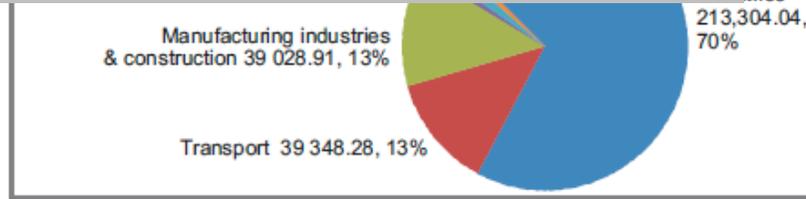
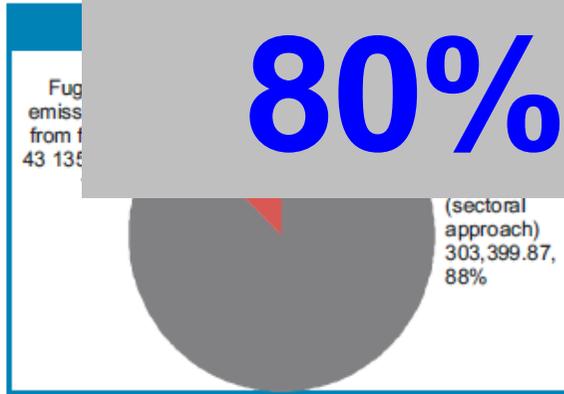
Source: WRI

SA emissions by sector 2000 – 2009

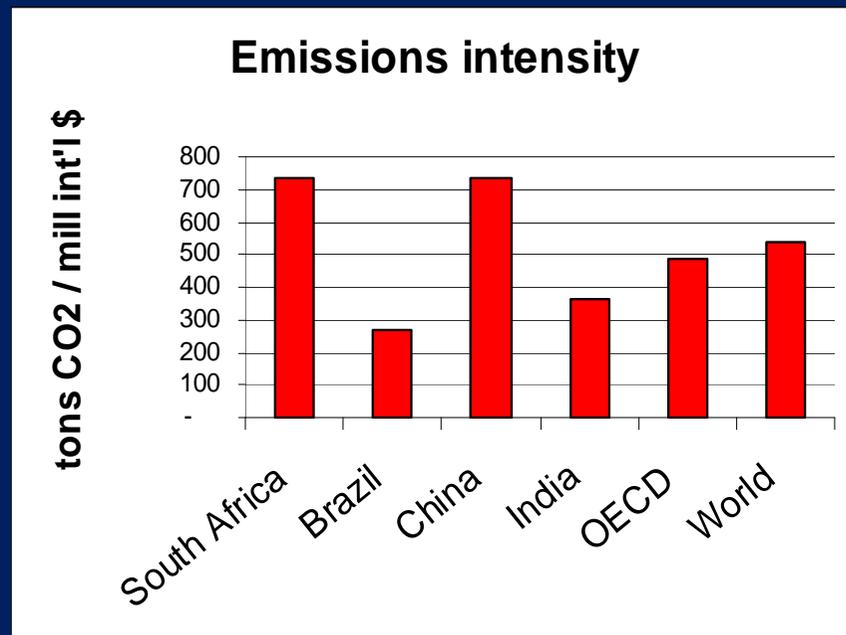
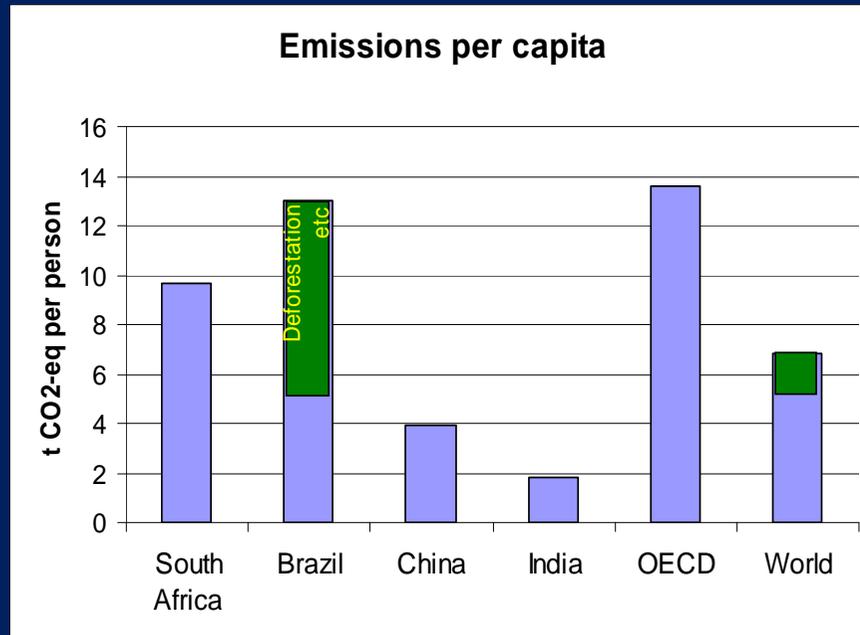
20% - non-energy



