



Rotterdam Climate Resilient Delta City

Approach, Governance, Implementation, Mainstreaming, Stakeholders

**International symposium commemorating Climate Change Adaptation Act
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OUR RESILIENCE GOALS.



1. Rotterdam: A balanced society



2. World port city built on clean and reliable energy



3. Rotterdam Cyber Port City



4. Climate resilient Rotterdam to the next level



5. Infrastructure ready for the 21st century



6. Rotterdam Networkcity – truly our city



7. Anchoring resilience in the city



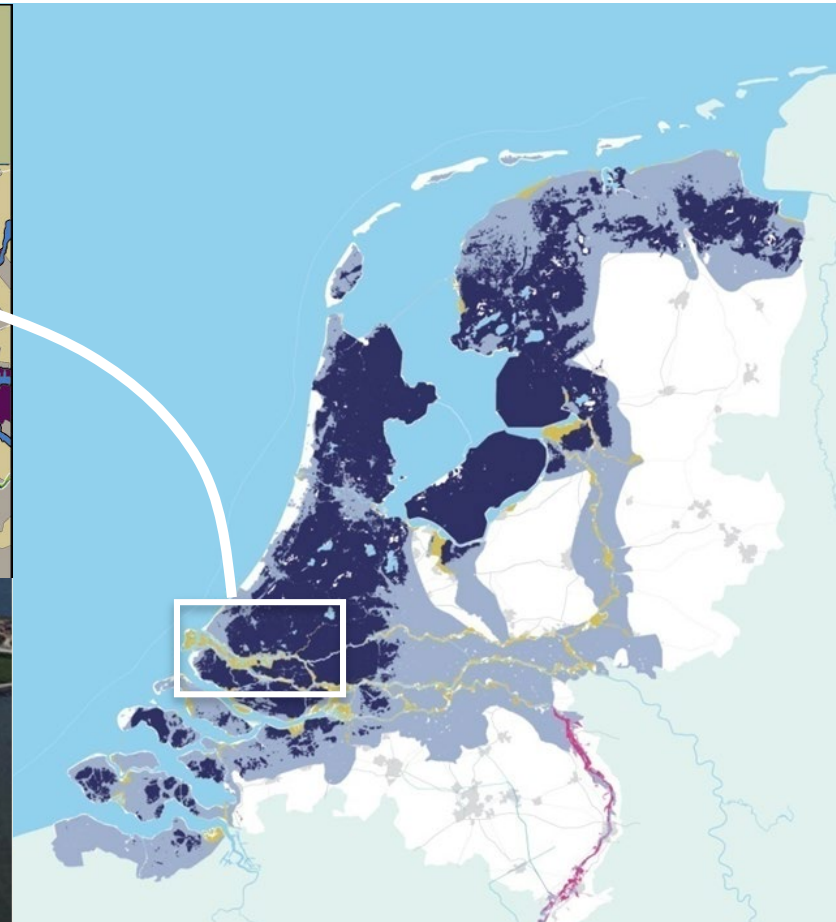
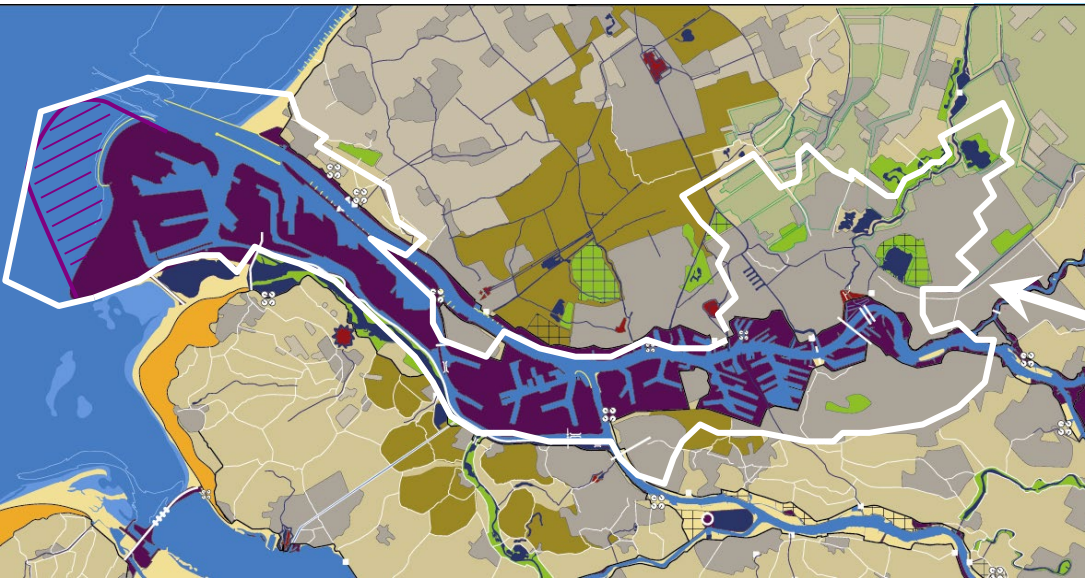
Rotterdam Resilient Port City

