**Game instructions Breaking the Silos**

by

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Many thanks for showing interest in playing *Breaking the Silos*! This document provides some instructions on how to play the game. Some sections are also taken from the accompanying paper mentioned below. We recommend reading the game instructions hand-in-hand with the paper. The paper is freely available at: <https://gc.copernicus.org/articles/4/383/2021/gc-4-383-2021.html>.

de Ruiter, M. C., Couasnon​​​​​​​, A., and Ward, P. J.: Breaking the Silos: an online serious game for multi-risk disaster risk reduction (DRR) management, Geosci. Commun., 4, 383–397, https://doi.org/10.5194/gc-4-383-2021, 2021.

In case of questions or feedback, please contact us at: [m.c.de.ruiter@vu.nl](mailto:m.c.de.ruiter@vu.nl).

1. **Overall purpose of the game**

Breaking the Silos is a multiplayer role-playing game that aims to raise awareness and increase understanding of the complexities of multi-hazard risk management and the (a)synergies of disaster risk reduction (DRR) measures. The players are a team of different stakeholders who advise the president of a fictional country on the implementation of DRR measures after different disasters have hit the fictional country, with a limited budget, different and at times conflicting interests, and while having to consider potential (a)synergies of these DRR measures.

1. **Number of players and roles**

We recommend playing the game with 8 people to have a player for each of the roles. It is also possible to play the game with fewer players but we recommend a minimum of 6 players. This is because the information and available DRR measures differ for each role and information is spread between players (using the role cards). In the case of 6 players, the moderator can decide to remove certain roles or combine them. For example the president and minister of finance can be combined as well as the engineer and national flood agency coordinator.

The roles for the 8 players are:

* The president (required role)
* The minister of finance
* The international aid and emergency responder
* The agricultural representative
* The national housing and urban development agency chief
* The engineer
* The national flood agency coordinator
* The citizen representative

It is possible to play the game with one moderator but they will have to perform both the narrator tasks and the calculation tasks by filling in the Google Sheets. It can also be decided to have two moderators, one for the narration and one to fill in the DRR measures in the Google Sheets.

1. **Resources**

The game is played using a MIRO board. The moderator needs to access a Google sheet that will perform the calculations needed to assess the impact of the selected DRR measures from the players. The players should not have access to the Google Sheet.

The Google sheets can be viewed at the following link: <https://drive.google.com/drive/folders/11XoU2RAztLrTl7P4i8HVnLa2pU72sa3C?usp=sharing>

From there, users should import the documents into their own Google Drive folder to be able to use them. The files can also be directly downloaded from the Zenodo repository. In this case, we recommend importing the Excel spreadsheet into Google sheets as the formatting between the two might differ.

For the MIRO board, it can be freely viewed and opened with the password **breaking\_silos** at the following link**:** [**https://miro.com/app/board/uXjVOUpp4fE=/?invite\_link\_id=323169349328**](https://miro.com/app/board/uXjVOUpp4fE=/?invite_link_id=323169349328) However, the moderator needs to make a MIRO account to import the template and edit it (which will be necessary to play the game). Further instructions on how to operate both are provided in Section 7 and 8 of this document.

1. **Typical course of the game**

The game is played in as many rounds as you want. We recommend 2 rounds as the current game has been set up for 2 rounds but could be modified to 3 rounds with additional work. A round starts after a disaster has hit the country and ends with a new disaster hitting the country. A typical course of the game is as follows:

* All participants get acquainted on how to perform actions in the MIRO board. A test round of copy pasting an DRR icon on the board is tested by each player.
* The moderator gives 5 minutes for the participants to read their role cards.
* The game starts. The moderator (narrator) reads to the players the type of disaster that has hit the country and announces that they will have 20 minutes to suggest actions to the president.
* Once the time is up, the players have 10 minutes to come to a final decision. The president should make sure all decisions have been taken.
* The moderator gives a small break to the players and in the meantime uses the Google Sheet to calculate the impact of the DRR measure and whether all conditions have been met. The moderator then reports back to the players.
* Second round then starts with the moderator reading the next phase: a new disaster has hit the country. The moderator shares with the players the impact the selected actions have had on the country in combination with the second disasters (as obtained from the Google sheets) and whether they receive any additional funds (this depends on decisions made by the players during the first round).
* The players now have 15 minutes to take a new set of decisions.
* At the end of the 15 minutes, the moderator uses the Google Sheet to explain the impact of the DRR measure on the new disaster and whether all conditions have been met.
* The moderator can facilitate a debrief between players and reflection on the game play.

