

The complexities of environmental decision-making for the Murray-Darling Basin

Peggy Schrobback

Thilak Mallawaarachchi, John Quiggin

Risk and Sustainable Management Group
School of Economics
University of Queensland

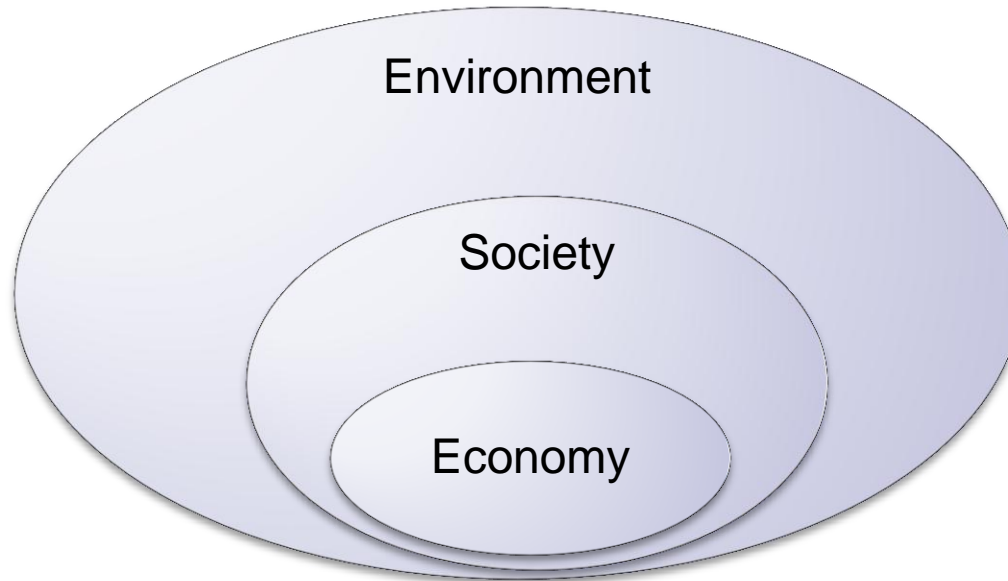


THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

Agenda

- The Concept: Environment-Society-Economy
- System complexity
- Environmental issues & causes in the MDB
- Key components for water-policy
- The Basin Plan
- Conclusion

