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Frankfurt, Germany, 6-9 of August, 2014**

Interpreting socioeconomic and climate induced migration in Mexico

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Mexico: CRIM-UNAM, First Chair on Social
Vulnerability, UNU-EHS, 6th July, 2014**



Content

1. Location
2. Risks, threats & disasters in the river Yautepec
3. Climate-induced migration
4. Socioeconomic factors
5. Dual vulnerability
6. Social Vulnerability Index
7. Adaption without migration?

1. Location: Centre of the country



Transect from volcano
Popocatéptl (5,452 m) to the Sierra
Madre del Sur





2. Risks, threats and disasters

Floods: 1986; 1998; 2010; 2011; 2012; 2014

Droughts: every year

Cholera epidemics: 1992

**Dengue fever: from 2005 on
increase of 600%**

Chikungunya fever, 2014

Distrito Federal

México

Threats

1. **High altitude from Popocatepetl to Yautepec: 5452m down to 1200m in 27 km**
2. **High speed of water with rocks and trees**
3. **Complex hydrology: with a lot of small rivers, often dried out and eroded**
4. **Deforestation, also in national parks**
5. **Soil erosion (80%)**
6. **High sedimentation in river bed**
7. **Extreme rainfalls**
8. **Large drought periods**
9. **Invasion of the river basin**
10. **Lack of infrastructure**
11. **Waste in the river**
12. **Lack of municipal planning**
13. **Initial cooperation among the three levels of government**
14. **Few participation of citizens**

Morelos



Complexity of river tributaries: all eroded and from high altitude

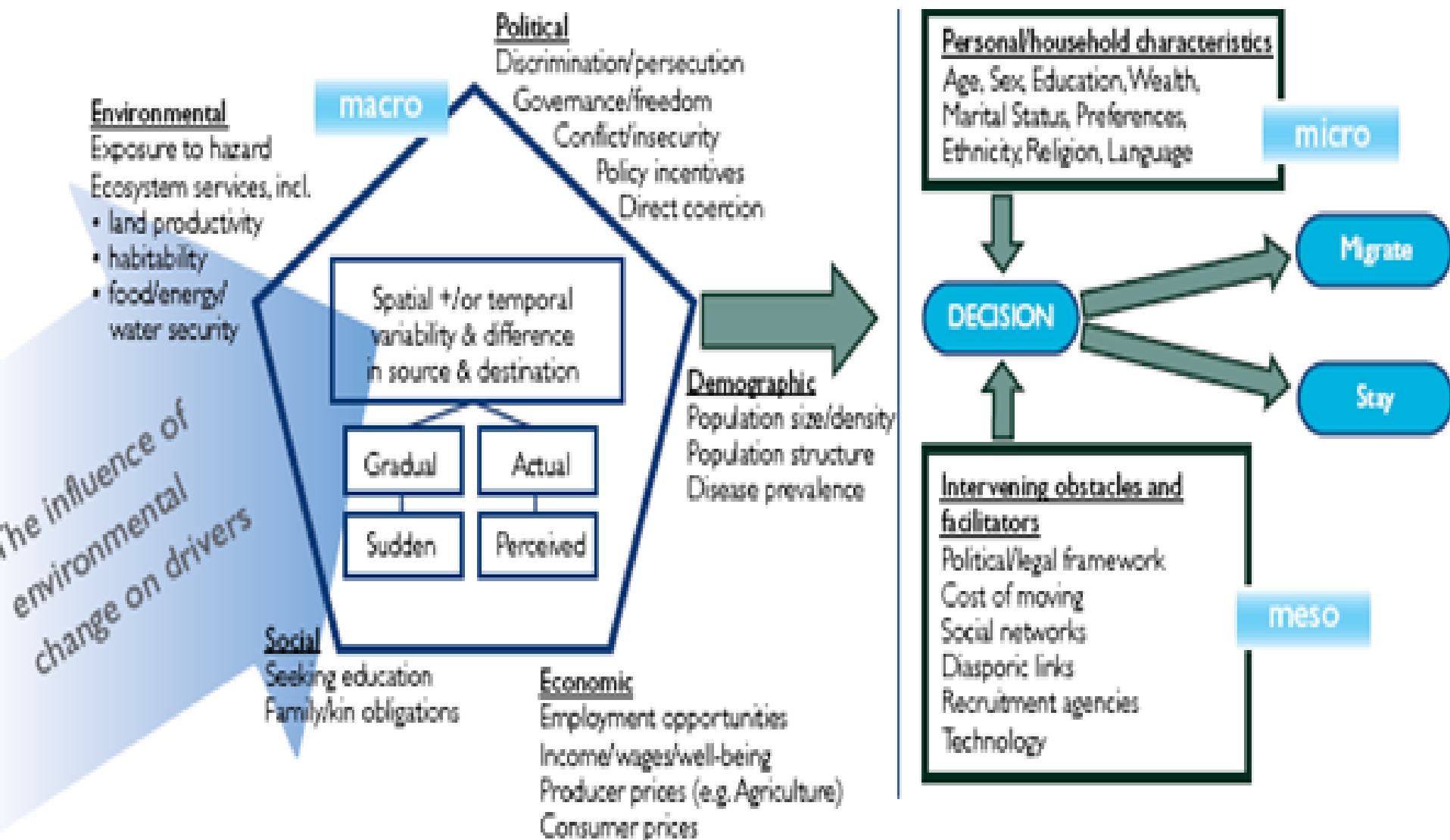
A photograph showing a flooded area at night. In the foreground, there is a large, turbulent flow of brown, muddy water. A concrete walkway with a yellow metal railing runs along the edge of the water. Several people are standing on the walkway, some looking towards the water. One person on the left is holding a black umbrella. The background is dark, with some streetlights and buildings visible in the distance. The overall scene suggests a significant flooding event.

3. Climate-induced migration

1. Controversial theories on environmental-induced migration: environmental and climate induced migration as a complex phenomenon

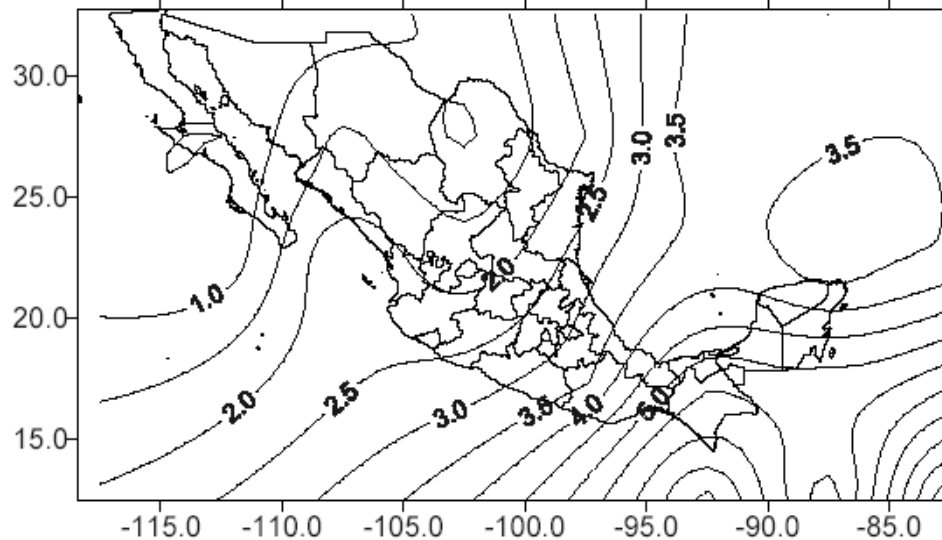
- “Environmental migrants are persons or groups of persons who, for compelling reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad” (IOM, MC/INF/288 2007: 2).
- *Why forced or induced?*

