Dialogue on long-term cooperative action to address climate change by enhancing implementation of the Convention

Links between Adaptation to and Mitigation of Climate Change

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Outline

- Background on adaptation
- Relevant IPCC findings
- Propositions

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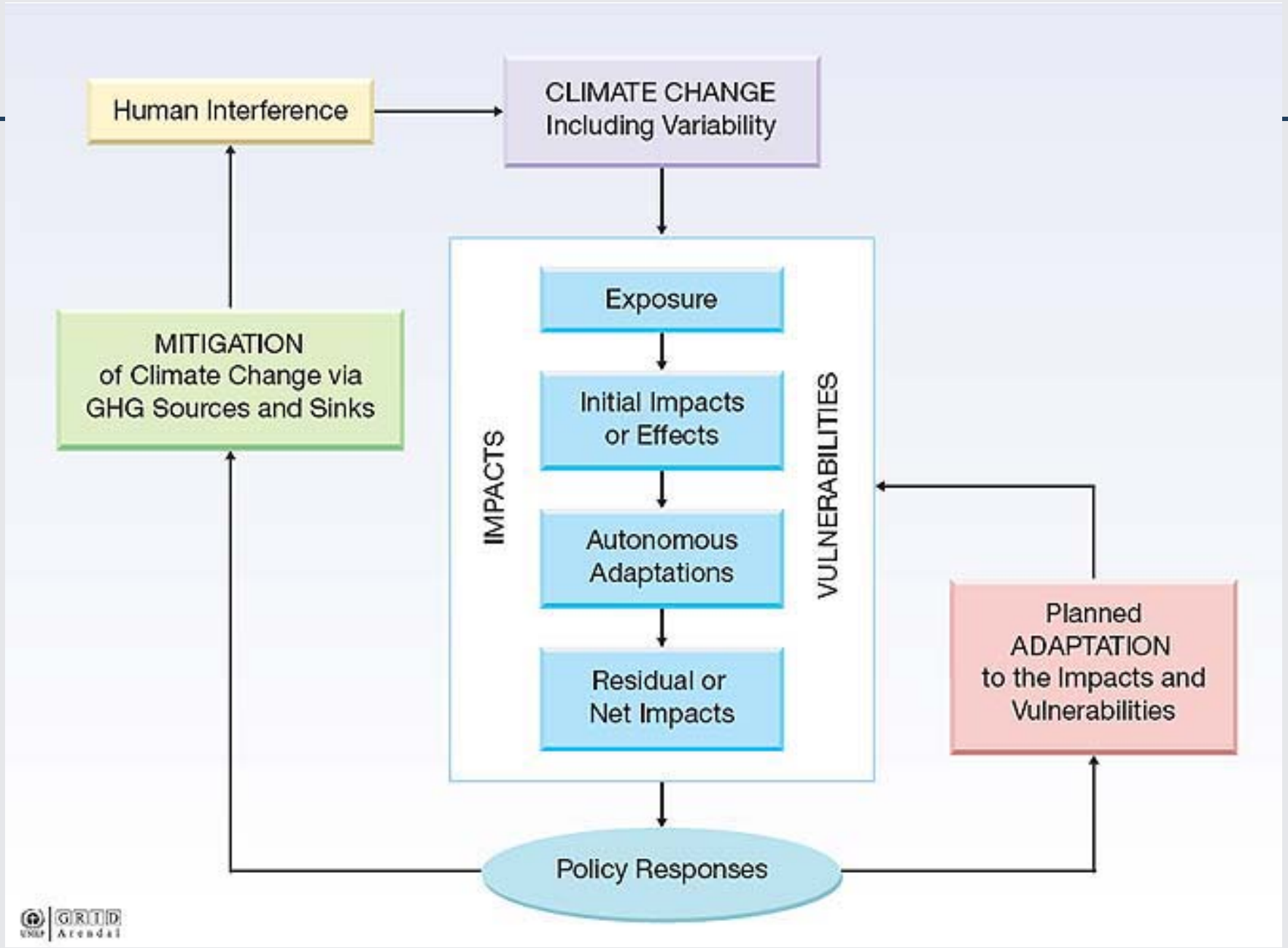
Human Interference
CLIMATE CHANGE
Including Variability
MITIGATION
of Climate Change via
GHG Sources and Sinks
Exposure
Initial Impacts
or Effects
Autonomous
Adaptations
Residual or
Net Impacts
IMPACTS
VULNERABILITIES
Planned
ADAPTATION
to the Impacts and
Vulnerabilities
Policy Responses
GRID
Arendal

