



# Demographic challenges

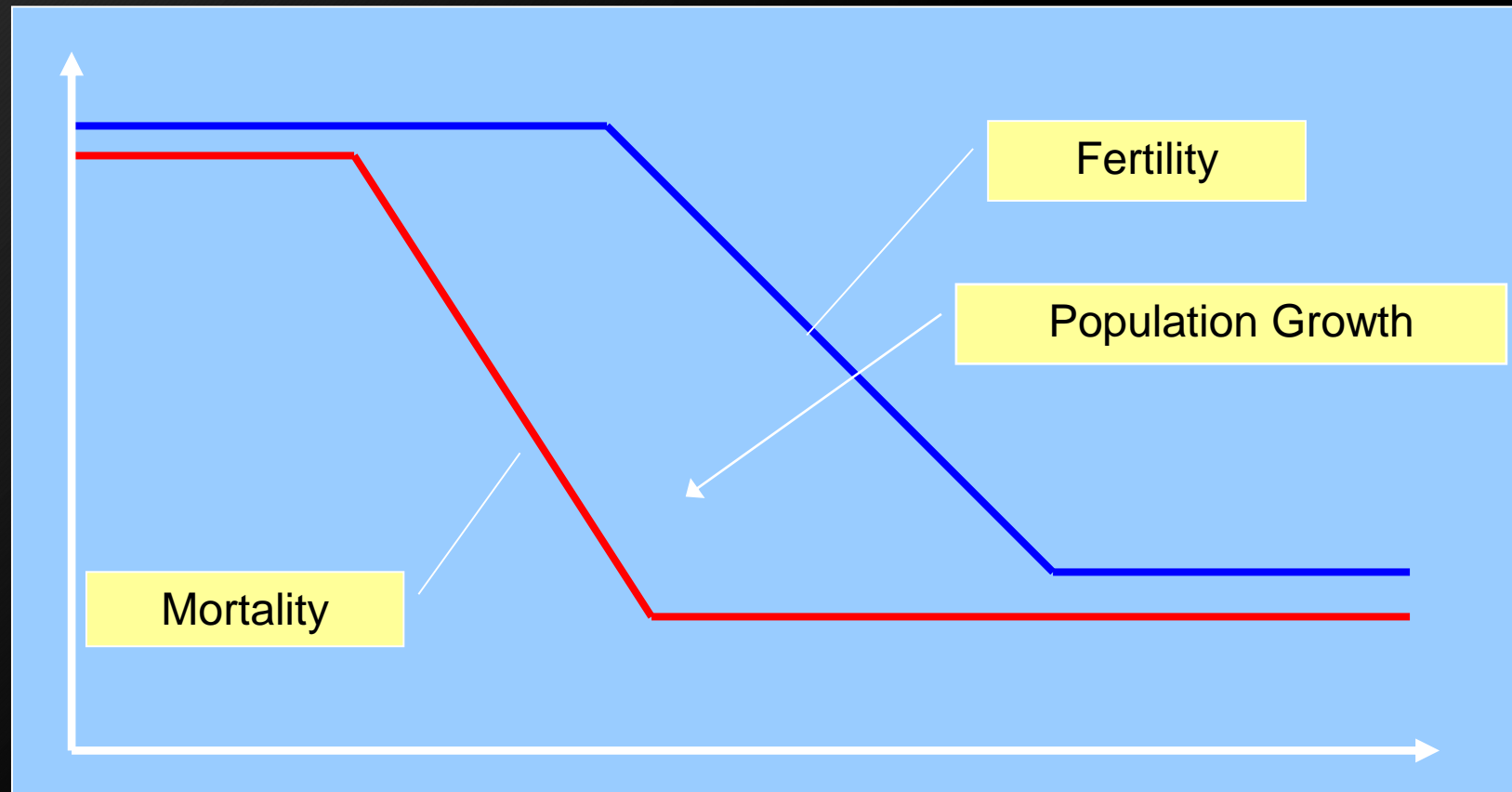
*Finding solutions for urban resilience to nature's challenges  
Brazilian-Finnish Workshop*

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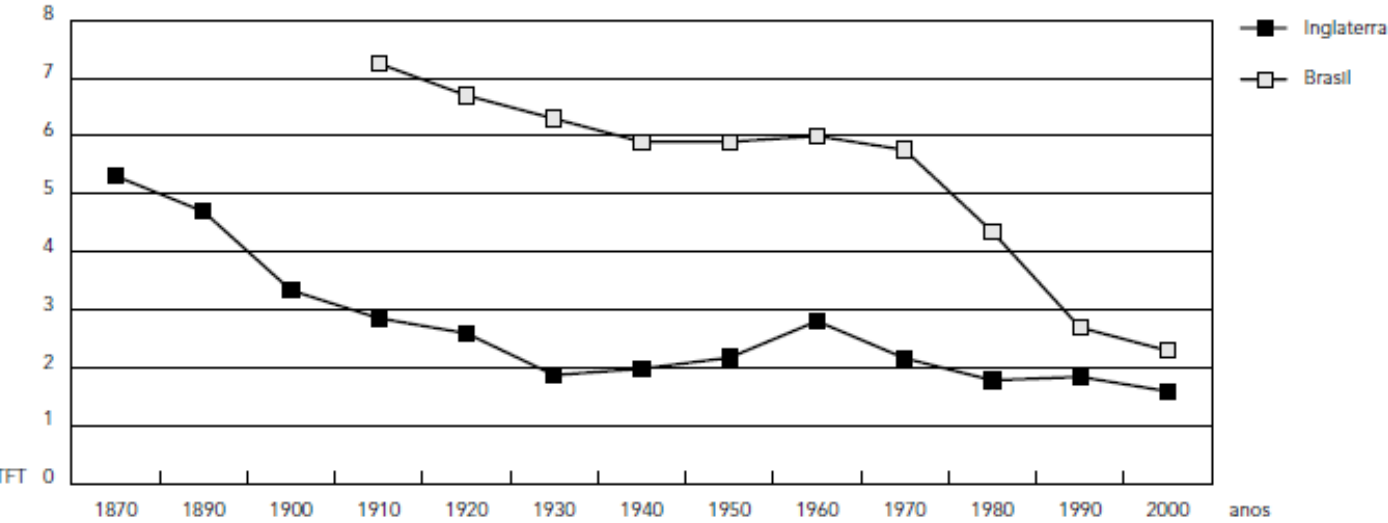


