11th Annual IWREC Meeting

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Session 1A: Water and Welfare Implications

Rapporteur: Ulf Narloch

The session included five presentations:

1. Yacov Tsur (Hebrew University of Jerusalem, Israel): "Closing the (Widening) Gap between Natural Water Resources and Water Needs in the Jordan River Basin: A Long-Term Perspective"

The presentation uses data from the Jordan River basin. It offers a comprehensive solution to address the region's water problems in the long-run.

- Demand management and supply management measures can satisfy the direct needs of a growing population (domestic, irrigation and industrial); and restore and preserve important environmental amenities, including restoration of the Lower Jordan River and stabilization of the Dead Sea.

- The purpose of supply management policies is to increase the available supply of water mainly from recycling and desalination plants.

- Demand measures increase efficiency of water use based on water pricing and quotas.

2. Yigit Saglam (Victoria University of Wellington, New Zealand): "Welfare Implications of Water Shortages: Higher Prices or Desalination"

The presentation is based on a stochastic dynamic programming model with data from Turkey. It sheds light on the welfare implications of different water pricing policies.

- Under average-costs pricing (i.e. charging every sector at its costs) water stocks are very vulnerable to water shortages, as the revenues generated are too low to allow covering the costs of external water supply.

- Optimal sectoral prices (i.e. those that maximize welfare over time) can avoid such shortages through an increase in stocks. When the resource is scarce, the planner charges higher prices to control the demand, and this leads higher revenues, some of which are used for the demand for external source and the rest is saved for the future. Interestingly, the optimal tap water price is below its break-even so that household consumer more than under average-cost pricing.

- Cross-subsidizing, increasing the resource price for agricultural producers while decreasing it for urban consumers, is welfare improving, since the increase in the agricultural profits is more than the decrease in the consumer surplus. And it does not necessarily result in a significant decrease in water stock.

➔ Besides overall welfare implications, this work shows that different water pricing policies can have varying distributional impacts, and it is imperative to understand whether the poor benefit most from lower water prices for domestic water supply or agriculture.

3. John Janmaat (University of British Columbia, Canada): "Water Storage Systems and Preference Heterogeneity in Water-Scarce Environments: A Choice Experiment in Nepal's Koshi River Basin"

The study uses data from a choice experiment from Nepal. It reveals preferences for different uses of water storage systems.

- The relatively privileged group (i.e. wealthier, better educated, etc.) is with strong preferences for supplemental irrigation, while poorer households prefer improved domestic water services

➔ Notwithstanding the overall welfare gains from such water storage investments, they need to allow for multiple water uses so as to benefit the poor.

4. Anteneh Girma (Justus Liebig University, Giessen, Germany): "Integrated Rainwater Harvesting Practices and Household Livelihood: Evidence from a Counterfactual Analysis in Northeast Ethiopia"

The presentation is based on household and plot data from Northeast Ethiopia. Econometric regression models are run to identify the determinants and impacts of integrated rainwater harvesting practices

- It is shown that integrated rainwater harvesting practices decrease the likelihood of food insecurity and poverty.

➔ The conservation and use of rainwater could be an important element of sustainable intensification agriculture and bring pro-poor effects.

5. Ariel Dinar (University of California, Riverside, United States): "Quantifying the Process and Performance of River Basin Water Management Decentralization in Sub-Saharan Africa"

The study uses primary data from 27 river basins in Sub-Saharan Africa. It assesses the decentralization processes and performances of river basin management decentralization in Sub-Saharan Africa.

- Grass-root initiatives like water use associations, despite all the benefits they may capture in terms of legitimacy and use of pre-existing community arrangements, may deter the process if they are not well prepared and trained.

- Interestingly, the greater the water scarcity problem prior to reform, the less time centralization took and the greater the improvements from decentralization.