80% - energy

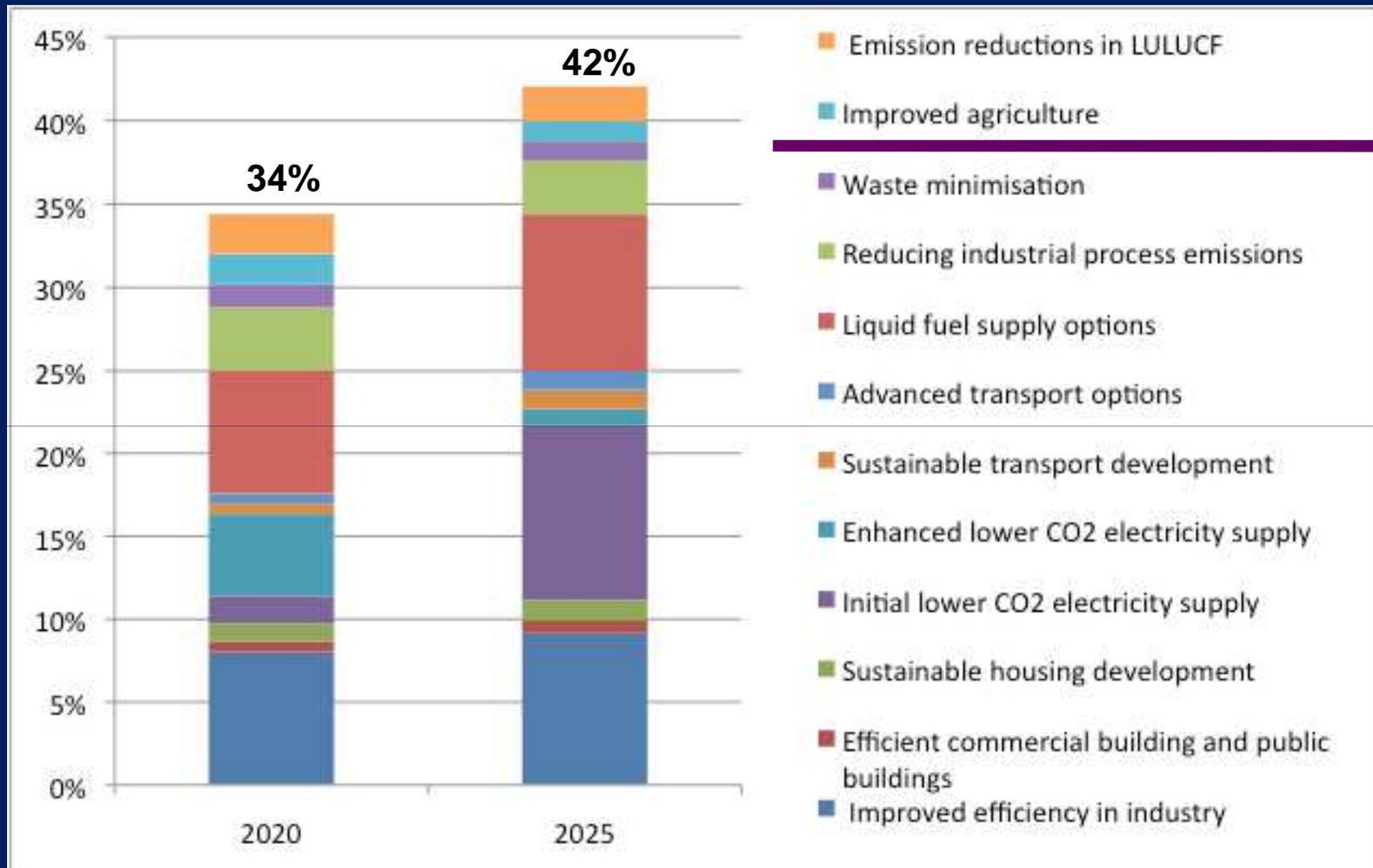


SA compared to other countries

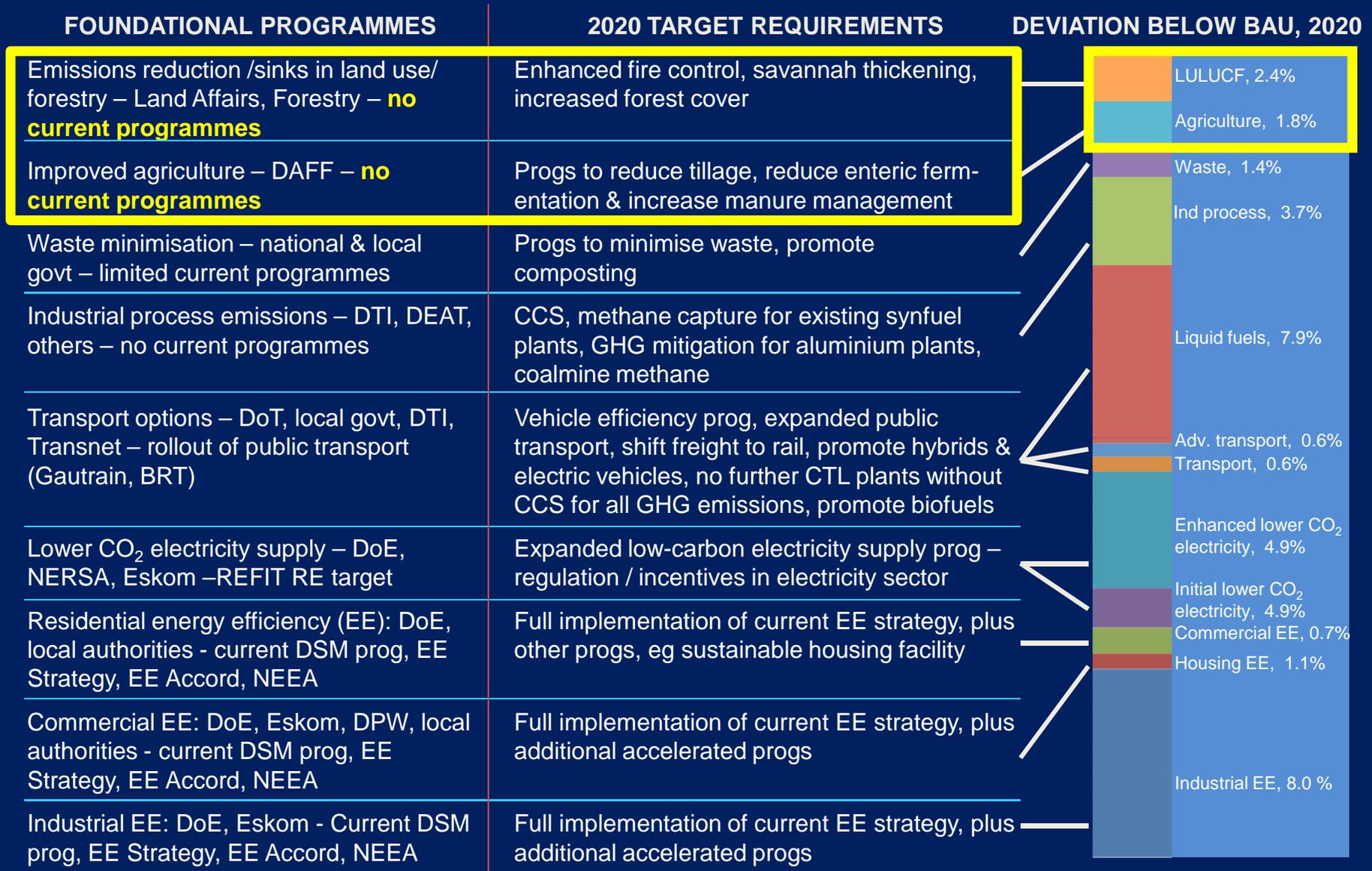


- Relative to the size of our population, **emissions 'per capita' are high**
- Also high **Emissions-intensity** due to **dependency on coal** and **inefficient use of energy**

SA pledge to deviate below BAU



HOW SA will meet its GHG reduction targets

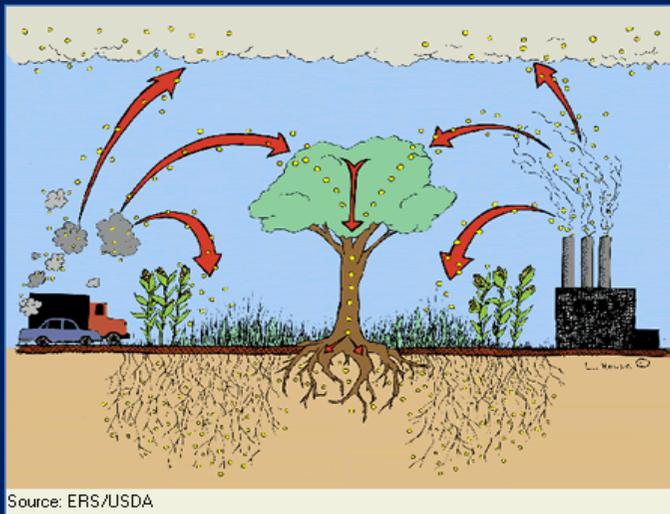


FORESTS and CLIMATE CHANGE

1. 50% of dry wood is carbon by weight
2. Trees continuously capture and store carbon
3. World's forests store 289 gigatonnes (Gt) of carbon (about 45 % of global terrestrial carbon) in their biomass alone. FRA 2010



