Pattern Deck

(Re)introducing co-existence

Unfolding the urban-water-soil metabolism on the coast of Paramaribo

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METROPOLITAN ECOLOGIES OF PLACES SERIES

"...towns and buildings will not be able to become alive, unless they are made by all the people in society..."

– Christopher W. Alexander, A Pattern Language: Towns, Buildings, Construction

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Title page image: Manifesto of the problem, made by the author

Urbanism

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Content

1

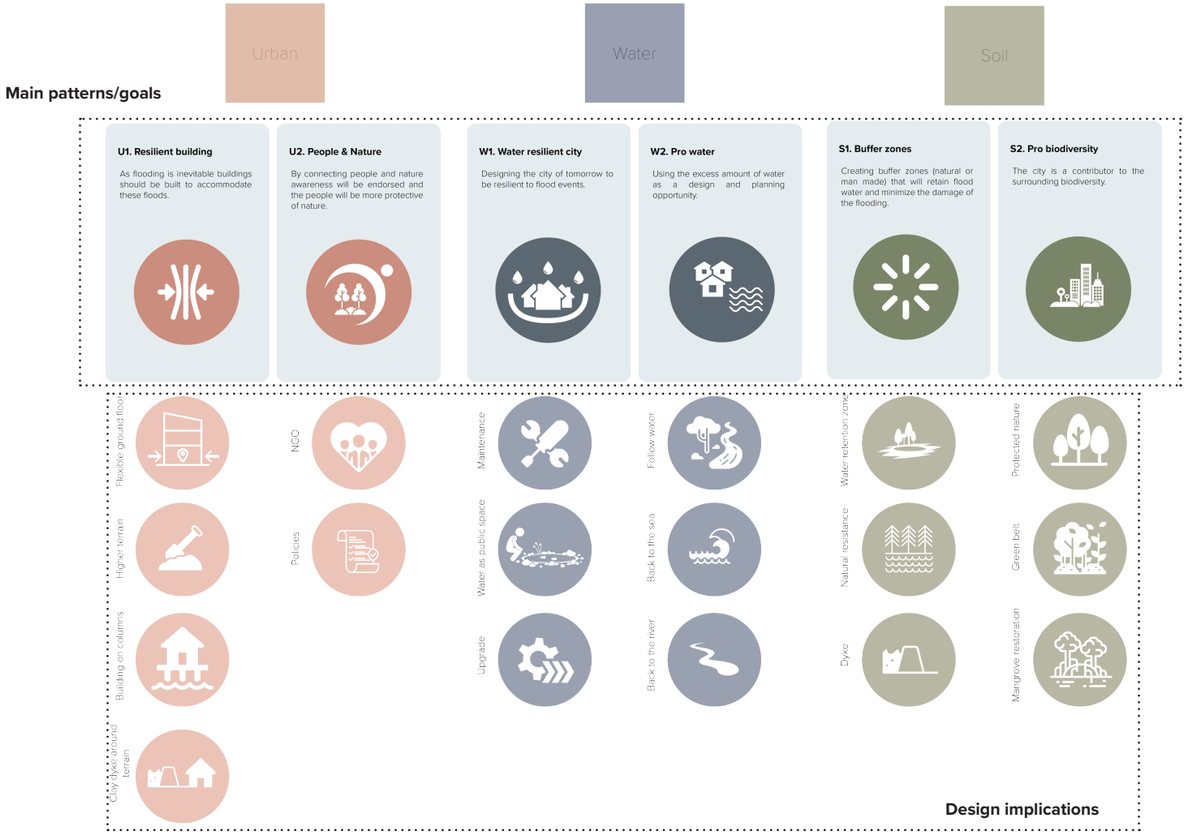
Introduction

1.1 What is in this booklet?

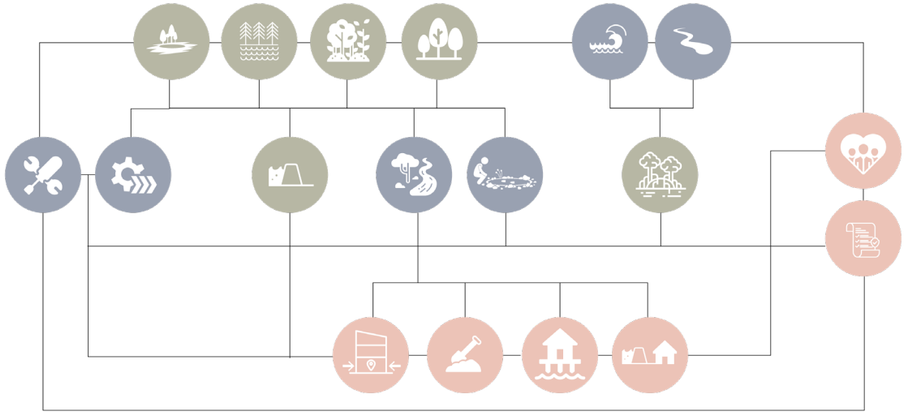
This booklet is part of the project (Re)introducing co-existence. For which a pattern language is developed, designed to go hand in hand with the strategies proposed in the project. The patterns are presented in the form of a pattern deck.

This pattern deck consists of 24 patterns in total to form a urban-water-soil web.

The patterns are divided into 3 main categroies; urban, water and soil. Within each catergory there are 6 main patterns or goals. Each of the main patterns leads to more specific patterns (possible design implications).



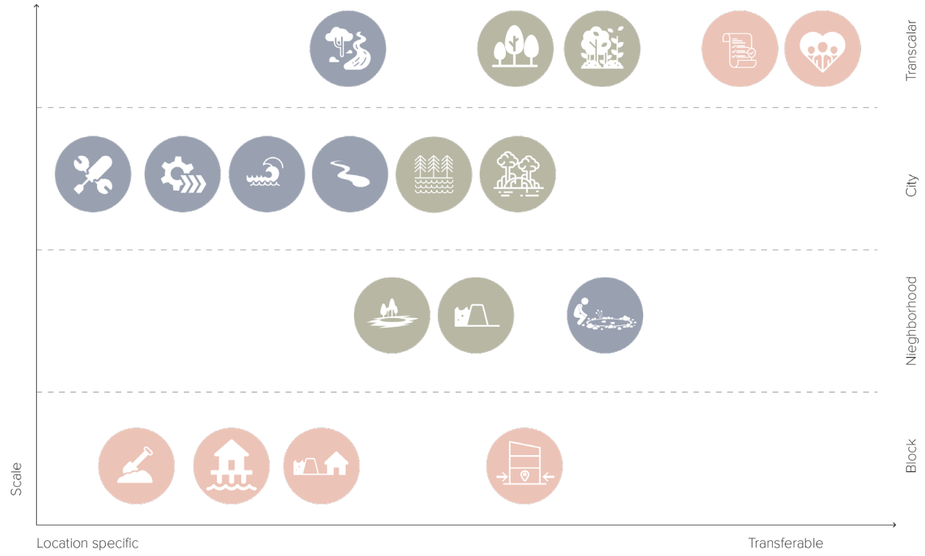
The specified patterns are used in the project in combination with the strategy to propose a design. The different patterns are all interconnected with each other to form a pattern web. In the design the patterns are combined in a similar way.



The second criterion is scale, divided into block, neighbourhood, city and transcalar.

The different patterns are not developed with the intention that would only be used for this specific project or this specific location. The intention behind the pattern deck is to have a certain amount of transferability to projects or areas that have certain parameters similar to the parameters of this project and this location. In this way, the pattern deck can be used for many purposes and even further developed.

In that sense, a pattern web is made in which the transferability is weighed.



1.2 Who is this booklet for?

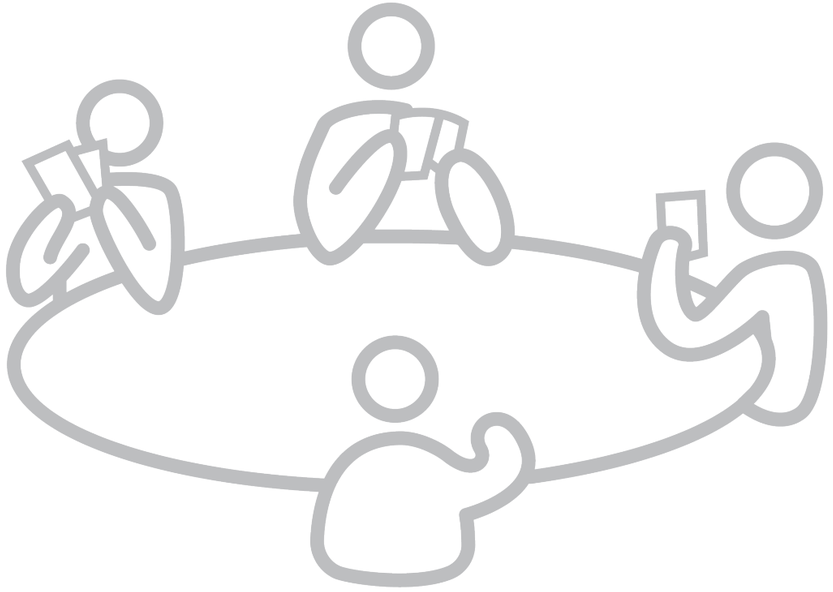
This booklet is written for many types of readers.

