Bioenergy –

modern option with multiple benefits

… and challenges

Semida Silveira, Prof Energy Systems Planning
Head of Division Energy and Climate Studies
Director International Affairs - Brazil
KTH - Royal Institute of Technology

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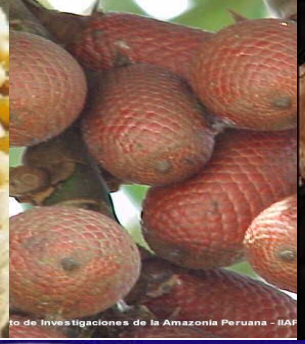
The energy reality of many African countries

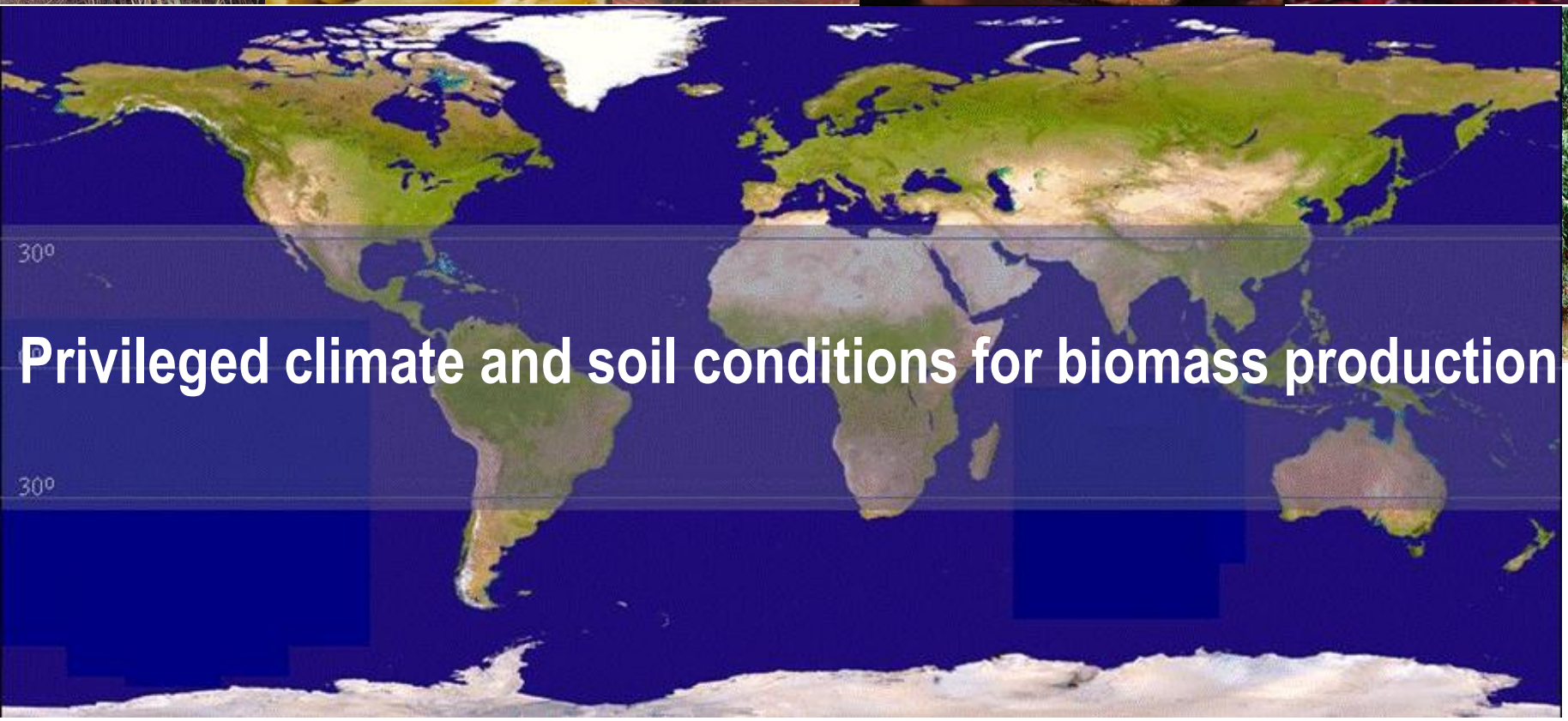
Income and final energy consumption per capita in developing countries – typical trend

Source: WEO 2010.






