

# Sustainable Delta Game



## The serious game about water management under uncertainty!

*Given the uncertainties about the future, what constitutes a sustainable water management plan? Water management is increasingly challenged by pressures from stresses such as population growth, potential sea level rise and climate change. Exploring adaptation pathways for the future provides indispensable decision making support in achieving sustainable water management in a changing environment.*

Sustainable Delta is a serious game that informs and enables communities, stakeholders, elected officials and the general public to better understand water systems and their related restoration and protection measures. It teaches players the importance of negotiation in decision making as well as how to make smarter investment decisions given an uncertain future.

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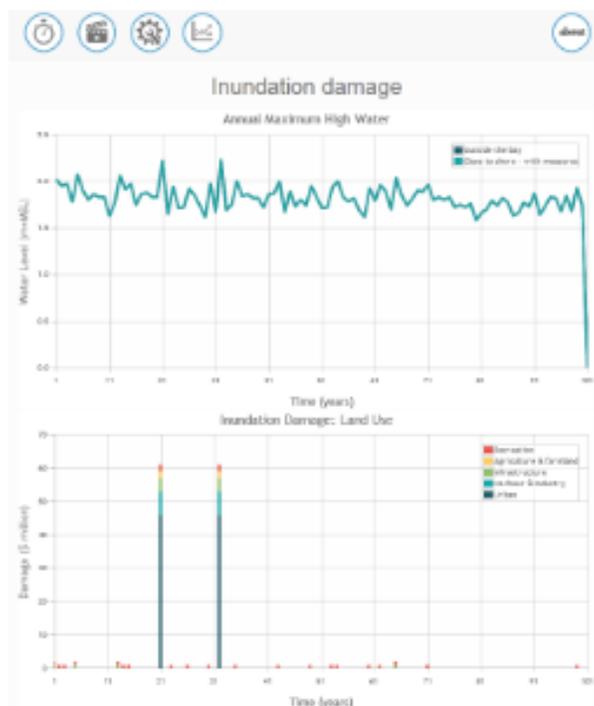
In this game, two teams of participants are given the assignment to develop and implement a Sustainable Water Management Plan for the coming 100 years in one of three fictional settings:

- **Waas River:** a lowland river section similar to those found in the Netherlands. Key issues confronted include flooding, navigational drought and nature.
- **Te Ara River:** a floodplain river section similar to those found in New Zealand. Key issues confronted include flooding, agricultural drought and nature.
- **Tainui Harbour:** an urban coastal harbour similar to those found in New Zealand. Key issues confronted include coastal inundation, port /transport capacity and nature.

The game challenges the two teams to define sustainable strategies that mitigate specific flood and drought risks, whilst also paying attention to broader development impacts, nature impacts, global and regional events, and the evolving perspectives of local inhabitants. The developed strategies need to be robust and balanced across a variety of performance indicators, and simulate long-term, adaptive management plans. After formulating their own strategies, the two teams must negotiate to determine a single, agreed strategy for implementation.



Implementation of the preferred strategy in the game takes place via a computational environmental model of the chosen area, and occurs over a series of rounds. Each model mimics the area's economic, social and environmental characteristics, and provides direct quantitative feedback to players regarding the success of their chosen strategy against the performance indicators. As the 'future' gradually unfolds, players use their new insights to determine whether or not the chosen strategy needs to be adapted for later game rounds.



Through playing the game, participants can learn about the different short and long-term benefits for the variety of included measures. Facilitated discussions both during and after the game allow players to evaluate game outcomes and discuss what they have learned and would do differently if they played game again. These discussions, in addition to inter-team negotiations during game rounds, facilitate social learning and give participants insight into the perspectives and values of others as well as the role and value of negotiation in decision making.

In summary, the game can be used to support:

- Learning about water system impacts
- Learning about adaptive policy making and adaptation pathways
- Discussions about scenarios and sustainable water management
- Discussions to develop innovative solutions
- Stakeholder processes

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## About

The original Sustainable Delta game was developed by a team of employees from [Deltares](#), [University Utrecht](#), [Maastricht University-ICIS](#), [Carthago Consultancy](#), [Pantopicon](#), [KNMI](#), and [University of Twente](#). The game has been further developed by Deltares and Carthago Consultancy. The NZ River and NZ Coast versions of the game have been developed in close cooperation with the [Climate Change Research Institute](#), [Victoria University of Wellington](#).

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## Contact

For any suggestions or questions regarding the Sustainable Delta Game, please feel free to contact either of the below individuals:

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