Environment-Society-Economy

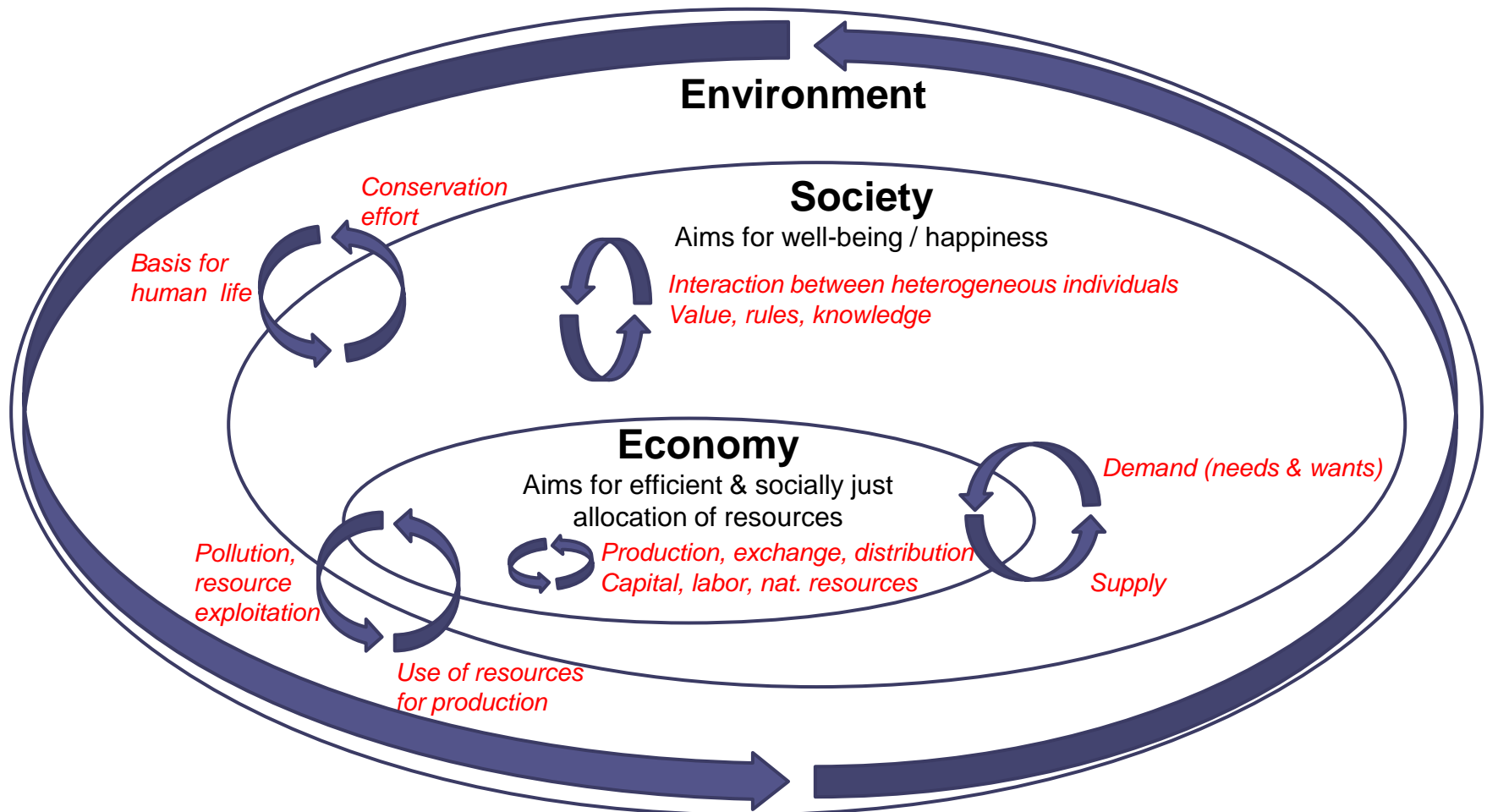


Environmental constraints -> scarce resources -> choices -> trade-offs

System complexity

- System: set of elements connected in a way that provides overall identity & behavior
- Complexity: examines the relationship of elements in a system
 - > number of elements
 - > degree & nature of interaction between elements
 - > uncertainty in behavior of system
- Uncertainty: Lack of confidence in knowledge
- Risk: Potential for an undesired outcome or a loss

Complex system applied



Difficulties in decision-making

- Founded on the complexity of the system
- Risk that we perceive its motive of change in behavior
- Collective choice that identifies values & rules that represent individual interest

Environmental issues in the MDB

- Degrading health of wetlands & water ways
- Salinisation
- Soil erosion
- Degrading water quality
- Species listed as rare and threatened



Soil erosion, SA MDB



The Coorong

Causes for environmental issues

Past and current human actions

- > physical modifications of natural environment in the Basin
- > exploitation of water resources mainly by irrigation dating back to European settlement



Removal of native vegetation



Regulation of the water system



Irrigation

Key components for water-policy

- Identification, assessment & management of risks
 - > dealing with lack of scientific and socio-economic information
 - > aggregation of individual values
 - > managing trade-offs while ensuring social justice
 - > promote self-reliance & human adaptive capacity
 - > encourage innovation
 - > building trust under uncertain circumstances

The proposed Basin Plan

- Risk identification – Yes
- Risk assessment – Yes & ongoing
- Risk management – Commenced
 - > Decision on actions that lead to minimising risks
 - > Assessment of implications of actions on environment, society, economy
 - > Social learning process

Conclusion

- Not water availability is the issue, we are the issue
- A social solution is required -> decision about action to undertake in order to manage risks under incomplete information
- Accept limitation of steady-state policy thinking
- Acknowledge that social learning requires time
- Mental model shift towards human-in-the environment perspectives may be required

Thank you!

Peggy Schrobback

Risk and Sustainable Management Group

School of Economics

University of Queensland

Email: p.schrobback@uq.edu.au