Examples of adaptation options

		Anticipatory	Reactive
Natural Systems			· Changes in length of growing season · Changes in ecosystem composition · Wetland migration
Human Systems	Private	· Purchase of insurance · Construction of house on stilts · Redesign of oil rigs	· Changes in farm practices · Changes in insurance premiums · Purchase of air-conditioning
	Public	· Early-warning systems · New building codes, design standards · Incentives for relocation	· Compensatory payments, subsidies · Enforcement of building codes · Beach nourishment

Why is adaptation important now?

- Climate change cannot be totally avoided
- Anticipatory adaptation is likely to be more effective and less costly than last-minute, emergency adaptation or retrofitting
- Climate change may be more rapid and pronounced than currently suggested; surprises are possible
- Immediate benefits can be gained from better adaptation to climate variability and extreme events, as well as by removing maladaptive policies and practices

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IPCC Fourth Assessment Report on adaptation

- Builds on the Third Assessment Report, retains definitions and concepts
- A much greater and spatially varied literature base than for the TAR, including studies on
  - actual adaptations
  - planned adaptations
  - vulnerability and adaptive capacity
  - policy developments
- A stronger focus on implementation issues

Adaptation is already taking place, but climate change poses novel risks

- Novel risks, such as droughts, heatwaves, accelerated glacier retreat, permafrost melt, increased hurricane intensity and new disease vectors, require forward-looking investment and planning responses
- Adaptations to these novel risks are taking place
  - partial drainage of the Tsho Rolpa glacial lake, Nepal
  - changes in livelihood strategies by the Inuit in Nunavut
  - increased use of artificial snow making in the ski industry
- Some adaptations include scenarios of future climate