Privileged climate and soil conditions for biomass production

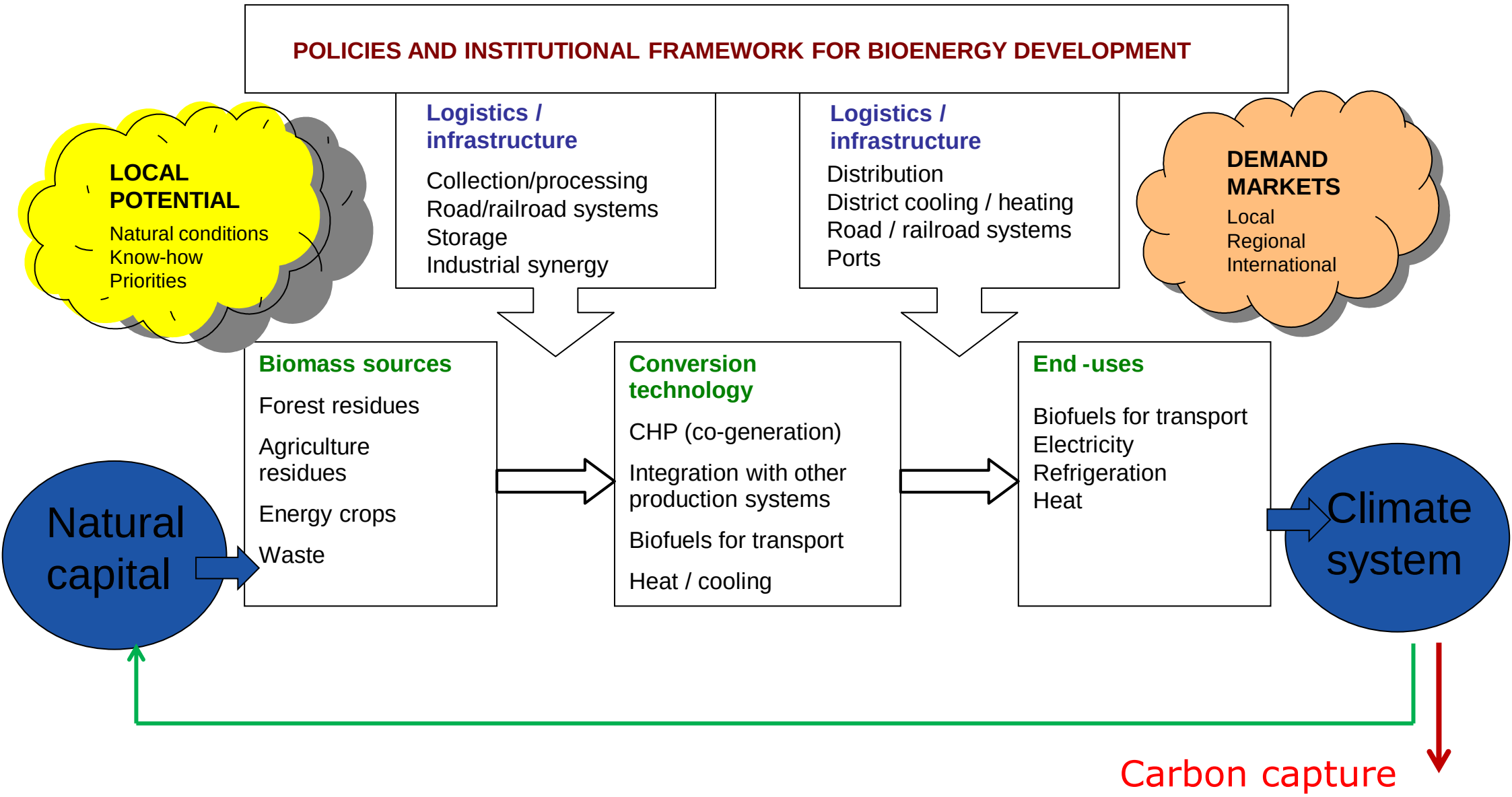




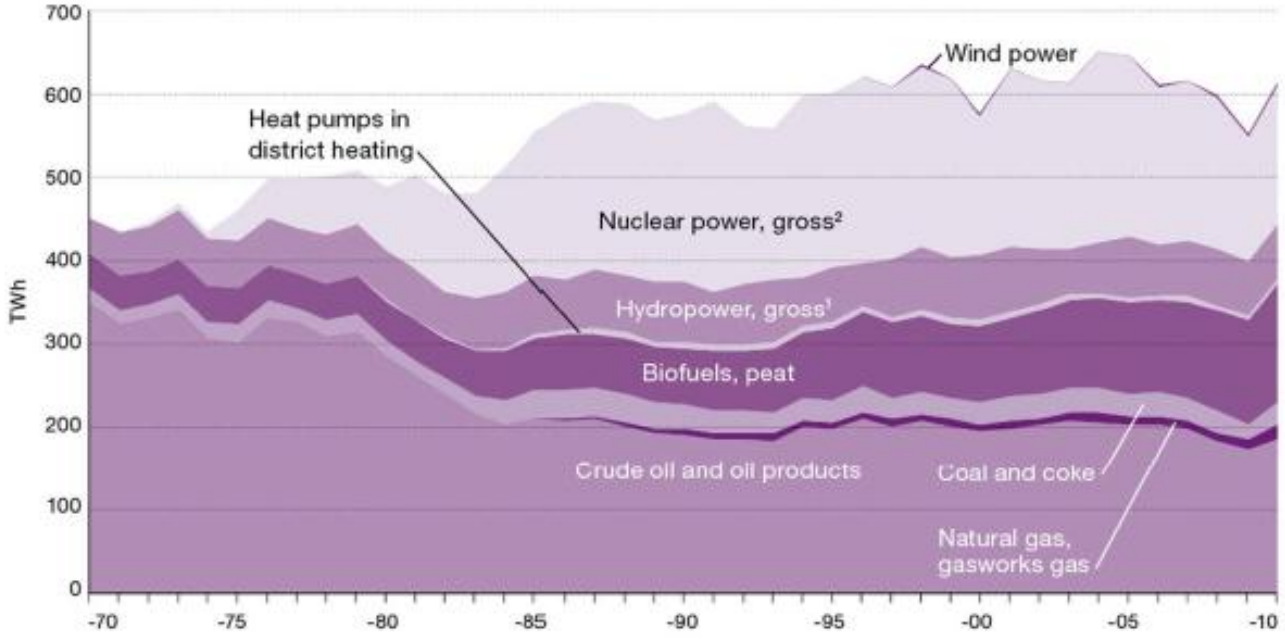




Sizing the bioenergy potential along the chain



Total energy supply in Sweden 1970-2010, in TWh

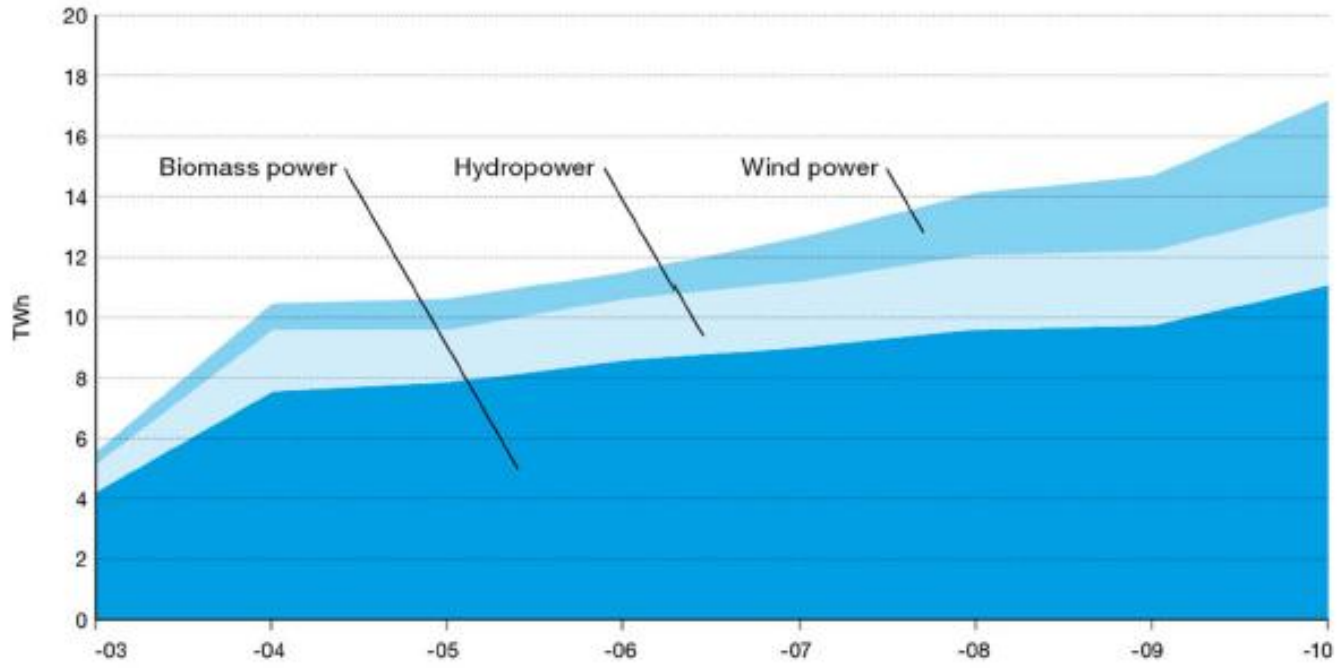


Source: Swedish Energy Agency and Statistics Sweden.
Note: 1. Including wind power up to and including1996.
