



# **Technology, Territory and Toil: social responsibility and the international commodification of ethanol**

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# Overview of presentation

- Link internationalisation of Brazilian produced ethanol to
  - EU policy on renewable fuels
  - Corporate lobbies and global finance
- Implications for work in the sector and rural livelihoods
- Challenges to creation of socially responsible, committed, sustainable work

# EU policy on renewable energy

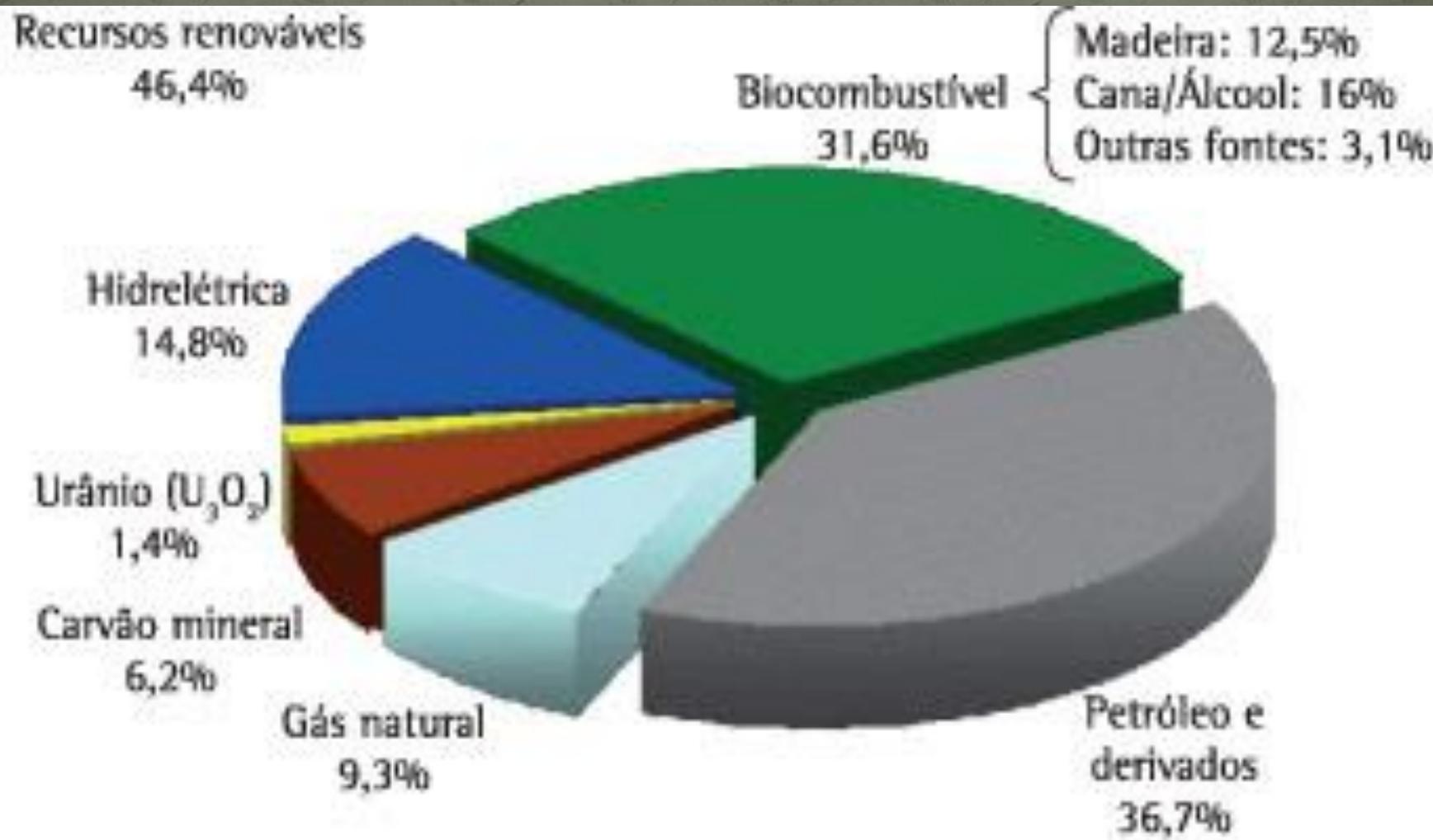
- Following the Kyoto Protocol of 2005, 20 per cent of EU members' energy needs should be met by renewable resources by 2020; 10% of transport fuel should be 'green'.
- Liquid biofuels have been favoured by corporate lobbies
  - No radical change to energy infrastructure
  - Relatively cheap conversion for transport manufacturers

(Source Renewable Energies Directive 2009/28/EC )
- Biofuels may form 25% of EU transport fuel by 2030
- Half of the EU biofuel supply could come from imports by 2030 (Biofrac 2006)

- ‘When favouring the development of the market for renewable energy sources, it is necessary to take into account the *positive impact on regional and local development opportunities, export prospects, social cohesion and employment opportunities*, in particular as concerns SMEs and independent energy producers’

DIRECTIVE 2009/28/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009

# Brazil



## Current cultivated area (ha)

Soy	22.2 million
Sugar cane	6.2 million
Eucalyptus	3.0 million
<b>Total</b>	<b>31.4 million</b>

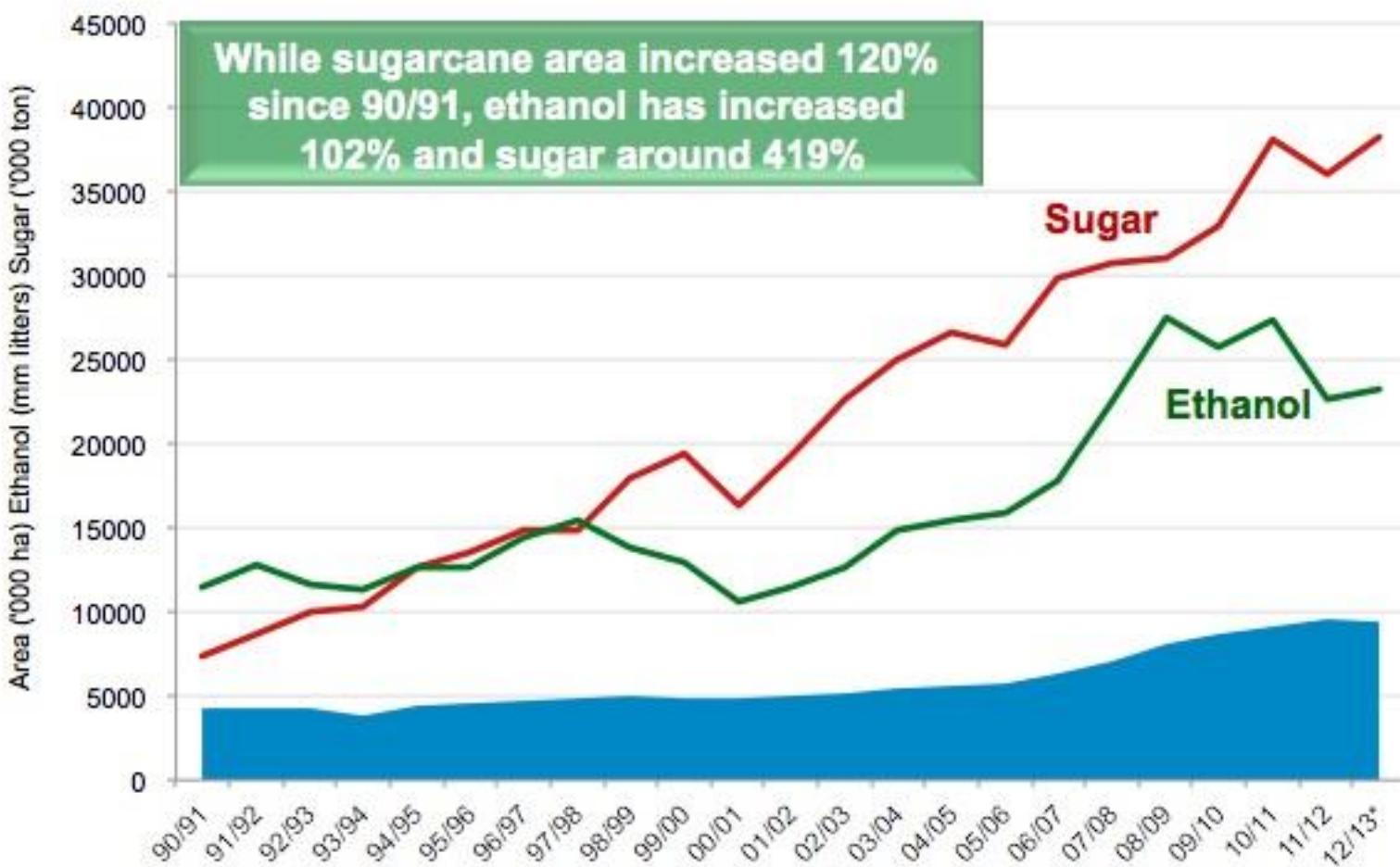
Source: IBGE.



