

Antonio Oliveira
Centre for Strategic Studies and Management – CGEE
BRAZIL

Bioeconomía en América Latina y el Caribe 2015

Latin America and the Caribbean Bioeconomy 2015



Santiago 7 y 8 octubre de 2015



Session 1:

Regional, national and local bioeconomy strategies

A Bioenergy Strategy in Brazil

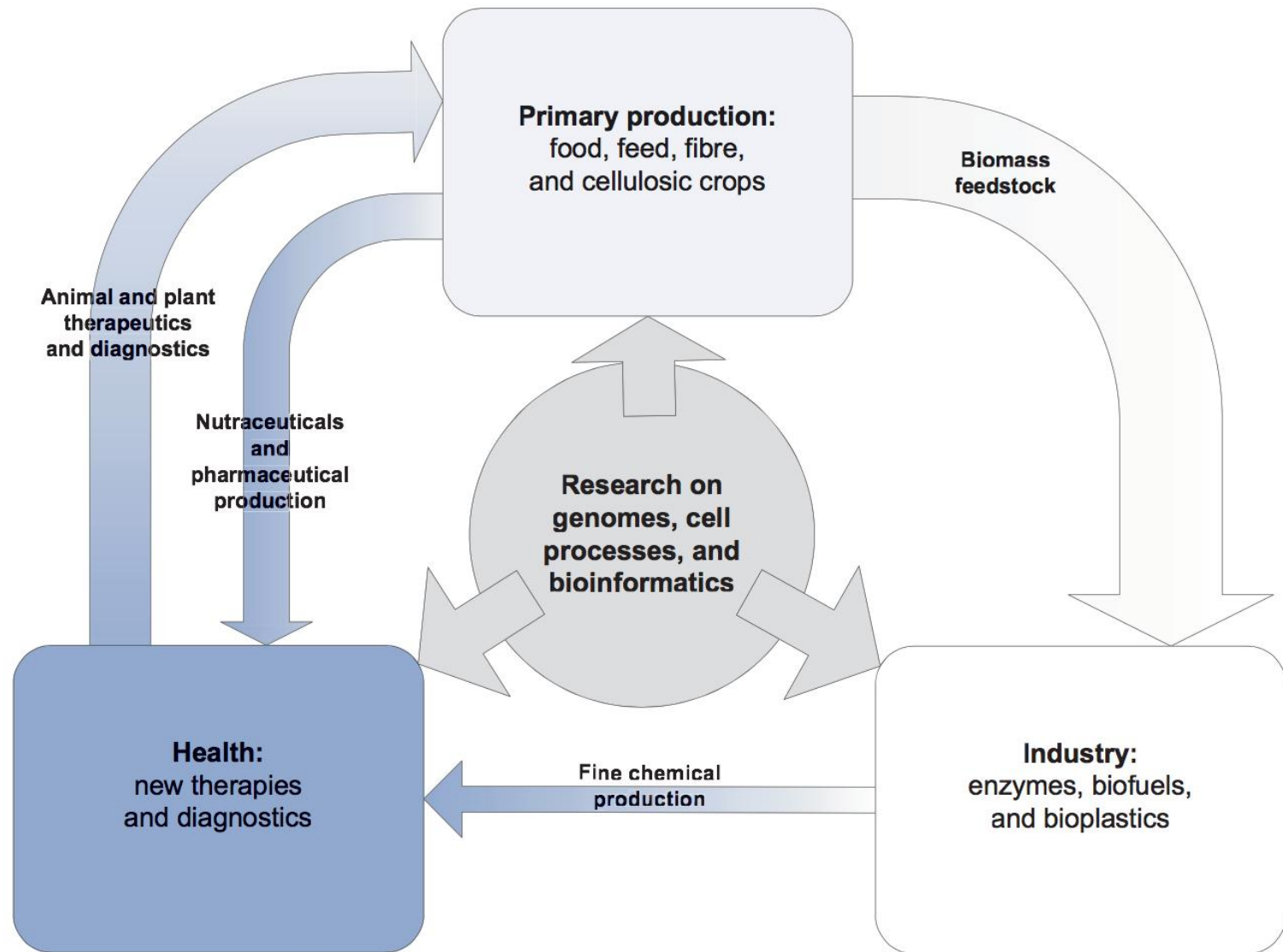


"Bioeconomy can be thought of as a world where biotechnology contributes to a significant share of economic output"

OECD. (2009)