2. In accordance with the method used by UNECE to calculate the nuclear fuel energy input.

Energimyndigheten

616 TWh supply - 411 TWh useful energy

Renewable generation in electricity certificate system in Sweden 2003-2010, in TWh



Source: Swedish Energy Agency.

Energimyndigheten

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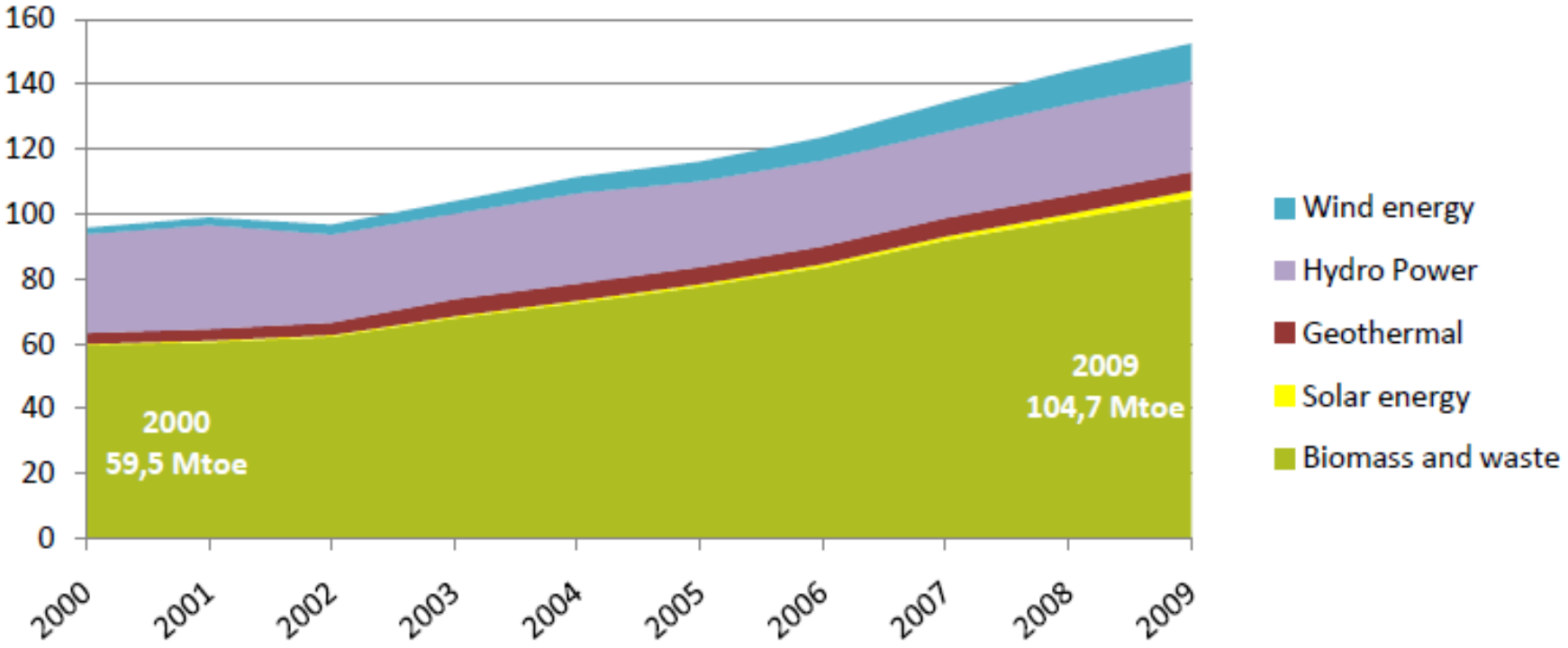
Renewables in the EU27, 1995-2008 (Mtoe)



