An aerial, top-down view of a coastal town and harbor. The water is a deep blue-green, with numerous wooden boats of various sizes scattered throughout. A river or canal winds through the town, which is densely packed with buildings and structures. The land is a mix of green vegetation and brown earth. The overall scene suggests a bustling, water-dependent community.

Uncertain Waters

The Philippines (English)

A game of collective cooperation and climate change

Designed by Aaron Opdyke, Zoe Latham, and Grace Barrett-Lennard

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Cover Image: Generative AI artwork created by Microsoft Copilot.

About the Game

This cooperative tabletop game immerses players in the complexities of managing flood risk under climate change. Players collaborate to implement adaptation strategies to protect community assets from flood impacts. Through dynamic gameplay and real-world decision-making scenarios, players must plan for evolving uncertainty and carefully allocate their resources to build a flood-resilient community. The game is suitable for 4-7 players and for ages 10+. The game is suitable for a range of applications and audiences, from use as a teaching tool for students to facilitating conversations between governments and communities.

Game Version: The Philippines (English)

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Acknowledgements

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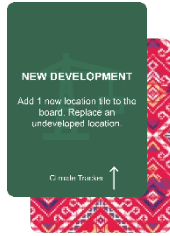
We would like to thank the Municipality of Carigara, especially Jeff Encio, Marina Irlandes, Jessalyn Cumbis-Hidalgo, Ryan Hidalgo, Daryl Daniel Bodo, and Alejo Urmeneta for their support in coordinating testing the game materials and the University of the Philippines Resilience Institute for sharing gaming resources. We would also like to thank Isaac Besarra, Emily Nabong, Sheryn See, Arvin Hadlos for their feedback during playtesting and Esmee Blankestijn, Fleurkje de Volder, Jelle de Vries, Ilse Derix, Lieke Ouwinga for graphic design assistance.

Print and Assembly Instructions

Print all cards and location tiles as double-sided on A4 paper and then cut along the dashed lines shown. The backs of each card type and location tiles are shown below for reference. The game board comes tiled as six (6) pieces which are sized to print as single-sided on A4 paper. Fold excess white edges of the game board pieces (if desired) and tape the (6) game board pieces together. The game board can also be printed as a single piece using a large format printer with the alternative supplied version.



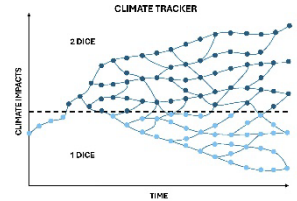
Currency Cards



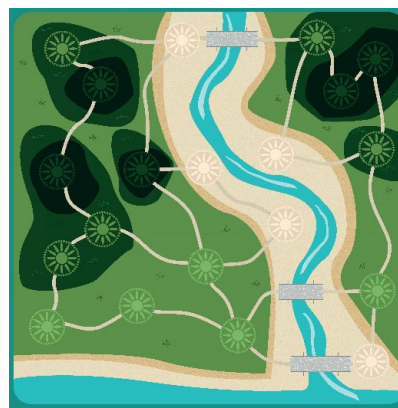
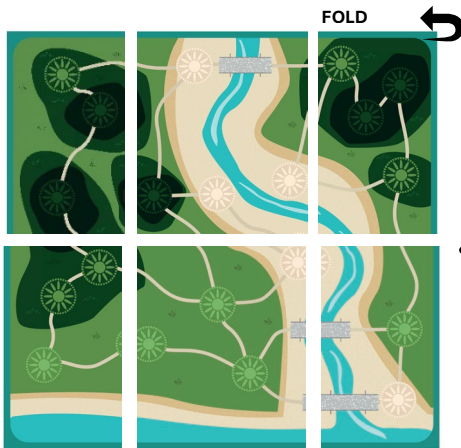
Action and Flood Cards



Location Tiles



Climate Tracker



Game Board

MAYOR		Skills	Level
1	Leadership	1	1
2	Communication	1	1
3	Management	1	1
4	Strategic Planning	1	1
5	Public Relations	1	1
6	Community Engagement	1	1
7	Resource Allocation	1	1
8	Policy Implementation	1	1
9	Stakeholder Collaboration	1	1
10	Decision Making	1	1

Player Menus



Sustainable Development Tracker

Additional Required Game Materials (Not Included)

In addition to printing the materials in this package you will need to obtain the following additional game pieces:



Tracker Tokens (2)



Dice (2)



x140



x20

Resilience Tokens



Character Pawns (7)

- **Tracker Tokens** – You will need to identify (2) pieces which can be used to track sustainable development and climate change. You can use anything for these which fits onto the trackers.
- **Resilience Tokens** – We recommend using small beads or similar items. The important thing is you can fit up to 7 of them onto a location tile and that you have two colors. The quantity of these suggested above (140 and 20) are provided as an upper limit, but you should be okay with about 120 of the first color and 15 of the second color.
- **Dice** – We have provided standard rules using normal six-sided dice. If you have other dice (with an irregular number of sides), you can still use these if you assign values which correspond to 0, 1, and 2 (for flood impacts).
- **Character Pawns** – You will need to obtain between four (4) to seven (7) unique character pawns (one for each player). These can be any items which are different and can be assigned to the different player roles. You can also use items that are identical, but different colors.

Game Setup

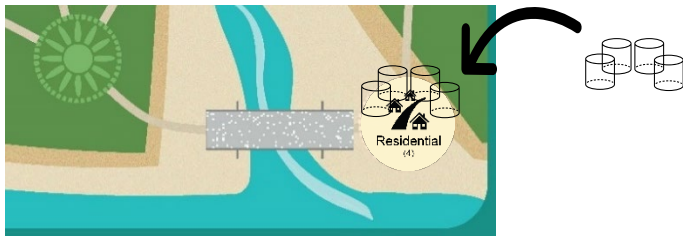
1. Select the number of location and undeveloped tiles based on the number of players as follows:

Players	Locations	Undeveloped locations
4	15	5
5 or 6	16	4
7	17	3

2. Ensure that you have at least one of all location types and then shuffle the location tiles and randomly place them on the board in the location positions.



3. Each location tile has a number which indicates its starting level of resilience. Place the corresponding number of resilience tokens on each location.



4. Place the *sustainable development tracker* and *climate tracker* next to the game board and position the tracker tokens in their starting positions.
5. Shuffle the *currency cards* and place them next to the game board.
6. Shuffle each shade of the flood cards separately and pick (1) dark, (1) moderate, and (1) light. Then, shuffle the three selected flood cards together and set aside. The difficulty of the game can be modified by selecting additional or darker shade flood cards.
7. Shuffle the *action cards* and place the designated number (listed below) in a pile.
8. Split the action cards into three equal piles and shuffle one flood card into each. Stack the three separate piles together (don't shuffle again once combined). The action card draw pile is now ready.

Players	Action cards	Flood cards
4	9	3
5	12	3
6	15	3
7	18	3

9. Each player picks a character role (e.g. Mayor), places their character piece on the starting position, and collects their specified starting currency, and announces their player privilege to the rest of the players. The starting position, starting currency, and player privileges are shown on each player's menu. You must have a Mayor, but players are free to select characters of their choosing.

Procedure of Play

There are three rounds of play. The Mayor goes first and then play moves in a clockwise direction. During a player's turn, the following steps occur in a fixed order:

1. *Draw an action card.* If you draw a flood card, you must assess the damage before proceeding with other actions in your turn (e.g. moving or implementing adaptation strategies).
2. *Progress the climate tracker* by moving the token up or down according to the arrow on the action card drawn in the previous step. If the climate tracker is not at a junction, progress the token to the next position.
3. *Move your character* up to 4 places (or 6 for the Young Person) on the game board. You can decide to move fewer spaces or not move at all, but you must utilize your moves before implementing any adaptation strategies. You can only move to locations connected by roads. You cannot move across destroyed locations. If your character is on a location that was destroyed in the first step or a previous player's turn, you may move off the location.
4. *Implement an adaptation strategy* if you have sufficient currency. Costs for adaptation strategies are shown on player menus and differ according to character roles. Discard any spent currency. You may skip this step if you do not have enough currency, or you do not wish to purchase an adaptation strategy. *You may only implement one adaptation strategy per turn on the location where your character is currently located.*
5. You may optionally give currency to one or more other players. There is no limit to how much currency you may share.
6. *Collect 2 currency cards* from the draw pile to finish your turn.

Game Play

Building Resilience

- Players purchase adaptation strategies to build resilience of locations to protect against flooding.
- When a location has obtained *8 resilience tokens (RTs)*, it has become resilient. *Once this occurs, exchange* the resilience tokens for a single token of the second color. The location now cannot be impacted by future flood events.
- If a location loses all resilience tokens, the location is destroyed and must be flipped over. Destroyed locations cannot be recovered during the game. Players cannot travel through destroyed locations.

Sustainable Development Tracker




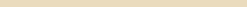
- The *sustainable development tracker* gives you feedback on how you are progressing and determines the game outcomes.
- When a location is destroyed, move the sustainable development tracker token backwards two spaces.
- When a location becomes resilient (8 resilience tokens), move the sustainable development tracker forward one space.
- The game continues to the conclusion of three rounds regardless of if you reach the upper or lower limits of the sustainable development tracker.

