

ATLAS OF GHG EMISSION AND ENERGY POTENTIAL BY WASTE DESTINATION IN BRAZIL

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APOIO



THE PROJECT



- Purpose of creating the first Brazilian Atlas on GhG emissions specifically generated from final disposal sites for MSW as well as to estimate its energy potential
- Project selected to be granted by USEPA
- Production of the document commissioned to MGM Innova, consultancy firm in low carbon services and solutions.
- Presents updated and unique statistical information
- Case studies related to three waste disposal sites - RJ, ES e PE



PANORAMA
DOS RESÍDUOS SÓLIDOS NO BRASIL
2011

PANORAMA 2011



MSW Generation
Brasil
61,9 million t/year



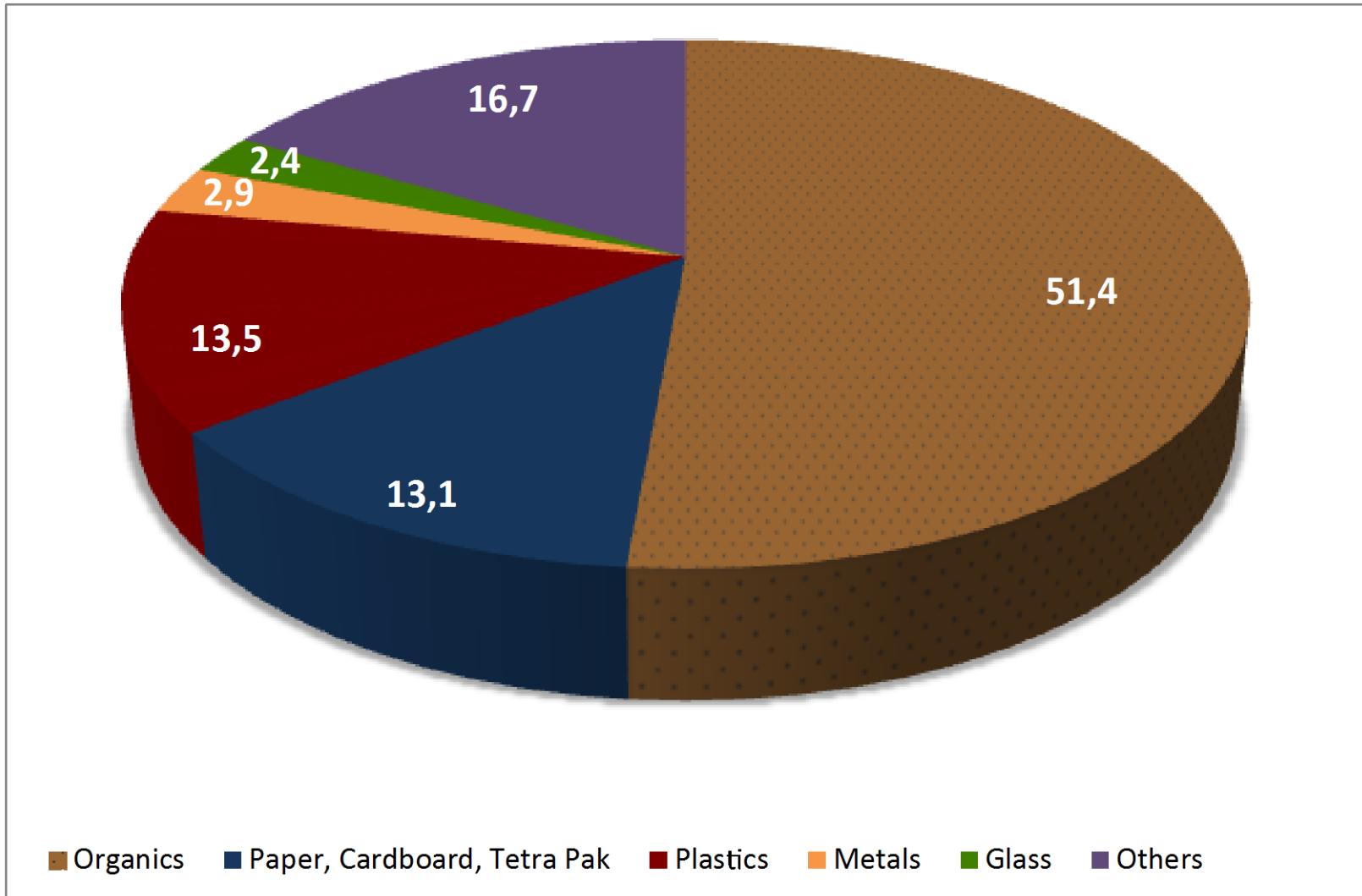
MSW Collection
Brasil
55,5 million t/year

