



THE HAMBURG CONFERENCE:  
Actions for Climate-Induced Migration  
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# Migration, cities and climate change in Latin America

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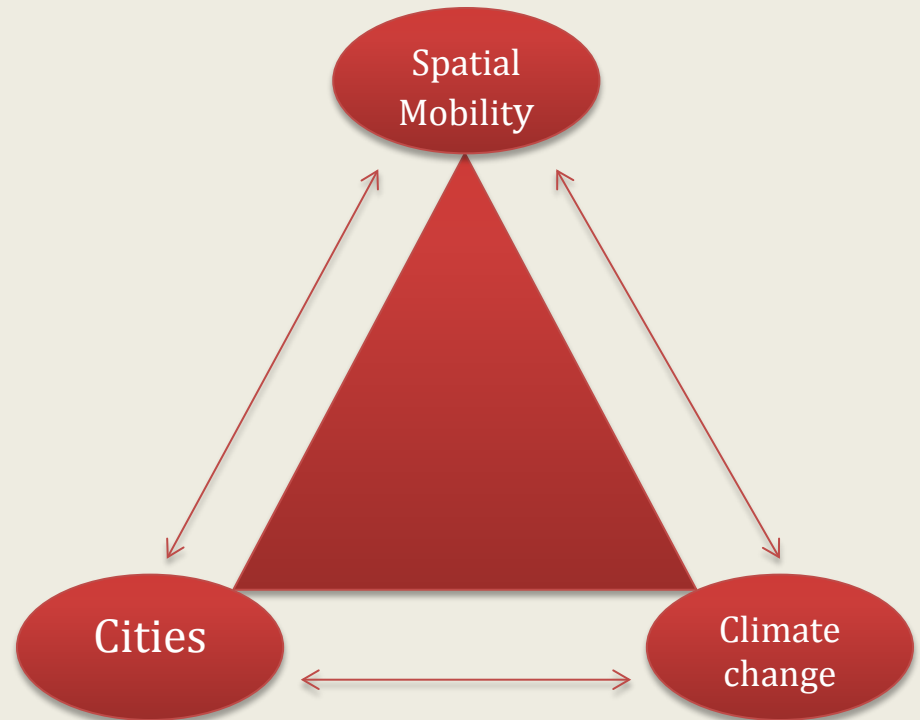
Center for International Earth  
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# Aim

- To explore and discuss the relationship between climate change, cities and migration systems based on two basic points:
  1. **Origin of climate migration:** cities are increasingly exposed to the impacts of GEC events, and this can trigger environmental migration from cities to other areas, including secondary migration.
  2. **Destination of climate migration:** cities are currently the most common destinations of migration flows, and climate change outside of cities can exacerbate their influx of migrants.

# Linked processes

- Urban-urban and rural-urban migration
- Climate migration
- Urban transitions and urban growth
- Population and emissions distribution
- Vulnerability of migrants and urban populations



# Climate-induced migration

- Migration and other forms of spatial mobility are common responses for coping with and adapting to environmental hardship, stress and risks.
- Not a new topic:
  - John Caldwell's *The Sahelian drought and its demographic consequences*, 1975
  - Essam El-Hinnawi, *Environmental Refugees*, 1985
  - First IOM definition of environmental migration, 1992
  - Graeme Hugo's *Environmental concerns and international migration*, 1996

# Climate-induced migration (2)

- Renewed interest:
  - concerns about the consequences of global environmental change for human well-being and population mobility;
  - debate about migration as a viable adaptation strategy;
  - the idea that environmental displacement has the potential for triggering governance and security challenges;
  - new empirical results.
- Global context: transformation of the geography of place-based vulnerability and risk
  - rapid urbanization and high population mobility → reshaping population distribution and its ecological footprint;
  - globalization of markets and communications;
  - increasing interconnectedness of people and places.

