

# Mainstreaming Adaptation Concerns in Management of **Water Resources** **in Asia**: Progress and Challenges

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# Outline

- Mainstreaming adaptation in water sector – **What, why and how?**
- Progress (lessons learned) based on **IGES consultation** (14-15 Feb. 2007)
- Gaps, Needs and Concerns
- The Way Forward



# A Few Unique Aspects of the Water Sector

- Water is a primary medium through which CC impacts are experienced and responded to
- **Most vulnerable sector** to CC in nearly all countries (NCs and IPCC WGII SPM)
- Often **requires costly investment in infrastructure** (water withdrawal, storage, delivery, treatment and disposal systems) with long economic and physical life, and **adaptive responses are generally slower** than in other sectors.
- **Strong relationship with attainment of MDG Goals:**
  - Inadequate coping strategies in water and sanitation results in increased hunger and child mortality.
  - Reduced access to water will lead to increased migration.

# Mainstreaming

- **What:**
  - Integration of concerns on adaptation to current & future impacts of CC at both **policy and implementation levels**.
- **Why:**
  - To ensure that **current projects are no longer at risk** from CC or no longer contribute to the vulnerability of its recipients (Climate proofing)
  - To ensure that **future projects are consciously aimed at reducing vulnerability** by including priorities that are critical to successful adaptation, such as ensuring water rights to groups exposed to water scarcity during drought
  - To use resources efficiently and effectively
  - To avoid mal-adaptations
  - To ensure **consistency between the needs of poverty eradication and adaptation**

# Mainstreaming - How

- Entry points (NWP, PRSP, NEAP, NAP, MDG plans, NC, NAPA, NAPF, EIA)
- Approaches
  - **Top-down** (e.g., expanded irrigation systems) vs. **bottom-up** (e.g., community-based water harvesting or allocation systems)
  - **Policy level** (e.g., integrated water management policies accounting for climate change impacts) vs. **operational** (e.g., location and design of bridges, reservoirs & hydropower facilities) level
  - **Traditional** (e.g., Water managers would fit a drainage system in an area projected to experience more intense rainfall events with bigger pipes when replacing old ones) vs. **modern** (A mainstreamed adaptation strategy in water sector includes measures that address the underlying factors of vulnerability to CC, particularly at local scale)
- Scales/Levels:
  - Local, national, regional, and international

# A suggested national approach to mainstreaming CCA in water sector

- National consultation process on V&A including social assessment of perceived climate changes in water sector
- Prioritization of hazards and adaptation strategies
- **Ranking adaptation options**
  - A - Urgent options which can be done by communities
  - B – Urgent options for which communities need assistance from the Government
  - C – Options that are less important/urgent
  - D – Adaptation options that are not yet needed
- **Allocating responsibilities to water management agencies and assessing the changes necessary**
  - Changes to government policies/strategies
  - Changes to laws and regulations/ enforcement
  - Formal engineering and construction works
  - Informal engineering and construction works by households and communities
  - Extension and information to communities
- **Matching Adaptation Priorities with Operational Plans of different water-related agencies**