The readers may differ from planners or designers to different stakeholders and even residents. The booklet and the patterns within can be used by any and everyone should the need arise for this. This booklet can help develop a strategy and, more specifically, a design. The patterns can assist planners and designers on different scales and in different contexts.

The patterns can also be used to collaborate with local communities. And play a key factor in the case of co-creation.

In the case of use by the public sector, the patterns can be used to inspire while developing new governmental policy frameworks.

Even though the booklet is written for specific stakeholders, the patterns themselves are designed in a way as to be most user-friendly for residents. The patterns were designed to communicate and co-create with residents.

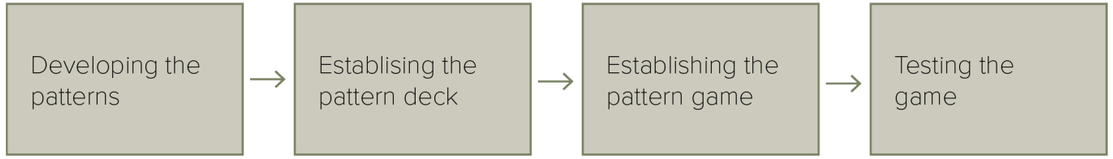


1.3 Method of approach

The patterns in this booklet are complimentary and a key element of the project “(Re)introducing co-existence”. For this research, there was no initial pattern catalogue to refer to, which meant that the patterns were developed with a clean slate. The patterns came to life through reference projects and a field trip for the project the patterns were developed for. Conversations with residents on how they tackled the specific problems the project was focussed on gave a clear direction for the patterns.

The field trip played a fundamental role in the development of the patterns since the patterns were developed as a communicative device for the residents. The scope of the project the patterns were developed for is focussed on proposing design implications that residents can realize on their own. This is also why the co-creation with residents during the design process of the project was of utmost importance. This is where the patterns came into play. Since the patterns are developed with the purpose of co-creation, it was an important step to actually test them and see if they are a helpful “tool” during the process. The patterns were therefore designed as playing cards, communicating the patterns in a universal language that everyone knows, namely card games. The pattern cards, which form the pattern deck, were tested on different audiences to polish the cards themselves and the way the “game” should be played. Figuring out how the game should be played was an important aspect since this would also be how the residents would co-create with the pattern deck in real life.

The results of the testing were then taken into consideration when coming up with the strategies and designs for the project. In the case of the project, the test audience acted as the residents. This way the project could show what the strategies and designs would look like were there to have been co-creation. This pattern deck is by no means done, it was developed and designed as a start of a possible pattern catalogue. This is why when the patterns were in development transferability was a big factor.



1.4 Developing the pattern deck

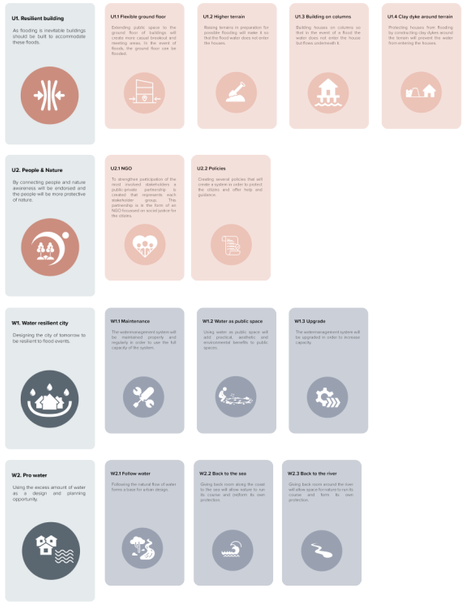
The development of the patterns consisted of two important actions. The first is talking to residents in the affected areas and specifically asking them how they have found solutions to the flooding challenges and coastal erosion problems in their areas. Looking into how residents have tackled the problems on their own properties and in their own homes gives a good idea of which design implications are feasible for residents to realise themselves. With an overview of the different ways the residents have tackled the challenges in their areas, certain patterns are developed.

The second step was to ask the residents what their recommended design solutions would be for their neighbourhoods and surrounding areas. From the suggestions that were given reference projects were looked up and patterns are developed.

Conversations with residents

Translating into design implications

Reference projects



Translating into patterns

2

The Game

2.1 Why the game?

When designing the patterns, the big question was how to communicate them to both the professionals and more importantly the residents. The project “(Re) introducing co-existence” is a project in Suriname and while the professionals know the concept of pattern language and have used it often the residents do not.

Co-creation with residents using a pattern language is not something done in Suriname yet. This is why it was not an option to present the resident with patterns as they are commonly known. Since the scope of this project is to encourage co-creation with residents it was important to communicate the patterns to them in a way that they will easily grasp. This way the patterns are made in the form of cards for the residents, in the booklet however the professionals can find the patterns in the way they are used to. The patterns are presented complete with theoretical en practical information and references in the booklet, but made into cards to make them user-friendly for the residents.

In Suriname it is common and even expected that when people come together they play cards. Playing cards is something people know and love. This is why the patterns are made in the form of playing cards for the residents.

2.2 The deck

Resilient building

U1.1 Flexible ground floor

Extending public space to the ground floor of buildings will create more casual breakout and meeting areas. In the event of floods, the ground floor can be flooded.

U1.2 Higher terrain

Raising terrains in preparation for possible flooding will make it so that the flood water does not enter the houses.

U1.3 Building on columns

Building houses on columns so that in the event of a flood the water does not enter the house but flows underneath it.

U1.4 Clay dyke around terrain

Protecting houses from flooding by constructing clay dykes around the terrain will prevent the water from entering the houses.

People & Nature

U2.1 NGO

To strengthen participation of the most involved stakeholders a public-private partnership is created that represents each stakeholder group. This partnership is in the form of an NGO focussed on social justice for the citizins.

U2.2 Policies

Creating several policies that will create a system in order to protect the citizins and offer help and guidance.

Water resilient city

W1.1 Maintenance

The watermanagement system will be maintained properly and regularly in order to use the full capacity of the system.

W1.2 Water as public space

Using water as public space will add practical, aesthetic and environmental benefits to public spaces.

W1.3 Upgrade

The watermanagement system will be upgraded in order to increase capacity.

Pro water

W2.1 Follow water

Following the natural flow of water forms a base for urban design.

W2.2 Back to the sea

Giving back room along the coast to the sea will allow nature to run its course and (re)form its own protection.

W2.3 Back to the river

Giving back room around the river will allow space for nature to run its course and form its own protection.

Buffer zones

S1.1 Water retention zone

Natural water retention zones that will store access water in the event of flooding.

S1.2 Natural resistance

Different types of vegetation form a natural barrier to coastal flooding.

S1.3 Dyke

A dyke that will protect private property from flooding and coastal erosion.

Pro biodiversity

S2.1 Protected nature

Protecting nature and leaving it be will allow natural restoration.

S2.2 Green belt

Vegatation as a defense against floods and protect soil from erosion.

S2.3 Mangrove restoration

Restoring the mangrove population will protect the coast from flooding, erosion and will boost the biodiversity.

2.3 Game rules

When coming up with the pattern deck, the big question that arose was how the cards would be played. This meant coming up with game rules for the pattern game. The game rules were something that was quite trial and error. Especially during the testing of the game, more on this can be found in Chapter 4 Playing the Game.

Firstly the game is presented with a simple systemic section, with clear bullet points of the strengths, weaknesses, opportunities and threats of the location. This gives the player all the important information in a clear and simple way, avoiding being confused or overwhelmed by too much information. For the testing of the game, 2 locations were presented in this way.
The game rules for this pattern game did differ depending on the audience. There are separate rules for two audiences. In the first case which is how the game will be played with residents, the rules are displayed in figure 1. Whereas in the game rules for professionals are displayed in figure 2.

In both of these cases, it was encouraged to mix the cards of the different categories. To pay special attention to the goals for each of the locations. In addition to this, a bonus card was presented which can be whatever the player wants. There was also the option to combine two cards if the player wants them to go together.

Another important factor in any game is the time, this was also the case for the pattern game. When the game was tested on the first audiences it was timed, the result was about 20-30 minutes for both locations given to the players. This is why for future tests 30-40 minutes were given to play the game. The given time was generally enough for the test audience who represented the residents.

However, when the game was tested on colleagues this was not enough time, the reasons for this being firstly that there was quite a slow start and that there was a lot of discussion with each of the cards. But why was this happening? What was the big difference between the testing of the two different audiences? With the test resident audience, the game was mostly played individually, which meant that the player could make decisions quicker. But the game with colleagues was played in groups of about 6 people, this led to discussions which would need more time to actually play the game. This is why it is recommended that if the game is played by 1 or 2 players 30-40 minutes are given whereas if the game is played by a group of say up to 6-8 people 60-90 minutes are given to allow enough time for the game to be played thoughtfully and thoroughly.

Mixing of the cards is highly encouraged

Solutions must be mostly nature based

Solutions must be financially feasible for the less fortunate residents

Figure 1. Game rules for the general audience

Mixing of the cards is highly encouraged

Solutions must be mostly nature based

Solutions must be financially feasible for the less fortunate residents

Think of solutions that can be applied now and in 50 years time

Figure 2. Game rules for the professionals

Bonus card

Is there something that is not on a card? No problem, use this card! This card can be whatever you want.