Source: Eurostat

Present EU biomass potential (ktoe)

per category

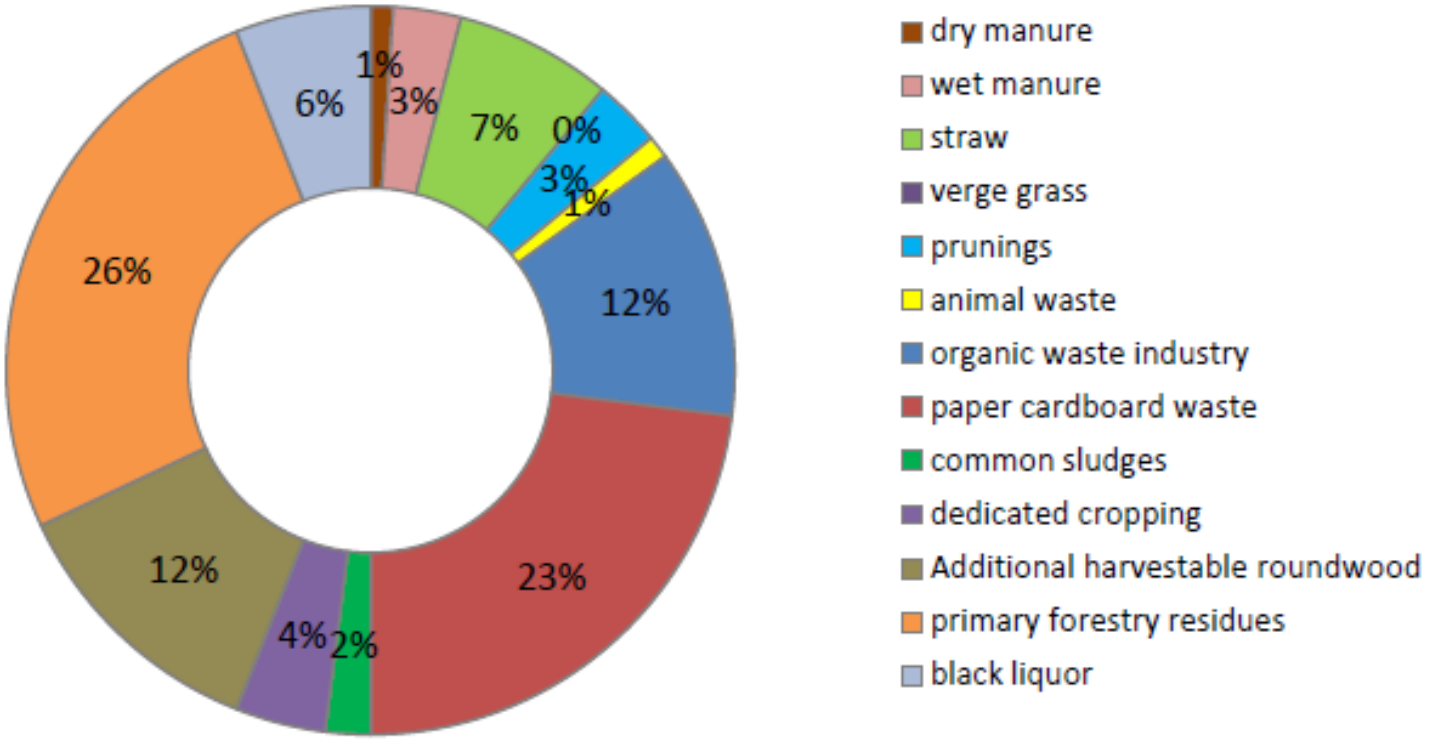
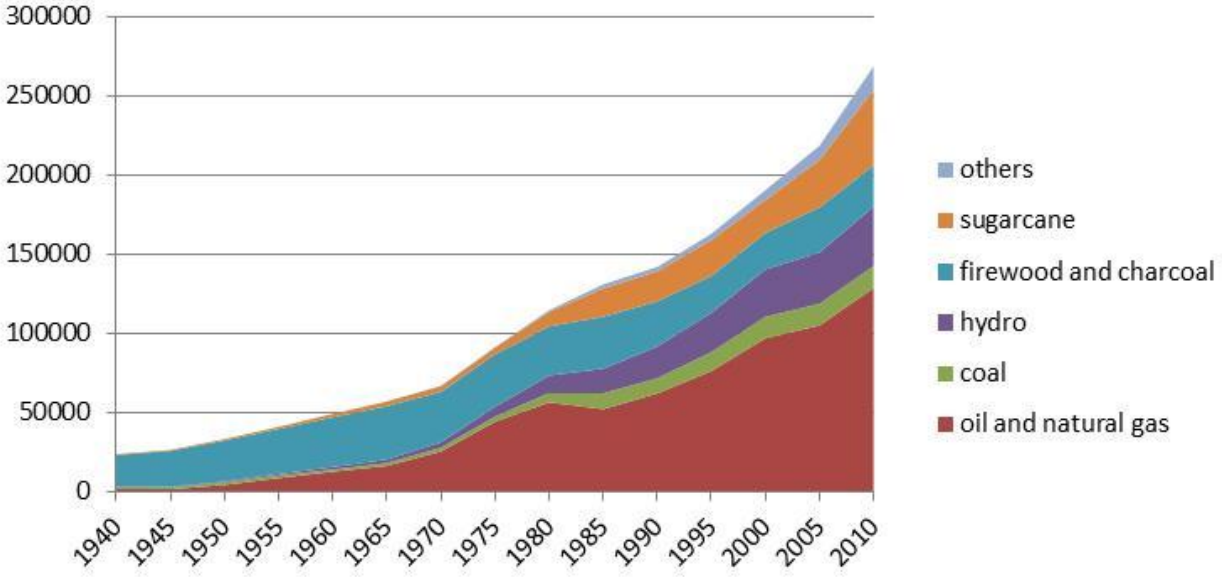


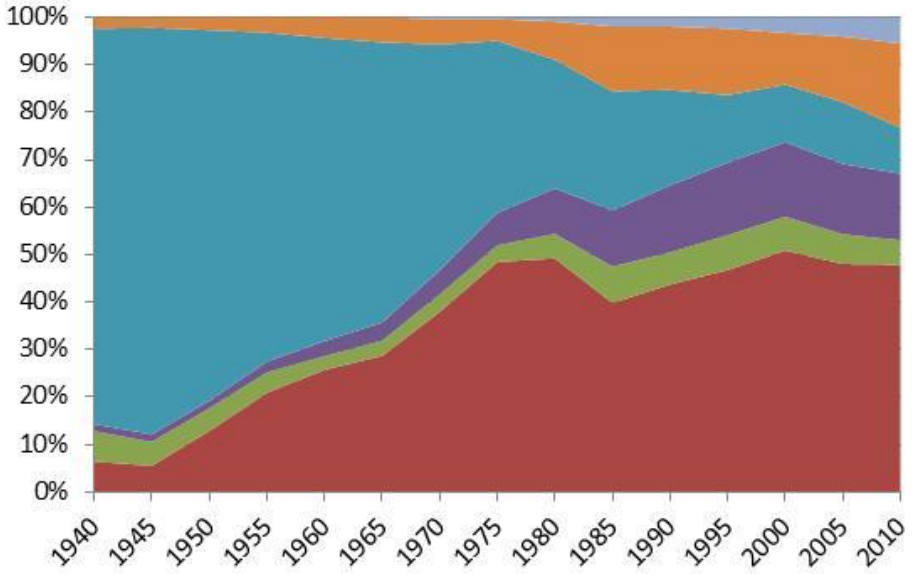
Table 4.3 Utilised Agriculture Area per holding in 2007