MSW Generation - per capita (kg/inh/day)
Brasil = 1,223

PANORAMA 2011



MSW COMPOSITION (%)



PANORAMA 2011



MSW Destination in Brazil (t/year)



32,2
mi/ton

58,1%



23,3
mi/ton

41,9%



1.607

use open
dumps

600.000

Informal workers

2.358

11%

not even
collected

91%

cities no

no separate
collection

PLANS

16% more

WASTE 2008-2011

53%

more than

MSW

Southeast

310.000

direct jobs

**National
Solid Waste Law
(PNRS) –
Law 12.305/2010**

**A NEW ERA
FOR THE
WASTE
INDUSTRY**



➤ PNRS

DEFINITIONS – art. 3º

REJECTS x WASTE

DESTINATION x
DISPOSAL

WASTE HIERARCHY



PNRS Benefits



- Preserve Natural Resources
- Economic Development – New sectors and businesses (Recycling, Recovery, etc)
- Protect Environment and Public Health – dumpsites closure and stop inadequate disposal in rivers and lakes New alternatives for waste destination
- Climate Change Mitigation

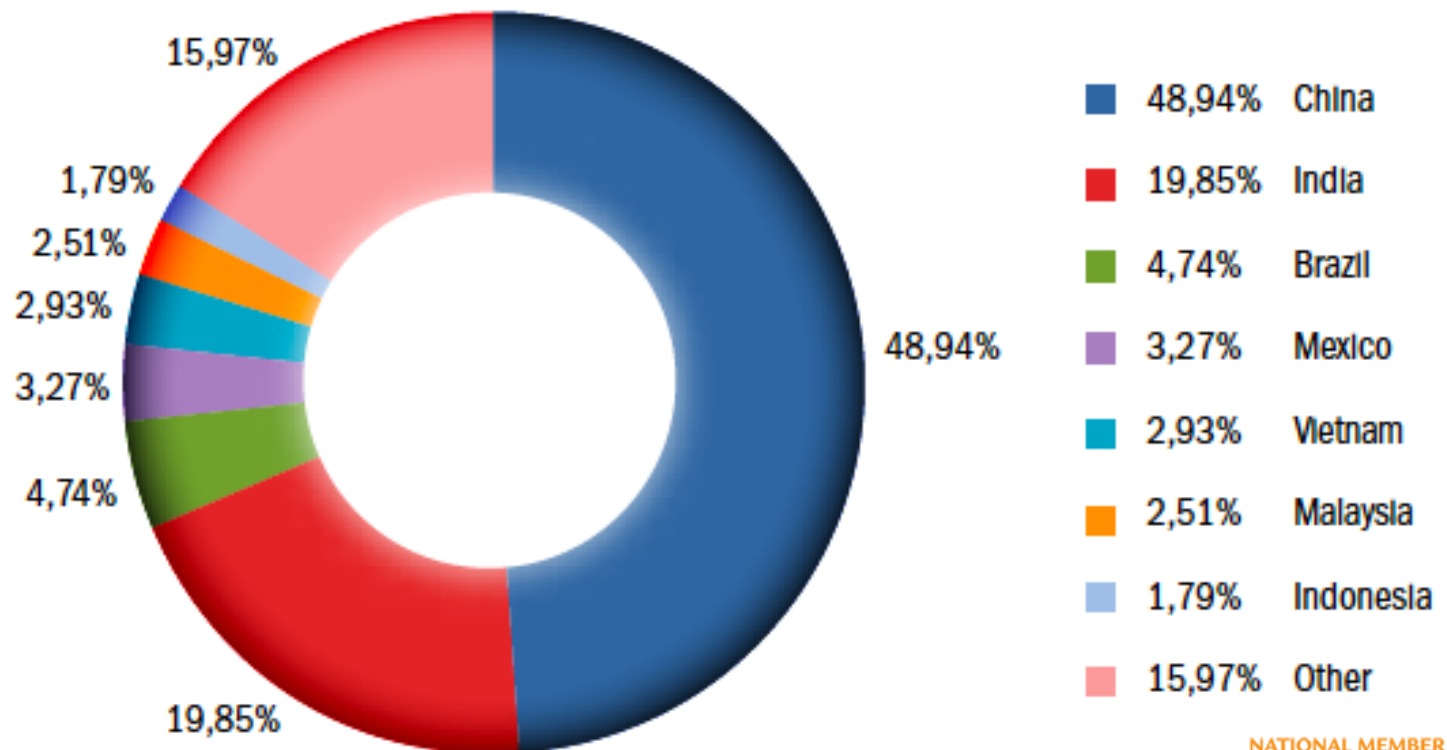


CDM Projects

CDM Projects



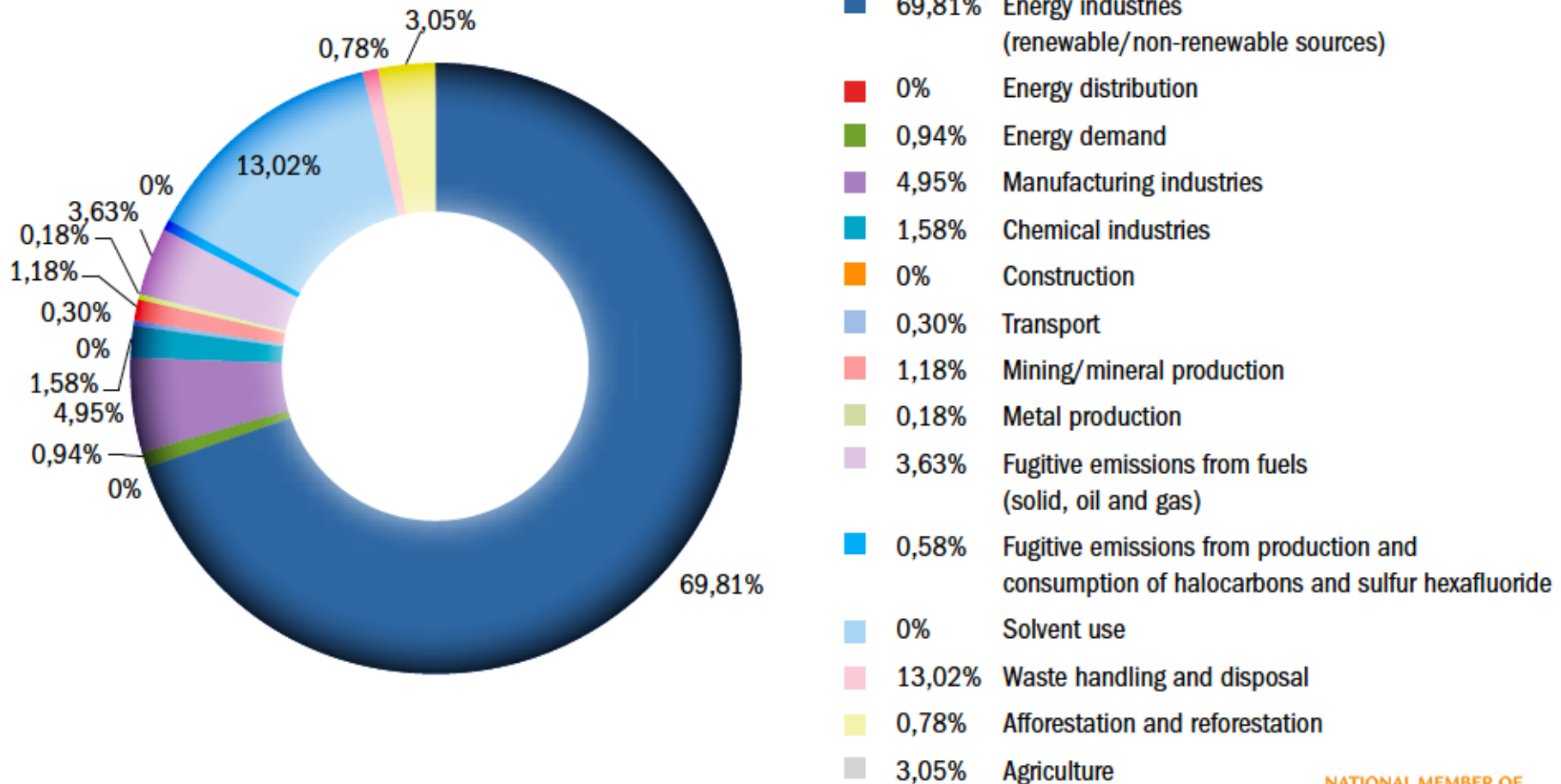
- Dez/2012: 5.511 projects UNFCCC
- Brazil: 4,7% of the projects



