Virtual River: a Tangible Gaming Environment to Collaboratively Explore River Management Strategies

Robert-Jan den Haan, Mascha van der Voort, Suzanne Hulscher

Challenge

How can stakeholders be supported to understand both the complexities of the river system as well as the objectives and perspectives of other stakeholders? In a world where rivers are increasingly managed in an integrative approach, stakeholders need to work together to achieve and sustain management objectives related to for example flood safety, nature development and economic activity.

Innovative components

1. The Virtual River gaming environment providing stakeholders with a tool to collaboratively explore scenarios, learn about the effects of their actions and learn about the views of other stakeholders.

2. Virtual River's hybrid interface combining a physical interface with digital models. The interface also serves as a platform that can be used in many other spatial settings.

For whom and where?

For professional and researchers active in river management or developing gaming/decision support tools in other contexts.

Application development and findings

1. Research to determine the scope of the Virtual River revealed that stakeholders take diverging perspectives on both the problem at hand and its solution.

2. The Virtual River enables stakeholders to exchange these perspectives to increase mutual understanding.

3. The hybrid interface enables stakeholders, regardless of background or prior knowledge, to directly interact with hydrodynamic models.

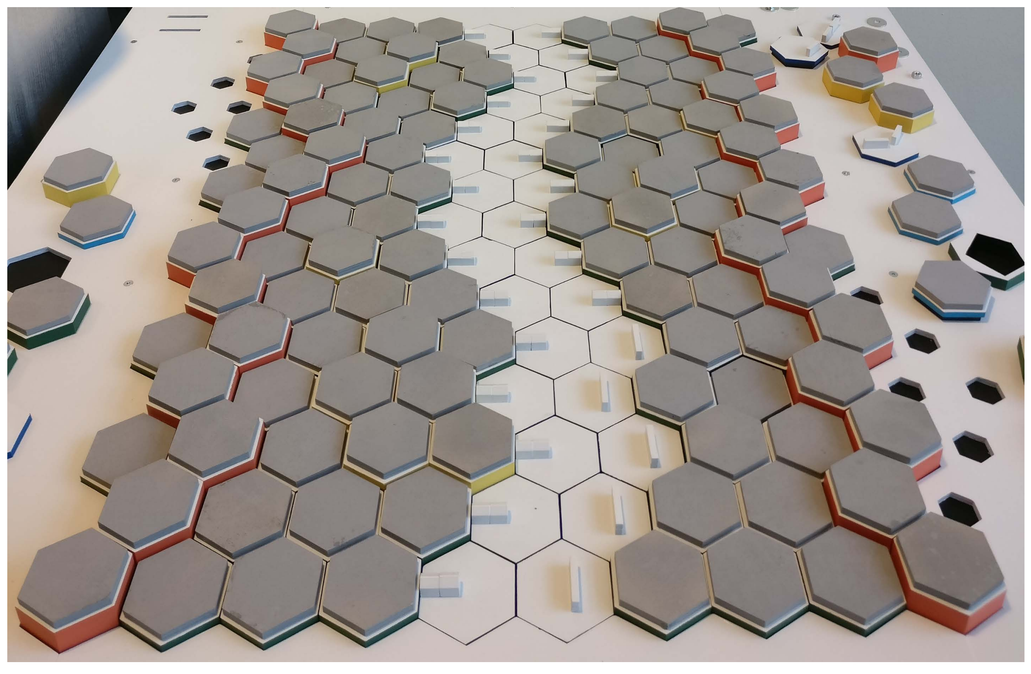
Status for day-to-day practice

Currently finalizing the interface prototype and game design. Both would be directly applicable. The game design could benefit from more testing and customizing to specific settings.

Next steps

Putting the game and interface in action and testing the applicability and usefulness of the two innovative components.

