

# Wonderful Resilience

Creating hope for an uncertain future

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- 1. The starting problem:** the quest for climate action through rational adaptation
- 2. Explanation of the context:** a tale of two scales
- 3. A two-tier approach:** local action meets systemic prototypes to generate wonderful resilience
- 4. The results of the projects:** international dialogues versus continuous adaptation in implementation
- 5. The broader project impact:** practical lessons and a shift in (design) culture accelerating wonderful resilience



# **1. The starting problem: the quest for climate action through rational adaptation**

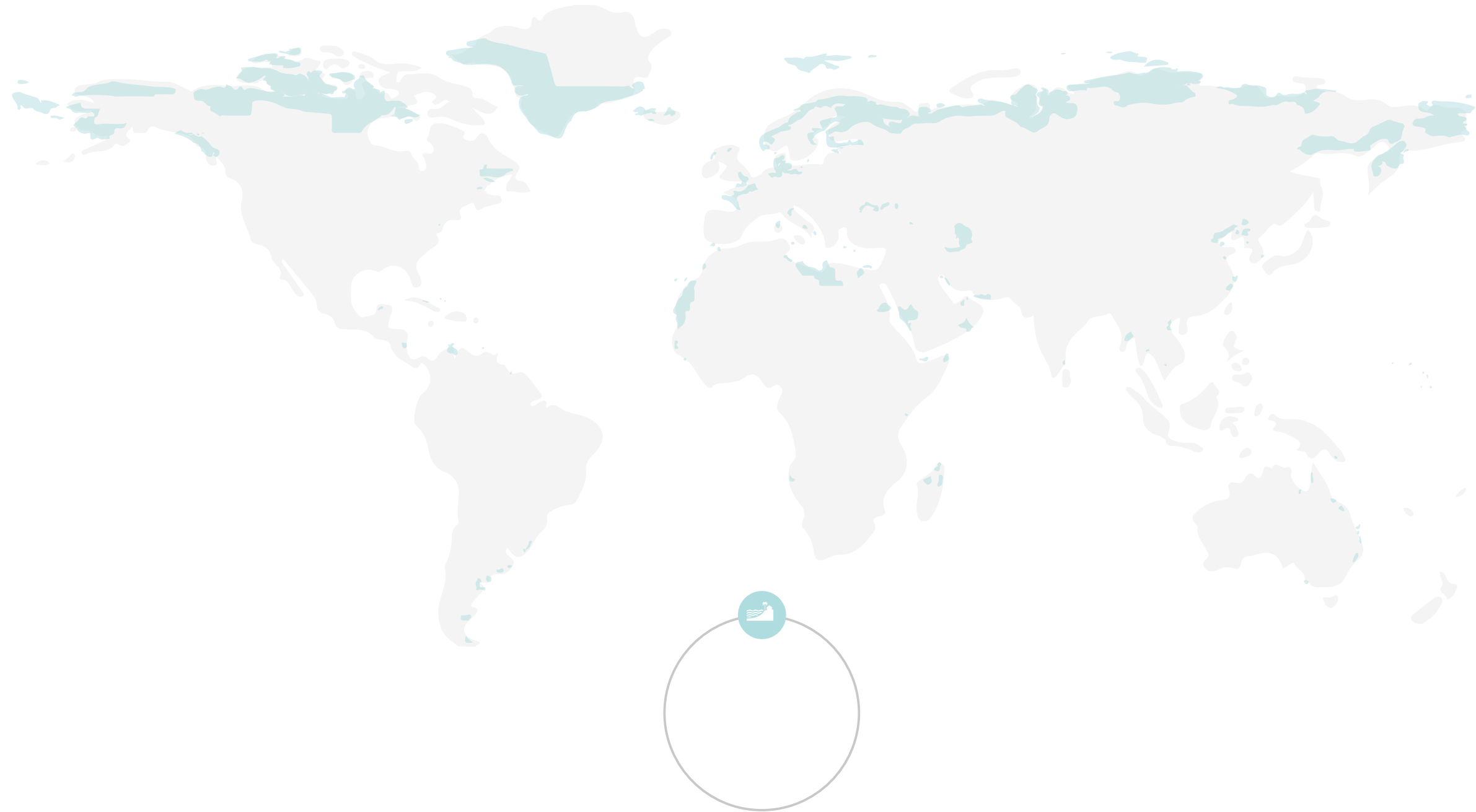


An aerial photograph showing a residential neighborhood completely inundated with floodwater. Numerous houses of various architectural styles, including two-story brick homes and larger multi-story houses, are partially submerged. The water is a deep blue-grey color, reflecting the sky. Trees and landscaping are also partially underwater. A dark horizontal bar with white text is centered across the middle of the image.

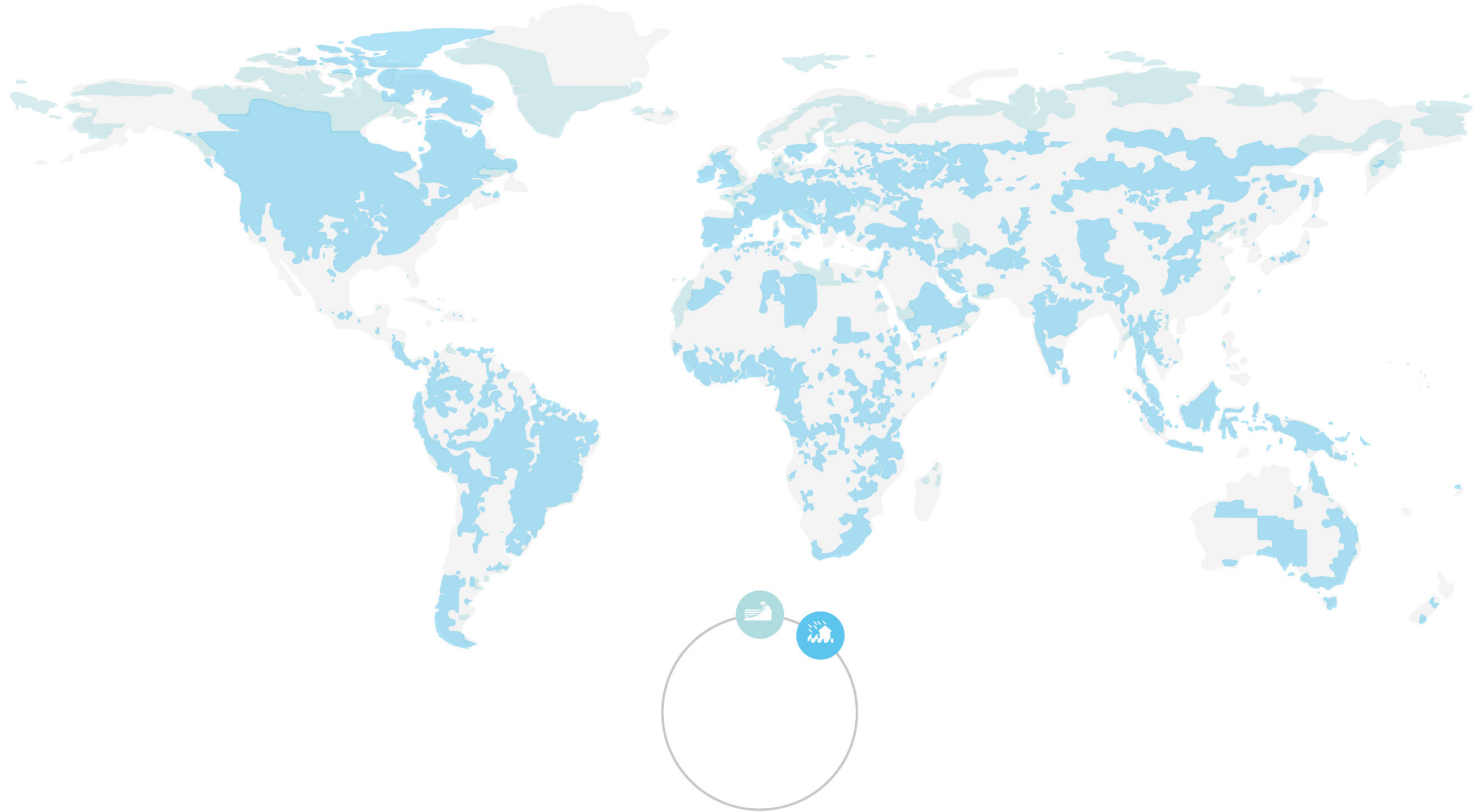
**We are facing an undeniable water crisis**