City

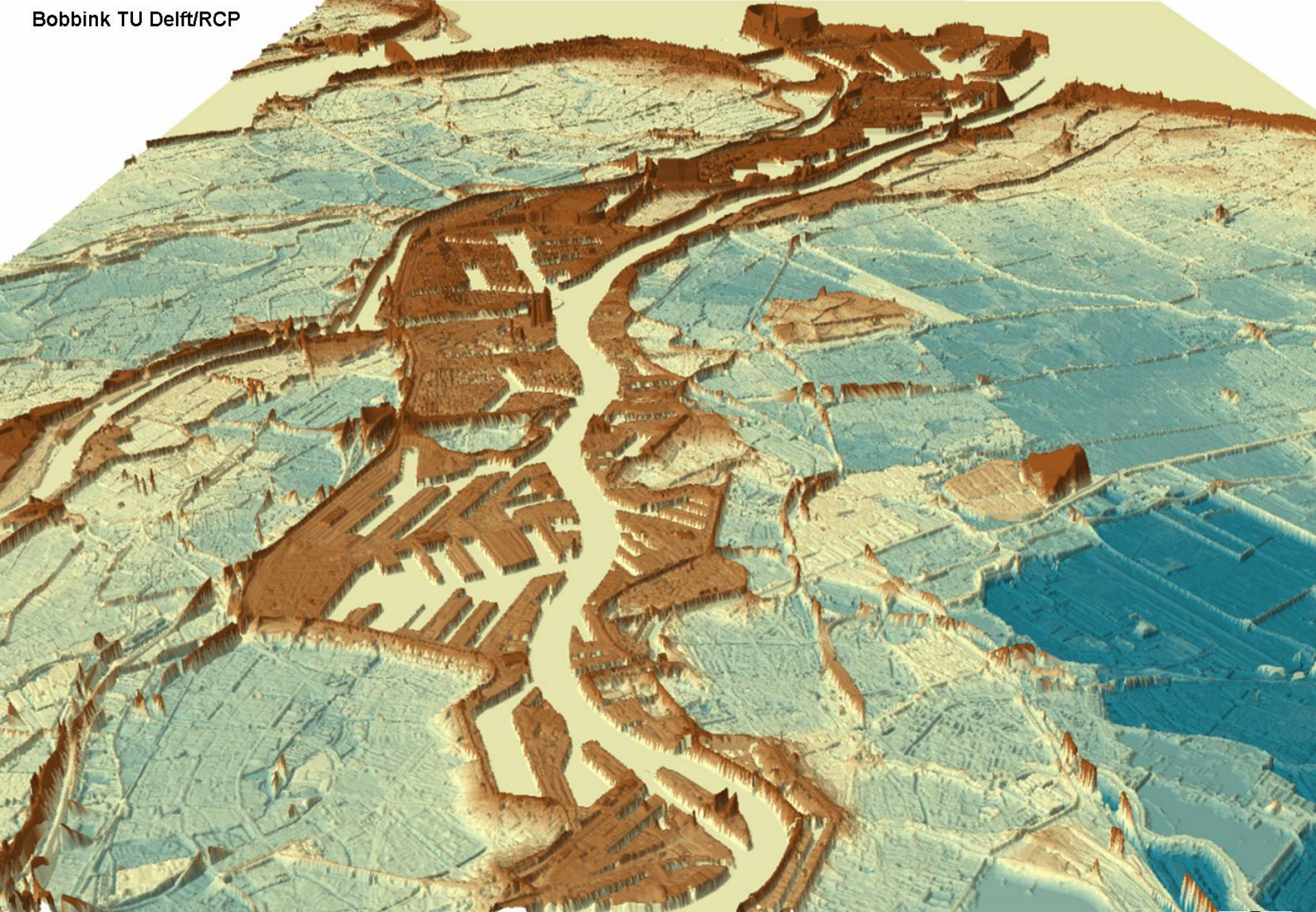
Area : 320 km²
Inhabitants: 625.000
Nationalities: 175
Municipal Budget: 4,2 billion Euro's