**314 thousand km<sup>2</sup>** =  
of area planted with  
soy, sugar cane  
and eucalyptus.

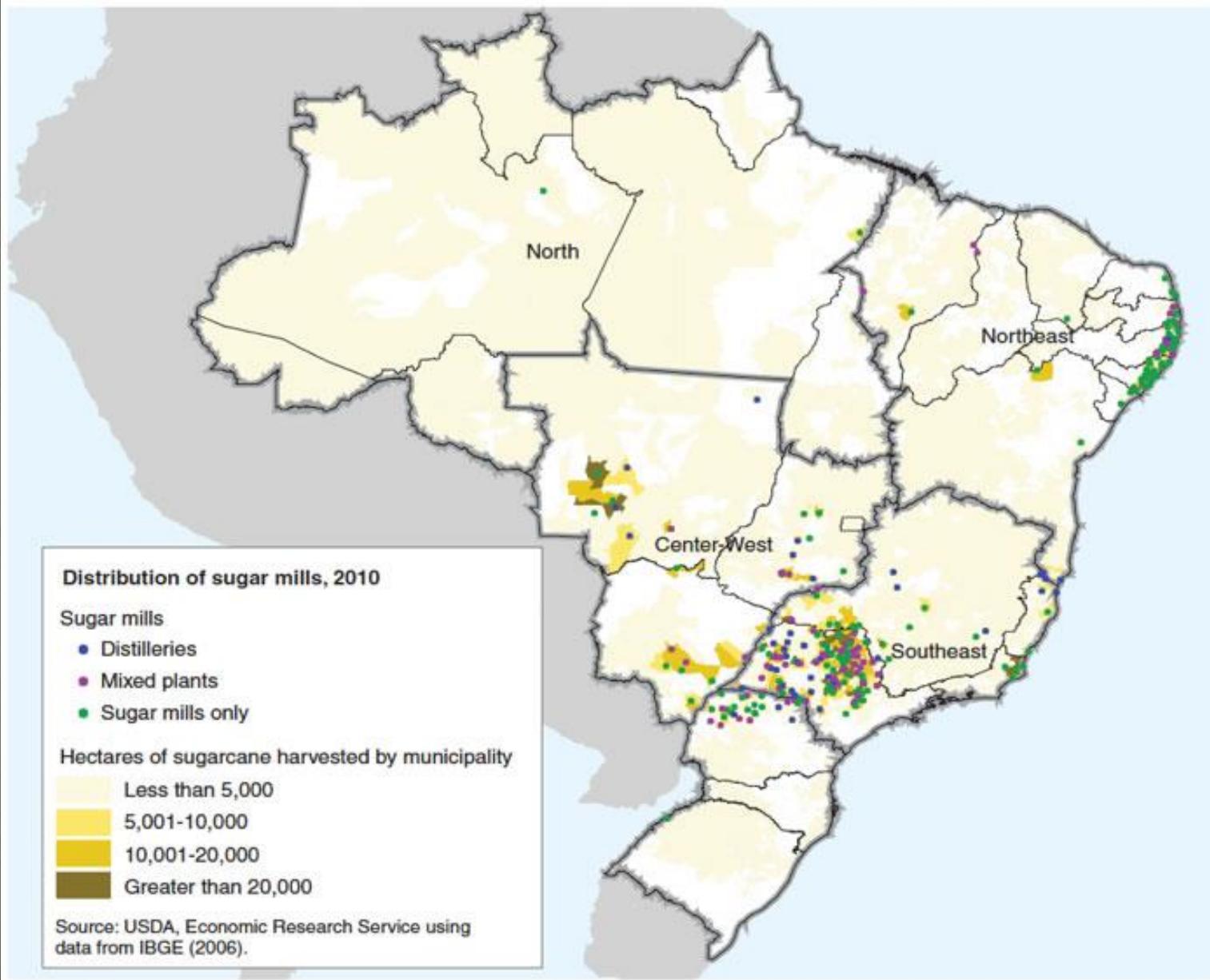


## SUGARCANE IN BRAZIL: HARVESTED AREA, ETHANOL & SUGAR PRODUCTION

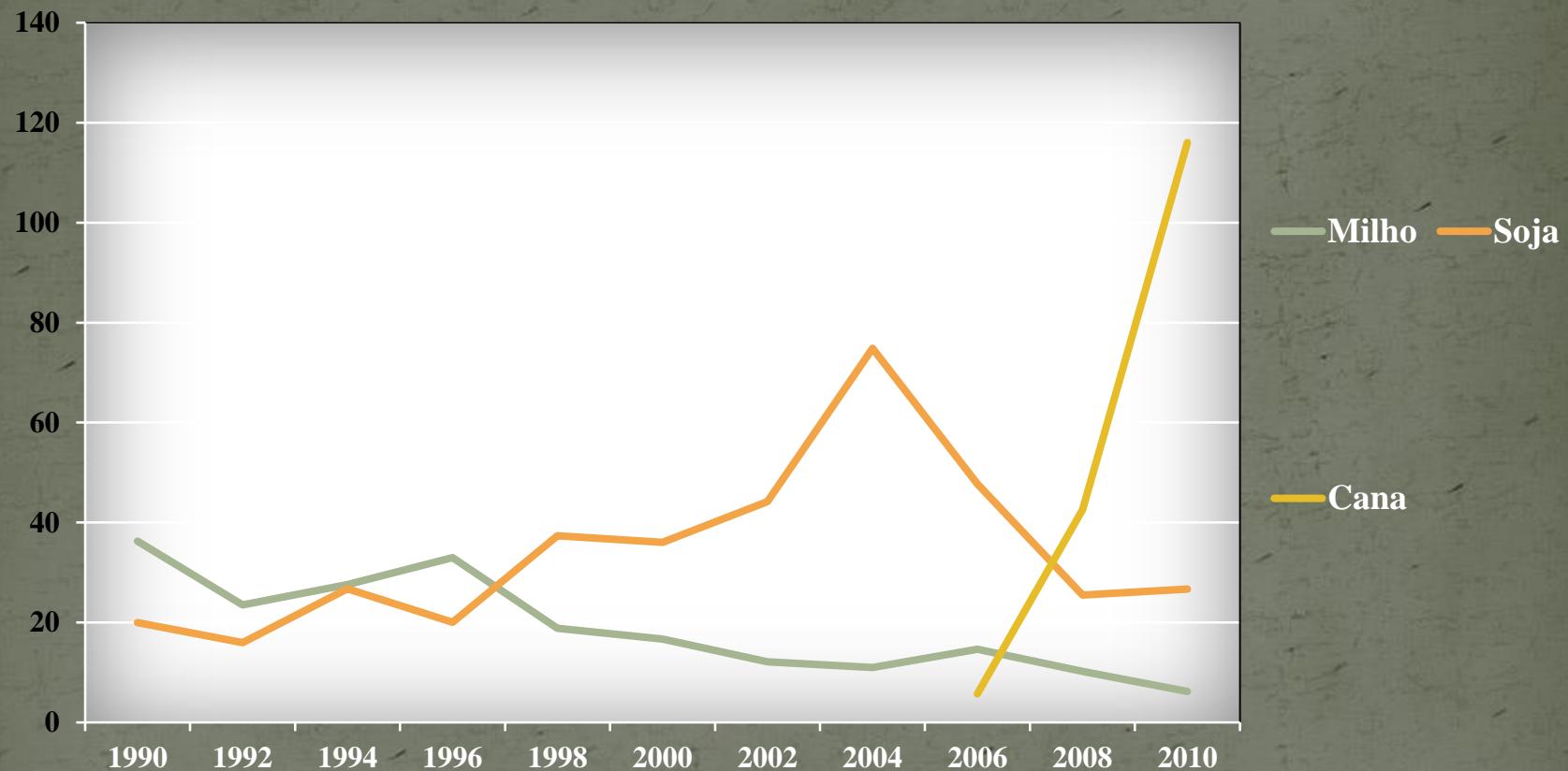


Sources: IBGE and UNICA. Prepared by UNICA.  
Note: \* estimated

Figure 4  
Distribution of mills and distilleries, 2010



mil/ha



Source: S S de Castro, UFG

# Internationalisation

- Brazilian Sugarcane Industry Association (UNICA) received 162 representatives from 83 countries in 2009
- 99 mergers took place in industry 2000 – 2010