CDM Projects



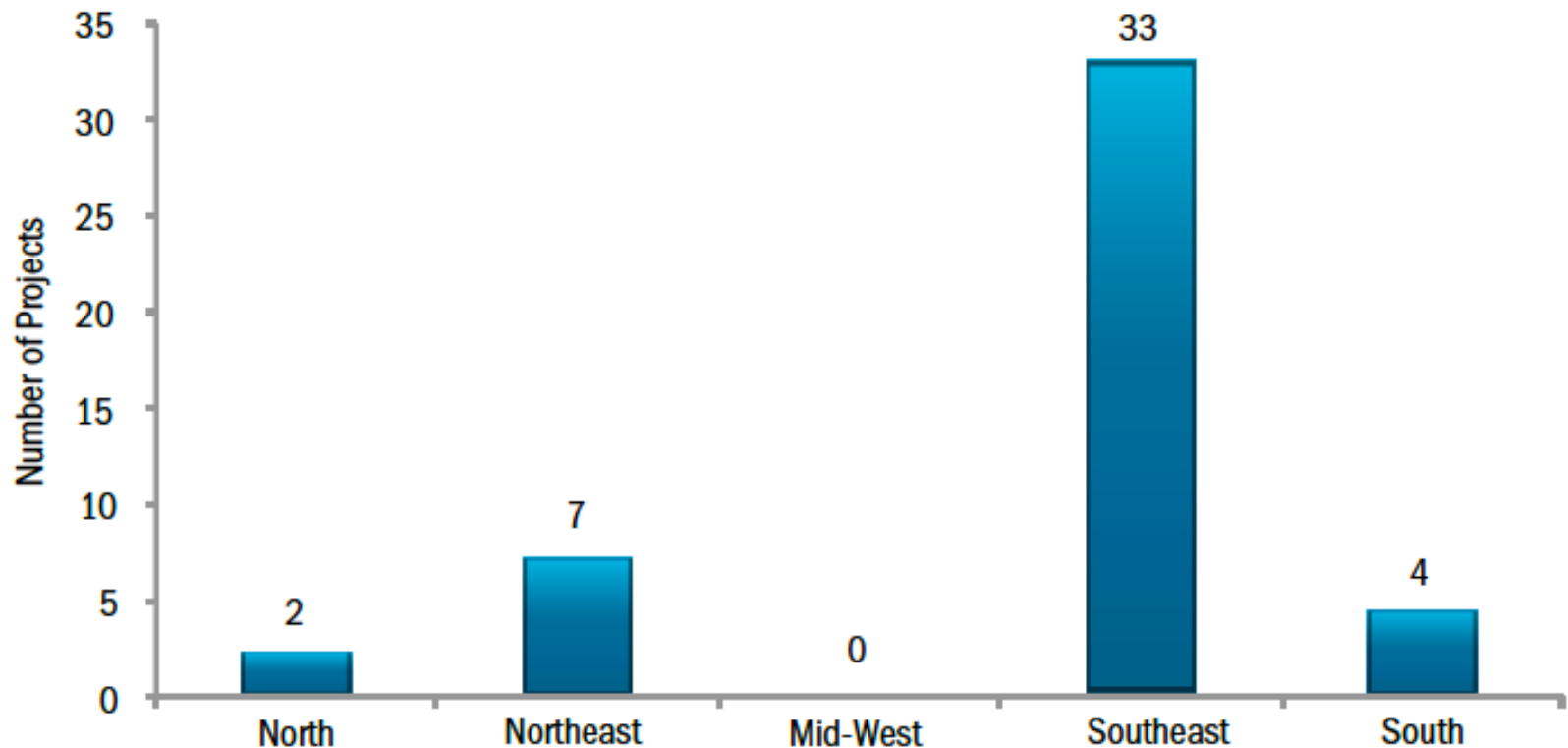
- Waste: 13%



CDM Projects



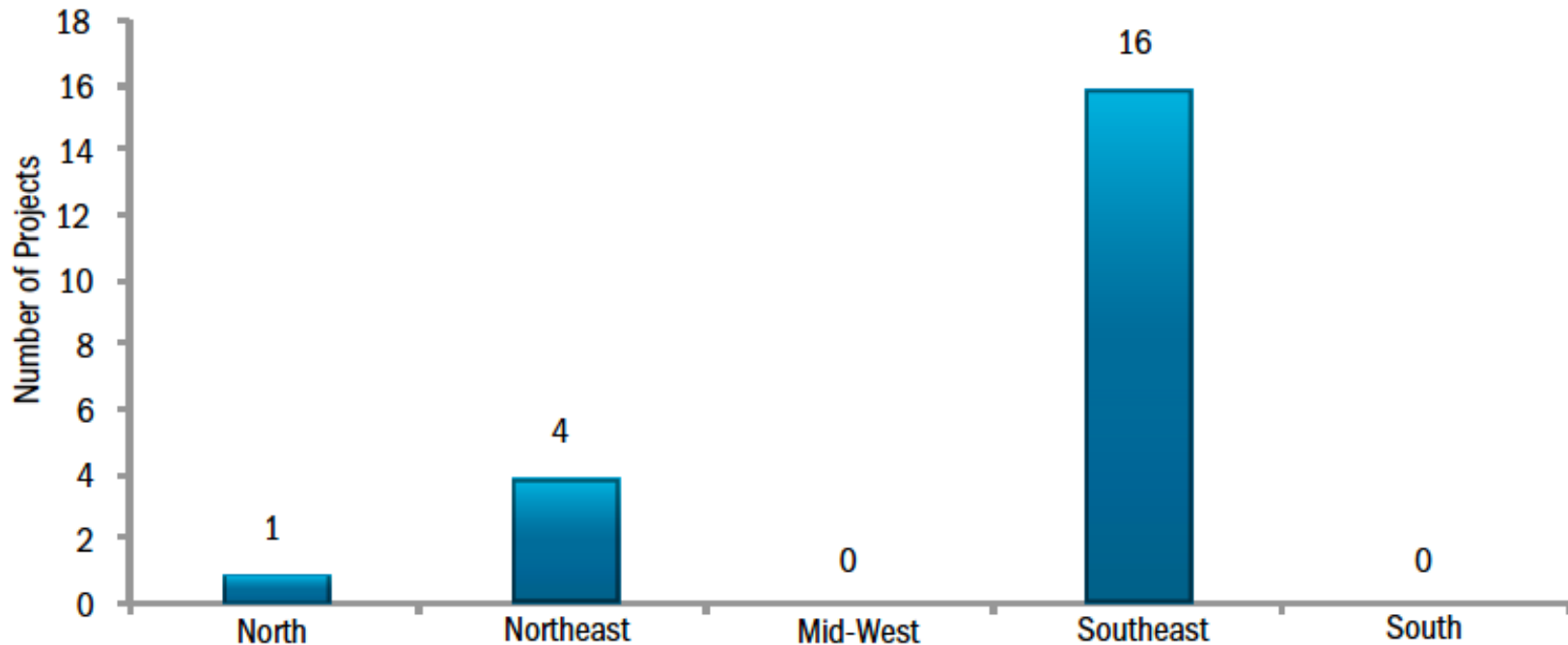
