



**Centro Clima**

CENTRO DE ESTUDOS INTEGRADOS SOBRE  
MEIO AMBIENTE E MUDANÇAS CLIMÁTICAS

# Towards a Low Carbon Future in Brazil: Voluntary Goals for 2020

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# Global Picture (Heller, 2009)

Global GHG Emissions in 2005 = 45 Gt CO<sub>2</sub>eq

- BAU in 2020 = 61 Gt CO<sub>2</sub>eq
- Pathway to long-term stabilisation of GHG concentration at 450 ppm (overshoot with concentration peak at 510 ppm, emissions peak around 50 Gt CO<sub>2</sub>eq in 2015), 40-60% probability to limit temperature increase to 2 °C
- -> Global Emissions in 2020 = 44 Gt CO<sub>2</sub>eq

Prospects for abatement of 17 Gt CO<sub>2</sub>eq in 2020:

- 5 Gt from Annex I domestic efforts
- 3 Gt from flexibility mechanisms
- 3 Gt from NAI own voluntary goals
- 6 Gt from additional NAI efforts (NAMAs)

# Brazil's GHG Emissions and Mitigation Actions in 2020

<b>GHG Emissions / Mitigation Actions Million tons CO<sub>2</sub>eq/y</b>	<b>2005 Data</b>	<b>2020 BAU</b>	<b>2020 Mitigation Scenario</b>	<b>Reduction in 2020 M t CO<sub>2</sub>eq</b>	<b>Reduction / BAU Total in 2020 - %</b>
Land Use Change	1268	1084	415	669	24.7%
Agriculture/Husbandry	487	627	461 – 494	133 – 166	4.9 – 6.1%
Energy	362	901	694 – 735	166 – 207	6.1 – 7.7%
Others	86	92	82 – 84	8 – 10	0.3 – 0.4%
<b>TOTAL</b>	<b>2203</b>	<b>2703</b>	<b>1652 – 1728</b>	<b>975 – 1052</b>	<b>36.1 – 38.9%</b>

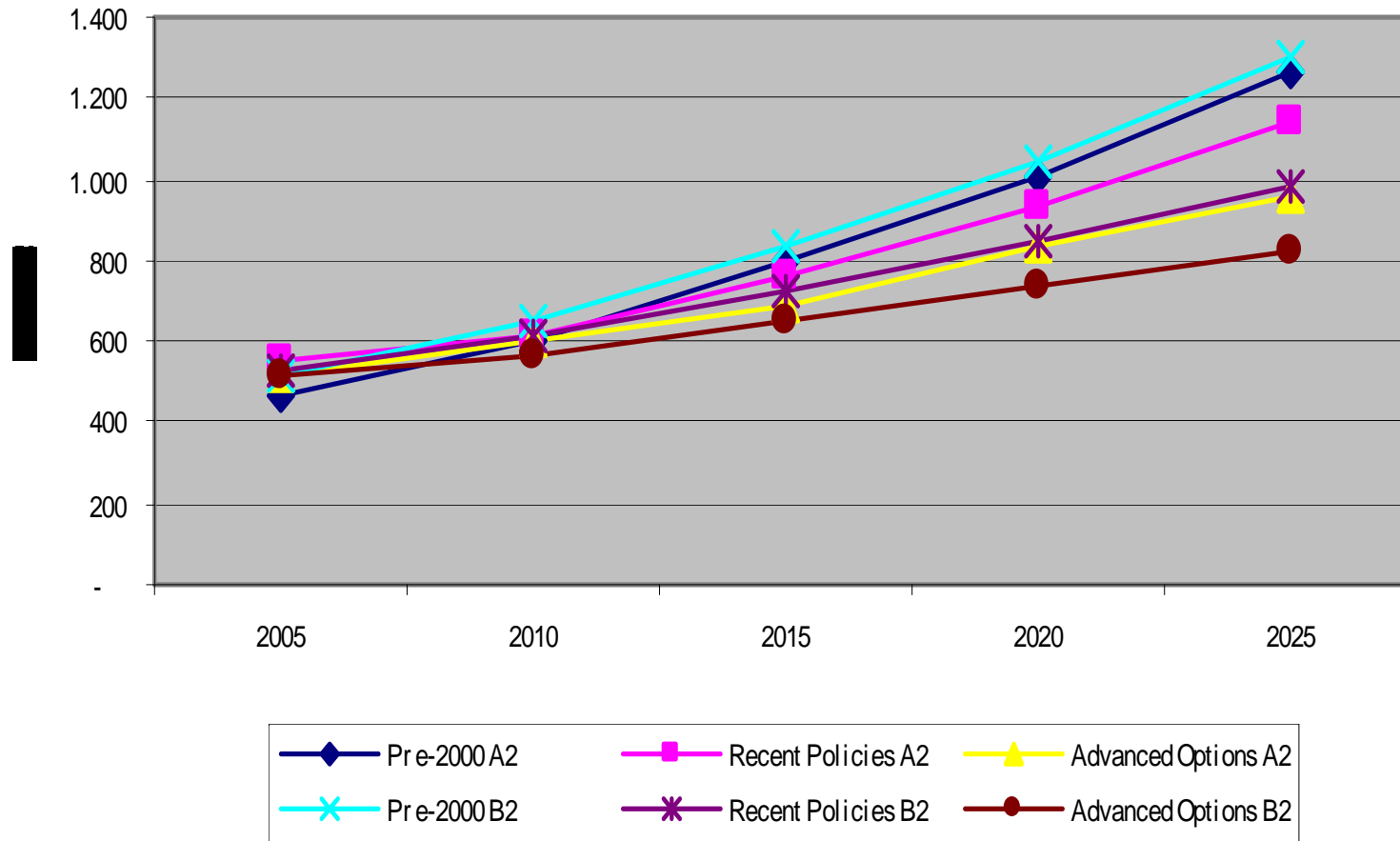
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<b>Land Use Change</b>	<b>1268</b>	<b>1084</b>	<b>415</b>	<b>669</b>	<b>24.7%</b>
REDD (Amazon)				564	20.9%
REDD (Savannah)				104	3.9%
<b>Agriculture / Husbandry</b>	<b>487</b>	<b>627</b>	<b>461 - 494</b>	<b>133 - 166</b>	<b>4.9 – 6.1%</b>
Pastures Recovery				83 – 104	3.1 – 3.8%
Agroforestry schemes				18 – 22	0.7 – 0.8%
Low / Zero tillage				16 – 20	0.6 – 0.7%
Biological nitrogen fixation				16 – 20	0.6 – 0.7%

