



Water in Africa: Hydro-Pessimism or Hydro-Optimism?

Água em África: Hidro-pessimismo ou Hidro-optimismo

Centro de Estudos Africanos da Universidade do Porto
Porto, Portugal, 2-3 October 2008

ADAPTATION TO CLIMATE CHANGE AND DEVELOPMENT

HYDRIC RESOURCES IN CABO VERDE, SÃO TOMÉ E PRÍNCIPE AND GUINÉ-BISSAU

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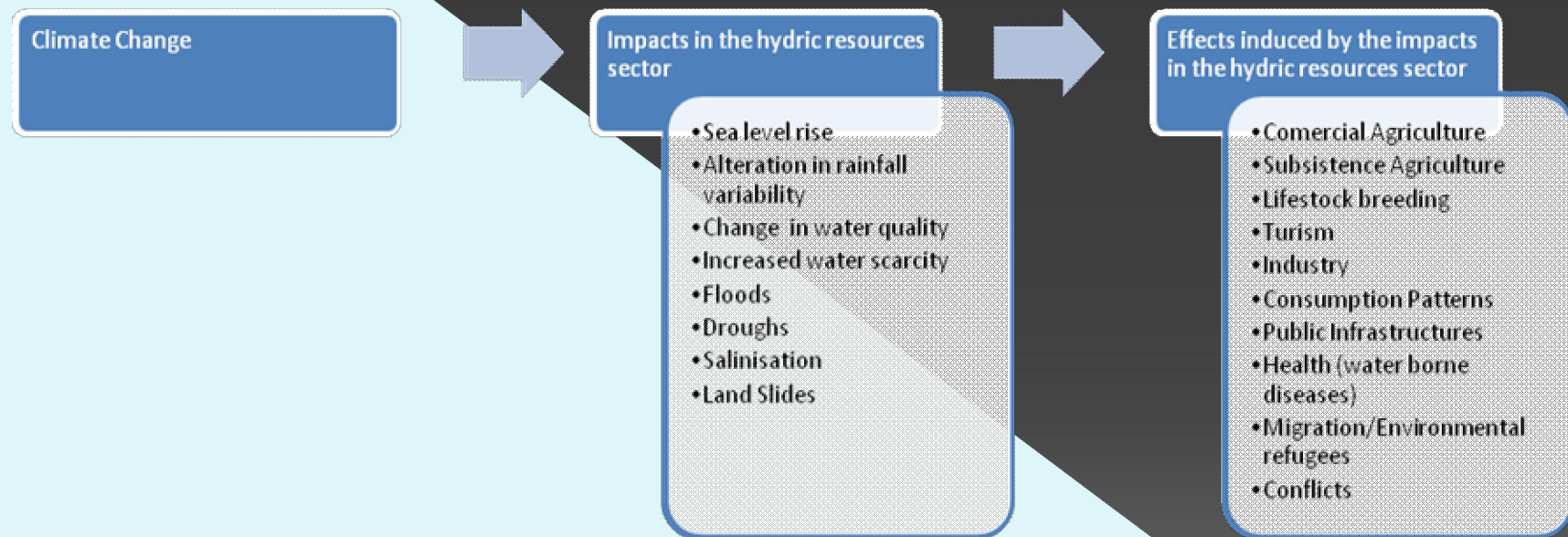
Euronatura – Center for Environmental Law and Sustainable Development

CEAUP – October 2008

Africa and Climate Change

- 4AR: one of the most vulnerable continents to climate change (CC) and climate variability
 - > Different drivers for some of the known CC impacts
 - > Adaptive Capacity
 - > CC exacerbates several development constraints Vs CC as a development constraint