Flood Cards and Zones

- When a flood card is drawn, you must assess damage. Flood damage is determined based on a dice roll as follows:

Dice number	Flood damage
1 or 2	0
3 or 4	1
5 or 6	2

- The table below shows which color zones correspond to the flood zones (1, 2, 3, and 4):

Zone	Zone color
1	
2	
3	
4	

- Remove the number of resilience tokens from all locations in the effected zone(s). If flood damage is 0, there are no impacts.
- Refer to the climate tracker to determine if one or two dice must be rolled. If two dice are rolled, you must add the two flood damage values together. For example, if a 1 and a 5 are rolled, the flood severity will be $0 + 2 = 2$. Two resilience tokens would be removed from all locations in the effected zone(s).
- If a location loses all its resilience tokens, it is destroyed and should be flipped over. Adjust the sustainable development tracker accordingly.
- Be careful! Some zones are more prone to flooding than others, for example Zone 3 is by the ocean and is prone to storm surge! Zone 4 surrounds the river where flooding might be more likely!

Alternative Game Versions

Local Context

Start the game by placing location tiles in approximate locations where they exist in your own community. You may leave out any locations which are not present in your community and make decisions regarding how many duplicates to add (where there is more than one of the same location tiles). If a location is not used and indicated as a character starting position, you may select an alternative start position of your choosing.

Disregard the starting number of resilience tokens shown on each location tile. In this version of the game, players will think about their own community and assign the starting number of resilience tokens to each location. The total number of resilience tokens available to be placed is shown below. Each location must start with at least one resilience token. You may choose to start a location as resilient (8 resilience tokens).

Players	Locations	Resilience tokens
4 or 5	15	56
6	16	60
7	17	64

Epilogue

Compare your ending position on the sustainable development tracker to learn how your community fared!

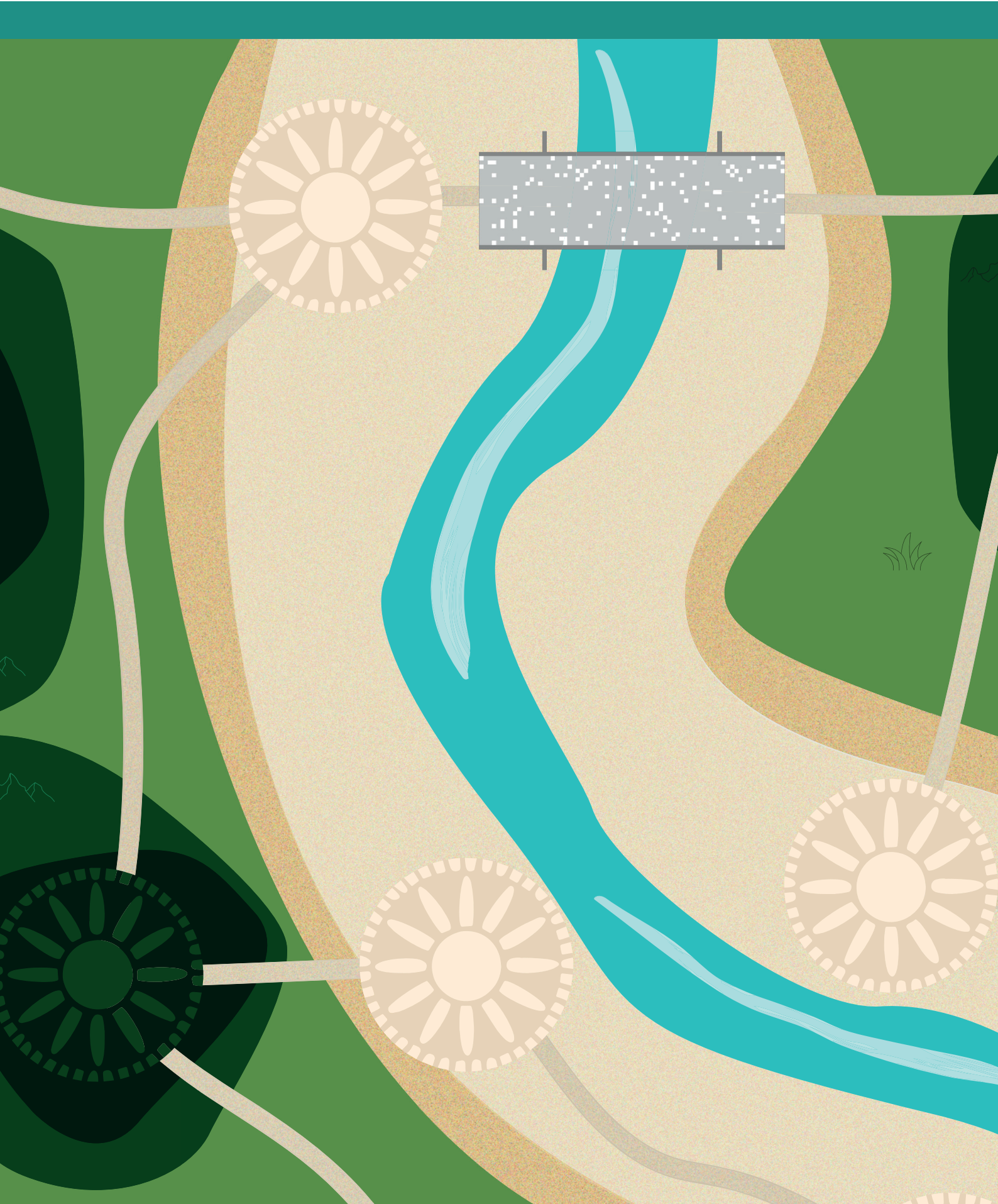
Position	Outcome
Dark Green	Congratulations! Your community has achieved resilience against flooding. After suffering years of disasters, you've shown an ability to bounce back and prepare! Your residents thank you for your commitment to helping them create a thriving community!
Green	Your community can deal with flood events well, minimizing loss and impacts to its residents. The community is proud of the actions taken by decision makers in their attempts to minimize flood impacts. Despite the success, there is still work to do!
Yellow	Your community is coping with the impacts of the floods in recent years. Some locations and resources have been saved and are on the way to achieving resilience, but this hasn't been without setbacks. Challenges are still to come in your community's fight against flooding and climate change.
Red	Your community has experienced significant losses from floods. Your community has lost faith in the abilities of its decision makers. However, people are willing to learn from their mistakes and move forward to create a better future.
Dark Red	Your community has suffered devastating flood losses. Families have been separated and are in chaos. It will take a long time and great effort to rebuild. People are frustrated with the decision makers in your community and scared for the future, but eager to begin picking up the pieces to rebuild.

Game Pieces

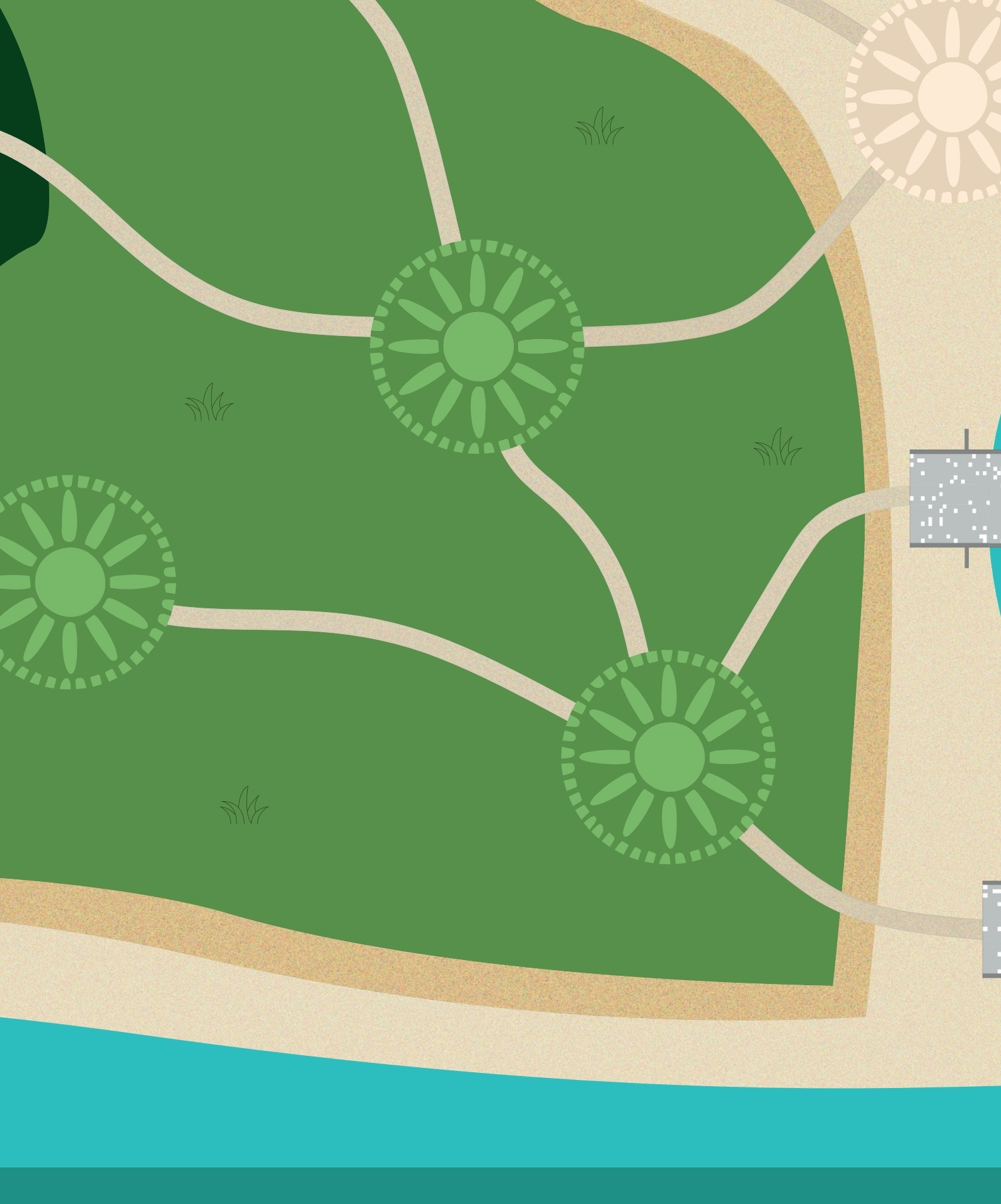
- Game board (1)
- Player menus (7) – Mayor (1), Planner Officer (1), DRR Officer (1), Barangay Captain (1), Farmer (1), Teacher (1), Young Person (1)
- Location tiles (23) – LGU Office (1), Planning Office (1), Evacuation Centre (1), Medical Centre (1), Residential (3), School (2), Barangay Hall (2), Farm (2), Basketball Court (1), Place of Workshop (1), DRR Office (1), Market (1), Poblacion (1), Undeveloped (5)
- Sustainable development tracker (1)
- Climate tracker (1)
- Action cards (18)
- Flood cards (9)
- Currency cards (90) – Peso (45) and Power (45)
- Tracker tokens (2)
- Dice (2)
- Resilience tokens (160) – color one (140) and color two (20)
- Character pawns (7)