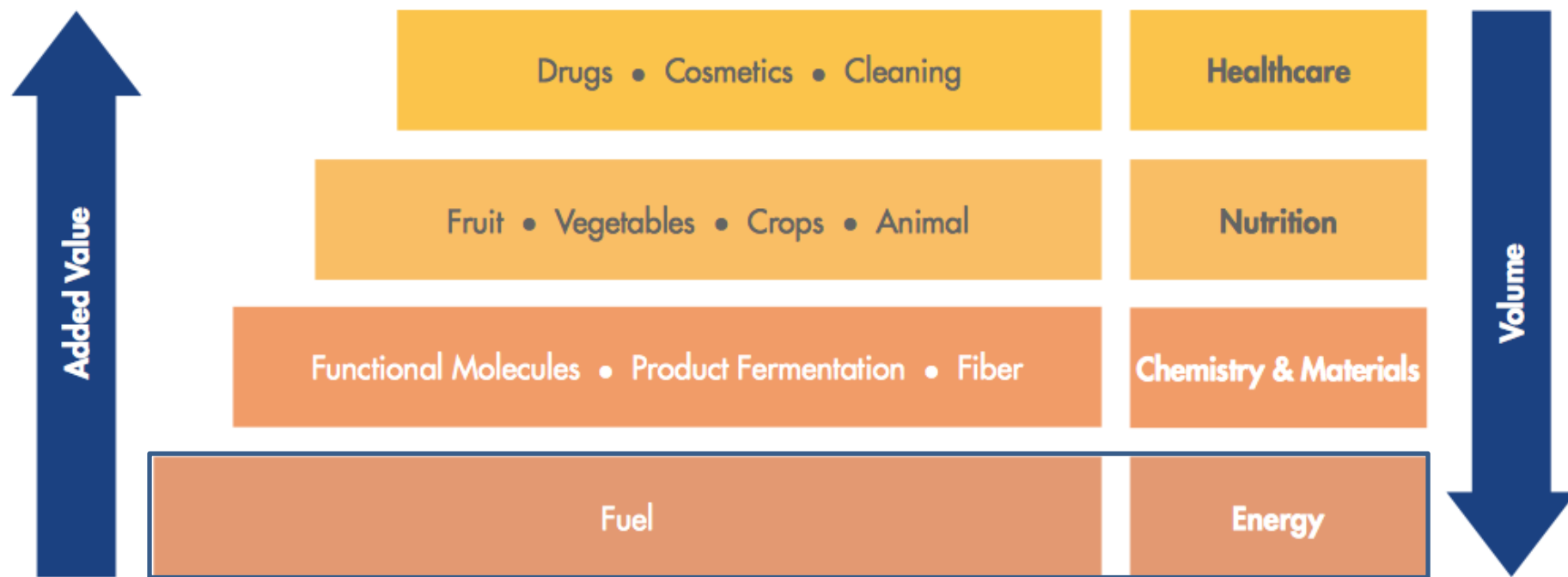


Current and expected integration across biotechnology applications



Source: OECD. (2009). The Bioeconomy to 2030 Designing a Policy Agenda

The Strategy

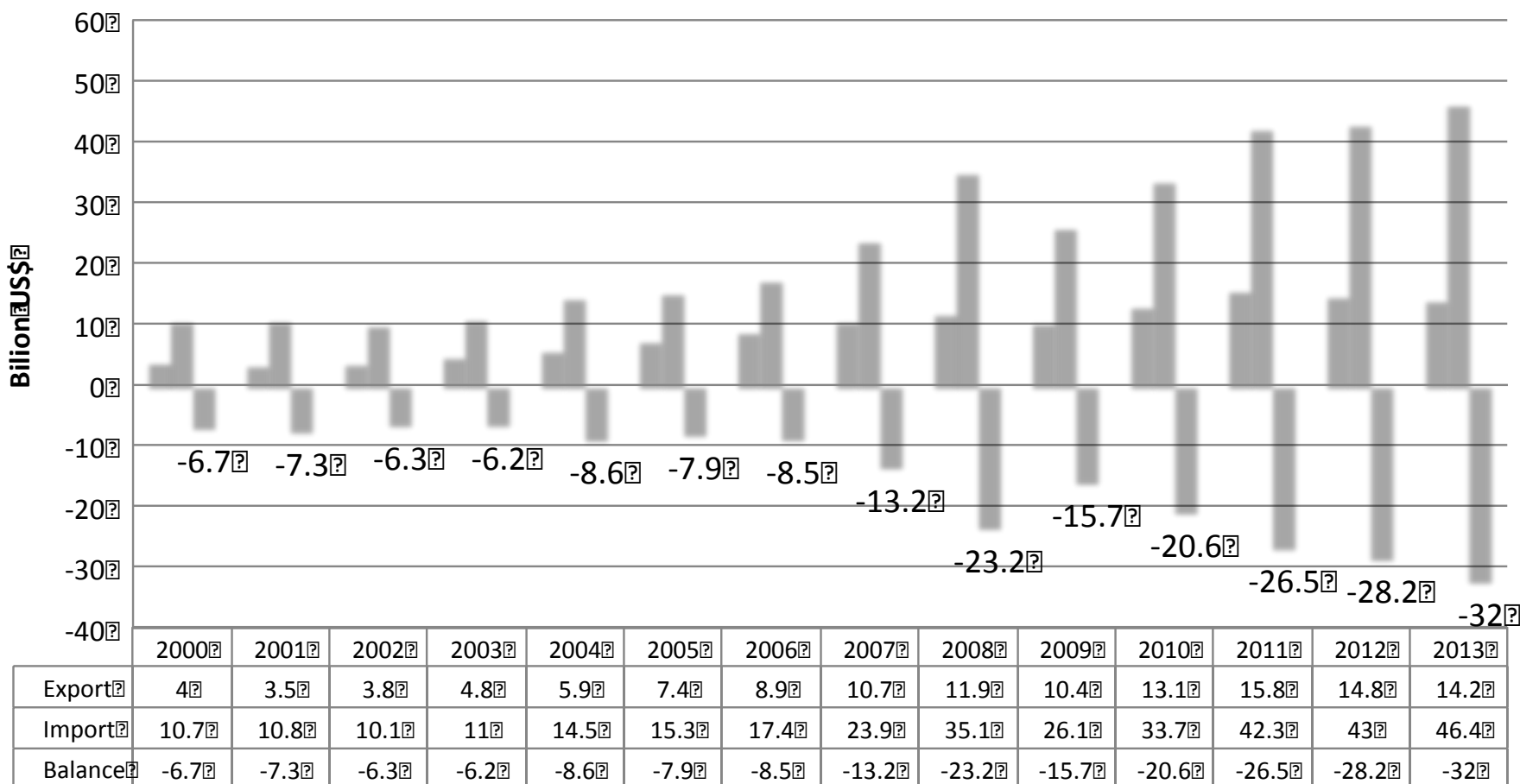


Source: Harvard Business Review-Brasil, Confederação Nacional da Indústria. (2013).