Port

Area: 105 km² (50 km² commercial sites)
Length of port area: 45 km.
Direct employment: over 70,000 jobs
Goods throughput: over 400 million tonnes of goods per annum
Shipping: 33,000 sea-going vessels and 110,000 inland vessels per annum



Challenges



Topo map: above (brown) and below (blue) sea level



Ongoing urban development...



...with a still expanding world port ...

23 Juni Randstad: Damage estimated 20 mln euro



Effects related to Climate Change



Flooding Noordereiland



Water quality



Excessive rain fall



Levee breakthrough (drought)



Inundated cellars



Heat waves

The Process

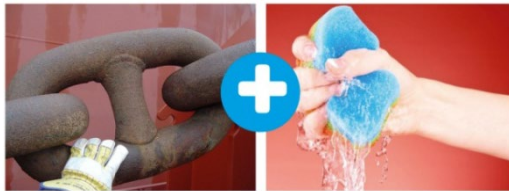


Water = Urban Quality...



Rotterdam climate change adaptation strategy

Holistic, multi-level and multi-stakeholder strategy



Robust and resilient



Sewerage + watersquare



Protection and mainstreaming



Dikes + adaptive building en design



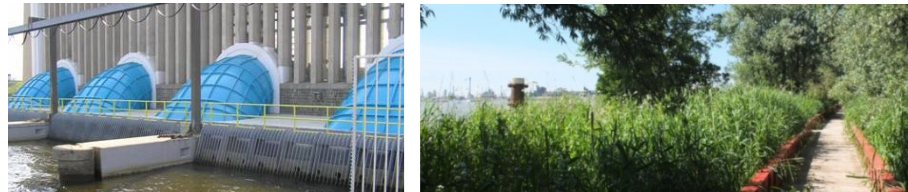
Delta works, small scale projects



Storm surge barriers + 'Remove tile, plant greening'



