A Playful Approach to Flood Defence

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Outline

1. Introduction
2. Playful approach
3. Usefulness of this approach to flood defence
4. Case: “Levee Patroller”

Flooding

Natural and
devastating disasters

Occur “rarely” and
unexpected

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How to get prepared for the unexpected?

Videogames

Playing = learning?

Acquirement of a mental model

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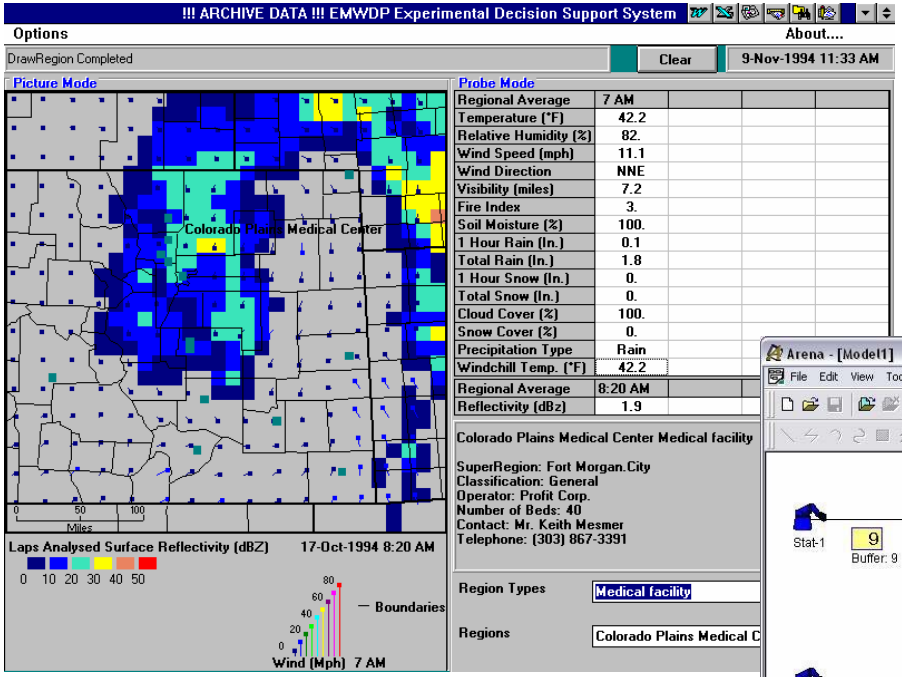
Can videogames be a beneficiary tool to flood defence?