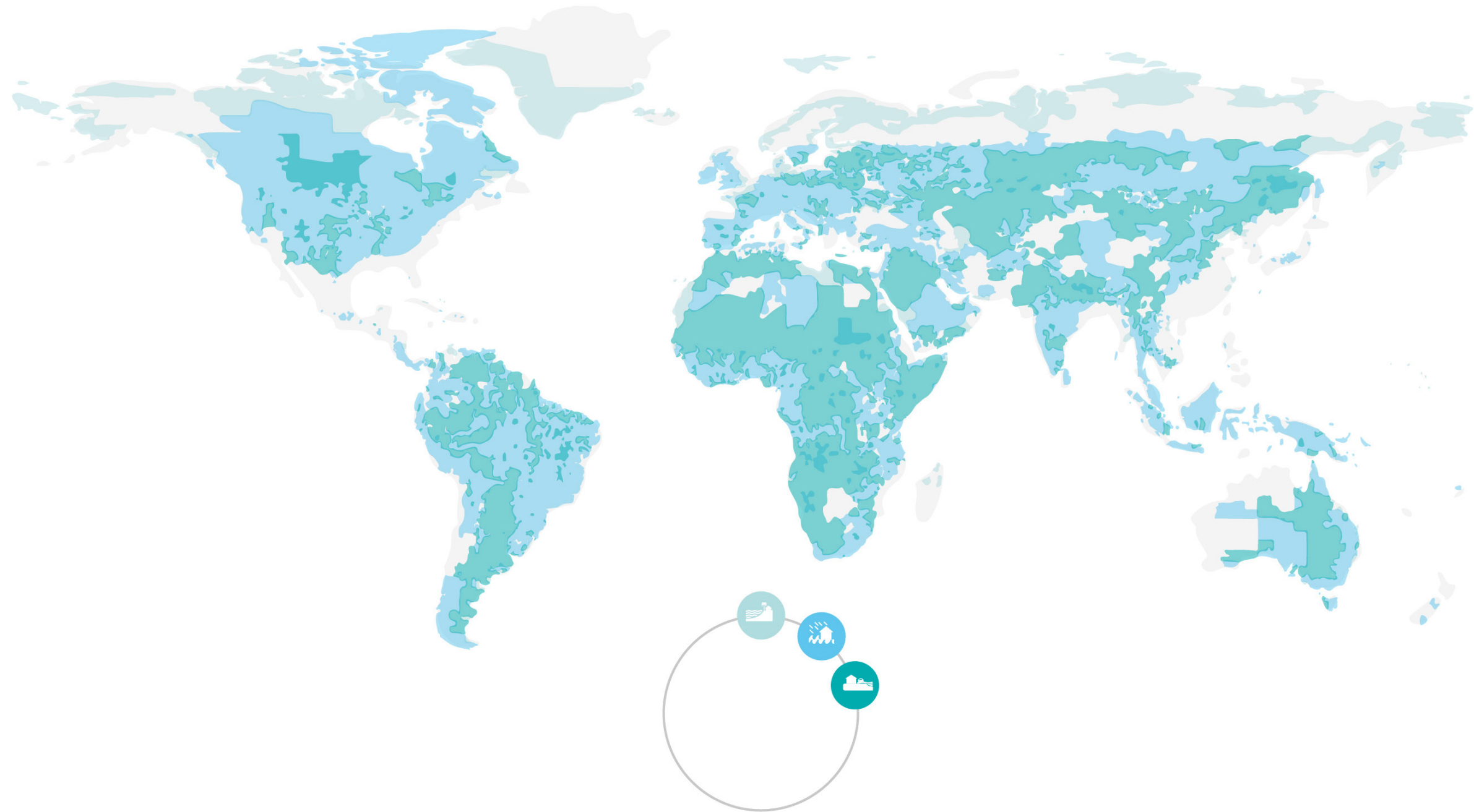
# Coastal fooding & sea level rise



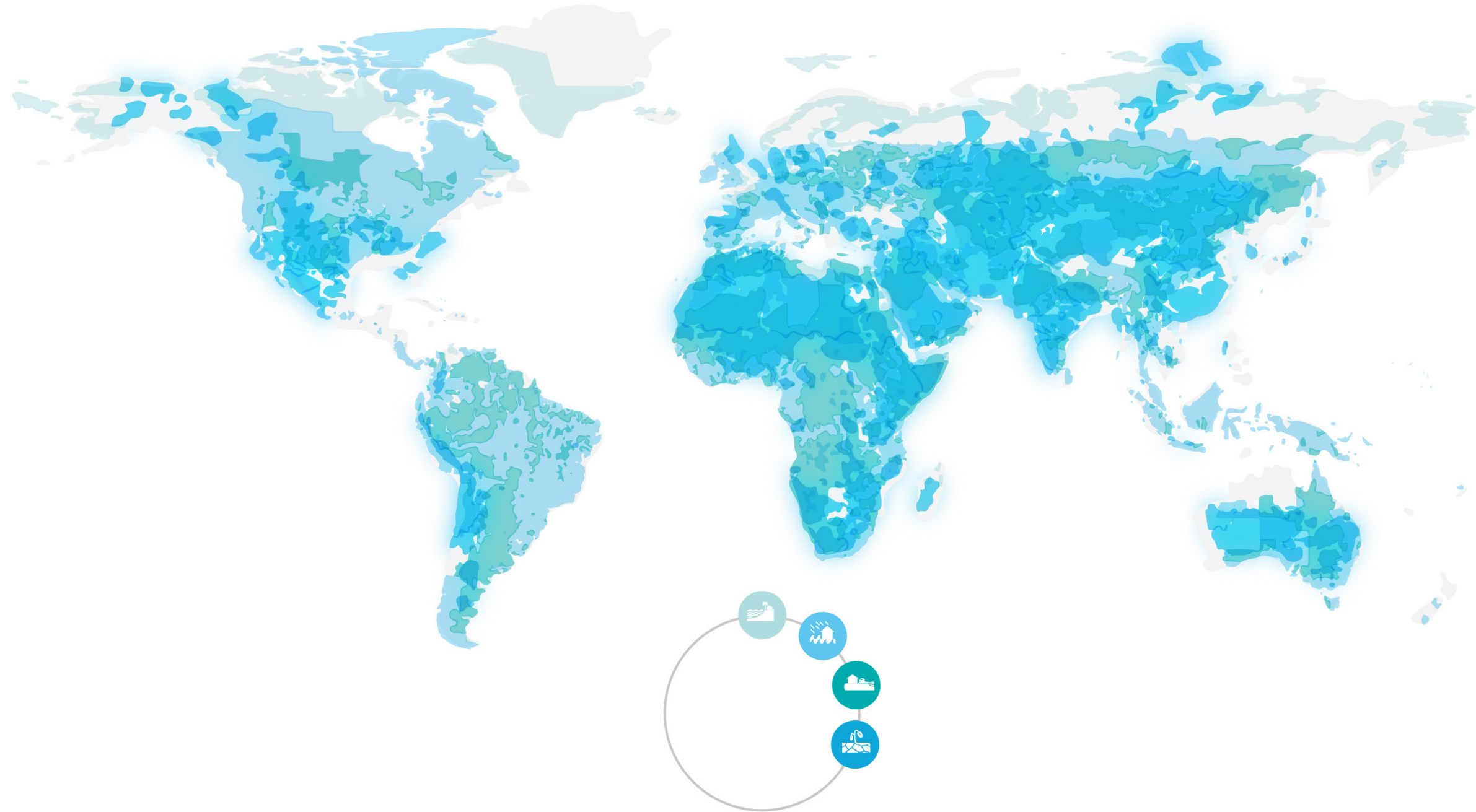
# Surface flooding & flash floods



# River flooding

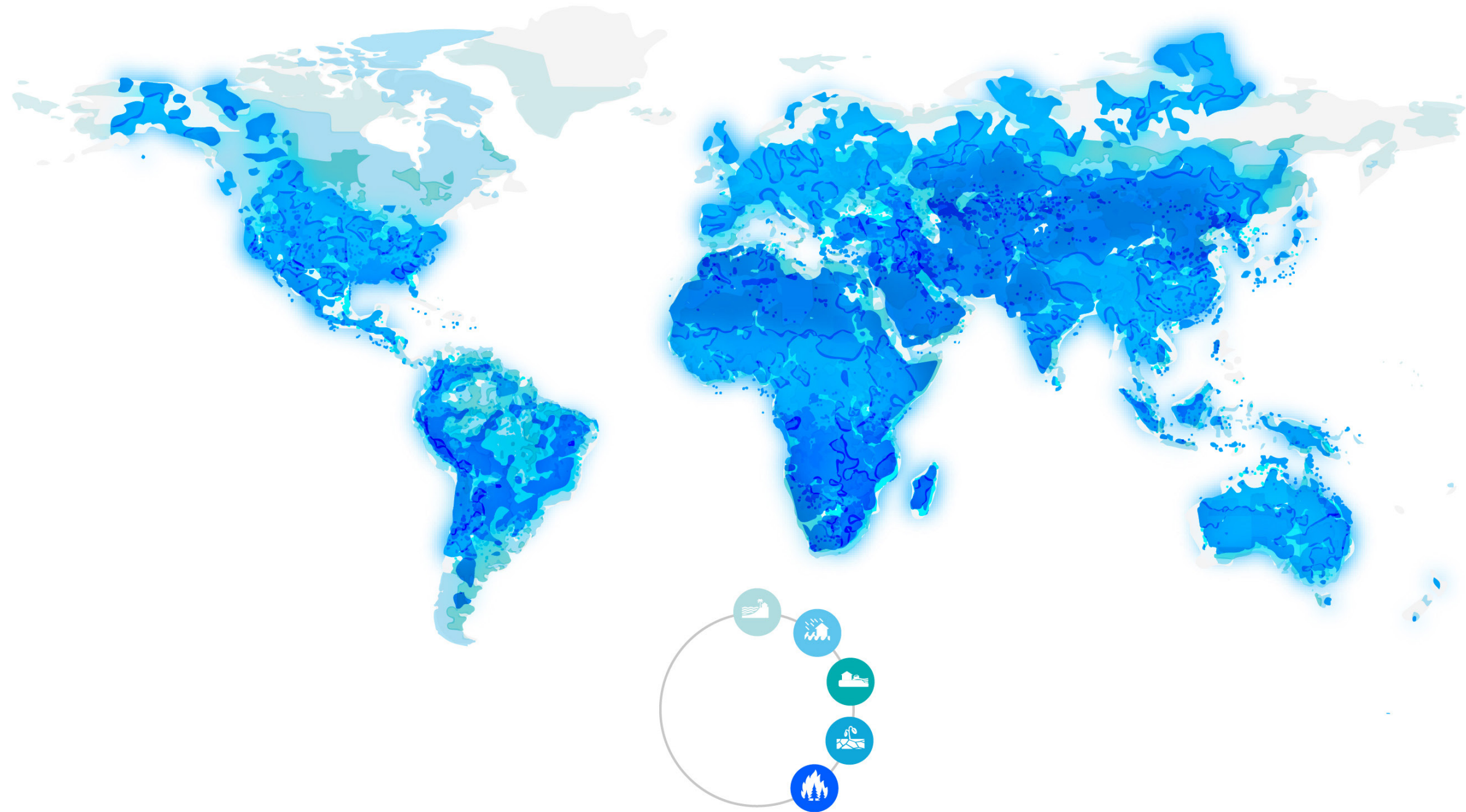


# Drought

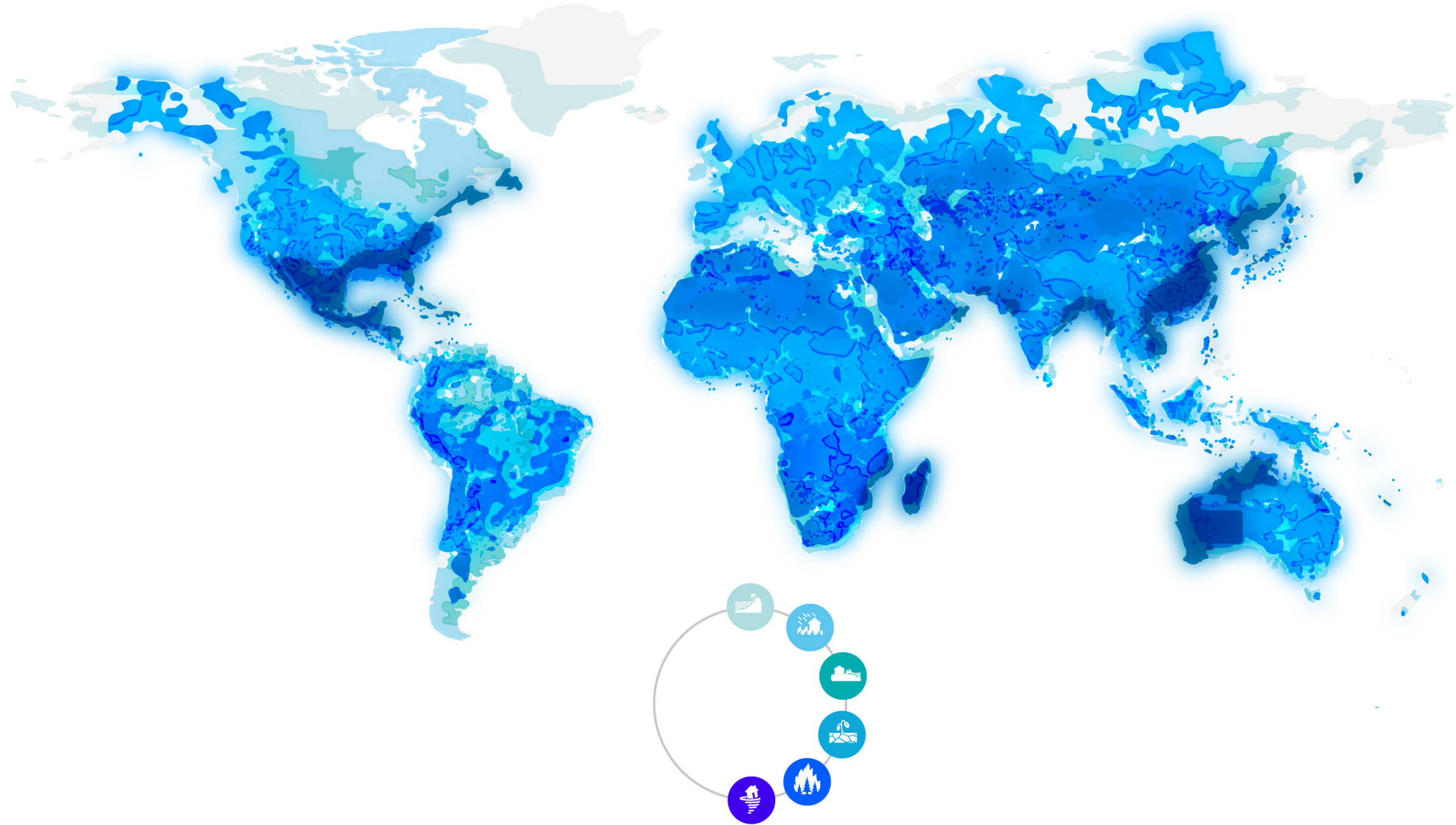




# Wildfires



# Storms & cyclones





This disbalance of our global water systems is impacting our urban environments gravely.

Systematic shocks and stresses engrave the impact on already vulnerable communities even more.