(Adger et al. 2009; Sanderson 2009)

# Migration, cities and climate change

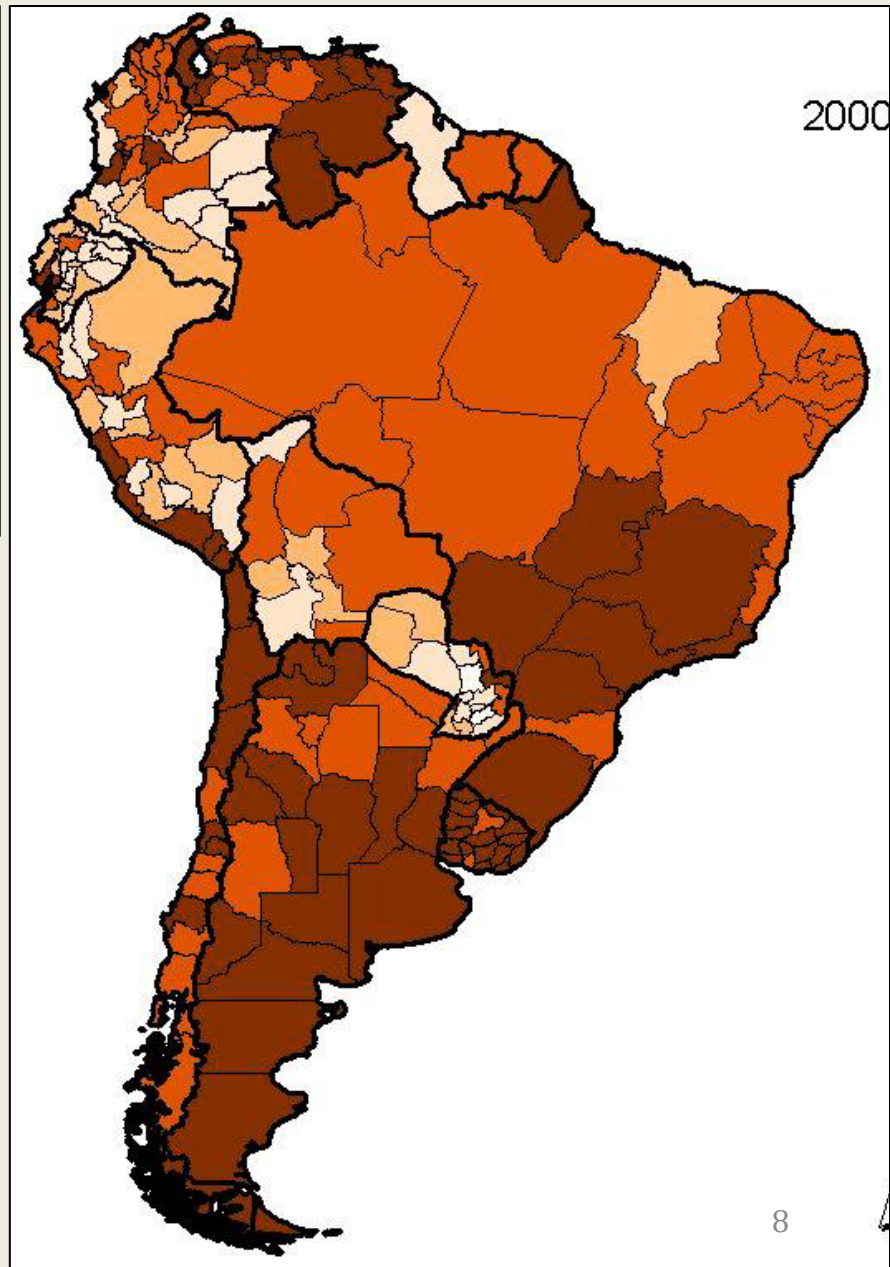
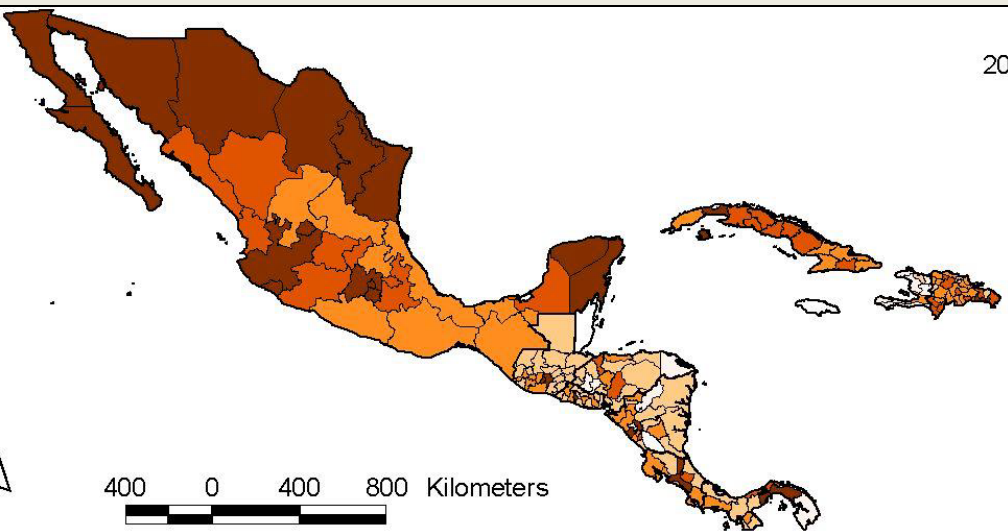
- From the perspective of migration systems, both human settlements and population flows are likely to be impacted by CC, and these effects are interrelated:
  - intensification of natural disasters;
  - changes in water availability for human consumption, agriculture, and other uses;
  - rising sea levels; and
  - general scarcity of natural resources.
- Migration into cities could increase risk exposure:
  - Higher vulnerability of (recent) migrants in urban areas:
    - Language barriers
    - Distrust of government
    - Lack of networks
    - Jobs and housing take precedent over security (Donner and Rodríguez, 2008, cited in IPCC 2012:80).
  - Secondary migration (displacement of migrants) is a possible scenario