Complex factors & levels of environmental induced migration

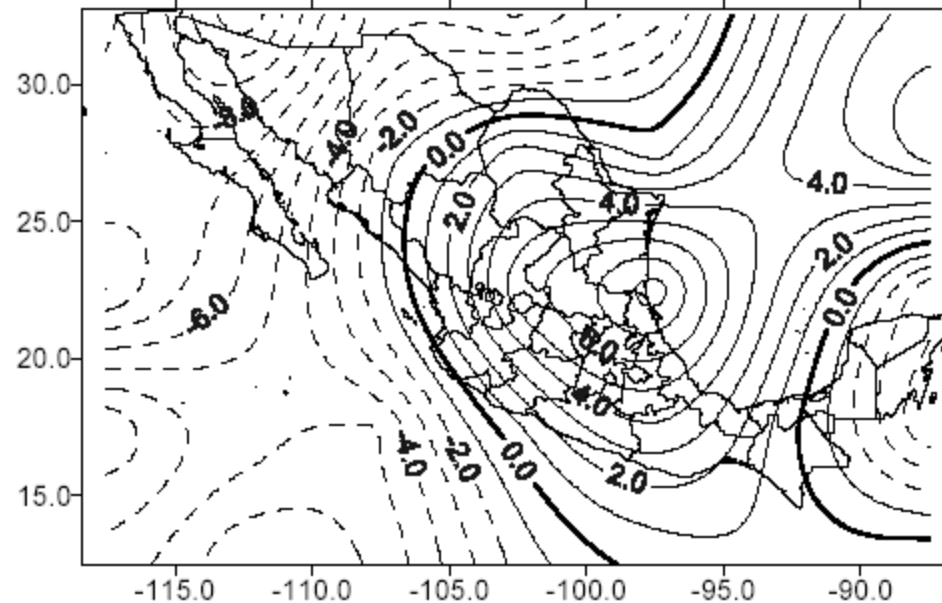




Potential changes in annual precipitation in Mexico for 2050



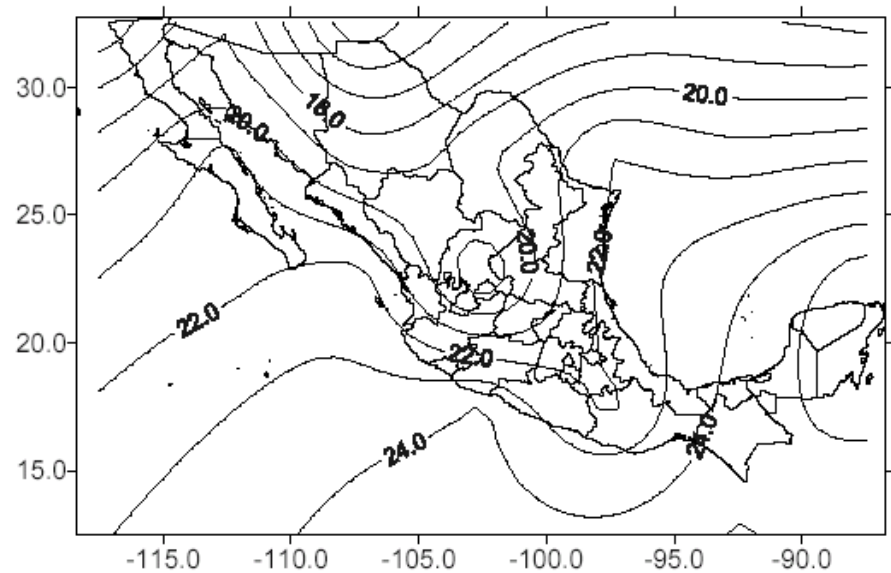
Scenario base (1961 – 1990) of average precipitation/year annual (mm/day)



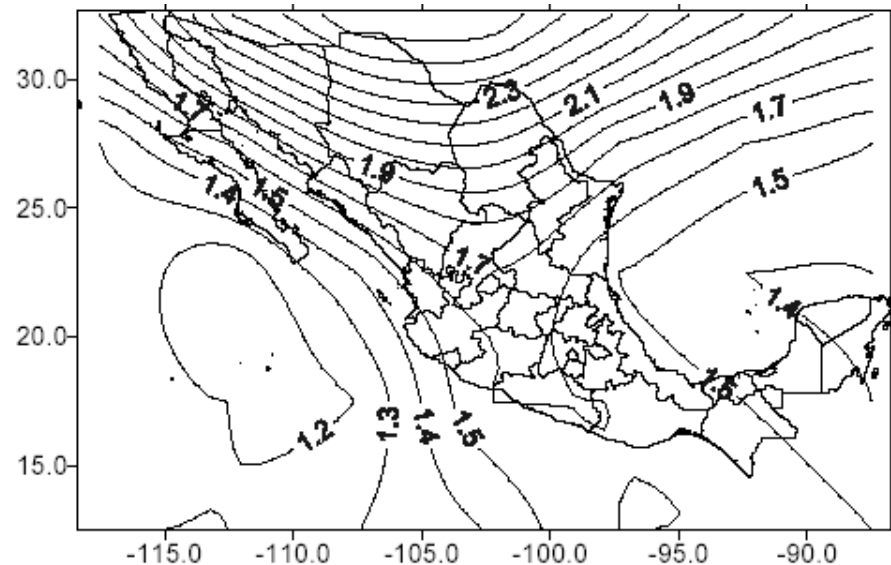
% of changes in average annual precipitation depending on medium sensitivity. The interrupted lines represent decrease. Model ECHAM4

Potential changes in annual temperature 2050

Scenario base (1961 –
1990) of annual
average of temperature



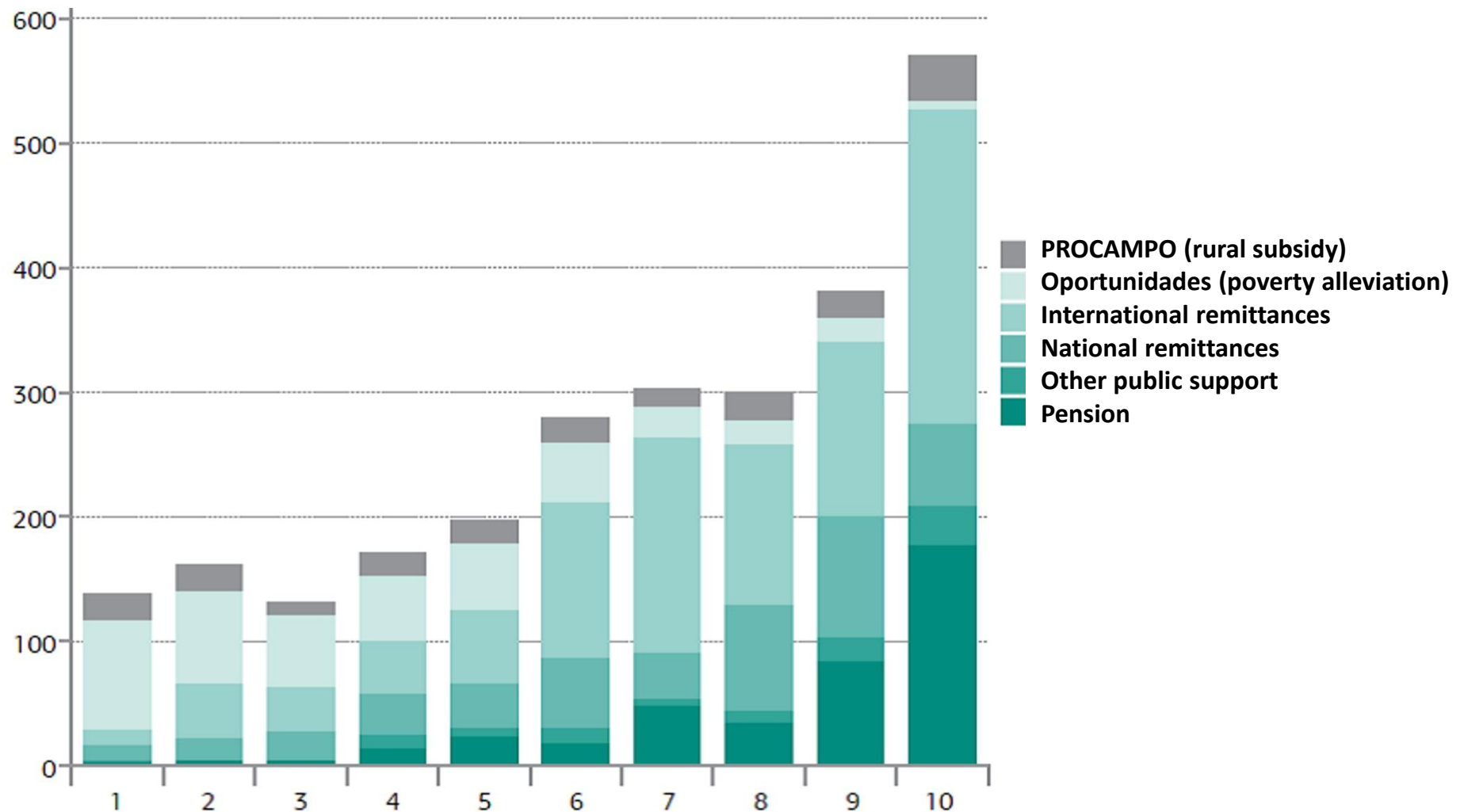
Increase of medium annual
average temperature (°C) in
2050. Model ECHAM4