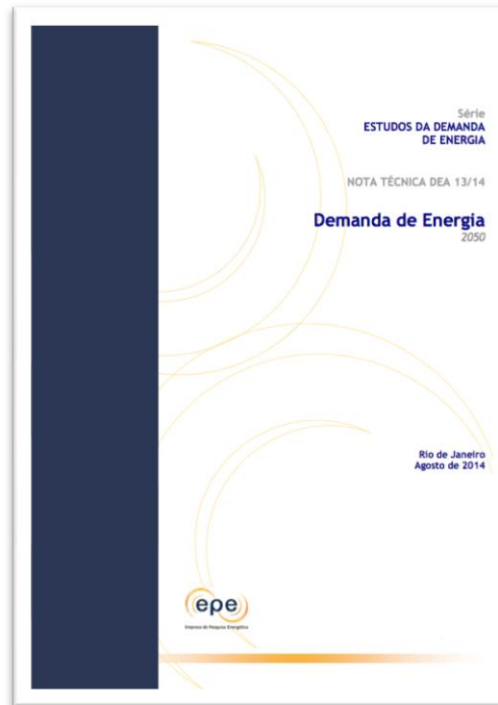


Other impacts – Reduce imports of chemicals

Brazilian Balance of Trade: Chemicals



“Strategy” documents – Energy Plans



Long Term Plan



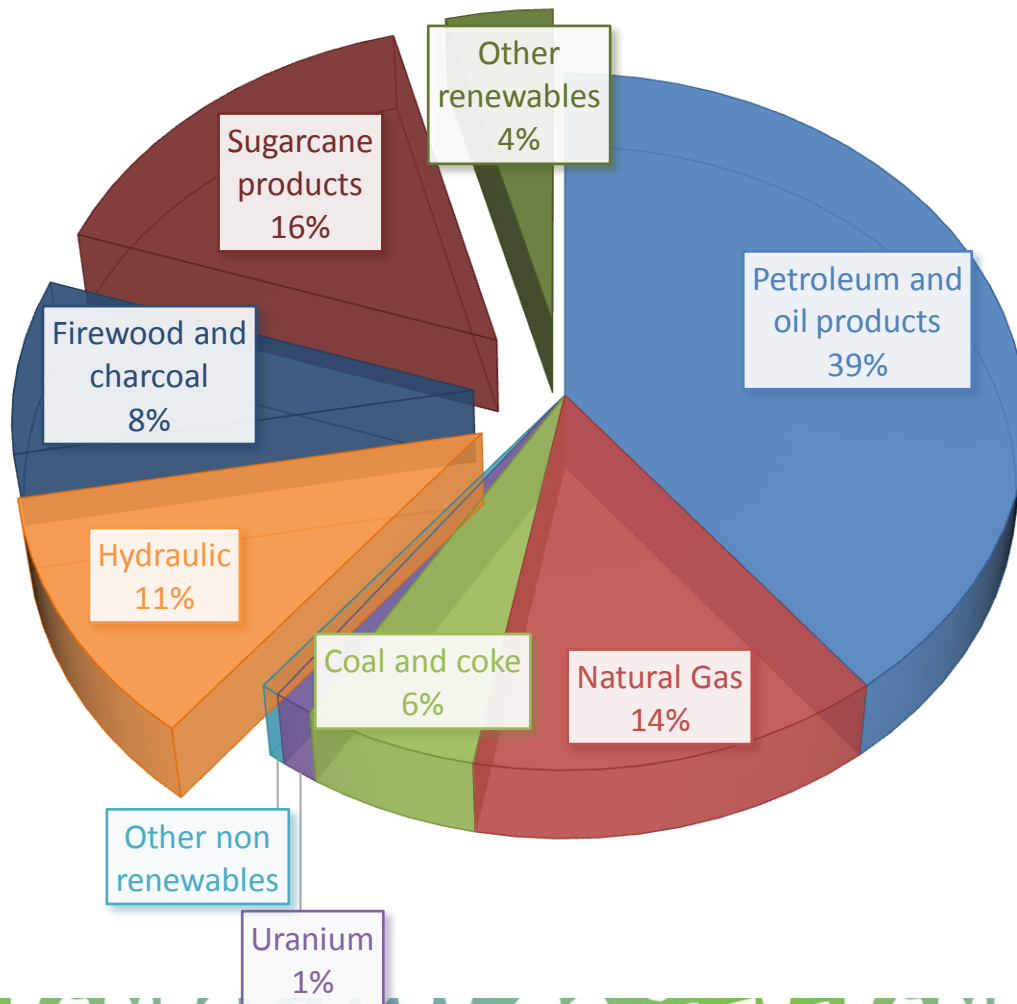
10yr Plan

1. Energy Security,
2. Affordability of tariff,