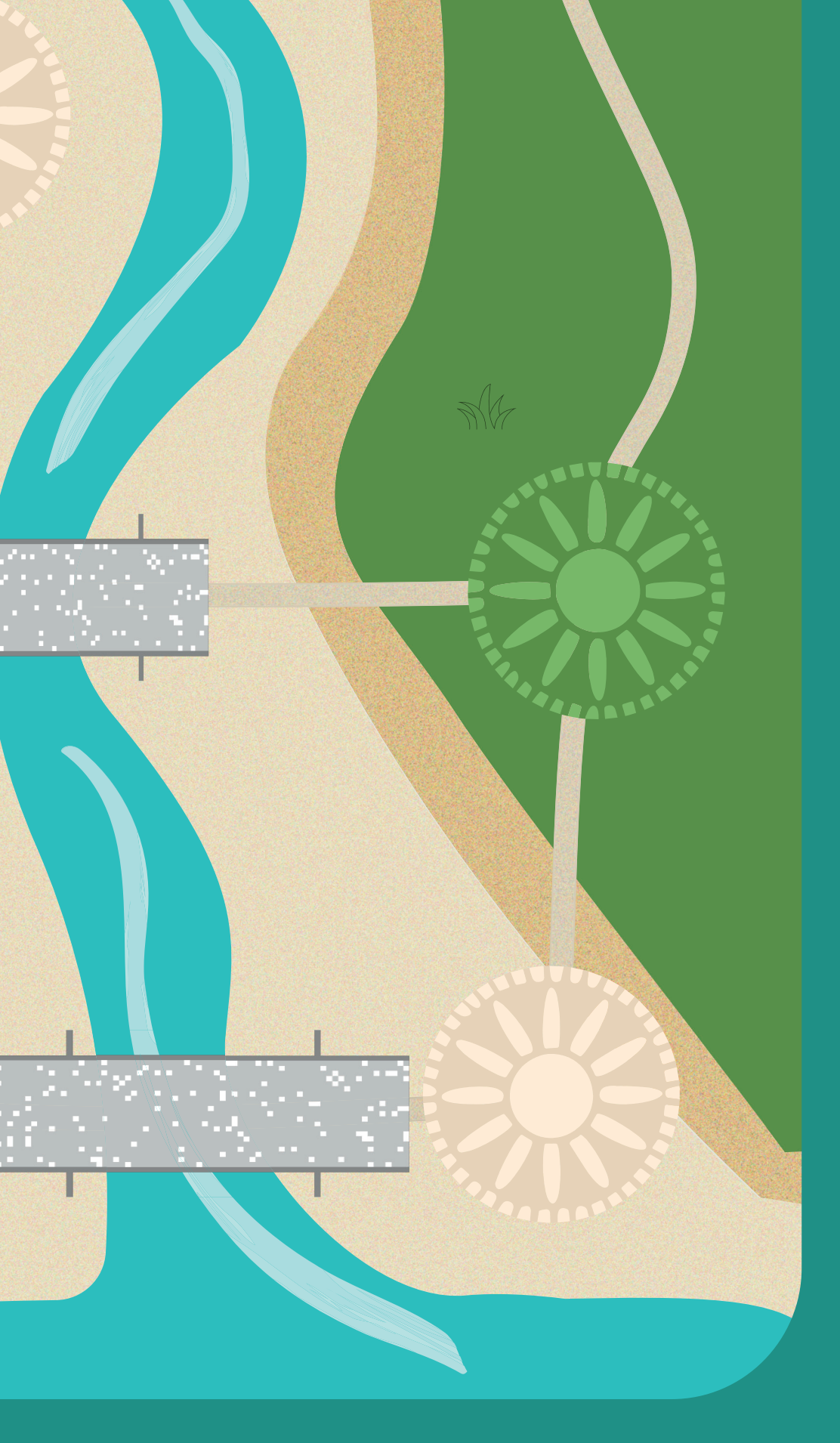












MAYOR

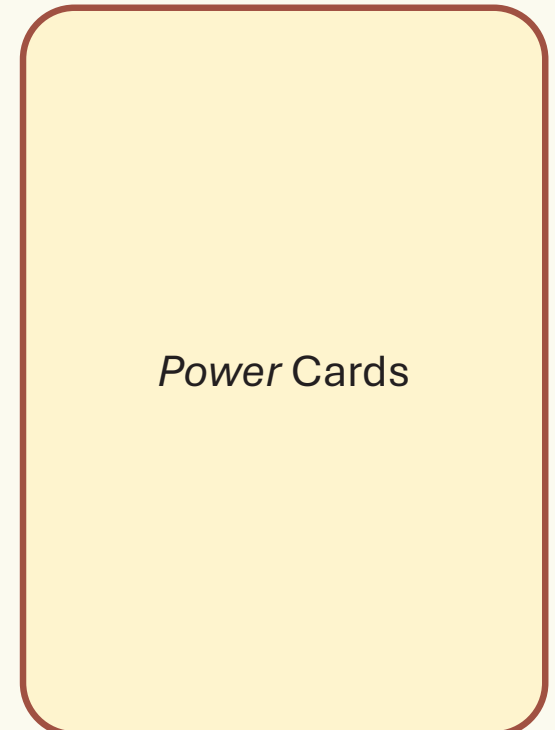
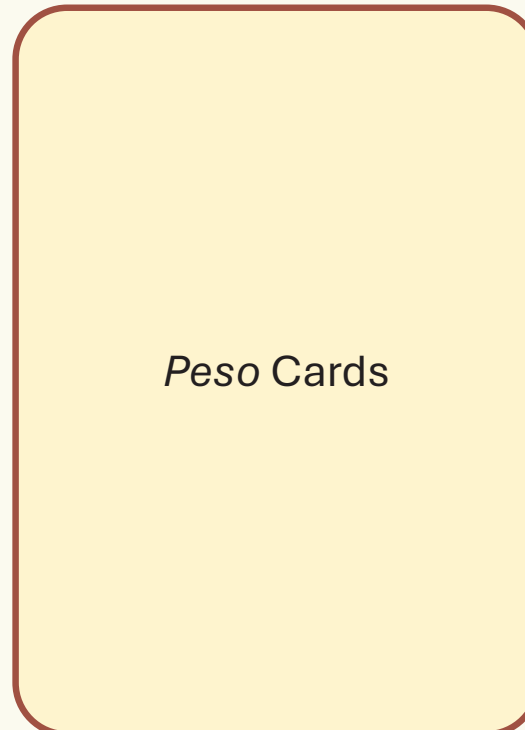
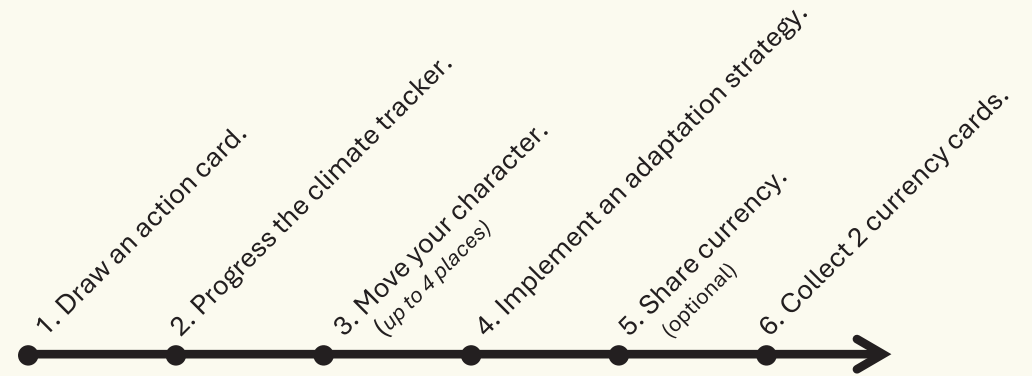


+RT	Adaptation Strategies	Cost	
1	Volunteering Help make your community a safer place and build social capital	₱	0
			0
2	Insurance Protect against future losses by purchasing an insurance policy	₱	2
			1
3	Drainage Upgrade drainage systems to reduce localized flooding and protect assets	₱	1
			3
4	Drinking Water Protection Protect water sources against contamination and upgrade distribution lines	₱	3
			2
4	Living Shoreline Plant mangroves for flood protection along waterways and coastlines (can only be implemented for locations in zones 3 or 4)	₱	3
			3
5	Local Disaster Policy Enact stronger local governance to provide a streamlined way to mobilize resources	₱	3
			4
6	Seawall Protect your shoreline with a concrete barrier to minimize storm surge and floods (can only be implemented for locations in zone 3)	₱	4
			4

Starting Location: LGU Office

Starting Currency: ₱ (4) (4)

Player Privilege: The Mayor has the power to move any player to any location once per game during their turn.