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<b>Energy</b>	<b>362</b>	<b>901</b>	<b>694 - 735</b>	<b>166 - 207</b>	<b>6.1 – 7.7%</b>
Energy Efficiency				12 – 15	0.4 – 0.6%
Biofuels Increase				48 – 60	1.8 – 2.2%
Hydropower Increase				79 – 99	2.9 – 3.7%
Renewable power (SHPs, Biomass, Wind)				26 - 33	1.0 – 1.2%
<b>Others</b>	<b>86</b>	<b>92</b>	<b>82 - 84</b>	<b>8 - 10</b>	<b>0.3 – 0.4%</b>
Industrial Processes	37				
Waste	49				
Renewable Charcoal				8 - 10	0.3 – 0.4%

# Energy Trends (Total CO2 Emissions from the Energy System)



# Next Steps :

## Monitoring and Reporting

- Total emissions in 2020 : from 22.6% growth in BAU to 22-26% decrease compared to 2005 (from 62% to 21-27% increase compared with 1990)
- Forest protection : mostly domestic efforts
  - Amazon deforestation in BAU 2020 = 1996-2005 average = 1.95 M ha /year
  - Amazon deforestation in 2007 = 1.2 M ha
  - Amazon deforestation in 2008 = 0.7 M ha
  - Mitigation scenario 2020 = 0.4 M ha / y