3. Energy for all.



Domestic Energy Supply

Brazil is leader in Renewable Energy



Renewables Share



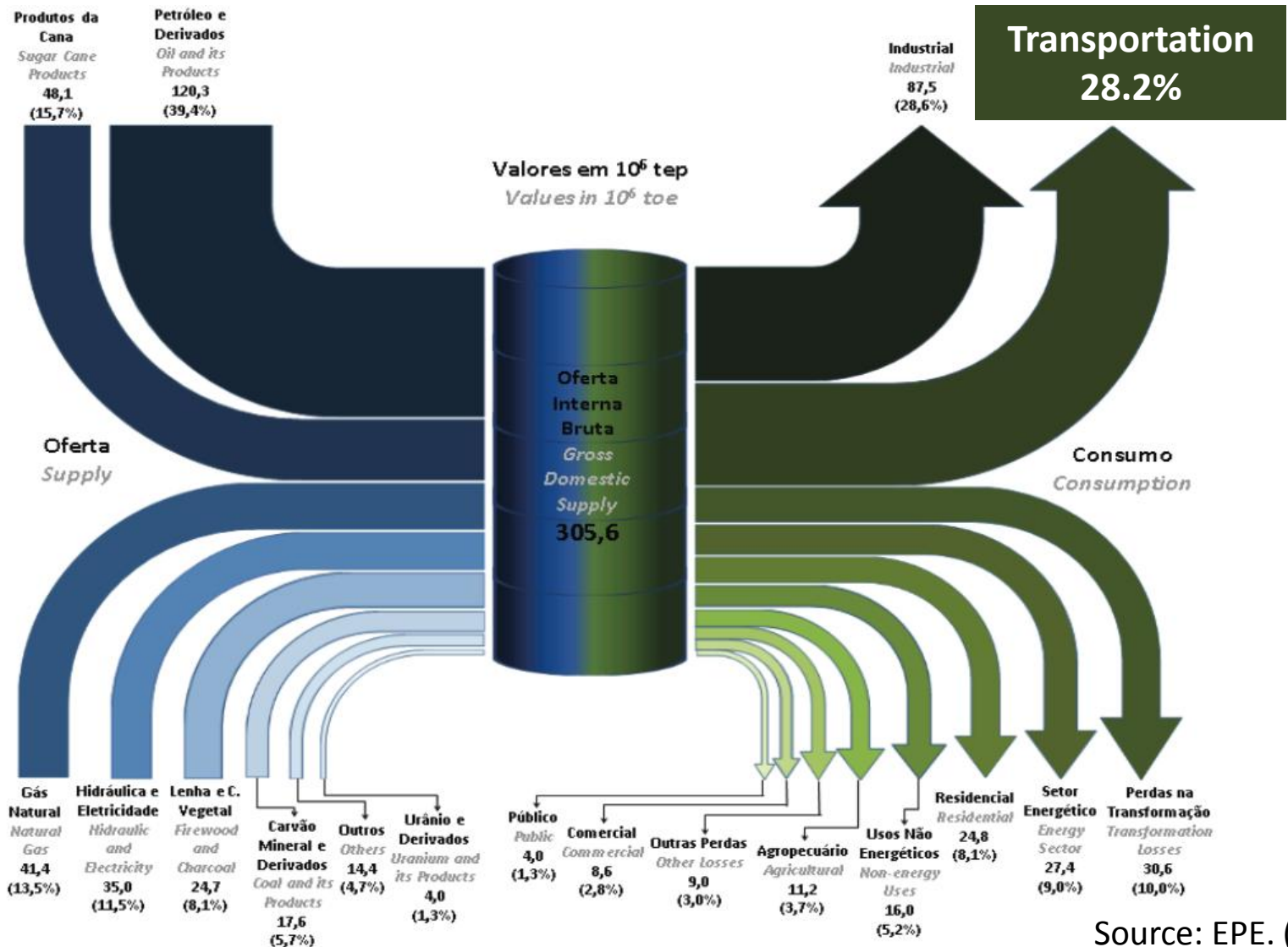
14%



39%

Source: EPE. (2015)

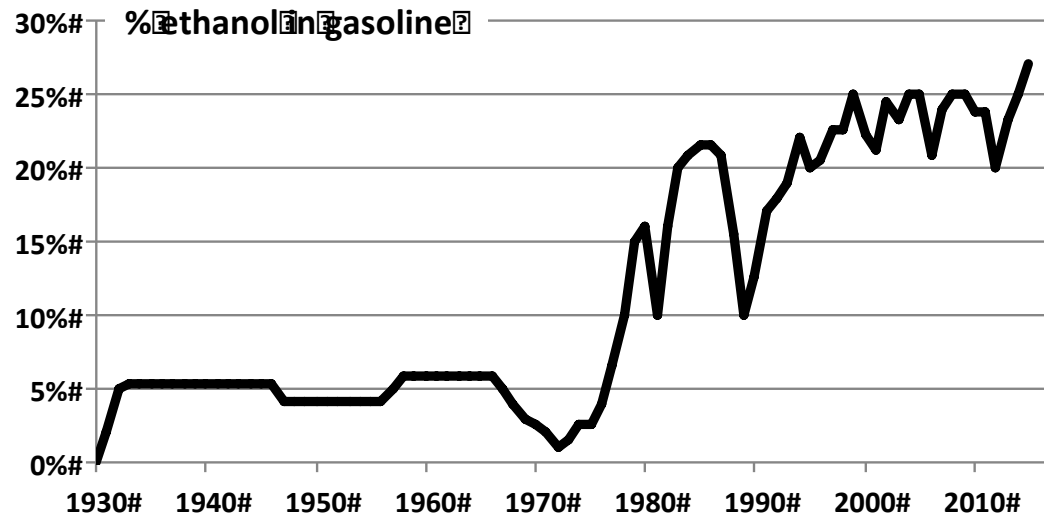
Brazil's Energy Flux



Source: EPE. (2015)