# Cities of all sizes

- The topic of migration, cities and climate change is not limited to large metropolitan areas, the whole urban system/hierarchy is involved.
  - For example, small and medium cities in predominantly farming areas have an important role as service providers and labor market for non-farm activities, which are instrumental in livelihood diversification.
  - In such context, it is possible to imagine a scenario of increased influx of local immigrants because of climate changes that affect agriculture (including land degradation), particularly among those groups that do not have the means for moving to larger urban centers.
- Another scenario could be these small and medium cities being the destination area for flows coming from large coastal metropolitan areas due to sea level rise

(Tacoli 2009)

# LAC's urbanization process



PORCENTAJE (%) / PERCENTAGE (%)



menos de 20 / less than 20



20 a 40 / 20 - 40



40 a 60 / 40 - 60



60 a 80 / 60 - 80



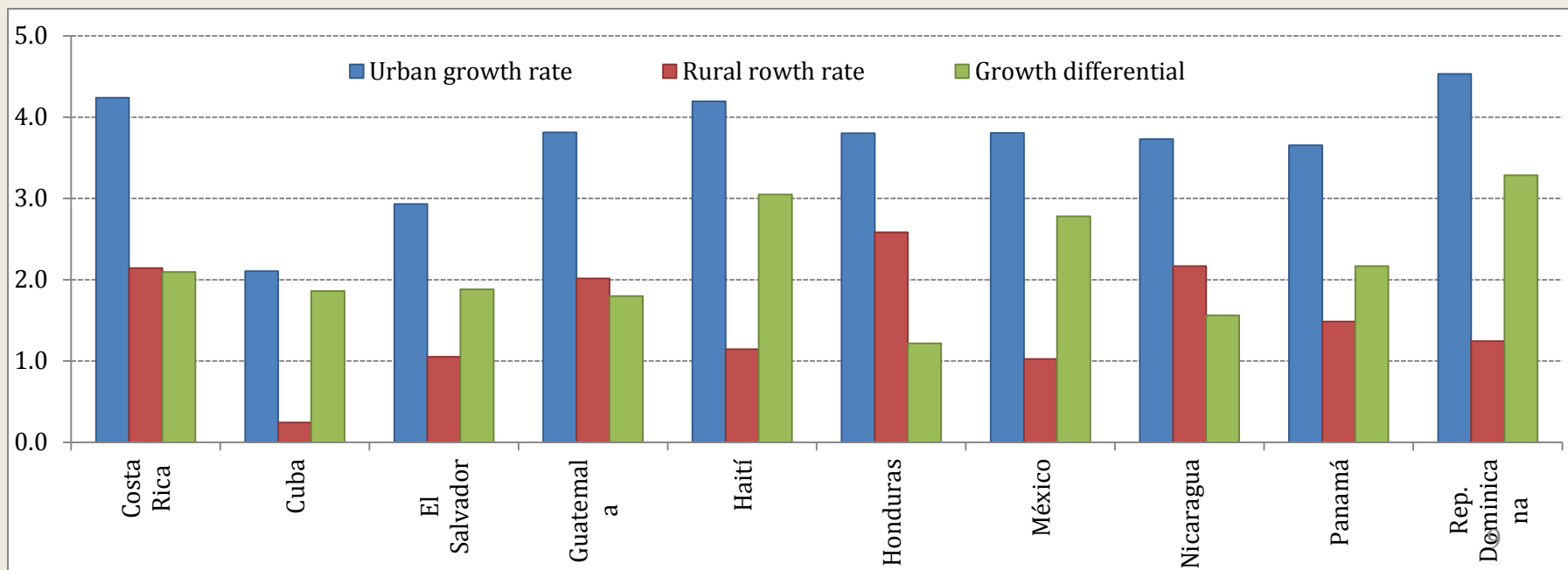
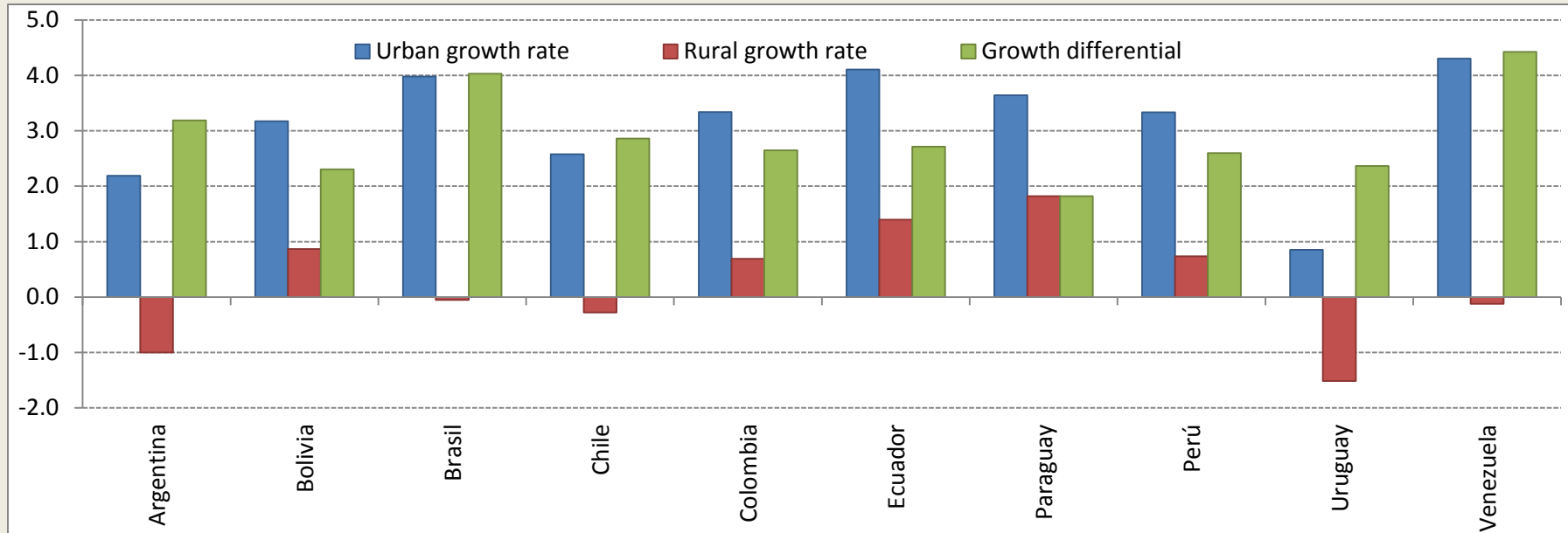
80 y más / 80 or more

Source: CELADE/ECLAC. DEPUALC  
2004 database  
[http://www.cepal.org/celade/depualc/default\\_2011.asp](http://www.cepal.org/celade/depualc/default_2011.asp)