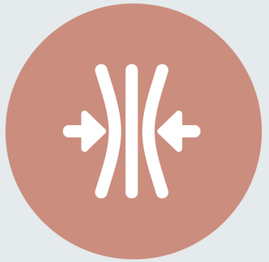
3

The Pattern Cards

U1. Resilient building

U1. Resilient building

As flooding is inevitable buildings should be built to accommodate these floods.



PRACTICAL IMPLICATION

When densifying or developing new neighborhoods the building types that will accommodate the probable flooding should be used. This can be done by stilts, so that the ground floor will be higher than the flood water would come. Another option would be to make the ground floor flood resistant so that in the event of a flood the ground floor can be flooded.

THEORETICAL BACK-UP

When flooding is an inevitable occurrence in certain neighborhoods the buildings should be designed to accommodate this.

RELATION TO OTHER PATTERNS

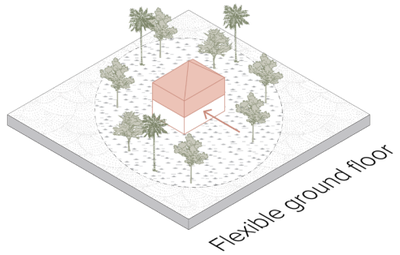
U1.1 Flexible ground floor

U1.1 Flexible ground floor

Extending public space to the ground floor of buildings will create more casual breakout and meeting areas. In the event of floods, the ground floor can be flooded.

PRACTICAL IMPLICATION

Opening up the ground floor and designing it as a public space can be done by implementing public functions in the ground floor. This will attract people to the ground floor and then also the public space.



THEORETICAL BACK-UP

Using the ground floor of buildings as public space will open up the ground floor and encourage more spontaneous interactions between people. Public space on the ground floor will also make the transition from building to public space seamless (Shear tower, n.d.)

RELATION TO OTHER PATTERNS

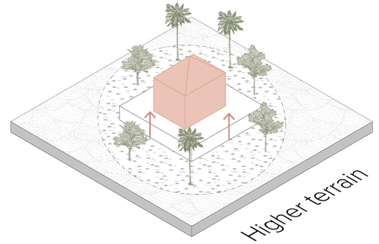
U1.2 Higher terrain

U1.2 Higher terrain

Raising terrains in preparation for possible flooding will make it so that the flood water does not enter the houses.

PRACTICAL IMPLICATION

Building on higher terrain will keep the water out of the building in the event of a flood. Elevating the terrain can be done in different ways, earth or concrete.



THEORETICAL BACK-UP

When building near a body of water (sea or river) it is a known way to flood proof is to elevate. This can be done is many ways. One being building on higher terrain (Williams, 2021). Raising the terrain to above the expected level the flood water will reach.

RELATION TO OTHER PATTERNS

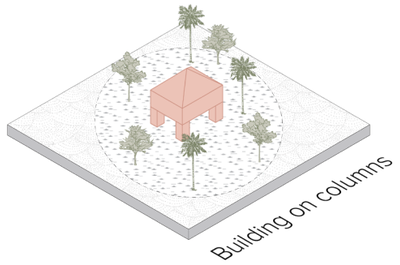
U1.3 Building on columns

U1.3 Building on columns

Building houses on columns so that in the event of a flood the water does not enter the house but flows underneath it.

PRACTICAL IMPLICATION

Building on columns raises the house to above the expected level the flood water will reach. Therefore protecting the house and keeping it dry. By building on columns the flood water will flow underneath the house.



THEORETICAL BACK-UP

A common way to flood proof buildings is to build on comlumns (or stilts) (Williams, 2021).

RELATION TO OTHER PATTERNS

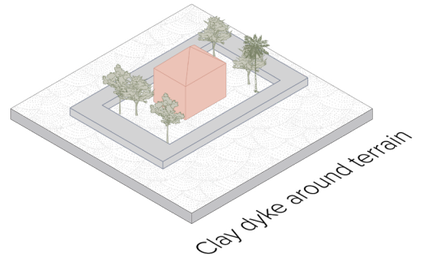
U1.4 Clay dyke around terrain

U1.4 Clay dyke around terrain

Protecting houses from flooding by constructing clay dykes around the terrain will prevent the water from entering the houses.

PRACTICAL IMPLICATION

Building a waterproof wall. in the form of a clay dyke will not only protect properties and houses from flood water but it is also a cost efficient way residents can protect their homes themselves.



THEORETICAL BACK-UP

Another way to protect houses and properties from flooding is by building a “wall” or dyke around it.

RELATION TO OTHER PATTERNS

U2. People & Nature

U2. People & Nature

By connecting people and nature awareness will be endorsed and the people will be more protective of nature.

PRACTICAL IMPLICATION

In the case of this project, exposing the water system and the natural barrier that will protect the city from flooding will make people not only appreciate nature but will also allow the mixing of city and nature.

THEORETICAL BACK-UP

Exposing people to nature while in the city could raise people's awareness to nature, climate change, environmental problems etc. Really mixing people and nature can also have a positive influence on their quality of life.

RELATION TO OTHER PATTERNS

U2.1 NGO

U2.1 NGO

To strengthen participation of the most involved stakeholders a public-private partnership is created that represents each stakeholder group. This partnership is in the form of an NGO focussed on social justice for the citizins.

PRACTICAL IMPLICATION

An organisation focussed on social rights work, the citizins. Catering to the citizins in the form of financial aid, knowledge etc.

THEORETICAL BACK-UP

An NGO entails environmental, social, advocacy, and human rights work. NGO's are essential for advancing society, enhancing communities, and encouraging citizen engagement (Candid Learning | Trainings in nonprofit fundraising, proposal writing, grants, n.d.).

RELATION TO OTHER PATTERNS

U2.2 Policies

U2.2 Policies

Creating several policies that will create a system in order to protect the citizins and offer help and guidance.

PRACTICAL IMPLICATION

The primary stage towards reclaiming urban space and territoriality is the creation of a national urban policy. Providing the necessary purpose and approach to assist urban growth is also essential.

THEORETICAL BACK-UP

There is a need for a coordinated strategy and clear policy guidelines in order to capitalize on urbanization, reduce its negative externalities, and encourage a “urban paradigm shift.” (National Urban Policies | UN-Habitat, n.d.)

RELATION TO OTHER PATTERNS

W1. Water resilient city

W1. Water resilient city

Designing the city of tomorrow to be resilient to flood events.

PRACTICAL IMPLICATION

The new as well as the existing neighborhoods along the coast of Paramaribo should be designed and planned taking the flood risk into account. Even if the coast will be protected by dikes or nature based solutions the neighborhoods along the coast should have a build in self defense.

THEORETICAL BACK-UP

The city should not only be protected from floods by dikes. The design and strategic planning of a city should also focus on flood risk management (Hooimeijer, Yoshida, Bortolotti, Iuorio, 2022). As sea levels keep rising due to climate change the measures taken against it should be more then the probable option; dikes. Cities should have a built in defense against floods. Thus incorporating a multi layer flood risk management approach (Multi-layer Flood Risk Management Explorer, n.d.).

RELATION TO OTHER PATTERNS

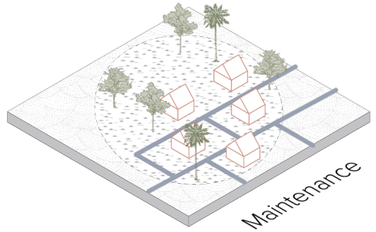
W1.1 Maintenance

W1.1 Maintenance

The watermanagement system will be maintained properly and regularly in order to use the full capacity of the system.

PRACTICAL IMPLICATION

Keeping up with the maintenance of the existing watermanagement system will maximise the capacity and lower the chances of flooding due to a lack of storage in the watermanagement system.



THEORETICAL BACK-UP

Proper maintenance of water management ensures that sufficient water can be supplied and discharged so that no water problems arise such as flooding for the residents of an area (Beheer en onderhoud watergangen, 2022)

RELATION TO OTHER PATTERNS

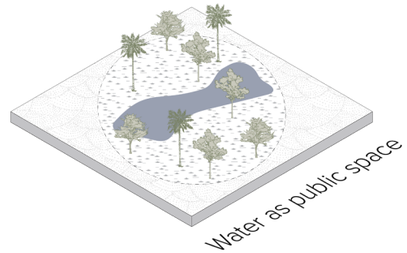
W1.2 Water as public space

W1.2 Water as public space

Using water as public space will add practical, aesthetic and environmental benefits to public spaces.

PRACTICAL IMPLICATION

Water is an attraction factor to people. Water can be the central point and the attraction factor of the public space.



THEORETICAL BACK-UP

Water as public space would have multiple benefits on the city, it's not only decorative, has benefits to social aspects, forms an ideal meeting and relaxing place it also has a very positive effect on the climate system of the city and its ecosystem (Triantafyllidou, Shugart, Latorre, Hearne, n.d.).

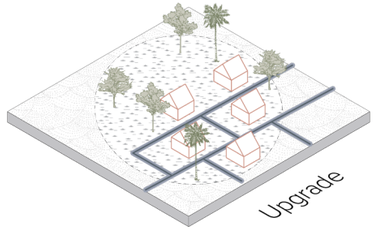
RELATION TO OTHER PATTERNS

W1.3 Upgrade

W1.3 Upgrade

The watermanagement system will be upgraded in order to increase capacity.