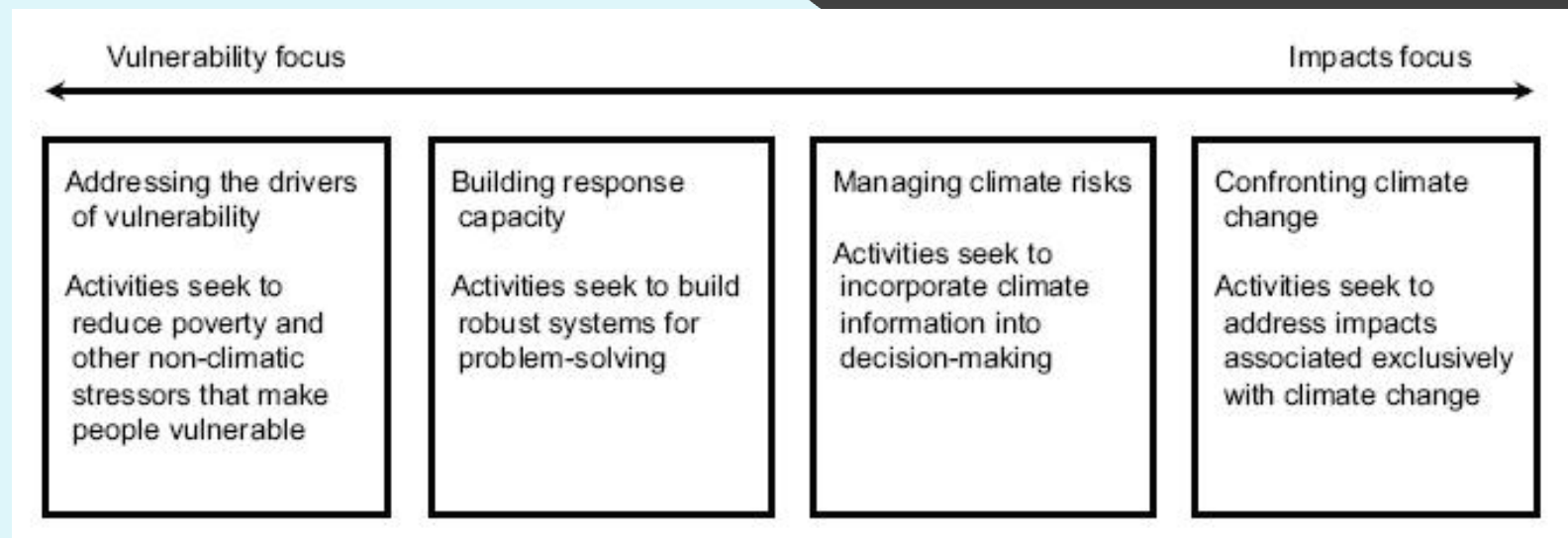
Hydric Resources and CC



- Vulnerability to CC exacerbated by other sectors: wrong incentives
- Link between CC adaptation and development policy

An Adaptation Framework: Continuum of approaches

- ◉ Range of activities: “pure” development activities and explicit adaptation measures to CC
- ◉ Rationale: adaptation to CC is a function of the potential CC impacts, but also of the adaptive capacity of each country
- ◉ Re-interpretation of the concept of adaptation



FONT: FROM Klein (2008) based on McGray, Hammill, & Bradley (2007)

National Adaptation Plans of Action (NAPAs)

- ⦿ National plans: framework to LDCs to address their most urgent adaptation needs
- ⦿ *“Special needs”* of the LDCs
- ⦿ Parallel planning Vs Integration into existing plans
- ⦿ Rationale:
 - Numerous possibilities to address CC adaptation
 - Specific measures addressing simultaneously their key vulnerabilities and their pre-existent development paths

Cabo Verde NAPA

- ⦿ Climate Change impacts:
 - > Intensification of water scarcity
 - > Modifications in the rainy season
 - > Increase of extreme events, as floods and droughts
 - > Sea level rise
- ⦿ Measures proposed (program - 4):
 - > Include the impacts of CC in an Integrated Water Resources Management (IWRM), mainly in the supply side
- ⦿ Perceived constrains:
 - > Institutional and economic
 - > Capacity development
- ⦿ Type of adaptation activities:
 - > Addressing the drivers of vulnerability
 - > Building capacity response
 - > Managing climate risk

Guinée-Bissau NAPA

- ◉ Climate projections:
 - > Decrease in available water
 - > Ground waters increasingly deeper
 - > Dried up river and lakes
 - > Increase in the number of floods (with impacts in the water quality)
- ◉ Measures proposed (project - 2):
 - > Improve the supply of potable water in rural areas
 - > Promotion of small scale irrigation
- ◉ Perceived constrains:
 - > *water related problems*
- ◉ Type of adaptation measures:
 - > Addressing the drivers of vulnerability
 - > (Different typology: autonomous adaption)