Process

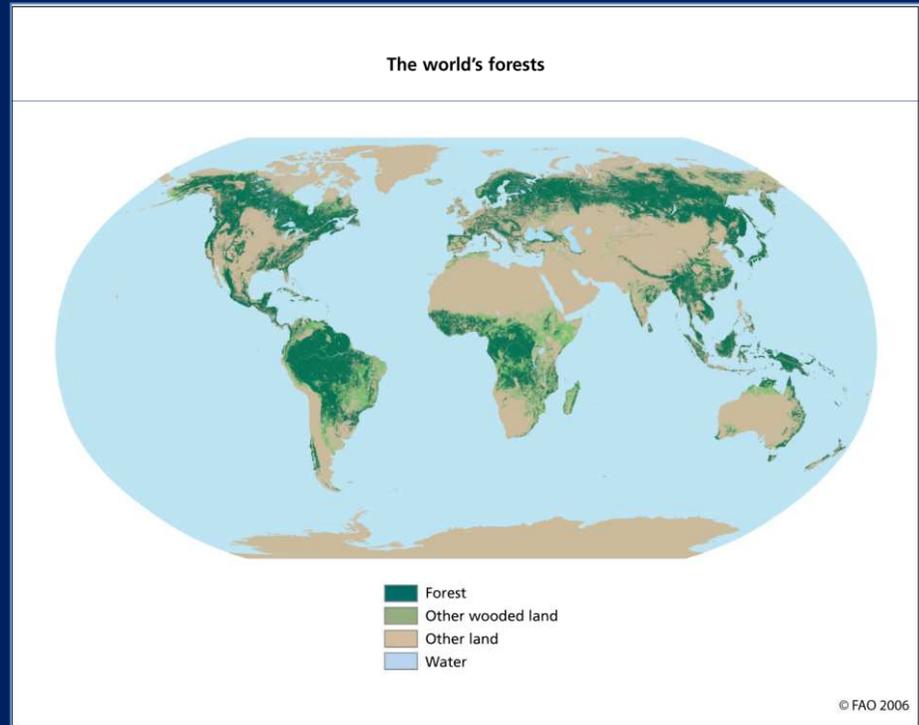
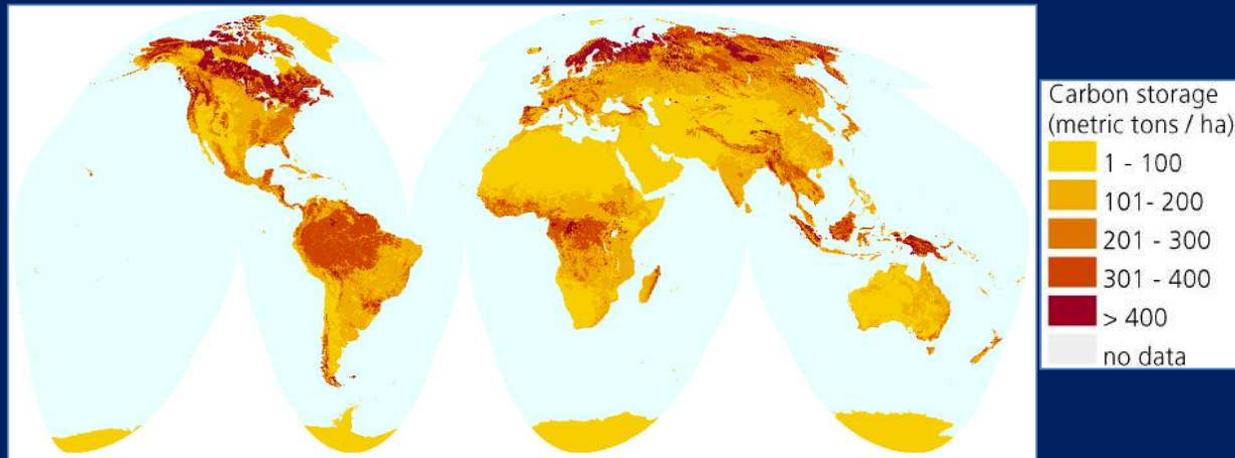