PRACTICAL IMPLICATION
Increasing the capacity of the watermanagement system so that in the event of a flood more water can be stored.



THEORETICAL BACK-UP
Upgrading watermanagement to increase capacity.

RELATION TO OTHER PATTERNS

W2. Pro water

W2. Pro water

Using the excess amount of water as a design and planning opportunity.

PRACTICAL IMPLICATION
Showing the open water system within the city.

THEORETICAL BACK-UP
The rising sea levels form the threat most cities face (Design with water 2.0: collaborative tools for place based outcomes - Arup, n.d.). Ignoring this and looking for a way to design and plan around it would only make the problem bigger. Embracing the water would help in solving the water threat.

RELATION TO OTHER PATTERNS

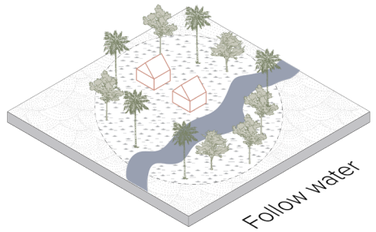
W2.1 Follow water

W2.1 Follow water

Following the natural flow of water forms a base for urban design.

PRACTICAL IMPLICATION

Selecting certain natural water bodies and designing urban development around it. Implementing this would add to the green and blue structures of the city.



THEORETICAL BACK-UP

Natural water bodies can be used in urban landscaping and deals with different aspects of the so called “urban water cycle” (Nature-Based Solutions for Cities in Viet Nam: Water Sensitive Urban, 2020). Incorporating this in the design and planning process will add value to the urban fabric of the city and would even be a good base for the design process.

RELATION TO OTHER PATTERNS

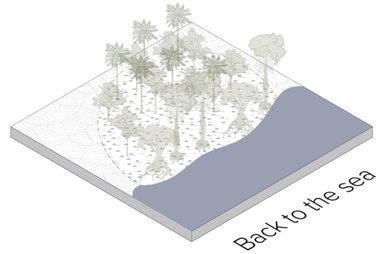
W2.2 Back to the sea

W2.2 Back to the sea

Giving back room along the coast to the sea will allow nature to run its course and (re)form its own protection.

PRACTICAL IMPLICATION

Giving the sea and the area around it back to nature will allow for a natural resilience to arise.



THEORETICAL BACK-UP

Allowing nature to take its course and form its own resilience to the consequences of climate change.

RELATION TO OTHER PATTERNS

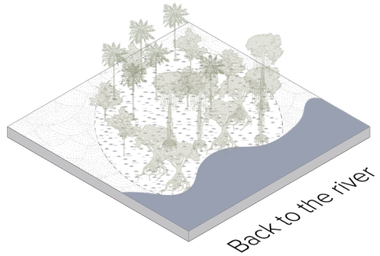
W2.3 Back to the river

W2.3 Back to the river

Giving back room around the river will allow space for nature to run its course and form its own protection.

PRACTICAL IMPLICATION

Giving room back to the river will give the water more room in the case of a flood while at the same time creating an environment where water related biodiversity can thrive.



THEORETICAL BACK-UP

Nature has its own way of becoming resilient to climate change when given the chance.

RELATION TO OTHER PATTERNS

S1. Buffer zones

S1. Buffer zones

Creating buffer zones (natural or man made) that will retain flood water and minimize the damage of the flooding.

PRACTICAL IMPLICATION

The buffer zones would not only be a solution to too much water, but would also give a certain quality to the city. It could relief the UHI effect, but also be the base of biotopes for certain species. It also creates pleasant living environment for the residents.

THEORETICAL BACK-UP

Water has its natural way of drawing an access of water away. In some cases these natural buffer zones are closed to densify. This gives water nowhere to go. Finding where these zones naturally were would give the opportunity to re-open these natural buffer zones. In the cases that there are no or not enough natural buffer zones, these zones can be created and water can be led here which will relief an access of water.

RELATION TO OTHER PATTERNS

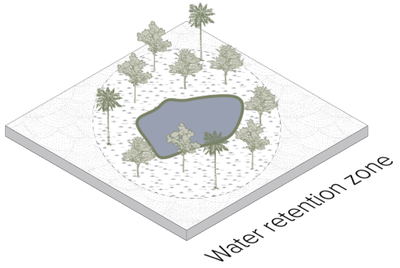
S1.1 Water retention zone

S1.1 Water retention zone

Natural water retention zones that will store access water in the event of flooding.

PRACTICAL IMPLICATION

When densifying or developing new neighborhoods the building types that will accommodate the probable flooding should be used. This can be done by stilts, so that the ground floor will be higher than the flood water would come. Another option would be to make the ground floor flood resistant so that in the event of a flood the ground floor can be flooded.



THEORETICAL BACK-UP

When flooding is an inevitable occurrence in certain neighborhoods the buildings should be designed to accommodate this.

RELATION TO OTHER PATTERNS

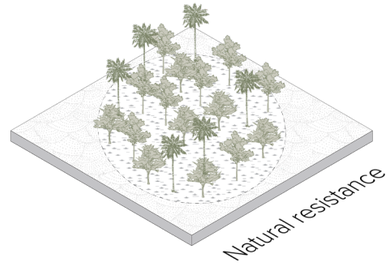
S1.2 Natural resistance

S1.2 Natural resistance

Different types of vegetation form a natural barrier to tidal flooding.

PRACTICAL IMPLICATION

The natural barrier will not only form a protection to the city, but will also be a natural biotope for certain species. This will also have a positive effect on the ecosystem and the biodiversity of the coast.



THEORETICAL BACK-UP

Nature has its own way of protecting itself. In case of coastal protection nature will create a natural resistance in the form of certain vegetation that will stop the water.

RELATION TO OTHER PATTERNS

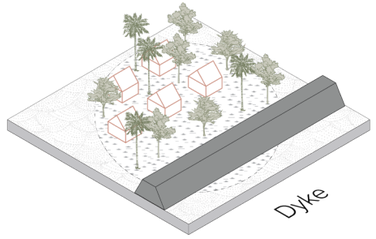
S1.3 Dyke

S1.3 Dyke

A dyke that will protect property from flooding and coastal erosion.

PRACTICAL IMPLICATION

Dykes built along natural water bodies (riverbanks and coastal shores) prevent floodwater from reaching the land behind it.



THEORETICAL BACK-UP

Poeple have been able to live on lands where floods are inevitable because of dykes (Dikes and Related Works - FloodWise, 2020)

RELATION TO OTHER PATTERNS

S2. Pro biodiversity

S2. Pro biodiversity

The city is a contributor to the surrounding biodiversity.

PRACTICAL IMPLICATION

The biodiversity of an entire area will only be strengthened by incorporating these in cities. The green spaces in cities can be transformed into biodiversity patches throughout the city.

THEORETICAL BACK-UP

The city can be part of biodiversity by incorporating the green areas in the city into the so called biodiversity corridors.

RELATION TO OTHER PATTERNS

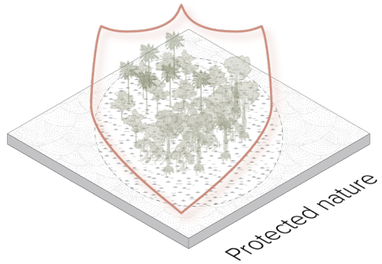
S2.1 Protected nature

S2.1 Protected nature

Protecting nature and leaving it be will allow natural restoration.

PRACTICAL IMPLICATION

Protecting nature so that is can be allowedto regenerate and be at full bloom will improve quality of life and the biodiversity.



THEORETICAL BACK-UP

Protecting nature so that it regenerates faster and stays in full bloom.

RELATION TO OTHER PATTERNS

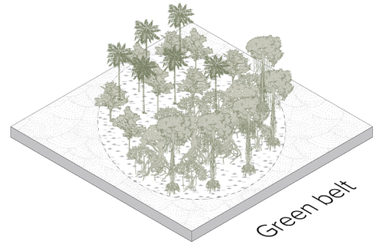
S2.2 Green belt

S2.2 Green belt

Vegatation as a defense against floods and protect soil from erosion.

PRACTICAL IMPLICATION

The vegetation will not only be a form of protection to the threats climate change brings but will also be a biodiversity boost.



THEORETICAL BACK-UP

Vegetation that will act as a natural defense against the consequences of climate change.

RELATION TO OTHER PATTERNS

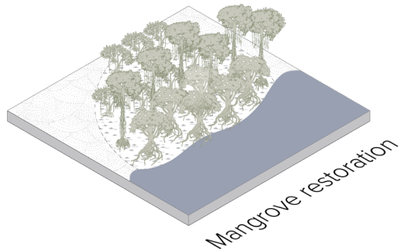
S2.3 Mangrove restoration

S2.3 Mangrove restoration

Restoring the mangrove population will protect the coast from flooding, erosion and will boost the biodiversity.

PRACTICAL IMPLICATION

Mangroves along the coast have been taken out or are sparse. Restoring the mangroves will also restore the natural coastal protection and improve biodiversity on land and in the water.



THEORETICAL BACK-UP

Mangroves provide coastal protection against wind, waves and coastal erosion (Spalding et al., 2014).