Adaptive capacity is uneven across and within societies

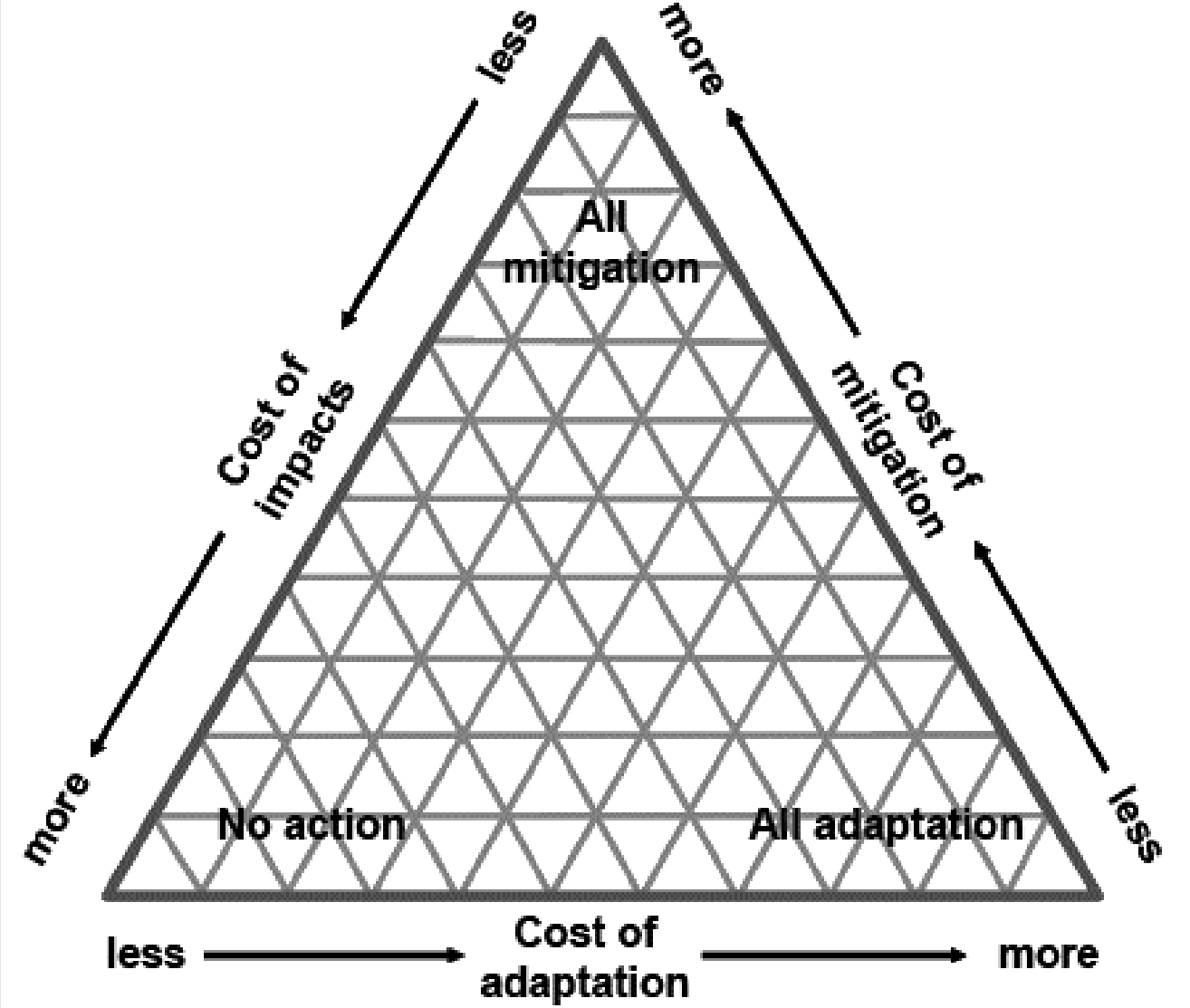
- There are individuals and groups in all societies that have insufficient capacity to adapt to climate change
- Multiple stresses (*e.g.*, HIV/AIDS, land degradation, economic globalisation, violent conflict) adversely affect exposure to climate risks and the capacity to adapt
- National indicators of vulnerability and adaptive capacity fail to capture many relevant factors and processes, and thus provide little insight at the level where most adaptations will take place

There are substantial limits and barriers to adaptation

- High adaptive capacity does not necessarily translate into actions that reduce vulnerability
- Limits and barriers to adaptation include the inability of natural systems to adapt to the rate and magnitude of climate change, as well as technological, financial, cognitive, behavioural, social and cultural constraints
- There are also significant knowledge gaps for adaptation

Links between adaptation and mitigation

- Inclusion in the Fourth Assessment Report motivated by explicit policy questions
  - trade-offs and synergies
  - timing of investments
  - substitutability and optimality
- Literature base rather small, yet very diverse, and inconsistent in its conclusions
  - integrated assessment modelling
  - empirical research
  - policy analysis


less
more
All mitigation
Cost of impacts
Cost of mitigation
more
No action
All adaptation
less
less
Cost of adaptation
more

Effective climate policy involves a portfolio of adaptation and mitigation

- Technological, institutional and behavioural options
- The introduction of economic and policy instruments to encourage the use of these options
- Research and development to reduce uncertainty and to enhance the options' effectiveness and efficiency

Decisions on adaptation and mitigation are taken at different governance levels

- Most adaptation involves private actions of affected entities, public arrangements of impacted communities and national policies
- Mitigation is primarily driven by international agreements and ensuing national policies, possibly complemented by unilateral and voluntary actions
- Both adaptation and mitigation take place within a broader development context; people's capacities to adapt and mitigate are influenced by development pathways