São Tomé e Príncipe NAPA

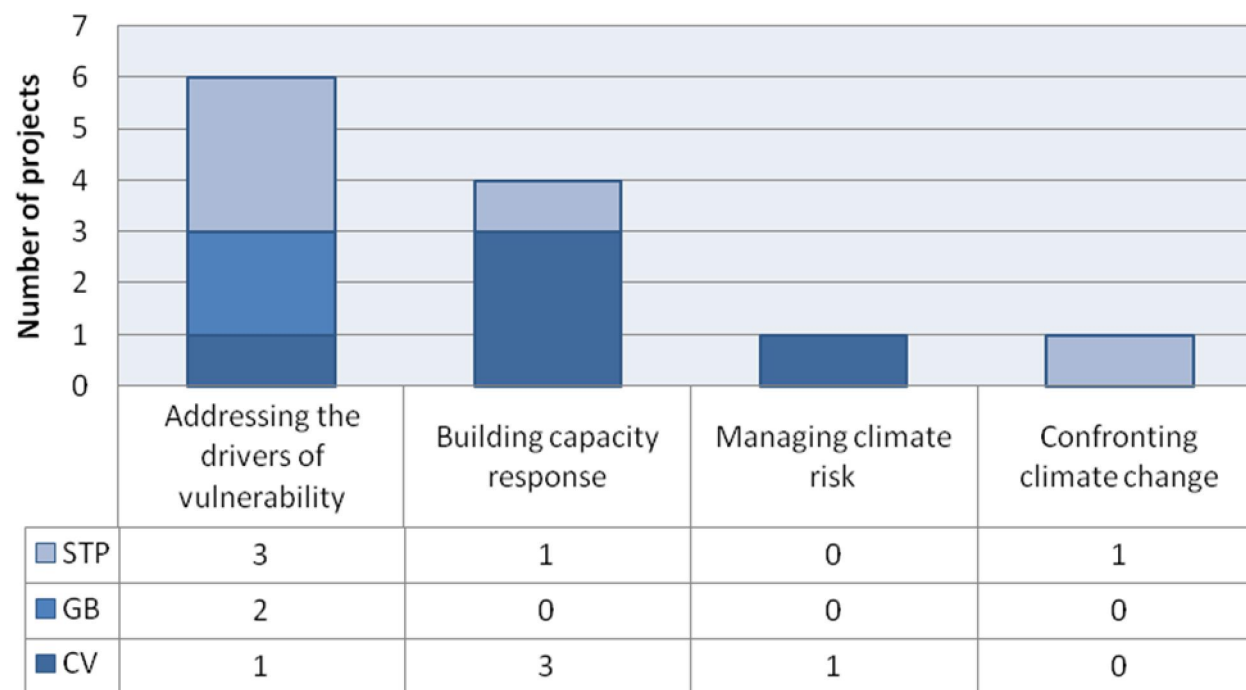
- ◉ Climate projections:
 - > Decrease in rainfall (impacts in the river flow and water supply)
 - > Increase in the length of the dry season
 - > Floods
 - > Sea level rise The decrease in river flow and water scarcity are driven by other factors that not climate change, but given the purpose of this work we will study these in detail.
- ◉ Measures proposed (project - 5):
 - > Understanding the current state of water resources
 - > Improve water supply
 - > infrastructural equipment (improve water availability and quality)
 - > Introduction of hydropower-stations
 - > Community reallocation
- ◉ Perceived constrains:
 - > Incapacity to manage appropriately the resources
- ◉ Type of adaptation measures:
 - > Addressing the drivers of vulnerability
 - > Building capacity response
 - > Confronting climate change

The NAPAs...

- ◉ CV NAPA
 - > Mainstreaming of adaptation into development
 - > Lack of information disables us to conclude whether some of them were or not already previously planned (disregarding the NAPA and climate change)
- ◉ GB NAPA:
 - > Greater focus on 'others' drivers to water related problems
 - > In face of the several impacts the measures proposed focus the vulnerability side (in line with the identified drivers)
- ◉ STP NAPA:
 - > Activities on both axes of the continuum approach

The measures...