# Brazilian demographic transition



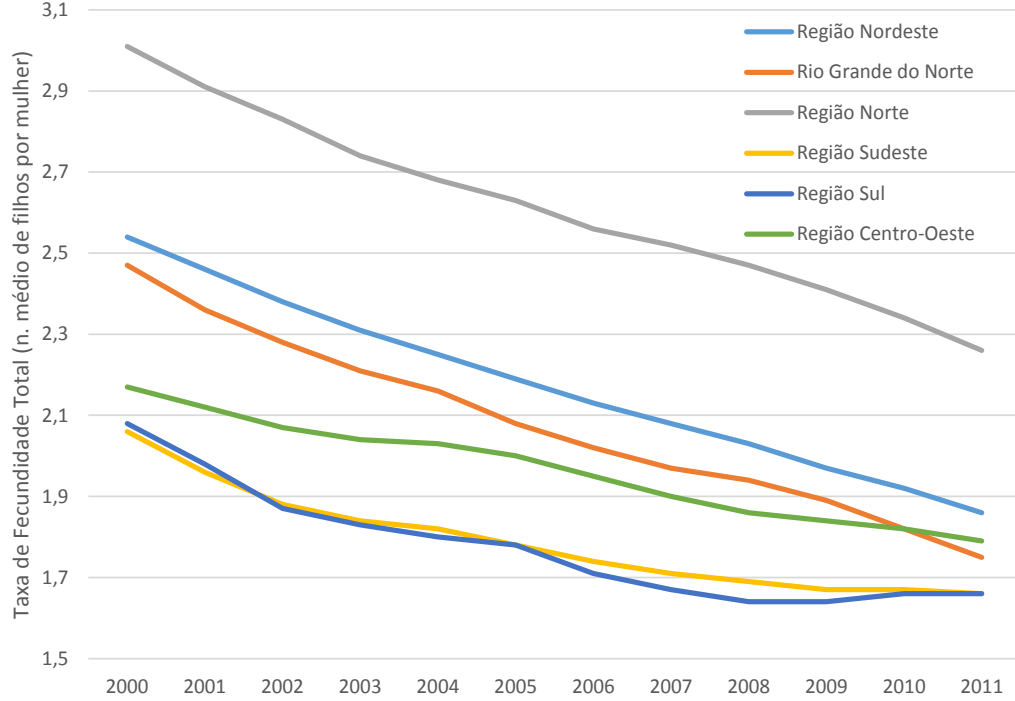
# Brazilian demographic transition

Total Fertility Rate (TFR), Brazil and England



Fonte: 1870/1990 – Carvalho & Wong (1999); 2000 – CEDEPLAR (1999) e United Kingdom National Statistics (2002).

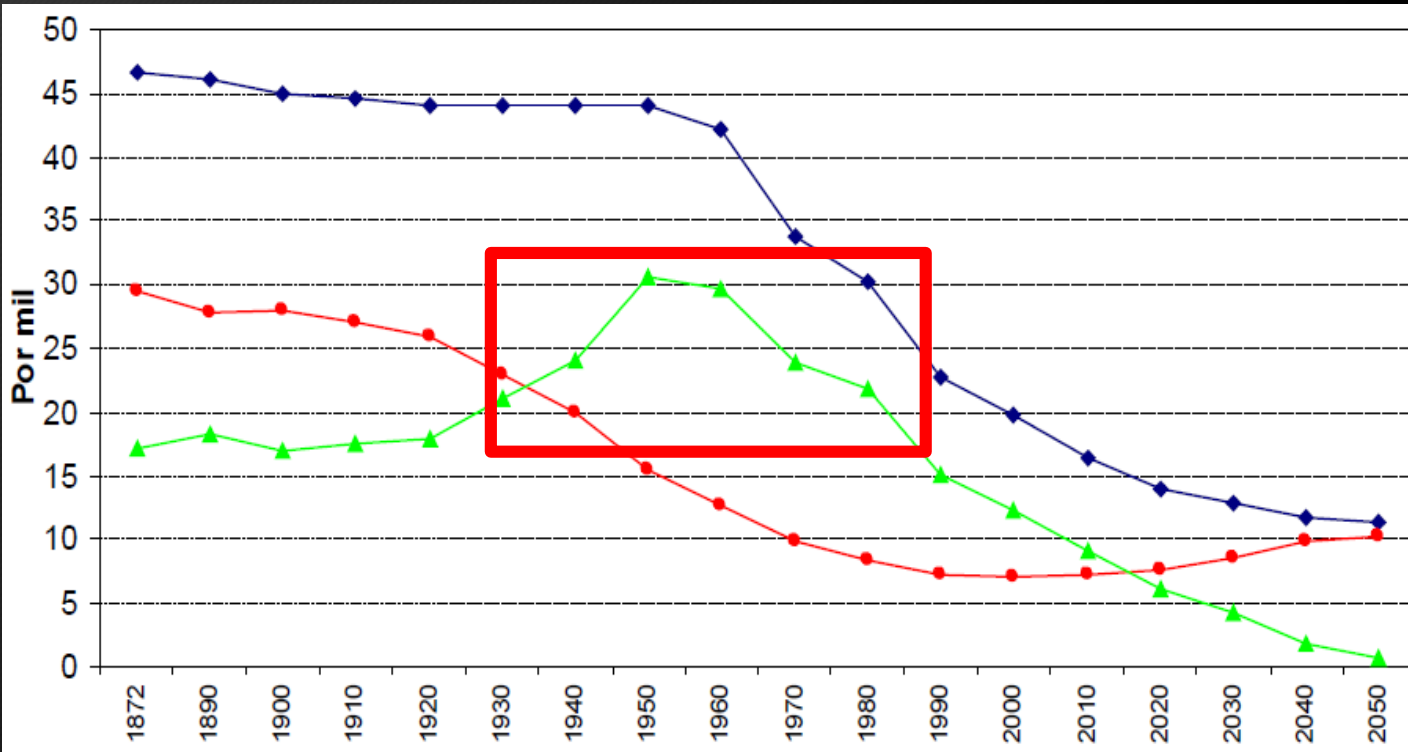
Total Fertility Rate (TFR), Brazil and Regions 2000-2011