Source: ERS/USDA

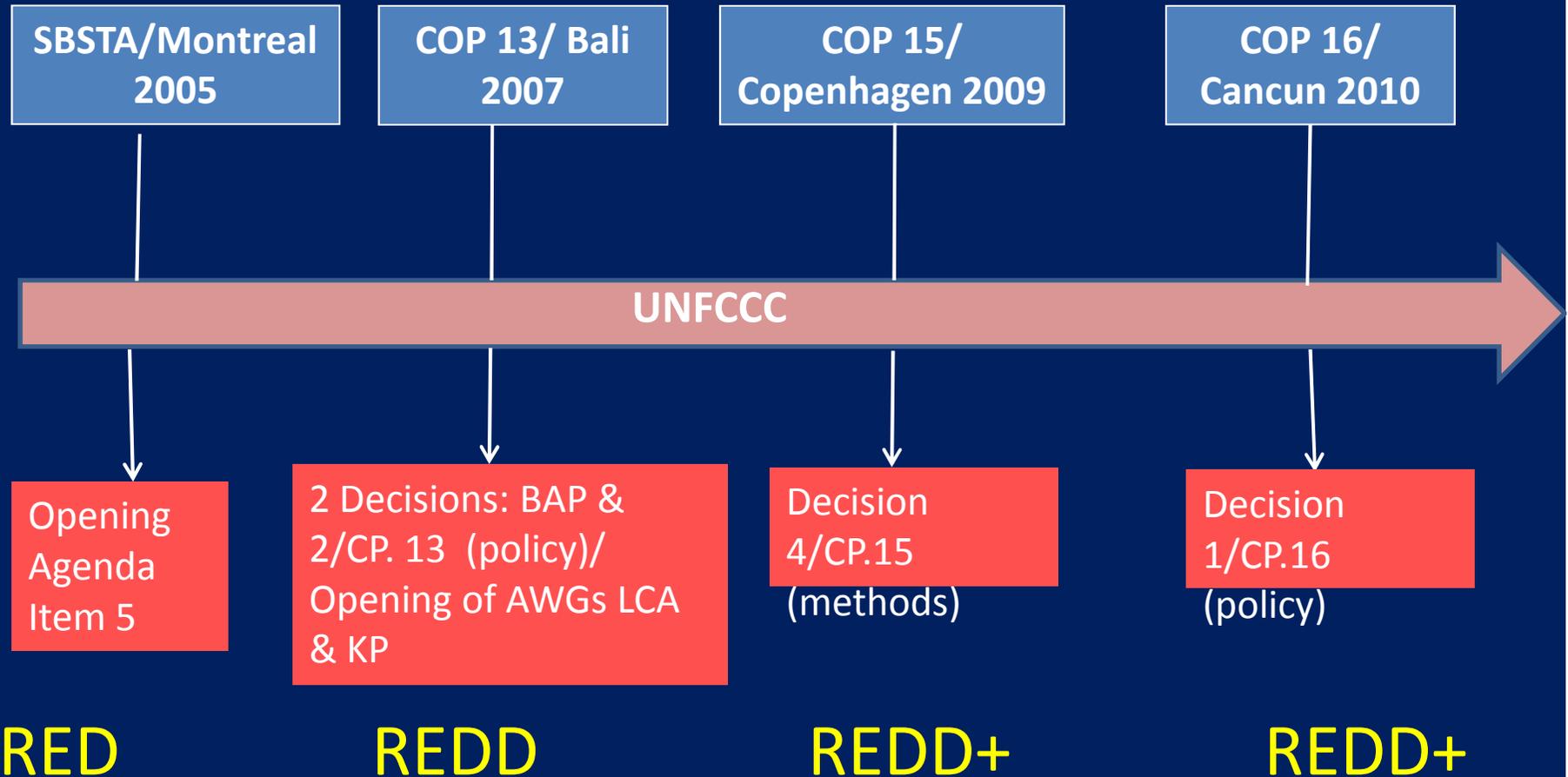


Carbon Sequestration – the natural mechanism whereby trees and plants, through **photosynthesis** process, **capture** carbon dioxide from the atmosphere and **store** it in their biomass and in soils.

