

HOW2GUIDE FOR BIOENERGY WORKSHOP – BRASIL/NOV 2014

BIOGAS Outlook

Opportunities and Challenges

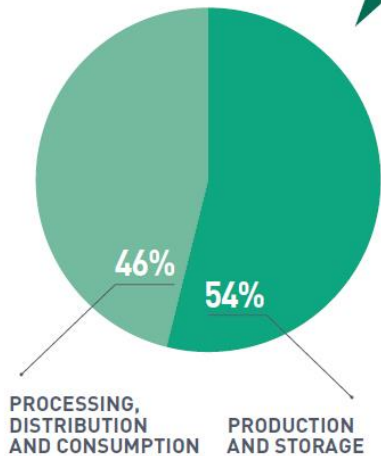
Cícero Bley Jr

ITAIPU Binacional – Superintendente de Energias Renováveis
Associação Brasileira de Biogas e Biometano - Presidente
- IEA Task Force 37 Biogas, - Representante

- RESIDUAL BIOMASS – THE RAW MATERIAL TO BIOGAS PRODUCTION

FOOD WASTED IN THE WORLD

1 BILLION TONS OF FOOD IS WASTED EACH YEAR



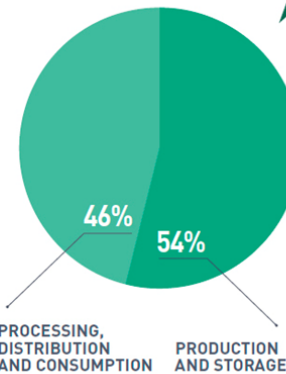
FAO/2013

FOOD WASTED IN BRASIL

1 BILLION TONS OF FOOD IS WASTED EACH YEAR

Urban Waste
26,3 millions tones
per year

FAO/2013



Manure
Bovines, swine and bird
slaughterhouse by inspected
476,6 millions of tones per year

FAO/2010

ESTIMATED BIOGAS POTENTIAL IN BRAZIL

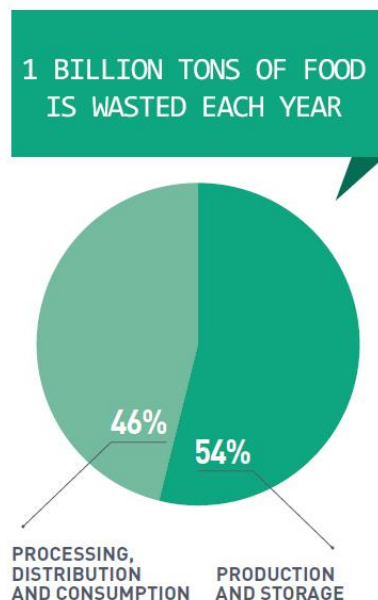
- ORGNIC SOLID WASTE

- Biogas Potential

26,3M Tons x 185 m³/Ton
(millions of m³)

4.865

Prof. José F. T. Jucá,
Grupo de Resíduos Sólidos - GRS
UFPE - 2014



- MANURE

Biogas production estimation

(millions of m³)

8.577.8

FAO/2010

$13.442 \times 1,42 =$
 $19.087.000 \text{ MWhora} =$
2.180 MW
Among the 15 biggest
hydropower plants in Brazil

ENERGY APPLICATIONS BY FOOD PRODUCTION SECTOR IN BRAZIL

Electric Energy Consumption
37% of all electric energy in Brazil

Operations with electric energy

- Irrigation
- Milling
- Heat generation
- Instalation lighting
- Engines and Mechanisms
- Animals heat