Source: Estimativas: IBGE/Projeções demográficas preliminares; Dados Diretos: MS/SVS - SINASC

# Brazilian demographic transition

Demographic Transition, Brazil (1872-2050)



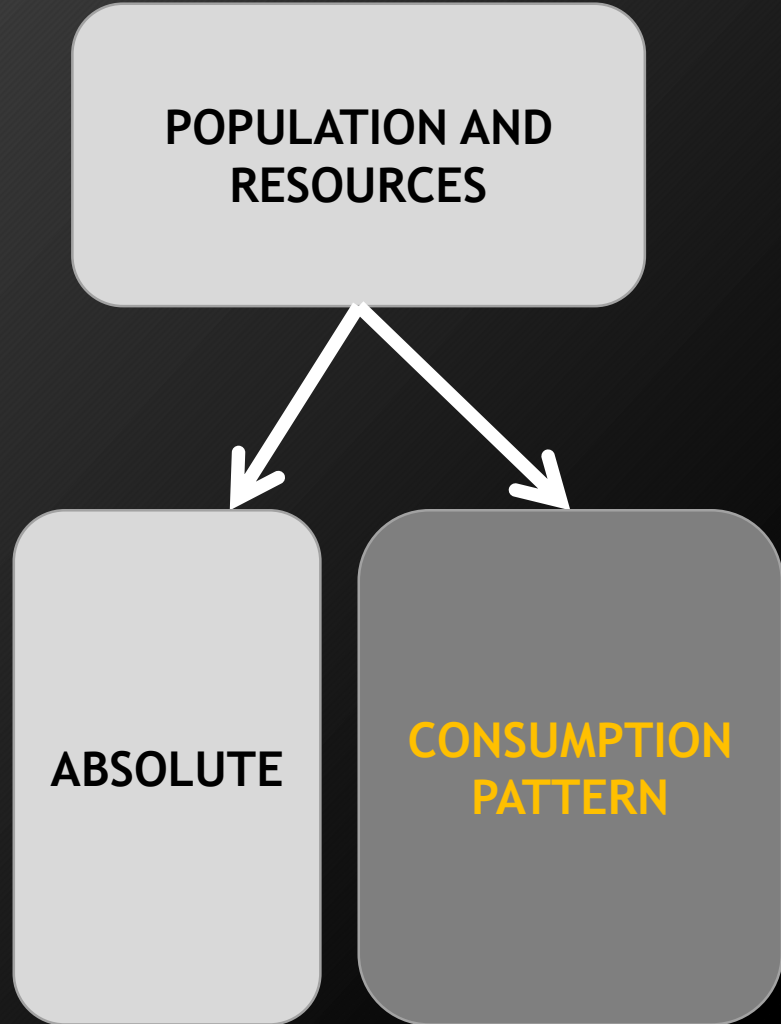
◆ Crude Birth Rate  
● Death Birth Rate  
▲ Natural Increase Rate

Source: ALVES, J.E.D. (2009)

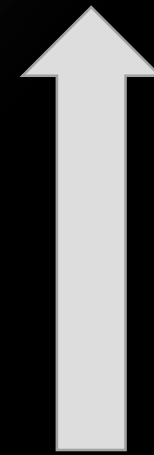
Brazilian total population is expected to fall after reaching 219 million at 2040's.

Can population degrowth solve or even reduce environmental crisis?

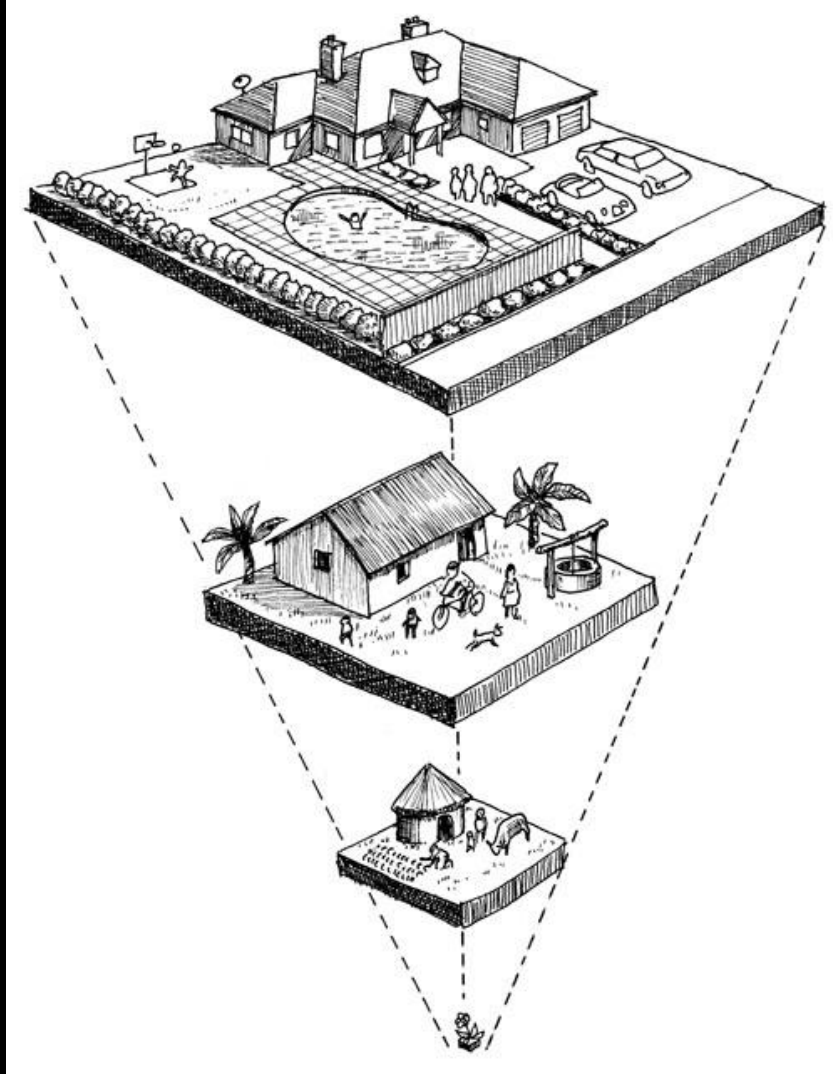
Is there demographic challenges without total populational increase?