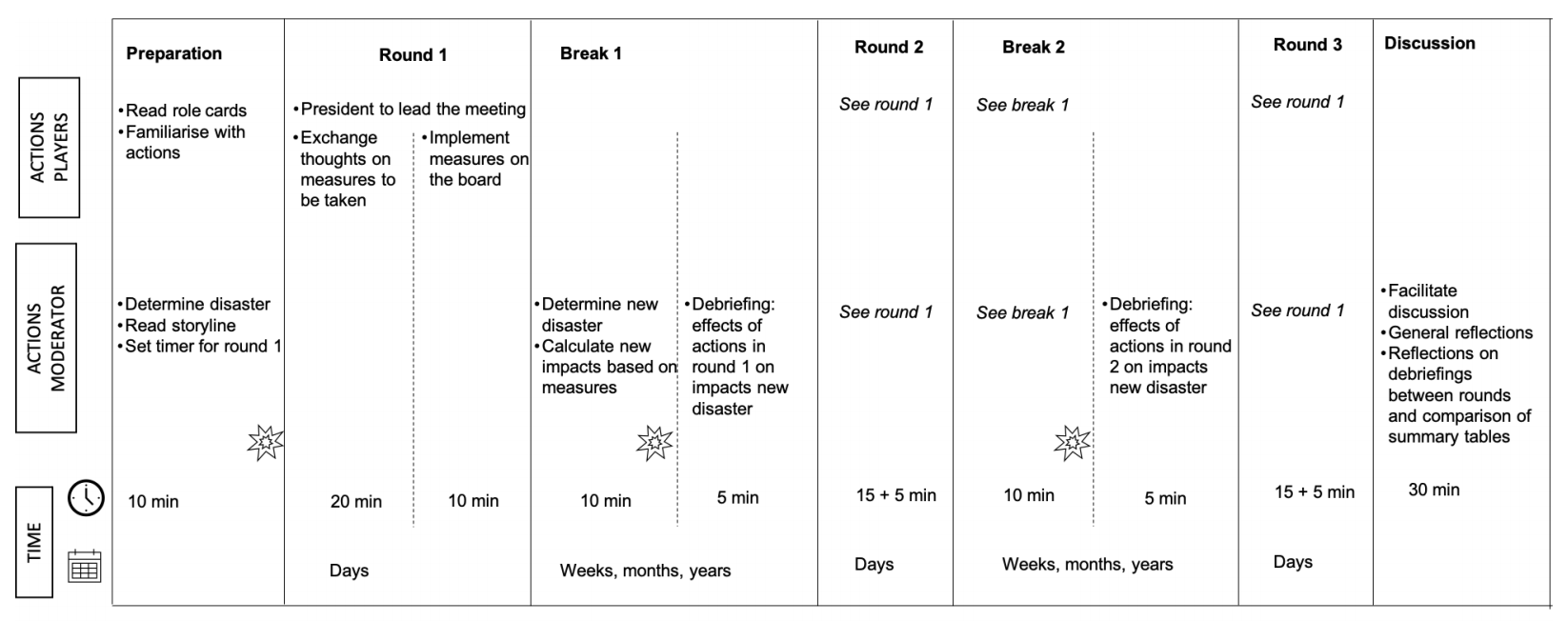


Figure 1: Overview of the different rounds of the game, the actions to be taken by the players (top row) and the moderator (middle row), and the actual playing time and temporal dimension (bottom row). from de Ruiter et al. (2021)

1. **Tips for the moderator**

As this game is a role playing game, we strongly recommend that the moderator stays as neutral as possible. At the beginning of the game, the moderator can emphasize the importance for the players to play their role as truthfully as possible and mention that the moderator will not be actively involved during the game. The in-game discussions between the players are led by the player playing the President. The moderator can help answer technical questions (for example, helping to use the MIRO board or the calculator tool) but should not share information from other cards.

To prepare the game, the moderator can already randomly sample the sequence of events that will happen during the game using the Google Sheets but this information should not be shared with the players! The moderator also decides the initial budget (automatically set to 30,000 coins in the Google Sheets).

1. **Rules during the game**

* The player should only read information on their role card (and not from other cards).
* Players should respect each other at all times during the game.