# Earthquakes



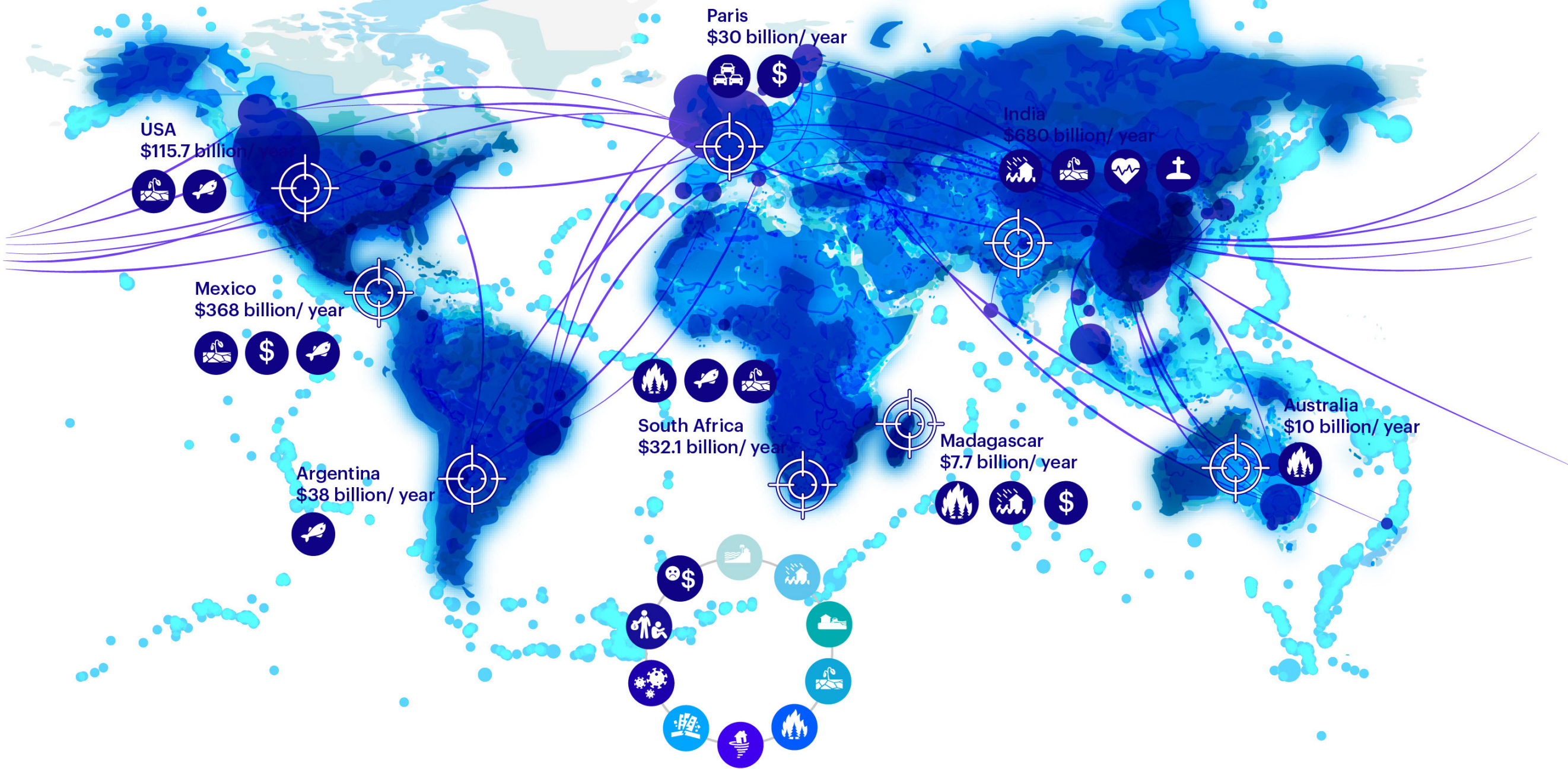


# Pandemics





# Economic crises





Leaving vulnerable communities trapped in a downward spiral








And making our cities more and more fragile



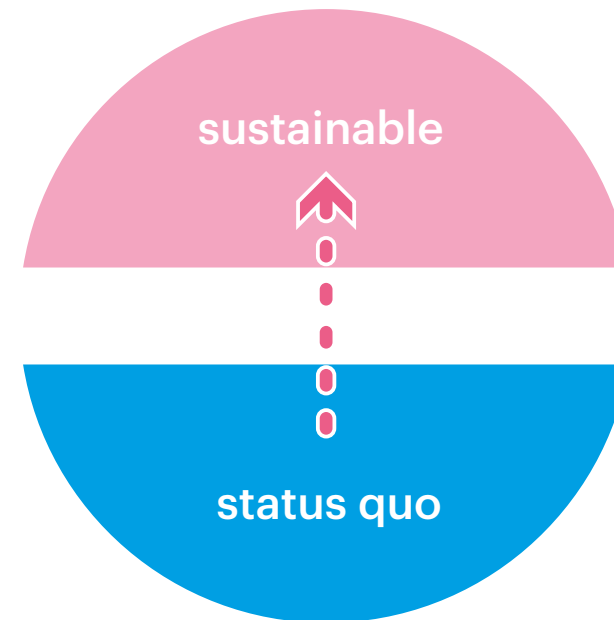


A group of students and a teacher are gathered around a table, working on a project. The table is covered with various materials, including white paper, purple and yellow pieces, and a clear plastic bag. The students are focused on their work, and the teacher is leaning over, providing guidance. The background shows a dark wall with a wooden shelf and a black jacket hanging on it.

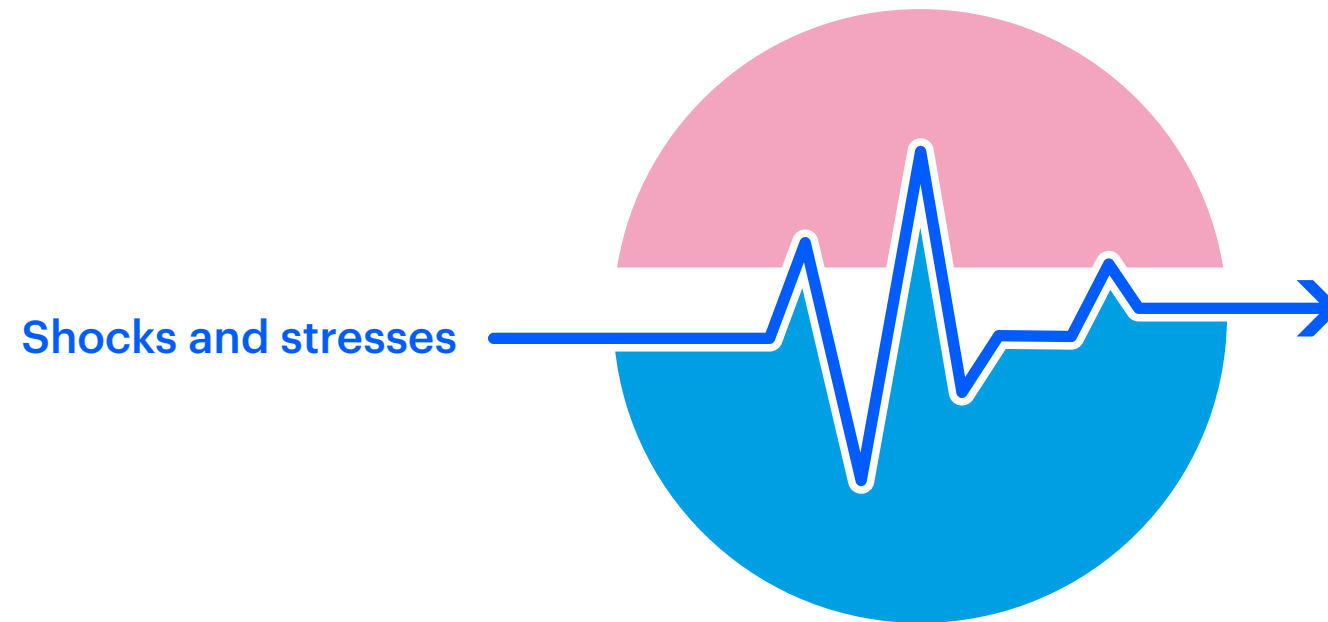
**We need to act to build a strong future  
for the generations to follow**



# Our way to a sustainable future



Is disrupted by the systematic shocks and stresses



Building resilience can help us to buffer them and even accelerate the transition towards a better future

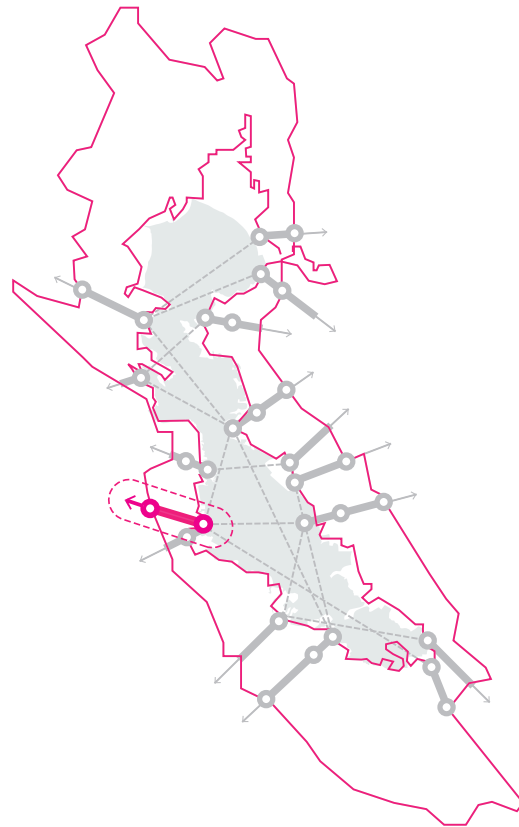
Resilience buffer



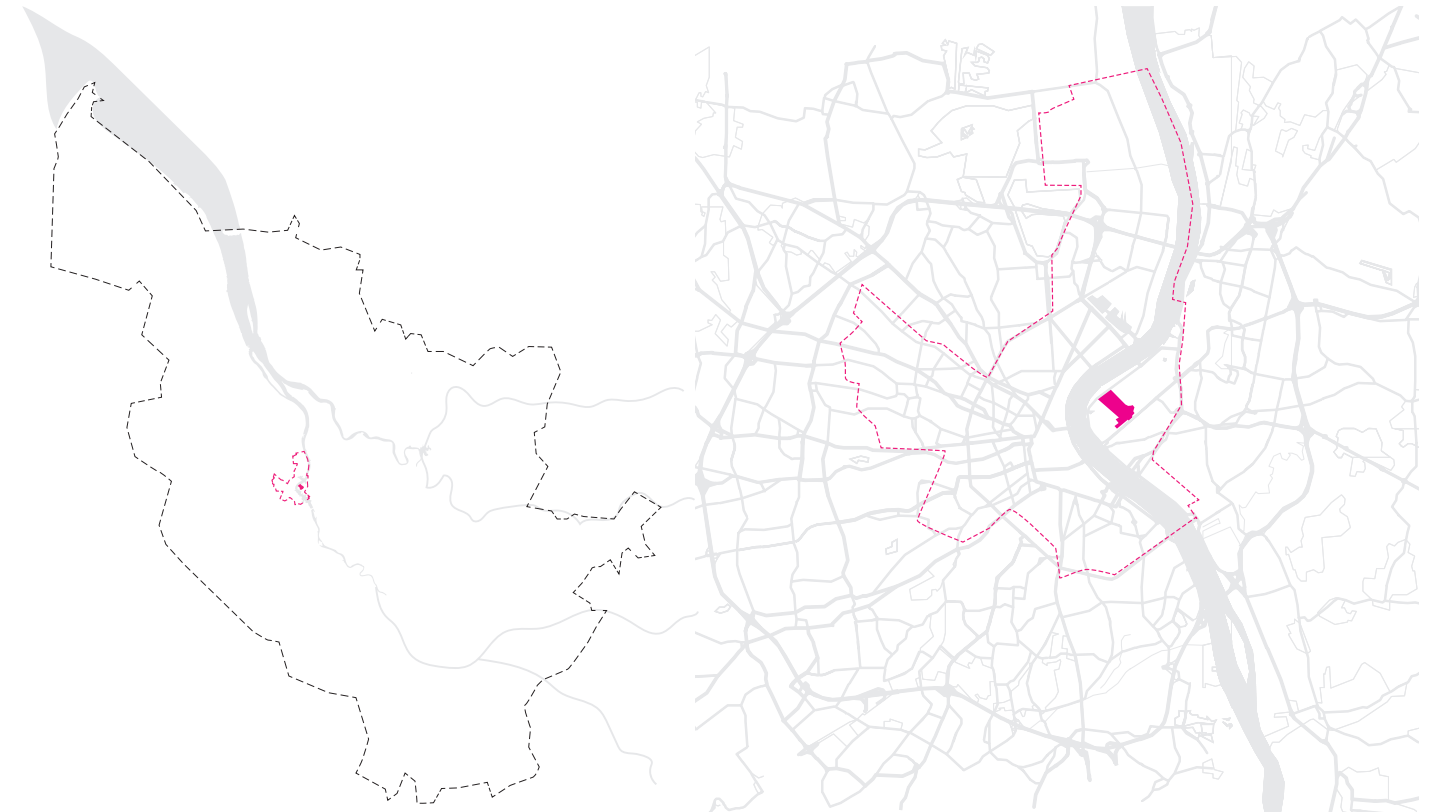
The backbone of MVRDV's resilience strategy is inter-linking and transforming vulnerabilities into drivers for optimistic, robust and daring designs, challenging stakeholders to co-create a desirable and adaptive urban future that works in concert with nature.