=

**BRAZILIAN
COST**

**SUBSIDIZED
ENERGY**

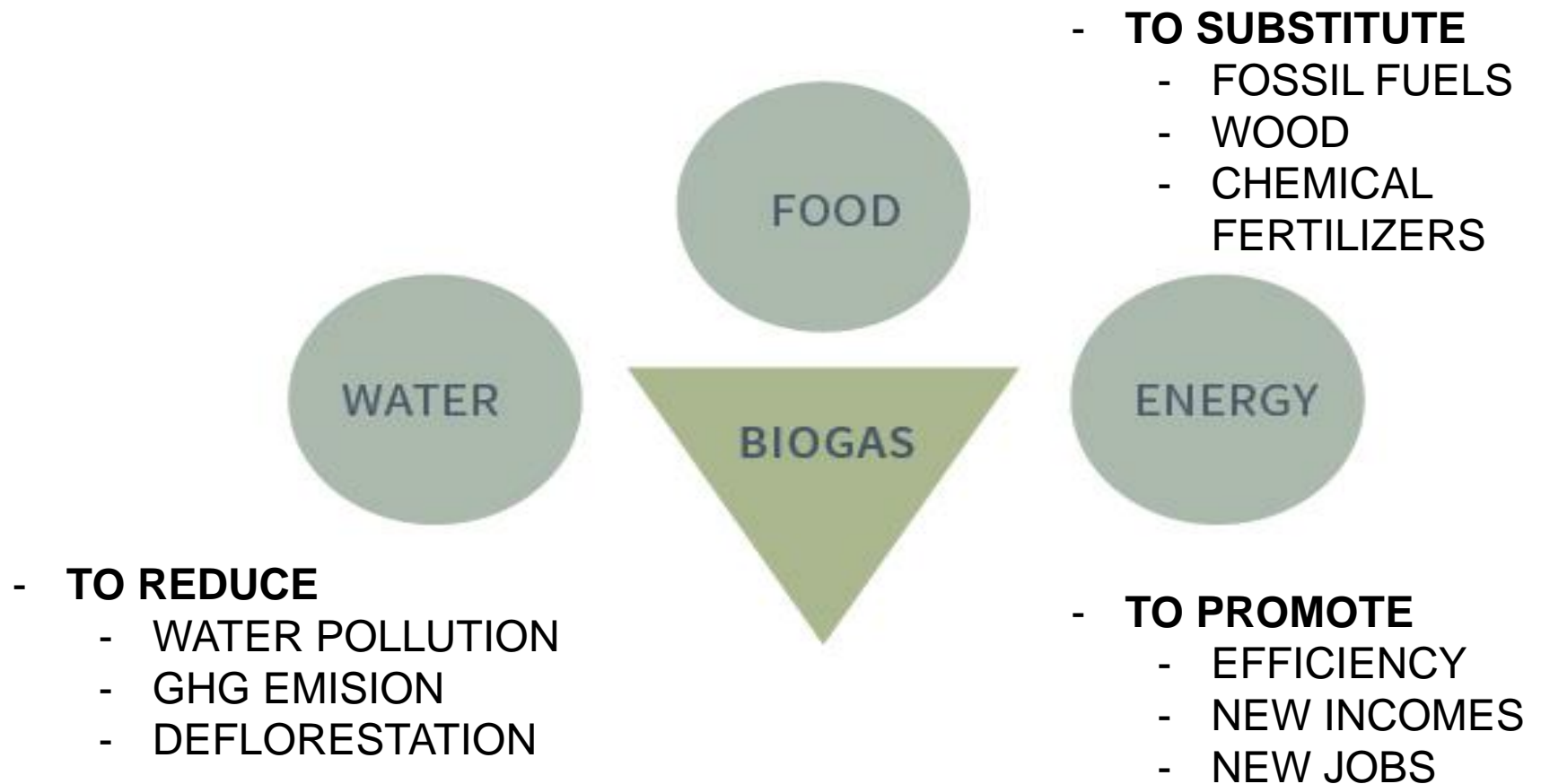
**NATIONAL
ENERGETIC
INEFFICIENCY**

Operations with conventional fuel

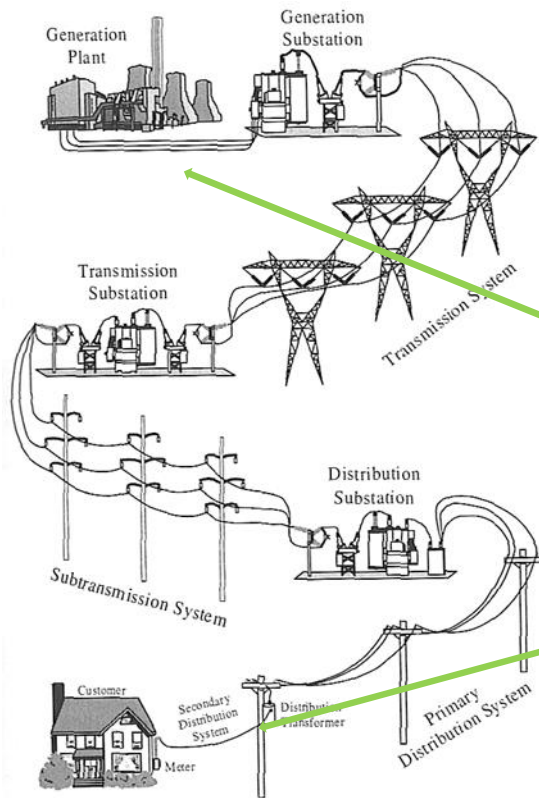
- Production Mobility

**NO
SUSTAINABILITY**

FOOD PRODUCTION SUSTAINABILITY – BIOGAS AS A BUFFER



- BIOGAS AND BIOMETHANE NATIONAL PROGRAM



**TO PREPARE A PARADIGM
TRANSITION**

ENERGY BY OFFER
kW



SISTEMS OF ENERGY

**kW + Economic
externalities
(efficiency)
Environmental
Social**

**- ELECTRIC ENERGY DISTRIBUTED
GENERATION**

- DESCENTRALIZED PRODUCTION OF FUEL

AGENDA BRASILEIRA DO BIOGÁS E BIOMETANO



- Resolução 482/12
Net metering
- Leilão de Reserva/17
Solar, Eólica e Biogas
- Chamada 05/14
Biogas 1MW
e 10MW