Global Carbon Storage in Above- and Below-Ground Live Vegetation and Soils



The REDD+ evolution under UNFCCC



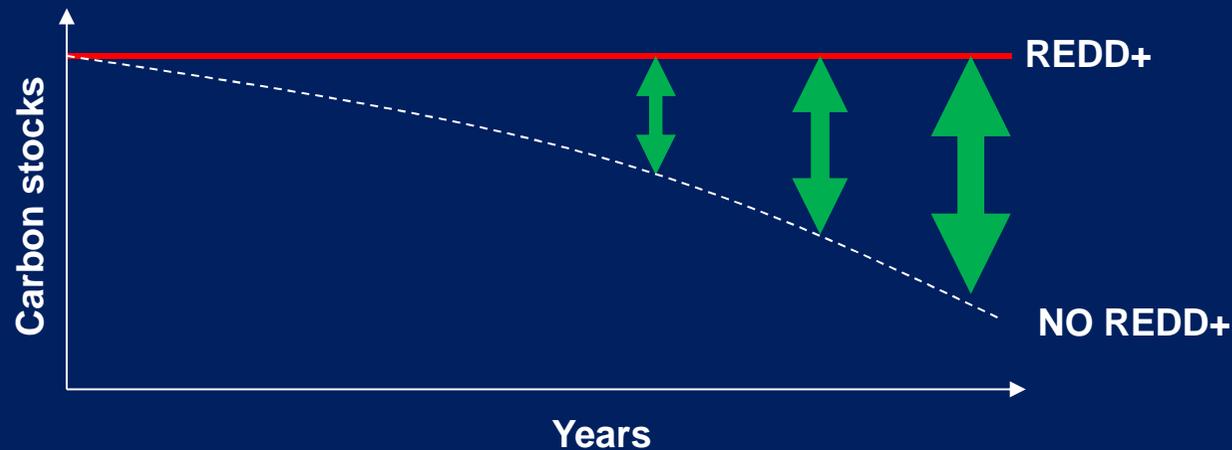
The REDD+ concept!



High Carbon stocks



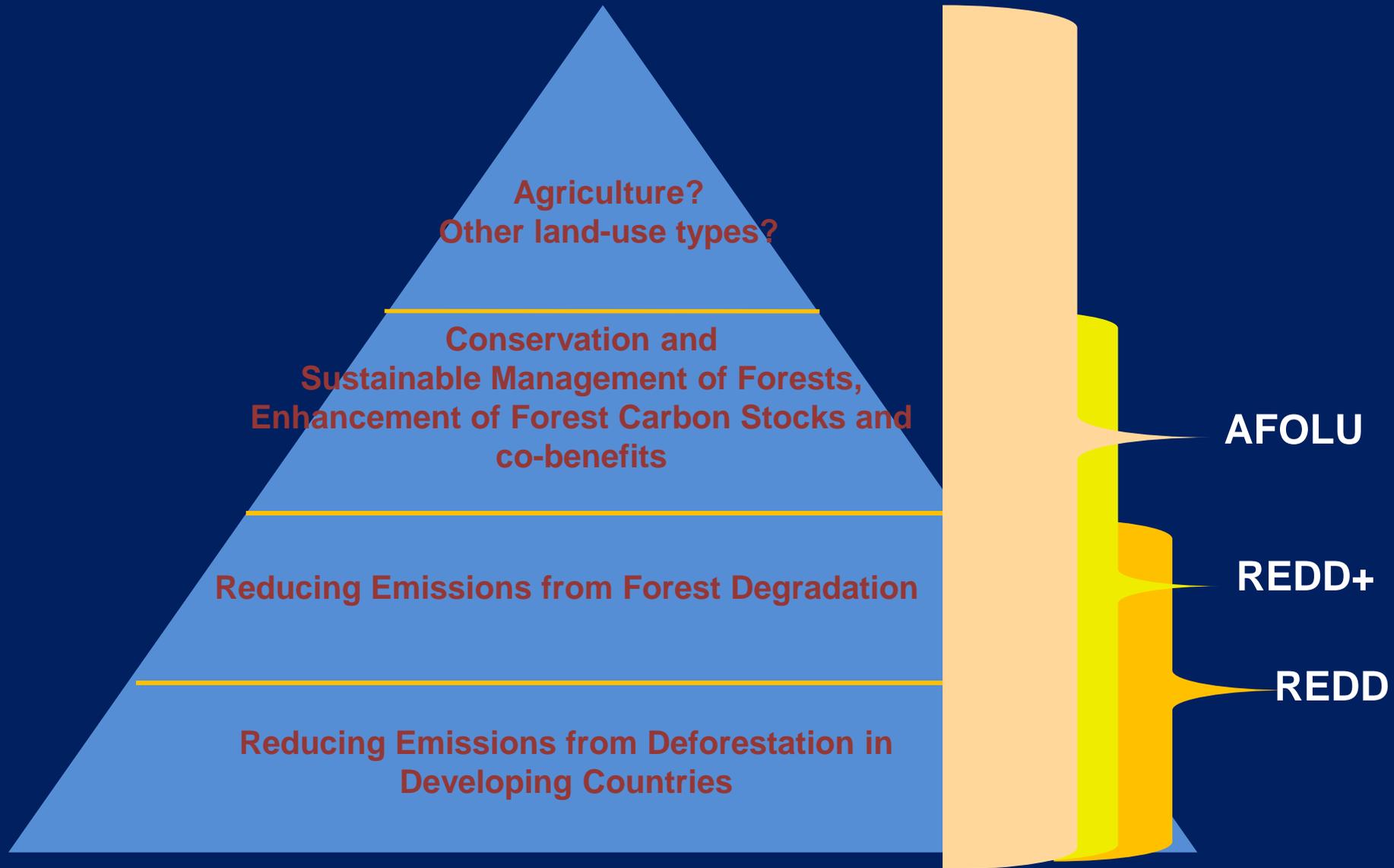
Financial mechanisms that make retention of **forest economically competitive**