## Next Steps :

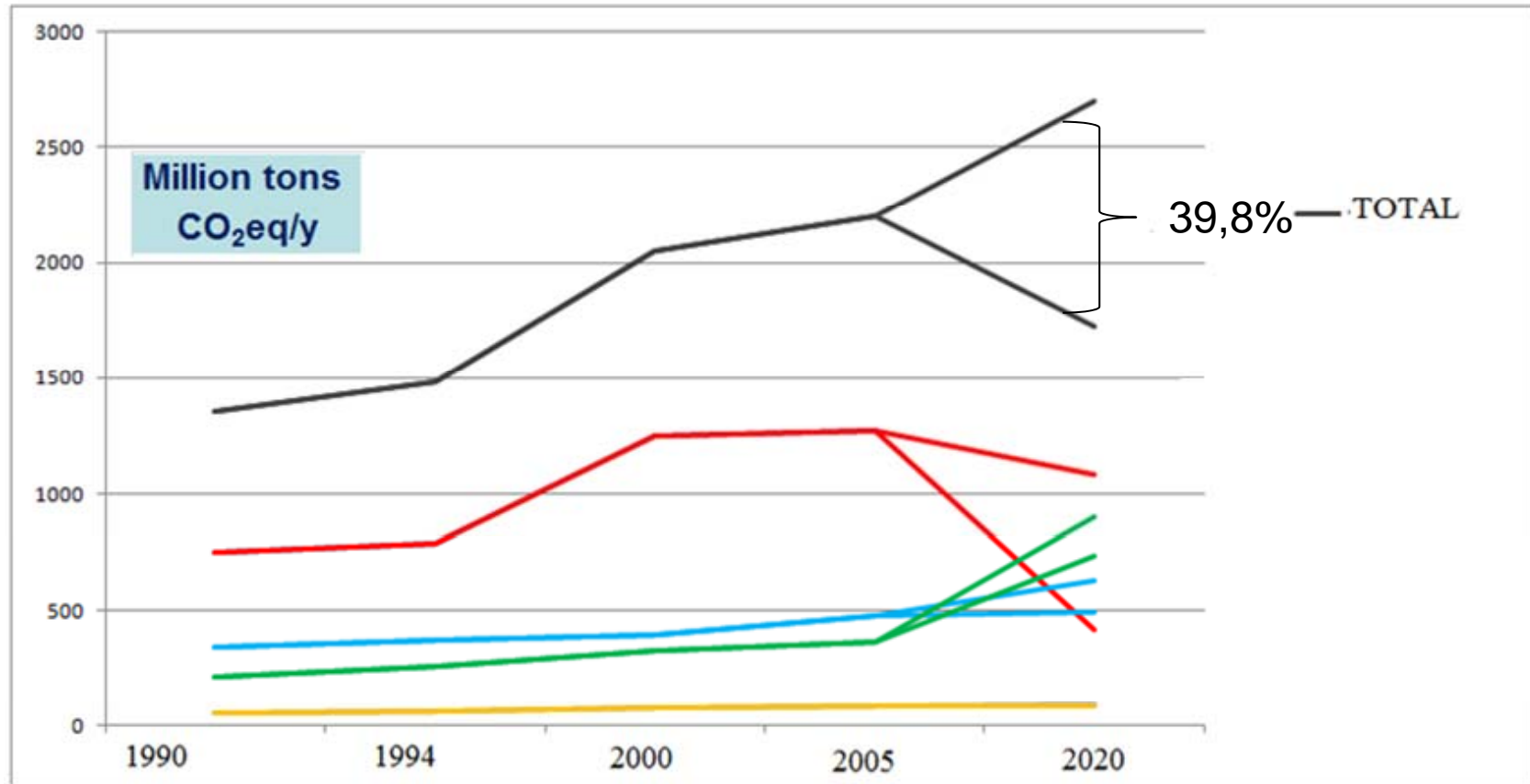
### Monitoring, Reporting and Verification

- Energy emissions growth = 3.5% p/y in 1990-2005 with GDP at 2.6% p/y
- Elasticity En.Em/GDP = 1.35 in 1990-2005
- Energy emissions in BAU 2020 = 2.5 x emissions in 2005 (6.3% per year)
- Official GDP growth targets : 4 to 6% p/y
- Elasticity En.Em/GDP in 2005-2020 = 1.05 to 1.57 (with 4.7% p/y of GDP growth, elasticity = 1.35 as in 1990-2005)
- Financial support to NAMAs



