



Impacts of the World Summit on Sustainable Development in Johannesburg on the Future of Bioenergy

LAMNET – LATIN AMERICA THEMATIC NETWORK – 3rd workshop
Suani Coelho – CENBIO - Oswaldo Lucon
J. Goldemberg – State Secretary for the Environment of São Paulo State
Brasilia, December 2002

(CENBIO)



Urban and Rural Residues



CENBIO

CENTRO NACIONAL DE REFERÊNCIA EM BIOMASSA



Briquettes



Vegetable oils



Sugarcane



Wood and charcoal

MISSION: To promote the development and the efficient use of biomass as energy source in Brazil.

E-mail: cenbio@iee.usp.br

Homepage: www.cenbio.org.br





WSSD 2002

- Aug 28th to Sept 4th
- assessment of Agenda 21 (Rio 1992) implementation
- more than 170 countries
- focus on Millennium Goals:
 - eradication of social exclusion
 - poverty alleviation
 - environmental sustainability



The Millennium Development Goals

- ensure environmental sustainability
- eradication of extreme hunger and poverty
- reach a minimum primary education with equal opportunities
- reduce child mortality, specially of AIDS and malaria
- improve life conditions of the more needed ones



The Millennium Development Goals

- increase access to potable water
- develop a global partnership to development that includes non-discriminatory international systems of trade and finance, suitable to the special needs of developing countries, alleviating their debts, providing jobs and access to medicines and new technologies

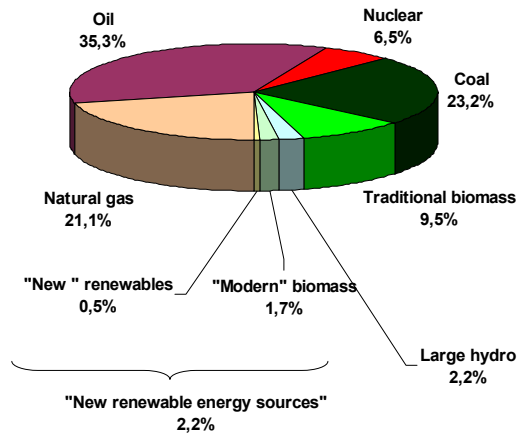


ENERGY POLICIES

There are only 3 possible approaches

- New technologies;
- Energy efficiency; or
- Renewable sources

World Consumption of Primary Energy and Renewables, by Energy Type, 1998



The Brazilian Energy Initiative proposed at the WSSD

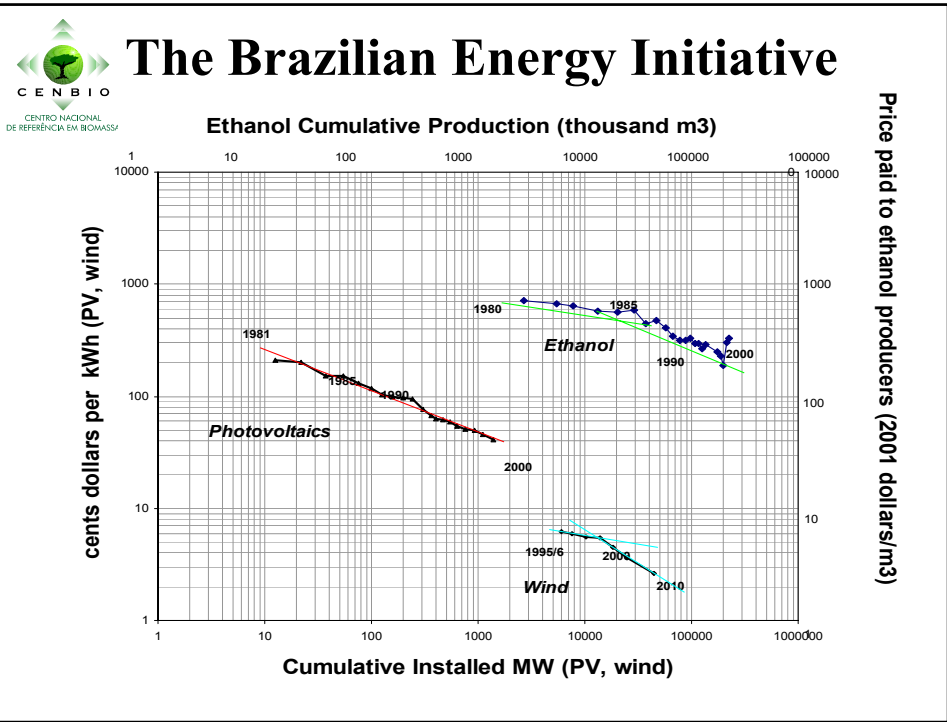
*To increase the global share
of renewable energy
to 10% by 2010*