- Four of top 5 companies were more than 50% controlled by foreign capital by 2009
- Foreign investment tripled in wake of financial crisis 2008-2011

# Innovation

‘[...] incessantly revolutionizes the economic structure *from within*, incessantly destroying the old one, incessantly creating a new one’.

- J Schumpeter (1942: 82-83): Innovation averts / postpones crises over time
- D Harvey (2001; 2003): capital shifts its internal contradictions around in *space*, redistributing risk geographically while compressing time

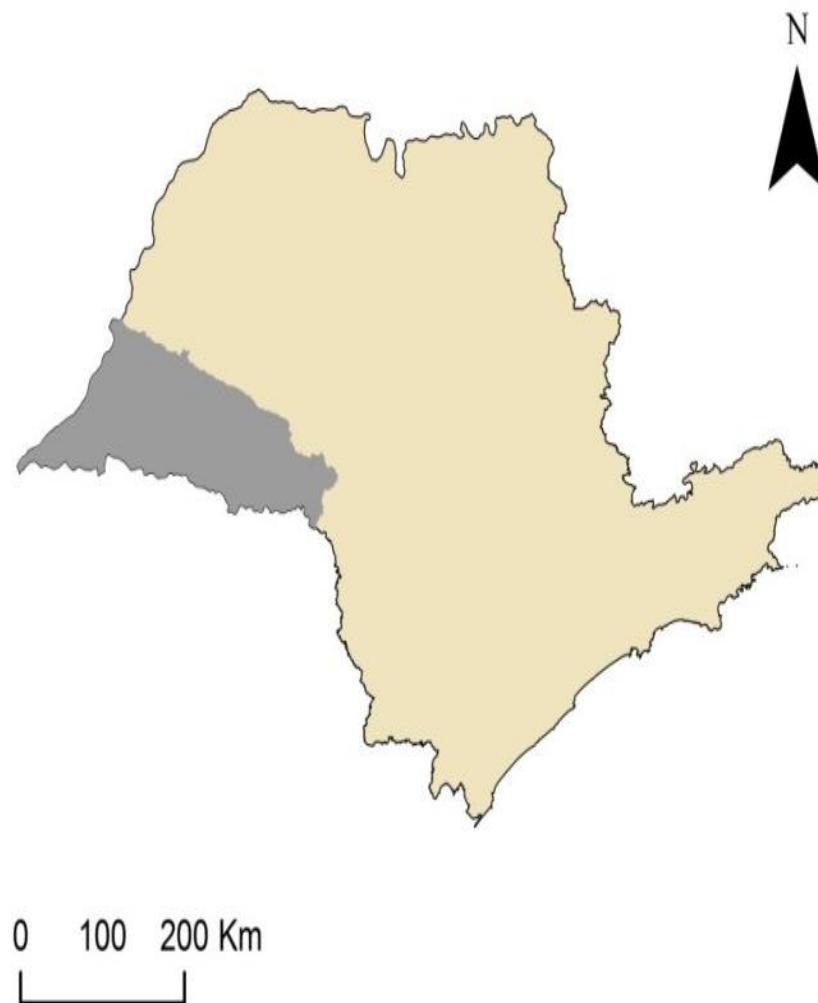
Crises overcome (for now) as:

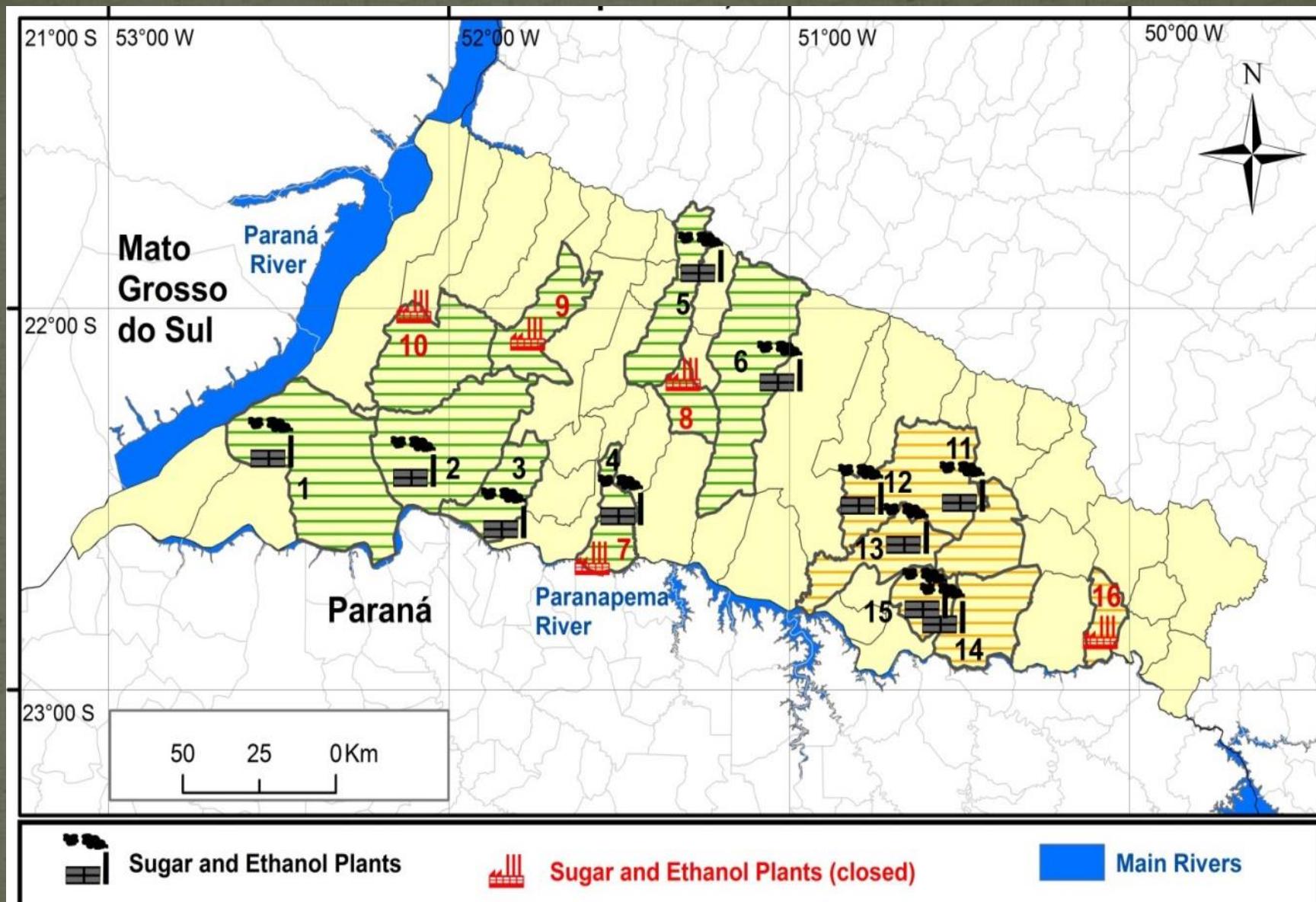
- 1) new external markets are created across geographic space
- 2) time is "bought" by investing surplus capital in long-term projects (training, infrastructure, R&D, logistics that overcome spatial barriers and generate profits in the future);
- 3) existing machinery, technology is renewed or replaced, creating new production facilities, and
- 4) the population available to work is expanded through the separation of workers from the means of production

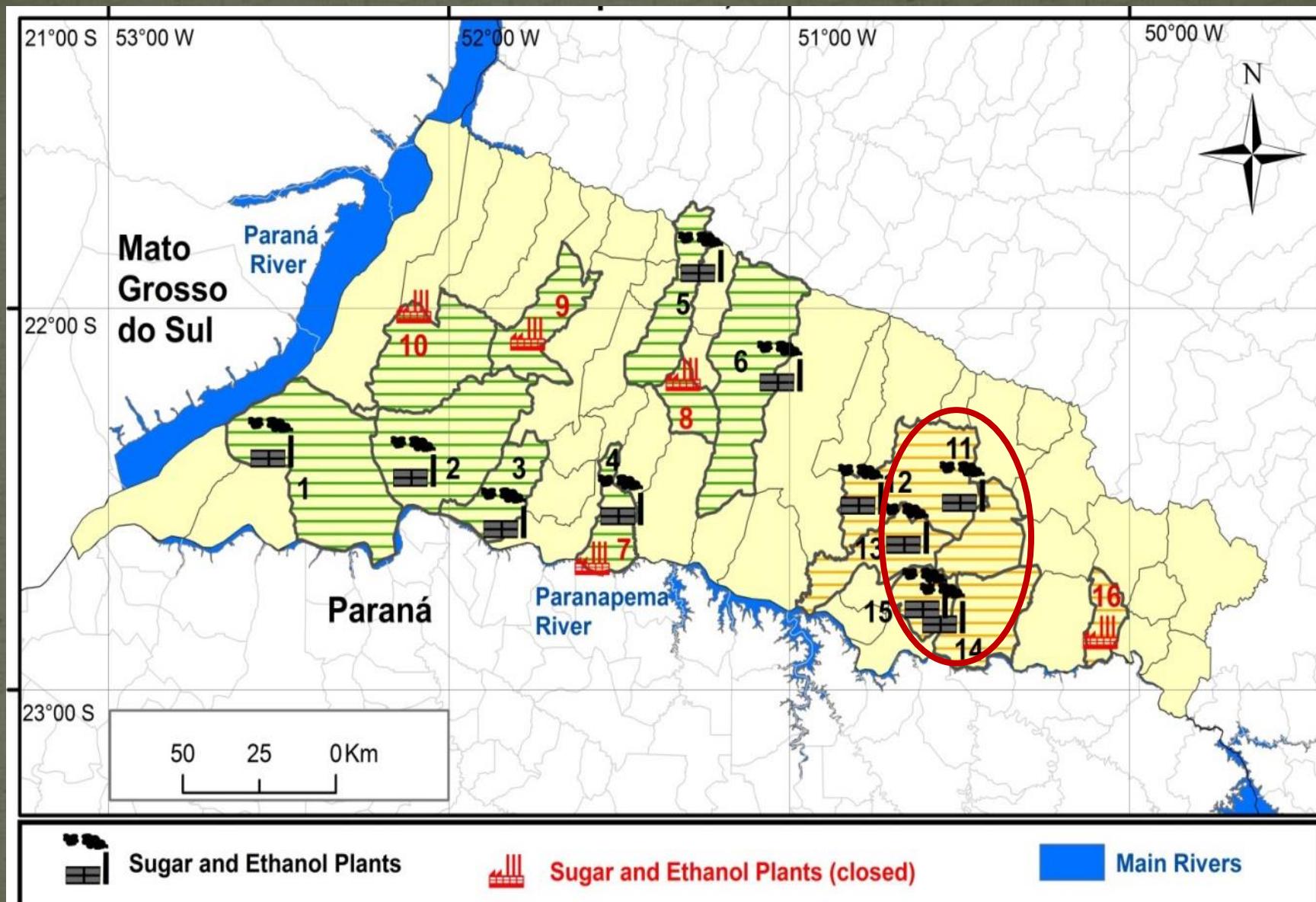
Location of São Paulo state in Brazil



Location of the study sites São Paulo state, Brazil.