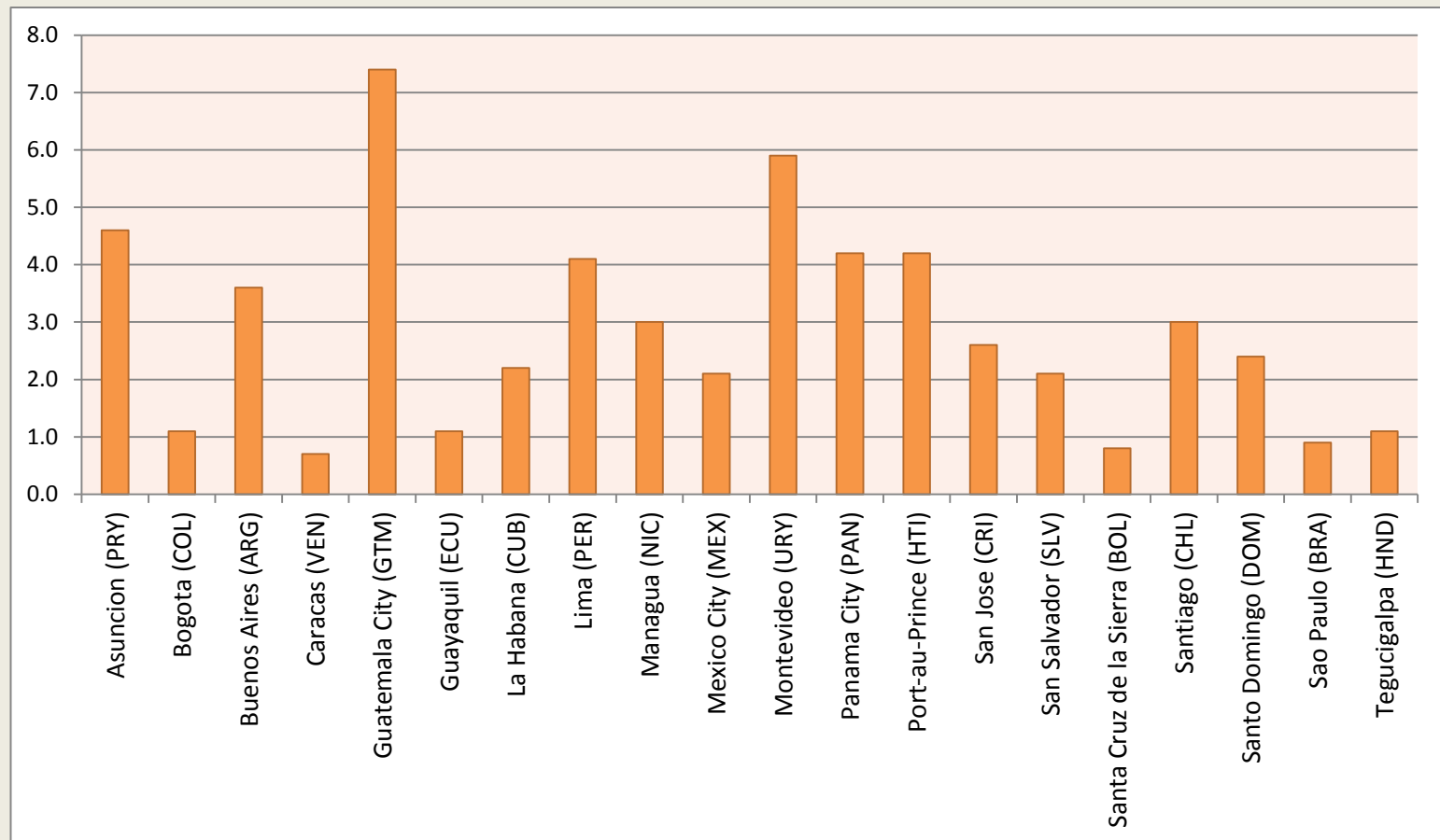


# LAC's urbanization process: Urban and rural annual average growth rate and growth differential, 1950-2000

Source: DEPUALC, 2009. CELADE-División de Población de la CEPAL.



# LAC's urbanization process: concentration



$$\text{Primacy index} = \frac{\text{City1}}{\text{City2} + \text{City3} + \text{City4}}$$

Source: ECLAC. CELADE. Spatial distribution and urbanization in Latin America and the Caribbean (DEPUALC) database, 2009 (online) [www.eclac.cl/celade/depualc/](http://www.eclac.cl/celade/depualc/). In Demographic Observatory . 2009.