## **2. Explanation of the context: a tale of two scales**

# Comparing 2 projects



**Bastide Niel, Bordeaux**



**Resilient By Design, San Francisco**



# Bastide Niel

Location: Bordeaux, France

Year: 2010 – present

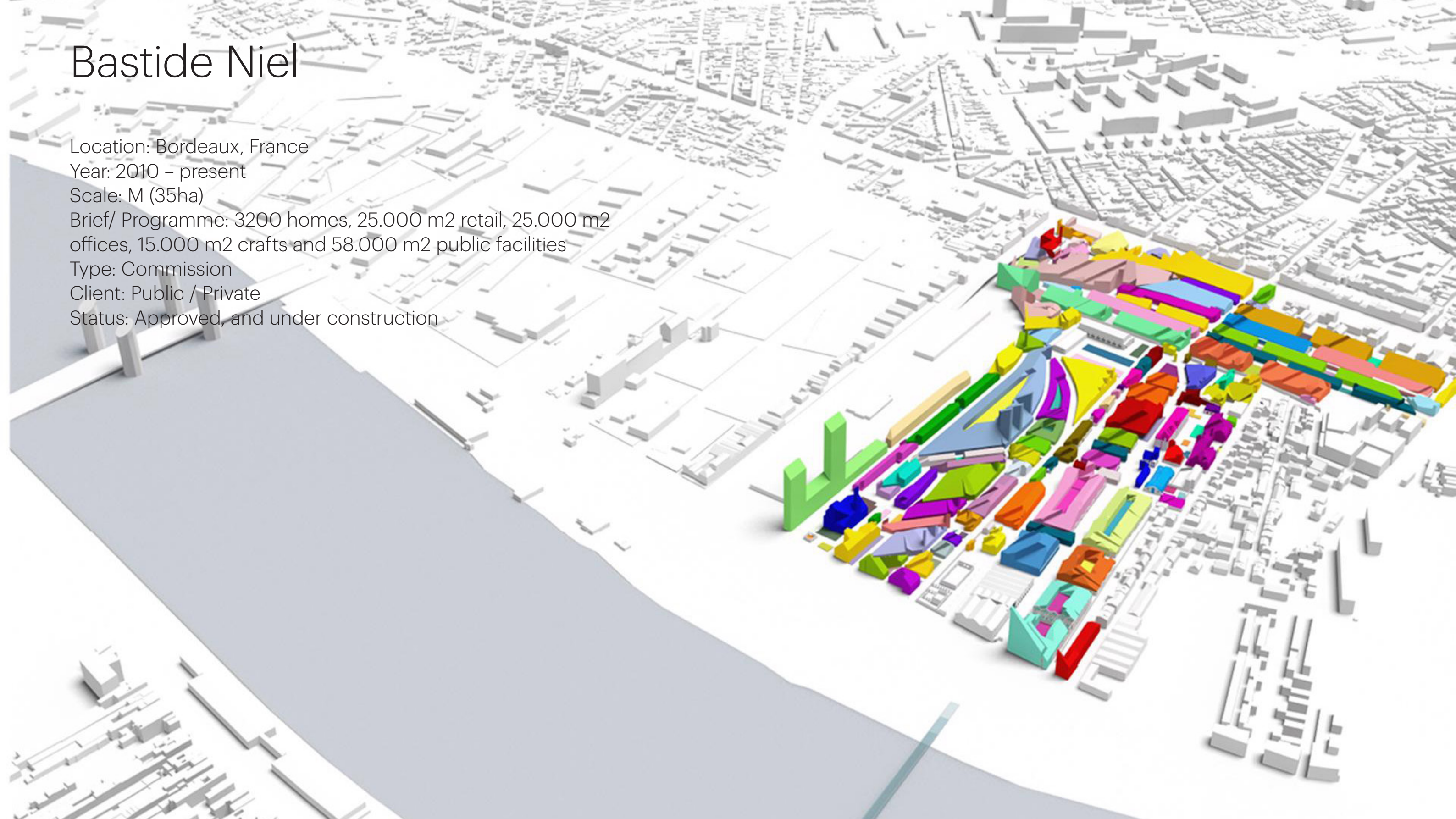
Scale: M (35ha)

Brief/ Programme: 3200 homes, 25.000 m<sup>2</sup> retail, 25.000 m<sup>2</sup> offices, 15.000 m<sup>2</sup> crafts and 58.000 m<sup>2</sup> public facilities

Type: Commission

Client: Public / Private

Status: Approved, and under construction





# Resilient by Design, San Francisco

Location: San Francisco Bay Area, USA

Year: 2018-2019

Brief / Programme: re-imagine and transform waterfront communities around the San Francisco Bay area into vibrant public places for everyday use, as well as disaster response and environmental innovation

Scale: XXL (regional)

