

# Serious Game Urban Underground Planning for Real Estate, Energy and Water

## Game Manual



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# 1 Game objectives and Target groups

The overall objectives of the game are:

- Make options and limitations of underground development visual and inspire stakeholders to understand and use underground options when developing cities and formulating goals for sustainable urban development.
- The game combines different functions above and below ground in order to improve the knowledge of integrated urban development planning of all stakeholders involved.
- By indicating possible costs and benefits of different measures that can be taken by urban stakeholders the outcome for people, planet and profit can be simulated. Stakeholders will gain insight in sustainable trade-offs to be made and spatial development strategies can be taken by considering these effects.
- All stakeholders are given a level playing field in order to learn how to co-operate with each other in order to achieve the best possible outcome in a integrated and collaborative matter, both in terms of above ground as well as underground development
- Players will get more knowlegde about the potential use of sustainable resources in relation to urban development.

The primary targetgroup are urban professionals that are involved in urban planning, decision making, sustainable development, real estate development of private and public institutions. A secondary target group are students and citizens to enhance their understanding of integrated planning and the complexity of sustainable and underground development.

## 2 Game description

### 2.1 Objective of the game

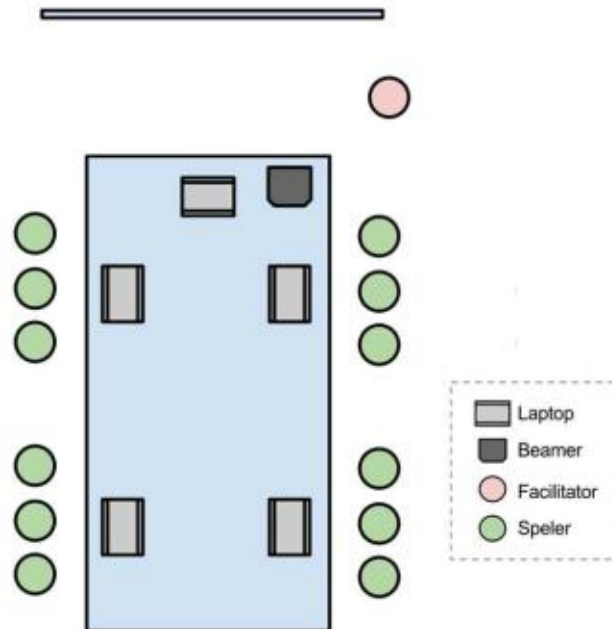
This game is a so-called 'Multiplayer Network Game'. The game simulates the challenges different stakeholders face when making decisions about urban development in a virtual city called "Exampolia". The players of the game are divided in 4 teams that will jointly play the role of one of the stakeholders in Exampolia. Each team is dedicated to a network computer and will receive a handout with information about the objectives of the stakeholder and the possible measures that can be taken. There are 4 stakeholders: the municipal government, the housing corporation HomeSweetHome, energy company NOXXO and water company Watera. The city has 12 plots for possible development. Each stakeholder can influence the development of each plot by taking measures. Measures that will be taken by the different stakeholders have an impact on the development of the city. The effects will be shown through scores on People, Planet, Energy, Water and Housing. Each stakeholder will also see the impact of the chosen measures on his or her own budget/profit.

During the game measures can be taken for different soil layers within the available plots. Certain measures can influence other measures in the same plot. There are also measures that can only take effect if they are combined with measures by other stakeholders or in other soil layers. The overall goal of the game is for each stakeholders to maximise the scores related tot heir objective by taking measures as well as collaborating with other stakeholders and sharing information, investments and negotiating deals.



## 2.2 Set up of the game

The game is played in a four hour facilitated workshop. The game is introduced by the facilitator and then played by using network computers in a class room. There are 4 stakeholdercomputers and 1 facilitator computer and beamer.



Figuur 1: Setup of the workshop.

## 2.3 Gamesession

### Fase 1: Welcome and introduction

The facilitator introduces the game and divides the participants in teams.

### Fase 2: Digitale introduction of the game

The facilitator will explain the game interface and the participants will have time to familiarize themselves with the interface. The teams are given the instructions for each stakeholder and can read the manual. In the manual information is given about the specific objectives of each stakeholder.

### Fase 3: First round

During the first round the players can start trying to take measures and make a first attempt to improve the scores related to the objective. The main objective of the first round is to find out what measures can be taken by the stakeholder and how this influences the different scores on the indicators.

**Fase 4: Second round**

Each stakeholder team will evaluate the outcome of the first round and can determine what kind of collaboration/negotiation is needed with the other stakeholders to improve the outcome. Stakeholders are invited to start negotiating and share information with other stakeholders.

**Fase 5: Third round**

The outcome of the second round will be discussed with the facilitator and conclusions can be made about the results of the negotiations and possible improvements. Then there is one final round in which the stakeholders can make changes to their measures and renegotiate with the other stakeholders to achieve their optimal solution.

**Fase 6: Evaluation**

At the end the game is evaluated by looking at the overall outcome of the stakeholders, reflecting on the development process and trying to understand the dynamics of the game. Then lessons can be drawn from this simulated case to the real world and conclusions can be taken in relation to the usefulness of this knowledge for urban sustainable development in practice.

### 3 Contactpersons and colofon

The Serious game Urban Underground Planning for Real Estate, Energy and Water is developed by RO2 and StrateGis, in co-operation with the City of Rotterdam and SKB.

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