- Brazil: 46 CDM Projects (Sanitary Landfills)



Projetos MDL



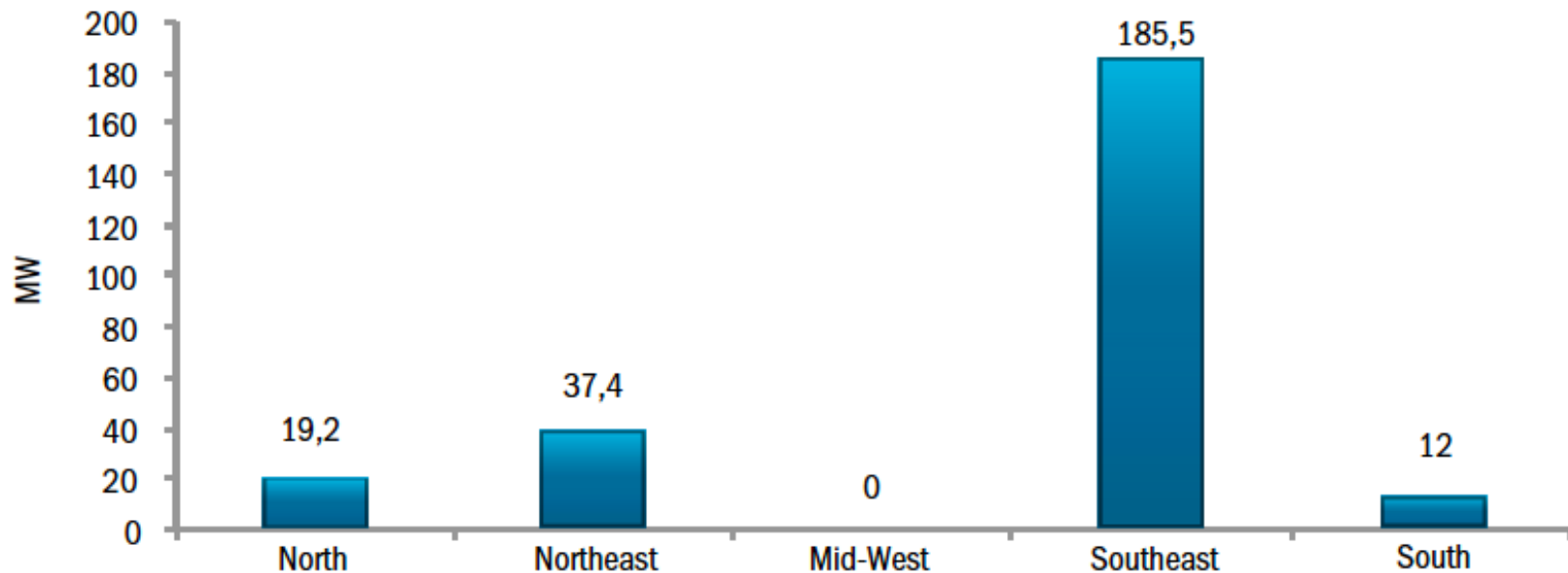
- Brazil: Electricity generation from CDM projects