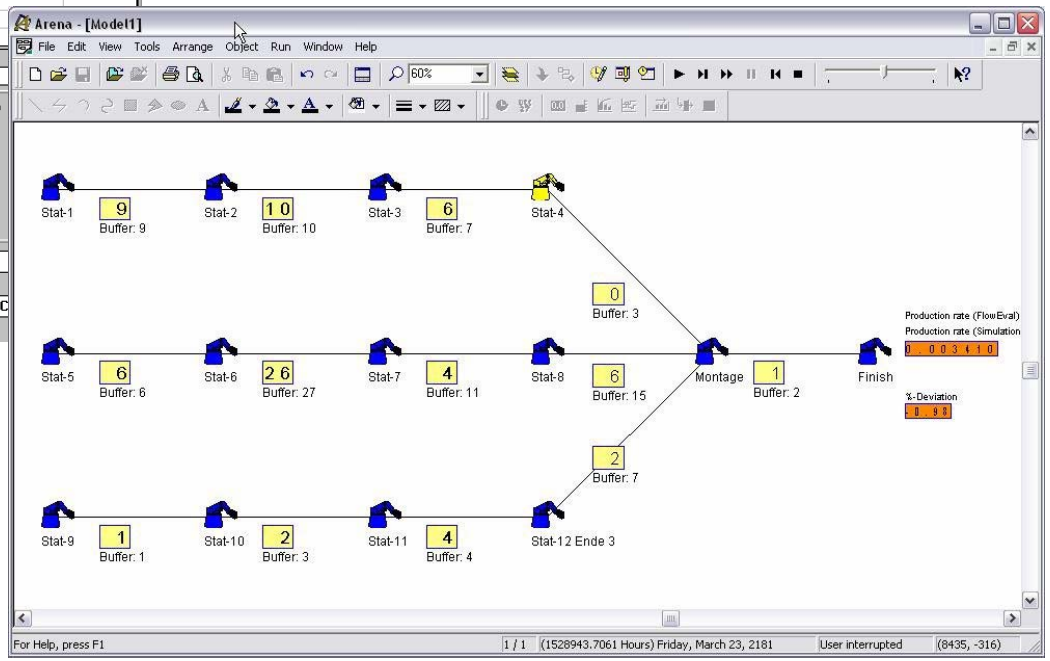
Definition of a game

Games are rule-based systems with variable outcomes that players can exert influence on by manipulating the rules (adapted from Juul, 2005).

Games vs. DSSs & Simulations



"Humans"



"Outcomes"

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Serious gaming

- Non-entertainment purpose
- Meaningful
- Valid
- Fun

Examples of serious games

Peacemaker

Hazmat: Hotzone

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Advantages of serious gaming

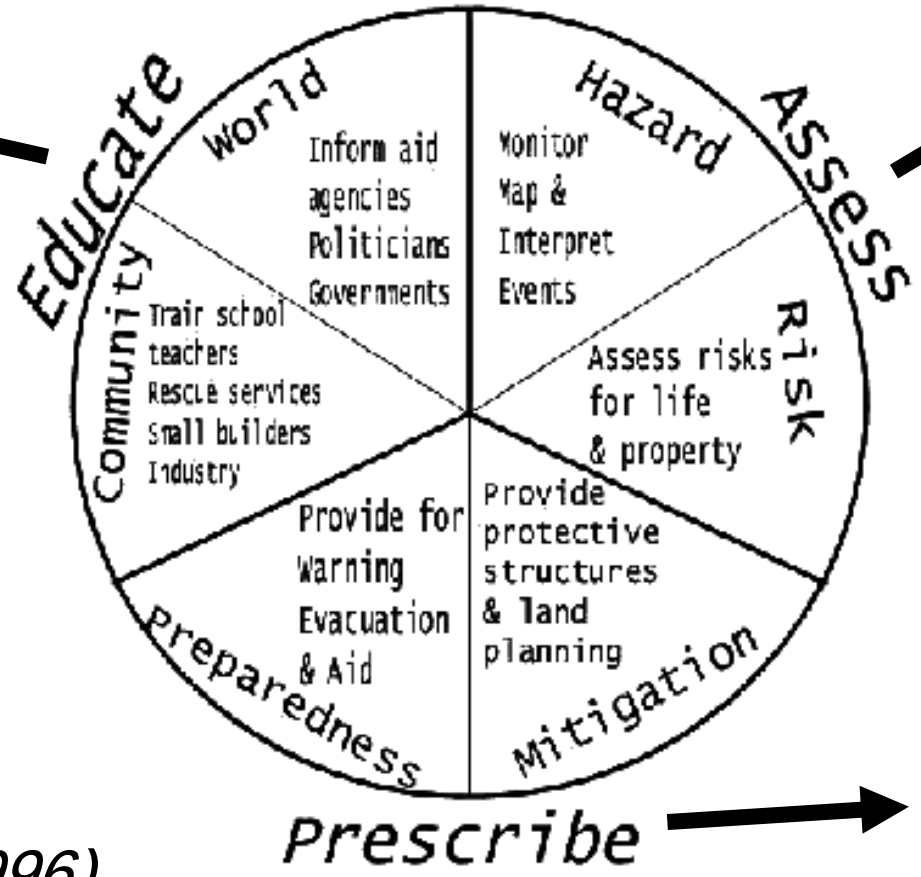
- Experiential
- Safe
- Authentic
- Motivating
- (Inexpensive)

With these characteristics in mind… how can serious games be beneficial to flood defence?

