Migration and environmental change: From science to policy in the Sahel region

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Chaire d’études sur les écosystèmes urbains
Outline

1. Adaptative capacity project in the Sahel
2. A vulnerability approach - interactions between nature and society…some concepts
3. Migration as an adaptive solution and anthropic pressures
4. Empirical observations (Mali, Niger, Burkina Faso)
5. Carrying and caring capacities
6. Implications for policy formulation
Adaptive capacity project in the Sahel

• Canadian International Development Agency
• Regional, national, local African partners:
  – CILSS - AGRHYMET research center
  – Case studies: Mali, Burkina Faso, Niger
• Canadian partners:
  – Environment Canada
  – Chaire d’études sur les écosystèmes urbains – UQÀM
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Objective: propose multi-level adaptive strategies

• Climate science (impacts) + 5 local survies on multi-dimensions of adaptation and vulnerability (social, cultural, institutional)
• Environmental sciences approach to adaptation to climate variability and environmental change…
  (science to action, socio-ecosystemic vision)
Build capacities toward interdisciplinarity of the researchers, the local and policy formulation level as an indirect
Climate Change in the Sahel Region

Background
- IPCC…2007 (2XCO2 by 2030)
- Vancouver…2006 (2030 = 2 X URBAN POP.)

Regional sahelian fears…
Extreme weather events (droughts, flooding…)
less rainfall (climate variability)
http://news.bbc.co.uk/2/hi/science/nature/4479640.stm

Environmental/climate change + social transformations
(demographics) = more vulnerability
**Adaptation:** spontaneous or planned response to minimize or prevent a negative situation

Types of adaptations....( State, community, individual )

- Irrigation
- « adapted seeds »
- Solidarity
- Bring cattle to the market ( Niger, 2005 )

- Migration ?
A vulnerability approach

_Vulnerability: ...of socio-ecosystems_

Degree to which an ecosystem is likely to be exposed negatively to climate variability
The capacity of a social system to respond positively to climate variability
Research design

• Qualitative and quantitative methods
• Semi-directed interviews (reality sampling, 5 locations)
• Focus groups, monographies

• 576 interviews with local research collaborators
  – Access files:
    • Sociological data
    • Perceived problems and their solutions
    • Collective action framework
    • Knowledge base
• Nvivo, SPSS
Some observations

Individual solutions:
• New ways..., better land management (49%)
• Preventive stock management (17%)
• Solidarity, cooperation, outside help (13%)
• Diversification of activities...(13%)
• Beliefs and religion (11%)
• No attempts (11%)

• Migration is a problem not a solution...
Some observations…

• Problems perceived to be related to climate variability:
• Poverty, deseases (75%)
• Food insecurity (64%)
• Biophysical phenomena (53%)
  – droughts
  – flooding
  – vegetal cover, fauna
  – water quality and quantity
• Displacement of persons (migration) (43%)
• Social problems (35%)
  – conflicts
  – family problems
• Less agricultural productivity (28%)
Discussion…

• The situation in Mopti (Niger River, Mali)
• Land use conflicts and institutional incapacities

• The Niger re-birth of forestation and population explosion

• Tahoua (Niger) pastoral - agricultural conflicts
The wider picture of the Sahel

• Direct dependency on natural resources and environmental «stability»

• Highly sensitive communities to environmental change
  – Rainfall (agriculture), water level of the Niger river, vegetal cover, water quality….

• Subsistence economy, no tools…

• Schooling deficiencies

• Institutional incapacities

• Urban phenomenon, footprint

• Population growth, migration of the skilled…
The decision to stay or migrate is linked to the vulnerability of the socio-ecosystem... and the place of the individual in that complex system

_Vulnerability also refers to..._

The carrying capacity of the ecosystem
The caring capacity of the social system

_Toward a comprehensive approach..._
Migration can be an individual adaptive solution but also an important contributing factor to environmental change.

The carrying capacity of the ecosystem

**MIGRATION**

The caring capacity of the social system
Migration weakening of social structures: institutional caring and reduction of social capital
Institutional challenges to meet...

crisis: Extreme weather events (flooding...)

short term: Locus invasion, droughts

mid-long term: Climate change ...less rainfall
From science to policy on the migration and environmental issue

Mainstreaming… and pushing strategic environmental assessment at the policy level

Underpining policy-making with a socio-ecosystem vulnerability outlook

Responding to acquired incapacities with interdisciplinarity approach

Community involvement