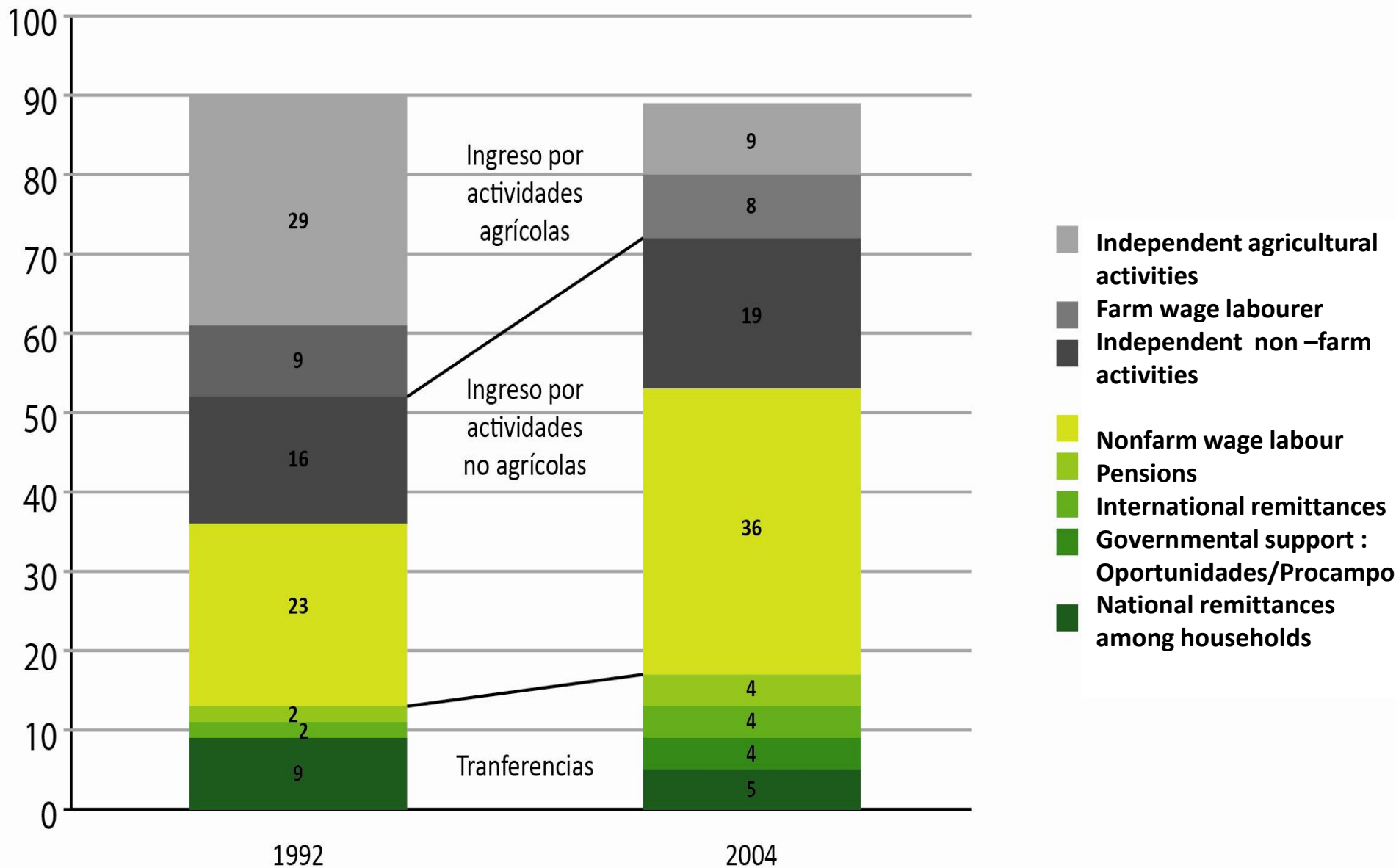
4. Socioeconomic factors



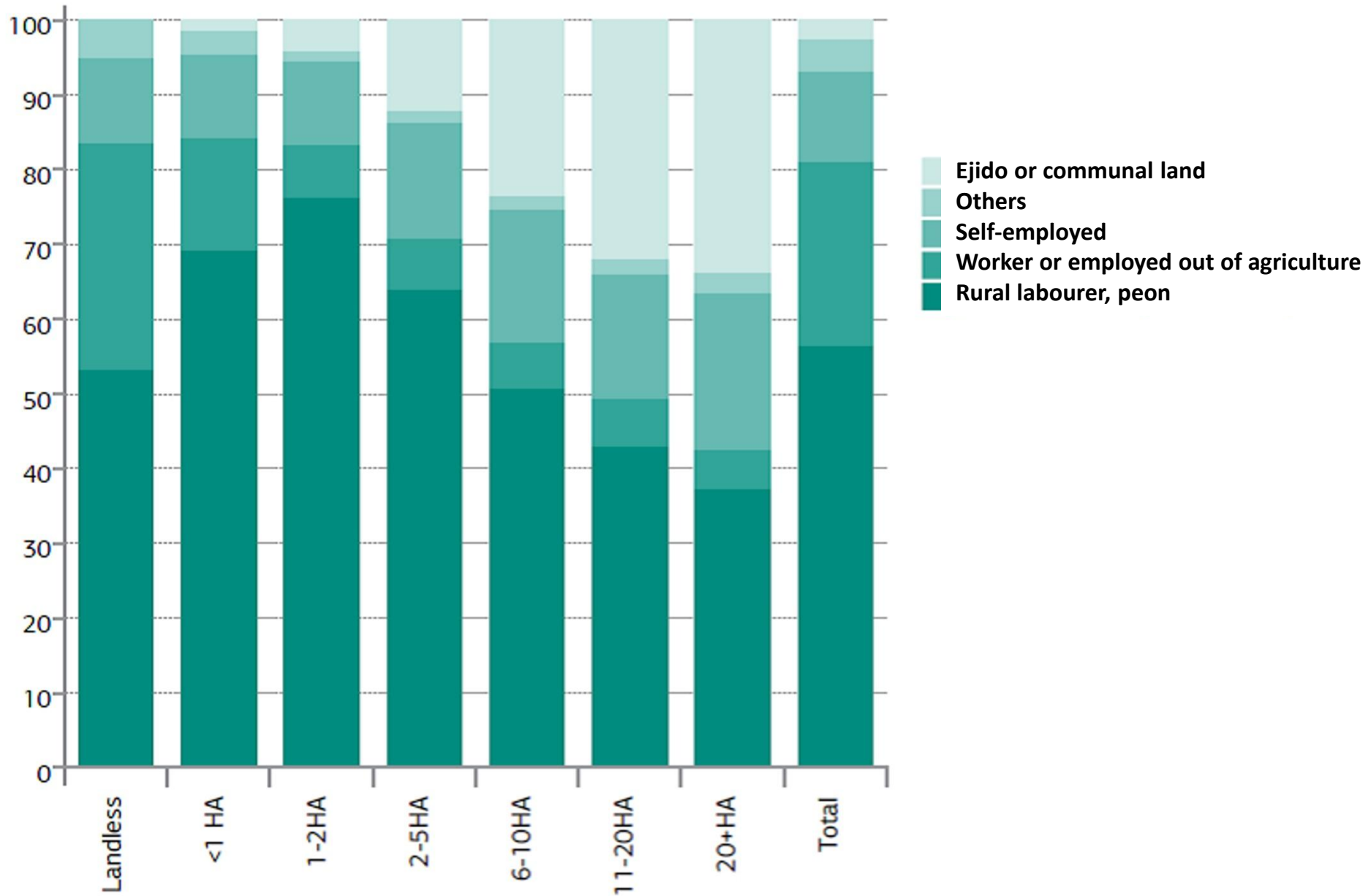
Complexity of economic incomes



Nonfarm incomes dominates



Land tenure



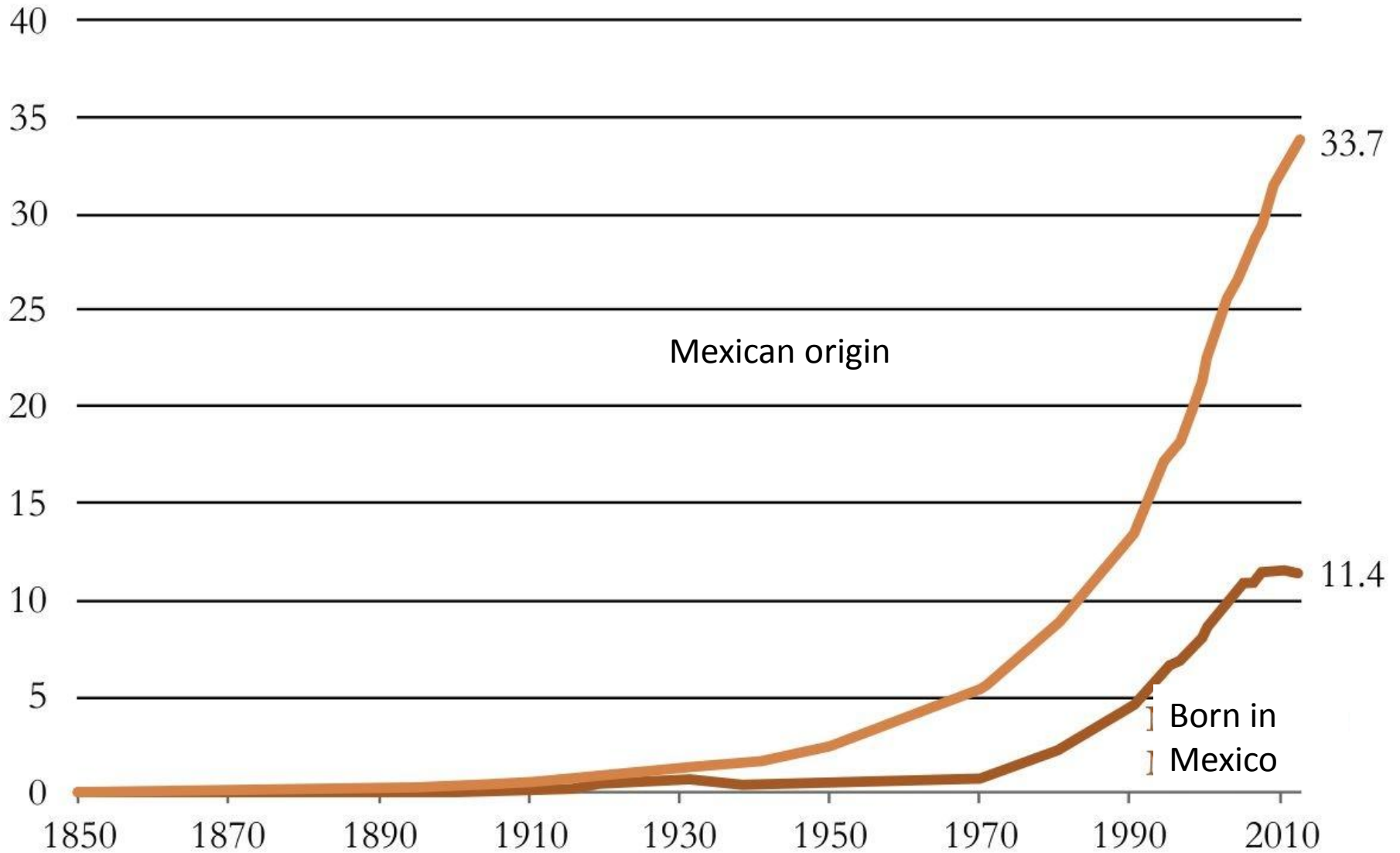


**Migrant
route
from
Centro
America
and
Mexico
by train**

Migration from Mexico to US

- The **abysmal socioeconomic differences**, environmental threats and public insecurity between both countries. Since NAFTA (1994), the number of Mexican migrants has increased since Despite the fence, a sophisticated electronic observation system including drones, until 2007: **450,000 to 500,000** Mexicans cross the border, now 150 to 200,000. During the Obama administration **2.3 million** people were expelled.
- Borders has been identified as a key concept for understanding contemporary **sociocultural processes**. The analysis of the "globalization" in both economic and symbolic aspects, refer to boundaries, edges, or areas of contact and conflicts.
- Since 1986, the legal status of Latin migrants in the USA has changed and now **most cross illegally**. Legal and physical obstacles have created **new conflicts** and the rejection of an immigration law in 2007 and the delay in 2014 by the US Congress has increased the vulnerability of the Latin migrants; today especially children.
- Often migration is linked to **organized crime** (drug, arms, human, women, human organs , oil, minerals, art, species in extinction trafficking, pornography).
- Migration is a **result of the neoliberal model with low growth rates** (below 2%), a corrupt privatization process with a high concentration of wealth, an inefficient education system and low investments in infrastructure, and a lacking policy to create jobs that pushed trained young people into illegal activities (500,000 are linked to drug gangs; AFI 2008; 2 million displaced by drug war). But also the demand for a cheap labour, drugs and pornography in the USA are drivers for illegal migration.