	UAA per holding in 2007 (ha)
EU 27	12.6
Austria	19.3
Belgium	28.6
Bulgaria	6.2
Cyprus	3.6
Czech Republic	89.3
Denmark	59.7
Estonia	38.9
Finland	33.6
France	52.1
Germany	45.7
Greece	4.7
Hungary	6.8
Ireland	32.3
Italy	7.6
Latvia	16.5
Lithuania	11.5
Luxembourg	56.8
Malta	0.9
Poland	6.5
Portugal	12.6
Romania	3.5
Slovak Republic	28.1
Slovenia	6.5
Spain	23.8
Sweden	42.9
The Netherlands	24.9
United Kingdom	53.8

Source: AEBIOM 2011

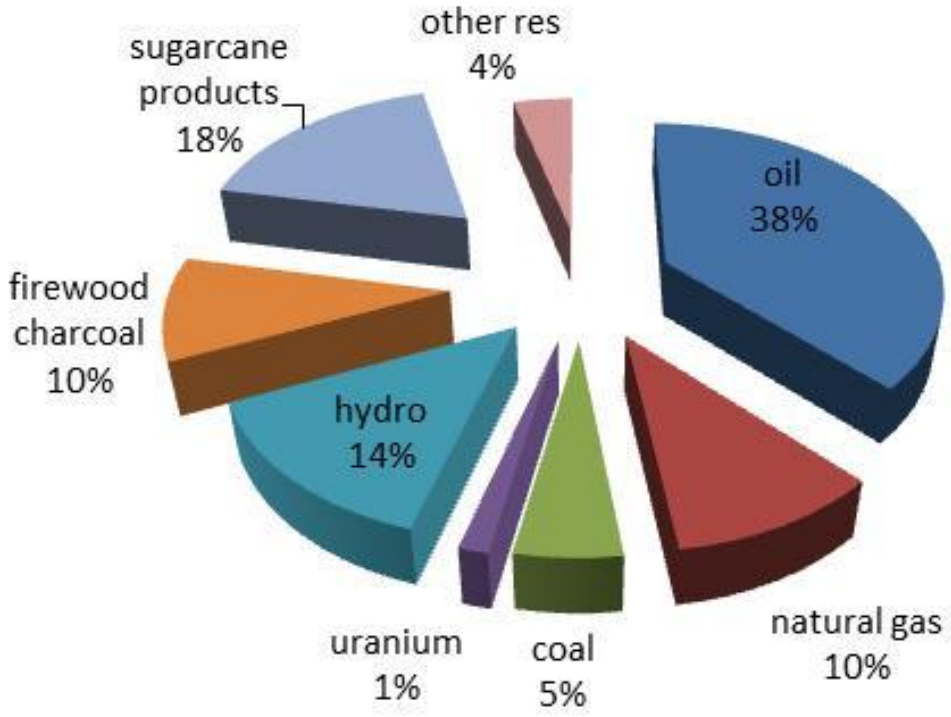
The Brazilian energy matrix 1940-2010 (in 10^3 toe)