# Progress on mainstreaming

## General observations:

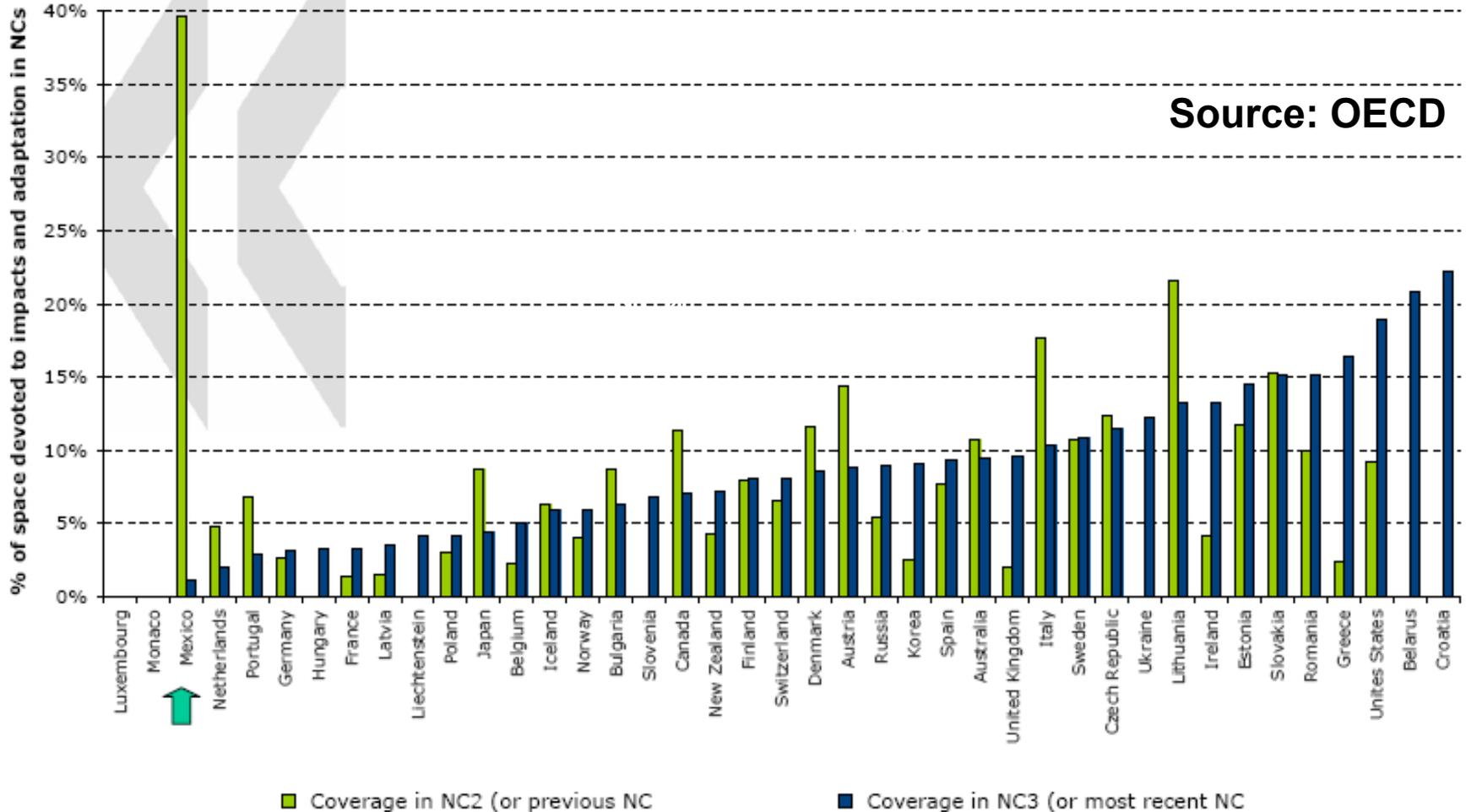
- Most National Communications are strongly skewed towards inventories of GHG sources and sinks leaving little space for adaptation strategies.
- NAPA process in some LDCs (e.g., Bangladesh) seems to have served as a catalyst in mainstreaming adaptation concerns at least in planning stages.
- Development agencies have just begun to support mainstreaming efforts in water sector (WB, GTZ, OECD, etc.)  
Declaration by OECD Development and Environment ministers to integrate adaptation in development planning and assistance, both with OECD and its partner countries (OECD, 2006)

## Coverage on adaptation policies and measures as reflected by number of pages in National Communications of selected Asian countries

Country	Total number of pages	No. of pages describing impacts and vulnerability	No. of pages discussing adaptation policies
Bhutan	63	10	2
Cambodia	79	8	2
China (NC1)	112	13	4
India	292	48	8
Indonesia	116	10	3
Japan (NC4)	314	11	0.5
Lao PDR	97	2 lines	1 line
Malaysia	131	30	7
Maldives	134	30	10
Mongolia (NC1)	106	18	7
Nepal	181	41	10
Pakistan	92	14	9
Papua New Guinea	83	20	6
Republic of Korea (NC2)	132	8	2
Singapore	75	5	1 line
Sri Lanka	122	12	5
Thailand	100	15	2.5
The Philippines	107	20	12
Viet Nam	135	17	4

# Impacts/Adaptation in OECD National Communications

## Mitigation vs. Impacts/Adaptation in National Communications



**Very few OECD countries have looked at adaptation options and identified policy responses (Gagnon-Lebrun and Agrawala, 2006)**

# Mainstreaming CCA in water sector

- **Water managers showed little enthusiasm** for factoring long-term climate predictions into their calculations (18-country Dialogue on Water and Climate, 2004)
- Analysis of water policy frameworks in four Annex I (Canada, Finland, UK and USA) and four non-Annex I (Argentina, India, Mexico and Zimbabwe) countries showed that **most of them do not yet incorporate adaptation explicitly**;
- It was concluded that **water policy frameworks of non-Annex 1 are less mature, with weaker institutions, and less capable of providing for adaptation to CC** than those in Annex I (OECD, 2006)



# Status in selected countries

## Bangladesh

Freshwater and coastal resources – Commitments to incorporate CCA into existing plans; **However, commitments do not necessarily lead to implementation due to various barriers**

## China

Impacts reasonably well studied; several water conservation measures exist; However, water sector development plans do not yet consider future CC impacts explicitly. Adaptation priorities in water sector are not yet clear;

## Philippines

Many efforts on water conservation and flood prevention at national and local levels, but CC is not the primary motive for such initiatives; Most of the measures have generally considered historical climate but they are not necessarily suitable for CC.