- Finally, **drought and lack of governmental support** in drylands have increased internal and international migration due to the **loss of livelihood** of rural people depending on natural resources, letting often women behind in charge of family, household and field.

Mexican migrants in US



Children are the new migrants



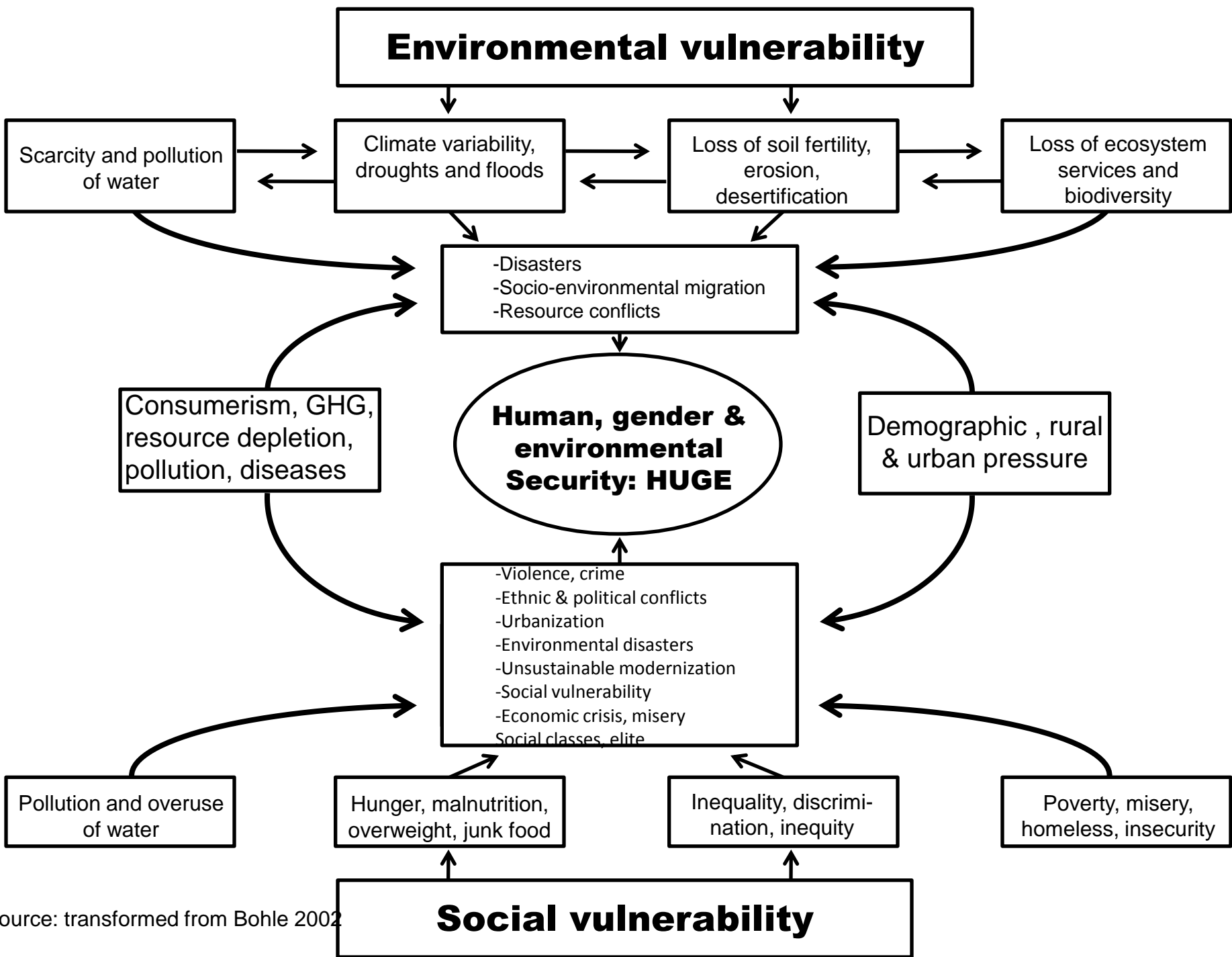
Children alone: new migrants

- During the last nine months (November 2013) 52,000 children or adolescents have crossed the border to US without documents. Estimations for 2014 will be 95,000. Obama speaks from a humanitarian crisis.
 - Economic crisis, neoliberal model, public violence and drug war obliges children to cross alone the dangerous border. Result of **neoliberal policy promoted by US, IMF, WB** through free trade agreements, **military cues, contra war, child soldiers** and the support of **dictators**: without finishing secondary school: 27% in Guatemala, 40% in Honduras, 41% in El Salvador; 8 million “ninis” (no school no job in Mexico: 60% of adolescents don't go to school.
 - ACNUR: migrant children from El Salvador, Guatemala y Honduras ask for asylum in US; from 2008 number increased **757%**, most are repatriated where they left.
1. In US, 21% of children have a father born outside (FIFCFS, 2007: 8). 27% of migrants in California live in «**mixed**» **families** with legal and undocumented members (30% of children). Half of children in San Diego are from mixed families.
 2. Children: a) live with parents in US; b) continue in US when parents are deported; c) children expelled want to return to US to join family, school or job; d) **children threatened in Mesoamerica** due to organized crime, disasters, and lack of school and job opportunities.
 3. Children alone on the border because they were expelled with parents or family or travel alone to join parents in US. Often they try several times to cross, on behalf the physical and legal obstacles.