Old and small families



Young and larger families



## Share of population growth and CO<sub>2</sub> emissions growth, 1980-2005 and 1950-1980

		1980-2005		1950-1980	
		Share of population growth (%)	Share of CO <sub>2</sub> emissions growth (%)	Share of population growth (%)	Share of CO <sub>2</sub> emissions growth (%)
<b>Regions</b>	Africa, North	3.0	2.5	2.5	1.0
	Africa, sub-Saharan	18.5	2.4	10.7	2.2
	Asia	63.1	82.7	64.1	30.6
	Europe	1.8	-12.6	7.6	39.7
	Latin America and Caribbean	9.4	6.4	10.2	5.3
	Northern America	4.0	13.9	4.4	19.9
	Oceania	0.4	2.1	0.4	1.3
<b>Nations</b>	China	15.3	44.5		
	United States	3.4	12.6		
	India	21.7	9.9		
	Korea, Republic of	0.5	3.7		
	Japan	0.5	3.6		

Source: Derived from data from CAIT, 2009.

### Brazil 2000-2010

Population  
13% increase

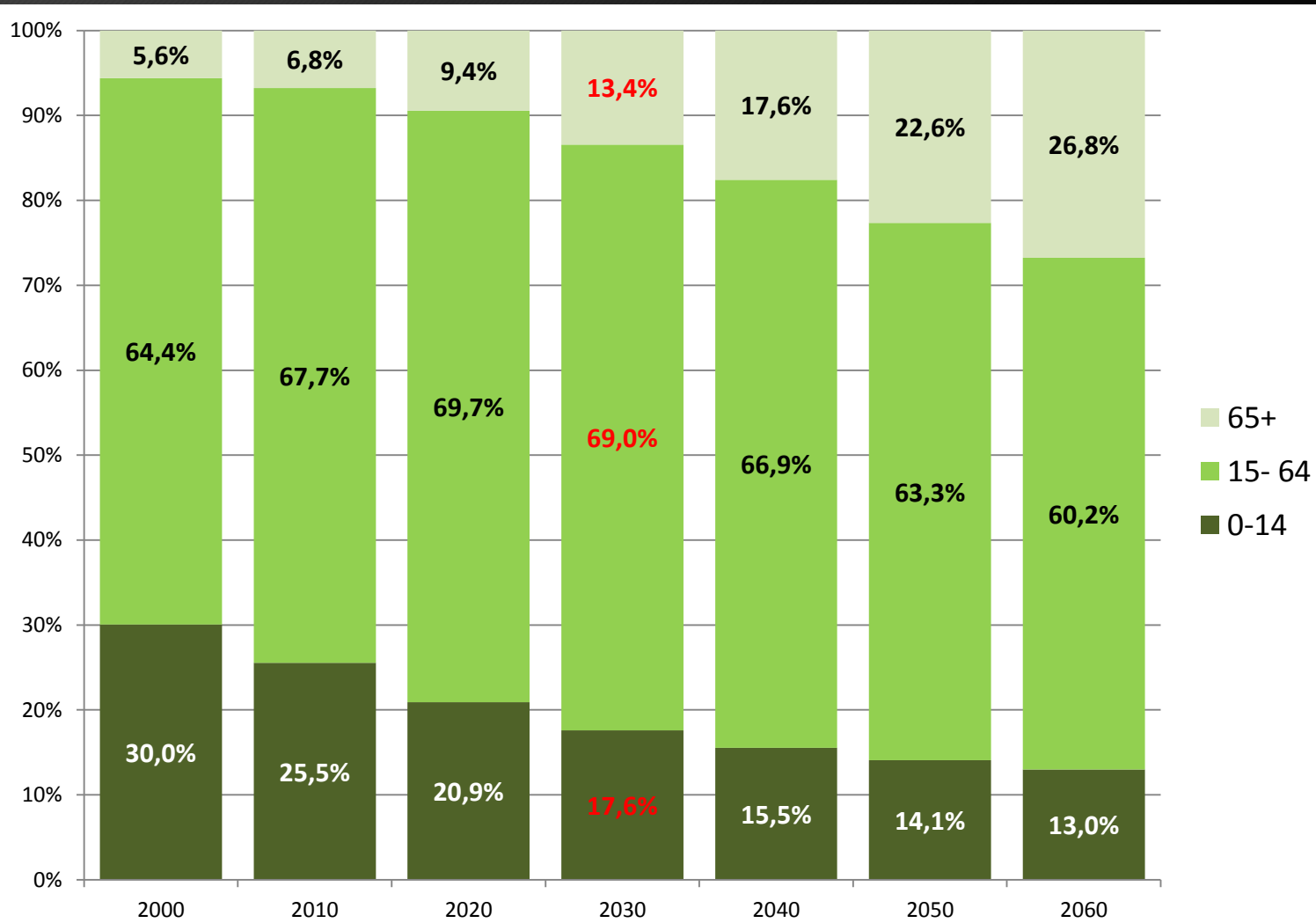
Cars  
86% increase

Trucks  
97% increase

Motorcycles  
314%



## Change in % of age groups, Brazil – 2000-2060\*



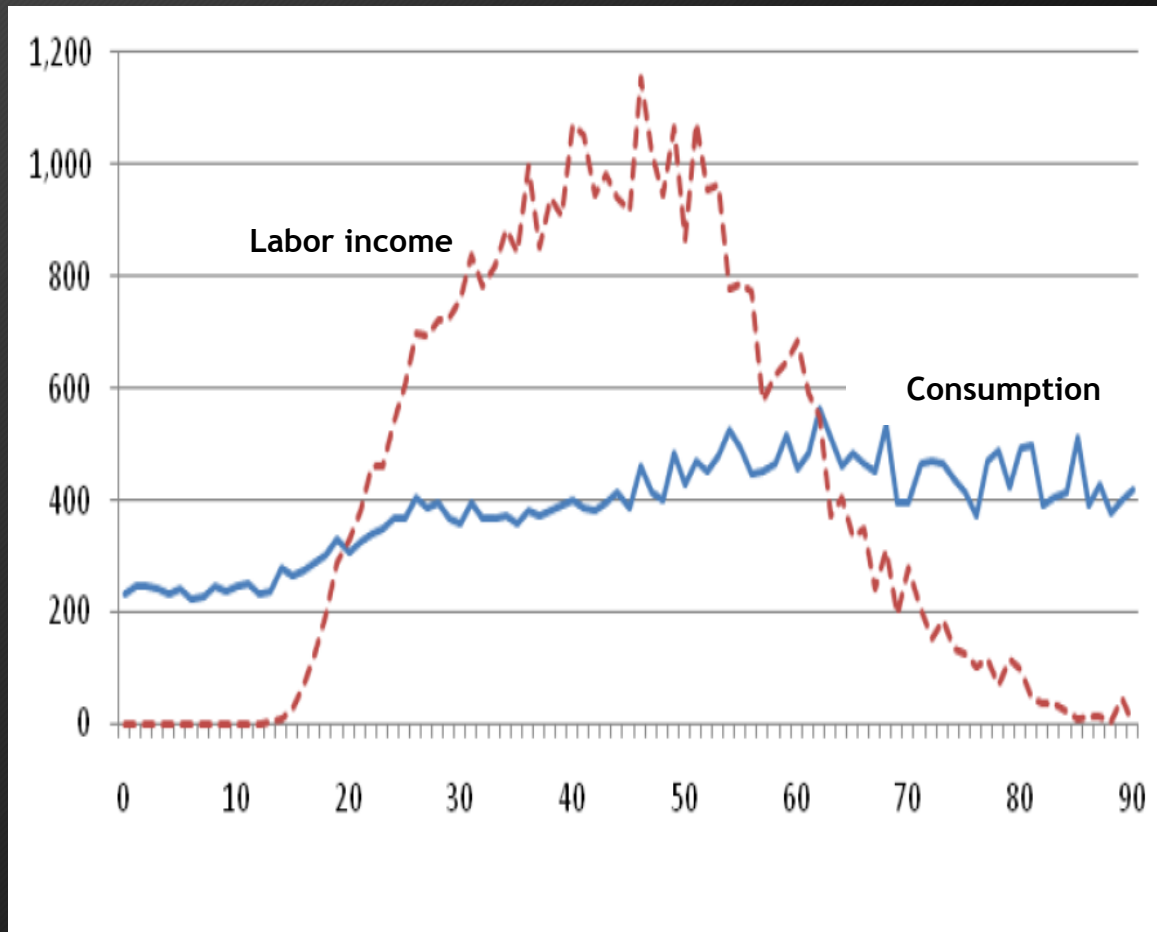
Understanding demographic composition by age, sex, social groups can be more important than look after total population control.

Until 2030, Brazilian population will increase more in 15-64 age groups. This could be the demographic bônus, with the max % of population in productive ages.

Source: IBGE - Projeção da População do Brasil por sexo e idade: 2000-2060

\* Projections : 2020 a 2060.

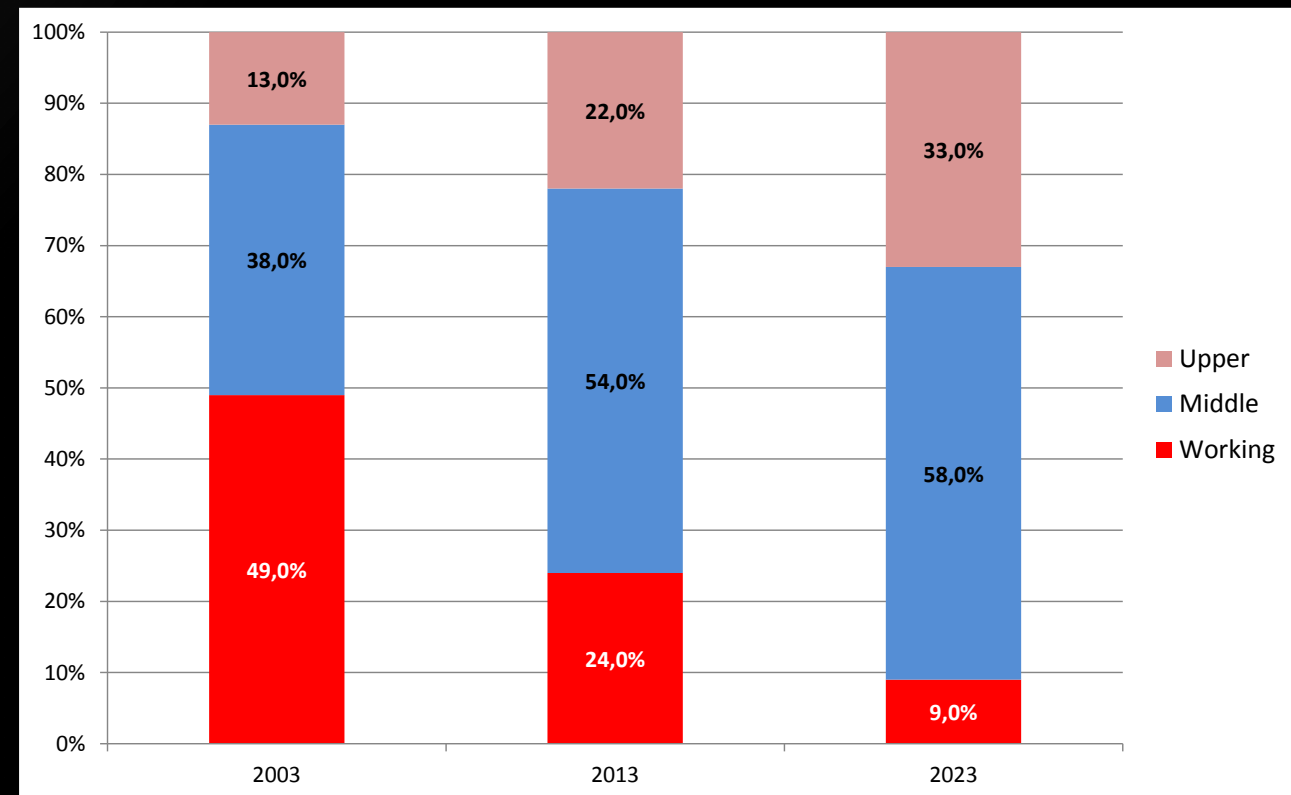
## Income and consumption by age, Brazil 2008



