



Risk and Volatility in Climate, Water, Land & Energy: Discussion

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Summary of Penm and Wheeler

- Penm
 - Australian experience: extreme events
 - Importance of adaptation
 - Productivity improvements necessary
 - Role of private and public sectors
 - Role of markets / incentives
 - Domestic and world policy frameworks (climate, agriculture)

Summary of Penm and Wheeler

- Wheeler
 - Climate change and Canadian Agriculture: Opportunities and Challenges
 - Uncertainty, extreme events (floods, etc.)
 - South Saskatchewan River Case Study
 - Quantity challenges: climate change, competition
 - Quality issues: phosphorus, drainage, new threats?
 - Governance challenges

Discussion

- Both speakers highlighted the need for policy frameworks
 - deal with changing climate, extreme events,
 - facilitate adaptation, productivity growth
- What are the governance challenges?
 - Policy Frameworks
 - Challenges
 - Avenues for innovation

Discussion: Policy Frameworks

- Building a policy framework for resilience and adaptation
 - Role of markets / incentives: signals for market **and** environmental performance
 - Investments (e.g. flood control?; storage?), information, insurance. (Fankhauser, 2008; Agrawala and Fankhauser 2008)
 - Research to support policy, productivity, etc. (“credible policy analysis” – Manski, 2011)
- Water quantity market frameworks
 - Limited experience with trading, pricing, etc.
 - Information base, monitoring needs
 - Important role of environmental quality objectives, social objectives
- Water quality market frameworks
 - BMPs: institutions, social and natural science base
 - Importance of design of market based instruments
 - Recognizing the complexity of ecosystem services

Discussion: Designing Institutions for Resilience and Adaptation

- Policy / Governance Innovation
- Challenges
 - Multiple objectives
 - Economic, environmental, social
 - Status quo effects / default effects
 - Policy dimensions
 - Information / Knowledge / Uncertainties
 - Ideological debates

Discussion: Avenues for Policy Innovation

- Setting objectives
 - Governance frameworks (e.g. the Alberta Land Use Framework experiment)
 - Transparency regarding trade-offs, information base, uncertainty
 - Integration of policy mechanisms into discussion of objectives
- A new role for “extension” ?
 - Within agriculture, beyond agriculture
 - Information on water policy reforms (markets), markets for ecosystem services
 - Transparency regarding the role of markets / incentives
 - Capacity building (human, social capital)
- Learning and Research
 - Pilots, monitoring / evaluation
 - Understanding ecosystem services
 - Research – policy linkages, learning by doing
 - The importance of norms, leadership and other social factors