# LAC's urbanization process

- Urban growth in parallel with development problems: inequality, poverty, indigence, informality still persist
- Spatial segregation and slums/shanty towns/informal settlements are the evidence of this.
  - *Migrants and no-migrants* live in these informal settlements



*Villa 31* in the city of Buenos Aires, in the 2000s (above) and in the 1930s (below)



# Latin American cities: exposure to environmental impacts

# of hazards

- 1 hazard
- 2 hazards
- 3+ hazards
- No hazard

# of hazards (decil 8-10)	2011 population (000)
1	152,806
2	23,032
3+	9,509
no hazard	41,994
Total	227,341

81.5%

Source: UN Population Division. 2012. *World Urbanization Prospects: The 2011 Revision*, CD-ROM Edition. File 23: Coastal status, Type of drylands ecosystem, Number of multi-Hazards, Risk decile by type of hazard for Urban Agglomerations with 750,000 Inhabitants or More in 2011

# Examples

- Tornado in Buenos Aires, 2012; landslides in Rio de Janeiro, 2011; floods in Blumenau and the Itajaí River Basin, Brazil, 2008; Cyclone Catarina, Brazil, 2004; hurricane Mitch in Tegucigalpa, Honduras, 1998



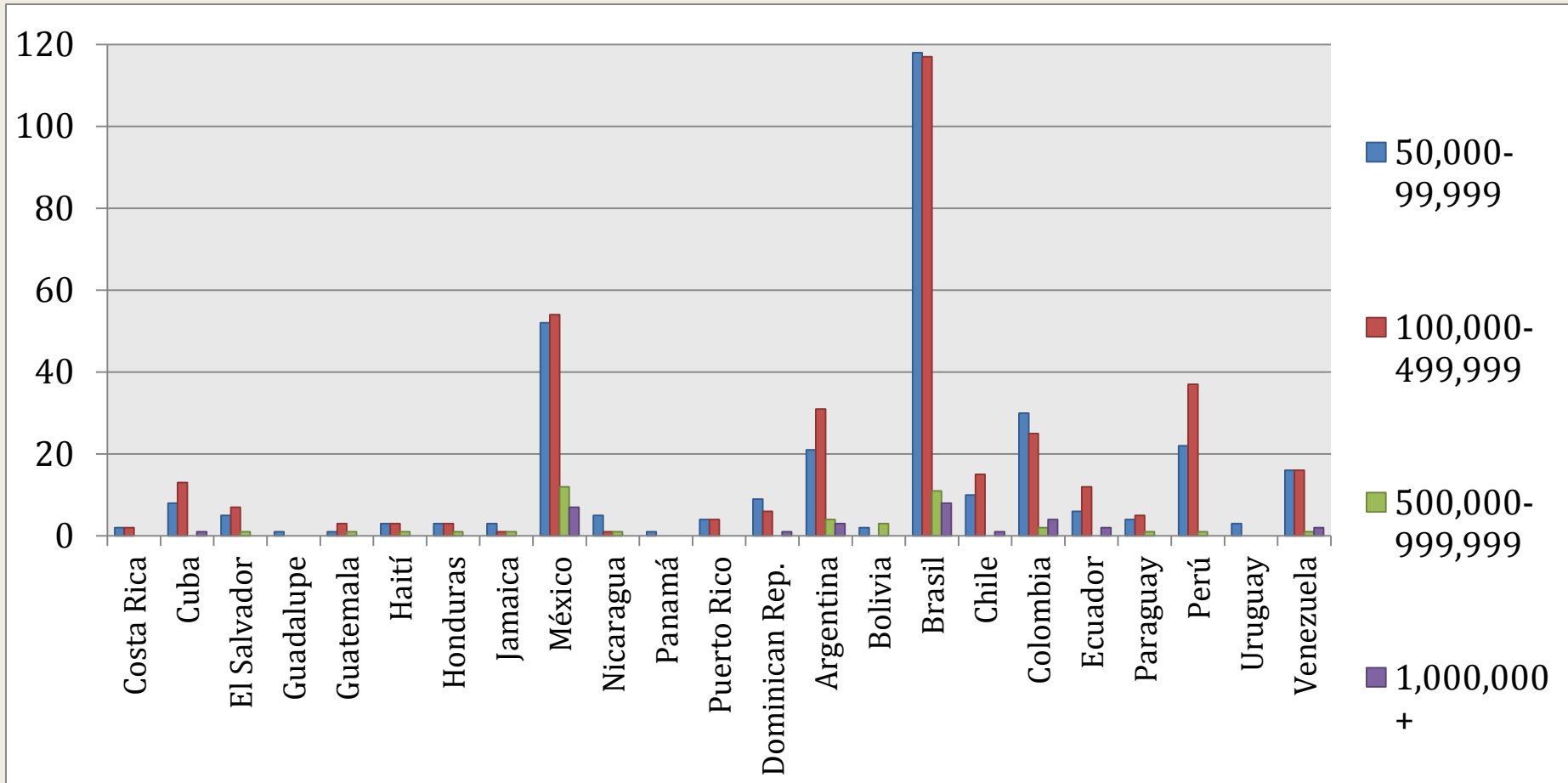
- Recurrent flooding in the city of Santa Fe, which expanded over the floodplain of several rivers, notably the Parana and Salado Rivers.