Source: World Bank, 2011. POF2008/2009

It could help the economic development, but an older population also have higher consumption rates.

## Social Classes Evolution, Brazil 2003, 2013 and 2023\*



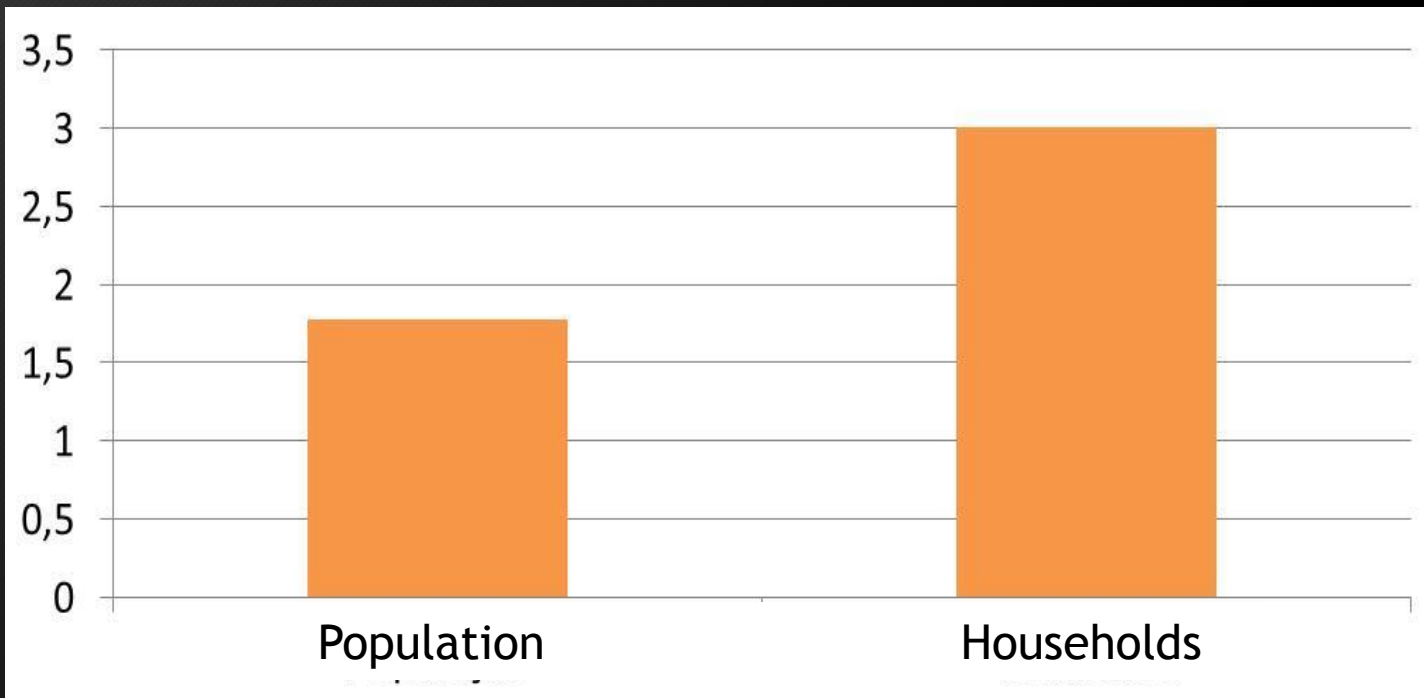
Source: SERASA-EXPERIAN, 2014

\* Projection



# Family/household size

Population growth rate and household growth rate (% per year), Brazil  
1980-2010