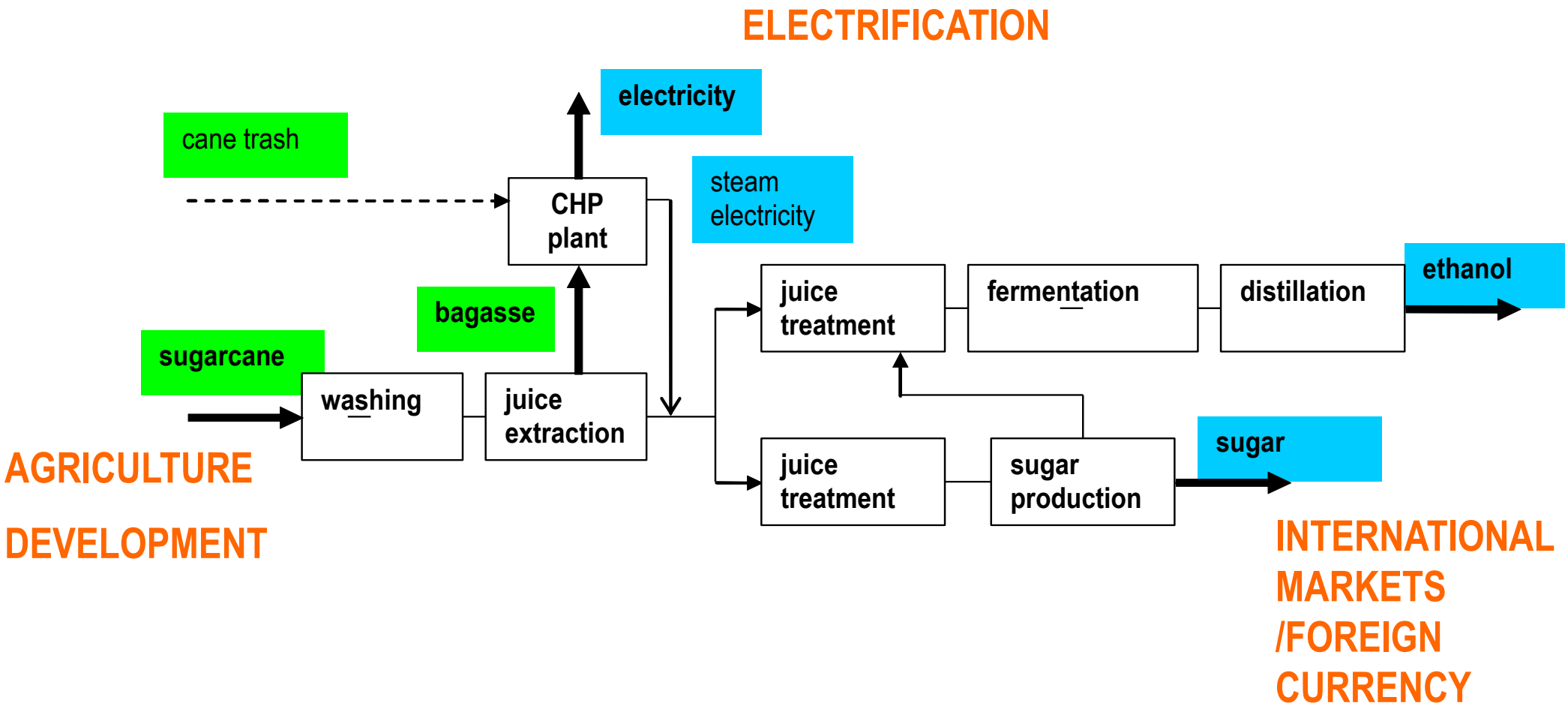
Source: EPE, 2011

Primary energy supply in Brazil 2010 by primary source

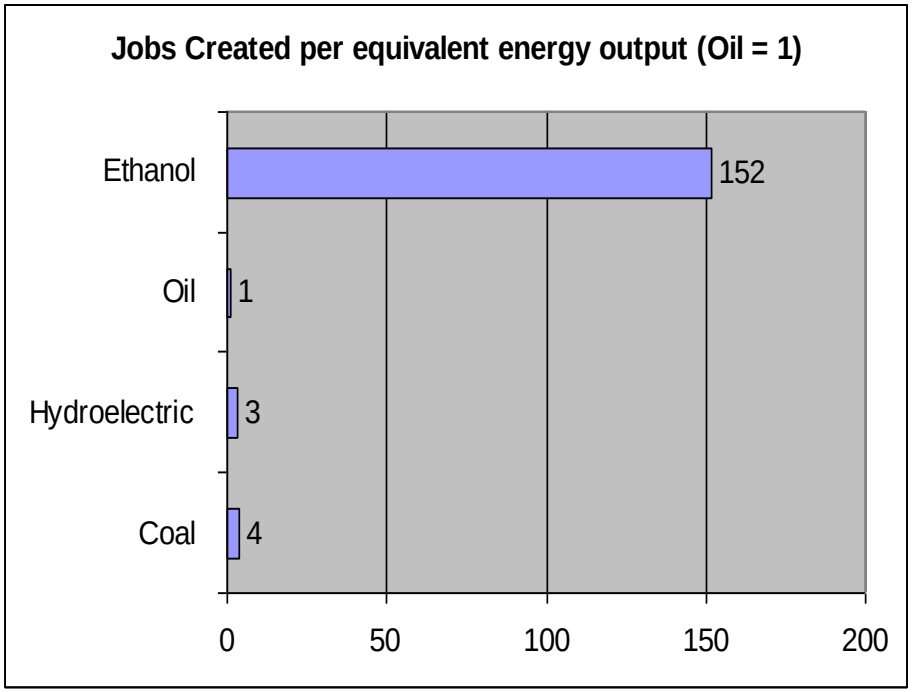


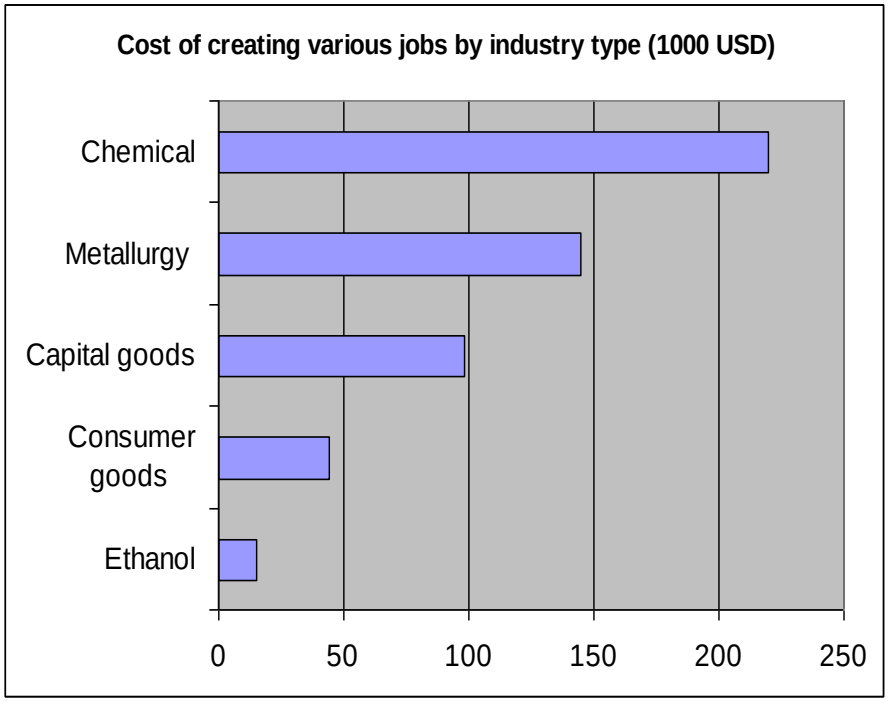
Source: EPE, 2011

Brazilian sugar-ethanol production model



Creating jobs through energy provision (the example of Brazil)