Type: Competition

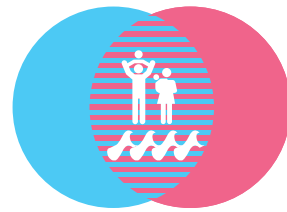
Client: NGO

Status: competition completed





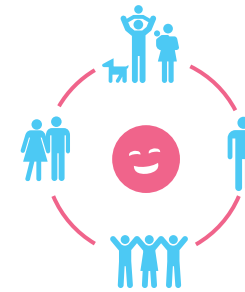
# Wonderful Resilience Principles



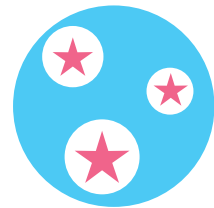
1. Simbiotic



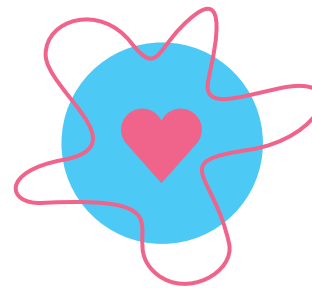
2. Simple



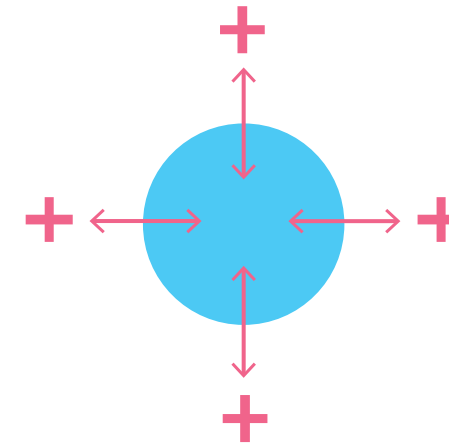
3. Fun



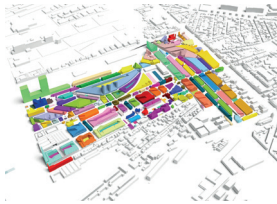
4. Darignly Robust



5. Desirably Adaptable



6. Win-Win



Bastide Niel



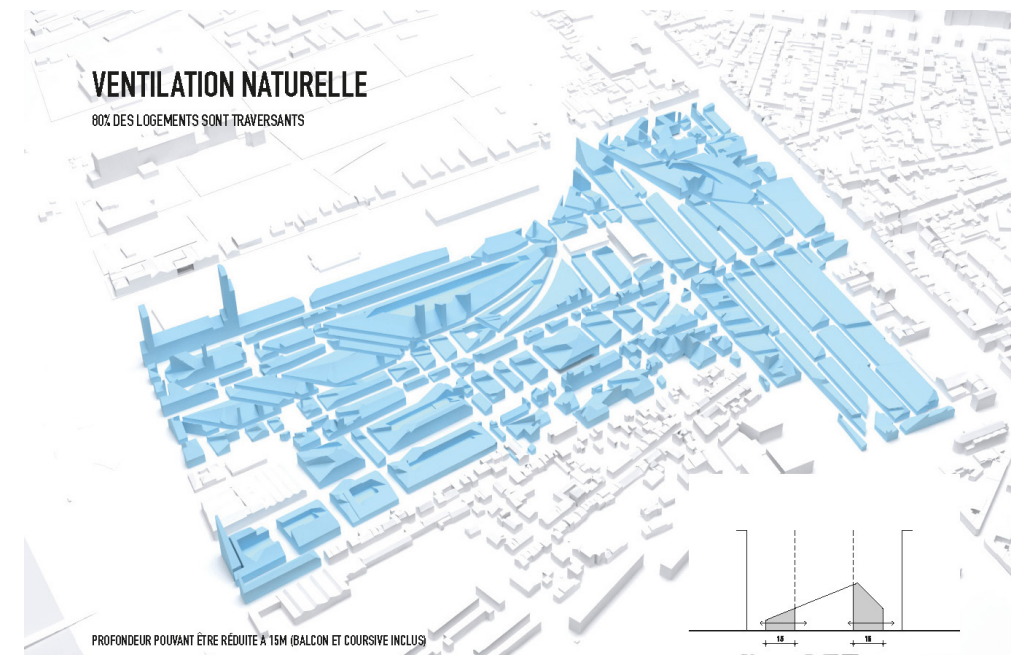
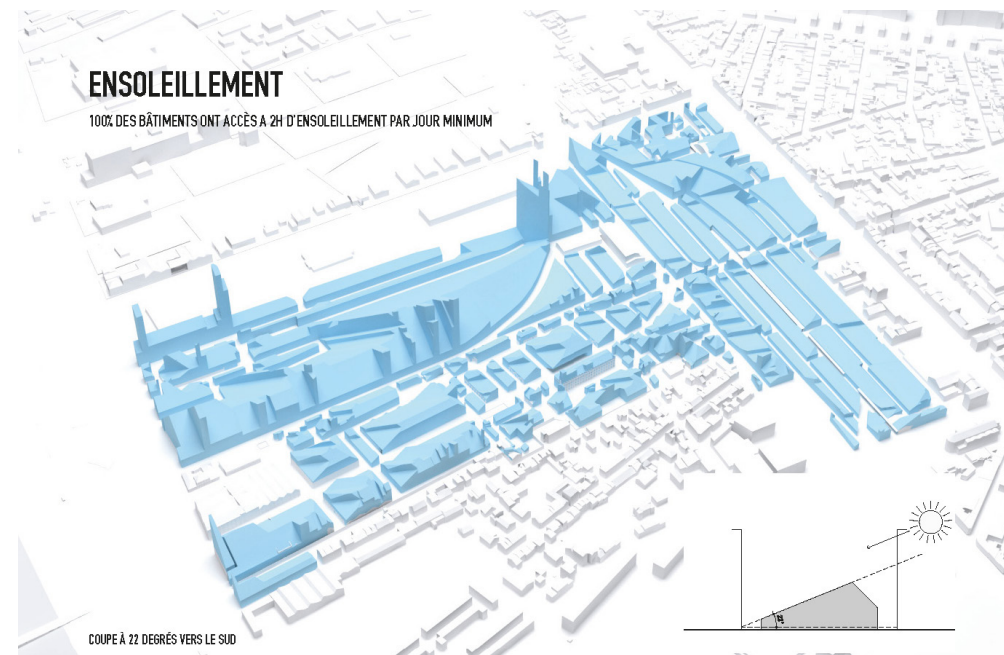
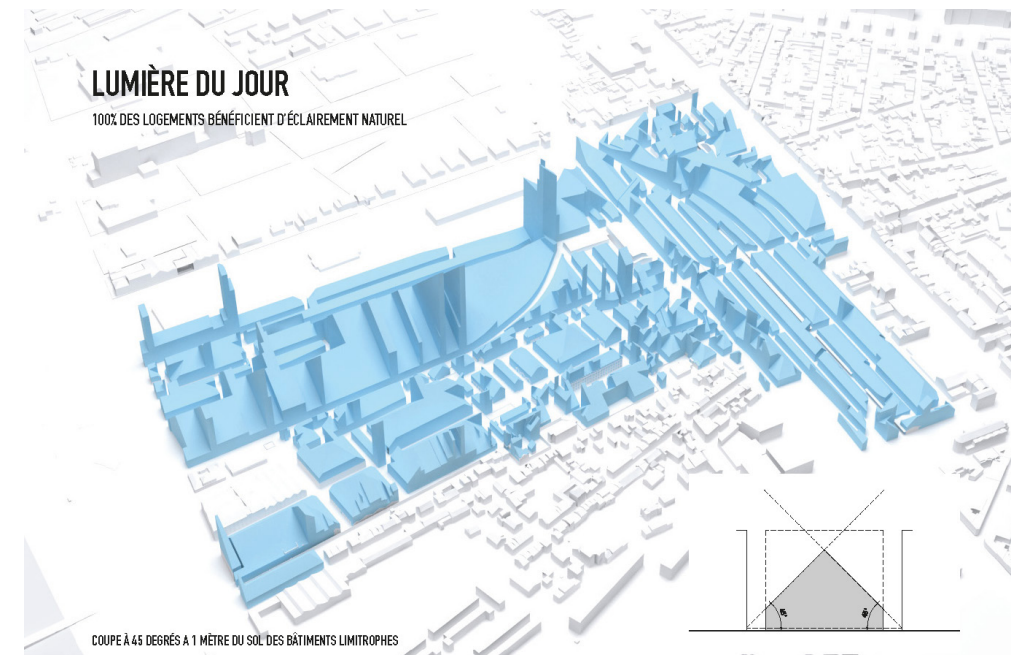
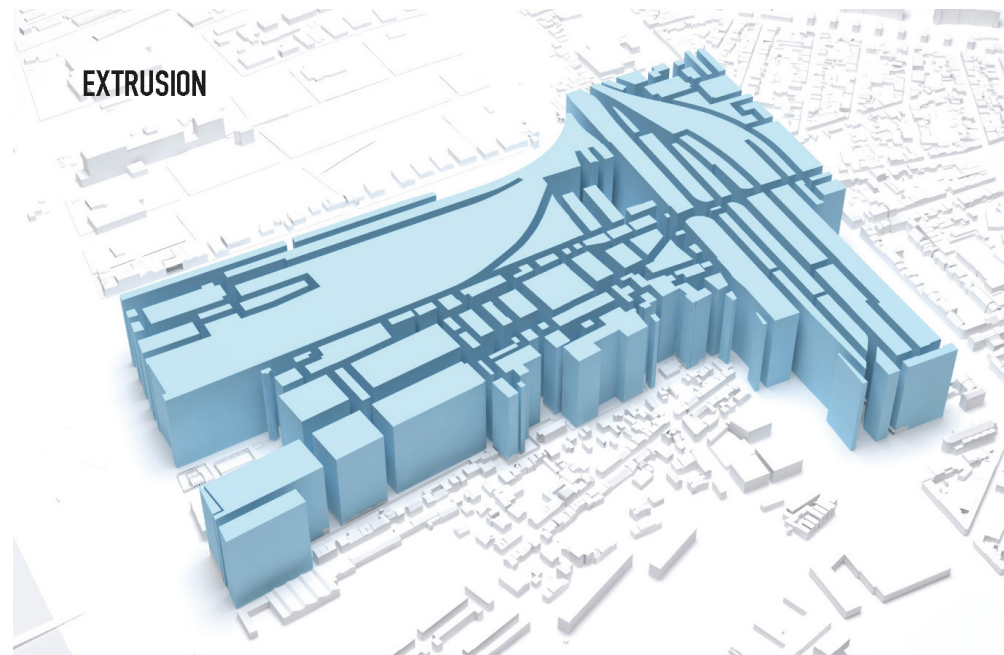
Resilient By Design

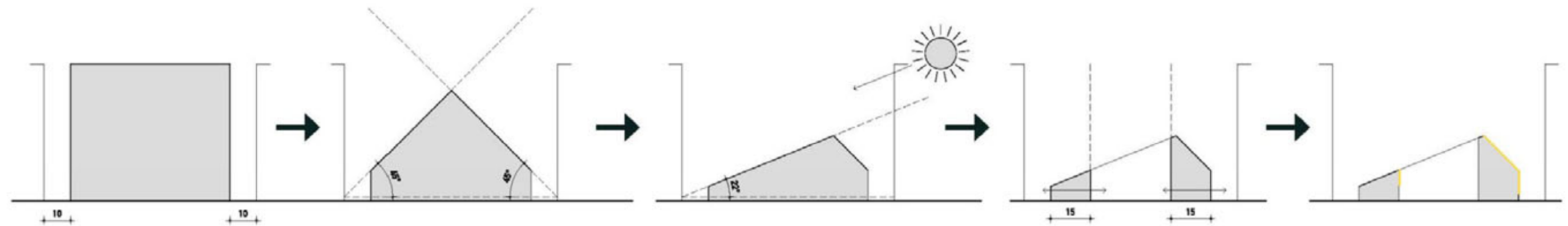
Scale	Project size	M - neighbourhood scale , 35ha	XXL - regional scale & L- municipal scale
	Main focus of resilience concept	M - neighbourhood scale , 35ha	XXL - regional scale
	How did scale influence the resilience approach?	The scale of the site offers the opportunity to implement and test innovative spatial and technical resilience measures in single buildings but also smaller networks of urban environments. Due to its size and thus gradual realization, feedback loops, design adaptation and -optimization are possible.	The study area comprises a regional scale, supporting the translation of systemic resilience strategies into feasible, yet adaptable prototypes for local actions.
Time	Project start	2010	2018
	Project duration	10 years +	1 year
	Project status	under construction	concept / masterplan proposal
	How did time influence the resilience approach?	The project began when climate change had not achieved a critical mass of awareness in planning and design practices, therefore water buffers might be underdimensioned on long-term and the approach to sun exposure and amount of green is currently being reviewed to reduce urban heat, driven by a recent change of political agenda	RBD began in 2018, when the effects and correlations of climate change were increasingly visible, so the need for integral resilience was evident. The duration of the project was relatively short seen its ambition to include XXL and L scales, extensive stakeholder engagement, multidisciplinary co-design and securing of funding for implementation within the competition timeframe. Therefore, the approach focused on resilience awareness and visions rather than execution.
Client & Funding	Type of client	Public, PPP in implementation stage	NGO
	Funding of design process	Public	Foundation
	Funding of project development	Public	–
	How did client & funding influence the resilience approach?	Funding for both, planning process and project development, was secured and driven by socio-economic demand (housing) with clear financial returns. As local, national and European agendas have to be considered by the public sector, the municipality/mayor being the client fostered the implementation of innovative resilience solutions.	Funding for the competition process was mostly provided by foundations. This enabled a new type of planning process, aiming to bridge current administrative boundaries, cultural and legislative gaps obstructing integral collaboration for resilience. Implementation was not secured and relied on mostly private sector funding, facing high risks of investments without guaranteed financial return and hampering cross-sector collaboration. The integral resilience principles therefore needed to be broken down into more singular, comprehensible projects.
Stakeholders	Main stakeholders involved	Municipality, Mayor, private “executor” in PPP, citizens marginally	Organizers, Advisory board, local organizations, authorities, communities
	Timing of involvement	Public: constant, private executor: implementation, citizens: events	Organizers & board: in presenations, communities: research & design stage
	How did stakeholders influence the resilience approach?	The recent change of Mayor influenced the project greatly. A new political, “green” agenda lead to revisions of the masterplan, ensuring additional green, porosity and cooling through adaptations of the sun cuts of the building envelopes. The legal framework of the ZAC entails a majority of public ownership of the site. With the exception of one private owner, few other stakeholders are influential other than the public sector.	RBD operates in a borderless scope, across jurisdictions, with diverse communities directly affected and involved. The multitude of stakeholders requested for a broad participatory approach to resilience, focussing on social issues and their links with envrionmental issues. The engagement process occupied most of the timespan of the project and beyond, making the need for inclusion and empowerment evident.
Governance/ Planning culture	Drivers of urban development	Public sector	Private sector
	Legal planning frameworks	ZAC	No integral regional planning
	How did governance/culture influence the resilience approach?	Even though driven by the public sector, an individualistic approach to resilience is present: requirements for flood protection are made on ZAC level, with responsibility to not affect neighbouring plots. Collaboration to improve larger systematic issues is not commonplace. Therefore, the approach for this site is not considering site-external systems. The top-down nature of the ZAC development allows for relatively straightforward implementation.	Similar to Bordeaux, the local culture and governance is built on individual actions/separate expertises with little cross-sector collaboration. This makes the implementation of integral projects that contribute to systemic resilience difficult. The lack of regional governance