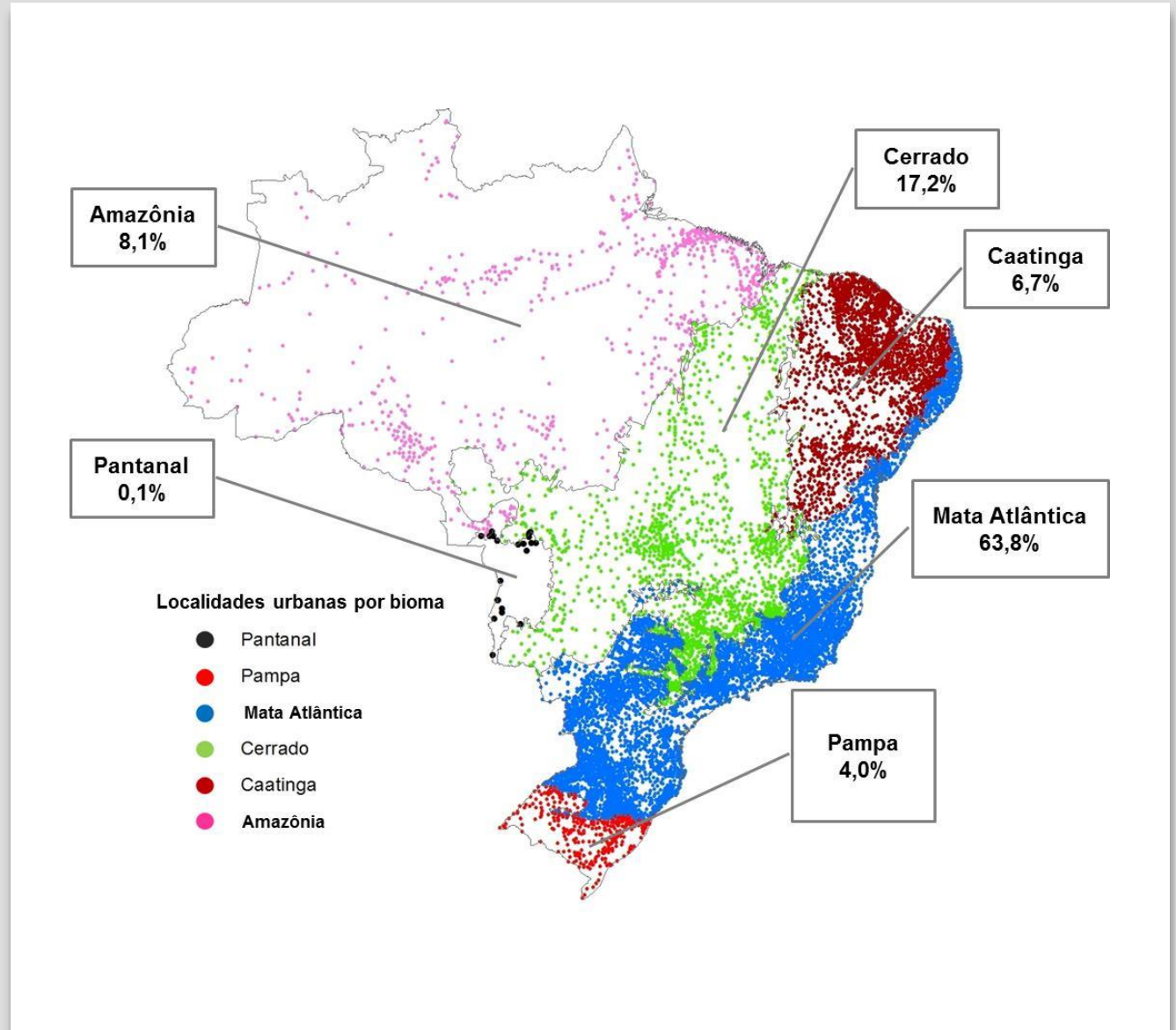


**Average number of persons per household**

- 1991 → 4,2 persons
- 2010 → 3,3 persons

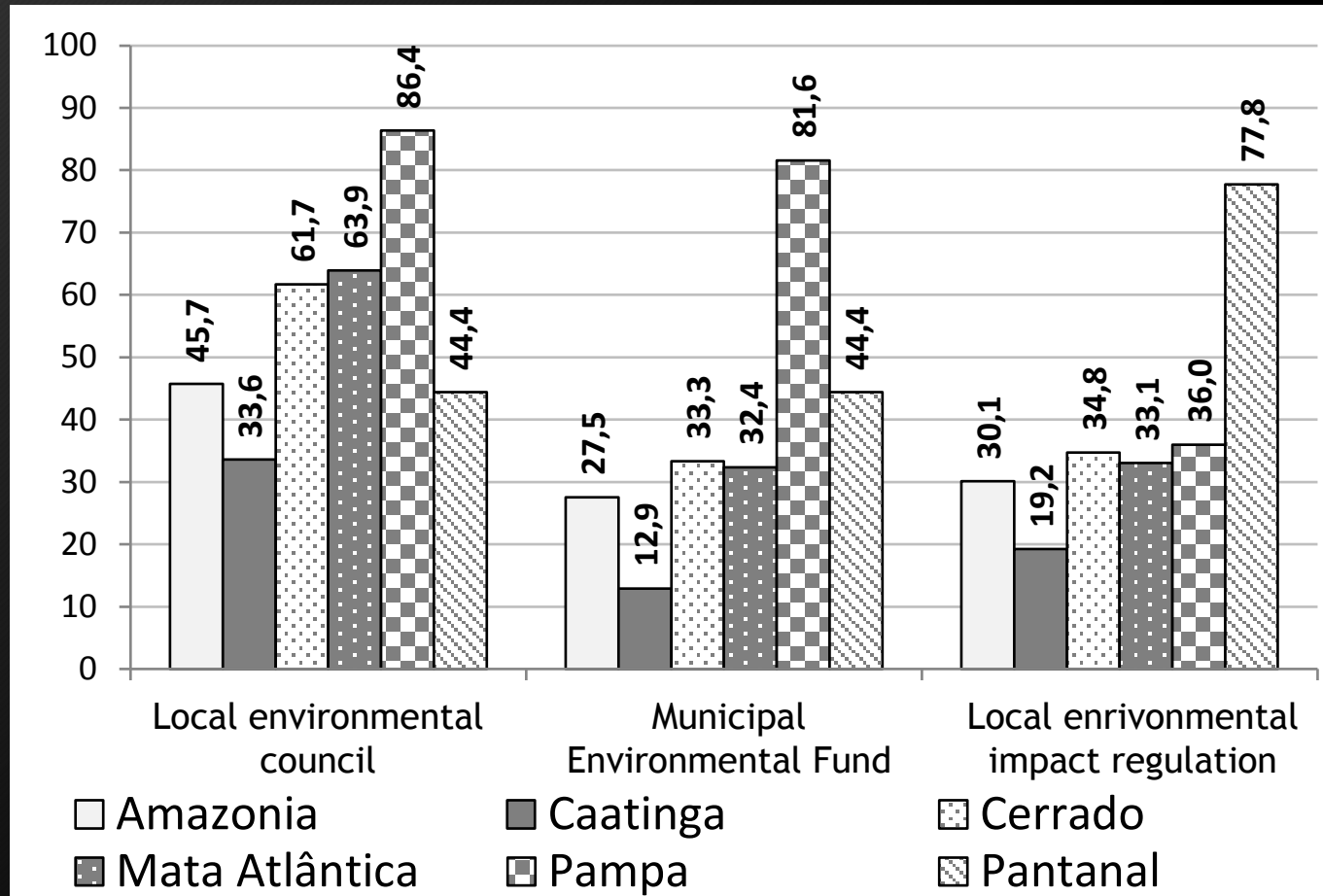
Reducing fertility rates leads to small households. The same population is now living in more households. The per capita rate of consumption increases.