# Brazil's NAMAs

## Deviation from BAU emissions in 2020



— LAND USE 61,7%  
— AGRICULTURE 26,5%

— ENERGY 23,0%  
— OTHERS 10,9%

## National Policy on Climate Change

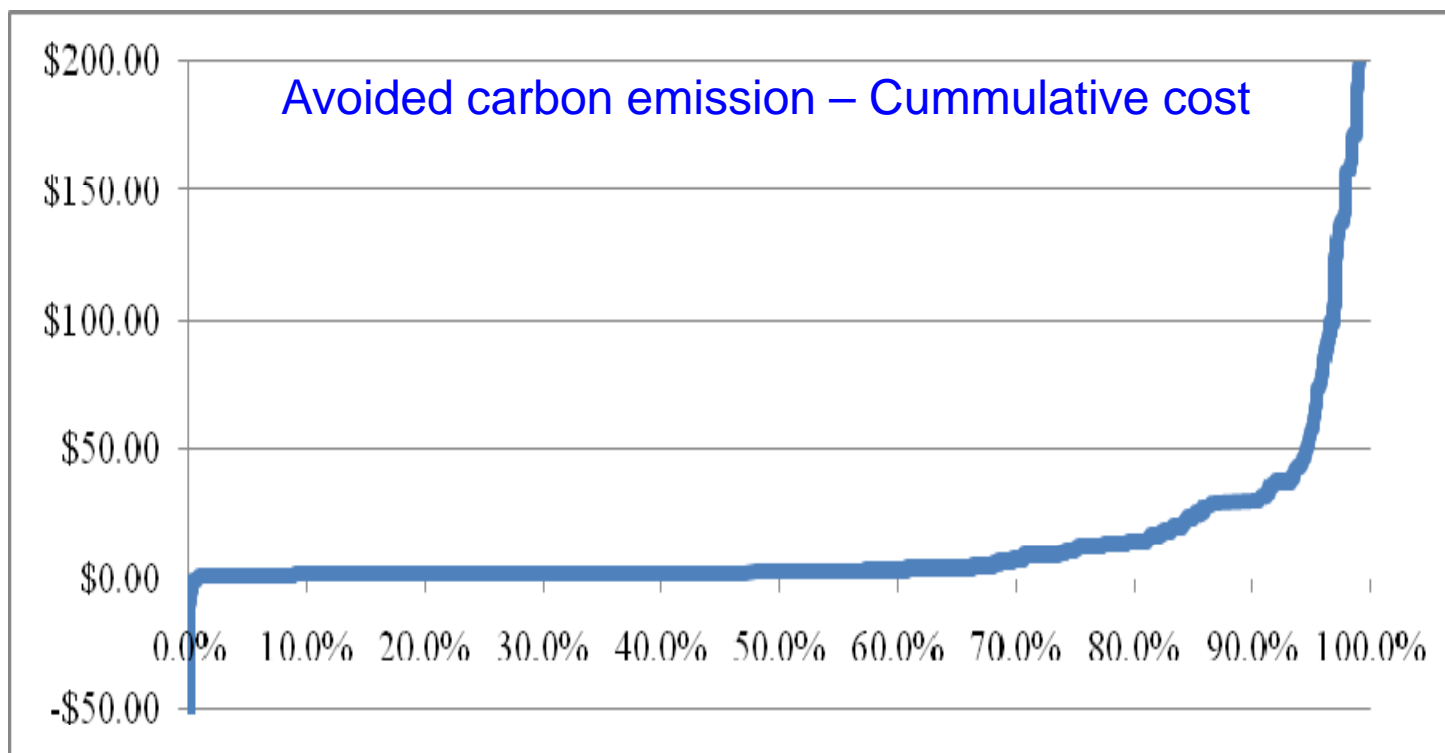
Política Nacional sobre Mudança do Clima – PNMC (Law 12187/2009) *is the regulatory framework of national efforts on climate mitigation and adaptation that sets:*

- *MRV of Brazil´s NAMAs targets and future sectoral mitigation and adaptation plans*
- *Economic instruments: tax and credit subsidies and carbon markets to accomplish targets*
- *Governance instruments: policy-making structure that includes scientific, civil society and governmental institutions*

*It is under implementation and needs further adjustments to take care of additional governance arrangements (autonomous agency?) to align MRV efforts and sectoral plans with economic instruments*

# REDD Regulation (1)

- ❑ The so well-publicized REDD low cost estimates (+/- US\$ 5 /t eq CO<sub>2</sub>) do not account for property right valuation that affect deforestation decisions and REDD + needs to be carefully designed



Source: Margulis and Dubeux, 2010

## REDD Regulation (2)

- ❑ Apart from the current successful monitoring and regional policies, deforestation control in Brazil will need to rely on REDD + mechanisms and Brazil is currently designing its national REDD Regime
- ❑ The regulatory framework aims to be compatible with other regulation on forests, biodiversity and climate change and sets payment incentives that increases permanence and reduces leakage
- ❑ The various current REDD experiments have adopted distinct MRV and payment schedule approaches and lessons drawn indicated that challenges are how to align:
  - ❑ current MRV trends and UNFCCC initiatives
  - ❑ offsetting and funding mechanisms
  - ❑ Incentives payments with social needs

Thank you