# Creative destruction

- Cosan transferred its debts of \$240 billion in its merger with Shell in 2010 to form US\$12 billion ‘Raizen’

‘to turn ethanol into an international commodity’

(Cosan, Raizen 2010)

- 60 million tonnes of sugar , 2 billion litres of ethanol from 24 distilleries and 23% market share

# Creative destruction

- By 2011 Raizen Maracai -1.7 million tonnes of cane sugar from around 24 000 ha, producing 130 million tons of sugar and 63 million litres of ethanol
  - World's first distillery to receive the seal of the EU Better Sugar Initiative, increasing its export potential
  - Population has fallen from 18 000 to 13 000 since 1980s
  - Wages (average R\$1 020) remain among lowest in the state
- Pau d'Alho, controlled 8 700 ha of cane sugar. Closed in 2012
- US\$26 million in unpaid wages and entitlements.
- Almost 2000 workers lost their jobs
- Ibirarema, 7200 inhabitants, declared a state of emergency



*Ibirarema July 2013*



*Assis March 2013*



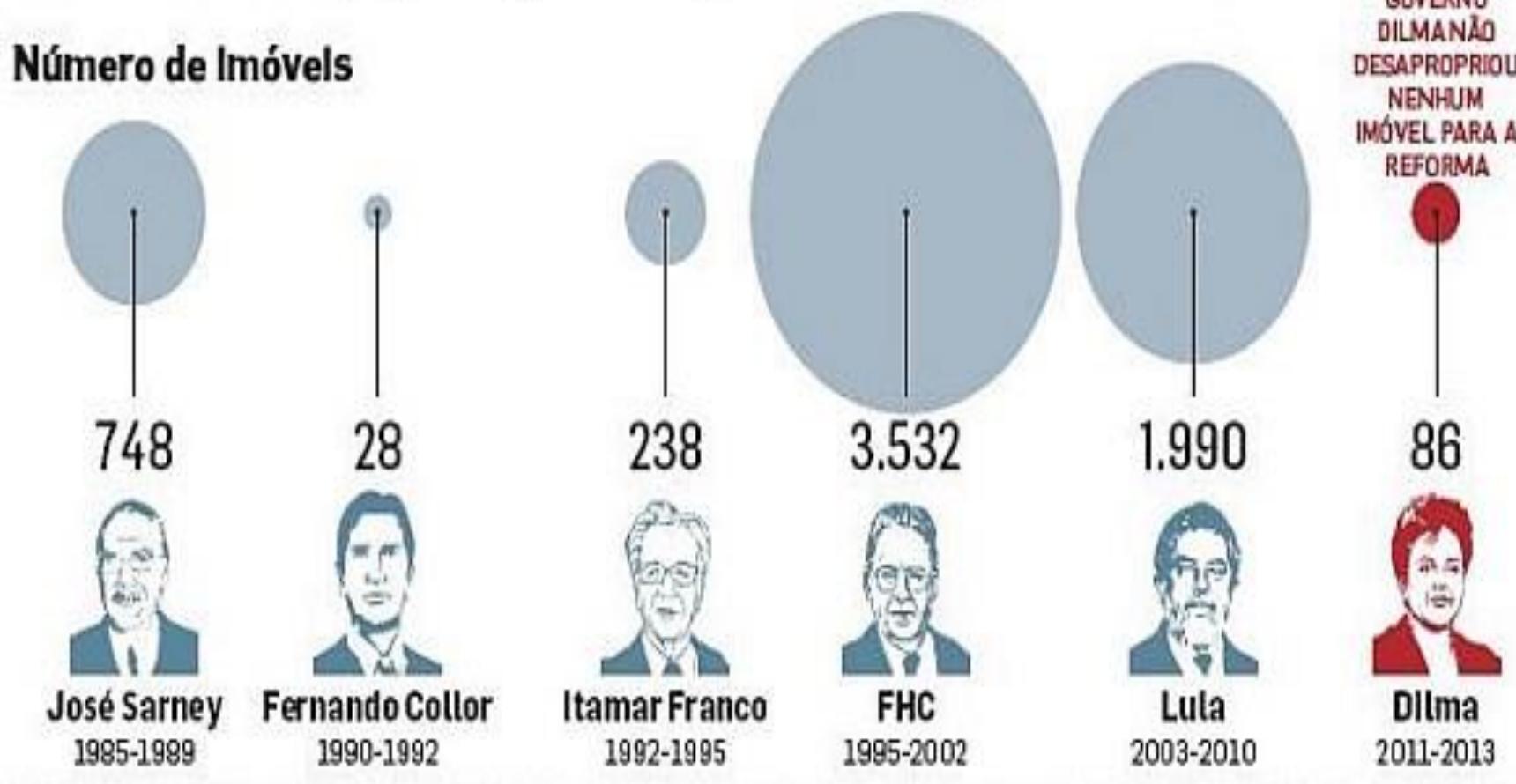
*MST encampamento Mato Grosso do Sul July 2013*



# RITMO LENTO

- Imóveis rurais desapropriados por decreto para a reforma agrária

## Número de Imóveis



FONTE: INCRA/SINDPAF

INFOGRÁFICO/ESTADÃO

Source *Estado do S.Paulo*, 2013

- Government provided R\$28.2 billion in credit (PROALCOOL cost R\$7 billion) 2000-2010; further R\$1 billion for advanced technologies
- 36 mills went into bankruptcy protection and 43 were closed in the five years since 2008, costing 13 000 direct and 32 000 indirect jobs in Sao Paulo (*Folha de S. Paulo* 2012)
- 18,000 workers lost jobs last year alone
- Of Central South's 330 mills a further 60 will close or face takeover in 3 years (UNICA, 2014)
- The debt in the sugarcane sector will be U.S. \$ 56 billion at the end of the 2013/2014 harvest
- The revenue from mills in South-Central is estimated at about U.S. \$ 60 billion .

(Source Itau BB, 2014)

# Monoculture & Mechanisation



# Three quotes

- ‘As a large company, Raizen contributes substantially to social sustainability. There is less reliance on manual labour – in the harvest of 2011/2012 more than 70% of the cane will be harvested mechanically’  
(Raizen at International Agency 2011 ).
- “Now with the cane cutters you have to give them breaks, they have to stop when its too hot, they’ve to get shade, water. Costs go up, productivity goes down. A machine does the work of 100”  
(Control systems manager for 60% of sector)
- “No one cares for the rural worker, it does not matter one bit if we live or if we die”  
(Pedro, cane cutter, Maracai, Sao Paulo)

# *Innovation of labour process*



# Work unsustainability

- Modernisation *IS* the reproduction of inequality, exclusion, work intensification and precarity-not just for cane cutters; slavery, structural adjustment (agriculture-41% exports; 3 million rural jobs lost), ‘lean’ production by MNCs
- Workers are unable to reproduce their work effort, their labour power, without detriment to their physical and spiritual wellbeing.
- A worker is held in conditions ‘analogous to slavery’ if ‘subjected to forced labour or an exhaustive routine, to degrading work conditions or has mobility restricted by any means due to debt to the employer or agent’

(Minister of Work and Employment ,2003)

# Intensification and precarity

- Workload: 3-5 tonnes 1980, 10 tonnes in 2009; seasonal workers 16 tonnes today in piece rate/pay by production
- 14 deaths in SP of workers (24-50) in 2006-2007
- Work conditions: Over half the 6-7000 workers free from slave like conditions 2000-2009 were migrant cane cutters, Cosan implicated
- Second largest 'rescue' in 2012 was in Parana
- Sugar cane truck drivers subject to *fourth* party sub-contracting; working 24 hour shifts; 5 killed in 2011-2012 in Pontal
- 30% of serious injury or death in food manufacturing 2013 was in sugar production

# National agreement

- June 2009 the voluntary National Commitment for the Improvement of Labor Conditions (NLC) signed by 300 companies
- President Dilma Rouseff presented certificates to 169 companies that had been audited by 2012.
- ‘historic moment in relations between capital and labour’ (Secretary General 2012).