Projetos MDL

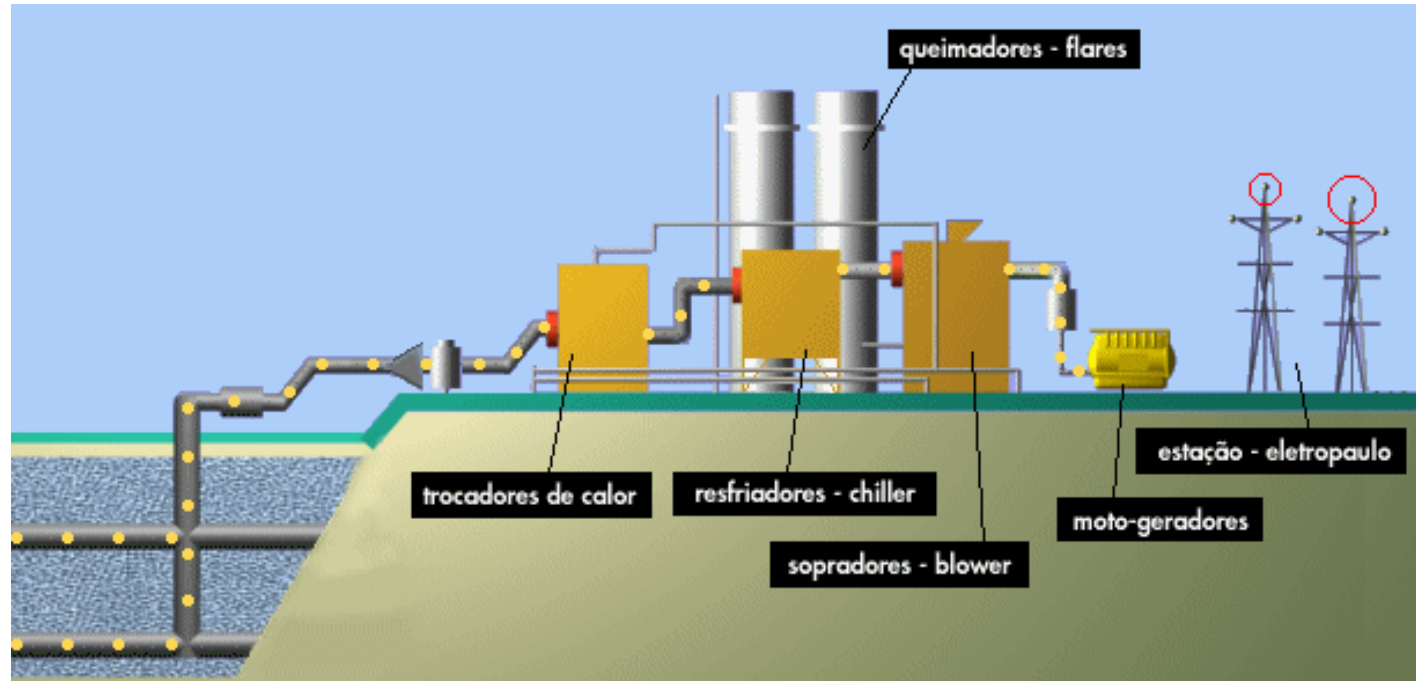


- Brazil: Installed capacity for biogas-powered generation = 254 MW



Projetos MDL

- Brazil: 2 electricity generation projects



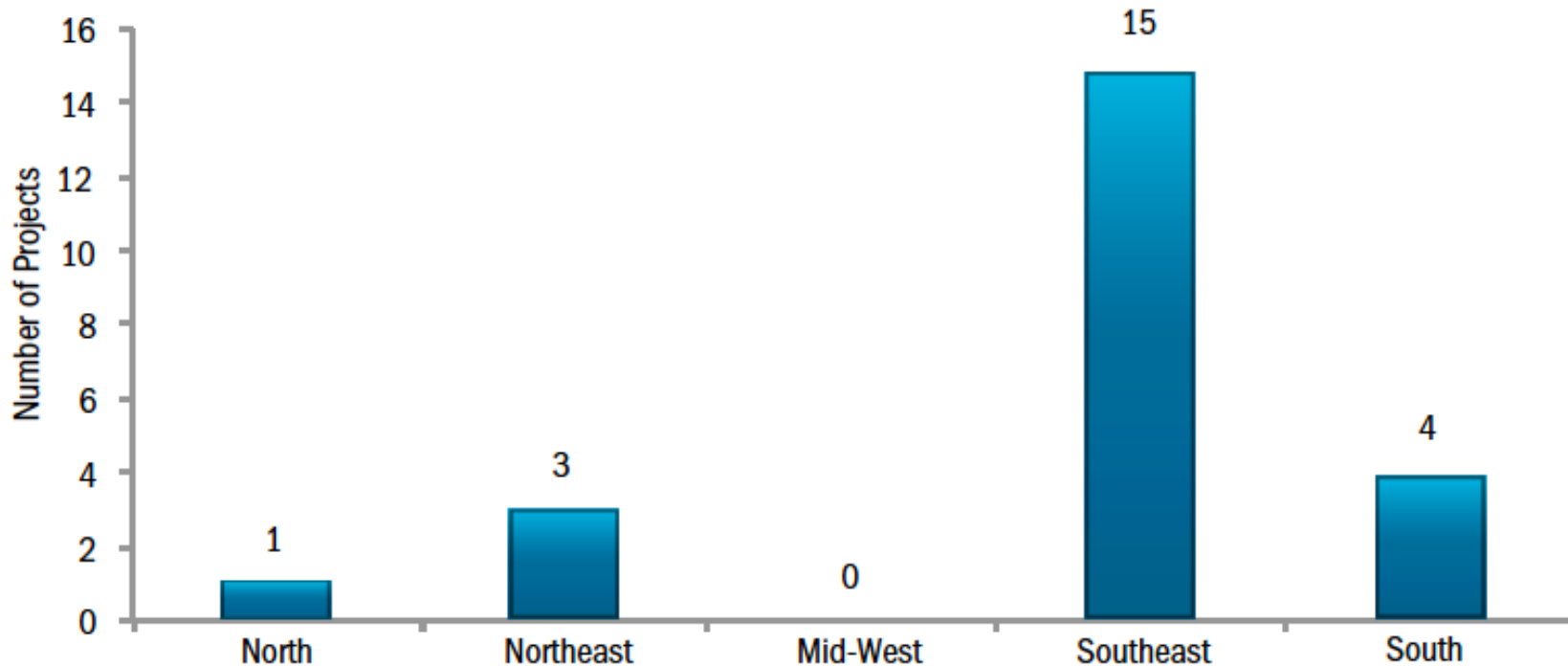
Aterro São João/SP = 476.900 MWh

Aterro Bandeirantes/SP = 755.700 MWh

Projetos MDL



- **Brasil: Biogas flaring projects**



GhG

GhG



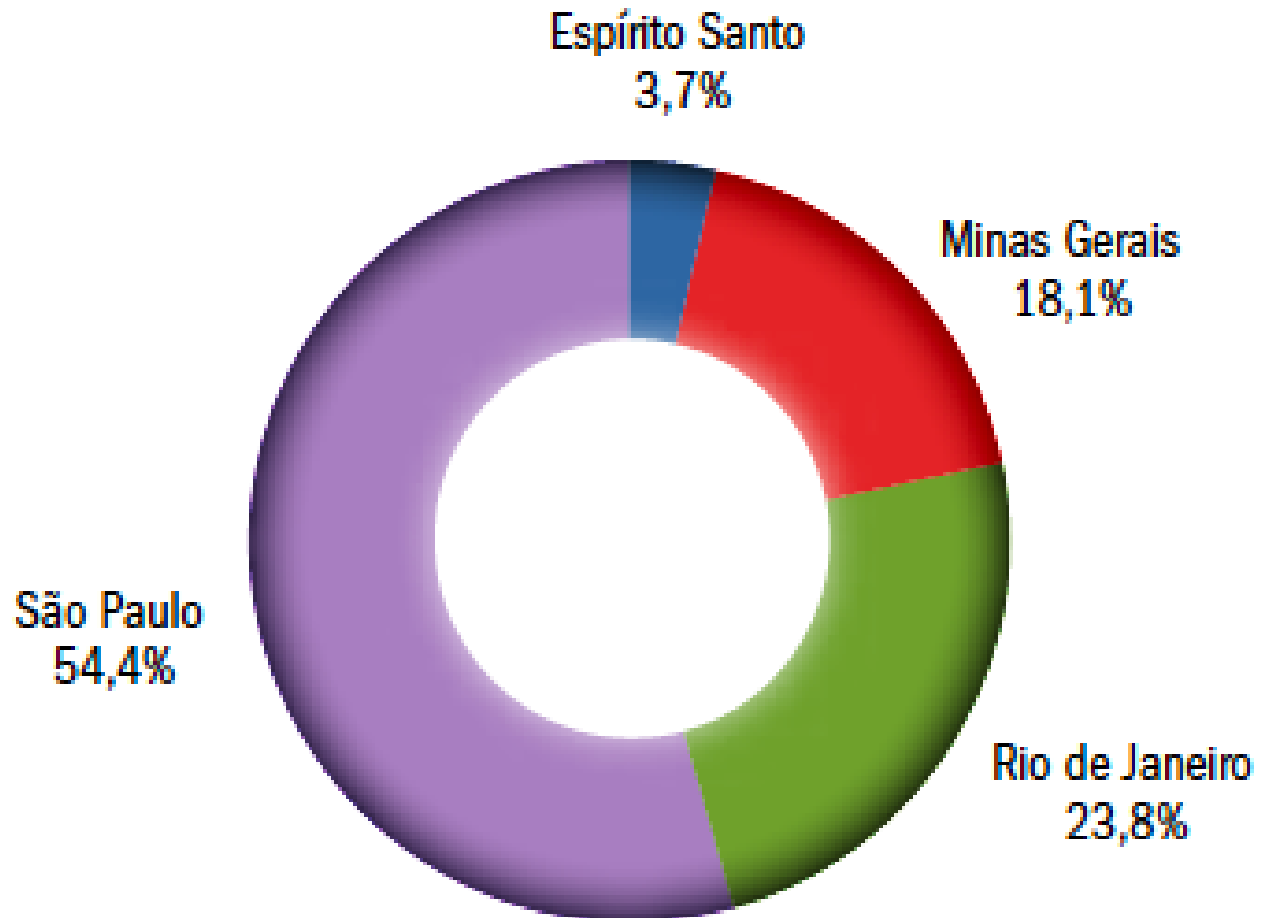
- GhG Emissions 2009-2039

Region	Sanitary Landfill (tCO ₂ e)	Controlled Landfill (tCO ₂ e)	Dumpsite (tCO ₂ e)	Total
North	27,176,948	19,293,712	11,207,468	57,678,127
Northeast	81,359,268	51,720,052	23,268,194	156,347,515
Mid-West	31,972,185	29,748,332	7,131,202	68,851,719
Southeast	448,987,315	65,900,593	22,564,710	537,452,618