1. **The Google Sheets**

The Google Sheets should only be visible to the moderator. This document has the set of functions (conditional vulnerability curves) to assess the impacts of the DRR measures according to the different sequence of disasters and time in between events.

The Google Sheets have a set of visible tabs and hidden tabs. The moderator should only input values in the visible tabs and not modify the hidden tabs (unless they purposefully want to modify the game[[1]](#footnote-0)). The visible tabs are color-coded as follow for one round (X):

* “IMPACT\_EX” (Figure 2 and 3) provides an overview of the country and affected area along with a summary table on the right. The moderator uses the random generator to randomly sample an event, intensity, and a spatial footprint of the event (number of cells). After the first round (IMPACT\_E(X+1) tab ), summary tables of whether the requirements have been met and an overview of the implemented DRR measures are also visible on the top right.
* “DRR\_Meas\_SELECTEDX” (Figure 4) shows a set of maps for which the DRR measures can be entered. Specific instructions are given on the top right cell of each map (***Note***). Note that some DRR measures cannot be performed within the same location (cell). In that case a flag will appear on the top right of the respective maps, next to the ***Note***.
* “DRR\_Meas\_OVERVIEWX” (Figure 5) provides an overview of all the DRR measures that have been implemented on the tab “DRR\_Meas\_SELECTED”. It also calculates whether it stays within the budget. The moderator can change here the amount o the allocated budget (yellow cell).