RELATION TO OTHER PATTERNS

4

Playing the Game

4.1 Does the deck work?

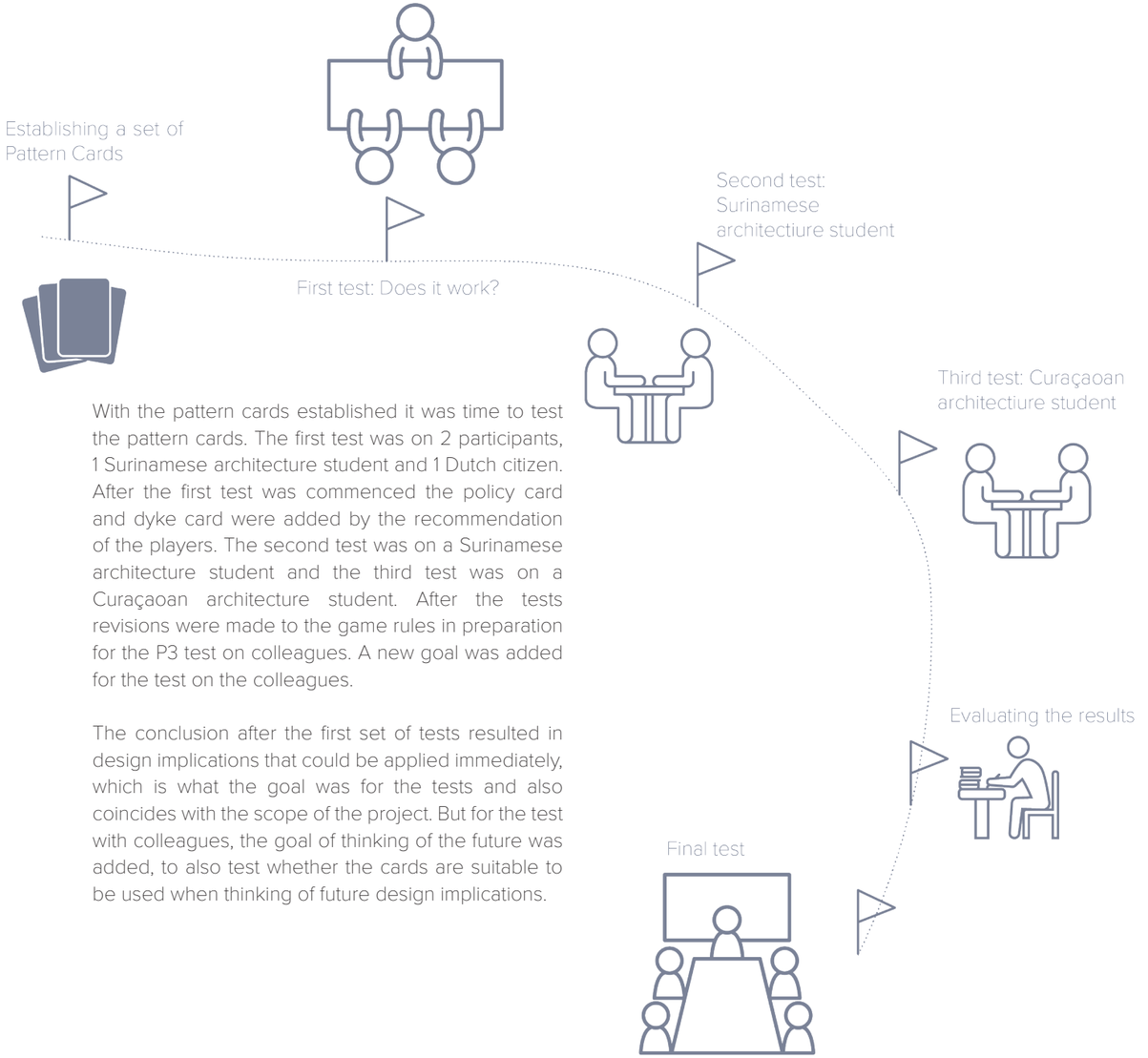
Testing both the cards and the game rules where of great importance to make sure that they were clear and understandable.

For the pattern cards, the most important questions that needed answers were if the text on the cards are clear and come across as they are intended. If all the cards are necessary and if there are any cards missing.

In the case that a player wishes to play something but there is no card for this, a bonus card is included in the deck

For the systemic sections, the test was to assess whether the information given was enough and understandable. That there was no confusion.
The game rules are presented in the sections in the form of goals the players would need to achieve, and the time was given to the players.

4.2 Testing the game



With the pattern cards established it was time to test the pattern cards. The first test was on 2 participants, 1 Surinamese architecture student and 1 Dutch citizen. After the first test was commenced the policy card and dyke card were added by the recommendation of the players. The second test was on a Surinamese architecture student and the third test was on a Curaçaoan architecture student. After the tests revisions were made to the game rules in preparation for the P3 test on colleagues. A new goal was added for the test on the colleagues.

The conclusion after the first set of tests resulted in design implications that could be applied immediately, which is what the goal was for the tests and also coincides with the scope of the project. But for the test with colleagues, the goal of thinking of the future was added, to also test whether the cards are suitable to be used when thinking of future design implications.

Testing the game on a general audience

The first round of tests was on a mixed general audience, with a mix of people which is why it is referred to as a general audience. The section in figure x was presented to the players with two main goals. The section was kept quite simple, but clear with a SWOT so that the situation of the location could be understood quickly and clearly. For the tests of the general audience, there was not a specific time given to complete the game, but the time used by each player was noted. It is also of note that the deck of cards given to the players also included the 6 main patterns or goal cards.

LOCATION 1. WEG NAAR ZEE

Mixing of the cards is highly encouraged

Solutions must be mostly nature based

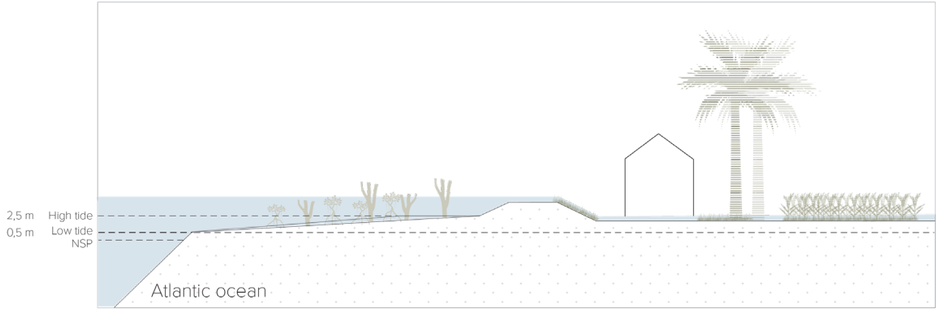
Solutions must be financially feasible for the less fortunate residents

STRENGHTS
- Enough space for mangrove restoration
- Peri urban to rural area

WEAKNESSES
- Removed mangrove forest
- Low lying land

OPPORTUNITIES
- Mangrove restoration
- Urban expansion
- Resilient building
- Water resilience

THREATS
- Salinated soil
- Loss of sediment due to coastal erosion



LOCATION 3. BLAUWGROND

Mixing of the cards is highly encouraged

Solutions must be mostly nature based

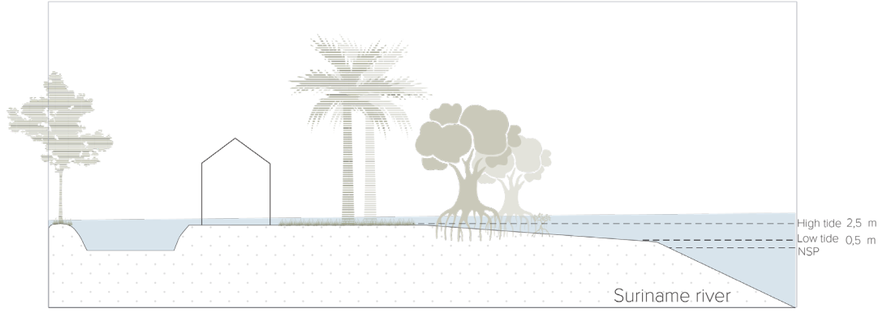
Solutions must be financially feasible for the less fortunate residents

STRENGHTS
- Peri urban area
- Precense of mangroves
- Existing watermanagement system

WEAKNESSES
- Scarcity of mangroves
- Low lying land
- Maintenance of watermanagement system

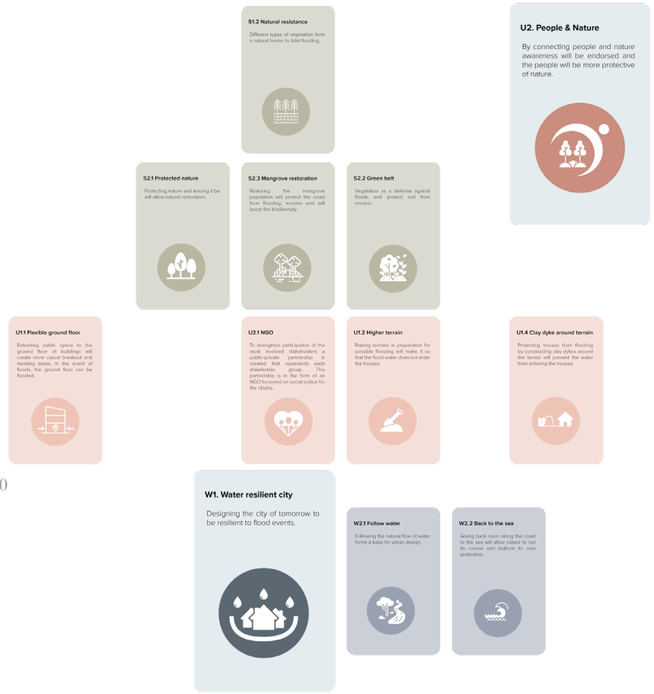
OPPORTUNITIES
- Mangrove restoration
- Urban expansion
- Resilient building
- Water resilience