Approved by Latin American and Caribbean
countries (May, 2002)



Advantages of renewables

- increase market diversity
- ensure long term, sustainable supply
- reduce atmospheric emissions (occupational, local, regional and global), plus deforesting
- improve life conditions *eg.* water pumping
- create local job opportunities in rural communities and
- increase security supply of supply, substituting imports





Discussions on the Proposal

- *10% global by 2010* (Brazil + LA + CA)
- *15% global, including traditional biomass and large hydros, increased of 2% in industrialised countries by 2010* (EU, Norway, Iceland, Switzerland, New Zealand, South Africa, Vanuatu)
- *not to consider targets and timeframes* (US, Japan, Korea, Australia, OPEC countries, Nigeria, Russia)
- *neutral*: China, India, African countries



Main issues

- large hydros
- traditional biomass, mainly fuelwood
- ambitious targets & timeframes
- “cost-effectiveness of technologies”: fossil vs renewables
- “energy technologies” vs “fossil fuel and renewable technologies”: open space for nuclear

The final approved text

(e) Diversify energy supply by developing advanced, cleaner, more efficient, affordable and cost-effective energy technologies, including fossil fuel technologies and renewable energy technologies, hydro included, and their transfer to developing countries on concessional terms as mutually agreed. With a sense of urgency, substantially increase the global share of renewable energy sources with the objective of increasing its contribution to total energy supply, recognising the role of national and voluntary regional targets as well as initiatives, where they exist, and ensuring that energy policies are supportive to developing countries' efforts to eradicate poverty, and regularly evaluate available data to review progress to this end;



Defeats

Defeats

- strong lobbies of interest groups:
 - inclusion of large hydros without environmental constraints
 - nuclear technologies
 - exclusion of quantified targets and timeframes
- decision process by consensus (Brazil-G-77)
- probably the last of mega-conferences, with weak results



Winnings



Winnings

- targets and timeframes are a progressive point of no return: pressure by environmentalists, press, private companies (even oil)
- regional initiatives (LA+CA+EU) building blocks and isolating oppositors
- new impulse to Kyoto
- follow-up by CSD
- broaden discussion on sustainability

SÃO PAULO MEETING CONCLUSIONS ON RENEWABLE ENERGY

(November, 11th, 2002)

Coord. J. Goldemberg

- a **new target-oriented approach**: bottom-up and voluntary, building upon national and regional targets and goals, including a review process;
- integration of **renewables and energy efficiency** within national or regional sustainable development strategies;
- improved access to **financial resources and services**;
- promotion and follow-up on **WSSD energy partnerships**;
- enhanced **international co-operation**, through innovative modalities to implement adequate public policies to promote renewable energy;
- **role** of incentives, public-private partnerships, Clean Development Mechanism (CDM); and the
- **economic viability** of renewables.



BIOENERGY: TRADITIONAL vs MODERN BIOMASS

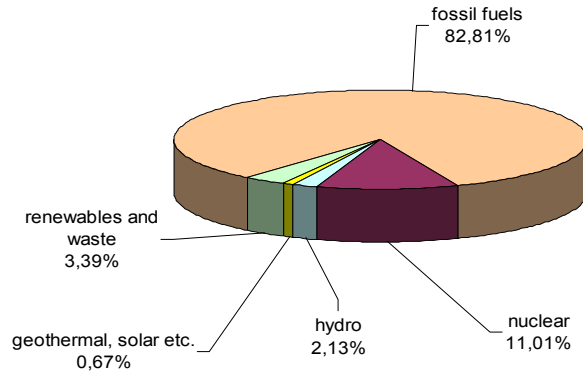
- Traditional biomass: unsustainable, deforestation
- Modern biomass: sustainable biomass, agricultural residues, planted wood, etc