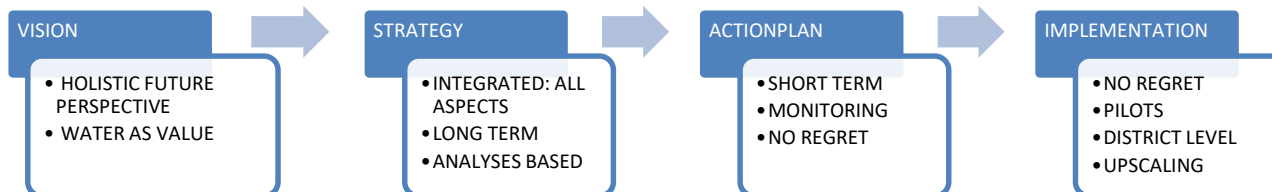
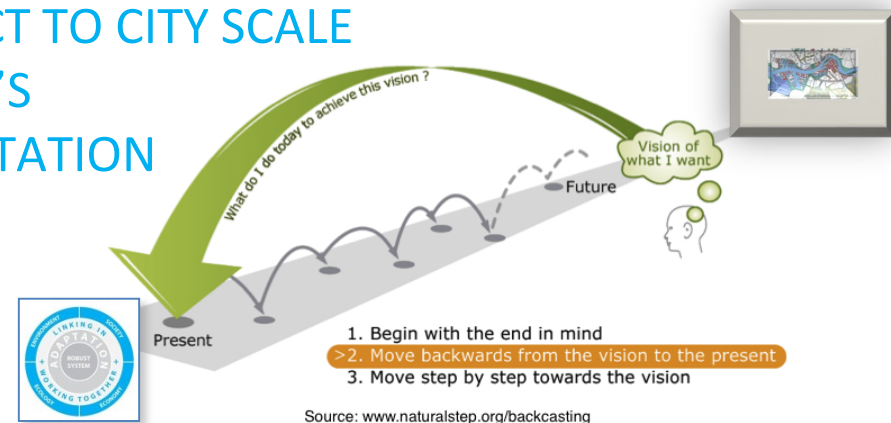
Technology and nature



Pumping + green banks

Rotterdam Approach (10 principles)

1. TRANSFORM CHALLENGE'S INTO **OPPORTUNITIES**
2. **ADD VALUE**: CREATE A BETTER CITY (HOLISTIC)
3. USE WATER AS A **DESIGNING** PRINCIPLE
4. INVEST IN **MULTI BENEFIT** SOLUTIONS
5. ESTABLISH LONG TERM VISION WITH **SHARED OWNERSHIP**
6. KICK OFF WITH SHORT TERM **ACTION PLAN**
7. LEARN BY DOING: START **NO REGRET** MEASURES
8. **UPSCALE** FROM OBJECT TO DISTRICT TO CITY SCALE
9. **EMBED** CLIMATE RESILIENCE IN 4 P'S
10. CREATE AN **ECOSYSTEM** OF ADAPTATION



Implementation

Multifunctional Solutions



INTEGRATED URBAN PLANNING



Extended canal: waterstorage Kruisplein

Water square Benthemplein...





Urban Floodplain



...AND CLIMATE RESILIENCE BY DESIGN...