THREATS
- Current housing types and protection against floods
- Salinated soil

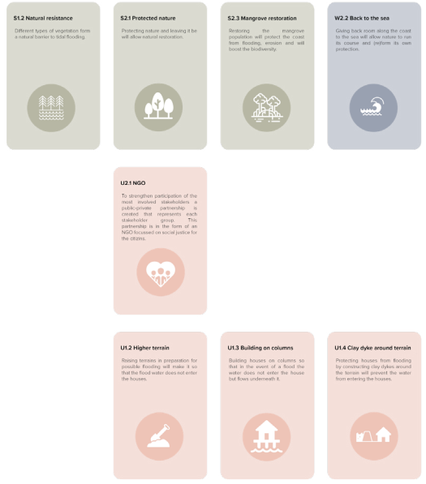


Results general audience location 1. Weg naar Zee

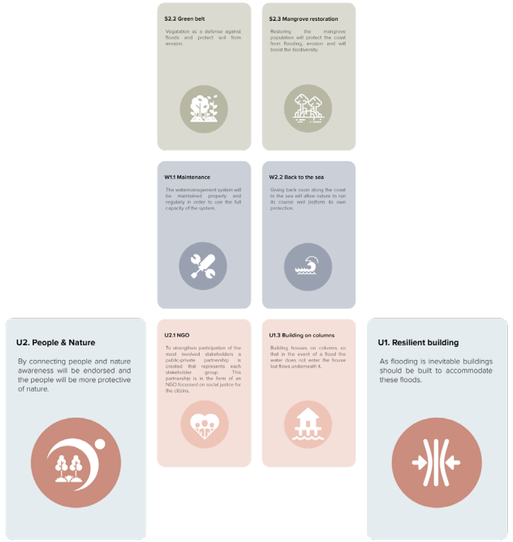
Participant 1.



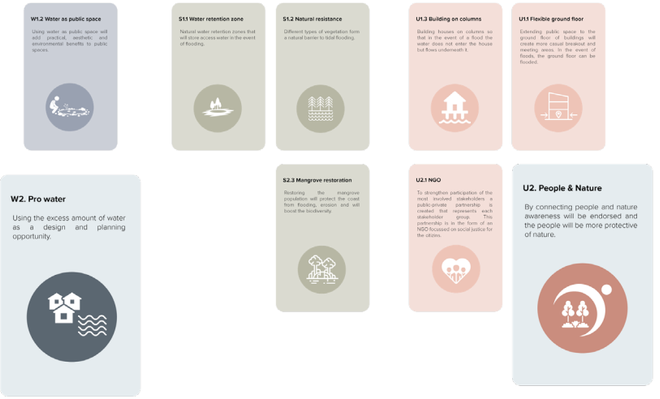
Participant 2.



Participant 3.



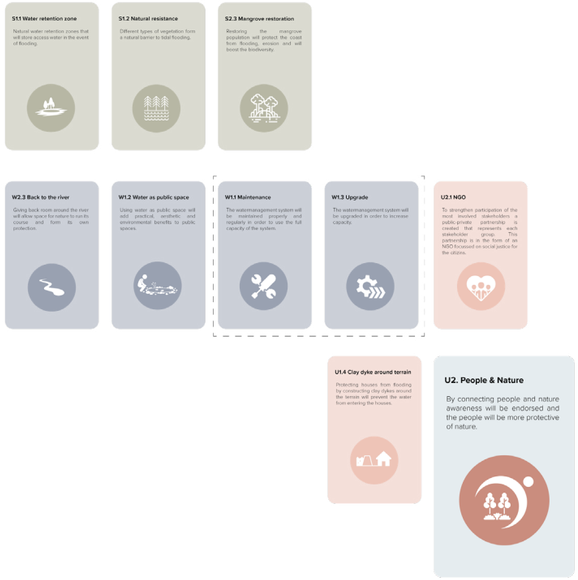
Participant 4.



Results general audience location 3. Blauwgrond

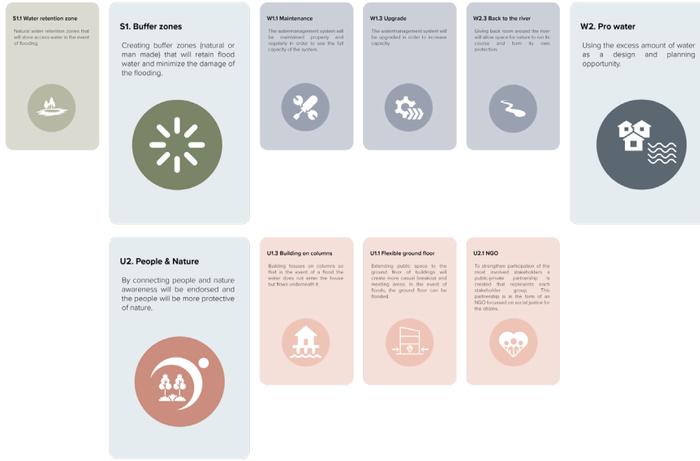
Participant 1.

Participant 2.



Participant 3.

Participant 4.

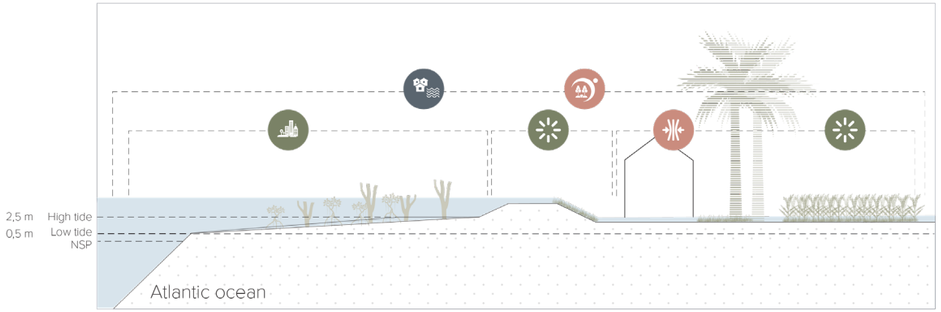


Results general audience

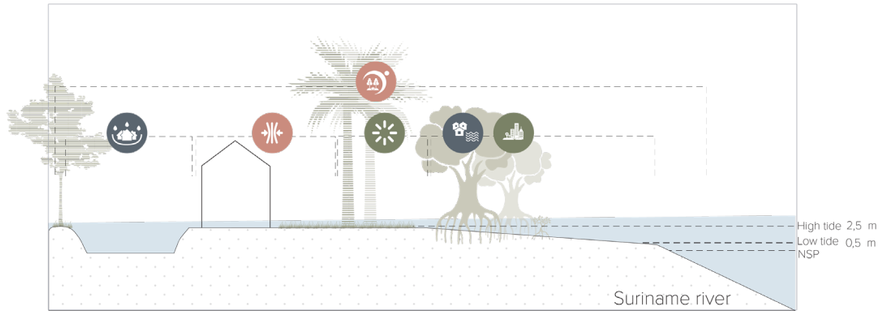
After all the players belonging to the general audience had completed their pattern game all the results were put next to each other assessed and compared. The cards that came back the most amongst the players were singled out and put back into the general section the players were presented initially. The main and most important takeaway from this test was that the results were focused on addressing the problems of this location immediately. Moreover, there was 1 particular card that was played by every single player namely U2.1 NGO. Another takeaway was that the 6 main patterns or goal cards did give some confusion, as they could be more specific than the rest of the deck which is the design implications.

With these results in mind, there were certain adjustments made before playing the game amongst colleagues.

LOCATION 1. WEG NAAR ZEE



LOCATION 3. BLAUWGROND



Testing the game on colleagues

With the results of the general audience in mind, certain adjustments were made before presenting the game to colleagues. These include altering the deck, for this test only design implications were given as a pattern deck. In addition to this, a certain amount of time was given, 30 minutes to be exact. Finally, there was 1 goal or game rule added, which was to think of design solutions that can be applied now and in 50 years' time. The results of the general audience were focussed on design solutions now, the test for the colleagues was if the pattern deck can be used when thinking of design solutions in the future as well.