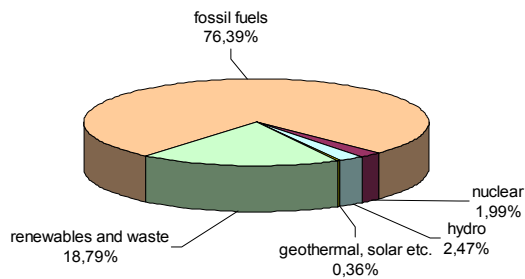
A methodological problem

- IEA statistics lump together in the same energy category “renewables and waste”:
biomass from all sources
- in OECD is basically sustainable
- but not all the times in developing countries
- to reach a 10% fraction of renewables in local energy matrixes means modernising the use of biomass

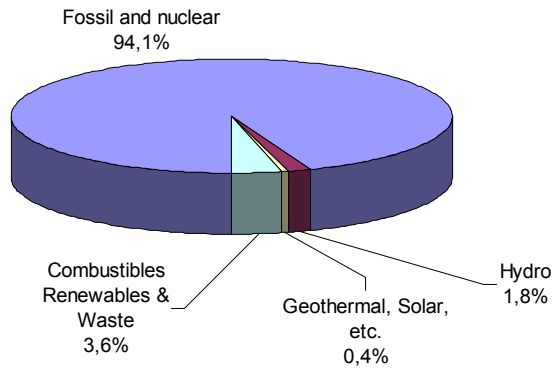
**Shares of total primary energy supply 2000
in OECD countries of total 222.6 EJ
(source: IEA Energy Balances)**



**Shares of total primary energy supply 2000
in non-OECD countries of total 192.0 EJ
(source: IEA Energy Balances)**

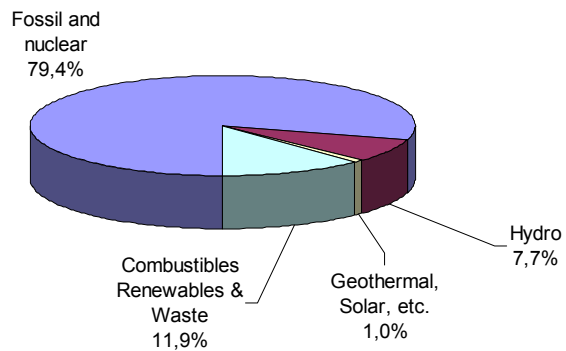


EU



LATIN AMERICA "BIG 6":

ARG+BR+CHI+COL+MEX+VEN
TPES shares of 536 Mtoe in 2000



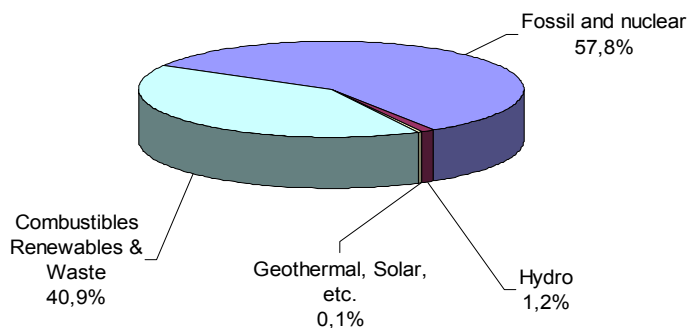
Latin America's "Big Six" Primary Energy 2000 - Source: IEA (2002)