PLANNING OFFICER

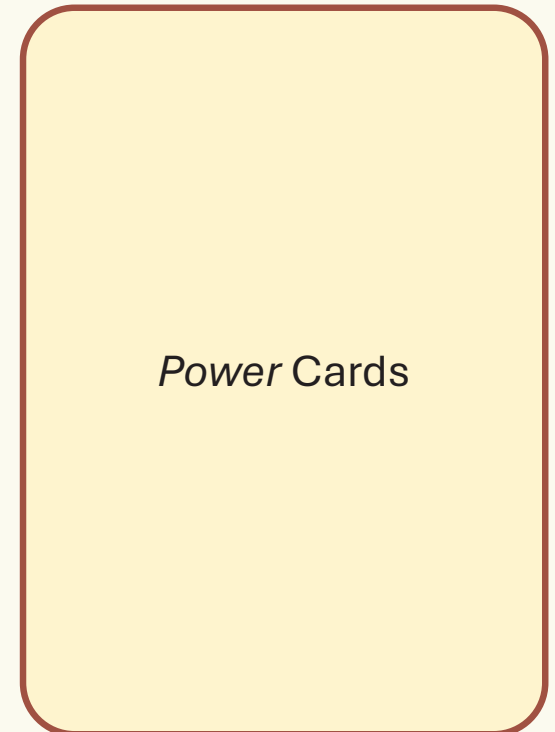
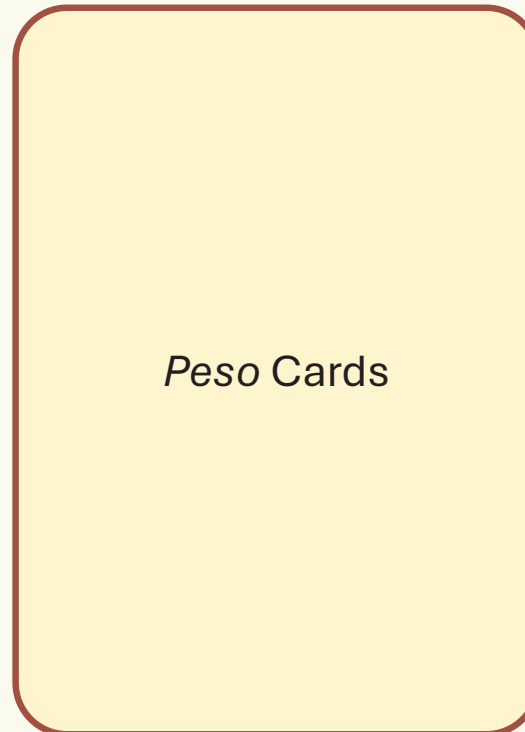
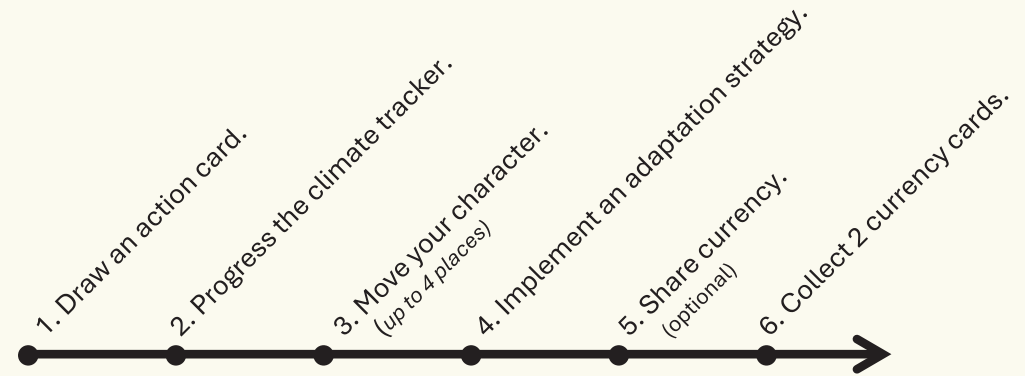


+RT	Adaptation Strategies	Cost	
1	Volunteering Help make your community a safer place and build social capital	₱	0
			0
2	Green Corridor Priorities Invest in gardens, parks, and other green spaces to act as buffers and reduce vulnerabilities	₱	2
			1
3	Drainage Upgrade drainage systems to reduce localized flooding and protect assets	₱	1
			3
4	Structural Strengthening of Buildings Adopt stronger building codes to safeguard buildings against stronger floods and typhoons	₱	3
			2
4	Living Shoreline Plant mangroves for flood protection along waterways and coastlines (can only be implemented for locations in zones 3 or 4)	₱	3
			3
5	Land Use Plan Develop a comprehensive land use plan which for better protection from hazards	₱	3
			4
6	Seawall Protect your shoreline with a concrete barrier to minimize storm surge and floods (can only be implemented for locations in zone 3)	₱	4
			4

Starting Location: Planning Office

Starting Currency: ₱ (3) (3)

Player Privilege: The Planning Officer can swap any location on the board with an *undeveloped* location once per game during their turn.



DRR OFFICER

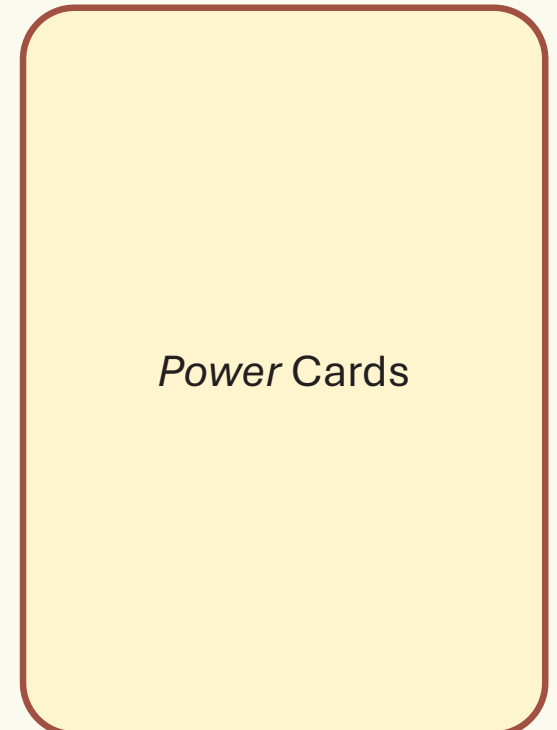
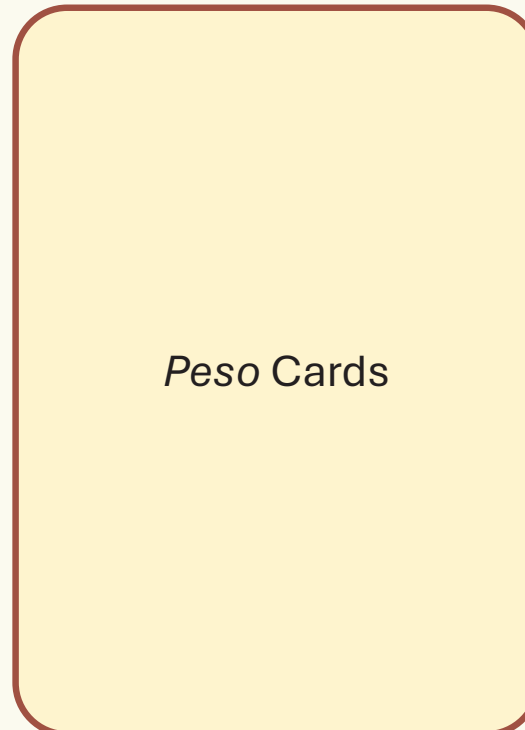
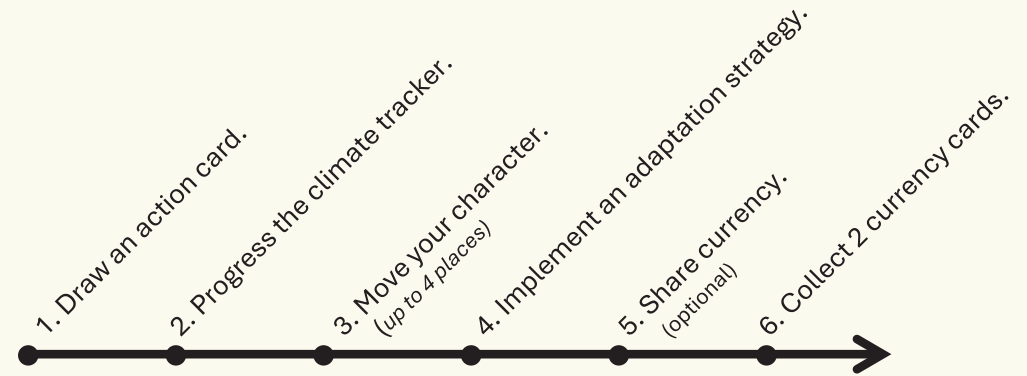


+RT	Adaptation Strategies	Cost	
1	Volunteering Help make your community a safer place and build social capital	₱	0
			0
2	Mosquito Management Minimize the opportunity for mosquito breeding and protect your community's health	₱	2
			1
3	Drainage Upgrade drainage systems to reduce localized flooding and protect assets	₱	1
			3
4	Evacuation Training Create contingency plans to institutionalize practices to move people out of harm's way	₱	3
			2
4	Living Shoreline Plant mangroves for flood protection along waterways and coastlines (can only be implemented for locations in zones 3 or 4)	₱	3
			3
5	Early Warning System Create an early warning system that gives people time to prepare flood and typhoon impacts	₱	3
			4
6	Seawall Protect your shoreline with a concrete barrier to minimize storm surge and floods (can only be implemented for locations in zone 3)	₱	4
			4

Starting Location: DRR Office

Starting Currency: ₱ (3) (3)

Player Privilege: The location where the DRR Officer is *currently placed* is not impacted by a flood event.