LOCATION 1. WEG NAAR ZEE

Mixing of the cards is highly encouraged

Solutions must be mostly nature based

Solutions must be financially feasible for the less fortunate residents

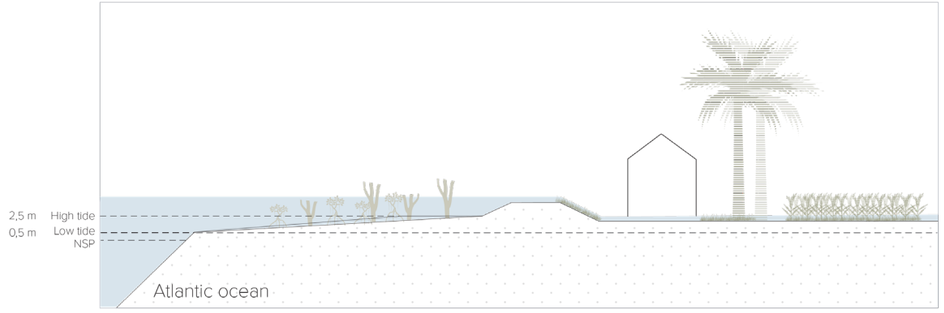
Think of solutions that can be applied now and in 50 years time

STRENGHTS
- Enough space for mangrove restoration
- Peri urban to rural area

WEAKNESSES
- Removed mangrove forest
- Low lying land

OPPORTUNITIES
- Mangrove restoration
- Urban expansion
- Resilient building
- Water resilience

THREATS
- Salinated soil
- Loss of sediment due to coastal erosion



LOCATION 3. BLAUWGROND

Mixing of the cards is highly encouraged

Solutions must be mostly nature based

Solutions must be financially feasible for the less fortunate residents

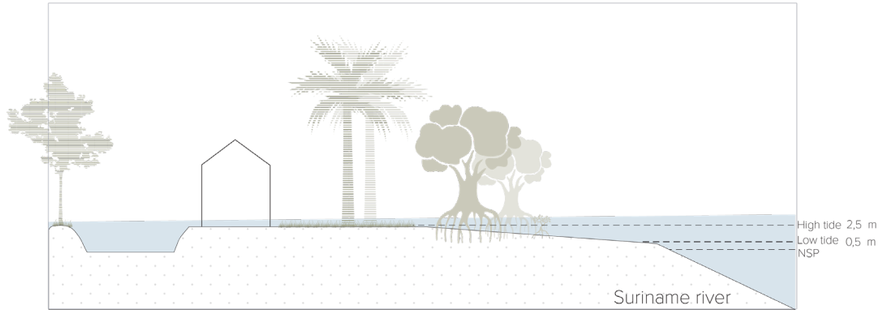
Think of solutions that can be applied now and in 50 years time

STRENGHTS
- Peri urban area
- Precense of mangroves
- Existing watermanagement system

WEAKNESSES
- Scarcity of mangroves
- Low lying land
- Maintenance of watermanagement system

OPPORTUNITIES
- Mangrove restoration
- Urban expansion
- Resilient building
- Water resilience

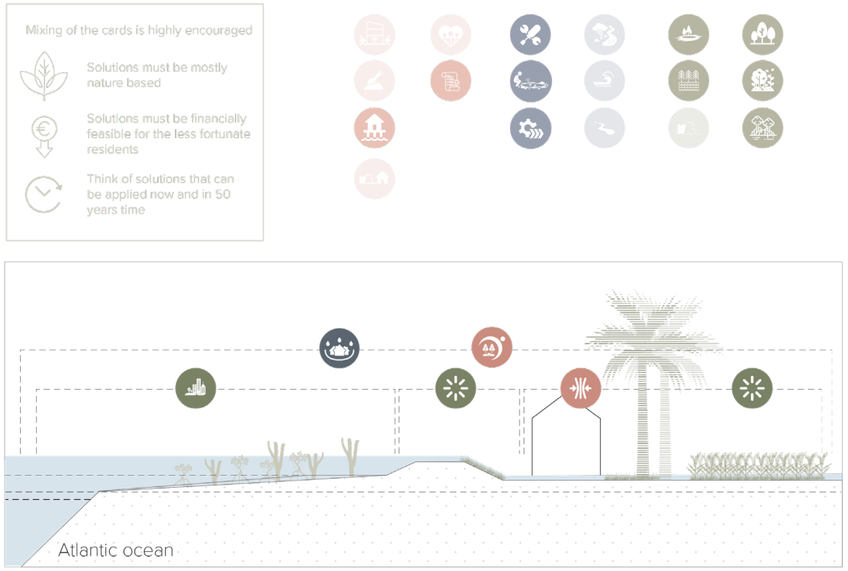
THREATS
- Current housing types and protection against floods
- Salinated soil



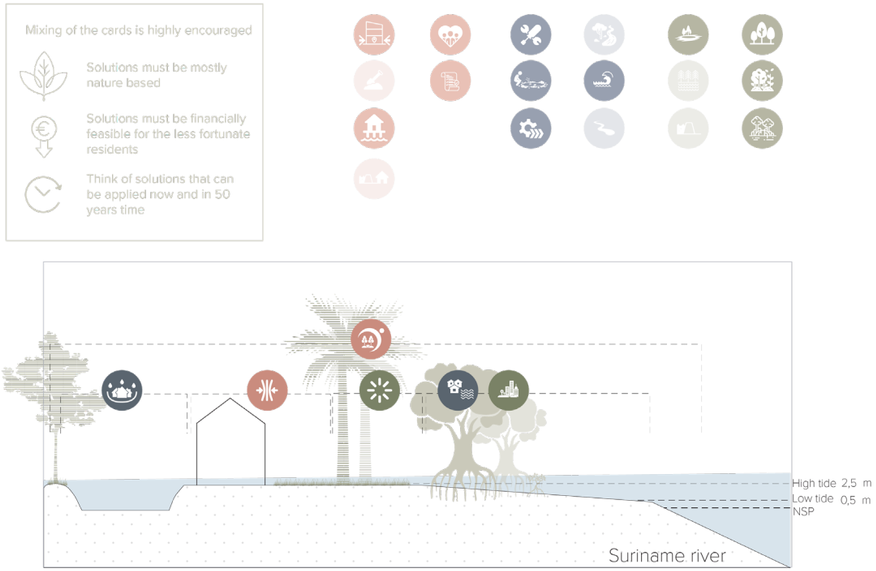
Results colleagues

The results of the testing on colleagues did provide some very helpful information when conducting this game in future. The first is, that when playing the pattern game in groups more than half an hour maybe closer to an hour is needed. In addition to this maybe explaining each card beforehand is necessary especially when the game is played in a group. The problem that occurred during the testing of the game on colleagues was that it was difficult to actually start the game and read the cards. Maybe starting the game by reading the cards together could avoid this. In addition to this when playing the game in groups discussion is expected, this should also take the timeframe into account and more time should be given.