# Population Distribution



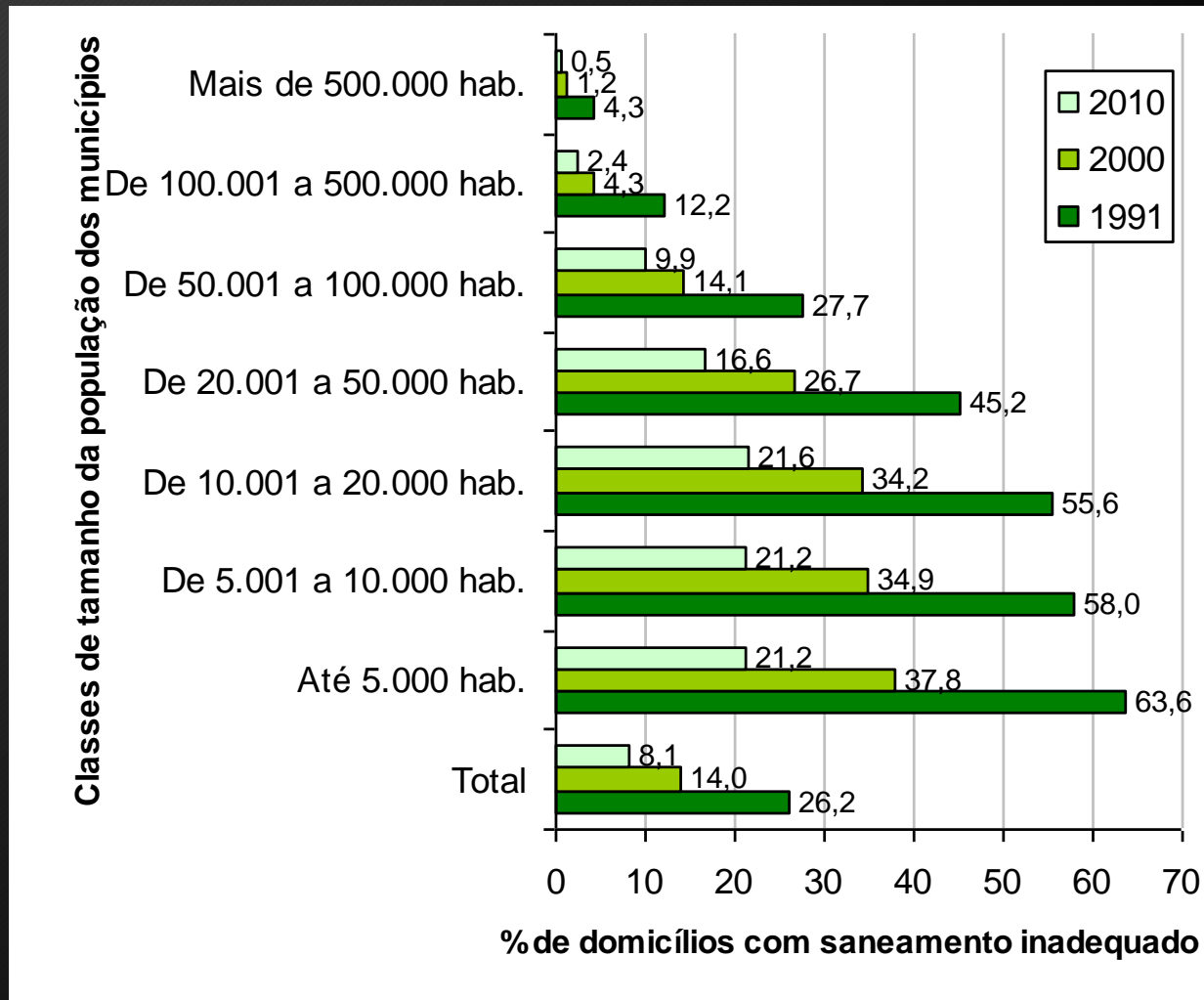
## INSTITUTIONAL FRAMEWORK

% of municipalities with environmental regulation policies by biomes, 2009



Source: IBGE, Pesquisa de Informações Básicas Municipais (MUNIC), 2009.

## % of households with inadequate sanitation conditions by municipal population size (1991-2010)



Source: IBGE, Censos Demográficos 1991-2010

In absolute numbers, Brazilian larger cities have more people exposed to environmental stress, around 50% of population.

Another 50% is distributed in small cities with a fragile institutional framework, specially for environmental questions.

Social and environmental vulnerability reduced in last decades, but still have demographic imbalances that needs detailed analysis.

# Considerations

- Impacts of urbanization and demographic transitions in Brazil occurred simultaneously;
- Brazil is an urban country experiencing a demographic bonus
- Consumption increase with ageing and it will be faster than in another developed countries
- How to guarantee sustainability in an ageing population?
- How reduce poverty without increase consumption?
- Adaptation and resilience policies in large or small cities must have different strategies.
- Brazilian smaller cities cannot be ignored, specially in some ecological contexts like the semiarid region.
- It's time to forget Malthus and look carefully to population patterns and dynamics.

[http:// www.abep.org.br](http://www.abep.org.br)

<http:// www.demografiaufrn.net>

<http://demografianordeste.blogspot.com>



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