BARANGAY CAPTAIN

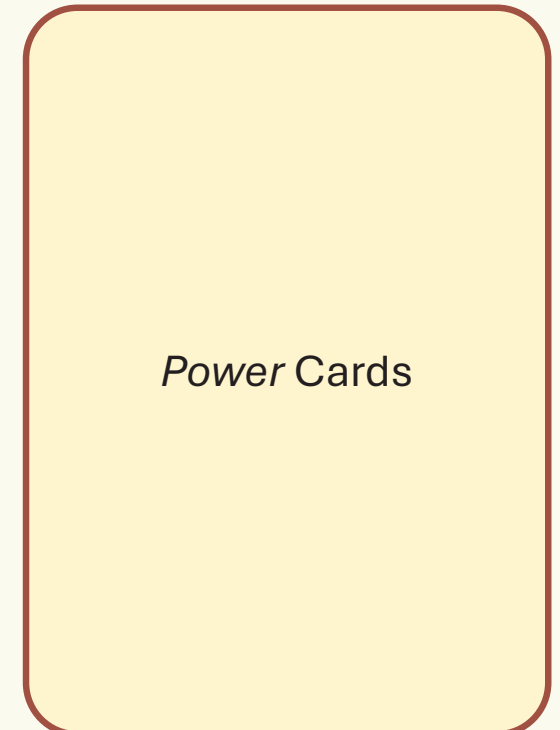
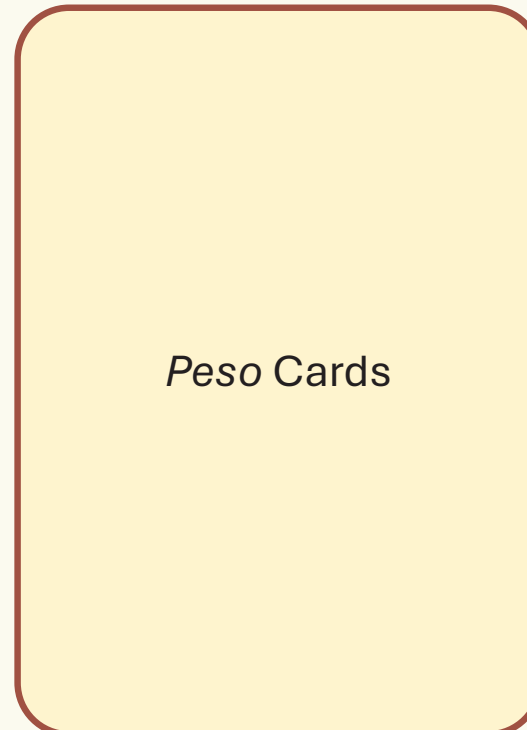
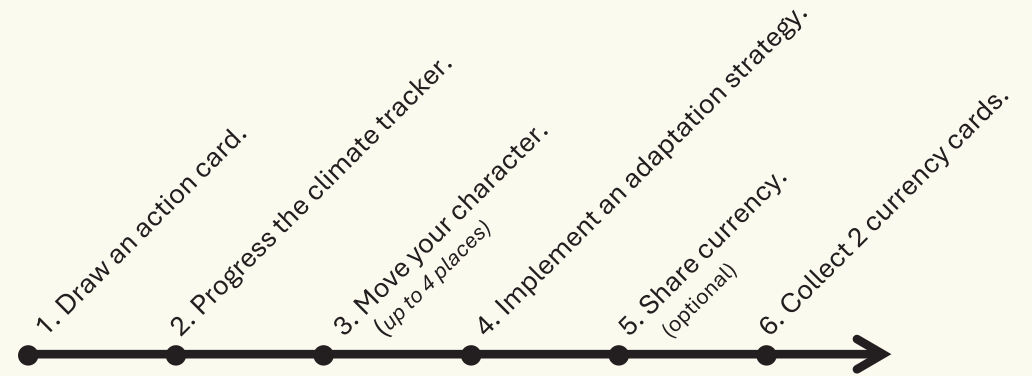


+RT	Adaptation Strategies	Cost	
1	Volunteering Help make your community a safer place and build social capital	₱	0
			0
2	Insurance Protect against future losses by purchasing an insurance policy	₱	2
			1
3	Drainage Upgrade drainage systems to reduce localized flooding and protect assets	₱	1
			3
4	Structural Strengthening of Buildings Adopt stronger building codes to safeguard buildings against stronger floods and typhoons	₱	3
			2
4	Permeable Pavement Use pavements that allow water to infiltrate and recharge groundwater supplies	₱	3
			3
5	Local Climate Adaptation Plan Create a barangay adaptation plan to cope with expected future impacts of climate change	₱	3
			4
6	Seawall Protect your shoreline with a concrete barrier to minimize storm surge and floods (can only be implemented for locations in zone 3)	₱	4
			4

Starting Location: Any Barangay Hall

Starting Currency: ₱ (2) (3)

Player Privilege: The Barangay Captain has reduced cost (-2 power) when implementing an adaptation at a Basketball Court or Barangay Hall.



FARMER

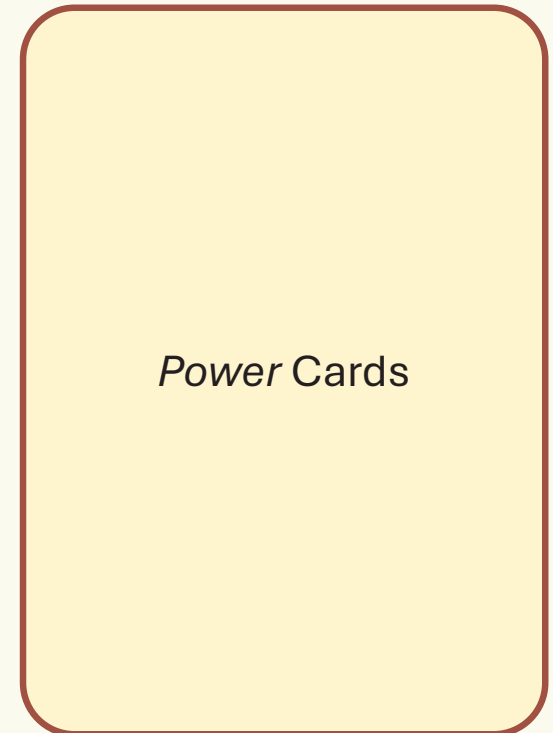
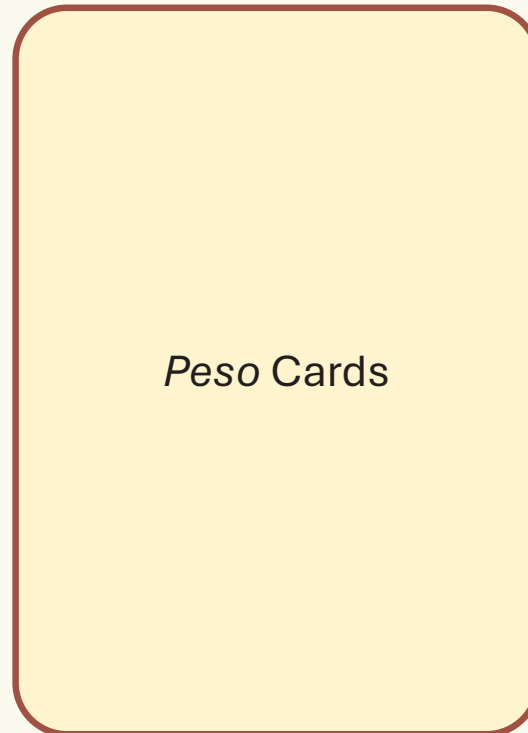
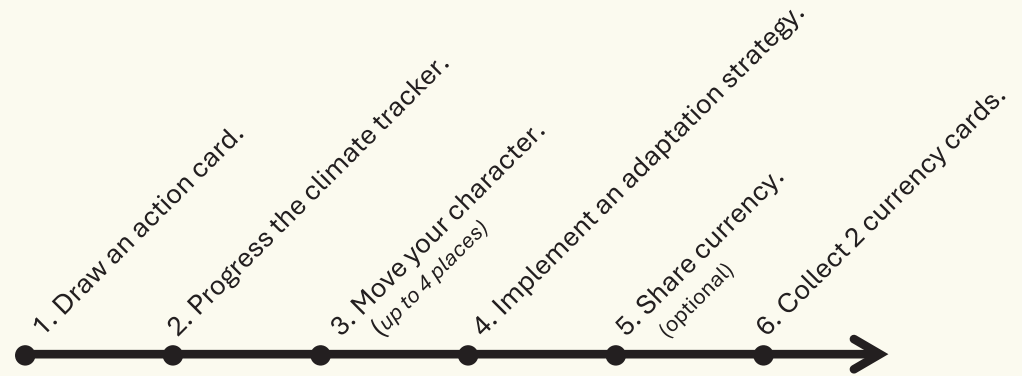


+RT	Adaptation Strategies	Cost	
1	Volunteering Help make your community a safer place and build social capital	₱	0
			0
2	Insurance Protect against future losses by purchasing an insurance policy	₱	2
			1
3	Diversify Crops Choose different varieties to plant which improves food security	₱	1
			3
4	Plant Hybrid Rice Use new rice varieties which can better cope with flooding	₱	3
			2
4	Floating Agriculture Plant crops onto floating rafts to avoid crops being inundated during floods	₱	3
			3
5	Bioswales Build long strips of vegetation to collect run-off and stormwater	₱	3
			4
6	Dam Organize with your community to build a dam along a flood-prone waterway (can only be implemented for locations in zone 4)	₱	4
			4

Starting Location: Any Farm

Starting Currency: ₱ (2) (2)

Player Privilege: The Farmer can make apply protection measures (+2 RT) to any Farm location once per game *during their turn* at no cost.