Country or Region	Energy source				Weight in region	TPES 2000 (millions of toe)
	Fossil and nuclear	Hydro	Geothermal, Solar, etc.	Combustibles Renewables & Waste		
ARGENTINA	91,7%	3,8%	0,0%	4,5%	11,1%	65,5
BRAZIL	60,5%	15,0%	0,0%	24,5%	29,6%	174,6
CHILE	75,1%	6,9%	0,0%	17,9%	4,0%	23,6
COLOMBIA	75,3%	8,5%	0,0%	16,2%	5,5%	32,5
MEXICO	88,6%	2,0%	3,6%	5,7%	23,8%	140,4
VENEZUELA	94,0%	5,4%	0,0%	0,5%	16,8%	99,5
LA "BIG SIX"	79,4%	7,7%	1,0%	11,9%	90,8%	536,0
LATIN AMERICA	77,0%	8,5%	1,2%	13,4%	100,0%	590,6

note: TPES is the total primary energy supply; toe are tonnes of oil equivalent

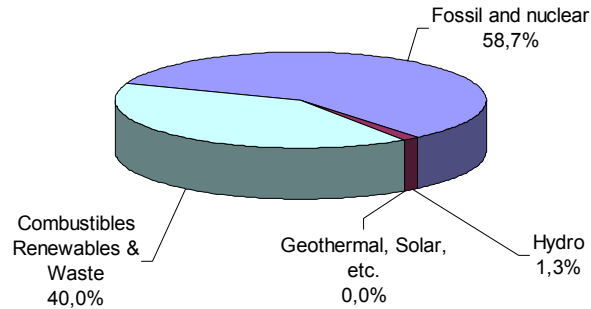
AFRICA

TPES shares of 493 Mtoe in 2000

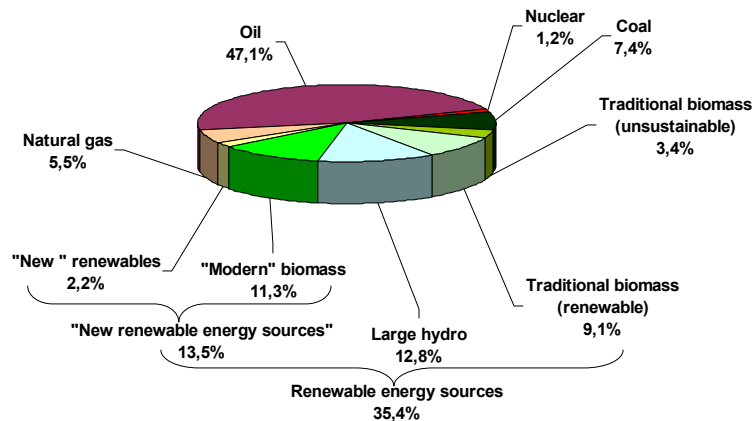


INDIA

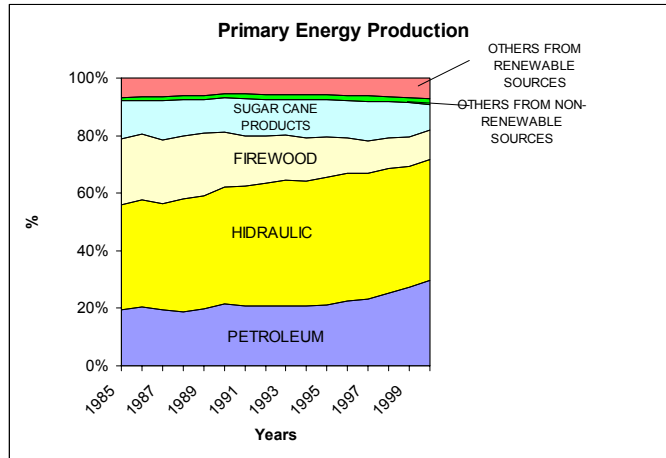
TPES shares of 503 Mtoe in 2000



Brazilian Total Primary Energy Supply, by Energy Type, 2000



Brazilian Energy Matrix



Source: MME, 2001

Flex-fuel vehicles

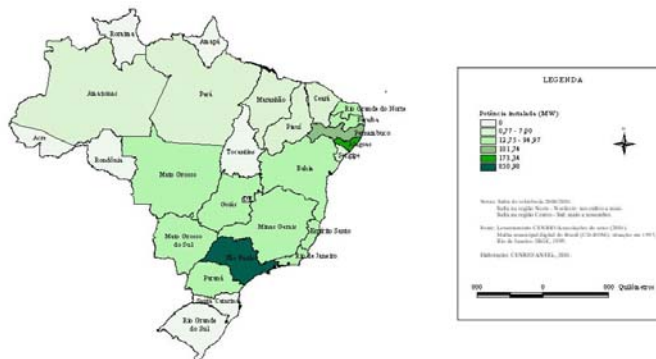
- Flexible vehicles for different fuels
- Existing experiences in US
- Significant perspectives for the alcohol program
- May, 2002: Ford Motors launched a Brazilian prototype with flex-fuel engines.
 - There will be two different models:
 - Ethanol and Natural Gas
 - Ethanol and Gasoline.