- Projects get credits for the **emissions that were avoided** by conserving the forest
- Emphasis is on **INCENTIVES** for conserving and maintaining existing C-stocks



REDD+ Scope – what will be paid for!



Forest definitions

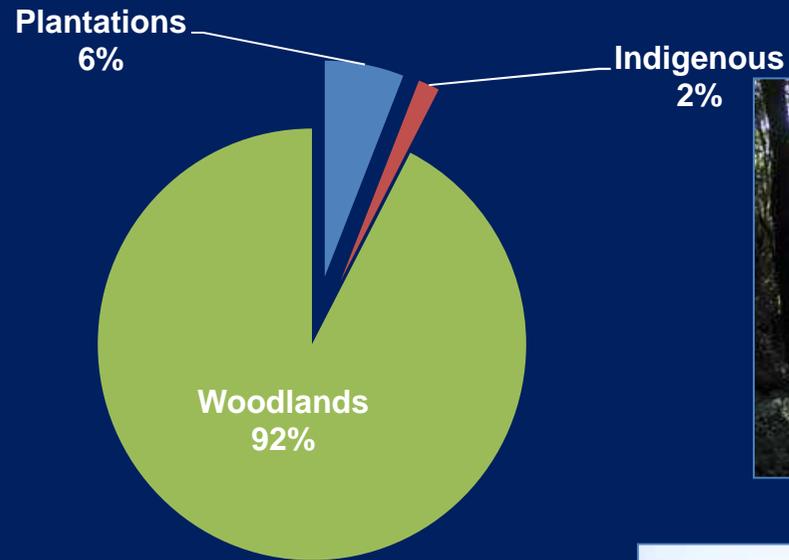
UNFCCC – Marrakesh Accords (2001) after FAO

defines a “forest” as a “single minimum tree *crown cover* value between *10 and 30 percent*; and a single minimum *land area* value between *0.05 and 1 hectare*; and a single minimum *tree height* value between *2 and 5 metres*”

South Africa – National Forests Act (1998)

forests include all *woodlands, thicket, plantations* as well as *indigenous forests*, and *forest products produced* from it.

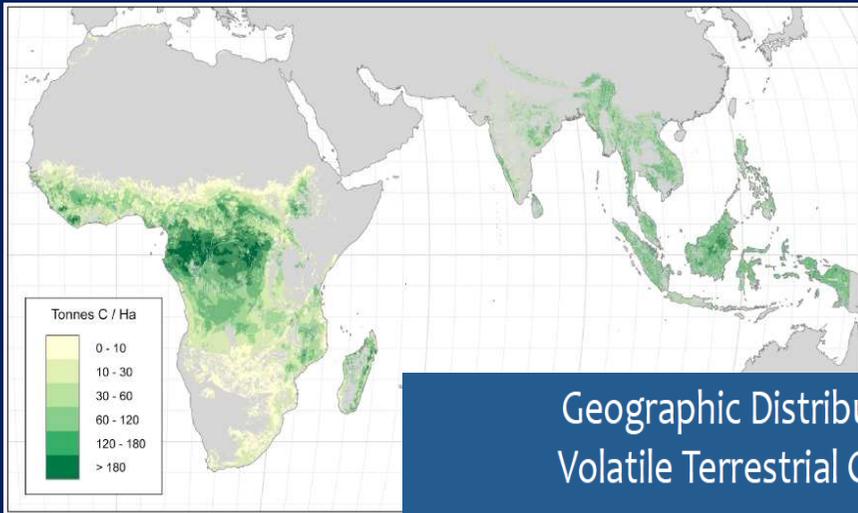
SA forest resources



Woodlands include **savanna** and **Albany thicket** biomes of SA

Forest type	Area (million ha)	% land area of SA
Indigenous/Natural Forests	0.5	0.5
Plantations	1.2	1.1
Woodlands/Savannas	42	35