5. Dual vulnerability

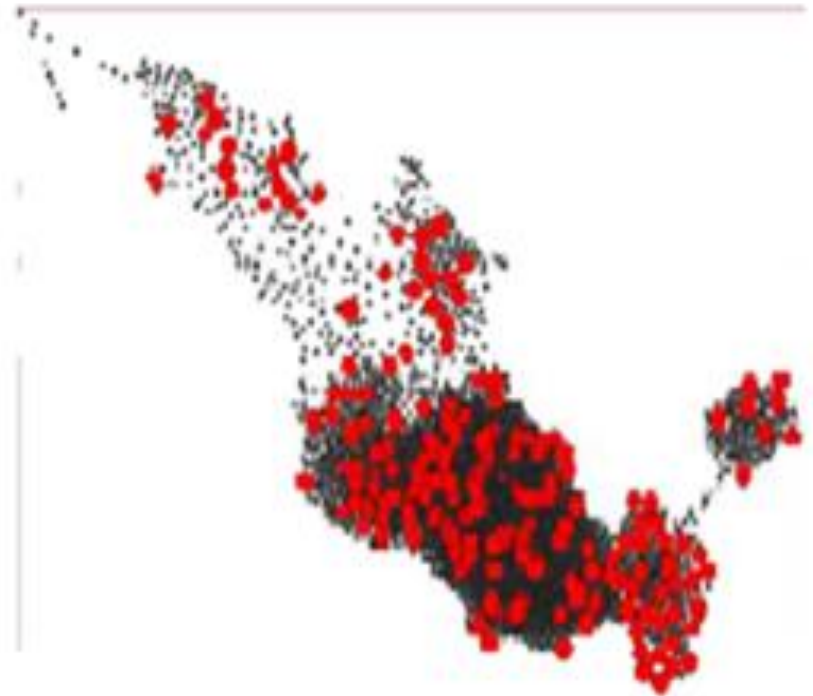
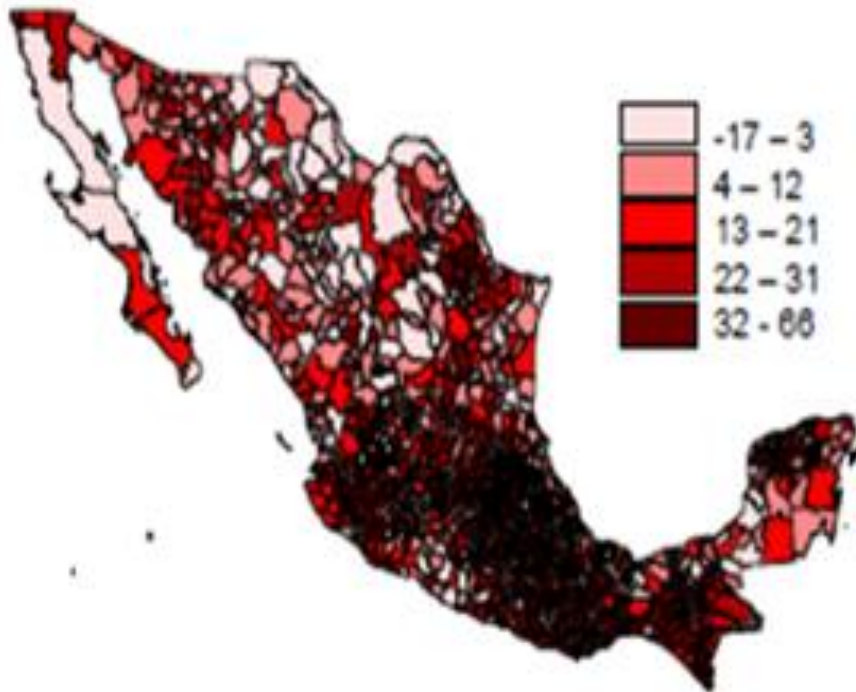




Source: transformed from Bohle 2002

Dual vulnerability: poor and exposed to extreme events transformed into disasters

Left: income less 2 US\$/day; right: Disaster costs over 500,000US\$





6. Social Vulnerability Index

Environmental perception

	Environmental understanding
Lorenzo Vázquez	62.6%
Villa Nicolás Zapata	75.8%
La Cañada	59.0%
El Pañuelo	56.3%

Index of social and environmental vulnerability

Both indexes	Lorenzo Vázquez	Nicolás Zapata	La Cañada	El Pañuelo
Index of social vulnerability	253.12	263.8	202.58	290.11
Index of environmental perception	273.4	286.6	220.3	307
Diferences in % between both indexes	8.01	8.64	8.75	5.82

7. Adaption without migration?



Obstacles to a dignified livelihood without migration

Socio-environmental management

```
graph LR; A((Socio-environmental management)) --- B((Governance)); A --- C((Economic support S&T)); A --- D((Adaptation));
```

Governance

- **Policy**
- **Planes & projects**
- **Transparency**
- **Citizen participation**
- **Resolution of conflicts**
- **Negotiated model of country**

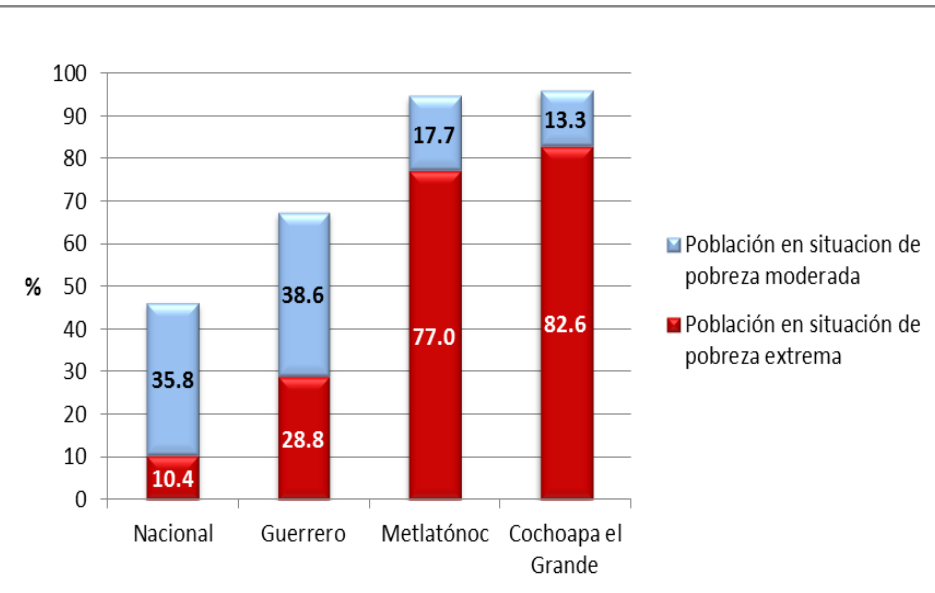
**Economic support
S&T**

- **Financing, credits**
- **Investments**
- **Research**
- **Technological development**
- **Applications (renewables)**