Strategy action

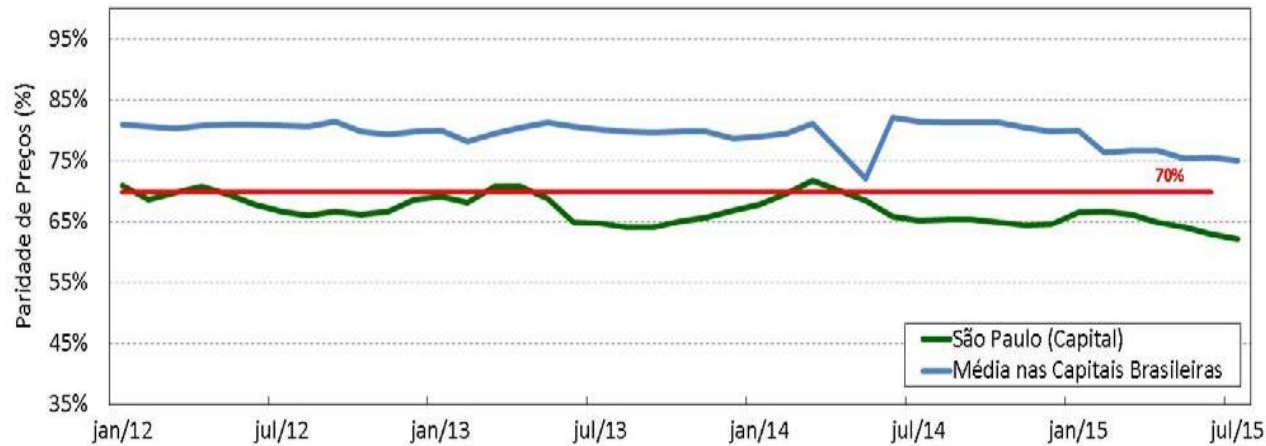
- **Mandates blend of biofuels with fossil fuel**
 - Ethanol and gasoline
 - Biodiesel and diesel
- **Promote flex fuel vehicles (small cars and motorcycles)**



Source: (BNDES/CGEE, 2008, updated)