Type of adaptation measure, by country



- Hydric sector Vs Other sectors?
- Lack of information

Opportunities and limits

- ◉ Focus on the supply side
- ◉ Lack of information:
 - > Gathering of information is proposed in the three NAPAs (set the ground to future adaptation)
 - > Enables maladaptation
- ◉ Link to Disaster Risk Reductions Strategies
- ◉ Institutional problems

Adaptation Costs (Estimates)

- ◉ Adaptation costs are influenced by:
 - > Assumptions of what is adaptation
 - > Which measures should be included
 - > Which costs are included
- ◉ Estimates
 - > World bank \$9-41 bn, per year
 - > Oxfam \$50 bn, per year
 - > UNFCCC (incremental costs)
 - (Total) \$49-171 bn, per year (by 2030)
 - (NAI) \$28-67 bn, per year (by 2030)
 - (Water supply) \$11 bn, per year (by 2030)
 - (Water supply in NAI) \$9 bn, per year (by 2030)
 - > UNDP \$86 bn, per year (by 2015)

Cost of measures proposed (in the NAPAs)

- CV \$ 13.132.800
- GB \$ 1.800.000
- STP \$ 2.700.000
- Total \$ 17.632.800

- > This only accounts for the urgent adaptation needs
- > Around 70% of this value reports to CV measures
- > Measures are mainly addressing the vulnerability focus, neglecting measures concerned with the impact focus of adaptation.

Costs of adaptation in the hydric resources sector

- Two different climate scenarios
 - SRES B1: preference for greenhouse gas (GHG) mitigation
 - SRES A: preference for continuous economic growth
 - Attending to varied assumptions in the development of “different economic, technical, environmental and social dimensions
- Divergence with the NAPA: focus on incremental costs (discussion over the use of MDG target 10)

Merging several estimates...

COUNTRY/REGION	CV	GB	STP	WEST AFRICA	TOTAL
TYPE OF ADAPTATION ACTIVITY (PROPOSED IN THE NAPA)	- Addressing the drivers of vulnerability - Building response capacity - Managing climate risk	- Addressing the drivers of vulnerability	- Addressing the drivers of vulnerability - Building response capacity - Confronting climate change	-	-
COST ESTIMATE (IN THE NAPA)	\$ 13.132.800	\$ 1.800.000	\$ 2.700.000	-	-
KIRSHEN'S ESTIMATES¹⁷ (SRES B1)	\$ 2.360.000 ¹⁸	\$ 14.600.000	(insufficient data) ¹⁹	\$ 5.240.000.000	\$ 425.000.000.000
KIRSHEN'S ESTIMATES²⁰ (SRES A1B)	\$ 4.540.000 ²¹	\$ 16.404.421	(insufficient data) ²²	\$ 6.750.000.000	\$ 531.000.000.000

Funding sources for Climate Change adaptation

- ⦿ Three main concerns:
 - > Which should be the source of funding
 - > Should ODA be used to finance adaptation to CC
 - > What are the available funds to finance adaptation to CC under the international climate negotiations

Funding sources

- Public expenditures:
 - In developed countries, public expenditures are the main source of adaptation funding, the reality diverges in the developing world
- ODA
 - Fungibility
 - Mainstreaming adaptation (CAD decision)
 - Additional funding
 - Trends in the water sector

Funding sources

- ◉ Funds under the international negotiation regime
 - > Article 4.4 of UNFCCC: developed countries are obligated to fund for adaptation for CC
 - > LDC Fund and the Special CC Fund (both established under the UNFCCC)
 - > Adaptation Fund (established under the Kyoto Protocol)
 - Voluntary Vs Compliance schemes
 - > Strategic Priority on Adaptation (established under the Global Environmental Facility (GEF)).
 - > Two main problems
 - The value pledge by developed countries is far higher than the values actually received - increasing the debate around the type of contribution used to finance the funds;
 - GEF established that would only finance the additional costs of adaptation

Continuum Approach and Funding sources

- ◉ ODA would be used to promote measures in the extreme left-side
- ◉ Climate funds to finance measures in the extreme right-side
- ◉ Everything in between could be funded by new mechanisms/funds
 - > This would enable the complementary use of ODA and climate funds, and promote the gathering of additional funding
- ◉ Our analysis of the NAPAs suggests:
 - > Countries are relying on the public investment and ODA (mainly international organizations contributions) to finance the proposed projects.

Conclusion

- NAPAs are important as a first approach to adaptation, but further plans should be developed addressing medium and long term impacts
- CC impacts in the hydric resources sector vary among the studied countries
- Each country has developed its own approach to cope with CC in the sector
 - CV and STP propose a more diversified range of measures
 - GB focuses on addressing the drivers of vulnerability
- The majority of measures proposed in the NAPAs are familiar to the development community
- Clear lack of studies regarding the hydric sector
 - National studies regarding CC impacts in the sector should be elaborated
 - Further studies concerning adaptation costs should be developed
- Financing CC adaptation remains an uncertainty