

FloodCom

Innovation through serious gaming as a means to improve communication and cooperation during imminent floods

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- Rotterdam, Netherlands
- Cycling, windsurfing, ice skating, climbing, hiking, nature
- Msc. Flood Risk Management
- B BE Water Management
- FloodCom, co-owner. Serious game design, workshops, training
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- Serious gaming, other contexts

Introduction



Inundation Netherlands, May 2018

Sources: Floodlist.org, Nu.nl, buienradar.nl



Introduction

- Extreme precipitation and high river discharges occur more often



- Always uncertainties in (extreme) events, difficult to predict
- Cooperation between stakeholders (interregionally) not always practiced
- Cooperation and communication with citizens difficult

Introduction

- Practicing situations can help to understand and learn
- Understanding increases resilience
- Practice increases capacity to respond



Flood Exercise, Environment Agency 2017



Appel-Euromodex Exercise, Italy 2018

Serious Gaming



Serious gaming vs. gaming

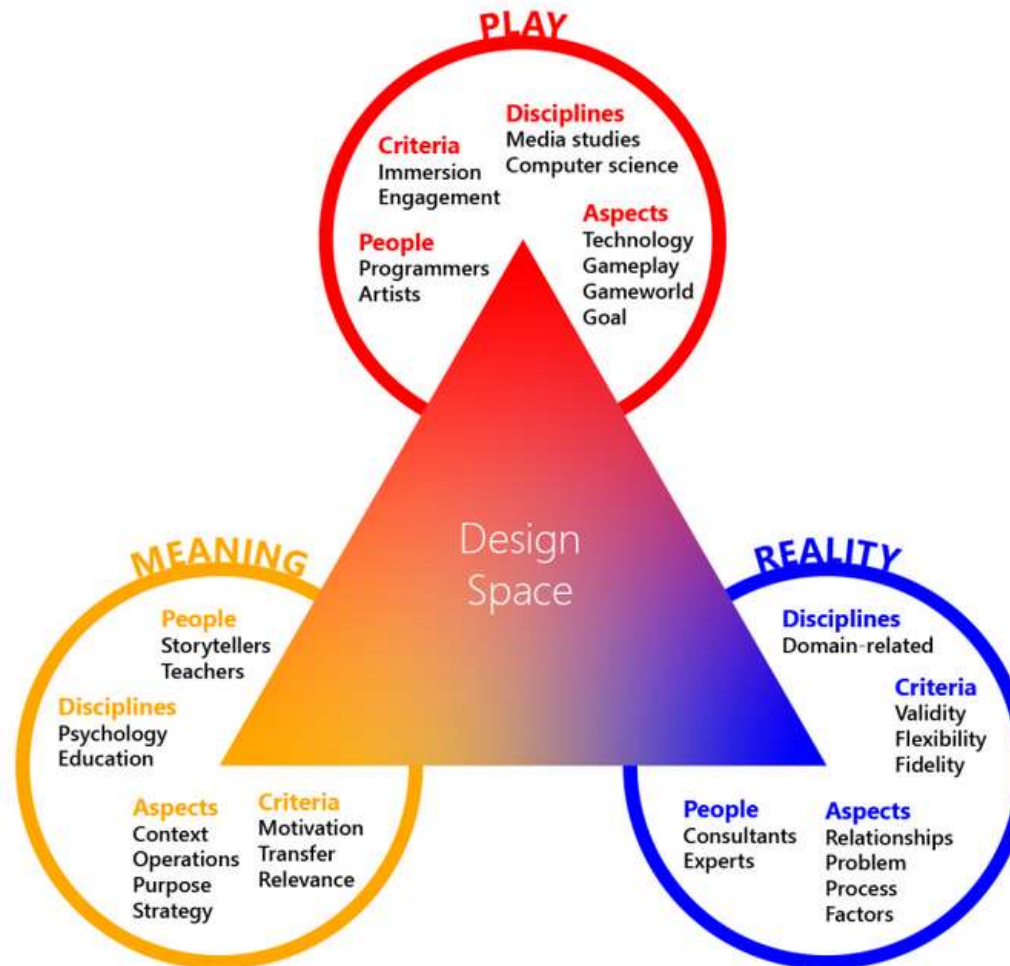


Serious gaming

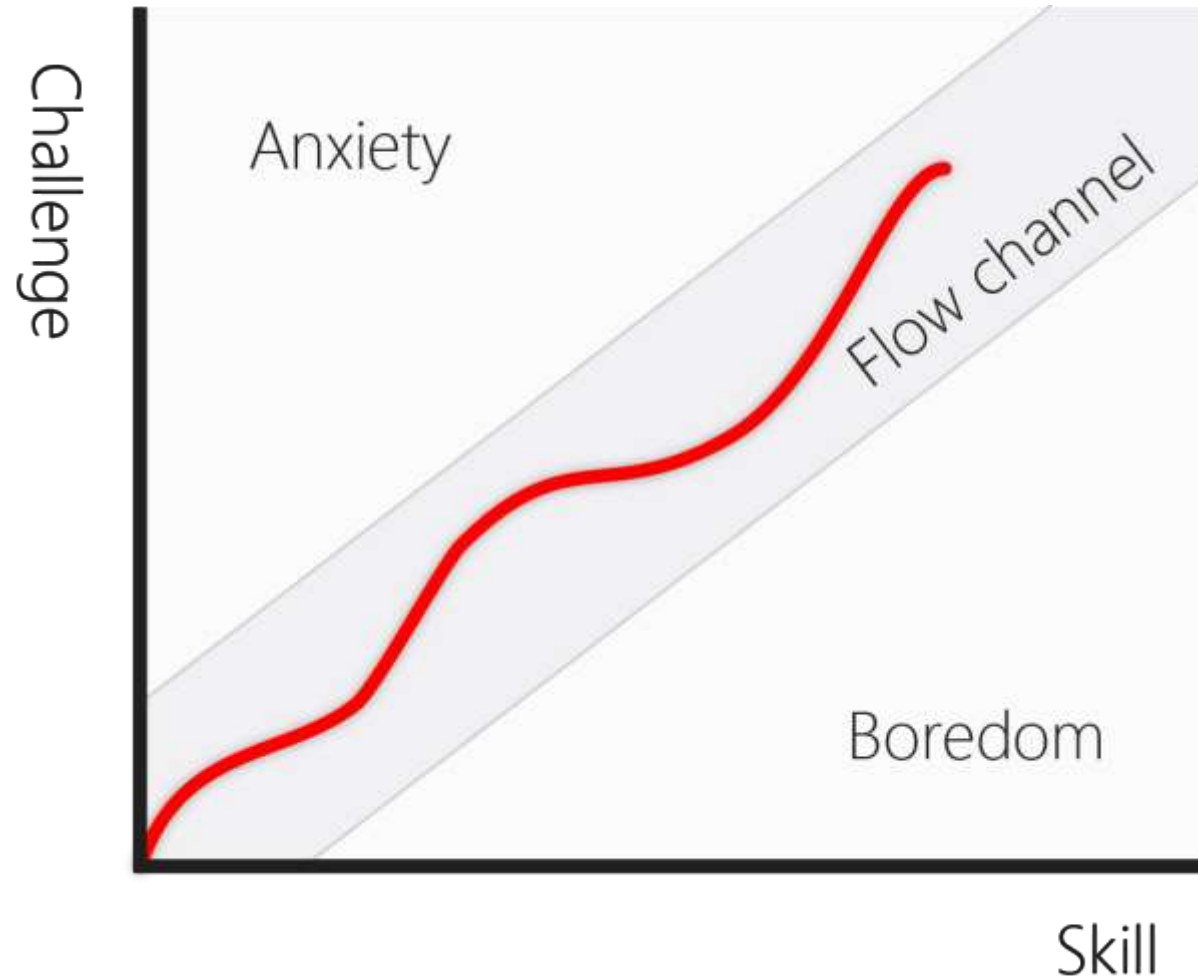
Serious games are those games that provide a meaningful message in a fictional play space about a certain (perceived) reality

(Sawyer and Rejeski, 2002)

Serious gaming

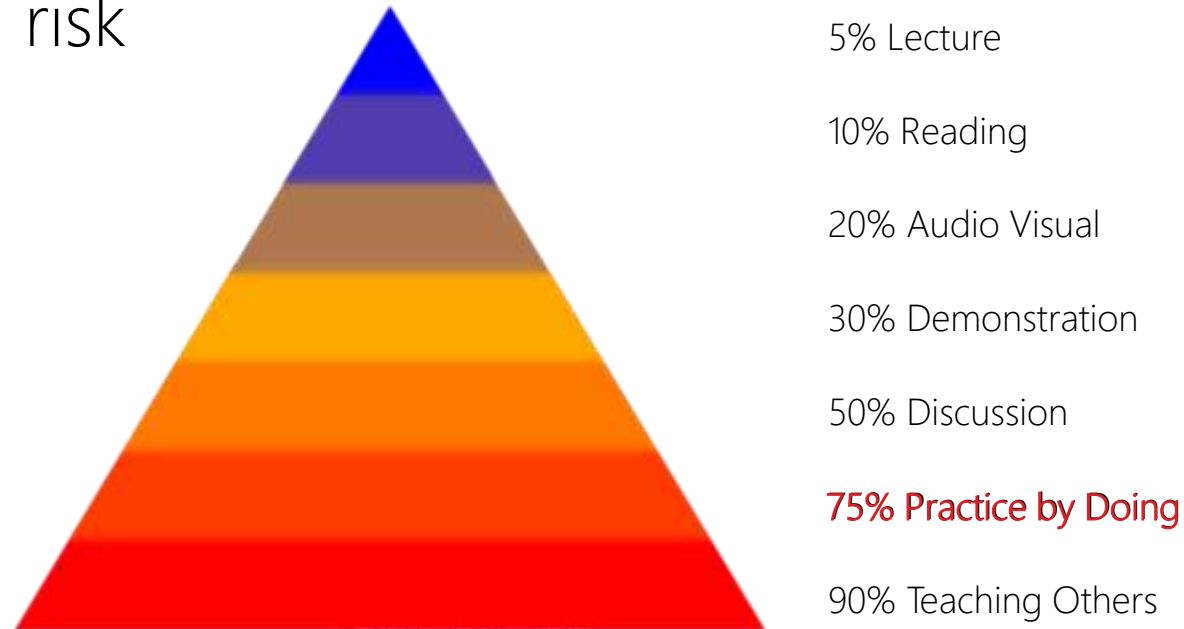


Optimal learning flow - meaning



Serious gaming

- Learning by doing → allowed to make mistakes
- Practicing difficult and uncertain situations → in a safe environment
- Realistic scenario
→ to understand risk



Disaster management examples



Toxic fire Moerdijk



Disaster management in the Netherlands

Example, Moerdijk fire in a tire factory

In the afternoon a volunteer is speaking about "toxic and dangerous air".