<http://tagliaferri.espacioblog.com/post/2006/04/22/inundaciones-santa-fe-3a-parte>

Santa Fe city, flooding, April 30, 2006

<http://argentina.indymedia.org/news/2003/05/109458.php>

# Cities in areas of high environmental vulnerability (high frequency of events)



New urban growth in smaller cities, some of them may not be able to work effectively on mitigation and adaptation

# Who is more at risk from the likely impacts of CC in LAC's urban areas? (from Hardoy and Pandiella 2009:206)

- Who lives or works in locations:
  - most exposed to hazards related to the direct or indirect impacts of climate change (e.g. on sites at risk of flooding or landslides)?
  - lacking the infrastructure that reduces risk (e.g. where settlements lack drains)?
- Who lacks knowledge, capacity and opportunities to take immediate short-term measures to limit impacts (e.g. to move family members and assets before a flood hits)?
- Whose homes and neighborhoods face greatest risks when impacts occur (e.g. homes of poorer quality, which provide less protection for inhabitants and their possessions/physical assets and hence there is more loss, often including death and serious injury)?
- Who is least able:
  - to cope with impacts (illness, injury, death, loss of property, loss of income, lack of insurance or relation to government to get compensation)?
  - to adapt to avoid impacts (e.g. by building better homes, getting government to install needed infrastructure and provide needed disaster preparedness, moving to a safer place)?



# Migration trends in LAC

- Urban-urban (predominant), rural-urban, and intra-urban flows
- Urban-rural seasonal and temporary migration (very difficult to quantify)
- Overall, cities have positive net migration
- But there are some exceptions: Sao Paulo , México have negative net migration
  - Movements to suburban areas around the city
- Urban attraction is particularly evident among young adults
- Migration is still a relevant factor of city growth

Source: Pinto da Cunha y Rodríguez Vignoli 2009)



**Estimation (%) of the weight of rural-urban net migration on urban growth, 1980-2000, by gender**

<b>Countries</b>	<b>1980-90</b>		<b>1990-2000</b>	
	<b>men</b>	<b>women</b>	<b>men</b>	<b>women</b>
Bolivia	62.8	65.3	27.7	30.4
Brazil	37.0	42.8	34.7	35.9
Chile	8.3	11.9	19.7	19.8
Costa Rica	44.2	46.8	46.9	47.4
Ecuador	47.5	49.1	37.7	38.8
Guatemala	41.8	44.0	60.0	59.1
Mexico	33.7	32.4	31.7	32.1
Panama	36.4	41.3	53.8	54.4

Source: Rodríguez Vignoli 2004: table 25

# Migration and urban vulnerability

- Migration contributes strongly to the structure and socio-demographic change in Latin American and Caribbean cities because of *double selectivity*: flow composition and place of settlement within urban areas (Rodríguez Vignoli 2012:135).
- Migration has a key role in creating social vulnerability to CC, by increasing or diminishing spatial segregation in destination, or by modifying opportunity structure and social networks of migrant households in origin (Rodríguez Vignoli 2012:160; Pinto da Cunha 2012).

# Growth of NE cities in Brazil in the context of cyclic droughts

- ENSO events in 1980s and 1990s have been related to migration flows in the NE of Brazil
- There were migration cycles from rural areas to the San Luis and Teresina (capital of Maranhão and Piauí, respectively)
- There were peaks of migration in 1983-84 from Maranhão State to Para State (Amazonia) just after the 1982-83 ENSO (Franke et al. (2002) cited in Barbieri et al. 2010)
- Future scenarios: migration-fueled urban growth would conflict with water scarcity



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