PLAY GROUND & WATER SQUARE FREDERIKSPLEIN

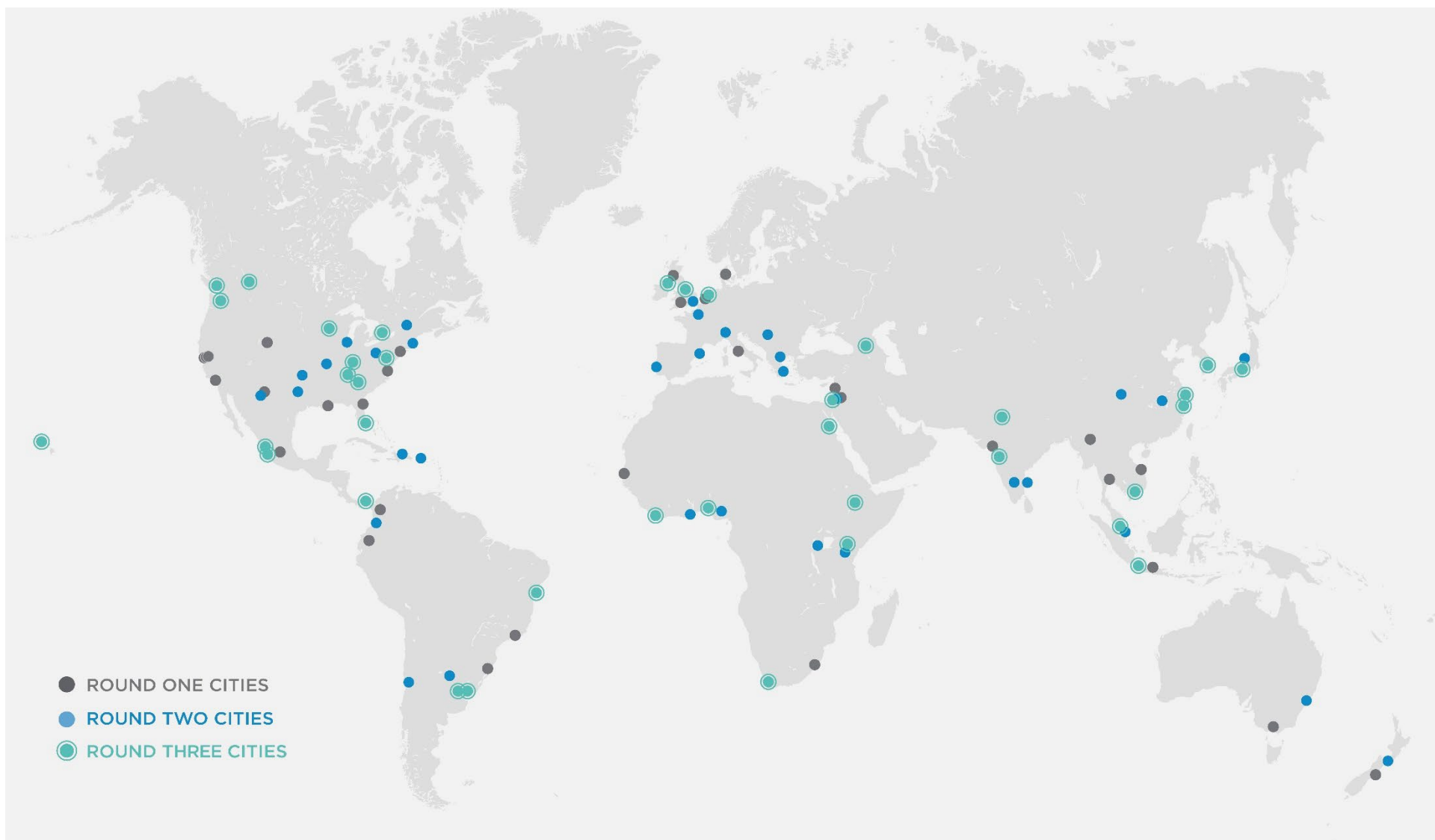




Opportunity: Adaptive Water Front development



COOPERATION



100RC: “We help cities around the world become more resilient to the physical, social, and economic challenges that are a growing part of the 21st century”