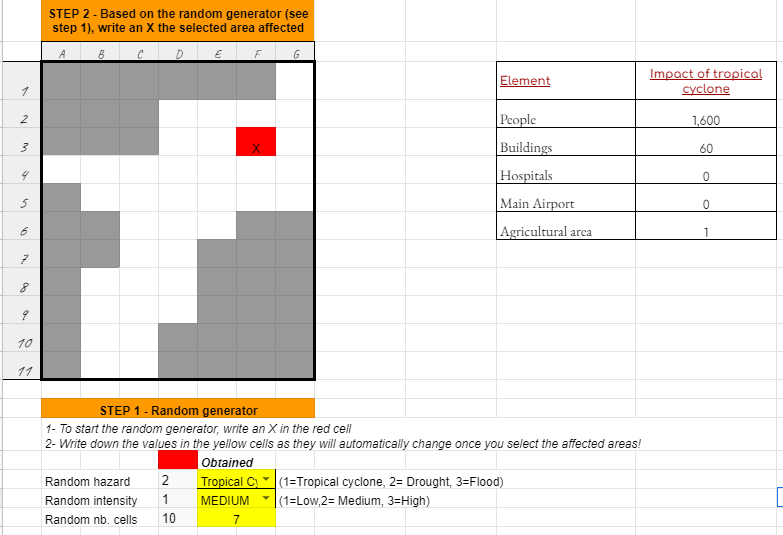


Figure 2: Tabs of the IMPACT\_E1 Google Sheet



Figure 3: Tabs of the IMPACT\_E2 in the Google Sheet

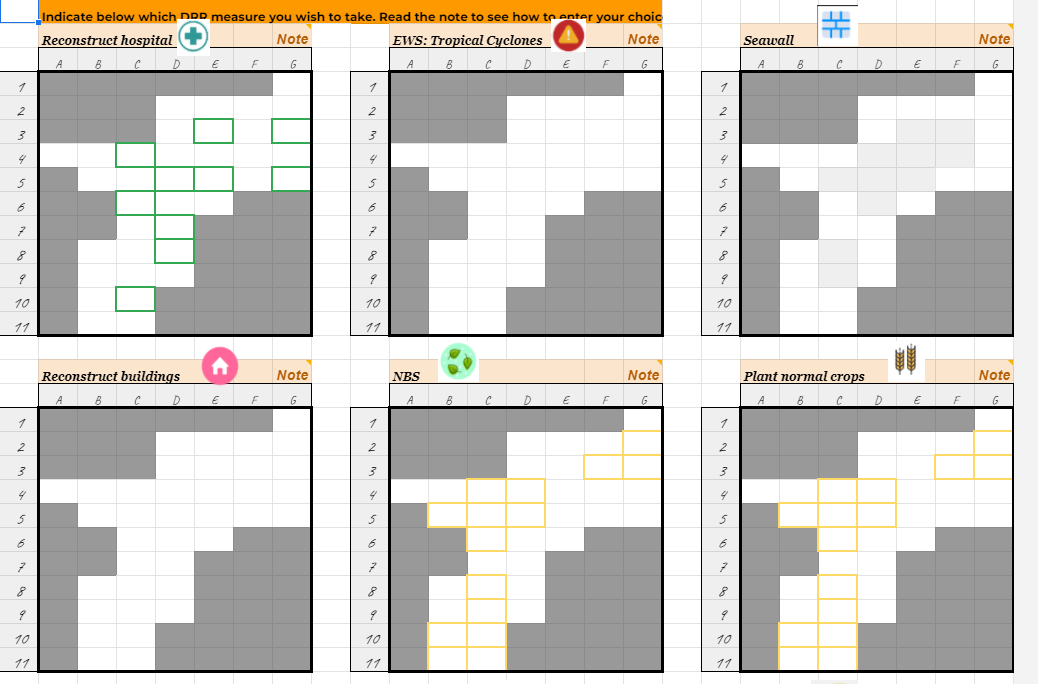


Figure 4: part of the DRR\_Meas\_SELECTEDX tab showing where to enter the specific DRR measures

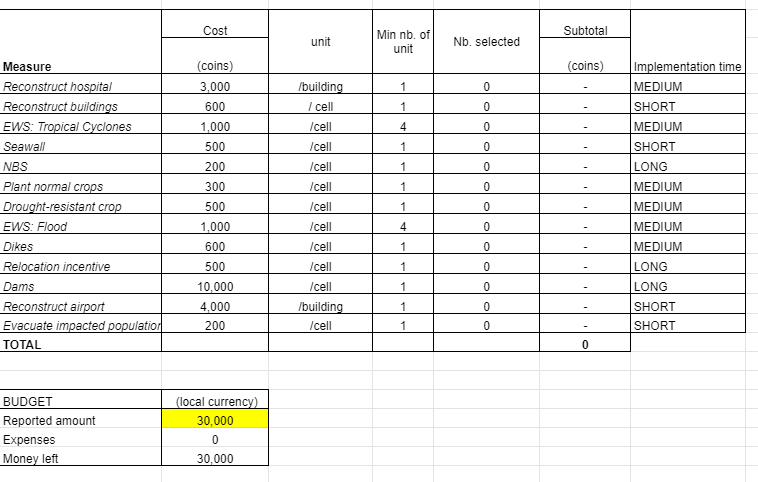


Figure 5: Overview of the DRR measures selected

1. **The MIRO board**

We highlight here important settings and functions to know for the moderator when using the MIRO board. A complete guide to how MIRO works can be found [here](https://help.miro.com/hc/en-us/categories/360001420434-Using-Miro).

To complete the MIRO board, you will need to embed the Minister of Finance Calculator tool to your MIRO board. This can be done as follows:

* Go to your *Team profile page* > *Apps & Integrations* and install *Google Drive*
* save the Calculator Google Sheet in your Google Drive.
* In your MIRO board where you want the sheet, from the left vertical toolbar: *upload* > *Google Drive*.
* This opened a window where you can search for and select the sheet of the Calculator Google Sheet.

The moderator can explain the general functionalities of MIRO to the players such as:

* How to navigate the MIRO board (e.g., panning, zooming in/out, etc.).
* Explain the different areas of the MIRO board: the board game and the players role card and information. The moderator also has access to a hidden frame: this is board *10 - Admin board*. It contains icons of crosses and of a construction crane to be used by the moderator during the break to indicate the new area impacted by a disaster and locations where the DRR measures are not implemented yet.
* How to move on the MIRO board (on the bottom right, they can also see their localisation with respect to the whole board. This can be done both with the mouse or using Frames (icon on the lower left screen).
* How to add a sticky note.
* How to copy and paste their DRR icons onto the board game. This is done using CTRL+C and CTRL+V. *Please note: in MIRO, using the mouse (right clicking) will not work to copy paste.*
* For the minister of Finance, how to open the Calculator as a Google Docs.

Before you start playing also make sure that:

* Everybody has the navigation mode set to Mouse. This is done under *Settings* > *Mouse or trackpad* > *Mouse*

Enjoy the game, and we love to hear your feedback and reflections!

1. We left functions editable so that one can decide to twist the game according to their own rationale. We recommend doing this for users that are very familiar with the game. [↑](#footnote-ref-0)