The mayor of Moerdijk and Barendrecht spread a message in the night "there are no toxins measured, nothing to worry about"

Later, the Authority of Foods tell "animals have to be kept inside and don't eat food from your own garden".



Almost flood 2012

Disaster management in the Netherlands

Example high water Groningen 2012

Mr. Knoop talks to one of his colleagues in Woltersum who just received a message— the firebrigade (not very scared people) are leaving the place near the unstable dike.

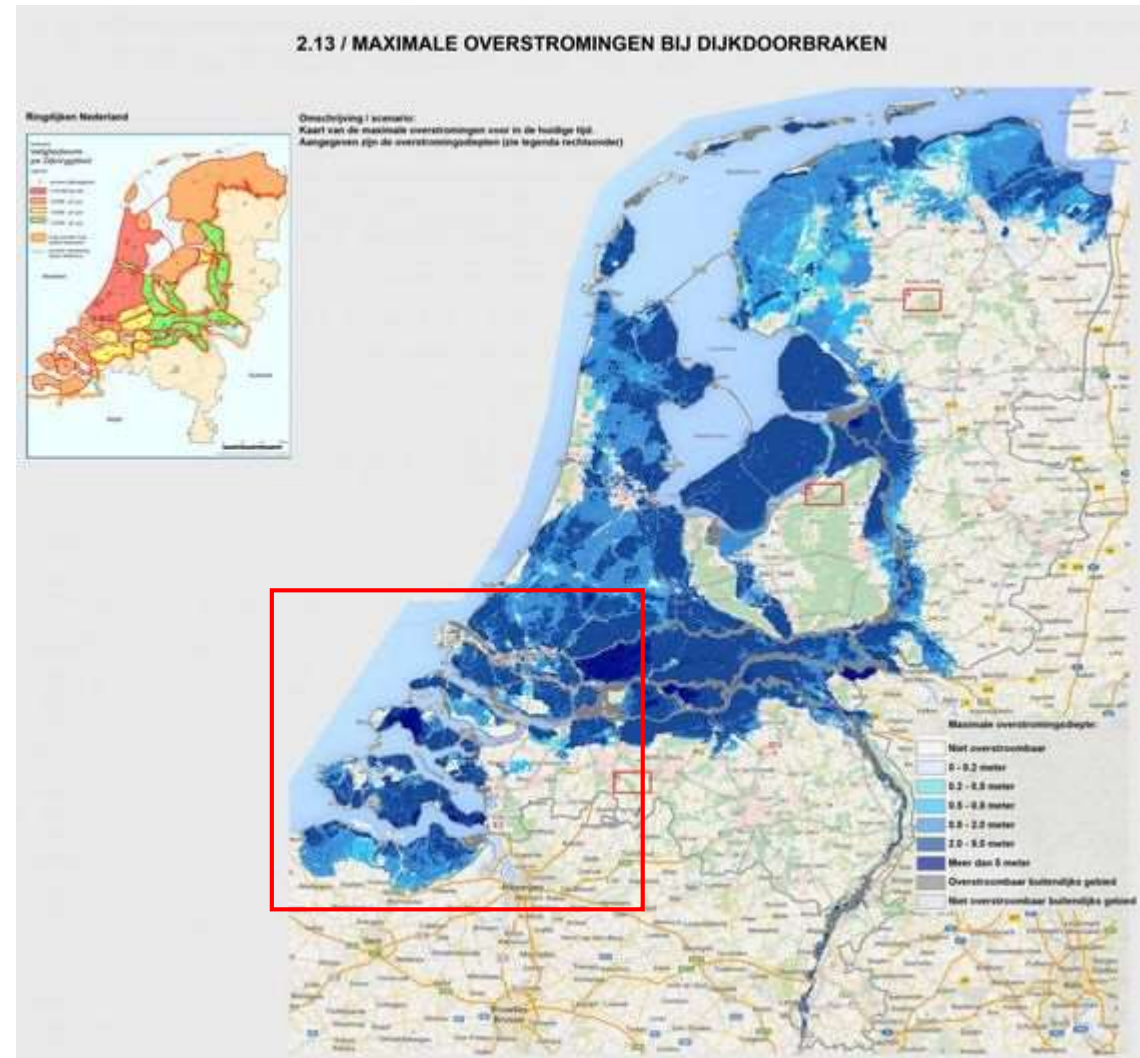
While Mr. Knoop hears this message, Mr. Rehwinkel receives information about the stable situation of the dike from the people of the water board.

“This is not possible!” Says Mr. Knoop; “We need to have one signal, we cannot make a decision based on this information!!”