South	61,264,397	7,954,859	2,693,376	71,912,632
Total	650,760,113	174,617,547	66,864,950	892,242,611

GhG Emissions



- Southeast



ENERGY POTENTIAL

Potencial Energético



- 670-800 m³/h biogas (50% CH₄) = 1MWe
- Emissions loss over 50%

REGION	EMISSIONS (M3/h)	POTENTIAL (MW)
SOUTH	18.179	23
MID-WEST	17.405	22
SOUTHEAST	135.862	170
NORTHEAST	39.523	49
NORTH	14.580	18
BRAZIL	225.549	282

PROGRAMS THAT STIMULATE RENEWABLE ENERGY PRODUCTION

Public Programs




- PROINFA: Brazilian Alternative Energy Source Incentive Program contracted 2.304.992 MW/h/year at a cost of R\$ 233 million/year (USD 120 million). The aim was to increase participation of electricity produced by Autonomous Independent Producers using wind power plants, small hydro power plants (SHP), and biomass power plants
- Reduction of fees by the National Electric Energy Agency - ANEEL: 100% reduction of the TUSD e TUST for plants generating less than 30.000 kW
- Climate Fund: R\$ 200 million for loans and funding by BNDES. For waste projects with energy utilization and renewable energy, a one-percent decrease in the interest rate over is given.

Feira RWM Brasil

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EM PARCERIA COM A 

Trans América Expo Center, São Paulo, Brasil

1-2 de outubro de 2013



September 1st to 4th, 2014 – São Paulo/ Brazil

Thank you!

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