TEACHER

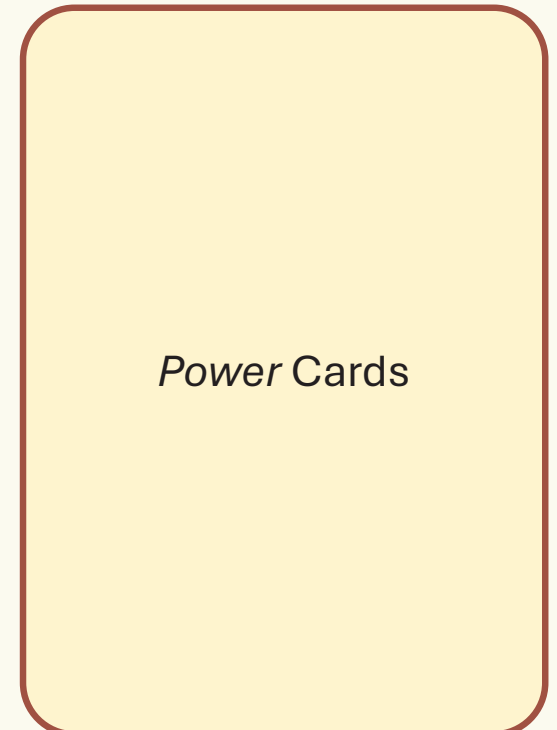
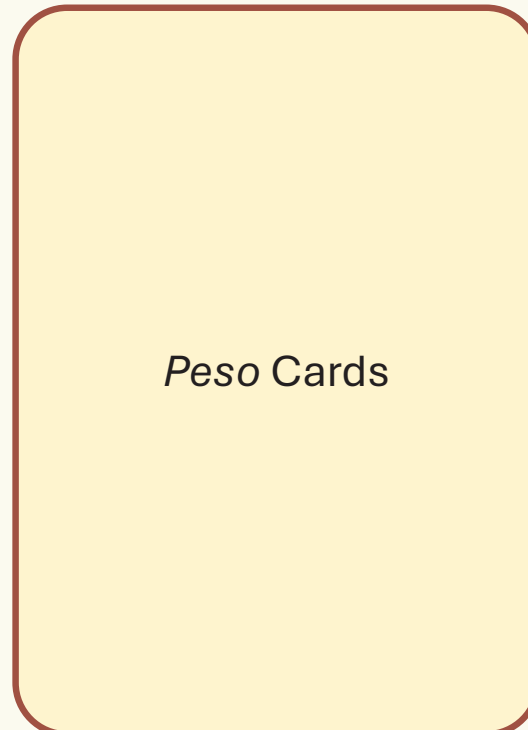
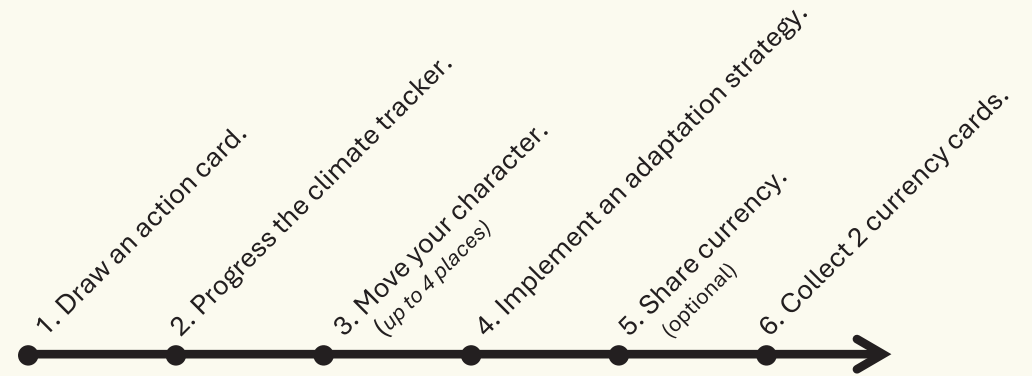


+RT	Adaptation Strategies	Cost	
1	Volunteering Help make your community a safer place and build social capital	₱	0
			0
2	Insurance Protect against future losses by purchasing an insurance policy	₱	2
			1
3	School Adaptation Plan Create a strategy to establish actions to guide students and families	₱	1
			3
4	Evacuation Training Create contingency plans to institutionalize practices to move people out of harm's way	₱	3
			2
4	Community Climate Training Conduct workshops to educate the public on how to take climate action	₱	3
			3
5	Early Warning System Create an early warning system that gives people time to prepare flood and typhoon impacts	₱	3
			4
6	School Climate Curriculum Create modules to teach climate change in school	₱	4
			4

Starting Location: Any School

Starting Currency: ₱ (2) (2)

Player Privilege: The Planning Officer can swap any location tile on the board with an undeveloped location once per game *during their turn*.



YOUNG PERSON

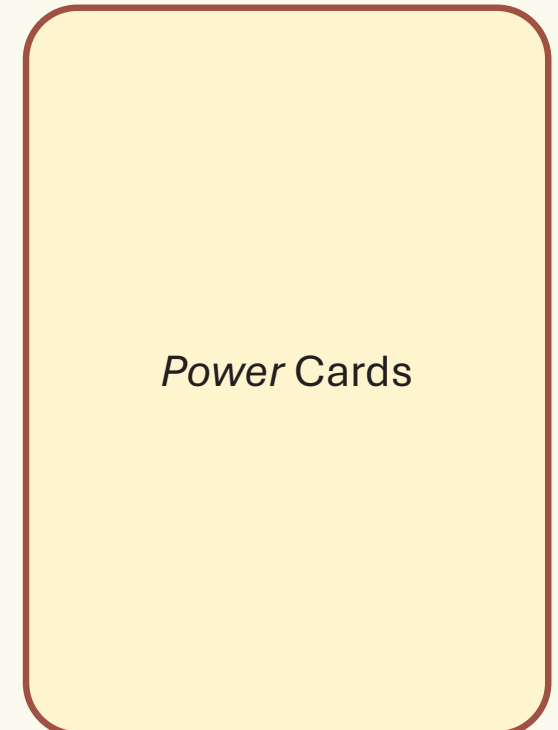
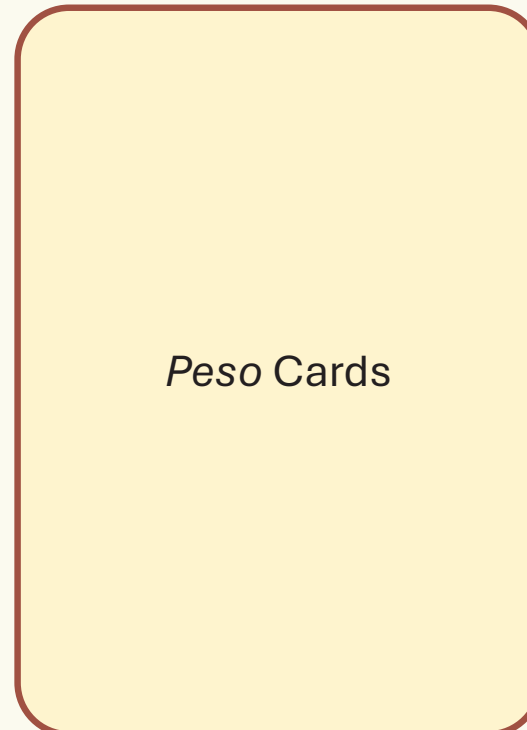
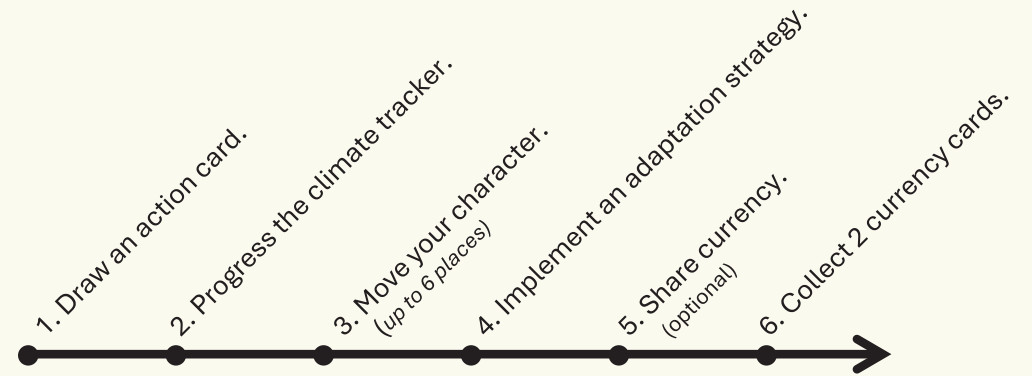


+RT	Adaptation Strategies	Cost	
1	Volunteering Help make your community a safer place and build social capital	₱	0
			0
2	Mosquito Management Minimize the opportunity for mosquito breeding and protect your community's health	₱	2
			1
3	Water Safety Education Organize a training to teach swimming skills and how to be safe around water	₱	1
			3
4	Evacuation Training Create contingency plans to institutionalize practices to move people out of harm's way	₱	3
			2
4	Community Climate Training Conduct workshops to educate the public on how to take climate action	₱	3
			3
5	Flood Hazard Mapping Organize a hazard mapping activity for your community or school	₱	3
			4
6	Youth Climate Association Establish a local young person organization to push forward with climate adaptation actions	₱	4
			4

Starting Location: Basketball Court

Starting Currency: ₱ (1) (1)

Player Privilege: The Young Person can move 6 (instead of the normal 4) spaces during their turn.



