General Introduction to the SYR: focus on the Social Science Aspects

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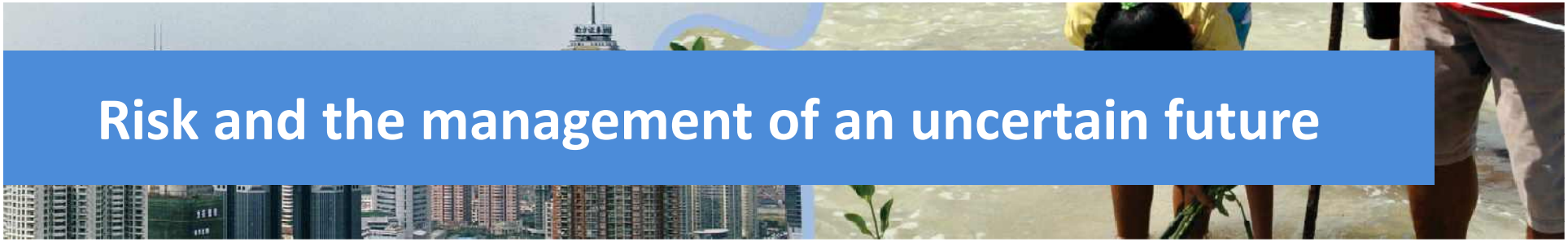
Four Topics

- Topic 1: evidence for a changing climate, impacts of these change and human contributions to it
- Topic 2: projections of climate change and resultant impacts and risks
- Topic 3: adaptation and mitigation as strategies for addressing the risks of climate change
- Topic 4: individual options, policies and integrated responses accommodating other societal objectives

Important themes in SYR are understanding and managing risks and uncertainties (SYR Intro)



Risk and the management of an uncertain future

- Hazard is triggered by an event or trend related to CC and includes brief events as well as slow trends such as multi-decade droughts or multi-century sea-level rise
- Vulnerability (susceptibility to harm) and exposure (human and natural systems at risk) are both sensitive to socio-economic parameters and development pathways

Policy relevance requires assessing the full range of outcomes from low probability tail outcomes to high probability outcomes because both produce high risk

Quantified risk levels are not condition for risk management. Qualitative approaches recognizing diverse values and priorities based on ethical, psychological, cultural and social factors could increase the effectiveness of RM (SPM Box Int 1)

Foundations of decision-making about CC

Effective decision making to limit climate change and its effects can be informed by a wide range of analytical approaches for evaluating expected risks and benefits, recognizing the importance of governance, ethical dimensions, equity, value judgments, economic assessments and diverse perceptions and responses to risk and uncertainty (SPM 3.1)

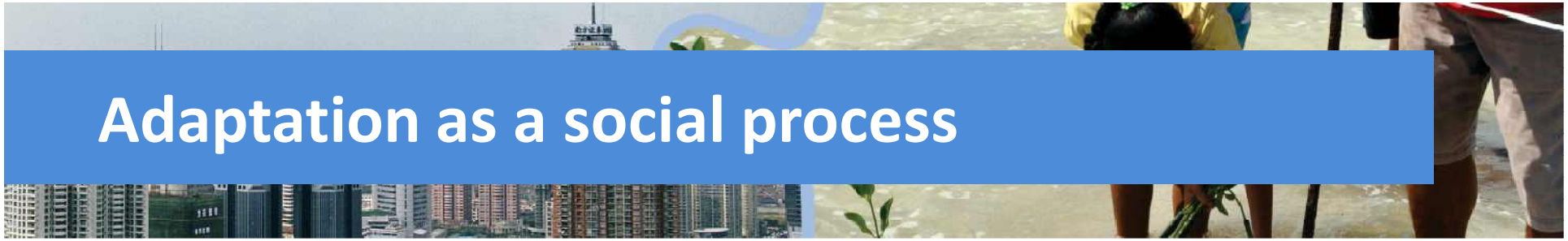
The limits of economic assessment of CC risk: It is outside the scope of science to identify a single best climate change target and climate policy (Box 3.1)

- The social cost of carbon are estimated between a few dollars and several hundreds of dollars per ton of carbon
- Estimates do not account for the possibility of large-scale singular events, irreversibility and tipping points, and for the events that are difficult to monetize
- Estimates of aggregate costs of CC mask differences in impacts across sectors, regions and countries and thus depend on ethical considerations
- Estimates of global aggregate economic losses exist only for limited warming levels. Very little is known about the economic cost of warming above 3° C
- Estimates of mitigation costs are highly sensitive to assumptions about technology development and deployment, and policy actions

As a result, mitigation cost and climate damage estimates at any given temperature level cannot be compared to evaluate the costs and benefits of mitigation

Approaches to climate change mitigation (WGIII SPM)

- Going beyond a focus on mitigation and adaptation alone to examine development pathways along with their determinants
- Value judgment and equity consideration are inevitable to climate policy because issues of equity, justice and fairness arise with mitigation and adaptation
- Climate policy is an integral part of SD and poverty eradication as it intersects with other societal goals such as human health,…
- The choice of policy actions is influenced by uncertainties in many socioeconomic variables and evolution of technologies
- International cooperation is key to effective response to CC



