Rapporteur Summary for Session 5B: Hydroeconomic and CGE Modeling

Yusuke Kuwayama

Resources for the Future

September 9, 2014

Presentation #1

- Title: Evaluating a Water Conservation Response to Climate Change in the Lower Boise River Basin
- Presenter: Robert Schmidt
- Research question: Can canal lining counteract diminished supplies resulting from climate change?
- Hydroeconomic elements: Partial equilibrium model with irrigator demand functions and cost functions with canal seepage hydrologic response terms for canal water, groundwater, and drain water irrigators

Presentation #2

- Title: Economic Evaluation of the Diamer-Basha Dam: Analysis with an Integrated Economic/Water Simulation Model of Pakistan
- Presenter: Sherman Robinson
- Research question: What are the benefits of building the Diamer-Basha dam on the Pakistani economy under different climate-change scenarios?
- Hydroeconomic elements: CGE model of the economy and a separate but linked hydrology model; climate change scenarios

Presentation #3

- Title: A Multipurpose Dam in the White Volta: Impacts on Economic Growth and Poverty Reduction"
- Presenter: Rita Cestti
- Research question: What are the benefits of building a dam on the White Volta River for flood management, hydropower, irrigation, water supply, and fisheries?
- Hydroeconomic elements: A CGE model of the economy and a separate but linked hydrology model

Presentation #4

- Title: Optimal Rates of Adopting Water Conservation Measures in the Aral Sea Basin
- Presenter: Maksud Bekchanov
- Research question: What are the benefits of improving conveyance and irrigation efficiency in the Aral Sea Basin?
- Hydroeconomic elements: Integrated node-based river basin model, irrigated agriculture production model, and hydropower model

Issues in hydroeconomic analysis raised in this session

- "Modular" vs. "holistic" models
- Integrating different techniques:
  - Hydrologic models → Simulation
  - Economic models → Optimization
- Differences in time scale
  - Hydrologic models → Days or months
  - Economic models → Years
- Uncertainty on a decadal scale
- Differences in spatial scale
  - Hydrologic models → Watersheds/basins
  - Economic models → Administrative boundaries