Location tiles (front)



LGU Office
(5)



Planning Office
(4)



Evacuation Center
(6)



Medical Center
(5)



Residential
(2)



Residential
(3)



Residential
(4)



School
(4)



Barangay Hall
(2)



Farm
(2)



School
(5)



Barangay Hall
(3)



Farm
(2)



Basketball Court
(3)



DRR Office
(6)



Place of Worship
(4)



Market
(3)

Undeveloped



Poblacion
(4)

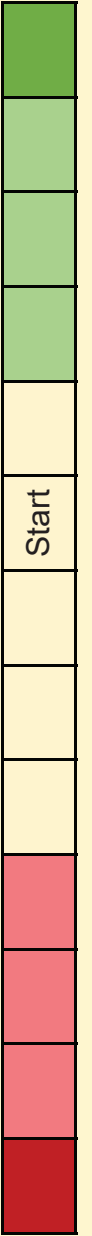
Undeveloped

Undeveloped

Undeveloped

Undeveloped

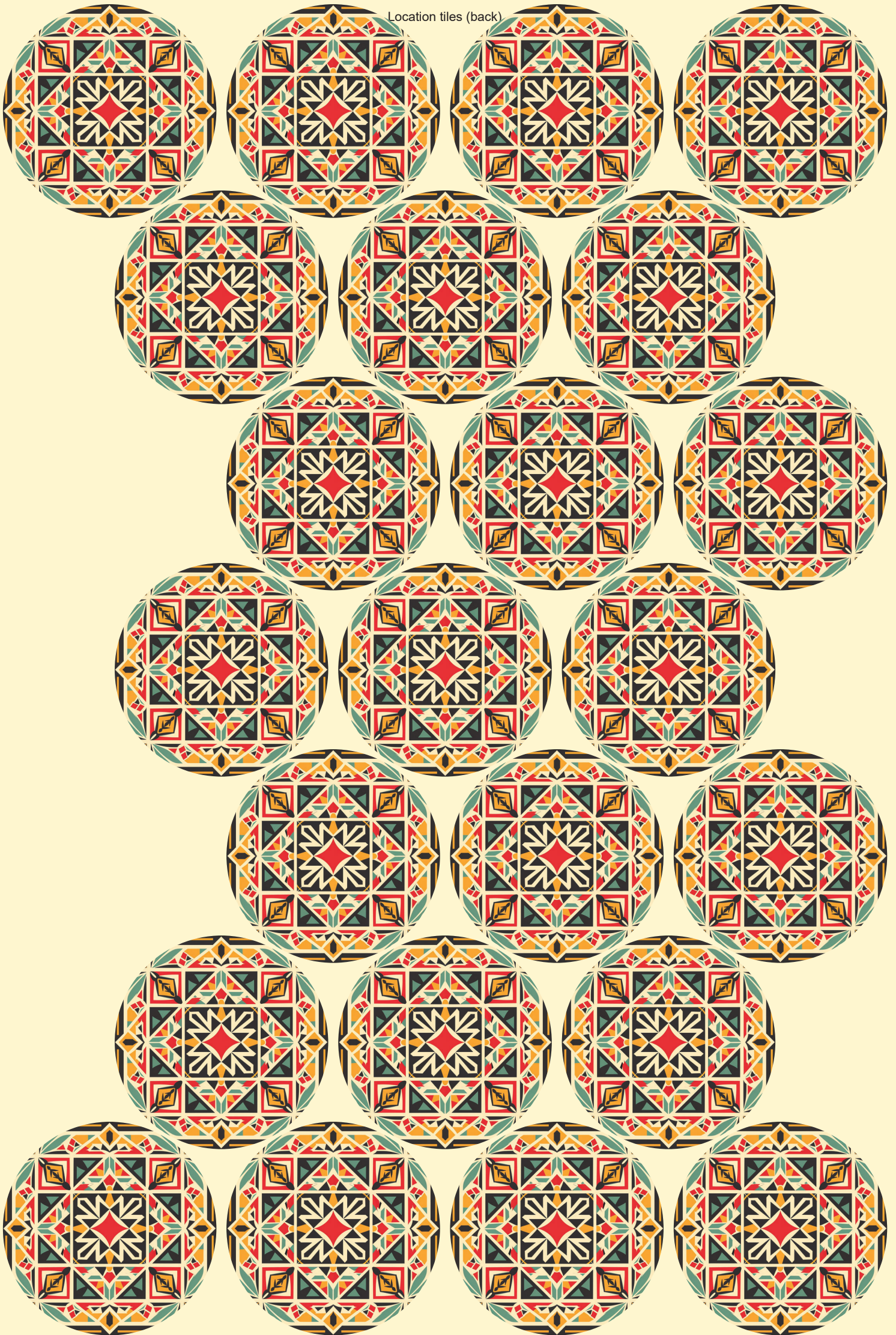
Sustainable Development Tracker



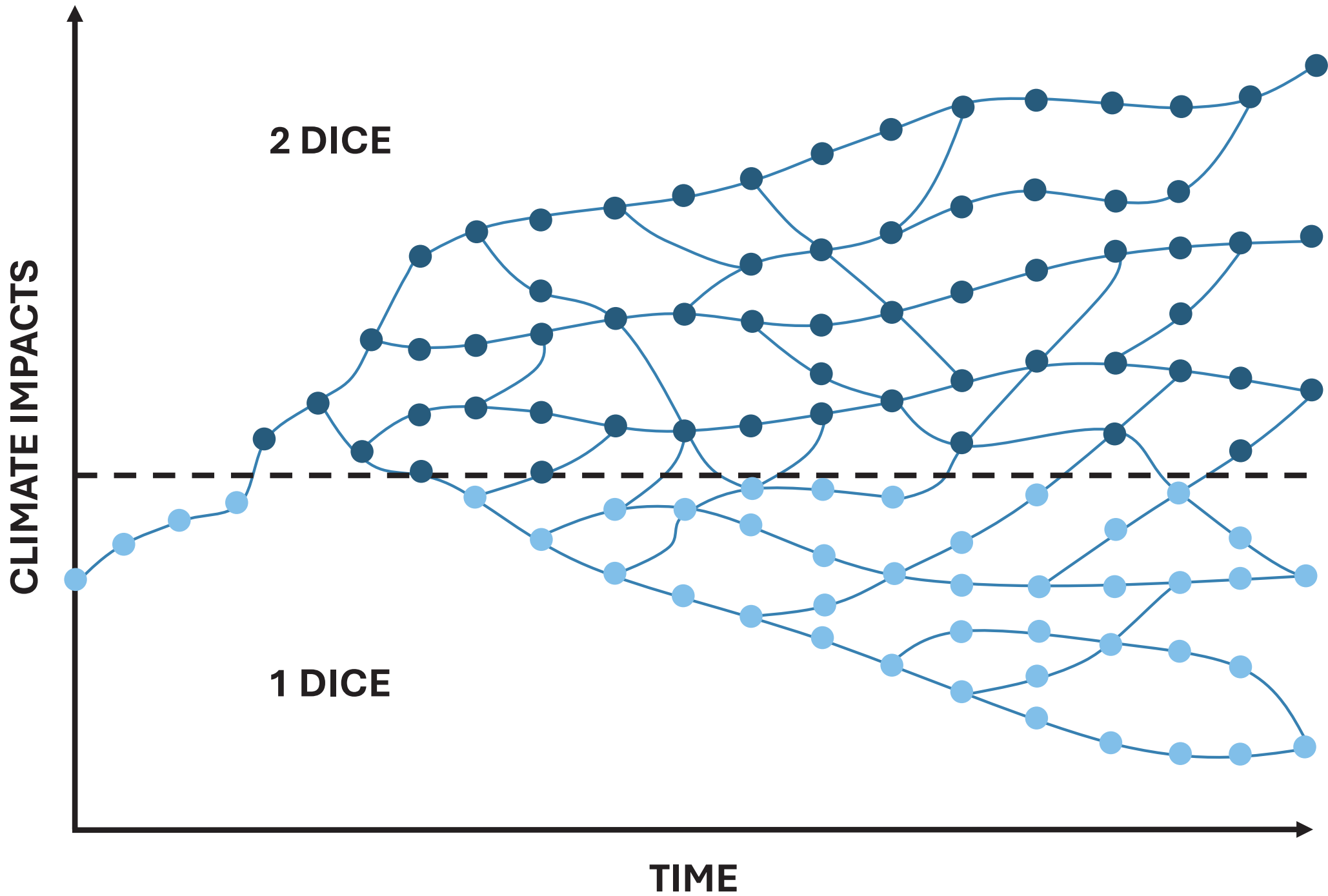
Start

Cut along dashed lines

Location tiles (back)



CLIMATE TRACKER



NEW DEVELOPMENT

Add 1 new location tile to the board. Replace an undeveloped location.

Climate Tracker

**TAX**

All players must pay 1 peso to the Tax Office. Tax payments go to the discard pile.

Climate Tracker

**GOVERNMENT GRANT**

You receive extra funding! Add 2 resilience tokens to a location of your choosing.

Climate Tracker

**KARAOKE NIGHT**

Choose 2 other players, and along with yourself, move to a barangay hall.

Climate Tracker

**WEATHER FORECAST**

Look ahead to the next 3 cards in the action card deck. Rearrange in your preferred order and return to the draw pile.