CONSEQUENCES – Lowering of fuel prices

Bioethanol

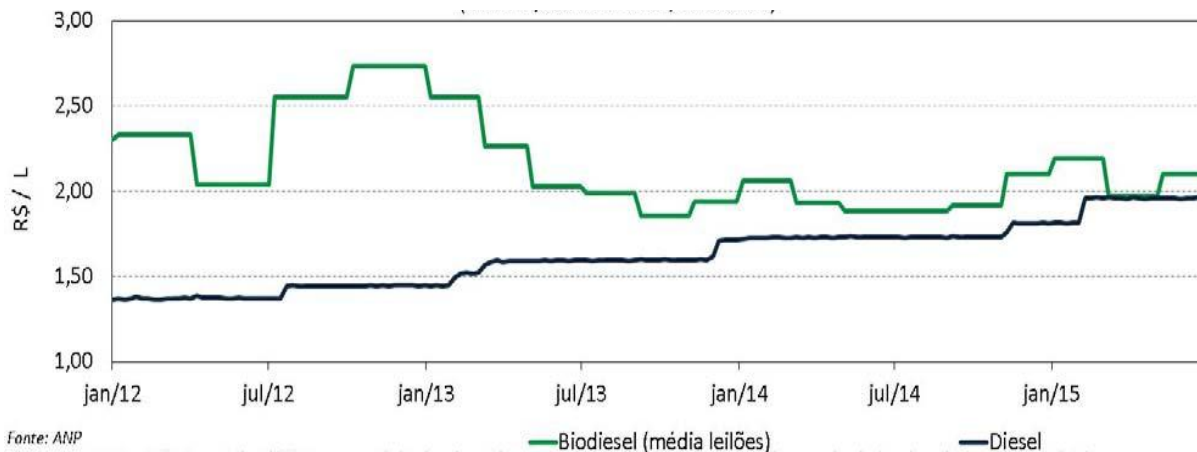


Fonte: ANP
Elaboração: MME

28,6 billion
litters in 2014

15% of
transportation
sector

Biodiesel

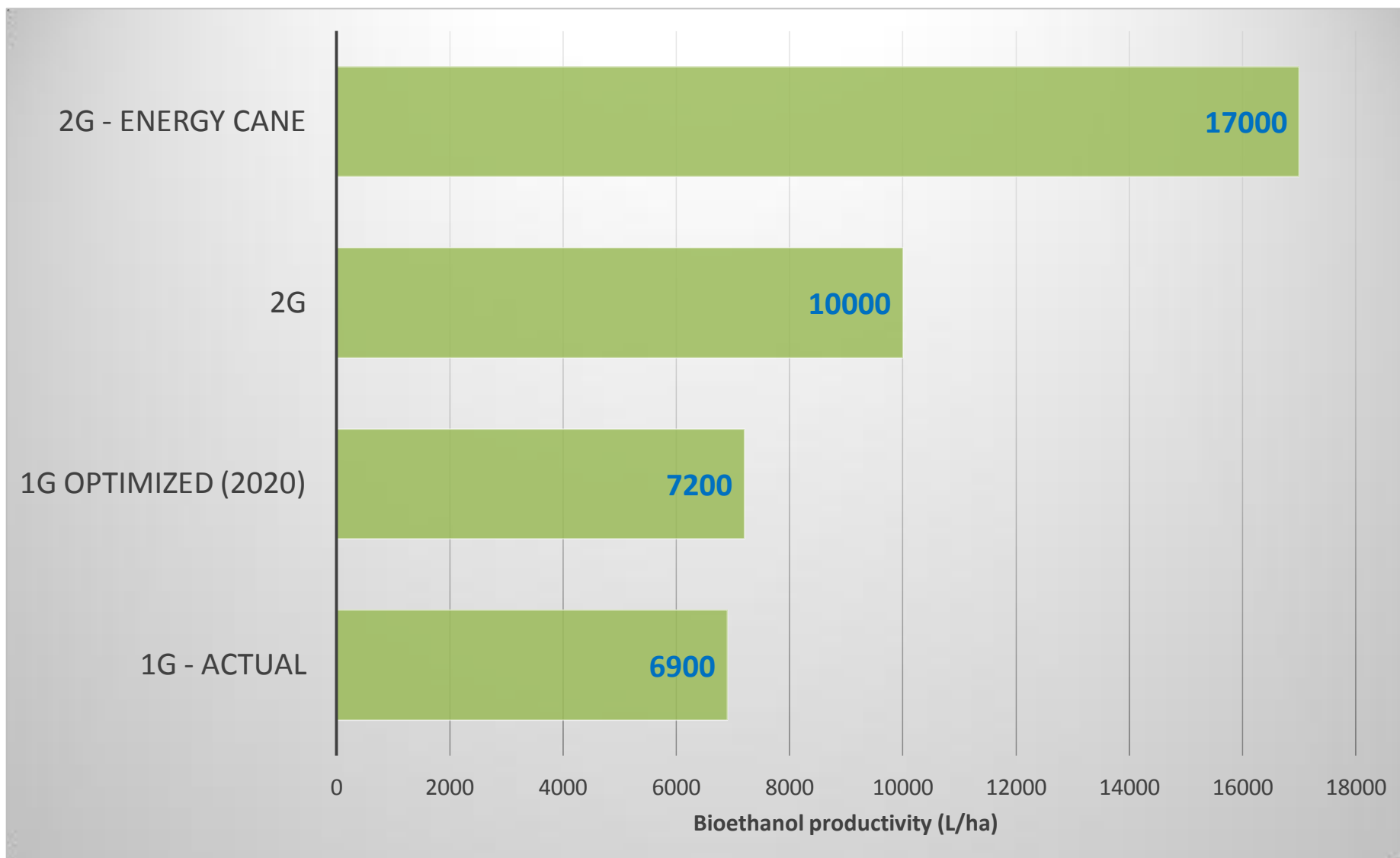


Fonte: ANP
Elaboração: MME OBS: A partir de jul/2012 os preços de biodiesel consideram os valores realizados pelo produtor/importador de diesel na oferta para a distribuidora.

3,4 billion
litters in 2014

3,2% of
transportation
sector

New horizons on Bioethanol



Research Infrastructure

Institutions	Pre-treatment	Hydrolysis		C5 Fermentation	Pilot plant	
		Enzymatic (HE)	Acid (HA)		HA	HE
CTC	X	X				X
Embrapa/CNPAC		X				
Dedini	X		X		X	
Novozymes		X				
CTBE	X	X		X		X
Petrobras	X	X		X		X
Fapesp-Bioen	X	X	X			
Rede de Hidrólise	X	X		X		X

Source: adapted from BNDES (2015)



E2G Production Sites

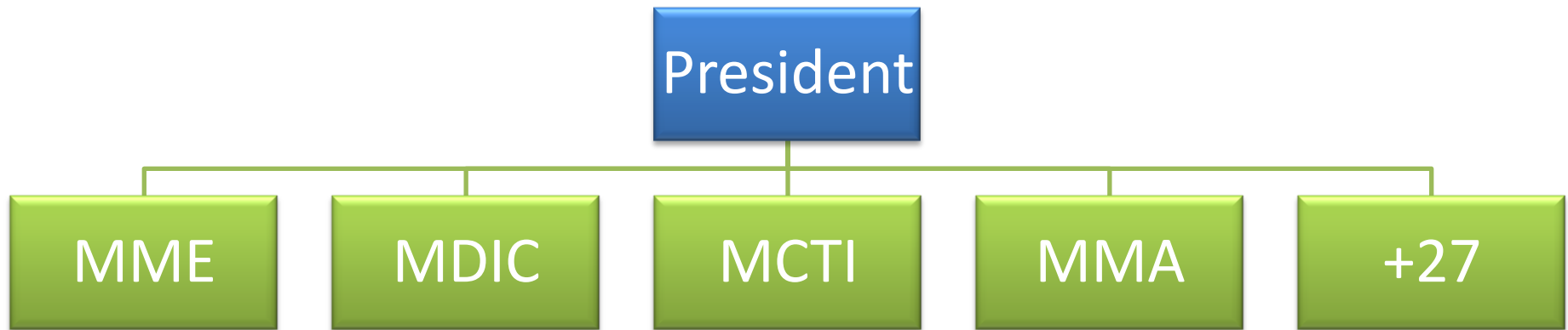
Companies	Site	Scale	Capacity (m ³ /year)	Status
Granbio	S. Miguel dos Campos, AL	Commercial	80 million	operating
Raízen	Piracicaba, SP	Commercial	40 million	operating
Abengoa	Pirassununga, SP	Commercial	65 million	in construction
CTC	São Manoel, SP	Demonstration	3 million	operating

Production capacity will reach 1% of total in 2024



Governance issues

Many institutions dealing with the same subject without clear coordination.