Educational value

Serious games

Simulations



DSSs

Smith, K. (1996)

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Educational value

- **Practice**
  - Decision making knowledge & skills
  - Procedural knowledge & skills
  - Mental simulation
- **Mindfulness**
  - Test assumptions & expectations
  - Self-consciousness
  - Open-mindedness
- **Inform**
  - Awareness creation

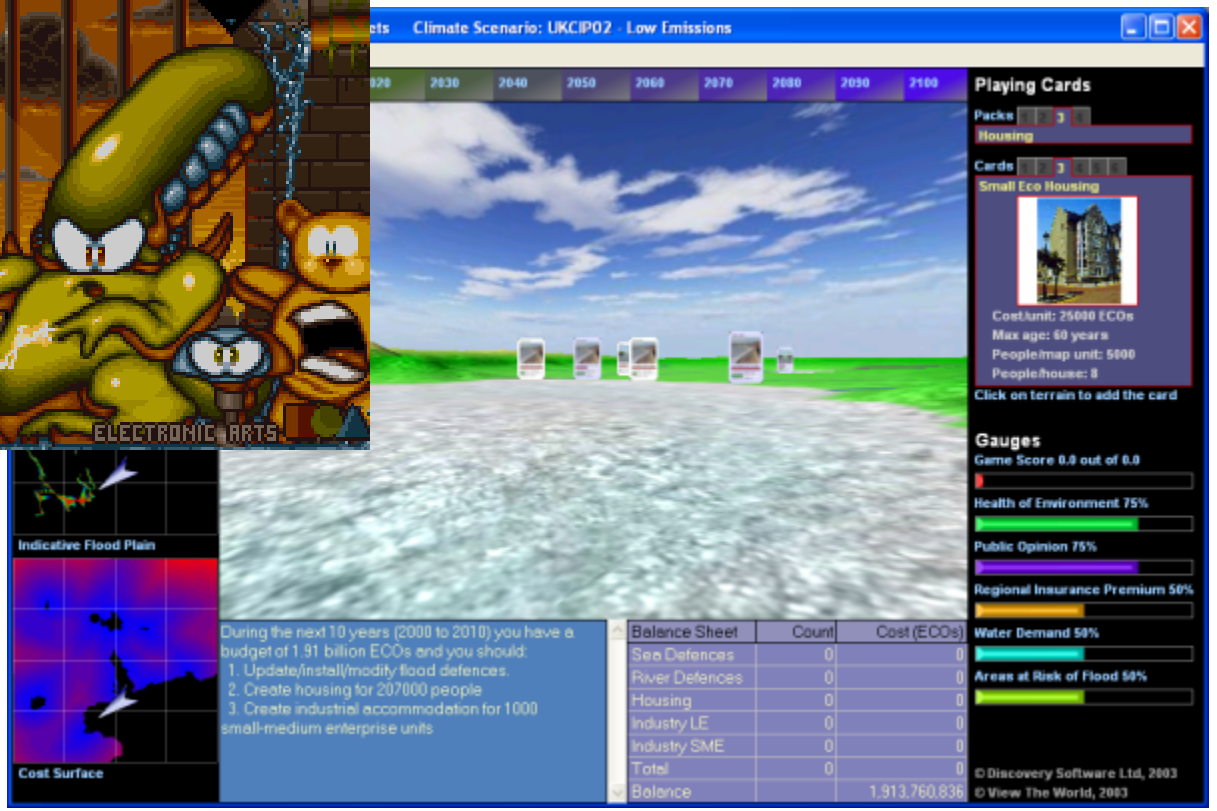
Organizational value

