USING RISK FINANCING INSTRUMENTS

FOR ADAPTATION IN THE EU

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Side event Policy instruments for Promoting Adaptation and the Sharing of Climate Change Related Risks

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International Institute for Applied Systems Analysis "Science for Global Insight"

- Risk, ambiguity and insurability
- Incentivizing adaptation to climate change and climate variability
- Effective insurance markets and partnerships



I. Risk, ambiguity and insurability

- Climate change projected to lead to increase intensity and frequency of extreme weather events
- If increased risk to be covered by the insurance industry
 - Increase premiums or set more stringent conditions
 - E.g. higher deductibles and lower limits
 - For high risk areas insurance may become unaffordable
 - Climate change might add new, uninsurable risks
- Risk ambiguity: risk more difficult to estimate, some claim that "stationarity is dead"

CLIMATE CHANGE

Stationarity Is Dead: Whither Water Management?

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Systems for management of water been designed and operated under the assumption of stationarity. Stationarity---tie idea that natural systems fluctuate within an unchanging envelope of variability---is a foundational concept that permeates training and practice in water-resource engineering. It implies that any variable (e.g., annual streamflow or annual flood pasis) has a time-insuiflow or annual flood pasis) has a time-insuiflow or annual flood pasis) has a time-insui-



that has emerged from climate models (see figure, p. 574). Hy_1 now? That anthropogenic climate change affects the water cycle (9) and water supply (10) is not a new finding. Newstheless, sensible objections to discarding sationarity

POLICY FORUM

Climate change undermines a basic assumption that historically has facilitated management of

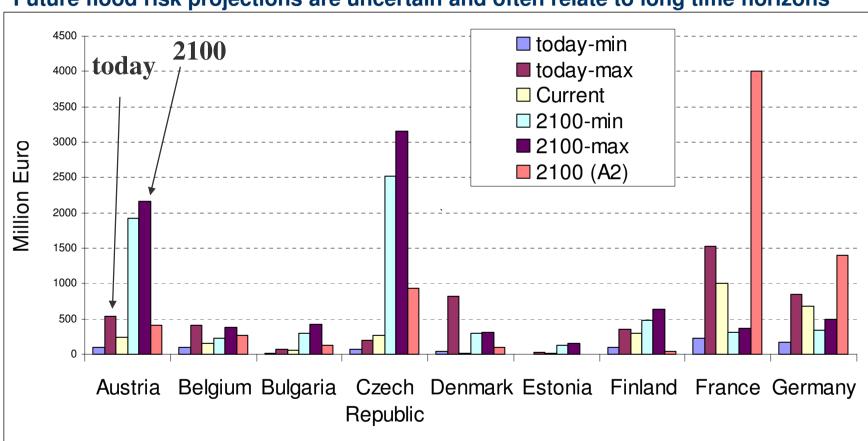
water supplies, demands, and risks.

change affects the water cycle (9) and water supply(10) into a new finding. Newrtheless, sensible objections to discarding stationarity have been raised. For a time, hydroclimate had not demostratibly exited the envelope of nataral variability and/or the effective range of optimally operated influstructure (11, 12). Accounties for the substantial inversion is

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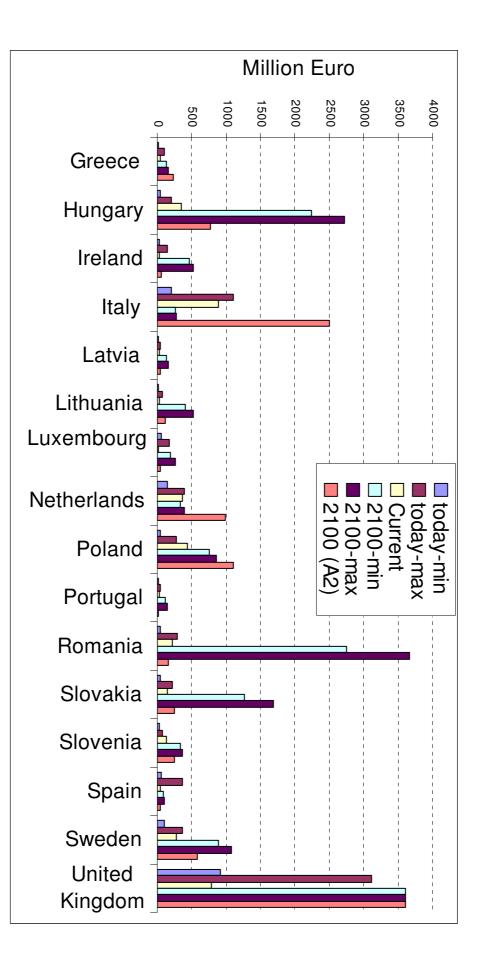
I. Risk ambiguity, risk increases and insurability



Future flood risk projections are uncertain and often relate to long time horizons







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I. Risk ambiguity, risk increases and insurability

- Also "Legacy risks": non-risks of the past becoming risks in the future...
- Challenges:
 - Can we robustly quantify risks?
 - How to avoid a worsening of insurability due to risk ambiguity in the wake of climate change?