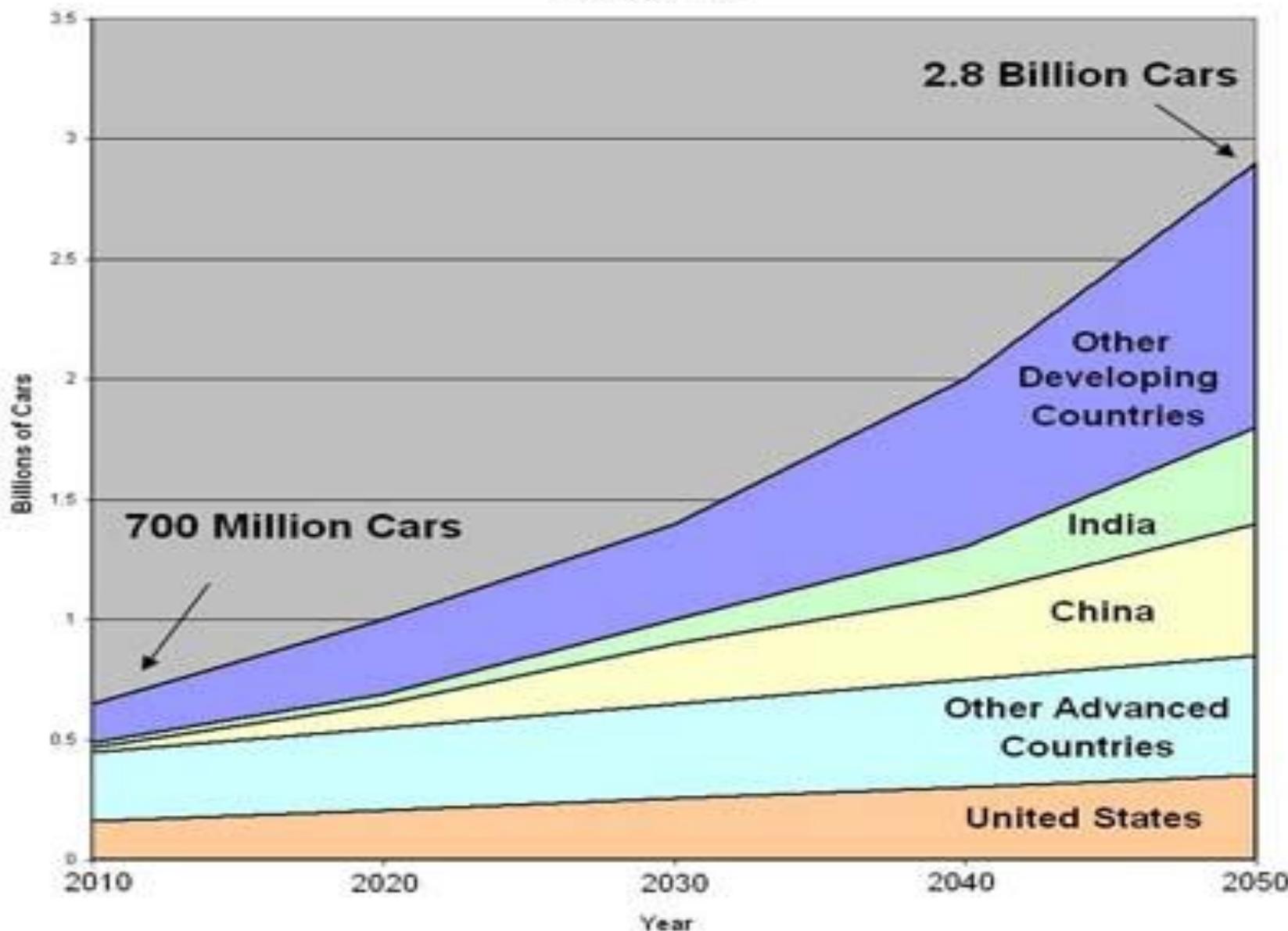
- By end of 2012 60 of these companies investigated for serious labour violations that included the exhaustion, illegal sub-contracting and degrading treatment of workers.
- 39 workers freed from slave-like conditions and 27 hour shifts in Goias were in *mechanized* cutting of cane.
- In São Paulo, 26 of the 85 agreement's signatories were involved in labour court actions
- Cosan/Raizen Energia, the largest plant in the country faced 35 violations and had one conviction on appeal
- Second-largest 'rescue' from slave-like conditions in the country concerned the three time President of the Association of Bioenergy Producers of Paraná only months after audit

# The market

- Historical block
- WTO, 2014; EC 2009; IEA, 2011; World Bank, 1997-non interference with internal market and international trade
- Subsidies, credit capture justified on ground of cost of new technologies
- Land rights and fair pay were excluded from Renewable Energy Directive, partly on grounds they would contravene WTO rules of free trade (EP Envi 2008)