- Knowledge repository
- Shared and explicit vision
- Stimulate discussions

Flood games

Flood

Flood Ranger



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Levee Patroller

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Levee patrollers

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Levee failures

Wilnis, the Netherlands, 2003

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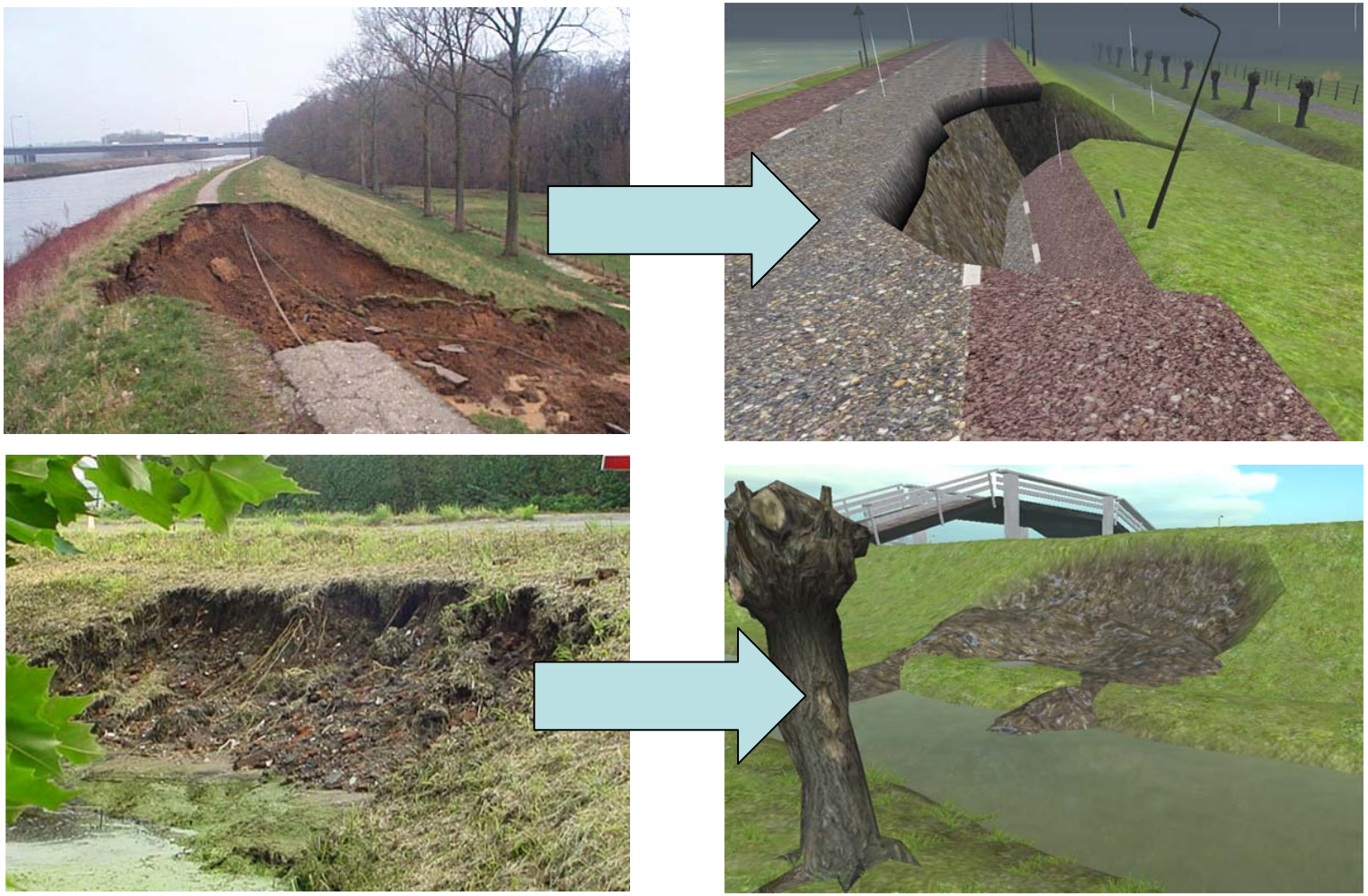
Levee failures