Synergies can increase the cost-effectiveness of adaptation and mitigation

- However, synergies provide no guarantee that resources are used in the most efficient manner when seeking to reduce climate risks
- Opportunities to create synergies are greater in some sectors (*e.g.*, agriculture and forestry, buildings and urban infrastructure) but are limited in other ones (*e.g.*, coastal systems, energy, health)
- The ability to create synergies is limited by the absence of a relevant knowledge base and of human, institutional and organisational capacity

It is not yet possible to say whether or not adaptation buys time for mitigation

- Integrated assessment models provide approximate estimates of relative costs and benefits at highly aggregated levels; only a few models include feedbacks from impacts
- Challenges to making trade-offs beyond the local scale include the different spatial, temporal and institutional scales of options and the different interests, beliefs, value systems and property rights of actors
- An "optimal mix" would reconcile welfare impacts on people living in different places and at different points in time into a global aggregate measure of well-being

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Propositions

- There is no single optimal mix of adaptation and mitigation
- Trading off adaptation and mitigation is not a zero-sum game
- Real synergies between adaptation and mitigation are few and far between
- Adaptation and mitigation are both closely intertwined with development choices
- Research on the links between adaptation and mitigation needs to go beyond economic and integrated assessment modelling

No single optimal mix

- Identifying the optimal mix of mitigation and adaptation (how much and in which combination) is considered a high priority in climate science and policy
- There is no one single optimal mix, as this depends on local conditions, uncertainty and different preferences and values in society
- Optimal mix will vary depending on decision criteria and framework (*e.g.*, CBA, CEA, TWA, MCA)

Justifiable mixes

- Multiple alternative mixes can be envisaged, which are all socially, economically and environmentally justifiable and acceptable to a greater or lesser degree
- Deciding on a justifiable mix is a social process rather than an academic exercise
- Current uncertainty about when and where which impacts are going to occur requires a mix that is both robust and flexible

No zero-sum game

- At an aggregate level, adaptation and mitigation do not only compete for resources with one another but with any other public policy
- Decisions on adaptation and mitigation are taken by many different actors, operating across different sectors and on different scales, and managing different budgets
- Increased spending on adaptation does not mean that less money is available for mitigation, or vice versa

Synergies are few and far between

- Synergies are the combined effect of measures that both limit greenhouse gas concentrations and reduce adverse effects of climate change
- Typical examples: planting trees in cities, green roofs, agroforestry
- Intuitive appeal of conducting climate policy by carrying out mitigation and adaptation activities simultaneously

Synergetic problems

- Different actors are involved in mitigation and adaptation, which can cause greater institutional complexity
- It is doubtful that there are sufficient opportunities for synergies to achieve the levels of mitigation and adaptation deemed necessary
- The net effect of investing in synergies (in terms of reducing damages) may well be smaller than when half the money is invested in mitigation and the other half in adaptation

Social and economic development

- The capacity to respond (*i.e.*, adapt and mitigate) is a crucial factor determining the success of climate policy; it is often limited by a lack of resources, poor institutions and inadequate infrastructure
- People's vulnerability to climate change can therefore be reduced not only by adaptation and mitigation, but also by development aimed at improving the living conditions and access to resources of those experiencing the impacts

Mainstreaming

- Mainstreaming is the integration of policies and measures to address climate change into ongoing sectoral planning and management, so as to ensure the long-term viability and sustainability of sectoral and development investments
- It is seen as making more efficient and effective use of financial and human resources than designing, implementing and managing climate policy separately from sectoral policies

Research needs

- Investigate how best to build and use capacity for adaptation and mitigation, and under which conditions mainstreaming climate policy would be most effective
- Analyse on which spatial and institutional scales government action on climate change would be most effective and how decision-making responsibilities between public and private actors could best be divided
- Complement economic analysis with research on the "implementability" of the options, which addresses the relevant political, behavioural, cultural and other contexts of decision-making across all scales

Thank you very much for your attention.

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