Rotterdam Climate Proof
Connecting water with opportunities

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ROTTERDAM, DELTA CITY

ROTTERDAM REGION

THE NETHERLANDS

MAESLANTKERING: STORM SURGE BARRIER
LARGEST PORT OF EUROPE
40 KM HARBOUR
2800 KM SEWER SYSTEM

THREE WATERBOARDS
612,000 INHABITANTS
400 KM CANALS + 1000 PUMPING STATIONS
WATER CHALLENGES ROTTERDAM

SEA LEVEL RISE AND CHANGING RIVER DISCHARGES

Delta Commission:
- 2100: 0.65 - 1.3 m
- 2200: 2 - 4 m
WATER CHALLENGES

SYNERGY

WATER SAFETY
WATER QUANTITY
WATER QUALITY

URBAN PLANNING

CONNECTING WATER WITH OPPORTUNITIES
FOR AN ATTRACTIVE AND ECONOMICALLY STRONG CITY
ROTTERDAM APPROACH

100% climate proof in 2025
+ attractive and economically strong city
+ holistic approach
+ LT Vision => ST Actionplan

Hotspot
Knowledge
Action
Marketing

Knowledge
Rotterdam Kennis voor Klimaat

Action
Green Roofs Rotterdam

Marketing
Floating Pavilion
Rotterdam Adaptation Strategy: The Process

1. Climate Effects
2. Ambitions
3. Challenges
4. Possible Measures
5. Chosen Measures
6. Pathways
7. Commitment and Financing
8. Implementation

Why?
What?
How?

In the meantime Rotterdam invests in No-Regret adaptation measures.

From the beginning Communication and Marketing are part of the process.

Rotterdam Adaptation Strategy: The Process

Scientific Research → Thematically Response Strategies → Integrated Strategy → Commitment City Council → Implement Strategies & Monitoring

Research Reports → Theme 1

Climate Hazards
Climate Impacts

Framework of Agreements → Implementation

Ongoing Development of Instruments: Atlas - Toolkit - Decision Support - Barometer...
Precipitation during winter

CLIMATE ATLAS

2012

2050 (G)

2050 (W+)

CITY CLIMATE (ATLAS)
ADAPTATION TOOLKIT

PREVENTION
- Improve safety level
- Surge barrier
- Greening the city
- Innovative water storage
- Raising surface level
- Water resistant buildings
- Greening roofs / facades
- Flood risk maps
- Evacuation plan
- (Re-)define priorities

REDUCING EFFECTS
- Water resistant utilities
- Create safe havens
- Green walking routes
- Dry / wet proof building
- Change behaviour

RECOVERY
- Flood damage insurance fund
- Install pumps
- Safe havens
- Change behaviour
- Install pumps

SOCIAL COST BENEFIT ANALYSES

Cockpit
- Ruttenburg Climate Proof

Input
- Strategy
  - A
  - B
  - C
- Model
  - Agriculture
  - Fisheries
  - Water management
  - Urban infrastructure
  - Population
  - Transport
  - Finance
  - Environmental
  - Welfare
  - Governance

Output
- Costs
  - Investments
  - Overhead
  - Financial revenue
  - Benefits
  - Costs
  - Leverage
- Profitability
- Actors
  - Decision makers
  - Stakeholders
- Costs
  - Benefits

Growth
- 
- 
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ABBE
- Social cost-benefit analysis
- Rotterdam Climate Proof
CLIMATE GAME

RISK ASSESSMENT AND MAPPING
GUIDING PRINCIPLES ADAPTATION STRATEGY

BLUE SOLUTIONS

- Water storage / sports
- Water storage / housing
- Water storage / attractive public area
- Water storage / parking garage
URBAN FLOODPLAIN
GREEN ROOFS FOR AN ATTRACTIVE CITY

ECOLOGICAL SOLUTIONS IN THE URBAN DELTA
FLOOD MANAGEMENT

- Link to Spatial Planning Projects + processes
- Spatial differentiation
- New financial arrangements
- New governance
- Multi layer approach water safety (embanked and unembanked)
COMBINATIONS OF MEASURES

ADAPTIVE DEVELOPMENT

POSSIBLE PACKAGES OF MEASURES OVERVIEW

ADAPTIVE BUILDING
NATIONAL & GLOBAL NETWORK

LOCAL
- City Departments
- Port Authority
- Knowledge Inst.
- Private Partners

REGIONAL
- Waterboards
- Neighbour Cities

NATIONAL
- Min. Departments
- National Delta programme
- Knowledge for Climate

INTERNATIONAL
- C40
- CDC Partners
- ICLEI

CONNECTING DELTA CITIES