(Local newspaper, Dagblad van het Noorden, 2012)

Flooding in the Netherlands - 1953

>1800 lives were lost
euros... damage



Rotterdam, high consequences

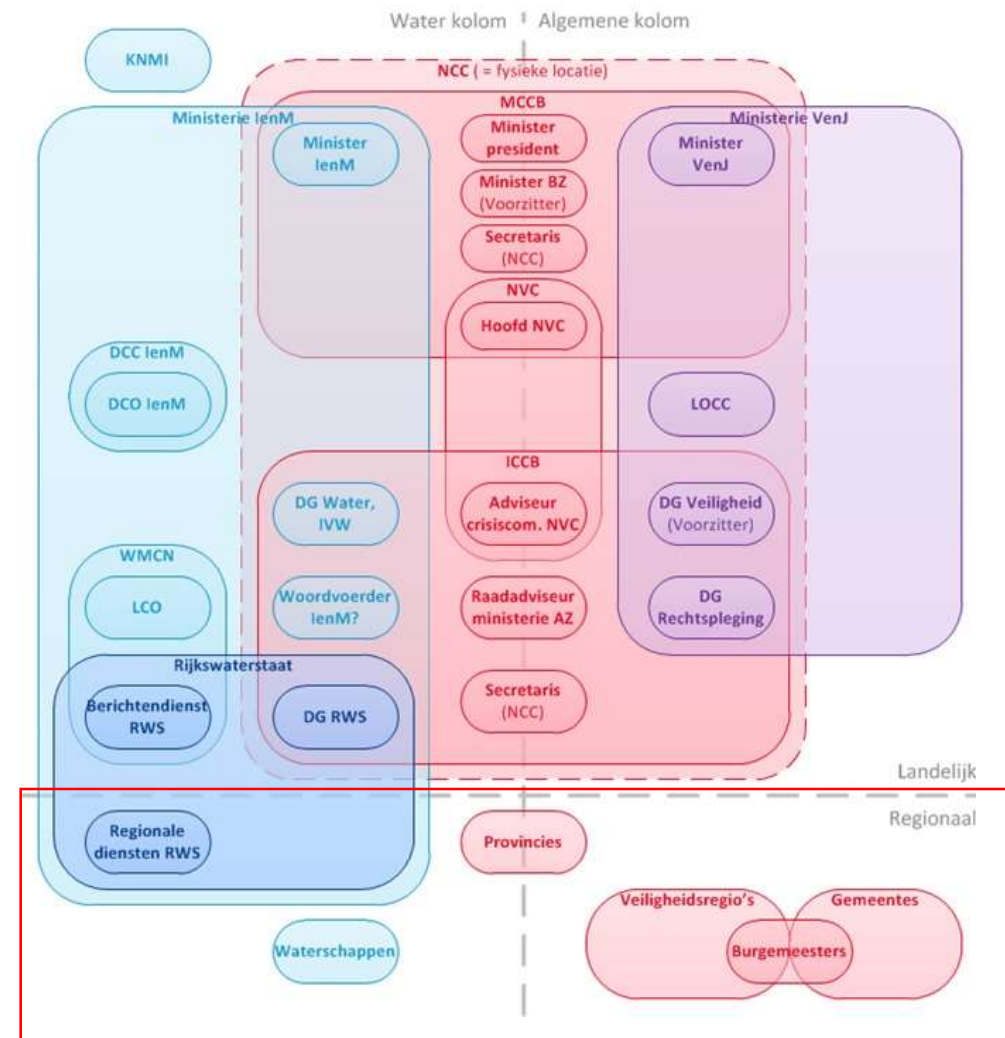


Example Flood Control game



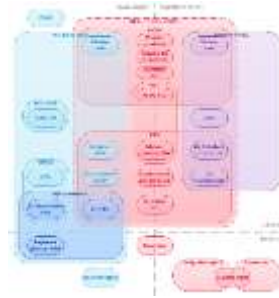
Why the Flood Control game?

- Flood management organisation complex
- Extreme situations not practiced often
- Goal: *Improve communication and cooperation in extreme events on regional scale*



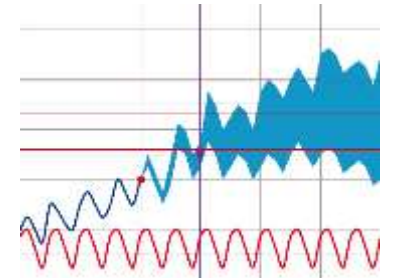
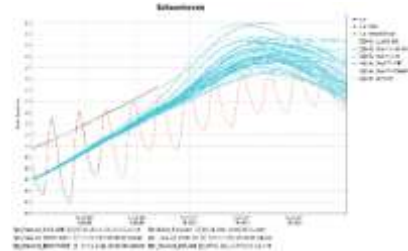
From reality to gameplay