Climate Tracker

**PAY DAY**

Collect 1 currency card.

Climate Tracker

**MAYOR'S ELECTION**

The Mayor draws 6 currency cards and distributes amongst players how they choose.

Climate Tracker

**FIESTA**

All characters immediately move to the Poblacion and collect 1 currency card.

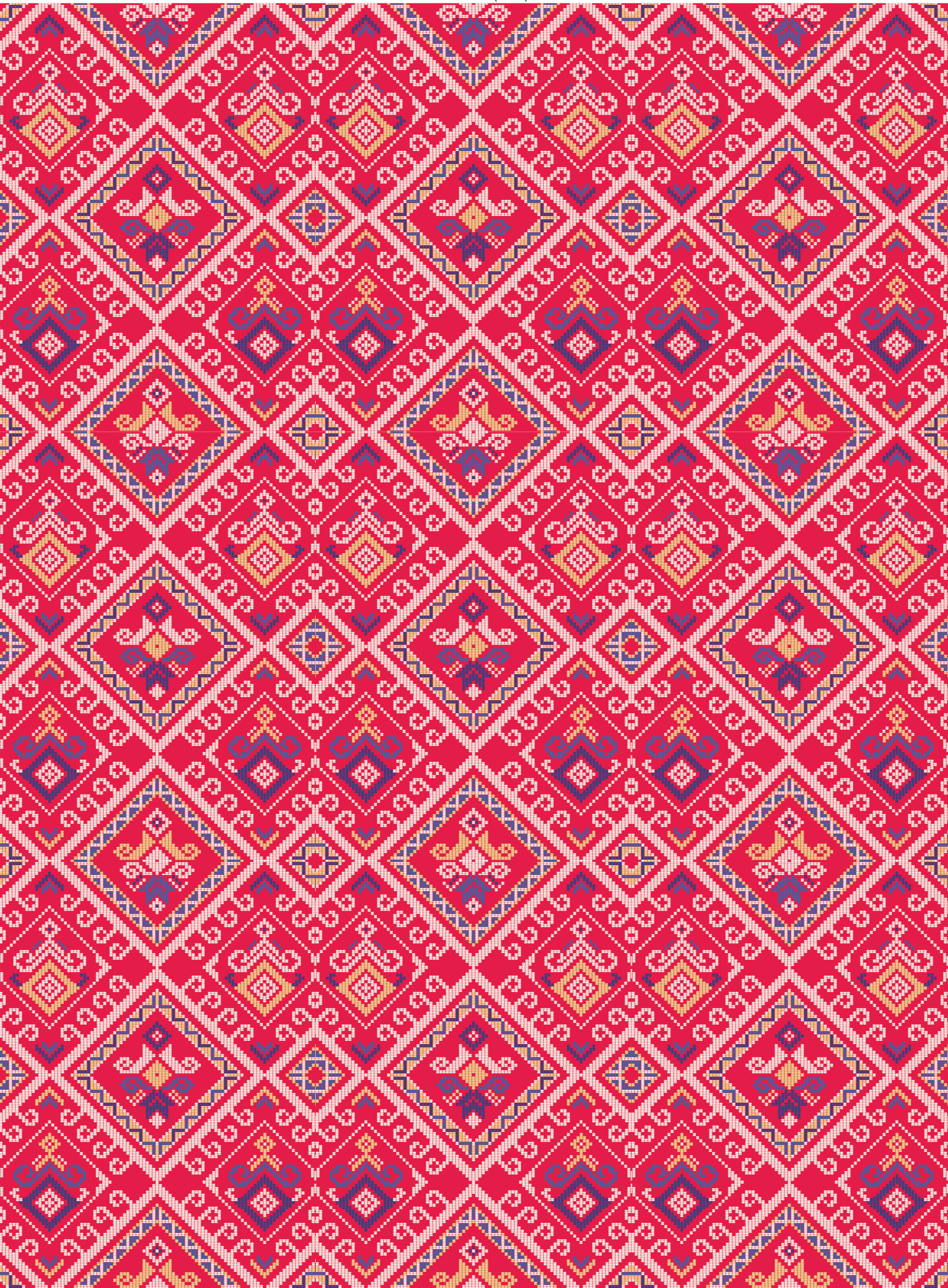
Climate Tracker

**DOUBLE IMPACT**

Any adaptation strategies you implement this turn will have double the impact - put down twice the number of purchased resilience tokens.

Climate Tracker





NEW DEVELOPMENT

Add 1 new location tile to the board. Replace an undeveloped location.

Climate Tracker



TAX

All players must pay 1 peso to the Tax Office. Tax payments go to the discard pile.

Climate Tracker



GOVERNMENT GRANT

You receive extra funding! Add 2 resilience tokens to a location of your choosing.

Climate Tracker



KARAOKE NIGHT

Choose 2 other players, and along with yourself, move to a barangay hall.

Climate Tracker



ROAD FLOODED

You cannot move locations on this turn while repairs are taking place to roads.

Climate Tracker



PAY DAY

Collect 1 currency card.

Climate Tracker



MAYOR'S ELECTION

The Mayor draws 6 currency cards and distributes amongst players how they choose.

Climate Tracker



FIESTA

All characters immediately move to the Poblacion and collect 1 currency card.

Climate Tracker

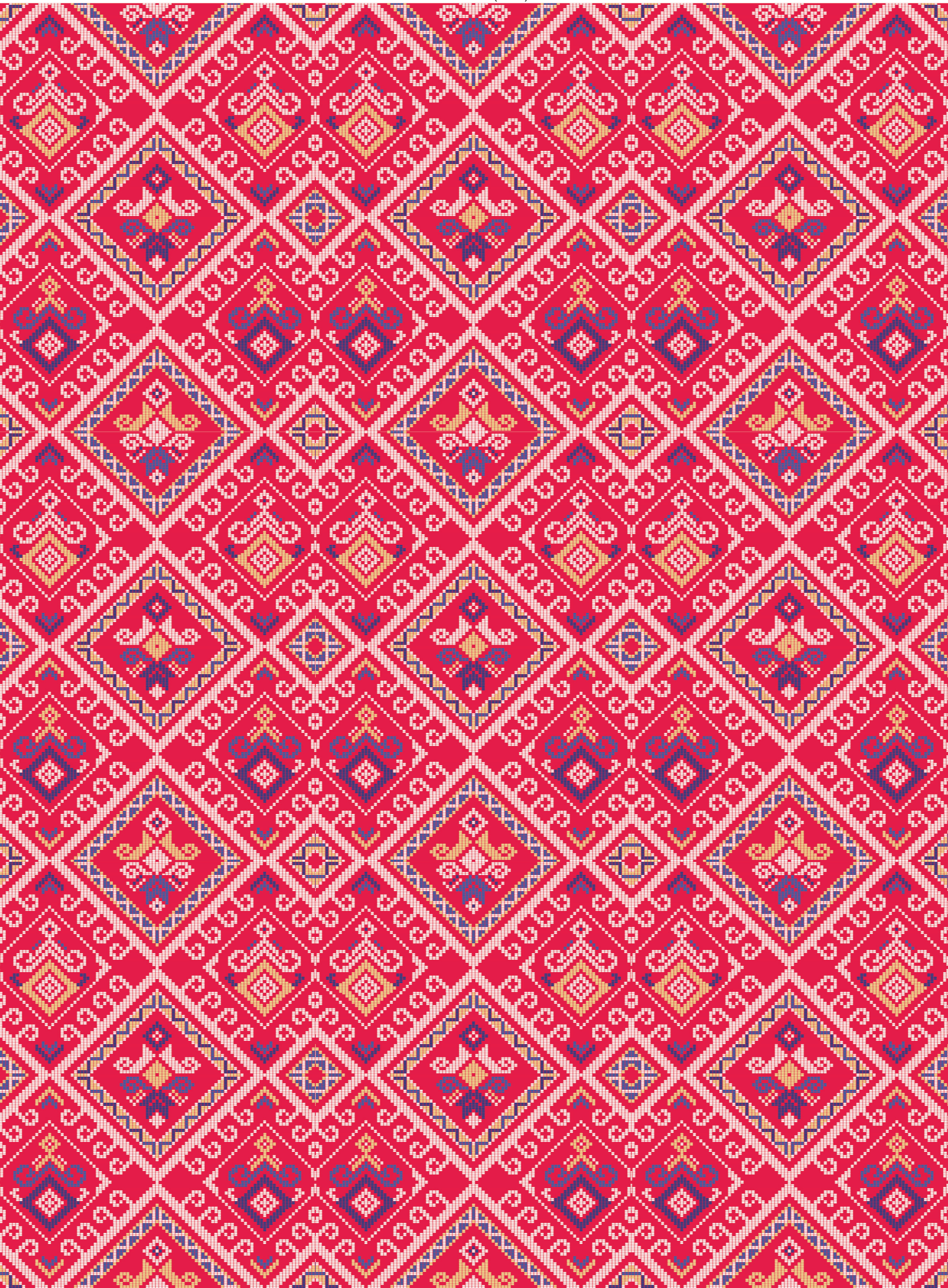


DOUBLE IMPACT

Any adaptation strategies you implement this turn will have double the impact - put down twice the number of purchased resilience tokens.

Climate Tracker





FLOOD

All Zones

Climate Tracker



FLOOD

Zone 2 & 3

Climate Tracker



FLOOD

Zone 3

Climate Tracker



FLOOD

Zones 3 & 4

Climate Tracker



FLOOD

Zone 1 & 3

Climate Tracker



FLOOD

Zone 2

Climate Tracker



FLOOD

Zones 1 & 4

Climate Tracker



FLOOD

Zones 1 & 2

Climate Tracker



FLOOD

Zone 1

Climate Tracker