Adaptation as a social process

- Underestimating the complexity of adaptation as a social process can create unrealistic expectations about achieving intended adaptation outcomes
- Adaptation limits emerge from the interaction among climate change and biophysical and/or socioeconomic constraints
- Adaptation planning and implementation are contingent on societal values, objectives, and risk perceptions. Recognition of diverse interests, circumstances, societal cultural contexts, and expectations can benefit decision-making processes
- Increasing efforts to mitigate and adapt to climate change imply an increasing complexity of interactions among water, energy, land use, and biodiversity, but tools to understand and manage these interactions remain limited

Need for planning and implementation of transformational adaptation

Barriers to mitigation (WG III TS)

- High investment costs, slow turnover of stock and infrastructure, limited impact of a carbon price on petroleum fuels
- Operational safety and long-term integrity of CO2 storage as well as transport risks (CCS)
- Split incentives, fragmented markets and inadequate access to information and financing (Buildings)
- Concerns about overall climate impact related to land-use competition effects of bioenergy pathways (RE)
- Operational risks, waste management issues, nuclear weapons proliferation, and adverse public opinion of nuclear energy
- Lack of institutional capacities to encourage management and public participation to improve material efficiency
- Lack of tenure and poor governance, accessibility to financing, availability of land and water, and poverty (AFOLU)
- Low risk-adjusted rate of ROI of low-carbon technologies vis-à-vis high-carbon alternatives

Adaptation limits (WG II SPM)

- Resource constraints; human and financial
- Constraints on integration/coordination of governance
- Uncertainties on projected impacts
- Different perceptions of risks
- Competing values
- Limited tools to monitor adaptation effectiveness

These socio-economic constraints interact with CC and biophysical constraints to produce adaptation limits

Limiting Temperature Increase to 2˚C

Measures exist to achieve the substantial emissions reductions required to limit likely warming to 2˚ C

A combination of adaptation and substantial, sustained reductions in greenhouse gas emissions can limit climate change risks

Implementing reductions in greenhouse gas emissions poses substantial technological, economic, social, and institutional challenges

But delaying mitigation will substantially increase the challenges associated with limiting warming to 2˚ C

AR5 WGI SPM, AR5 WGII SPM,AR5 WGIII SPM

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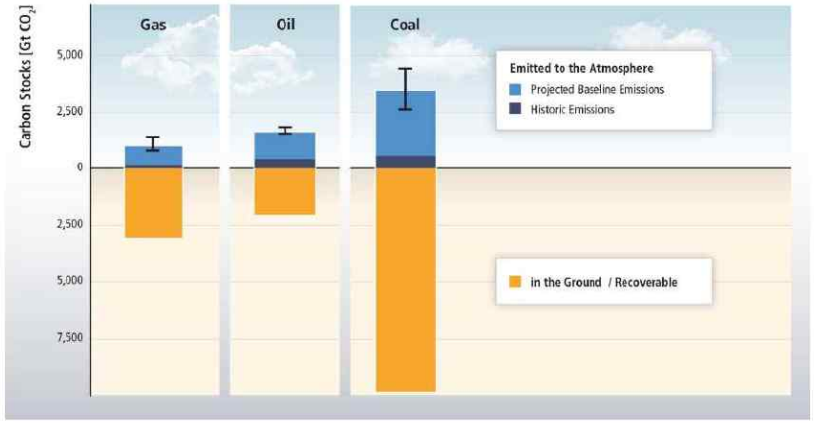
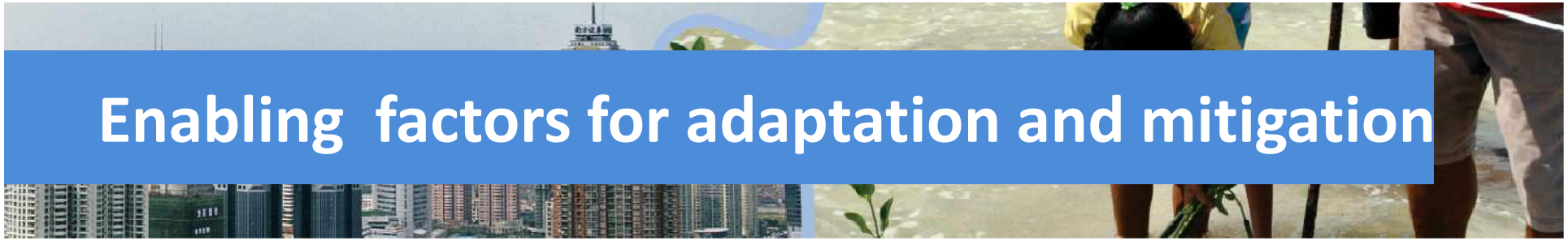
Science vs Market: carbon budget in the world of abundant fossil fuel resources





Enabling factors for adaptation and mitigation

Effective institutions and governance

Innovation and investment in environmentally sound technology and infrastructure

Sustainable livelihoods

Behavioral and lifestyle choices

IPCC Fifth Assessment Report

Synthesis Report

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