Emergency organisation



Players

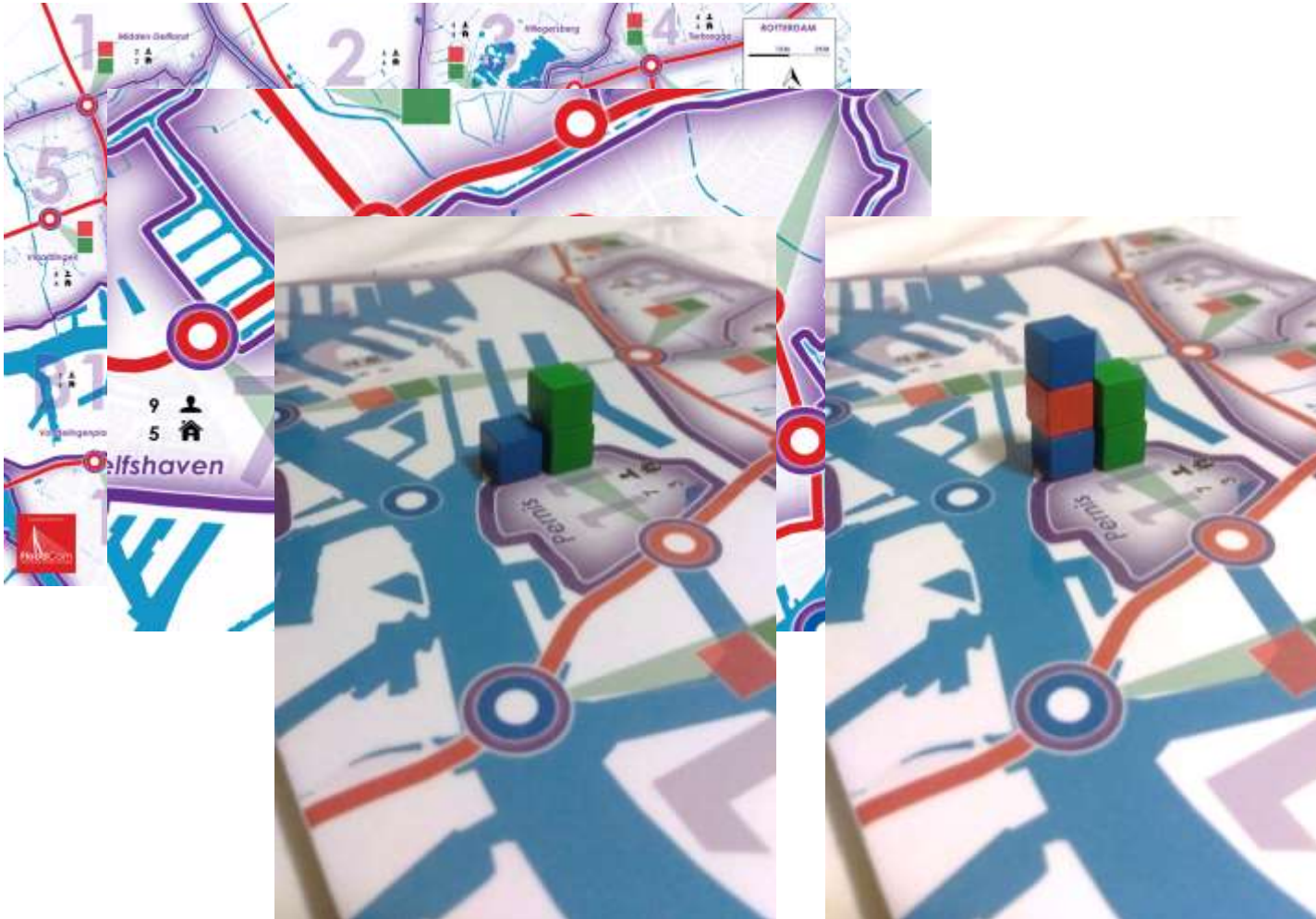
Flood scenario



Spatial situation



Reality to play



Event

9

+1

umping station in
er 9 is damaged

or higher to repair
umping station

Event

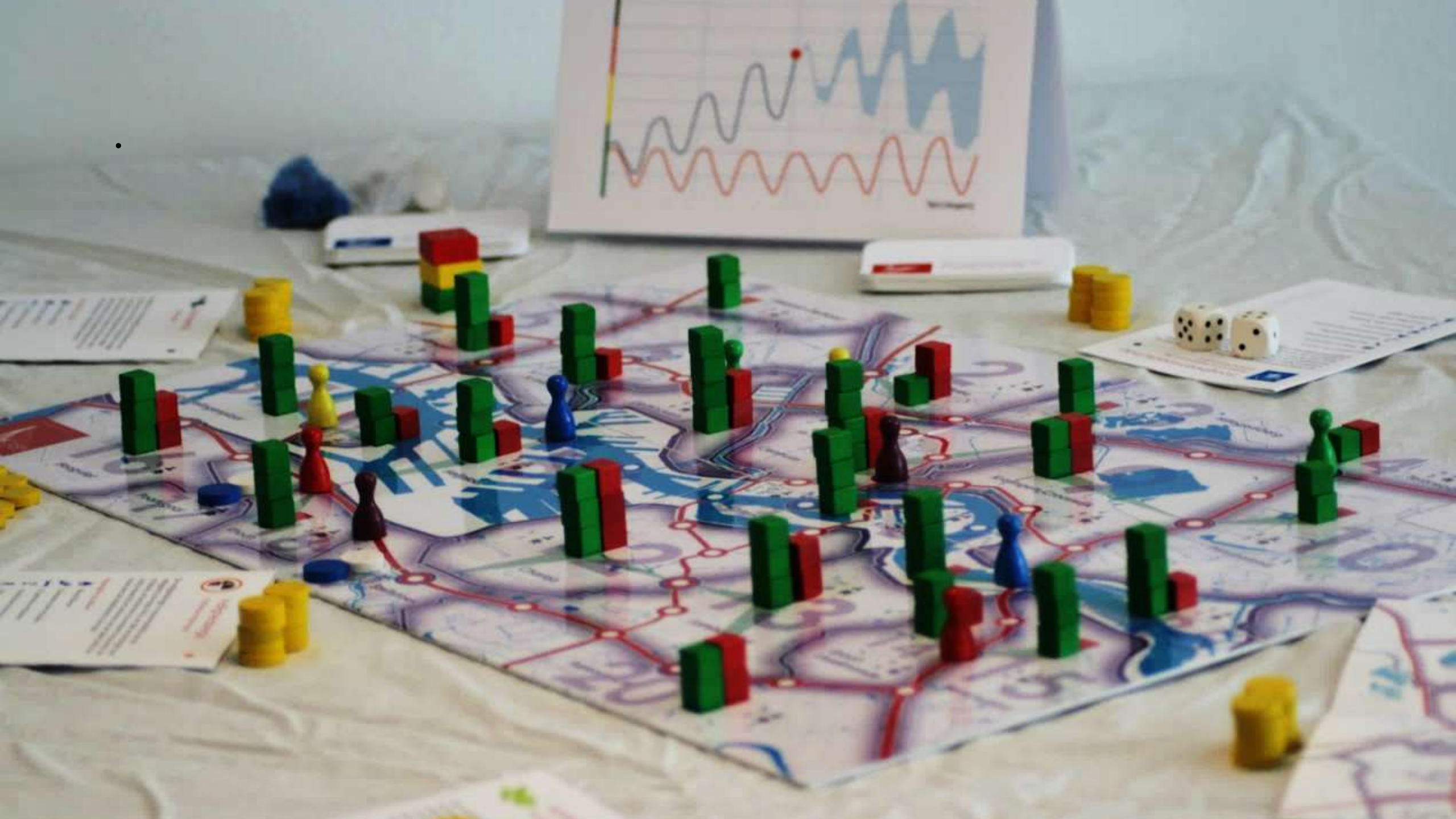
2

+1

The civilians in **polder 10**
are worried about the high
water level