Role of CGEE



OVERVIEW OF CGEE

ORIGINS

- Created in 2001
- Non-profit organization
- STI studies for economic growth competitiveness and well being in Brazil

CONTROLS

- Overseen by the Ministry of Science Technology and Innovation
- Subjected to auditing by Brazilian Supreme Audit Institutions

SIZE AND BUDGET

- Staff ~100 employees
- Annual budget ~18 MUS\$

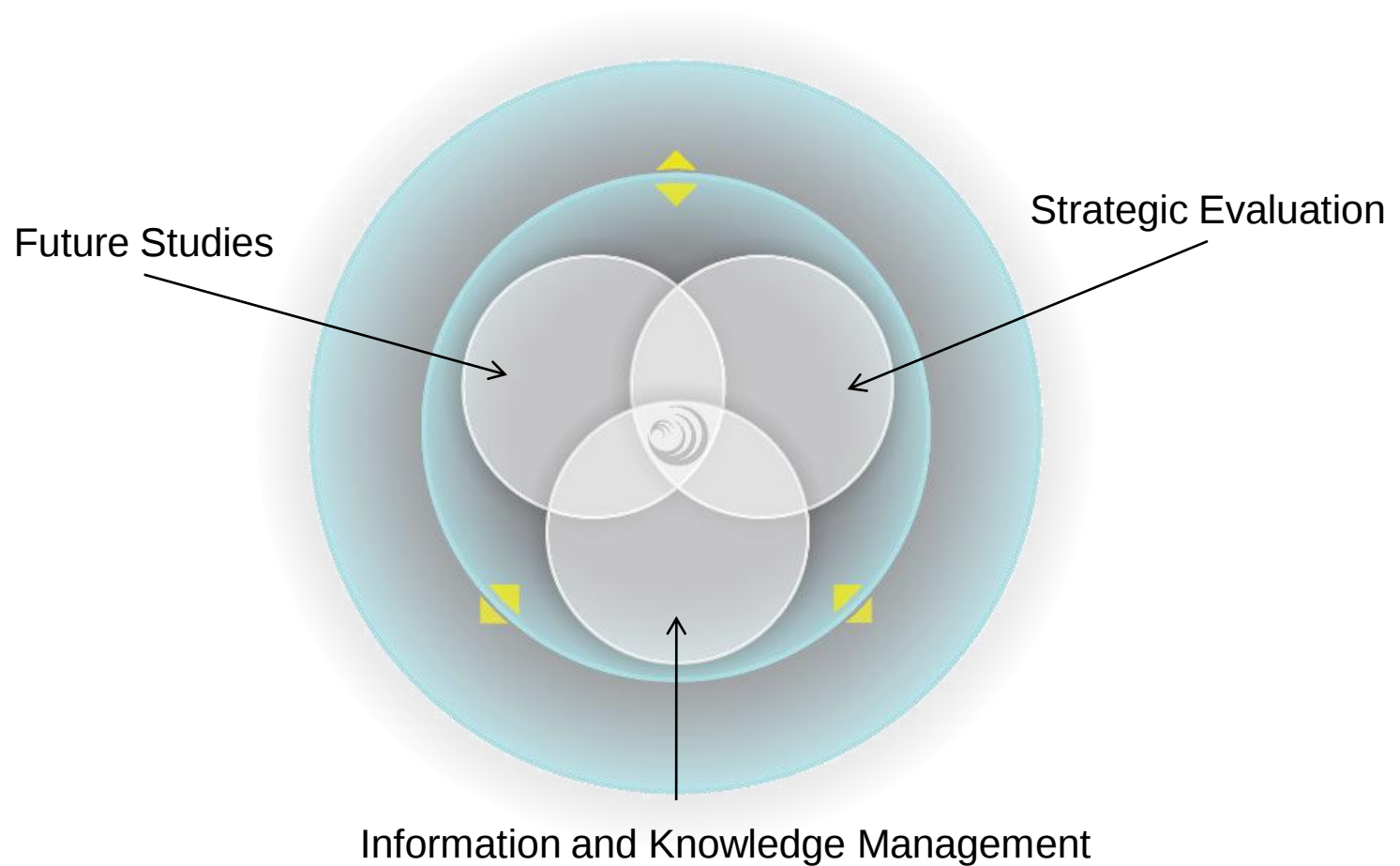
STRENGTHS

- ~ 2000 experts from 300 institutions per year
- ~ 400 studies in Science Technology and Innovation