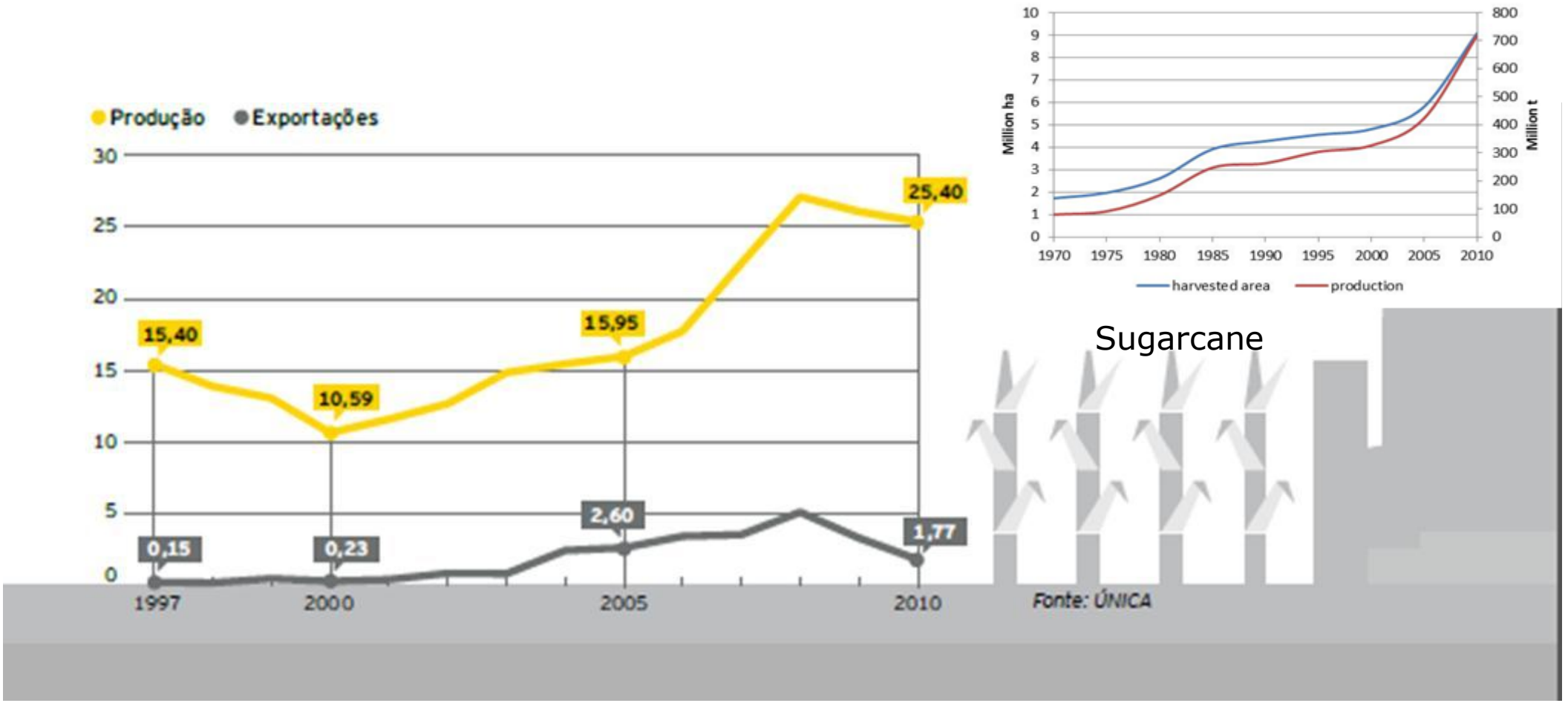




Source: Goldemberg, Jose (2002)