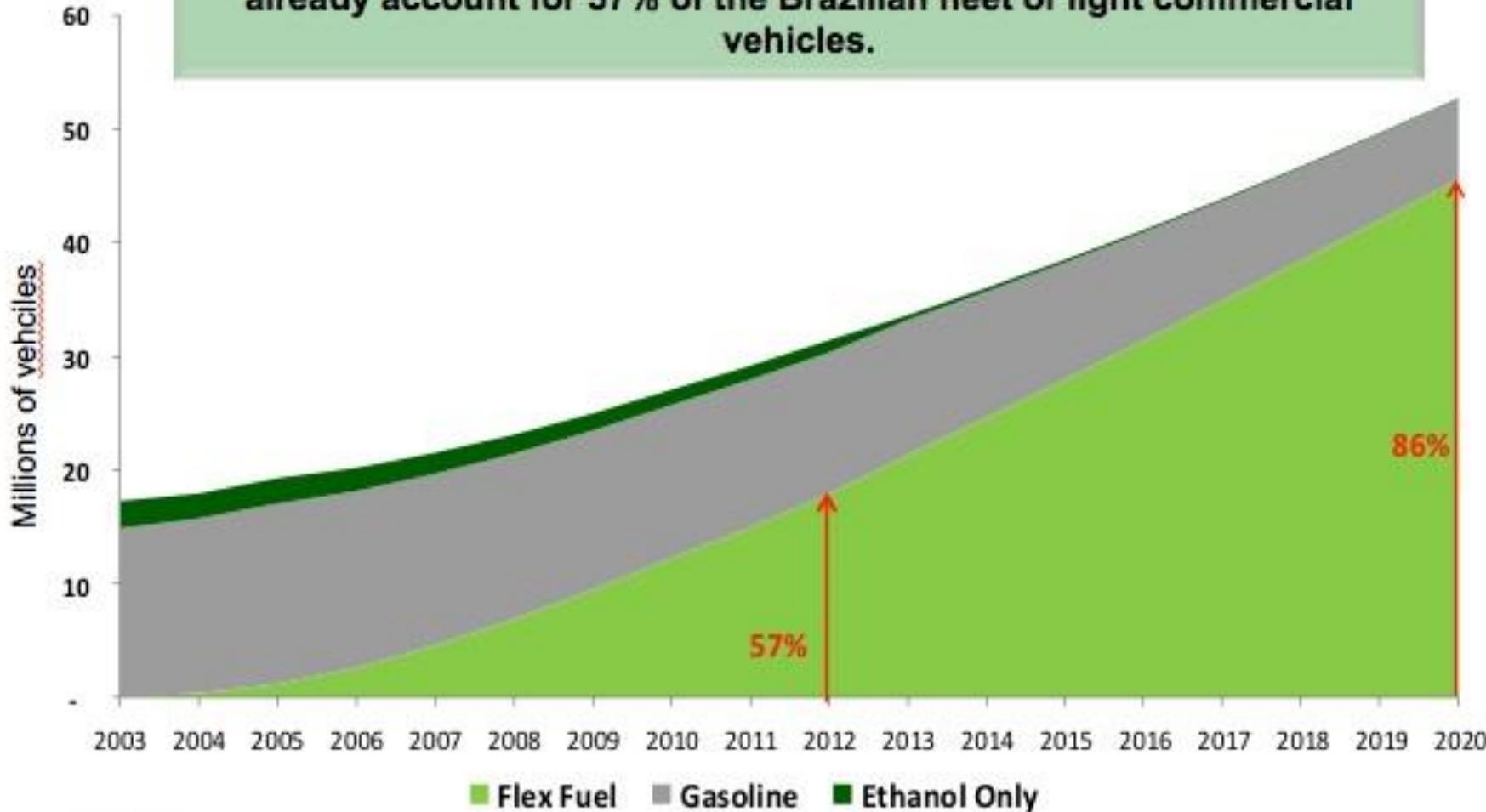
## Projected 40-Year Growth of Worldwide Car Fleet

Source: IMF



## NATIONAL AUTOMOBILE AND LIGHT VEHICLE FLEET

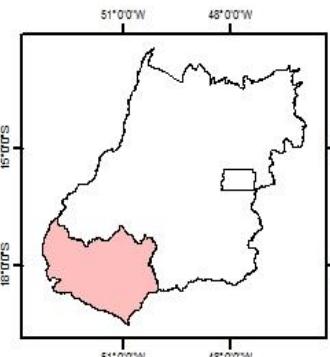
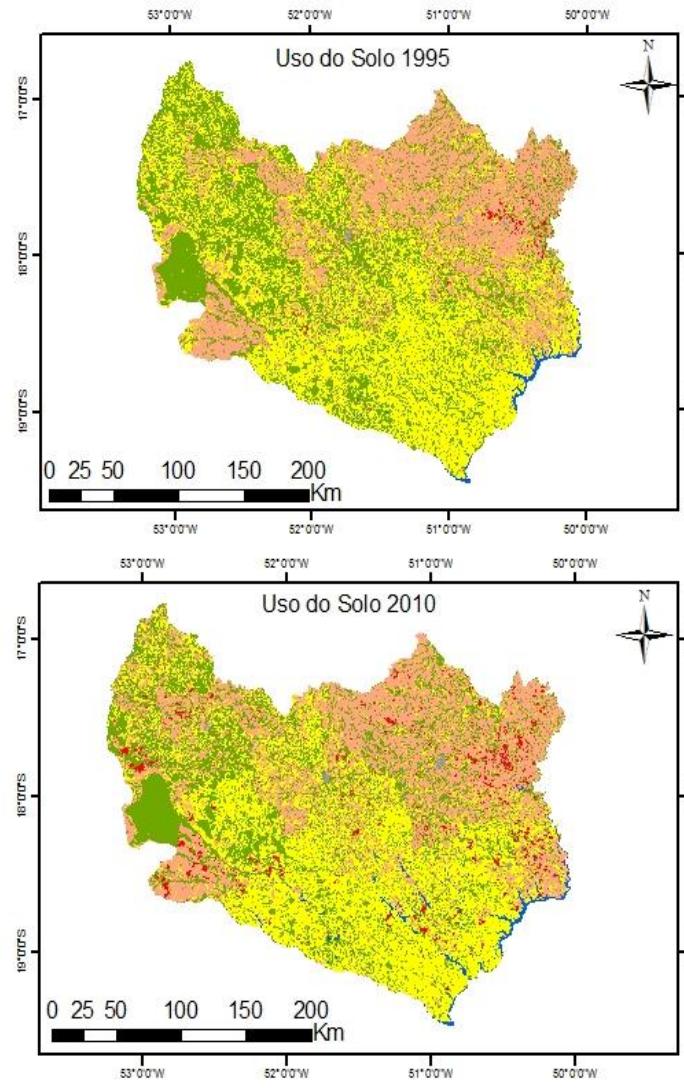
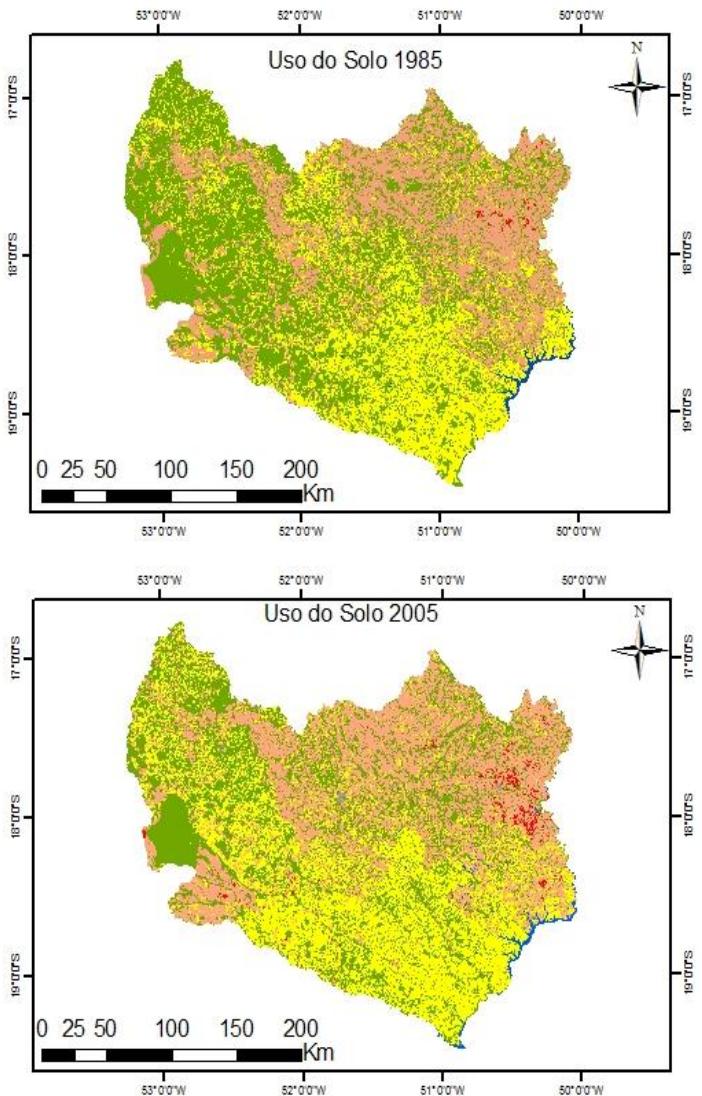
Today, 15 automakers offer over 90 models of flex fuel vehicles, which already account for 57% of the Brazilian fleet of light commercial vehicles.