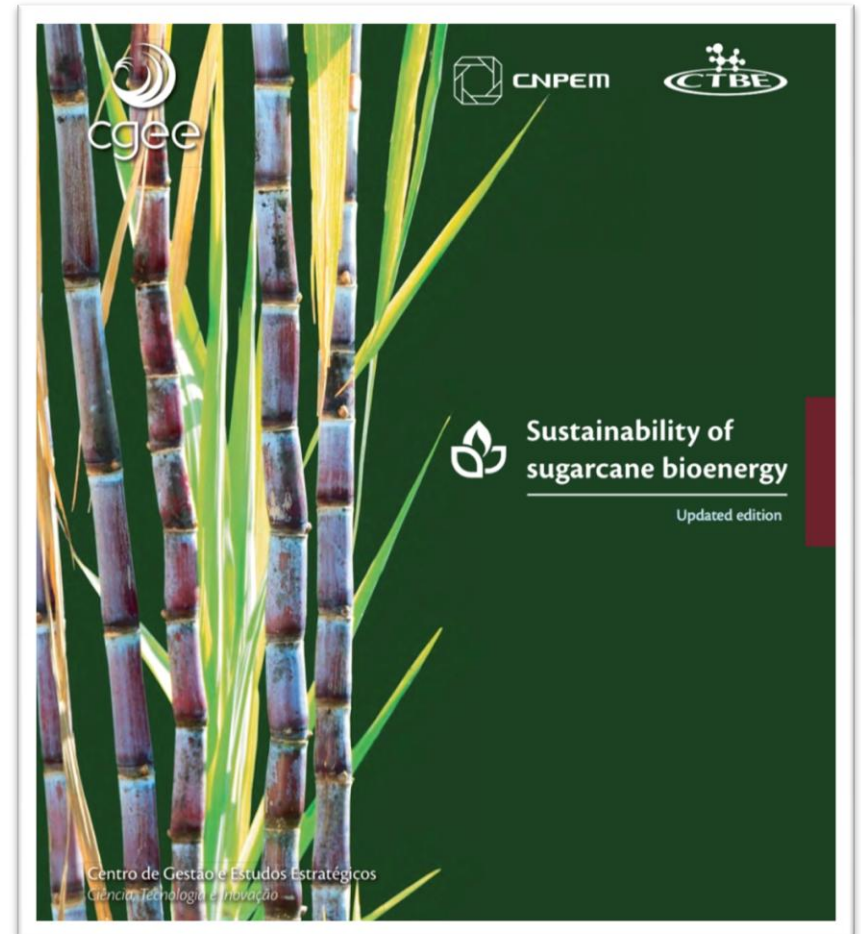
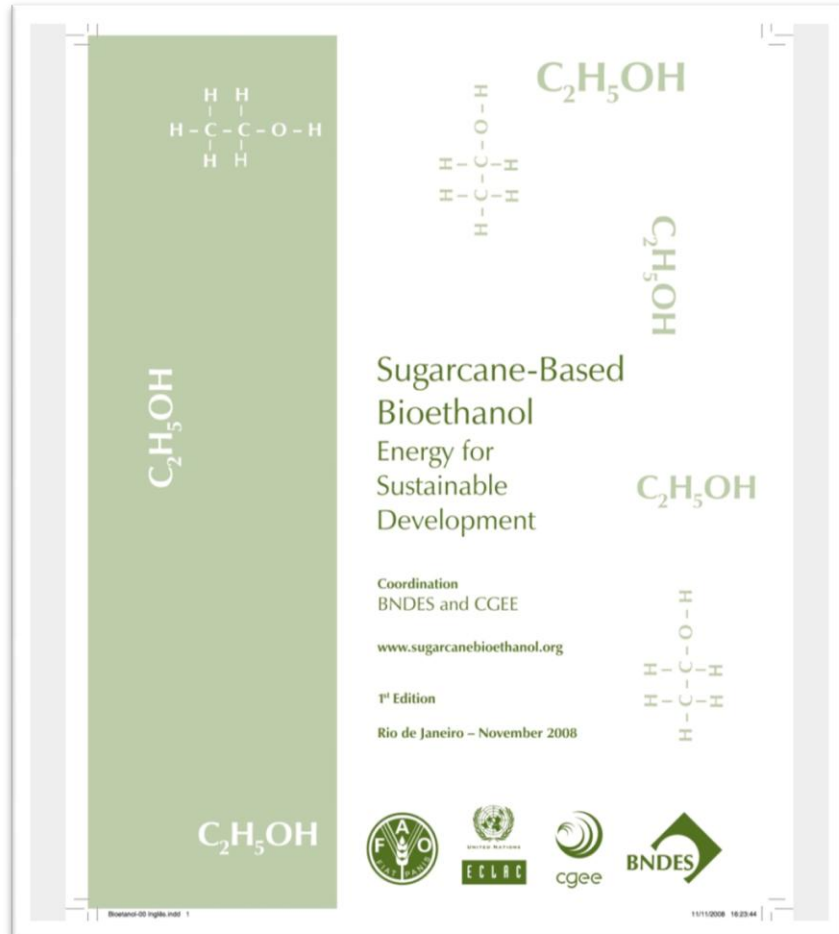
Mission and core activities

CGEE

To promote Science, Technology and Innovation to advance economic growth, competitiveness and well-being in Brazil.



Bioethanol



Subsidised the creation of CTBE



Green chemistry



Biorefinery for Pulp and Paper sector

One more research centre can be created!



Programa demonstrativo para inovação
em cadeia produtiva selecionada:

Celulose e Papel

Relatório: Detalhamento técnico do projeto demonstrativo em
Biorrefinaria na Indústria de Celulose e Papel.

Incursions in LAC



Bioeconomy
Biodiversity



Obrigado!
Thank you!
Gracias!

Antonio Oliveira – aoliveira@cgee.org.br

<http://www.cgee.org.br/>