Carbon (tonnes C) in S.Africa



Gibbs *et al.* 2007

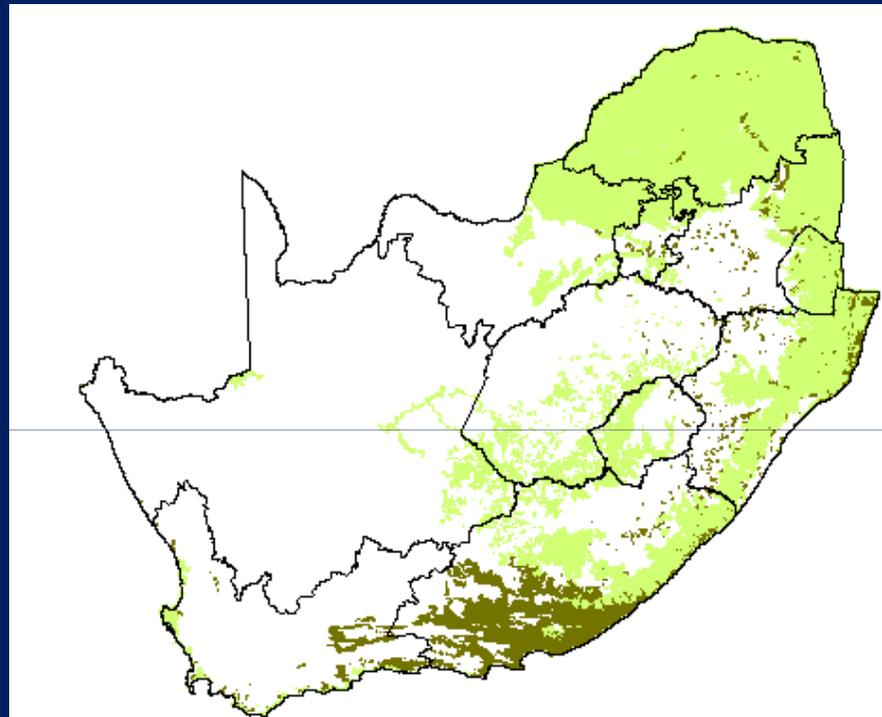
Geographic Distribution of Volatile Terrestrial Carbon*



Top 10 Volatile Forest Carbon	GtC	Top 10 Volatile Non-Forest Carbon	GtC
Brazil	86.9	Brazil	19.3
Democratic Republic of Congo	39.2	China	19.1
Indonesia	27.3	India	10.8
China	18.1	Indonesia	10.4
Peru	14.8	Argentina	9.4
Angola	12.3	Mexico	7.8
Colombia	11.8	Sudan	6.8
Bolivia	10.0	Kazakhstan	6.7
Mexico	9.5	Democratic Republic of Congo	4.1
Venezuela	8.5	South Africa	4.1
Total Top 10	238.3	Total Top 10	98.5
Total All Non-Annex I Countries	363.7	Total All Non-Annex I Countries	207.1
Top 10 as % of all	66%	Top 10 as % of all	48%

* Carbon that would be emitted in the event of land use change => 100% vegetation & 25% soil

Carbon sequestration potential

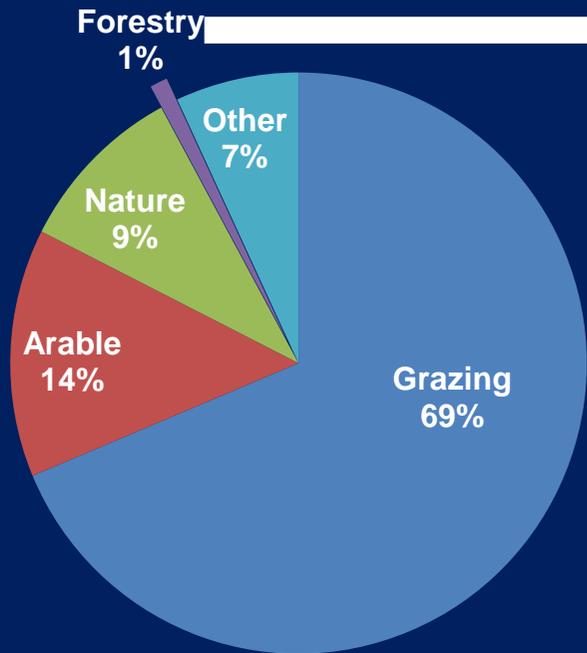


~ 200 t C ha⁻¹ — Mills et al 2003, 2005, Skowno 2003

~ 87.73 ± 6.51 t C ha⁻¹ (Baviaanskloof) — Powel 2009

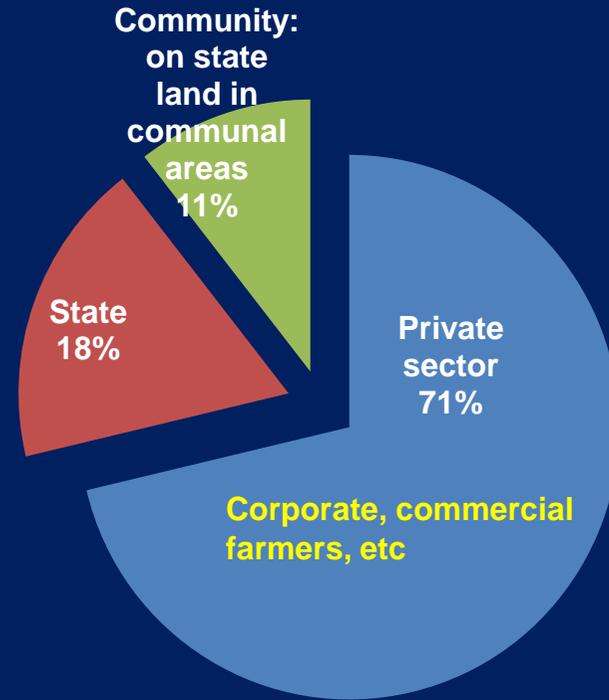
...some important challenges!