Adaptation

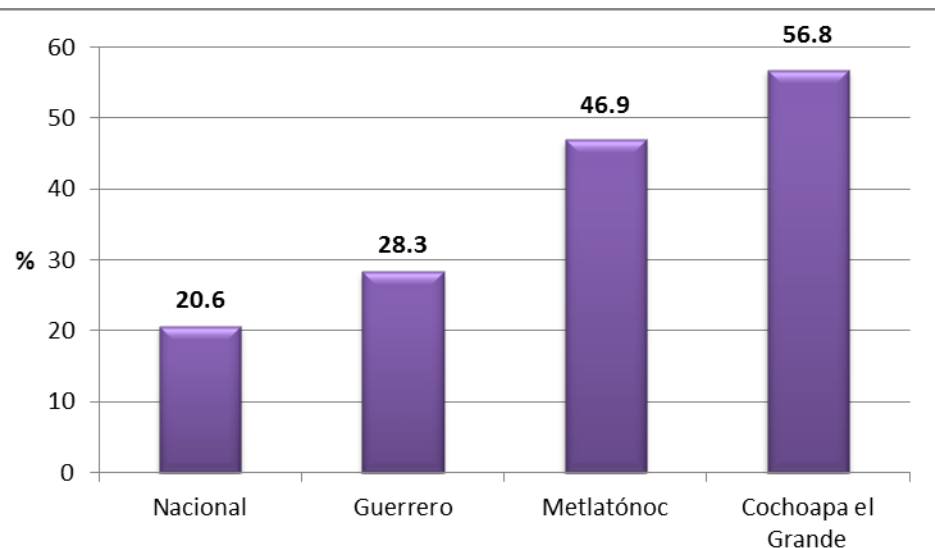
- **DRR, DRM**
- **Training**
- **Development projects**
- **Early warning**
- **Environmental recovery**
- **Culture**

Economic deadlocks in Cochoapa



1. Poorest municipality in Mexico
2. 82.6% extreme poor
3. 98% indigenous
4. 56.8% analphabets
5. 70% of women without school
6. Studying prevents marriage
7. Girls at 12 years are sold for marriage

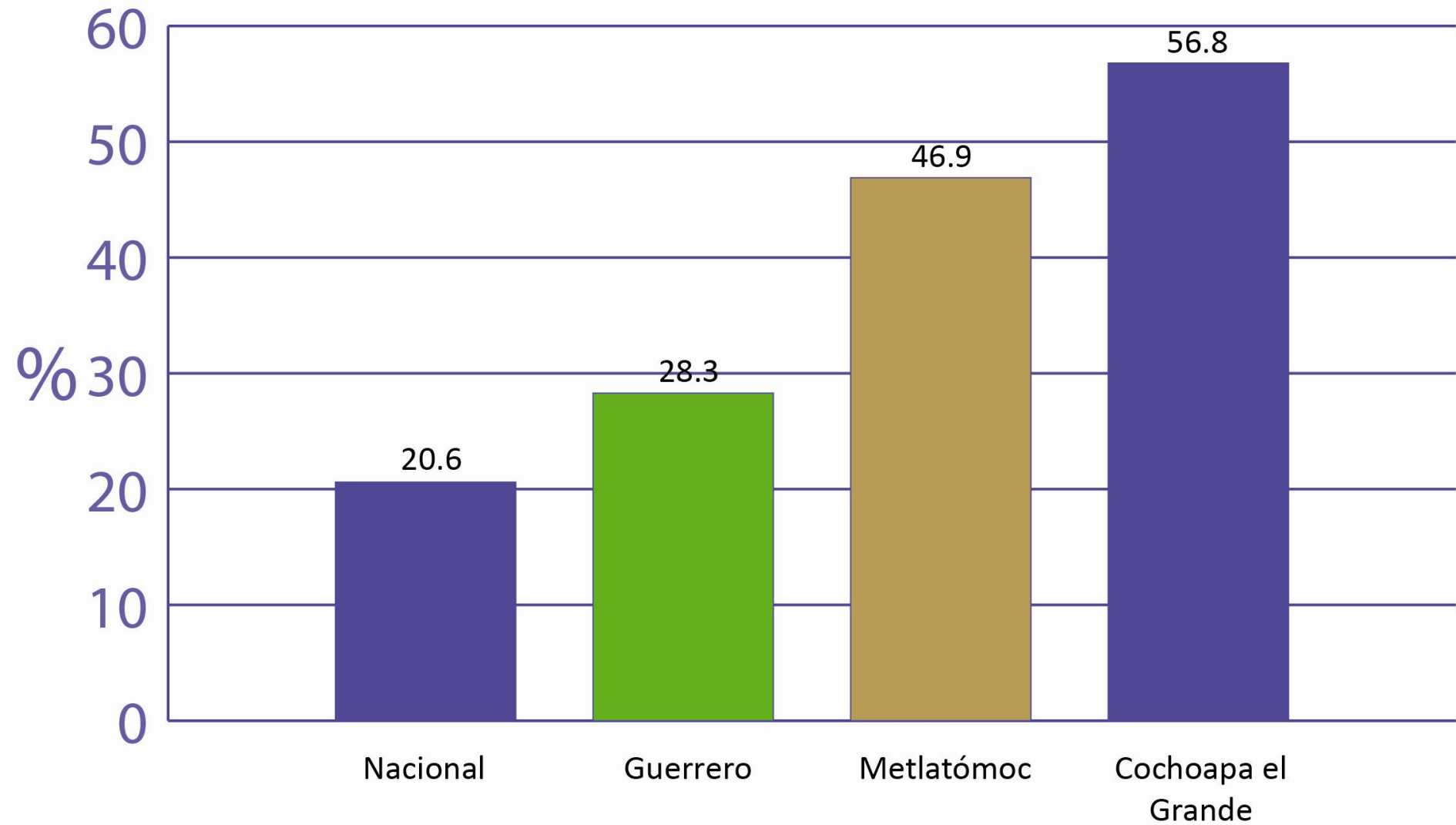
Without school training



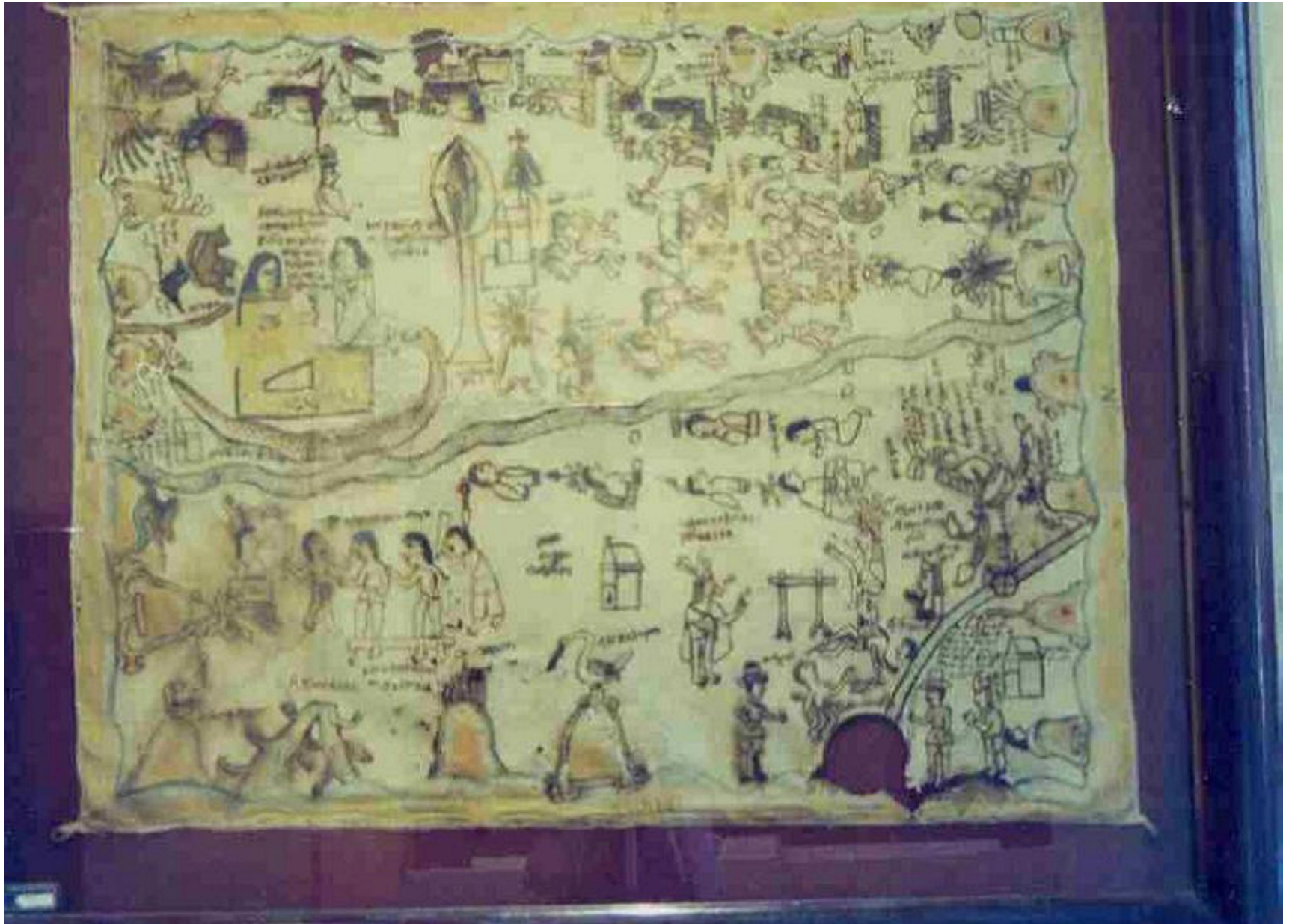
8. Temporary and permanent migration: Day laborers & family in the fields with toxic pesticides (including children)