anp
Agência Nacional
do Petróleo,
Gás Natural e Biocombustíveis

**Chamada Pública
Biometano**



MME
Ministério de Minas e Energia

**Programa Nacional
Biogás e Biometano**



Empresa de Pesquisa Energética

- Biogás
Do Cenário 2050
Para Cenário 2023

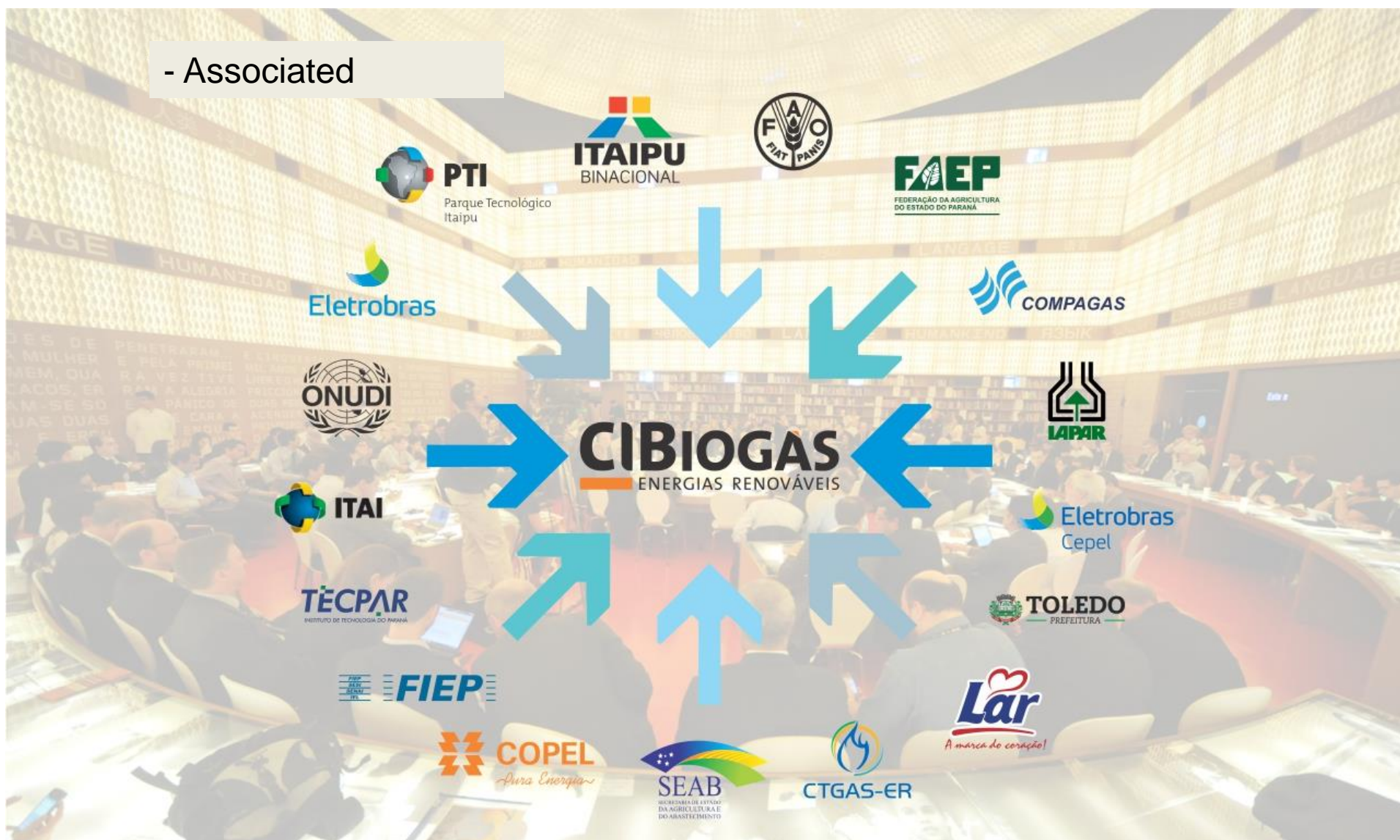
ABiogás

Associação Brasileira de Biogás e de Biometano

- Fundada em 4 /11 /2013
- 40 associados

- Permanent Institutions

- Associated



- **BIOGAS AND BIOMETHANE NATIONAL PROGRAM**
- **OFFICIAL REGULATIONS TO ENSURE A TRUSTABLE COMBUSTIBLE**
 - QUALITY
 - AVAILABILITY
- Consider Local Development Impacts
- Compatible Technologies for producers level
- Official references. Trustable references
- Technical responsibility instead commercial objectives
- Small scale equipments to biogas production
- Biogas and biomethane certified by a national network of laboratories
- Stimulate energy systems to produce Biogas/biomethane by individual producers, by cooperatives and condominiums;
- All level capacity building to a new energy culture

Three to four biogas take-away messages for Brasil

- 1 – Energy generation and Combustible production with Food Production Residual Biomass is a Country strategic decision that can not continue to be neglected;
- 2 – Biogas has a huge potencial to became a biocombustible as important as Ethanol;
- 3 – Biogas could promote the Food Production sustainability, the energy efficiency and sovereignty for industrlal and familial farmers;
- 4 – The biogas scale needs a parallel, synchronic and harmonic complementary system, based on electric distributed generation and combustible decentralize production;