**3. A two-tier approach: local action meets systemic prototypes to generate wonderful resilience**

**Bastide Niel, Bordeaux**

# Step-story of design concept: sun-cut volumes





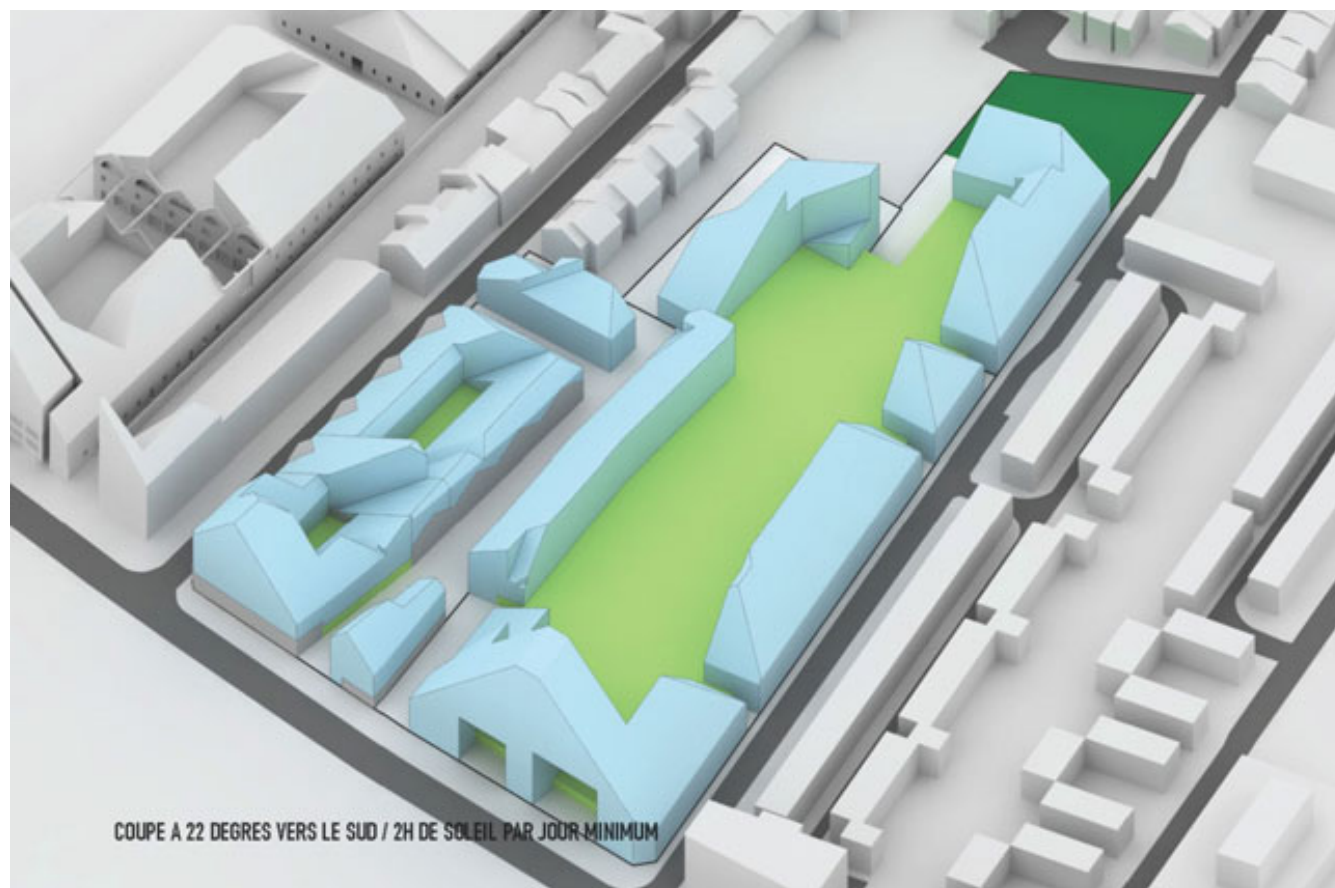
Day light

Insolation

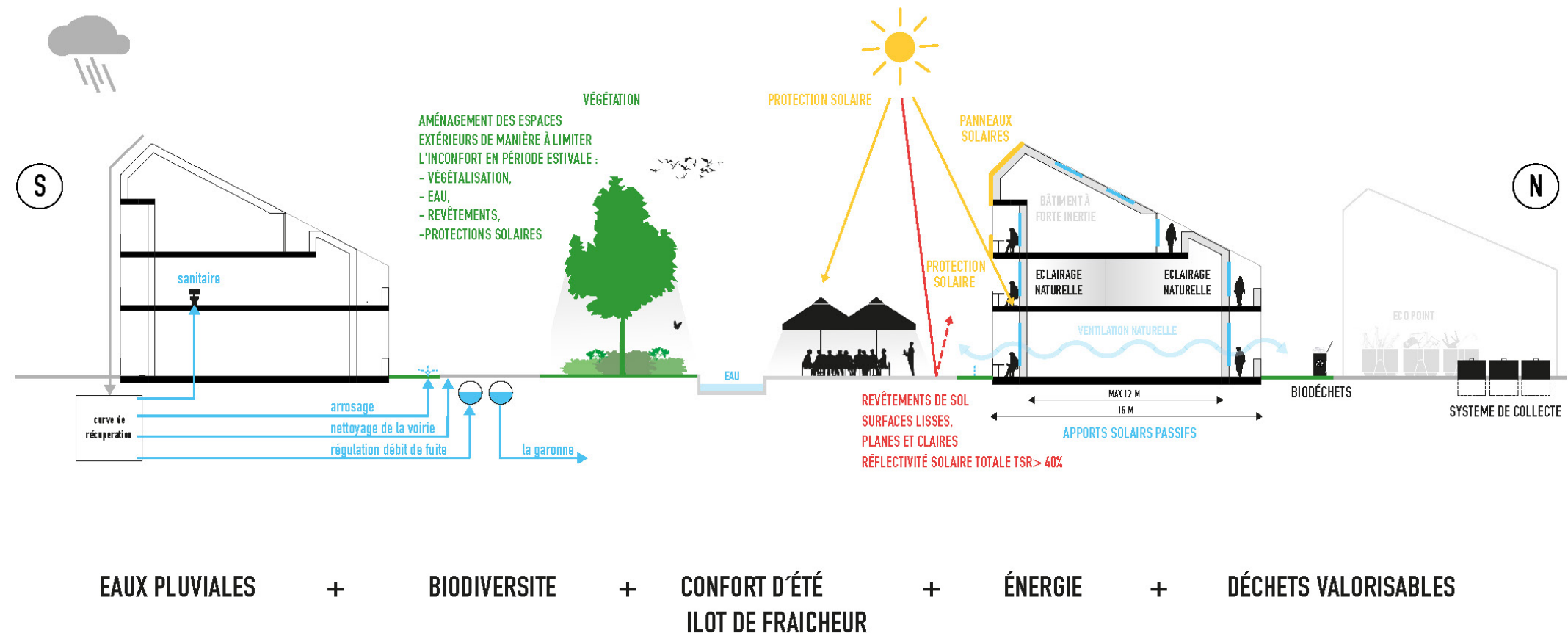
Ventilation

Solar panels





# Water permeability and storage concept





# HAUTEURS D'EAU MAXIMALES

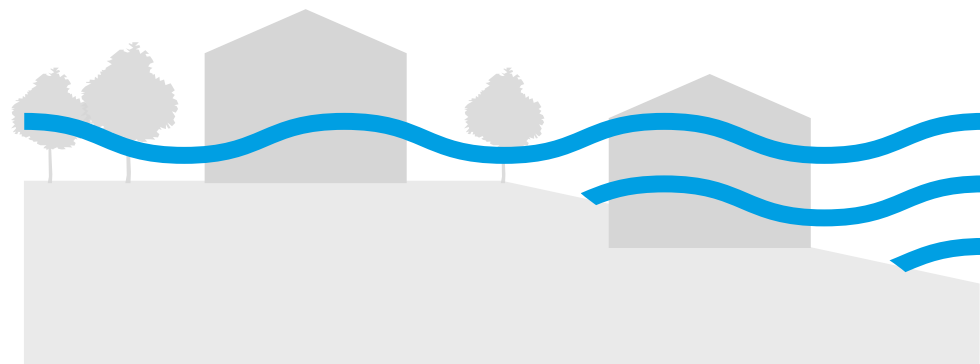
CONFIGURATION DE RÉFÉRENCE

## LÉGENDE

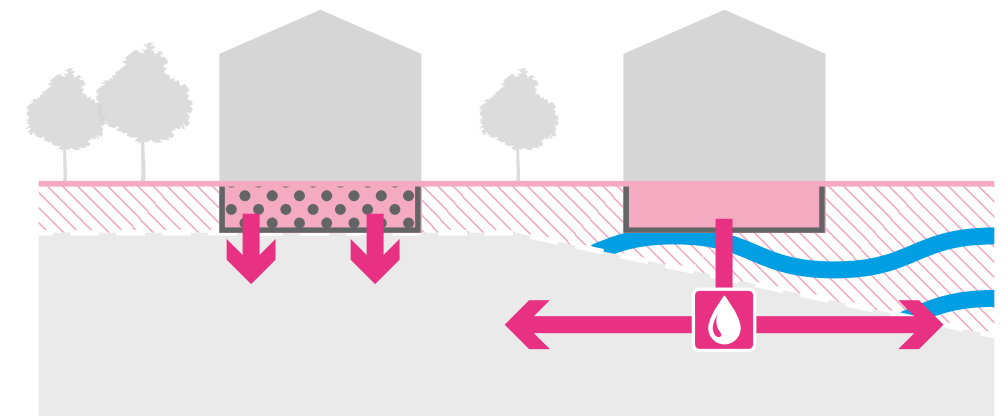
- BÂTI HPROJET URBAIN
- - - PÉRIMÈTRE DE LA ZAC
- ZONE INONDÉE < 0.25 m
- ZONE INONDÉE 0.25 - 0.50 m
- ZONE INONDÉE 0.50 - 1.00 m

DONNÉES EXTRAITES DE L'ÉTUDE HYDRAULIQUE ARTELIA - INDICE 02 - JUIN 2015 ( FIG. 20 )

0 100 200m



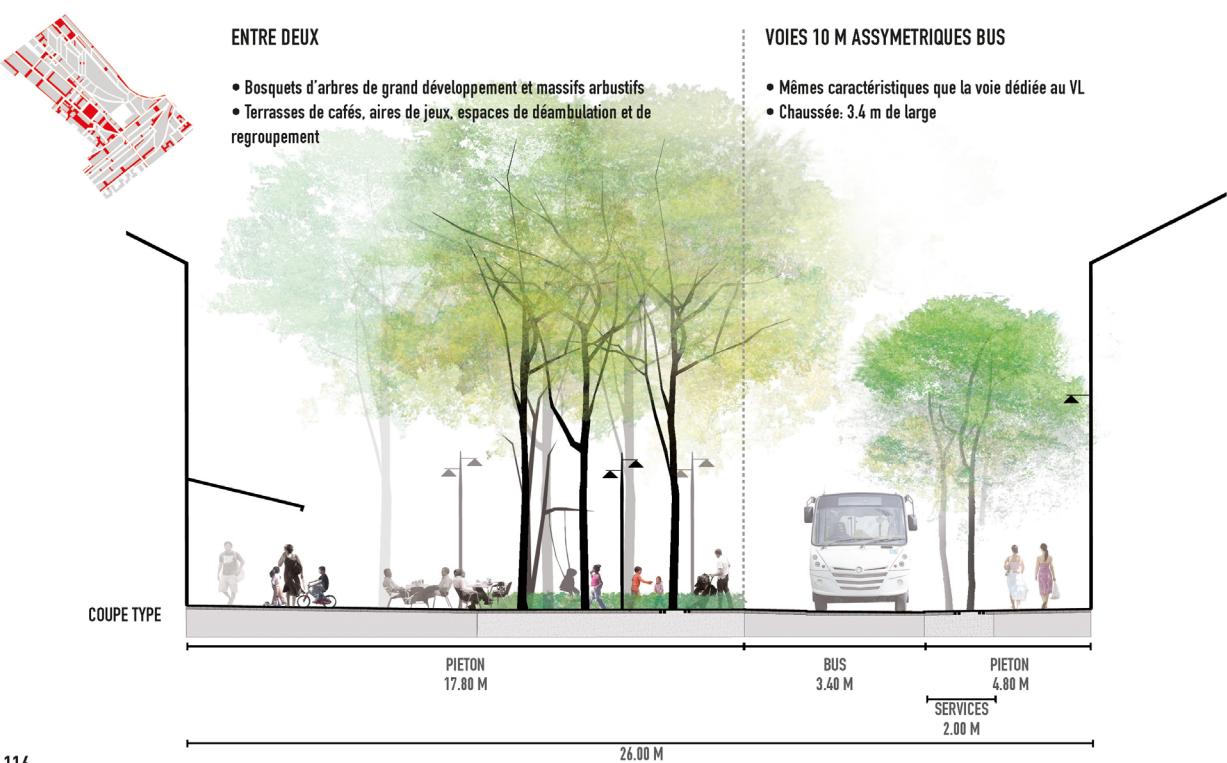
A potential densification site in vulnerable floodplains



An urban design that integrates spaces for waterbuffers, making a symbiosis of urban life and river system possible.



