

Scaling up financial flows for adapting to climate change

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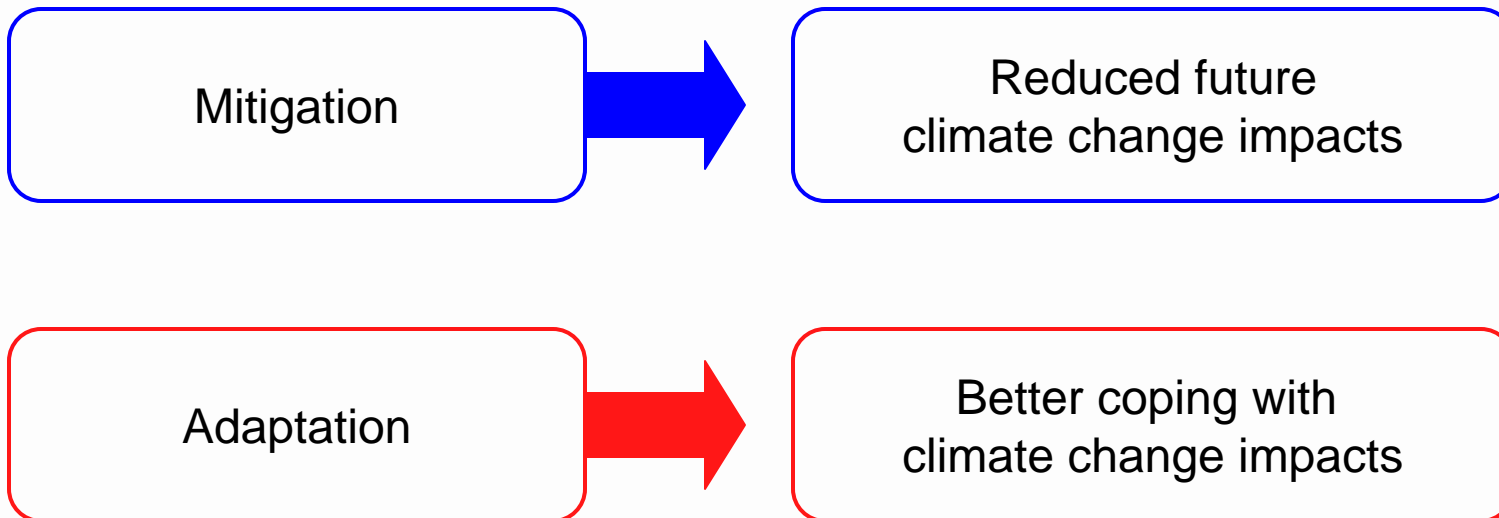
ICAO workshop
Aviation and carbon markets



Overview

- Examples of adaptation action
- Investment and financial flows needed for adaptation
- Some options for adaptation funding

Responses to climate change



Developing countries bear the brunt of climate change impacts

Examples of adaptation action

Agriculture, forestry and fisheries	Changes in mix of crops and livestock breeds Irrigation and moisture management Pest and disease management; fire management
Water supply	Increasing storage capacity (reservoirs, etc) Sea water desalination and water recycling Reduction in water demand
Human health	Improve capacity of public health system Monitoring of infectious diseases
Coastal zones	Surge barriers, salt water intrusion barriers Improved land use planning and building codes Upgraded drainage systems
Infrastructure	Modifying affected infrastructure (eg coastal defenses) Infrastructure to support adaptation (eg hospitals)

Global adaptation costs

Analysis of existing and planned **investment and financial flows** relative to development of effective and appropriate international response to climate change (UNFCCC secretariat, August 2007)

- Investment and financial flows needed for adaptation globally likely to be **tens of billions of dollars per year** several decades from now
- Other studies (World Bank, Oxfam) also estimate global adaptation costs at tens of billions of dollars per year
- Results from national studies present similar magnitude of needs
- Actual costs **could exceed USD 100 billion per year** and will be sensitive to many factors (including how much mitigation and when)

The caveats

- Quantitative information on the costs and benefits of economy-wide adaptation is currently limited
- Estimating global costs is challenging
 - adaptation action will be widespread and heterogeneous
 - adaptation needs depend on magnitude/nature of climate change
 - there are a few estimates of adaptation costs
- Climate change impacts will vary regionally but represent net annual costs which will increase over time as global temperatures increase
- Value of avoided climate change impacts could be much larger

Additional investment and financial flows

- Additional investment and financial flows for adaptation in 2030
- Needs identified correspond to 0.2–0.8% of global investment flows or 0.06-0.21% of projected global GDP in 2030

Sector	Global (billion USD)	Share in developing countries
Agriculture, forestry and fisheries	14	50%
Water supply	11	80%
Human Health	5	100%
Coastal zone	11	40%
Infrastructure	8-130	25%



Existing funds

- Funds available under Convention/Protocol are comparatively small
- CDM “share of proceeds” is expected to provide USD 80-300 million per year to Kyoto’s Adaptation Fund during 2008-2012
- Assuming the share of proceeds for adaptation continues to apply post-2012, the funding for the Adaptation Fund could be
 - USD 100-500 million per year for a low demand
 - USD 1-5 billion per year for a high demand
- Private funding sources expected to cover a portion of costs
- Public resources expected to play a predominant role in all sectors

Tool box

- **Scaling-up sources of finance**
 - existing sources
 - new international sources
- **Shifting current investment patterns**
 - re-directing private investment through policy
 - re-directing public investment
- **Optimizing financing**
 - enhancing public-private partnerships
 - optimizing combinations of financing mechanisms

Potential new international finance sources

Extend 2% share of proceeds from the CDM to emissions trading and JI	USD 10-50 million	Annual average for 2008-2012
	Depends on carbon market size post-2012	Estimate for post-2012 requires assumptions of future targets
Auction of allowances for international aviation and marine emissions	USD 10-25 billion	Annual average for aviation rises 2010-2030
	USD 10-15 billion	Annual average for marine transport rises 2010-2030
International air travel levy	USD 10-15 billion	Based on charge of USD 6.50 per passenger per flight