Flex-fuel vehicles

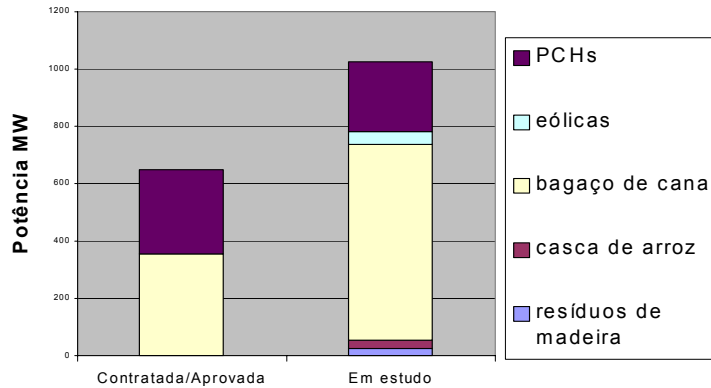
- Brazilian FFV: running with 0-100% hydrated ethanol
- US FFV: running with 0-85% ethanol
- Brazilian Federal Government probably will expand the ethanol vehicles' fiscal benefits to the flex-fuel ones.

BIO.COM Project

BRASIL
Capacidade instalada de geração de eletricidade no setor sucroalcooleiro,
segundo as Unidades da Federação



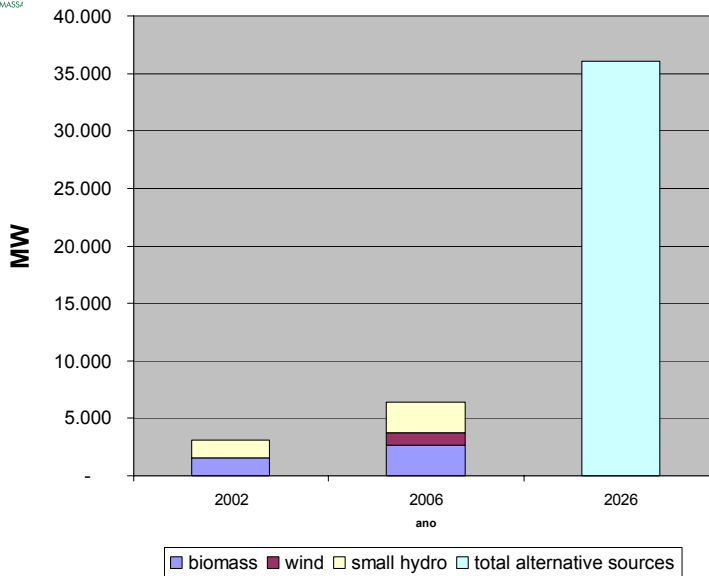
Investimentos de co-geração de eletricidade por fontes alternativas (BNDES, agosto 2002)



PROINFA - L.10438/02

- *3.300 MW in installed capacity of wind, small hydro and biomass thermoelectricity until 2006*
- *increase in the following 20 years the share of alternative sources above to 10% in national electricity supply*
- *Comment: for the same installed capacity in 20n years (6,518 MW for each source), biomass produces 39.97 TWh/yr against 17.13 TWh/yr (wind)*

Installed capacity



Conclusions

Renewables, Bioenergy and developing countries: what are the perspectives ??

- **Renewables: fundamentals for sustainable development**
- **Bioenergy: one of the best options among renewables, for developing countries (lower costs)**
- **Experience from Brazil: lessons learned can be shared with developing countries**
- **Conversion of traditional biomass into modern biomass**



Contact & References

suani@iee.usp.br

oswaldol@cetesb.sp.gov.br

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