VOIES 10 M ASYMETRIQUES BUS ET ENTRE DEUX – ZONE 30 ET AIRE PIÉTONNE



VOIES 10 M ASYMETRIQUES BUS ET ENTRE DEUX – ZONE 30 ET AIRE PIÉTONNE









# Intimate city concept













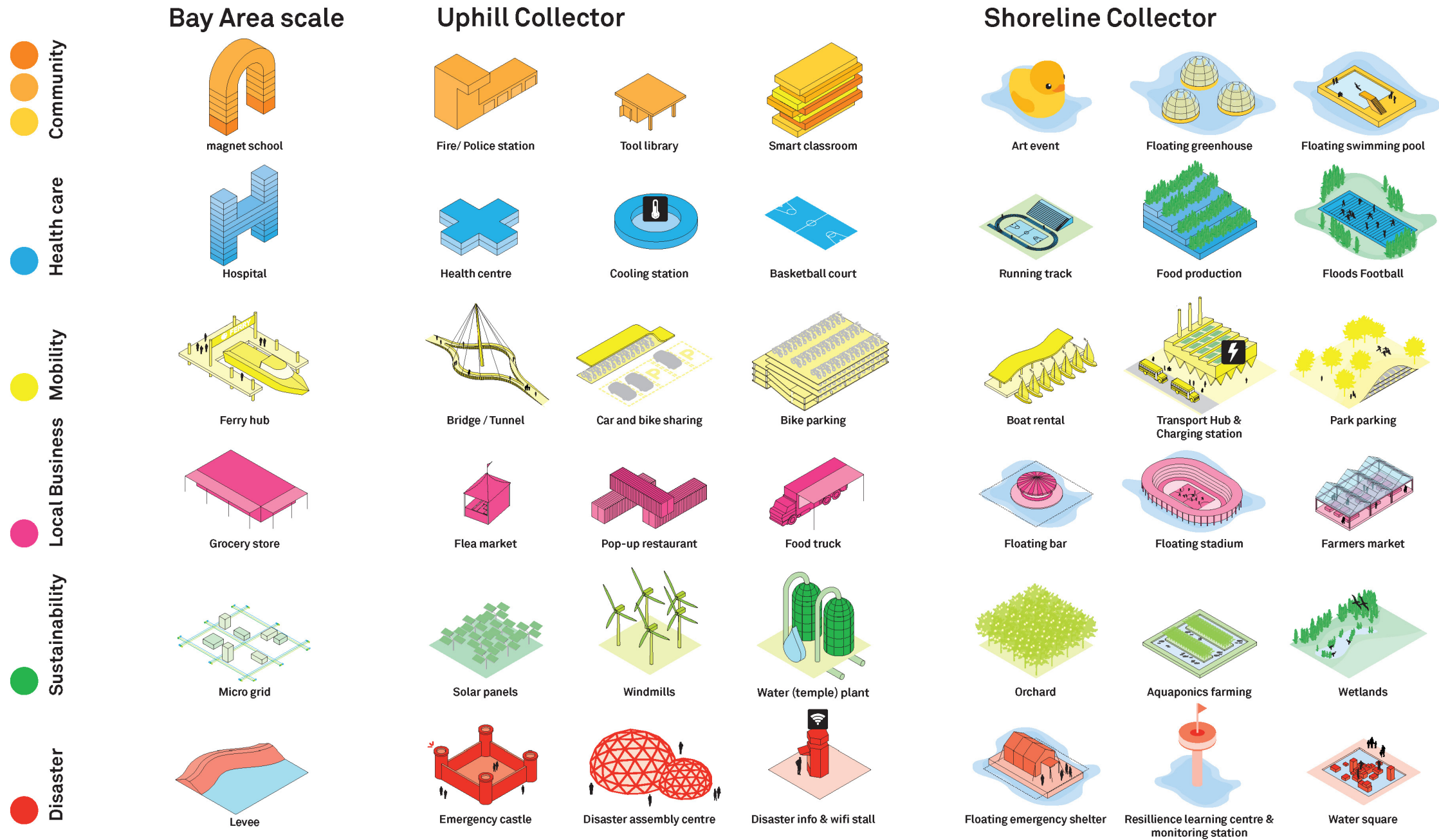
# Intimate city concept



**Resilient By Design, San Francisco**

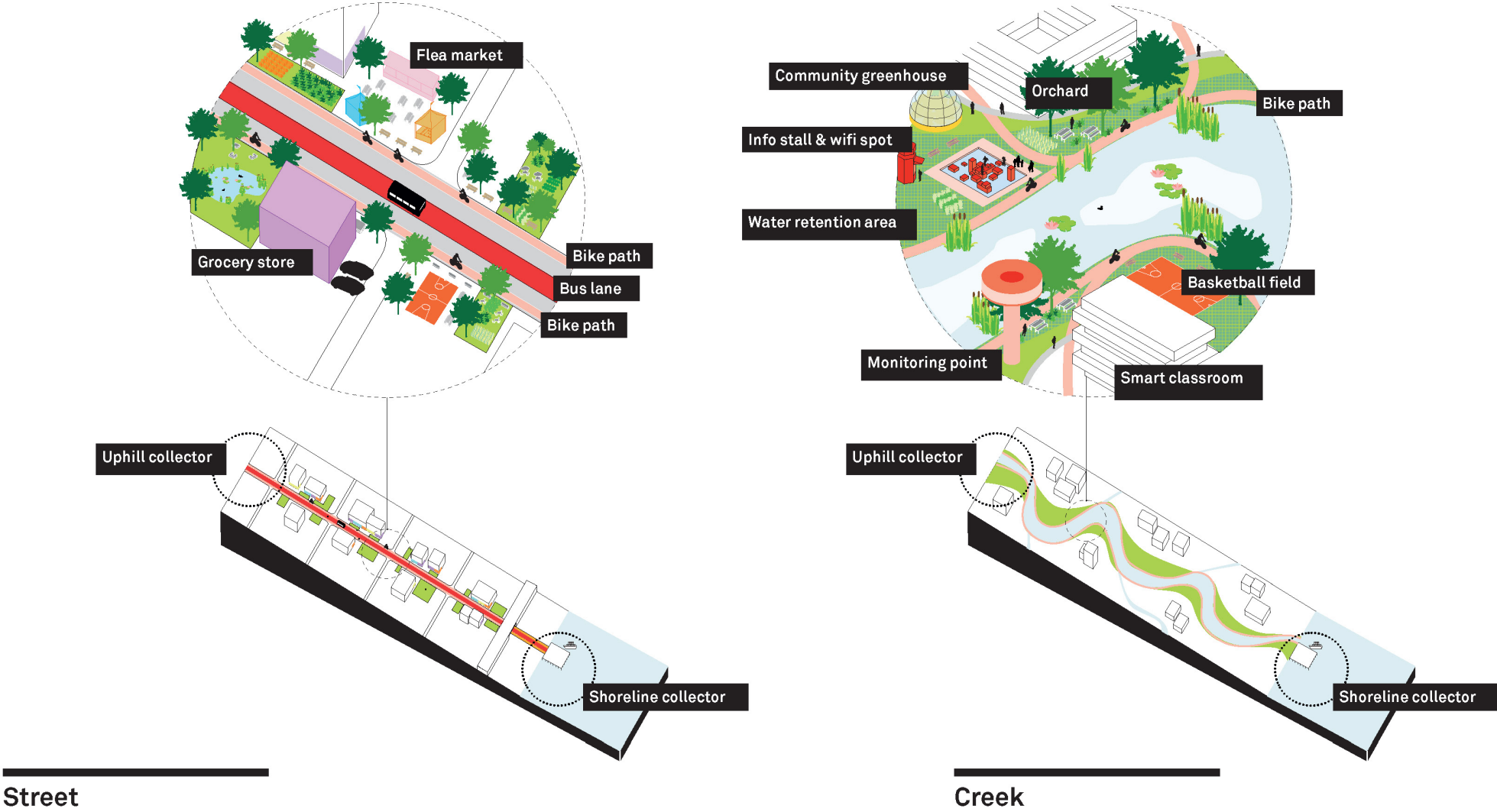


# Collect+Connect concept for a robust regional system



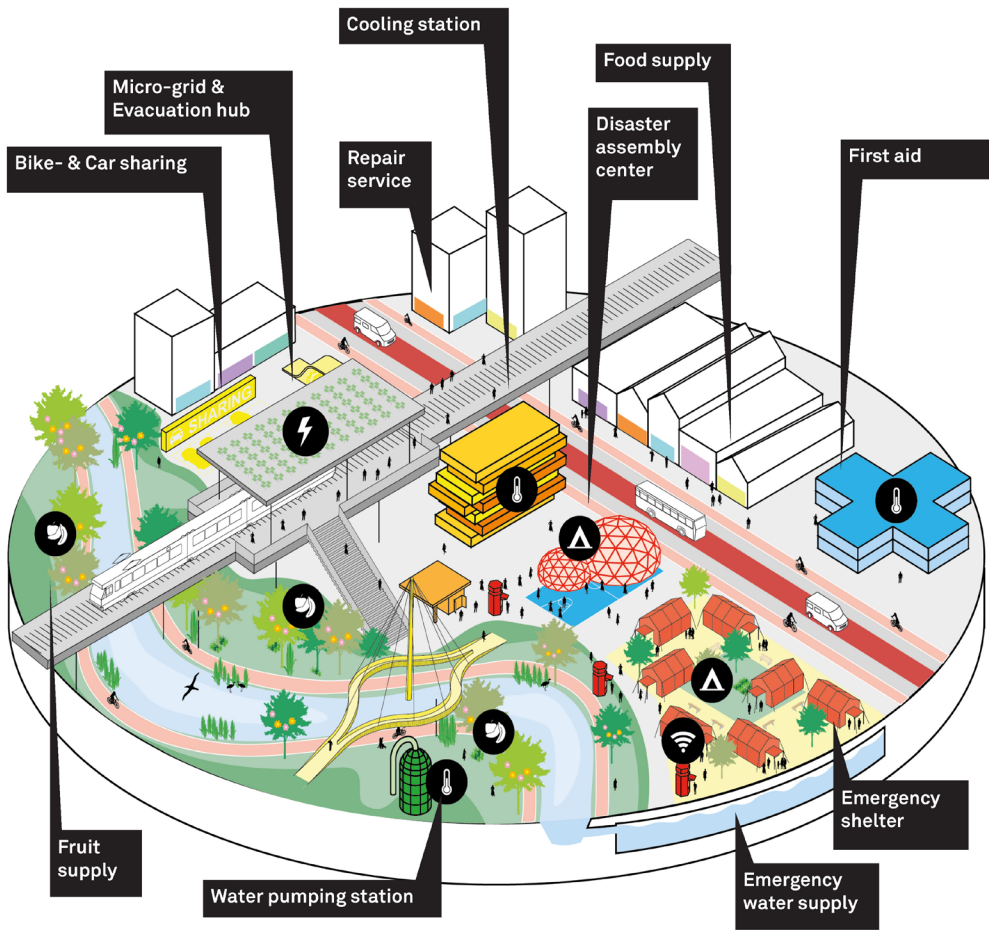
# Concept for spatial interventions along Connectors

