Where We Move

The *housing game* that supports governments and residents in joining efforts for *climate action*

Why the Where We Move game?

Where We Move is a game for local governments and residents (among other private actors) to learn how to live with extremes and share the responsibility to protect against floods.

Gameplay benefits

Make residents aware of the flood risks and measures they could take to identify how they can take action.

Enable students (future homeowners) and professionals to reflect on their role in collaborations between local governments and residents.

Provide municipalities with a safe environment to explore possible policies for strengthening residents' action capacities.

Extremes are no longer the exception

The July 2021 floods and the intense rainfalls of 2023 in the Netherlands and surrounding countries show that extremes are becoming more common. Extreme rainfall may not easily drain away, and high river water levels may flood cities and outskirts. Residents' choices and attitudes towards flood adaptation may change over time, given available resources and experience. These changes are difficult to capture with standard surveys, hence Where We Move was developed.

What is in it for organisations?

The game sessions offer a "safe" environment for organisations, such as **local governments**, **education institutes**, **consultants**, and **NGOs**, to simulate homeowner situations (player roles, possible actions, and objectives), facilitate discussions and explore which choices players would make over time (rounds) given certain policies (news and scenarios).

What is in it for the players?

Players such as *actual homeowners, professionals* and high-school & university students experience extremes in a fun way while tracking their game choices to:

- Learn about flood risk and possible adaptations for their home.
- Reflect on their risk perception and game choices through surveys.
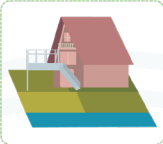- Envision ways to strengthen their capacities to take action.

Plot:	U07				Price	
Area: Unbesvillage					125 k	
Player Owner					Rating	
Round: 1 2 3 4 5 ☒ ☒ ☒ ☒ ☐					4	

	ROUND					
House Protection	0	1	2	3	4	5
River Protection	0	0	0	1	2	
Rain Protection	N	N	N	Y	Y	Yes or No

Game session parts

Game sessions can host from 6 to 40 participants, and last about two hours with the below five parts:

1. Player consent for data collection

Anonymised game session data collection allows to:

- Compare results across game tables and sessions.
- Share results in open-access publications.
- Re-use data for climate action research and education.

2. Risk perception pre-survey

Before starting the game, players will use their player ID to reflect on their flood risk attitudes while completing a short pre-survey.

3a. Five rounds of game play

Participants are divided into tables of 6 to 8 players, each with a facilitator. During the game rounds, players will play by tracking their choices on the game cards and website.

Game setup & board

Each player randomly gets a homeowner role in the game with a given income and living costs. Depending on where players choose to live on the board, every round they pay their house mortgage, taxes, and flood damages (if any) to the bank (facilitator). Moreover, news changes the game situation. Players can react by choosing to:

Aim

The aim of the game is to achieve the highest score possible by increasing satisfaction or earning points for the available income.

- buy or sell their house to live in or move to another housing area on the board.
- improve their house and satisfaction score by investing in flood adaptation measures (left image).
- increase their personal satisfaction by buying satisfaction points.
- save the available income for next rounds.

+1
River flood protection

?
Rain flood protection

Self-rising bulkhead
Price: 20 K

3b. Game player guidance

The facilitator of each table:

- oversees the game play in the website to support players when necessary.
- announces if a climate event occured to check if any resident is affected.
- acts as the bank for buying and selling.

4. Game experience post-survey

Players will fill out a short post-survey after announcing the winner to reflect on the relationship between their real-life (pre-survey) and game experience (post-survey).
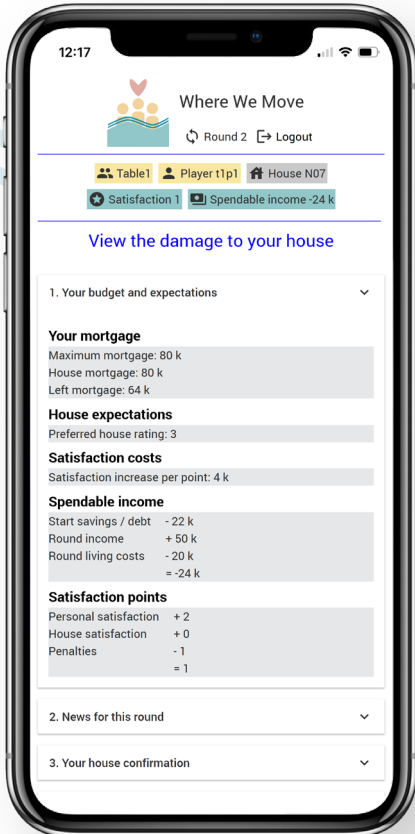
5. Game debriefing

Players and facilitators reflect per table on the game experience to envision scenarios that strengthen players' capacities to take action.

Game board & website

Every round, players use the board to indicate where they live and the game website to calculate their scores while:

Registering their housing choices.
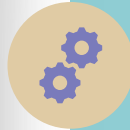Reading the news summary.

Paying the living costs.
Making the desired investments.
Paying flood damages, if any.

Complete a survey about their risk perception or game choices.
Getting a summary of their game round.