a



b

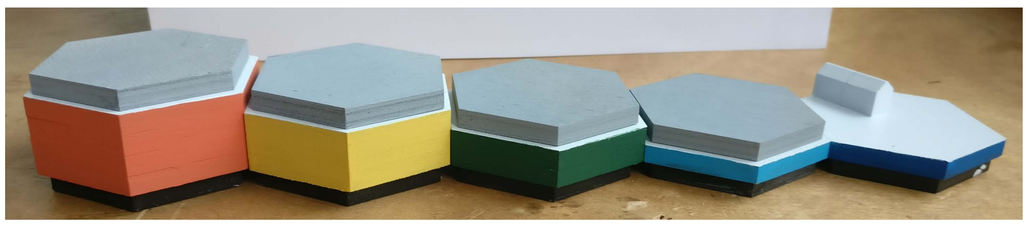
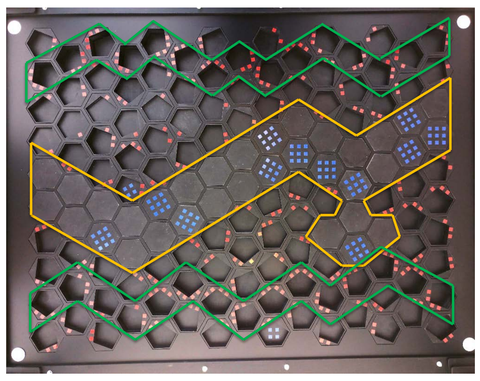
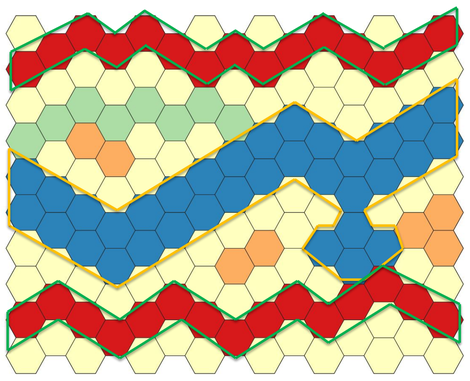


Fig 1. (a) Physical game board, including a main channel with groynes and longitudinal training dams, dikes on the west and east side, and floodplains with varying land uses. (b) Hexagon shaped game pieces representing different heights following a color scheme.

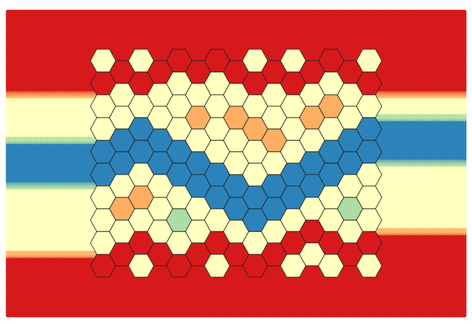
a



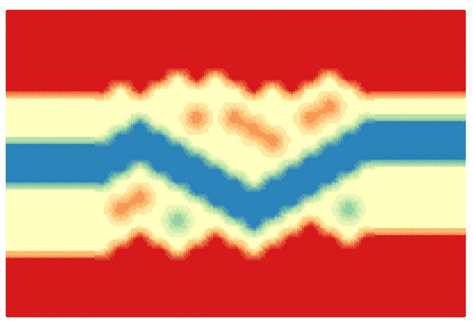
b



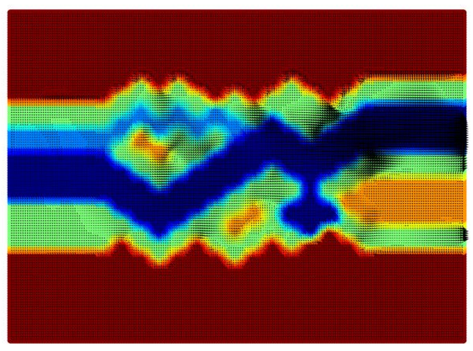
c



d



e



f

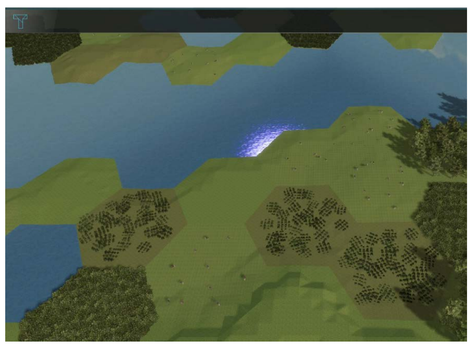


Fig 2. (a) bottom side of physical game board with markers. (b) processed digital board. (c) digital board placed on a regular grid. (d) interpolated elevation model from the game board. (e) elevation model used in a hydrodynamic model (Delft3D-FM). (f) visualization of game board (Tygron engine)

Interested?

Email to: r.j.denhaan@utwente.nl
Explore more in the Virtual River project description

G1 Project

Scan me