Throw **6 or higher** to
inform the citizens

Water and social events,
representing uncertainty



Training with the Flood Control game



Improve
communication &
cooperation



Stress and time
pressure



Dealing with
uncertainties



Workshops & training



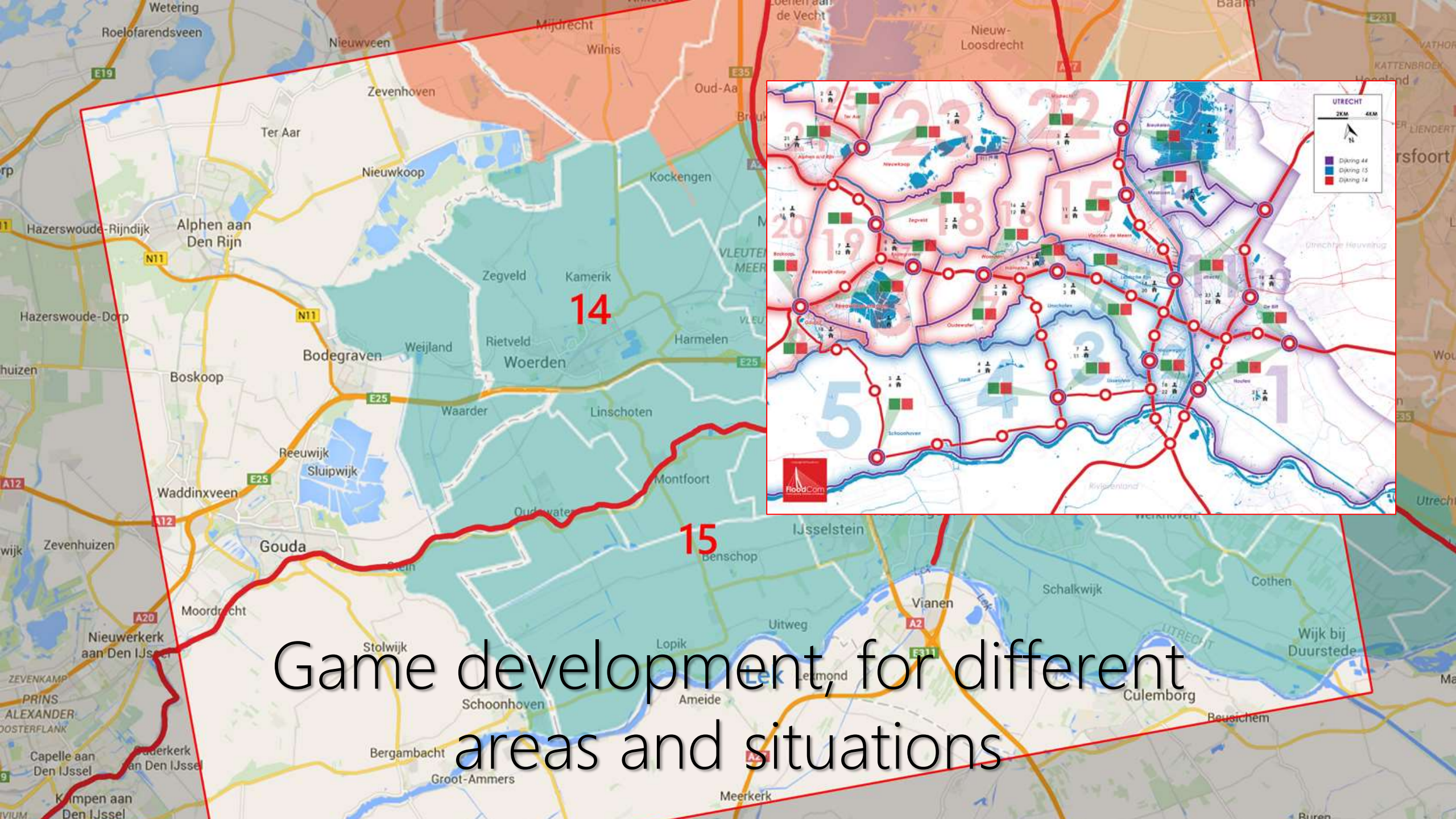
Training with crisis management professionals