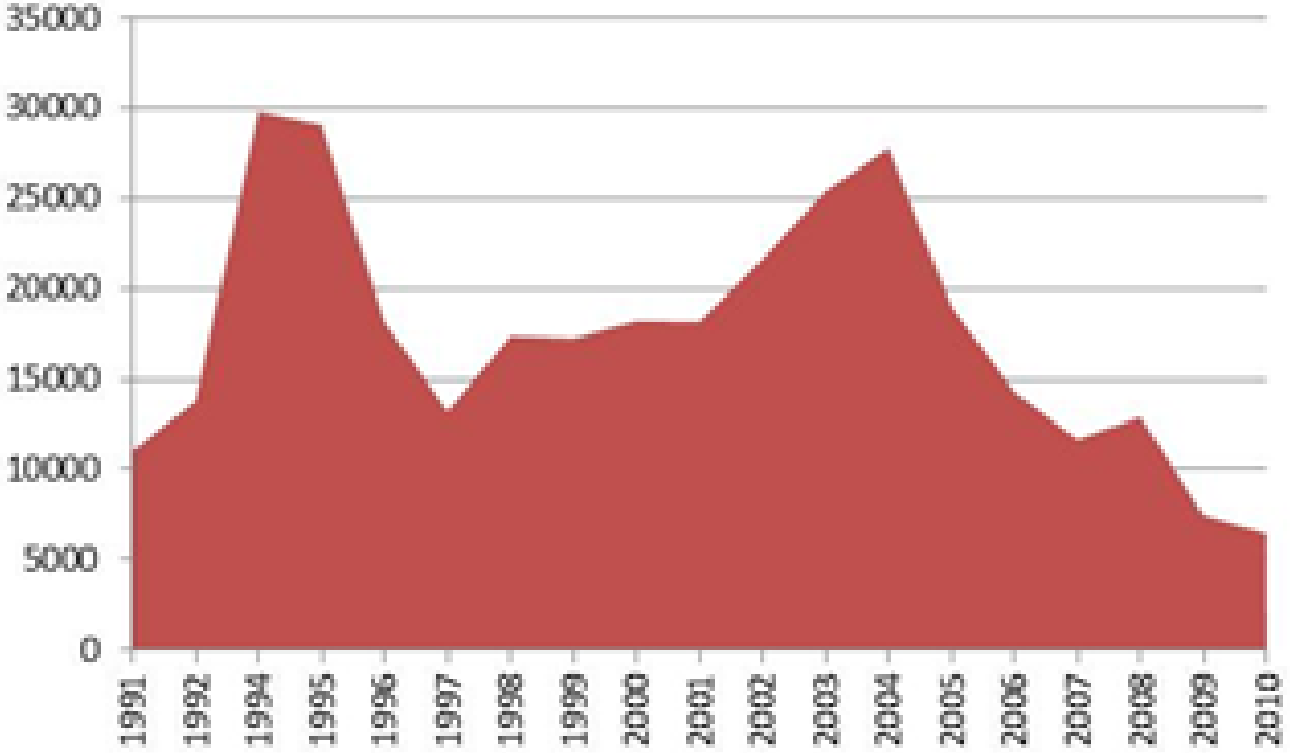
Production and exports of etanol

1997-2010 Billions of litres



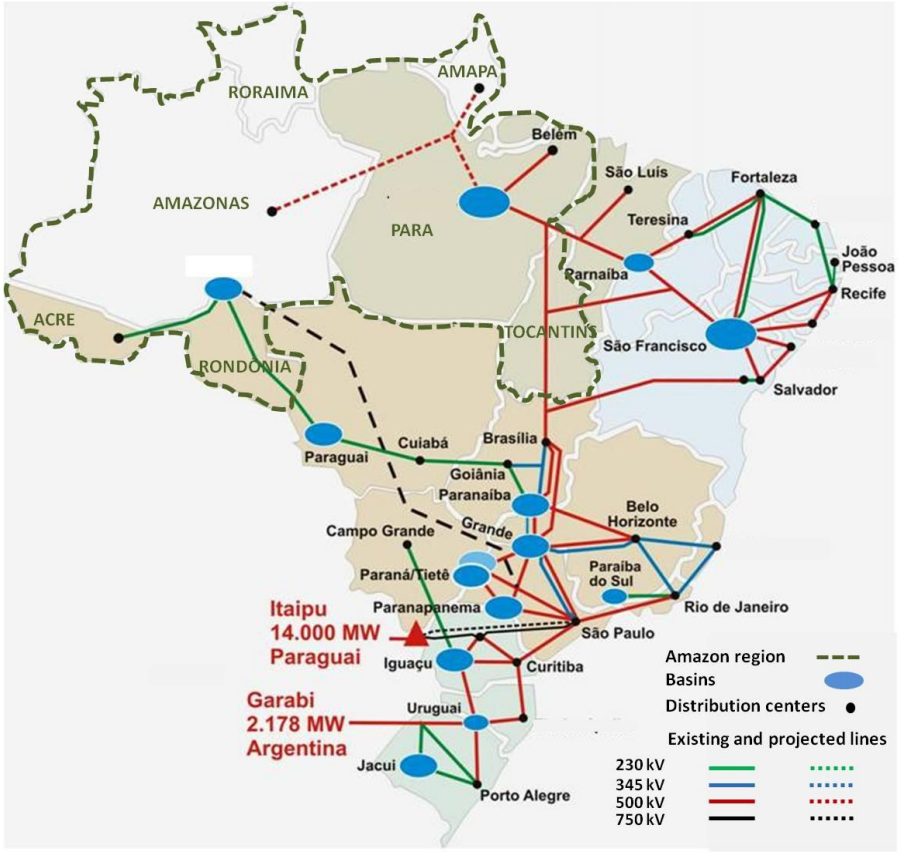
Sugarcane

Deforestation in the Brazilian Amazon 1991-2010, in km^2

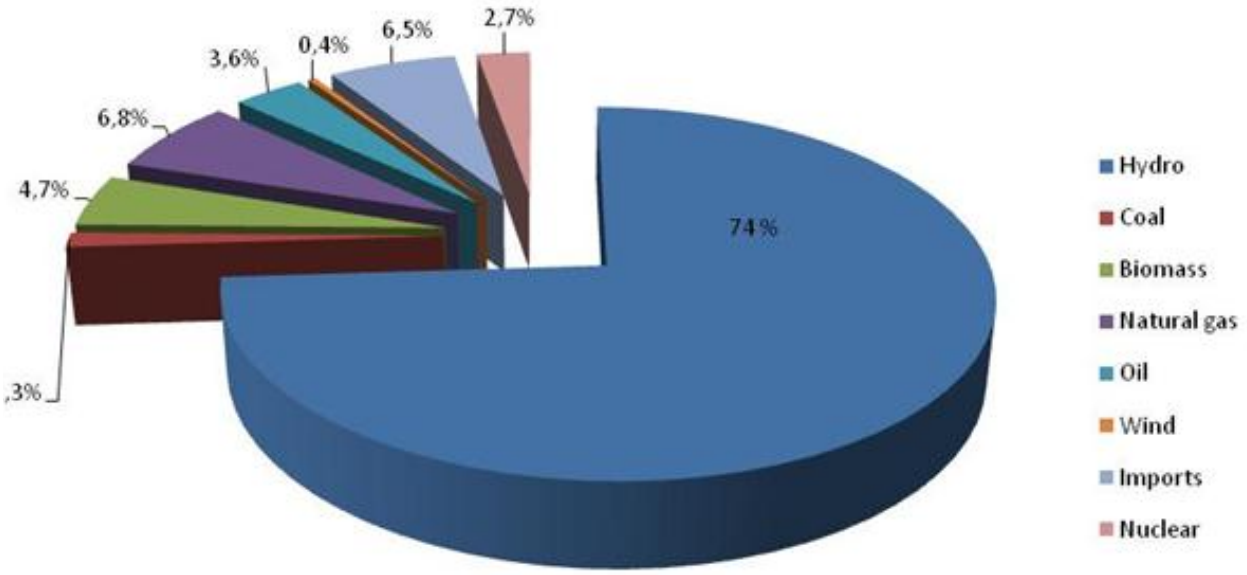


Source: IBGE, 2011

Brazilian domestic electricity supply 2010



Source: ONS 2010



Source: EPE 2011

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Modern bioenergy – a tool for poverty reduction

- biomass widely available in many developing countries
- can deliver all the major forms of energy at any time
- offer synergy with other sectors (e.g agriculture)
- can be carbon neutral and act as carbon sink
- can help restore unproductive degraded lands
- promote rural development (job and income generation, electrification)
- value-added more easily retained locally
- allow for reduction of fuel imports (improved trade balance)

Sizing the bioenergy opportunities: challenges ahead in Africa

- Evaluation of resource base and potential (i.e. land issues)
- Adaptation of technologies to local resources and conditions
- Policy framework to promote biomass-based projects
- Logistics to promote modern bioenergy – from agriculture to energy, environment and climate policy
- Multi-sectoral coordination: (i.e public, private, donors) and industries (i.e.forestry, agriculture)
- Methodologies to evaluate multi-sectoral synergies and trade-offs

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Questions to be addressed by the African Bioenergy Platform

- How can we develop sustainable bioenergy systems in Africa observing multi-sectoral synergies?
- What are the solutions that will lead to mitigation and adaptation to climate change while also promoting sustainable development?
- How can the development of bioenergy in Africa be supported by the global climate policy frameworks?