Land use

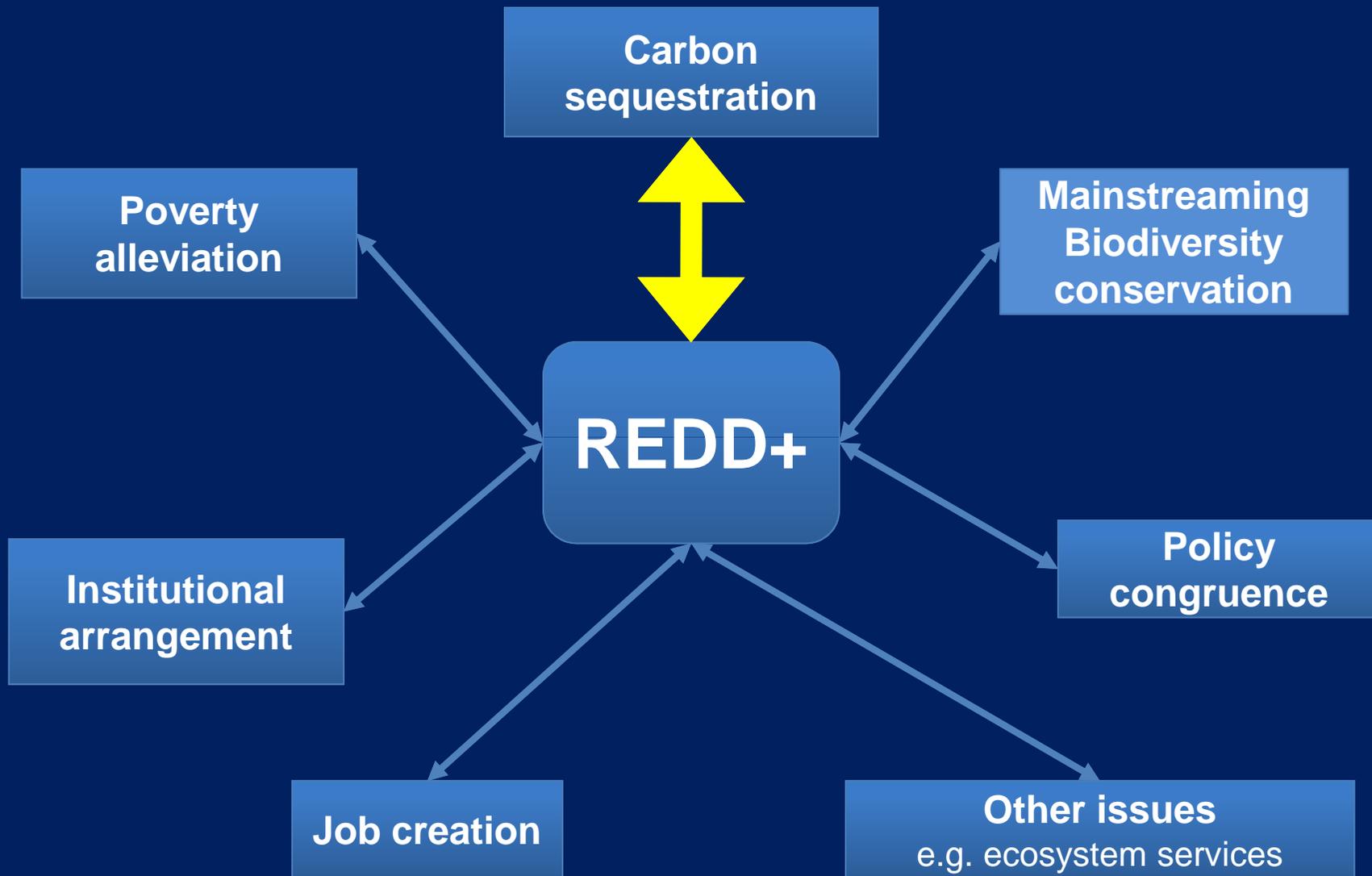


122.3 million ha

Forest ownership



1,3 million ha



National Climate Change Response

– White paper – October 2011

- Section 5.3.1 – integration of **agriculture and forestry** into **climate resilient rural development planning** to address:
 - Job creation, food security and livelihoods
 - Mitigation-adaptation synergisms
- Section 6.3 - **Mitigation from AFOLU** – short to medium term response
- Section 8.1 – Expanded Public Works Flagship Programmes –
 - e.g. **Thicket restoration through re-planting of Spekboom**

Conclusions

- **Emissions** from deforestation since 1990s at 5.8 GtCO₂/yr (IPCCC, WGI, AR4)
- REDD: **forest mitigation** option with largest and most **immediate C stock impact** (IPCC WGIII, AR4)
- **20% of the problem** must become **20% of the solution**
- REDD+ provides **multiple benefits** beyond carbon sequestration, addressing **poverty, job creation** and **biodiversity conservation**
- In SA – the Thicket – **highest sequestration potential** – model for REDD+ ???

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