Training of Disaster Management practitioners
Kraljevo, Serbia

Serious gaming, other contexts





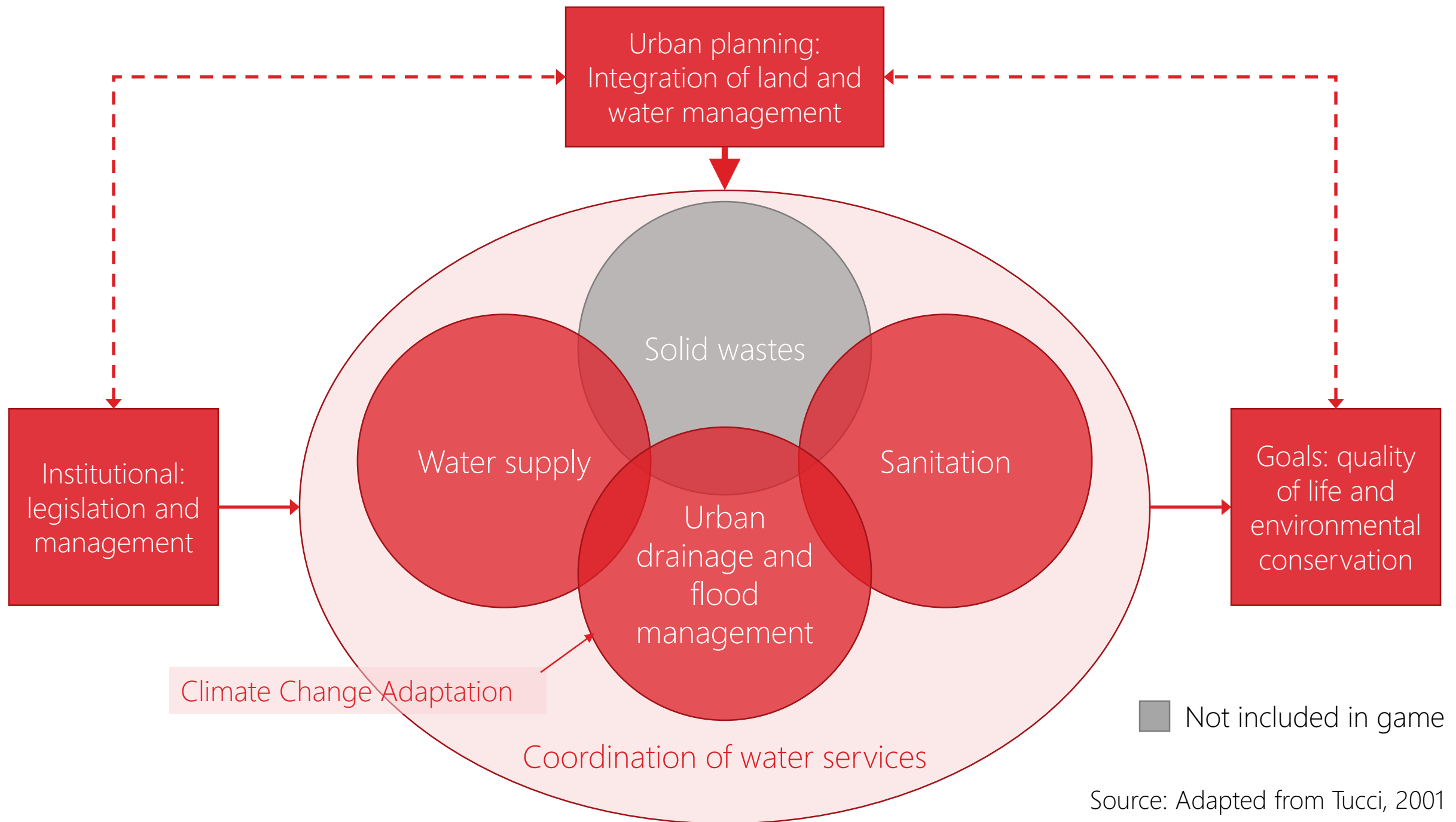
Game development, for different
areas and situations

Game design

Integrated Urban Water Management (IUWM)