Discrimination: Poor, woman, indigenous and migrant

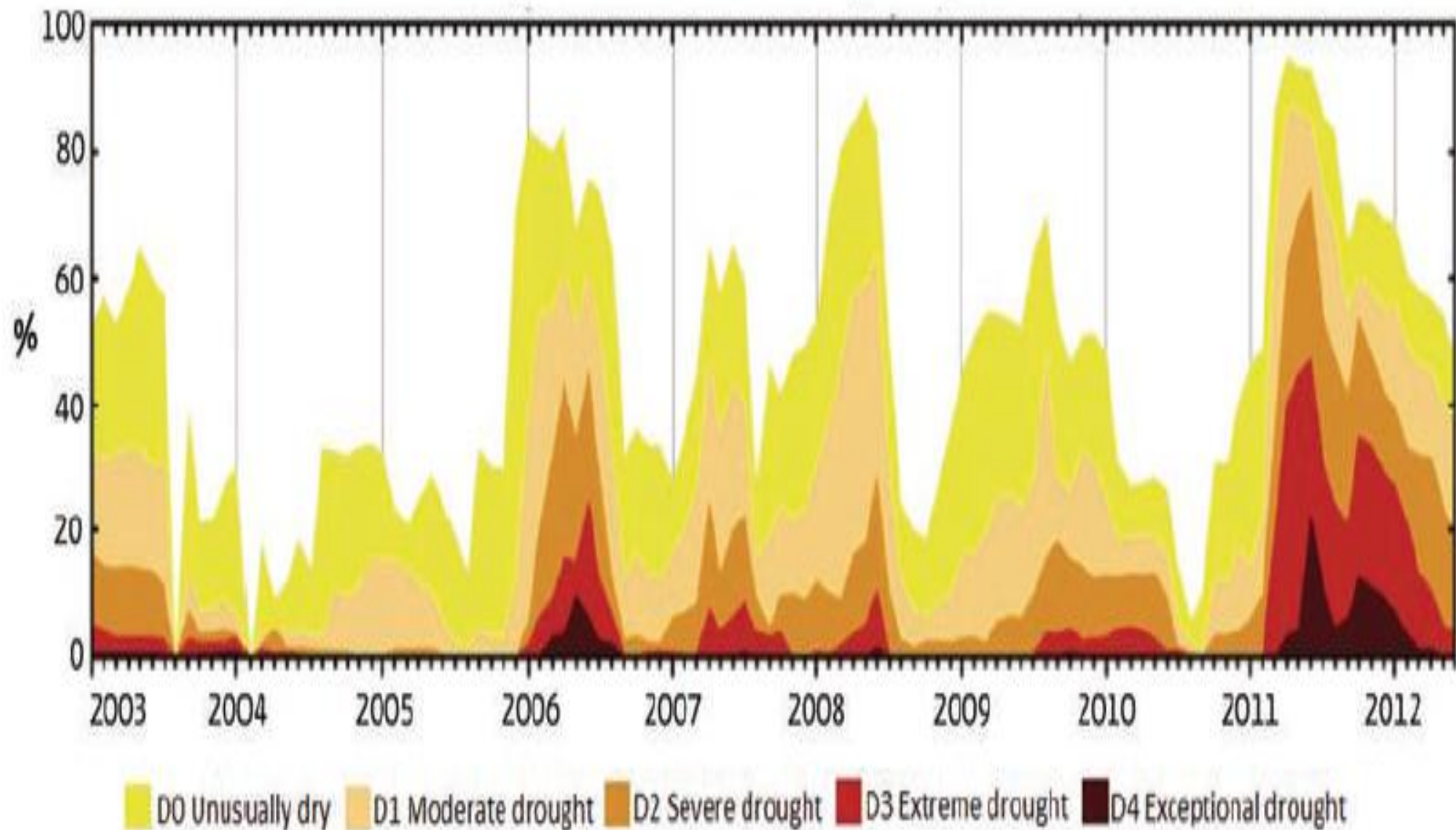
Educational backwardness



Culture and traditions



Droughts in Mexico



Affected surface (%) in Mexico due to the drought from 2003 to 2012

Glocal

Primary Actors

INTERNATIONAL

- Bilateral and multilateral partners
- Intergovernmental organizations

NATIONAL / SUB-NATIONAL

- National government and statutory agencies
- Civil society organizations
- Private sector
- Research and communication bodies
- Local government agencies

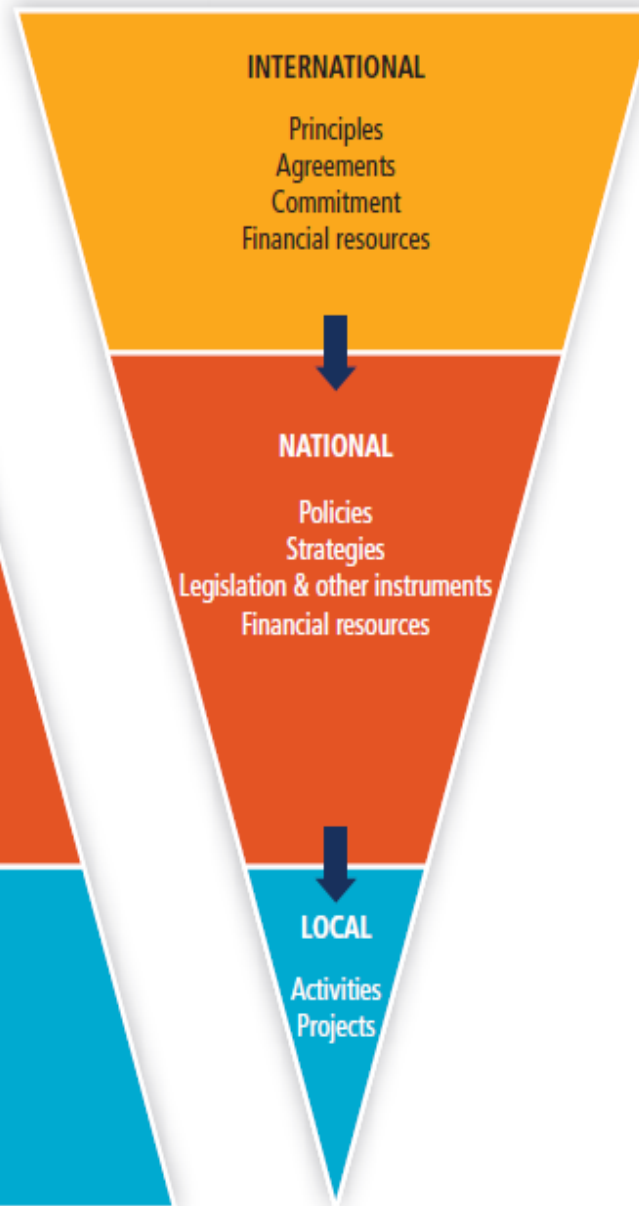
LOCAL

- Individuals, households, and communities
- Private sector
- Community-based organizations
- Faith-based organizations

"BOTTOM-UP" Functions



"TOP-DOWN" Functions

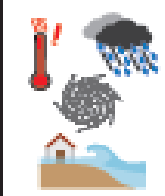
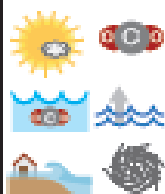
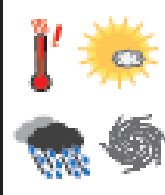
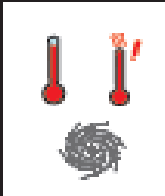


Global Climate
Projections










Regional / National
Climate Projections

Scientific and Local
Experiential
Knowledge

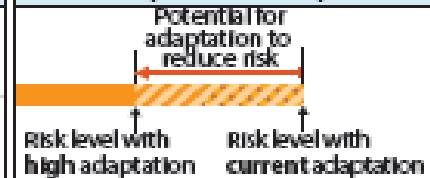
Vulnerability,
Risk, and Adaptation
Assessments