## Connector

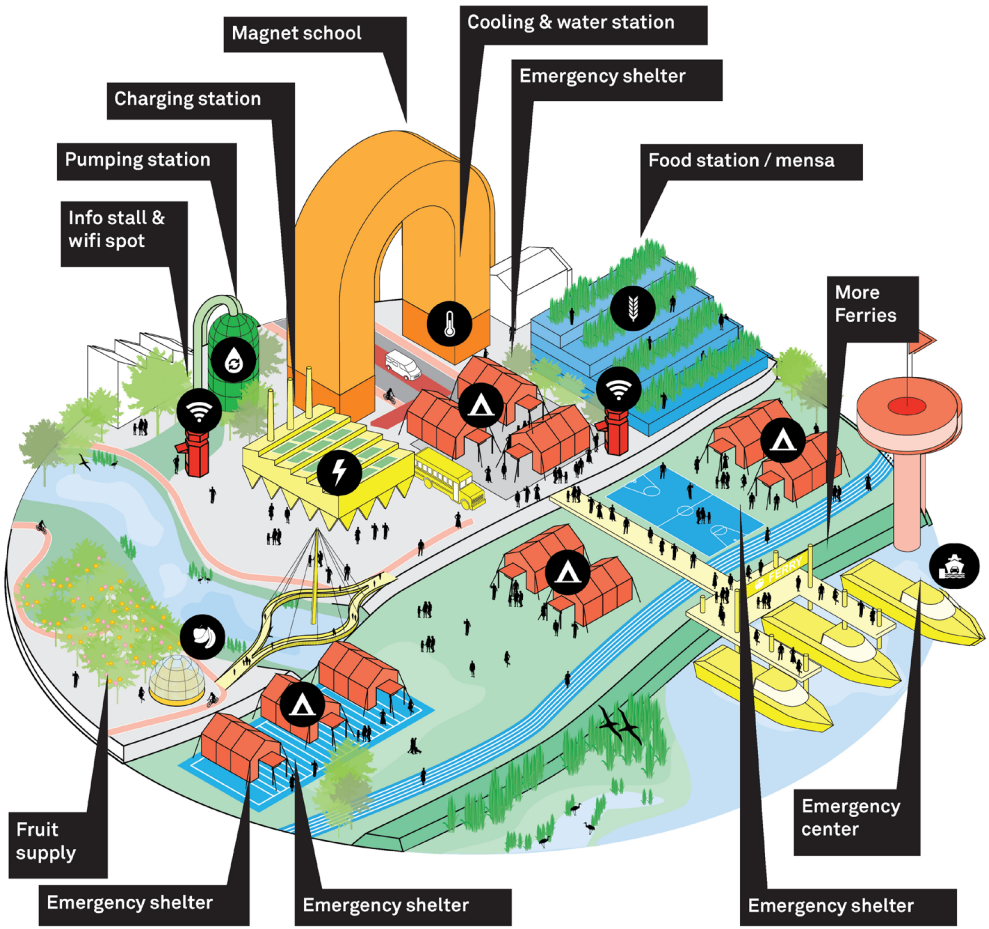


# Concept for double use of Collectors

## Collector: Disaster



Uphill Collector

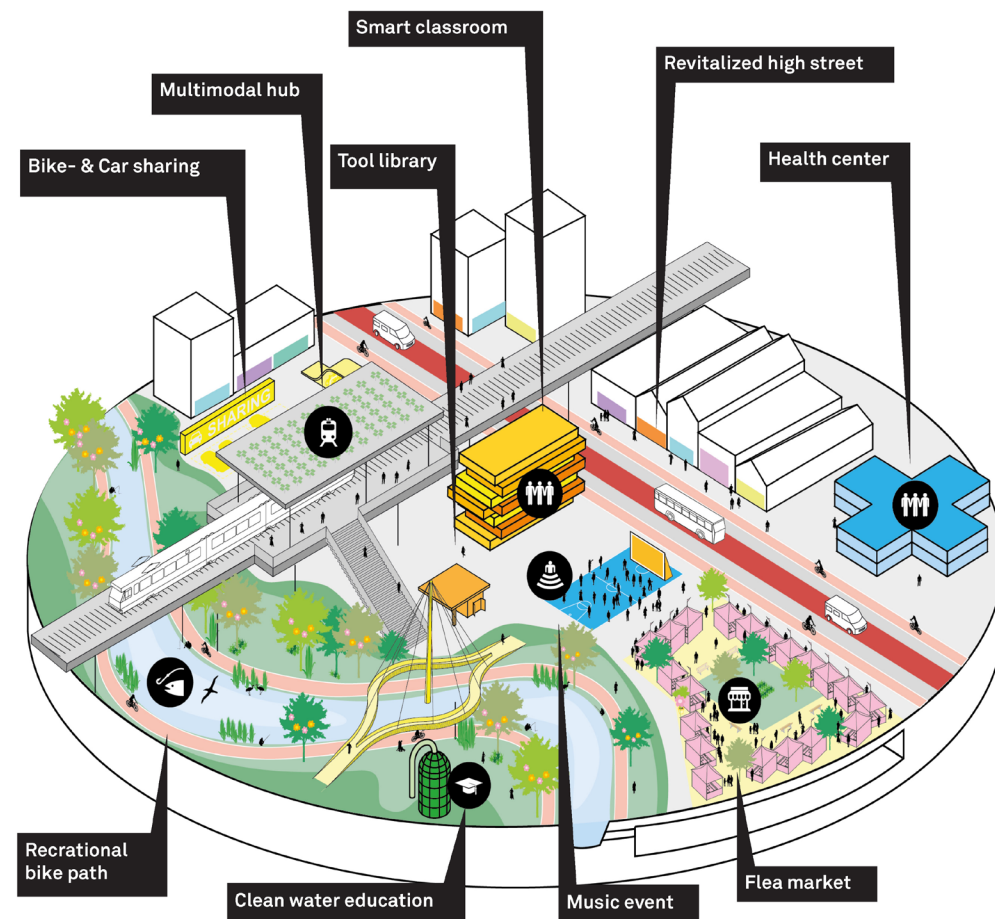


Waterfront Collector

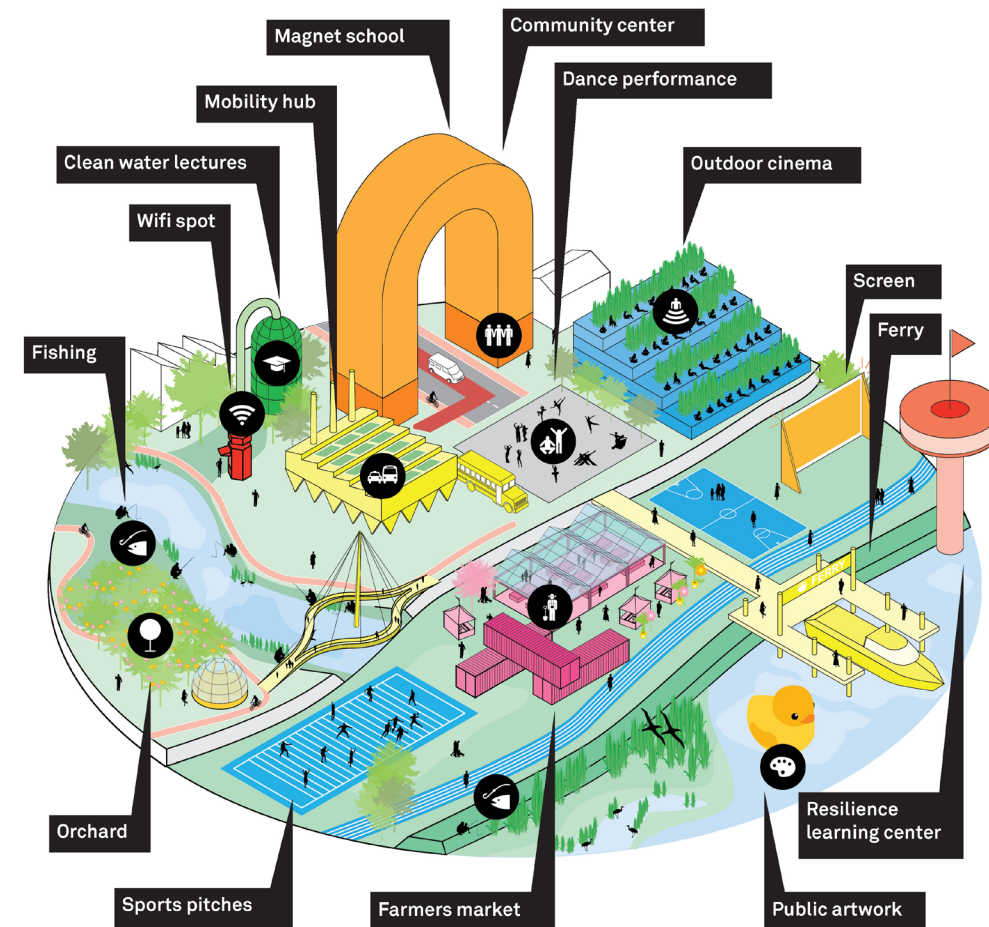


# Concept for double use of Collectors

## Collector: Community



Uphill Collector



Waterfront Collector

# Imagining possible transformation of Colma Creek





# Public Engagement





# Concept for public engagement/ AR tool

## Collect+Connect Community Booster

*Which facilities does your community need?*

- Community: Education
- Community: Services
- Community: Events & recreation
- (Health) Care
- Mobility
- Local Businesses
- Sustainability
- Disaster response



## **4. The results of the projects: international dialogues versus continuous adaptation in implementation**



### **Key lessons learned**

- 1. Master plans quickly become obsolete so design must provide spatial buffers, and flexibility in built elements**
- 2. The inclusion of “unusable” buffers or oversized infrastructure poses an economic risk, as these do not present an immediate financial return**
- 3. Basing the identity of the design on climate conditions can raise awareness and be a strong carrier of “wonder”, but can also be a liability if the conditions change**
- 4. Ensuring the survival of initial “wonder” qualities throughout the design, planning, and implementation process demands long-term commitment**
- 5. Implemented projects offer an opportunity for learning from doing, so project aftercare is essential**

# Bastide Niel Implementation







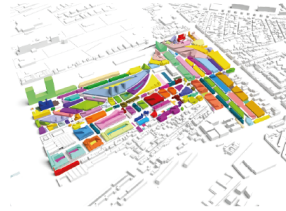


# Resilient by Design following steps





**5. The broader project impact: practical lessons and a shift in (design) culture accelerating wonderful resilience**



**Bastide Niel, 2010**  
Bordeaux, France  
Scale M, 35ha  
Commission  
Public/Private  
Urban + Architecture  
approved/under construction



**Resilient By Design, 2018**  
San Francisco Bay Area, USA  
Scale XXL  
Competition  
NGO  
Urban  
concept/ masterplan proposal

	<div>1. Simbiotic</div>	<div><div>Responds to vulnerabilities</div><div>Includes built resilience measures</div><div>Defines guidelines fostering symbiosis</div><div>Includes monitoring &amp; feedback</div><div>Creates smart synergies with external systems</div><div>★ Translates vulnerabilities into remarkable design features</div></div>	<div><div>+ flood risk, earthquake, heat</div><div>+ underground water tanks, sun cuts</div><div>+ building guidelines to occupy floodplain</div><div>+ </div><div>○ </div><div>+ sun cuts and openings for natural ventilation</div></div>	<div><div>+ flooding, earthquake, fires, heat</div><div>+ collectors and connectors for emergency and community use</div><div>+ includes blue and green infrastructure</div><div>+ proposes an app for monitoring and feedback</div><div>+ reconciles water systems, mobility and emergency routes</div><div>+ revitalises public spaces to collect and connect people and water</div></div>
	<div>2. Simple</div>	<div><div>Simple design concept</div><div>Easily recognisable resilience measures in design</div><div>Explains resilience measures in project presentation</div><div>★ Clear storytelling methodology illustrating resilience</div></div>	<div><div>+ a single, main design concept</div><div>+ sun cuts, but no water tanks</div><div>+ diagrams on the MVRDV website</div><div>○ sun cuts explained but not water measures</div><div>+ continued process with consistent inputs</div></div>	<div><div>+ collection and connection</div><div>○ </div><div>+ toolbox of resilience measures</div><div>+ toolbox of resilience measures</div></div>
	<div>3. Fun</div>	<div><div>Engages participation early on</div><div>Makes project information easy to access</div><div>Empowers stakeholders to give input</div><div>Engaging community and stakeholder events</div><div>★ Design and process are a fun experience for stakeholders</div></div>	<div><div>+ </div><div>+ foam installation in public space (exhibition)</div></div>	<div><div>+ community workshops</div><div>brochure, workshops, online engagement platform</div><div>Interactive workshops, co-design exercises</div></div>
	<div>4. Darignly Robust</div>	<div><div>Space for the unknown</div><div>Multifunctional / temporary uses of buffer spaces</div><div>Strategy of short/long-term use or preservation of buffers</div><div>★ Adds surprising value, comfort and beauty to buffers</div></div>	<div><div>○ </div><div>○ </div><div>○ </div><div>○ </div></div>	<div><div>+ designs open spaces with double purpose: leisure and emergency</div><div>+ flexible for temporary events, and emergency incidents</div><div>○ </div><div>+ last-mile, public facilities, cleaning water + emergency response</div></div>
	<div>5. Desirably Adaptable</div>	<div><div>Adaptable prototype design</div><div>Flexible building system / masterplan framework</div><div>Capable of adapting/adjusting after realisation</div><div>★ Design identity based on flexibility and customisation</div></div>	<div><div>+ design concept fits diverse programmatic needs</div><div>○ </div><div>○ </div><div>○ </div></div>	<div><div>+ prototypical equipment and prototypical collectors and connectors</div><div>+ masterplan framework that accomodates shocks and stresses</div><div>○ </div><div>+ co-design of public amenities using an AR tool, with the public</div></div>
	<div>6. Win-Win</div>	<div><div>Fosters short-term, local implementation and innovation</div><div>Contributes to long-term, systemic resilience</div><div>Invites stakeholders to collaborate to co-create benefits</div><div>★ Turns confusion to fusion, maximising economic opportunities, qualitative impact and scale-transcending resilience</div></div>	<div><div>+ design concept fits diverse programmatic needs</div><div>○ </div><div>○ </div><div>+ </div></div>	<div><div>+ local interventions and policy advice for the South-Bay community</div><div>+ integral vision to reconcile the multiple RBD projects</div><div>+ considers the needs of minorities and unprivileged communities</div><div>+ designs and strategises for the “the big and small” simultaneoulsy</div></div>



**Thank you**