C40
CITIES
CLIMATE LEADERSHIP GROUP

**Climate
Adaptation
Academy**

C40 & Connecting Delta Cities & 100RC

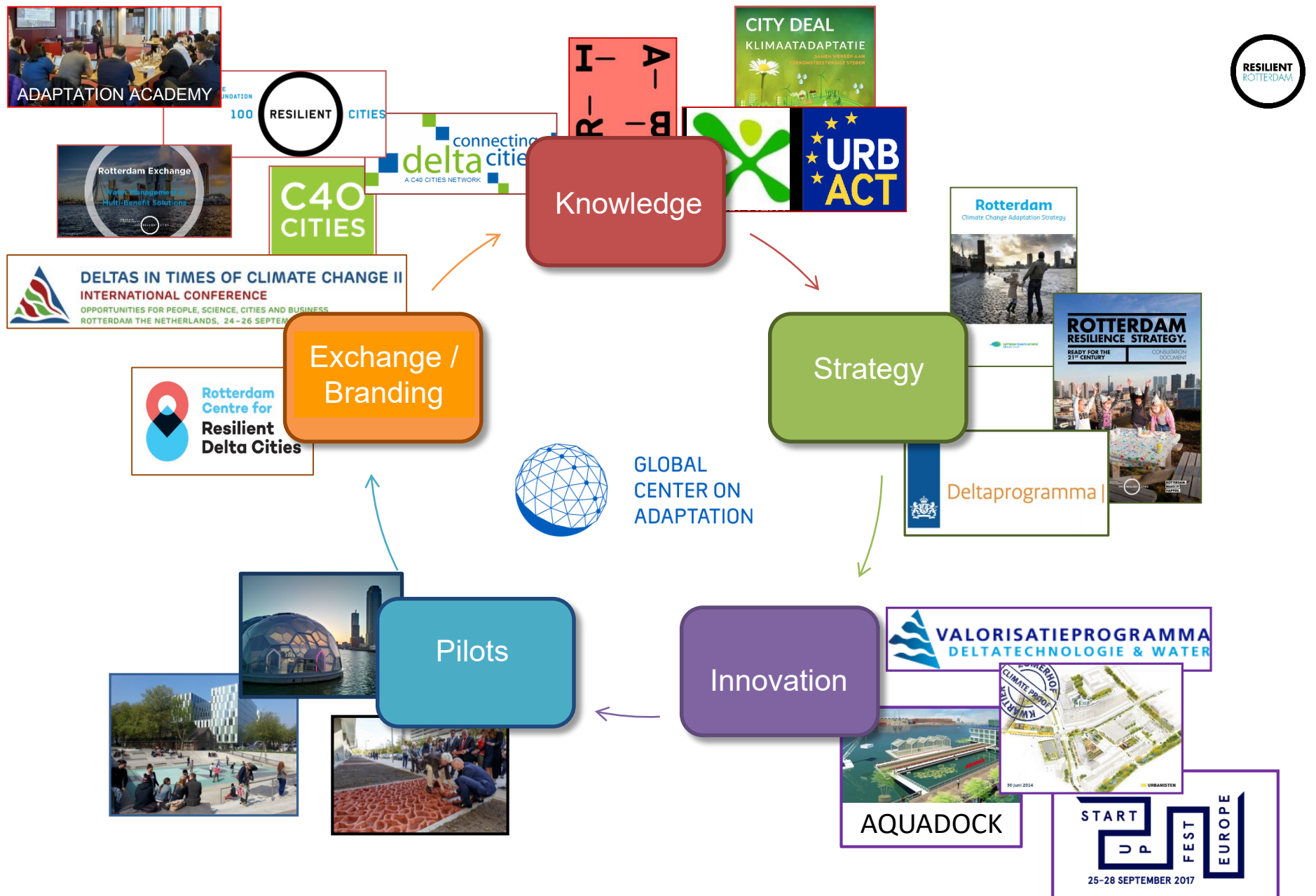


CLIMATE ADAPTATION ECOSYSTEM ROTTERDAM REGION

PARTNERS



ROTTERDAM'S CLIMATE RESILIENCE 'ECOSYSTEM'



CLIMATE ADAPTATION ECOSYSTEM ROTTERDAM REGION



CLIMATE ADAPTATION ACADEMY

OUR AIM IS THE MEANINGFUL REDUCTION OF CLIMATE RISKS IN CITIES



The Academy guides cities through the five critical steps in climate adaptation planning:

1. Getting Started 
2. Risk Assessment 
3. Strategy Development 
4. Implementation & Mainstreaming 
5. Monitoring & Evaluation 



ROTTERDAM IS READY TO SHARE AND TO HELP!

- **APPROACH:** HOLISTIC CLIMATE RESILIENCE STRATEGY
- **SOLUTIONS:** MULTIFUNCTIONAL, USE NATURE & WATER SENSITIVE DESIGN
- **PARTNERS:** KNOWLEDGE INST., CONSULTANCIES & DESIGN BUREAUS

M. BLOOMBERG: *“Each part of the climate change problem has a solution that can make our society healthier & stronger”*

Thank You!

www.resilientrotterdam.nl

Resilient
Rotterdam...
Be creative!