Source: UNICA

- Industry predicts expansion of 3.1 million hectares in sugarcane, an annual output of one billion tonnes of raw sugar that requires a further foreign investment of R \$ 44 billion by 2020 (MOREIRA, 2011).

Mapa de Uso do Solo do Sudoeste Goiano-1985 a 2010



### Legenda:

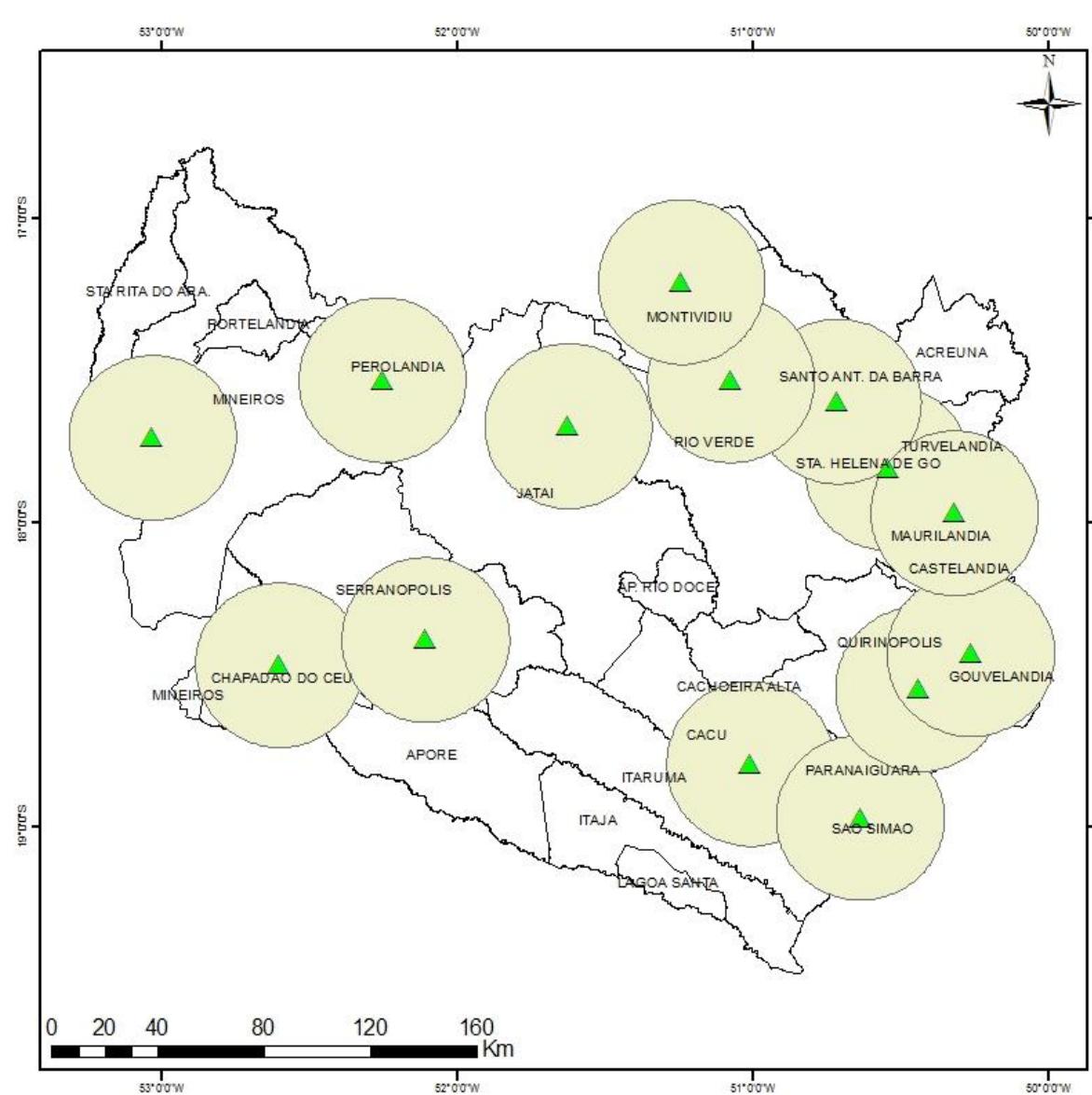
## Uso do Solo

- Cana de Açúcar
- Culturas Anuais
- Pastagem
- Vegetação Nativa
- Área Urbana
- Água

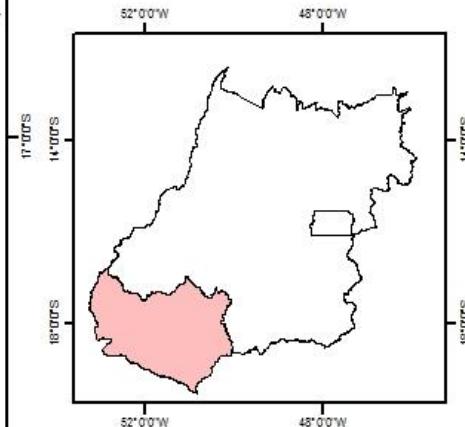
Elaboração: Trindade, S.P.  
Instituto Nacional de Pesquisas Espaciais-INPE  
Satélite: Landsat TM5.  
Mês/Ano: Agosto/1985, 1995, 2005 e 2010.  
Datum: SAD. 1969.



Source: S S de Castro, UFG



## Área de Influência Indireta das Usinas em Operação



### Legenda:

- ▲ Usinas em Operação
- Área de Influência Indireta

Elaboração: TRINDADE, S.P.  
Fonte: SIEG, CPRM  
Data: 2006.  
Datum: SAD. 1969



Source: S S de Castro, UFG

# Socially committed work

“The challenge for society is to create the conditions in which these basic entitlements [relationships, meaningful employment, the ability to participate in the life of society] are possible. This is likely to require a closer attention to the social, psychological and material conditions of living – for example, to people’s psychological wellbeing and to the resilience of communities – than is familiar in free market societies”  
(Jackson 2009:9)

“We can not transform our relation with nature without transforming the social relation between ourselves”  
(Harvey, 2012)

# Looking forward

- How can the experiences of workers *matter* ?
  - Regulation of existing work
  - Policy informing, transfer of knowledge
  - How do intellectuals cross disciplines and social divisions to contribute to the construction of socially committed, responsible work?

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