# Status in selected countries

## India

- **Domestic legal framework:** Water-related legal provisions dispersed across various irrigation acts; No exclusive water laws; No explicit legal framework on water extraction rights or water trading; ineffective water pricing policies
- **Functional responsibilities are spread** over a number of institutions Ministry of Water resources – Central water commission, Central Ground Water Board; National Water Development agency; ICAR and Planning commission – No explicit role for the Ministry of Environment (except water quality monitoring)
- **National Water Policy:** formulated in 1987; revised in 2002 – Many references on water use efficiency & integrated watershed development but no reference to CCA
- **5-year plan** mandates decentralization of water supply; water audits; efficient water use; Integrated Flood Management Association – All of them may help in adaptation but no explicit reference to CC impacts in designing them;

# Gaps, Needs and Concerns

- **Lack of awareness** among water policy makers about CC impacts and their economic implications
  - **Insufficient relevance or Mismatch** between the time and space scales of CC projections and information needs of water planners: Very few climate models can predict rainfall patterns in Asian countries with certainty or on timescales relevant to policy makers
  - **Lack of capacity** of officials to integrate CCA information into water sector planning processes
  - **Limited leverage** of environment ministries on water management agencies and policies
  - **High reliance on structural and technological options** which are inflexible and insensitive to local contexts, and technologically and financially demanding
  - **Inappropriate means** to connect stakeholder interests and climate change impacts
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# Institutional Concerns

- **Inefficient regulatory frameworks** for water management
- **Institutional fragmentation** and resulting communication barriers; Very short political and funding horizons make full integration particularly difficult
- **Weak coordination** between agencies or ministries responsible for CC, water resource management and development, and lack of policy coherence and consistency between adaptation and development goals

# Other Concerns

- **Lack of effective participation** of a broad range of stakeholders in water policy making (Inclusion)
  - **Lack of suitable incentives** for individuals, organizations and institutions to realize effective mainstreaming (e.g., many national meteorological services do not have adequate incentives and are not mandated to provide the water sector with the full range of services they need).
  - **Mainstreaming fatigue** and lack of adequate recognition of challenges in mainstreaming
  - **Parallel evolution** of adaptation and water resource management approaches
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# The Way Forward - General

- Practical demonstrations on promising mainstreaming options in water sector, rather than pure theoretical approaches
  - Building support for more **detailed V&A assessments in water sector**
  - Building **capacity & strengthening institutional frameworks**
  - Streamlining **financial mechanisms**
  - Improved **governance for mainstreaming**
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# Ways to move forward - Information

- **Framing CCA issues** (both content and manner of delivery) including current and future impacts on water resources in the context of the audience, and in the context of development rather than environmental context
- **Raising awareness on local impacts and coping strategies** among senior politicians and high level policy makers through creation of an effective knowledge management system
- **Improving the relevance of scientific outputs** to decision making through improving communications between scientists and policy makers and information delivery methods (e.g., religious gatherings, field days)
- **Generating intelligent information** – Easily accessible and timely climate risk information based on good interpretation (Seasonal weather forecasting, Disaster early warning mechanisms, local impacts)



# Ways to move forward - Institutions

- **Addressing institutional aspects** through managing national CCA plans by a ministry with a high level of leverage
- **Building “boundary institutions”** which can help to bring information on CC implications to bear on water sector planning and decision making
- **Fostering institutional linkages and coordination** between CC, water and development ministries through **creating a framework for combining tools, funds and organizations** or **establishing a multi-stakeholder coordination committee**
- **Enhancing the role of research institutions** to improve water sector decision making under climate uncertainty;
- **Involving the private sector** in CCA (water trading laws do not exist in most countries but happens anyway)
- **Ensuring a coherent approach to mainstreaming** through regular and broader engagement of stakeholders

# Ways to move forward - **Incentives**

- Tackling “mainstreaming fatigue” through
  - providing **appropriate financial and career development incentives**
  - **avoiding replication** with other parallel processes
  - **attaching conditions for donor funding** to implement locally-relevant adaptation actions such as use of drought tolerant crops in areas with water deficits
  - communicating the **economic case for different adaptation options in water sector**
  - increasing **investments in rural water infrastructure**
  - **reorienting meteorological services** towards improved adaptation and sustainable development



# Ways to move forward – International mechanisms

- Developed countries to **shoulder part of the burden** for mainstreaming both in the context of ODA and in enhancing technical skills in developing countries
  - **Effective enabling environment** to facilitate mainstreaming through
    - Development of guidelines
    - Provision of additional support for research, monitoring and evaluation of mainstreaming
    - Enlarging the base and quantity of adaptation-specific funds
  - Some **International CB initiatives** for mainstreaming adaptation in water sector
    - ACCCA: Advancing capacity to support climate change adaptation in Africa and Asia (EU, DEFRA)
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# The Way Forward: Role of Various Actors

- **Local:**
  - Communities and local governments to strengthen coping strategies and provide feedback on adaptation policies
- **National:**
  - Inter-agency coordination within water sector
  - Legal provisions to mainstream CCA (e.g., revising EIA)
- **Regional:**
  - Trans-boundary river commissions to consider CCA more explicitly
  - Regional development agencies to preferentially finance projects that proactively consider climate risks
- **International:**
  - Provision of operational guidance on mainstreaming adaptation concerns in water resource management
  - UNFCCC & other organizations to play catalytic role in exchange of experiences, and in facilitating the development of region-wide and sector-wide approaches;