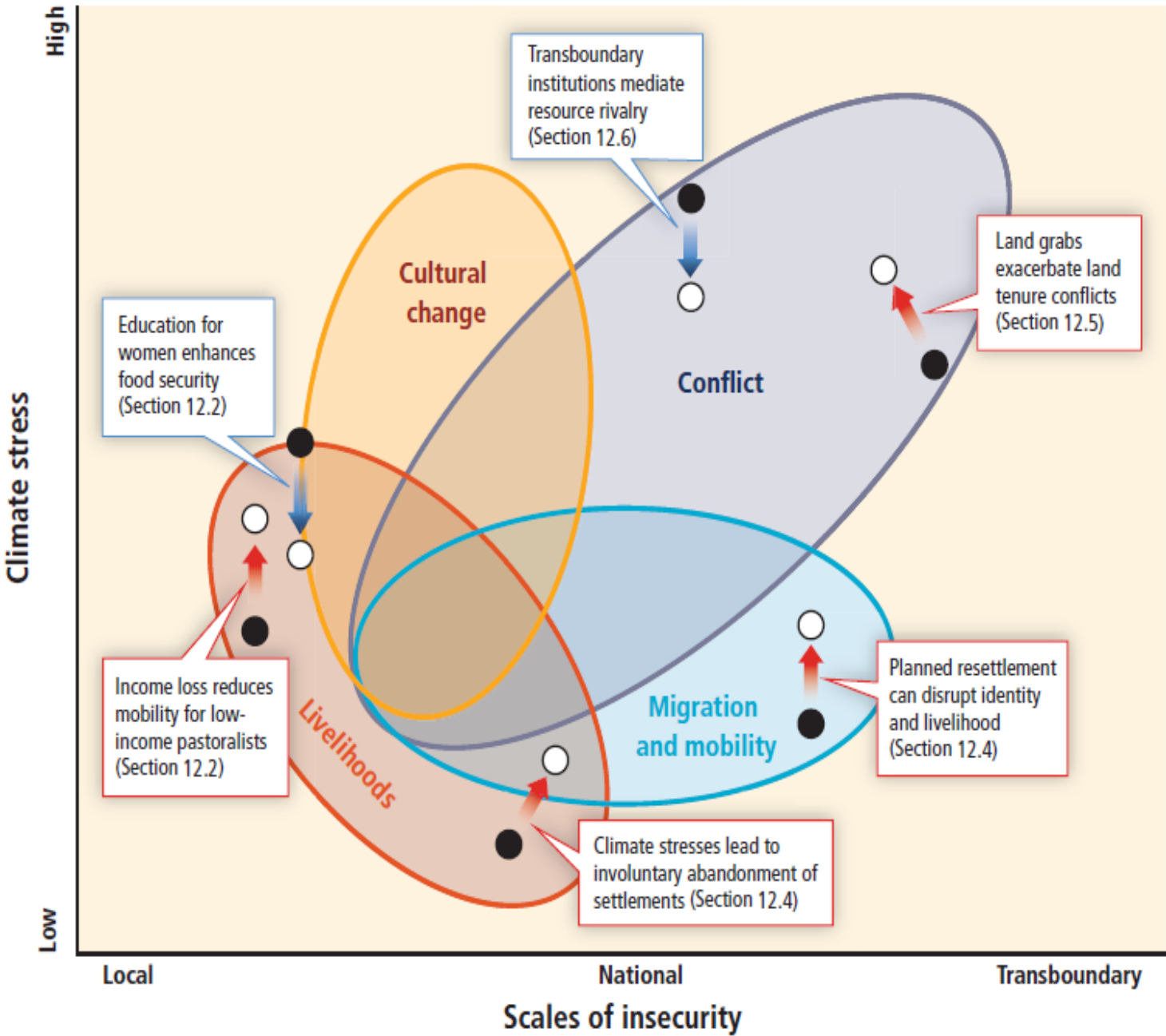
Example risks	Adaptation issues and prospects	Climatic risks	Supporting ch. sections	Time frame	Risk for current and high adaptation																			
Displacement associated with extreme events (high confidence)	Adaptation to extreme events is well understood but poorly implemented even under present climate conditions. Displacement and involuntary migration are often temporary. With increasing climate risks, displacement is more likely to involve permanent migration.		12.4.1	<table border="1"> <thead> <tr> <th></th> <th>Very low</th> <th>Medium</th> <th>Very high</th> </tr> </thead> <tbody> <tr> <td>Present</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>Near term (2030 – 2040)</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>Long term 2°C (2080 – 2100)</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>4°C</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> </tbody> </table>		Very low	Medium	Very high	Present	[Bar chart showing risk level]			Near term (2030 – 2040)	[Bar chart showing risk level]			Long term 2°C (2080 – 2100)	[Bar chart showing risk level]			4°C	[Bar chart showing risk level]		
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Loss of land, cultural and natural heritage disrupting cultural practices embedded in livelihoods and expressed in narratives, world views, identity, community cohesion, and sense of place (high confidence)	Cultural values and expressions are dynamic and inherently adaptable and hence adaptation is possible to avoid losses of cultural assets and expressions. Nevertheless cultural integrity will be compromised in these circumstances.		12.3.2, 12.3.4	<table border="1"> <thead> <tr> <th></th> <th>Very low</th> <th>Medium</th> <th>Very high</th> </tr> </thead> <tbody> <tr> <td>Present</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>Near term (2030 – 2040)</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>Long term 2°C (2080 – 2100)</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>4°C</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> </tbody> </table>		Very low	Medium	Very high	Present	[Bar chart showing risk level]			Near term (2030 – 2040)	[Bar chart showing risk level]			Long term 2°C (2080 – 2100)	[Bar chart showing risk level]			4°C	[Bar chart showing risk level]		
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Violent conflict arising from deterioration in resource-dependent livelihoods such as agriculture and pastoralism (high confidence)	Adaptation options: Buffering rural incomes against climate shocks, e.g., through livelihood diversification, income transfers, and social safety net provision; Early warning mechanisms to promote effective risk reduction; Well-established strategies for managing violent conflict that are effective but require significant resources, investment, and political will.		12.5.1	<table border="1"> <thead> <tr> <th></th> <th>Very low</th> <th>Medium</th> <th>Very high</th> </tr> </thead> <tbody> <tr> <td>Present</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>Near term (2030 – 2040)</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>Long term 2°C (2080 – 2100)</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>4°C</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> </tbody> </table>		Very low	Medium	Very high	Present	[Bar chart showing risk level]			Near term (2030 – 2040)	[Bar chart showing risk level]			Long term 2°C (2080 – 2100)	[Bar chart showing risk level]			4°C	[Bar chart showing risk level]		
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Geopolitical competition over access to Arctic resources that escalates into dangerous tensions and crises (high confidence)	There are international organizations and elements of international law that regulate competition and access and provide mechanisms for resolving disputes. There are strong transnational networks that are relevant for joint problem solving. Hence adaptation action has significant potential to reduce risks associated with geopolitical rivalry.		12.6.2	<table border="1"> <thead> <tr> <th></th> <th>Very low</th> <th>Medium</th> <th>Very high</th> </tr> </thead> <tbody> <tr> <td>Present</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>Near term (2030 – 2040)</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>Long term 2°C (2080 – 2100)</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>4°C</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> </tbody> </table>		Very low	Medium	Very high	Present	[Bar chart showing risk level]			Near term (2030 – 2040)	[Bar chart showing risk level]			Long term 2°C (2080 – 2100)	[Bar chart showing risk level]			4°C	[Bar chart showing risk level]		
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New or exacerbated conflict through land acquisition for climate change mitigation and adaptation (medium confidence)	Climate change mitigation (e.g., expansion of biofuel production area) and adaptation action (e.g., set-back of coastal land) can exacerbate conflicts when they are already manifest around land and water availability and scarcity. The extent of insecurity and instability from such mitigation and adaptation activities depends on the displacement of populations and the inclusiveness of the planning processes. Careful planning processes can therefore be used to ameliorate the risk of conflict.		12.5.2	<table border="1"> <thead> <tr> <th></th> <th>Very low</th> <th>Medium</th> <th>Very high</th> </tr> </thead> <tbody> <tr> <td>Present</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>Near term (2030 – 2040)</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>Long term 2°C (2080 – 2100)</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> <tr> <td>4°C</td> <td colspan="3">[Bar chart showing risk level]</td> </tr> </tbody> </table>		Very low	Medium	Very high	Present	[Bar chart showing risk level]			Near term (2030 – 2040)	[Bar chart showing risk level]			Long term 2°C (2080 – 2100)	[Bar chart showing risk level]			4°C	[Bar chart showing risk level]		
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Climatic drivers of impacts

 Warming trend	 Extreme temperature	 Drying trend	 Extreme precipitation	 Sea level
 Storm surge	 Carbon dioxide concentration	 Extreme wind episodes	 Ocean acidification	

Risk & potential for adaptation





- Initial conditions
- Outcome of intervention
- ← Intervention with net increase in human security
- ← Intervention with net decrease in human security

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