Game customisation

In the game website, we can:

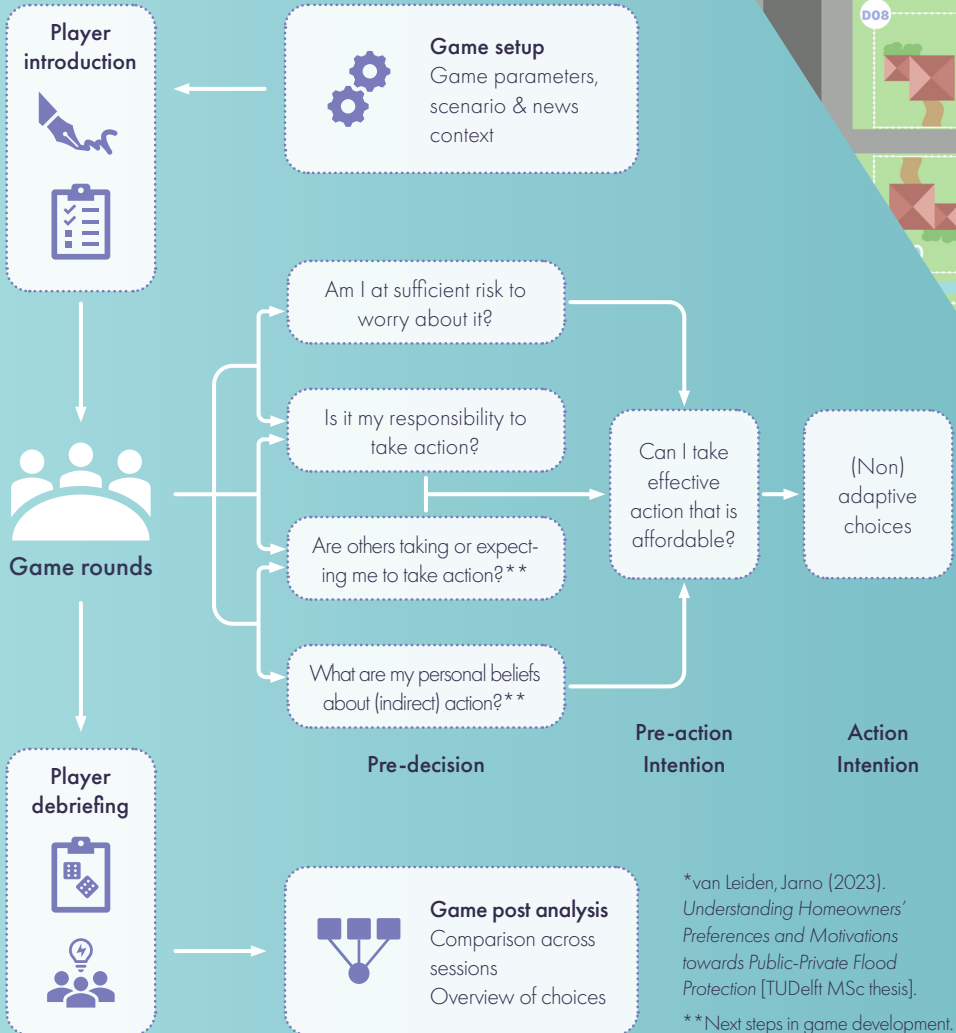Adjust the game parameters such as the player's role and available income.

Change the game situation every round via the news announcement effects.

Define game scenarios by, for example, playing with and without available information about the flood protection level of the private measures.

12:17

Where We Move
🔄 Round 2   ⎆ Logout

👥 Table1   👤 Player t1p1   🏠 House N07
⭐ Satisfaction 1   🎮 Spendable income -24 k

View the damage to your house

1. Your budget and expectations ⌄

Your mortgage
Maximum mortgage: 80 k
House mortgage: 80 k
Left mortgage: 64 k

House expectations
Preferred house rating: 3

Satisfaction costs
Satisfaction increase per point: 4 k

Spendable income

Start savings / debt	- 22 k
Round income	+ 50 k
Round living costs	- 20 k
	= -24 k

Satisfaction points

Personal satisfaction	+ 2
House satisfaction	+ 0
Penalties	- 1
	= 1

2. News for this round ⌄

3. Your house confirmation ⌄

Game design & research*

The game data collection and analysis can help flood risk management by answering the following question: *What are homeowner's attitudes and choices about public protection and house adaptation measures?* To this end, the game includes below aspects that influence what adaptive choices players may consider.

Game setup
Game parameters, scenario & news context

Player introduction

Game rounds

Am I at sufficient risk to worry about it?

Is it my responsibility to take action?

Are others taking or expecting me to take action?**

What are my personal beliefs about (indirect) action?**

Can I take effective action that is affordable?

(Non) adaptive choices

Pre-decision

Pre-action Intention

Action Intention

Player debriefing

Game post analysis
Comparison across sessions
Overview of choices

*van Leiden, Jarno (2023). *Understanding Homeowners' Preferences and Motivations towards Public-Private Flood Protection* [TUDelft MSc thesis].

**Next steps in game development.

Next steps in game development

1. Review the game parameters and scenarios for future game versions with representatives of public and private organisations.

2. Organise sessions across (professional) disciplines, residents and age groups to facilitate learning and compare across sessions.

3. Improve the game dynamics to facilitate collective and individual action while accounting for competing preferences for climate action.

Recommendations for policy makers

Preliminary recommendations include:

1. Inform residents about their flood risks and discuss possibilities for house adaptation.

2. Consider the personal and societal benefits of flood adaptation measures.

3. Tackle disparities between homeowners by exploring the effectiveness of policies such as subsidies and collaborative initiatives.

Want to play?

Email project lead Juliette Cortes *to discuss your interest and needs: v.j.cortesarevalo@tudelft.nl*