LOCATION 1. WEG NAAR ZEE



LOCATION 3. BLAUWGROND

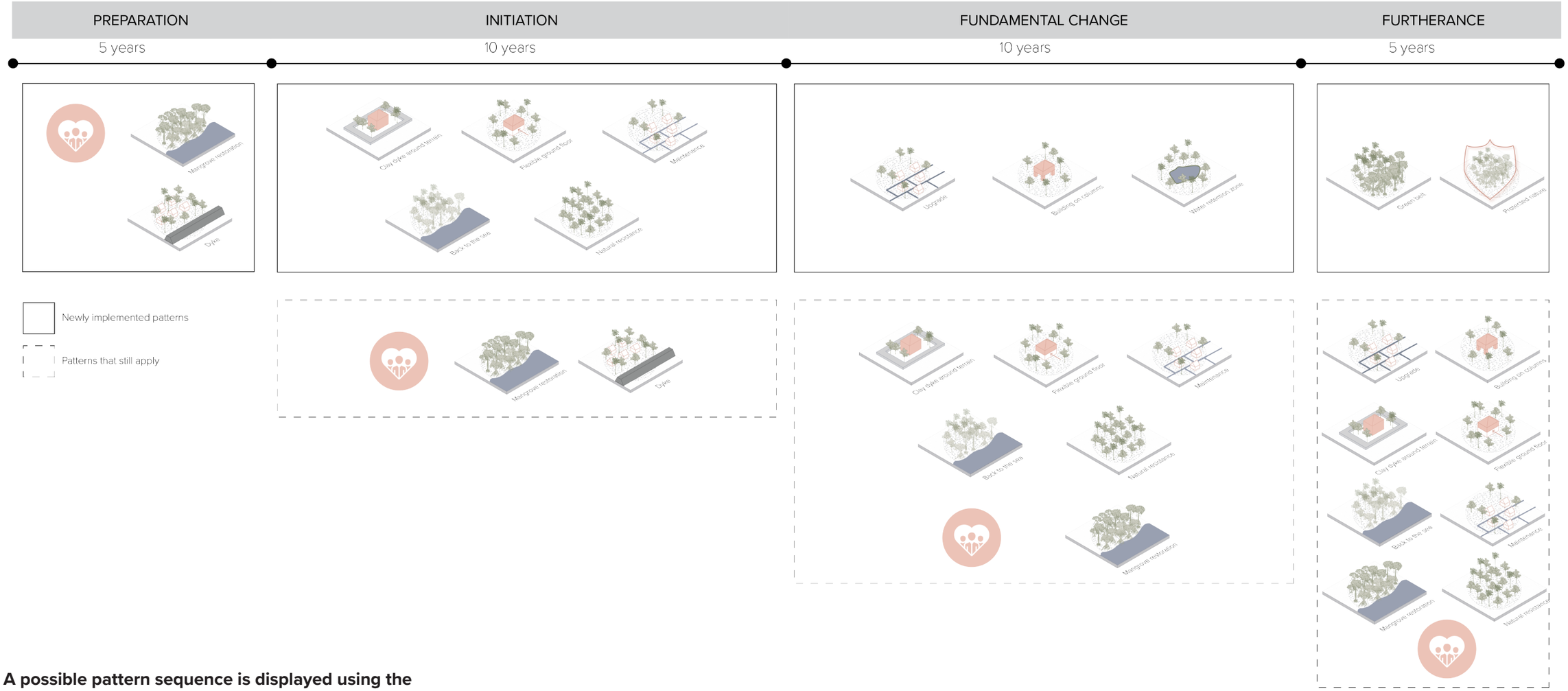


5

In conclusion

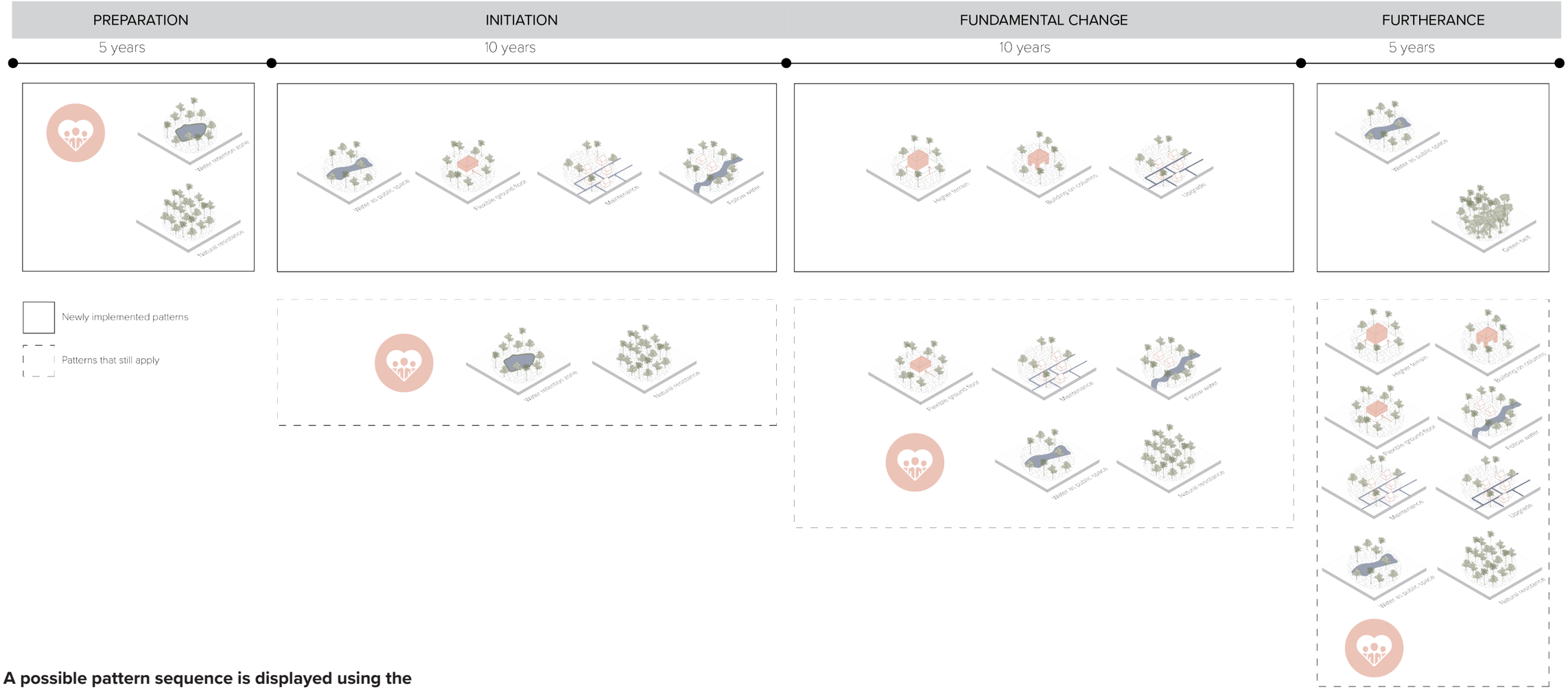
Young mangroves and dead mangroves together on the coast of Paramaribo, made by author (December 2022)

5.1 Location 1. Weg naar Zee pattern sequence



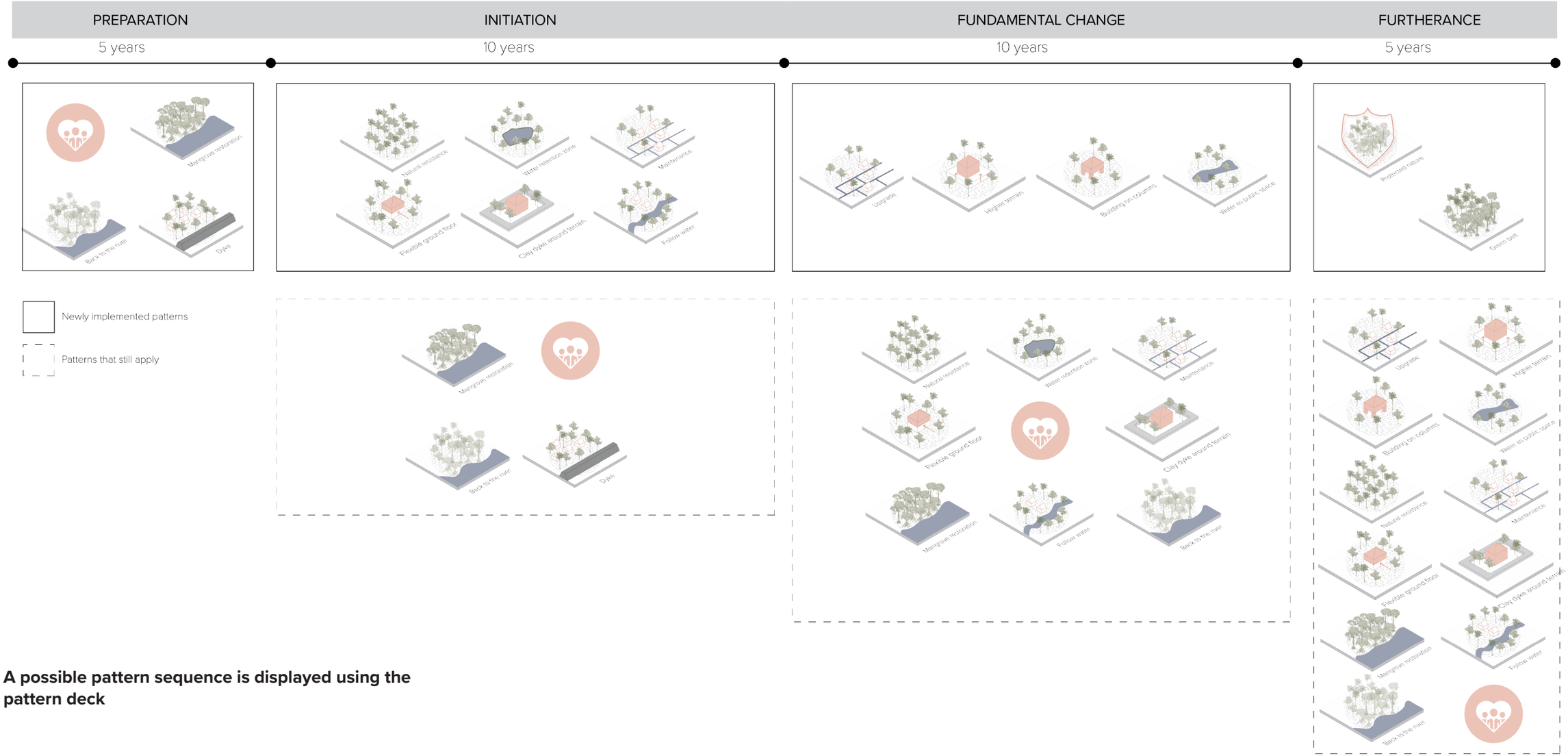
A possible pattern sequence is displayed using the pattern deck

5.2 Location 2. Rainville pattern sequence



A possible pattern sequence is displayed using the pattern deck

5.3 Location 3. Blauwgrond pattern sequence



A possible pattern sequence is displayed using the pattern deck

5.4 Conclusion

Coastal areas such as the coast of Paramaribo where this pattern deck was designed have to cope with challenges such as flooding and coastal erosion. Moreover, urban expansion is expected in coastal areas, such as the coast of Paramaribo. (Re)introducing co-existence focuses on proposing a strategy for the coast of Paramaribo while paying special attention to flooding, coastal erosion and urban expansion. For this 3 locations along the coast are selected, for which strategies will be made focussed on the particular challenges each of the locations faces. The different strategies were developed alongside a pattern language. In the case of this project, the pattern language comes in the form of a pattern deck, of which the patterns come in the form of playing cards. The pattern cards are developed with the purpose of possible co-creation with residents and stakeholders.

Since the pattern cards were not only developed for co-creation with stakeholders but more importantly with residents, it was imperative that the pattern cards were tested on different audiences, varying from professionals to residents. The pattern cards are played in a so-called pattern game in which the player(s) is presented with a systemic section defining the situation of the location and then plays the pattern cards to come up with a design solution for this location.

The pattern game was played by two main audiences in order to test the cards and the actual game. Testing the game was important since the patterns would actually be presented in this game during the co-creation process. It was therefore important that the game works and the results of the game can be used during the design process to prove that co-creation through this pattern game is possible and successful.

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