Alexandroupolis, Greece



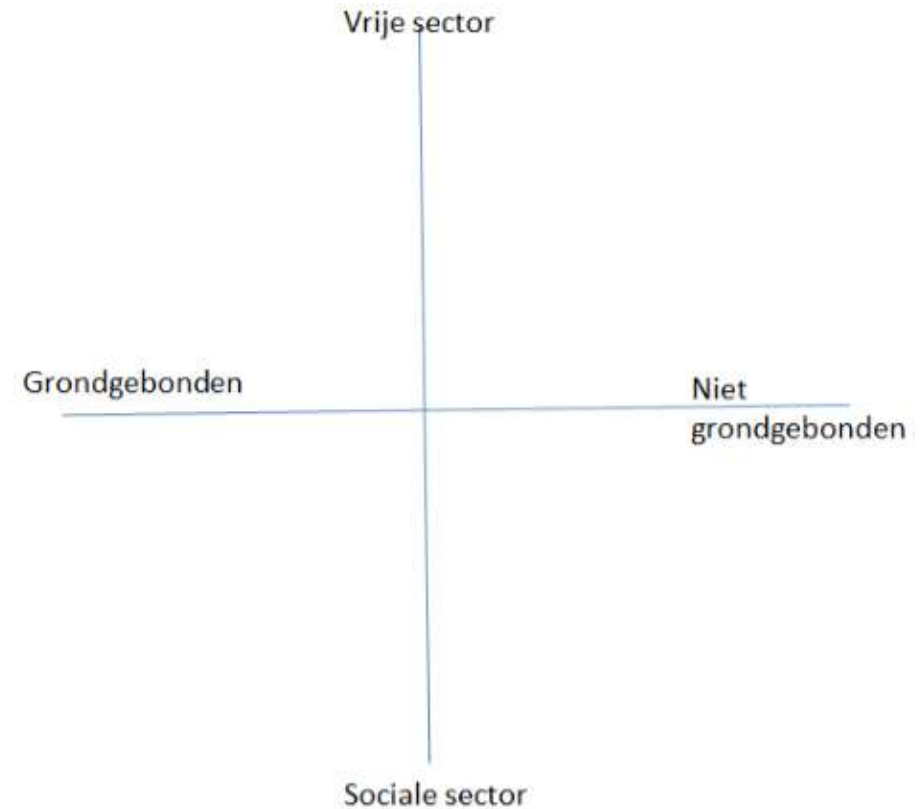
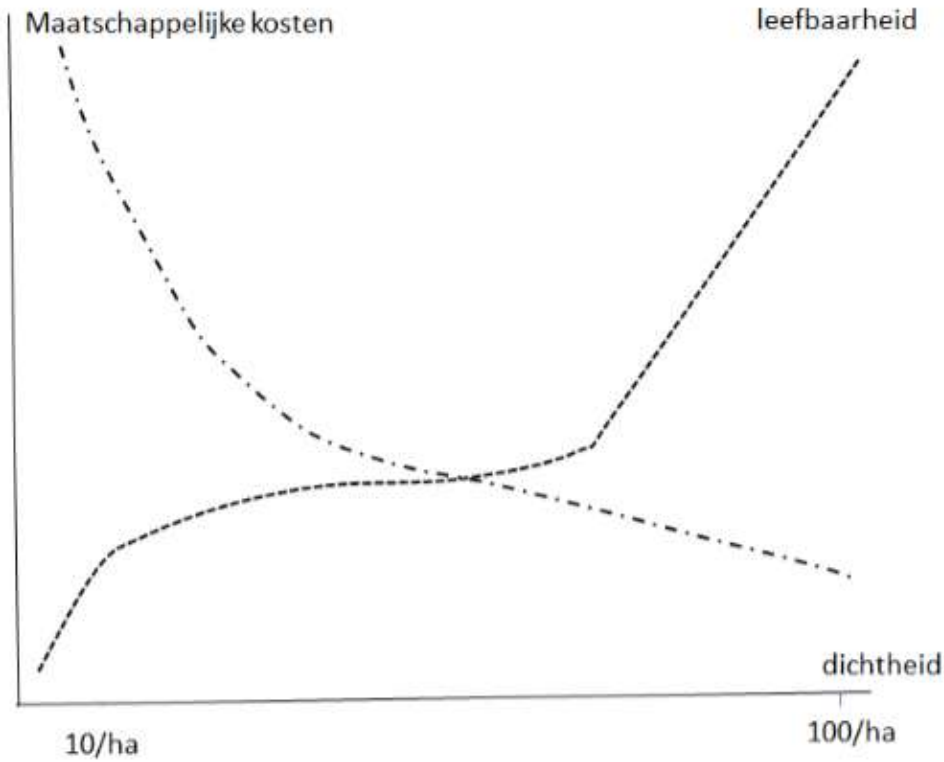


IUWM game for Alexandroupolis

Game development workshops Chezo Gaming Hub Kenya



Urban balance for climate change adaptation game - Rotterdam



Citizen participation

- Climate Adaptive Street game
 - Citizens learn more about climate change adaptation and their participation



ervakken worden gemaakt van tegels, daardoor kan water sneller infiltreren.

Effect	
ie & materiaal	+
opslag & overlast	++
& omgeving	++
& hitte	+

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Serious gaming for the water sector



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