

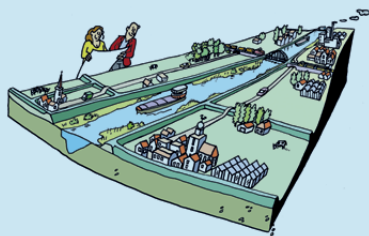
Sustainable Delta

a serious game for exploring pathways

Sustainable water management can cope with uncertainties in the natural and social environments. Ideally, a strategy will be robust when climate change scenarios, socio-economic developments and societal perspectives change, or the strategy will be flexible enough to adapt. Uncertainties inherent to these developments lead to different potential pathways for water management as we move into the future. The main purpose of this project is to develop a method for identifying sustainable adaptation strategies in river deltas given the uncertainties about the future. The approach includes the response in terms of water management and society.

To explore adaptation pathways for many integrated transient scenarios, a conceptual framework describing the water system-society interaction, and an Integrated Assessment Meta Model (IAMM) were developed. These can be applied in a game setting in which players of the game take on the role of water managers and respond to events and developments in the water-society system in specific realisations of a climate scenario. Responses include the choice of specific river management options, changing perspectives and dynamics in advocacy coalitions of players.

In the game, the water system is modelled with the IAMM, the socio-economic scenarios are presented in the form of newspaper headlines, and the climate change scenarios appear as realisations of a weather generator and a hydrological rainfall-runoff model. The IAMM allows for a rapid calculation of how climate change and socio-economic forcing may lead to changes in river hydrology, land use, and impacts on various river functions. This game format was applied to a “virtual case” involving a virtual river stretch representative of many river stretches in the Netherlands. The situation of the Waas was inspired by a low-lying river stretch in the Rhine delta of the Netherlands.





Before each gaming session, a specific realisation is chosen by the project team. Realisations may be selected on the basis of the timing and frequency of discharge peaks and the extent of climate change, depending on the type of responses the project team aims to assess. In each session, the participants will be confronted with a year-by-year evolution of river runoff, related impacts on safety, damage, shipping and ecology, and changes and events in society as a whole. An adaptation pathway is completed when the participants have managed the river for 100 years.

The game makes it possible to see the importance of interactions between water systems and society. It can help to establish an understanding of possible responses in different circumstances and to develop ideas about how to draw on this in the development of water management strategies.

Further reading

<http://perspectivesiniwrm.deltares.nl>

Partners

- ICIS-University Maastricht
- Utrecht University
- Twente University
- KNMI
- Pantopicon and Carthago Consultancy.