II. Incentivizing adaptation to climate change and climate variability

- Risk pricing

- Insurance may not only help with financial risk reduction/adaptation, but also lead to better physical adaptation
- Pricing risk provides incentives for risk reduction
 - If risks can be robustly evaluated and factored into premiums and terms, they provide a signal regarding an increased need for risk reduction
 - Pricing risk leads to heightened risk awareness.
 - Some insurers with other partners have made flood and other hazard maps publicly available
 - Insurers can reduce premiums on catastrophe insurance to reward investments in loss reduction (often they do not....)



II. Incentivizing adaptation to climate change and climate variability – risk pricing: study evidence

- Risk-based premiums alone have led to significantly higher levels of adaptation than flat rate premium structures
 - well suited for addressing losses from floods by discouraging development where a key determinant of loss is exposure
- Risk pricing more easily implemented for flood zones than to individual household or business precautionary measures
- UK moving to individual risk pricing based on postal codes



II. Incentivizing adaptation to climate change and climate variability – risk pricing: study evidence

- For hazards that occur more randomly, e.g., hail, drought, tornadoes, risk pricing is less effective
- Adjust for vulnerability, e.g. hail nets, tree management
- Pursuit of contributory agents:
 - Subrogation: Insurers assume the rights of those whom they compensate.
 - Enables insurers to pursue recovery of financial losses from any parties that contributed to the loss through negligence or breach of duty



III. Effective insurance markets and partnerships

• Properly functioning natural catastrophe insurance markets that respect clients' needs are a precondition (but not a guarantee) for incentivising adaptation action

Indicators used for the study for "scoring" markets

□ Level of risk and uninsured risk

Institutional Applicability

□ Effectiveness

- for incentivising adaptation
- for financial adaptation- capacity for sharing an increasing loss burden and providing a reliable safety net

□ Efficiency in terms of benefits and costs

□ Equity in providing security to low-income population



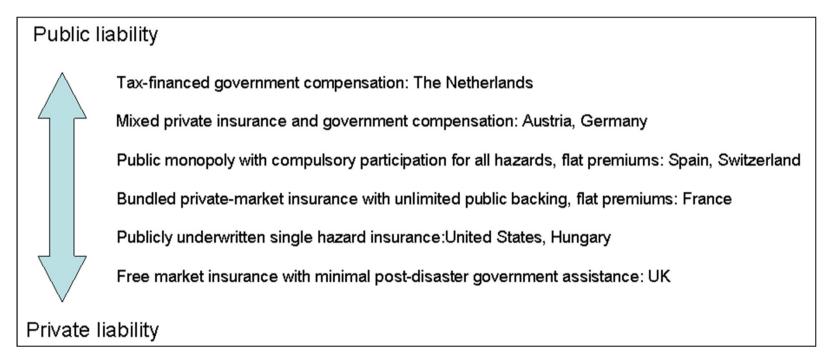
•Main obstacles in the markets?

Key Obstacles	Effectiveness of physical adaptation	Effectiveness for financial adaptation	Efficiency	Equity
Supply side				
Covariate risk			X	X
Adverse selection			X	X
Demand side			<u>.</u>	
Moral hazard	X		X	
Risk myopia	X	X		
Affordability			X	X



III. Insurance markets

• One key aspect is Applicability: Bearing liability is context and culture specific, e.g. Flood insurance





III. Insurance markets - Findings

- Government support: All insurance systems require government backup or co-operation
- Private market systems have been shown to be less efficient, mainly because of higher administrative costs than their public system counterparts;
- However, public systems usually 'piggyback' on private systems
- Solvency II requiring additional backup capital may render insurance more expensive



III. Beyond markets: need for multistakeholder partnerships

- Often: there are disincentives by insurance leading to moral hazard
 - i.e. don't engage in damage prevention due to existence of insurance
- Insurers can require risk reduction as a contractual condition: e.g. fire safety measures as a condition for insuring a home or business
- Insurers can work jointly and invest in risk reduction Example Switzerland: cantonal public monopoly insurers contribute to risk reduction, including building codes and land-use planning, and also financing of the Fire Service and Cantonal Civil Defense Services
- Multi sector partnerships (MSP) required: Insurers, public sector, risk reduction institutions, civil society...