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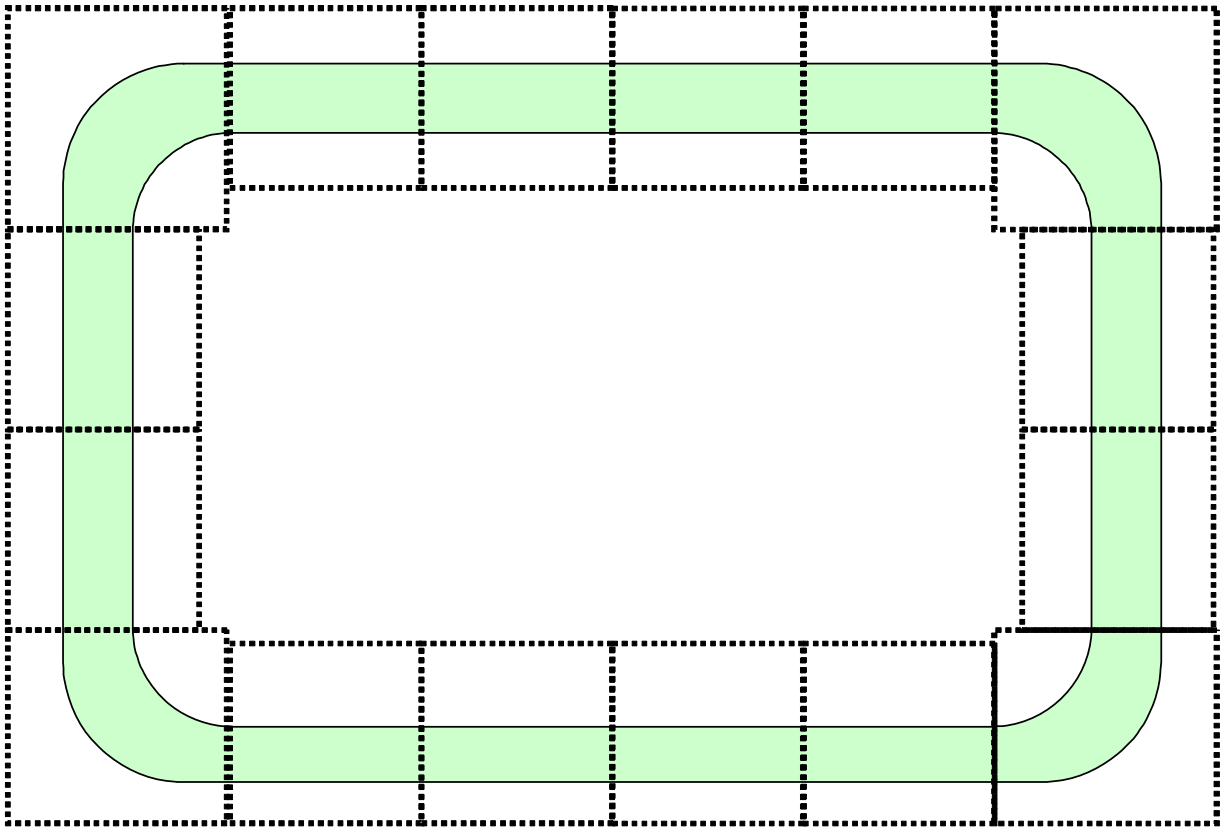
Levee rings



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Levee Patroller demo

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Conclusion

- **Problem** → Floods occur rarely and unexpectedly:
  - Situations cannot be trained
  - Measures cannot be tested

- **A solution** → serious games:
  - Differ from DSSs & Simulations
  - Have an educational & organizational value

- **But** → more convincing evidence is needed (PhD?)
  - Design
  - Effects

Questions?

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More information about Levee Patroller:

http://www.delftgeosystems.nl/leveepatroller

More information about serious gaming:

http://www.seriousgaming.tudelft.nl