

# Climate Adaptation Strategy Ho Chi Minh City

*moving towards the sea with climate adaptation*

Enrico Moens, Teamleader VCAPS-consortium

Odense , 24-10-2013

Vietnam  
Climate Adaptation PartnerShip





## Education

- Land & Water Management, Wageningen University
- Hydrologist

## Grontmij: 1988 – today

- Integrated Water Management, Environmental and Urban Planning
- Knowledge for Climate, Climate for Spatial Planning, Living with water

## Recent positions:

- 2008 – 2010 Program Manager Climate and Sustainability
- 2011 – today Business Manager Adapting Cities



# Grontmij working worldwide on....

## Adapting Cities



## Protecting Deltas



## Securing Water





# Adapting Cities: a design challenge

Climate Change  
Adaptation offers an  
opportunity for  
reconsidering urban  
design

**Ho Chi**

**MinH City**

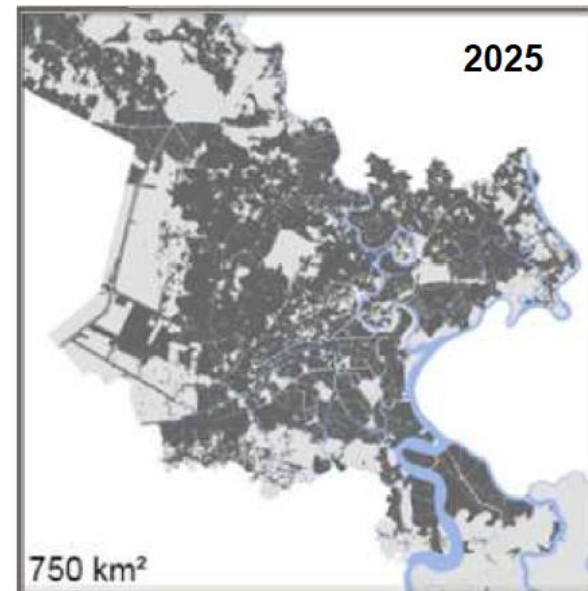
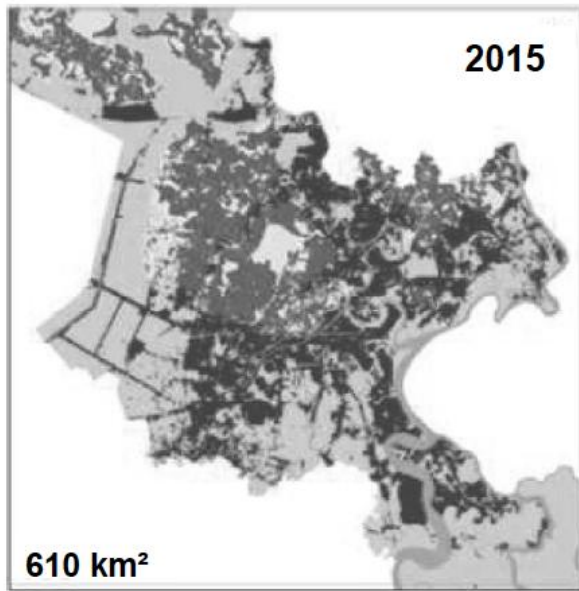
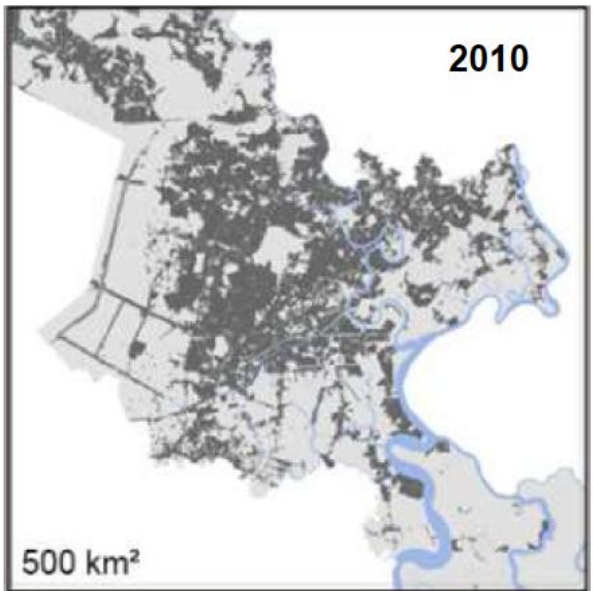
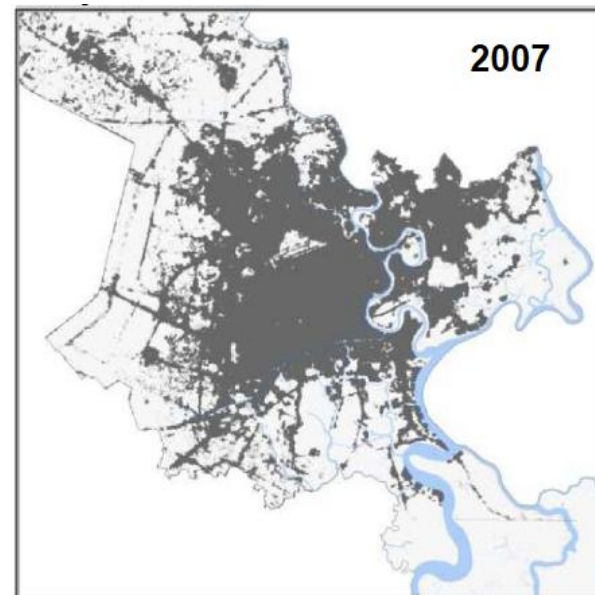
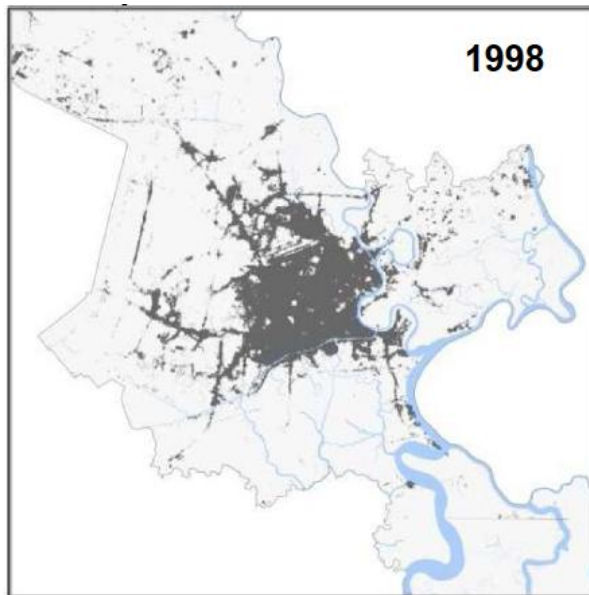
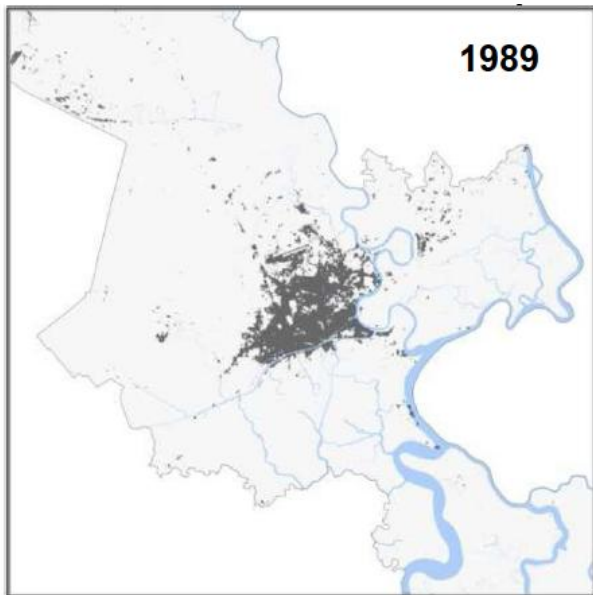












Source: Presentation Spatial Planning as an Adaptation Strategy to Climate Change in Ho Chi Minh City, October 2010; atlas HCMC Towards the sea



... 7.500.000 inhabitants

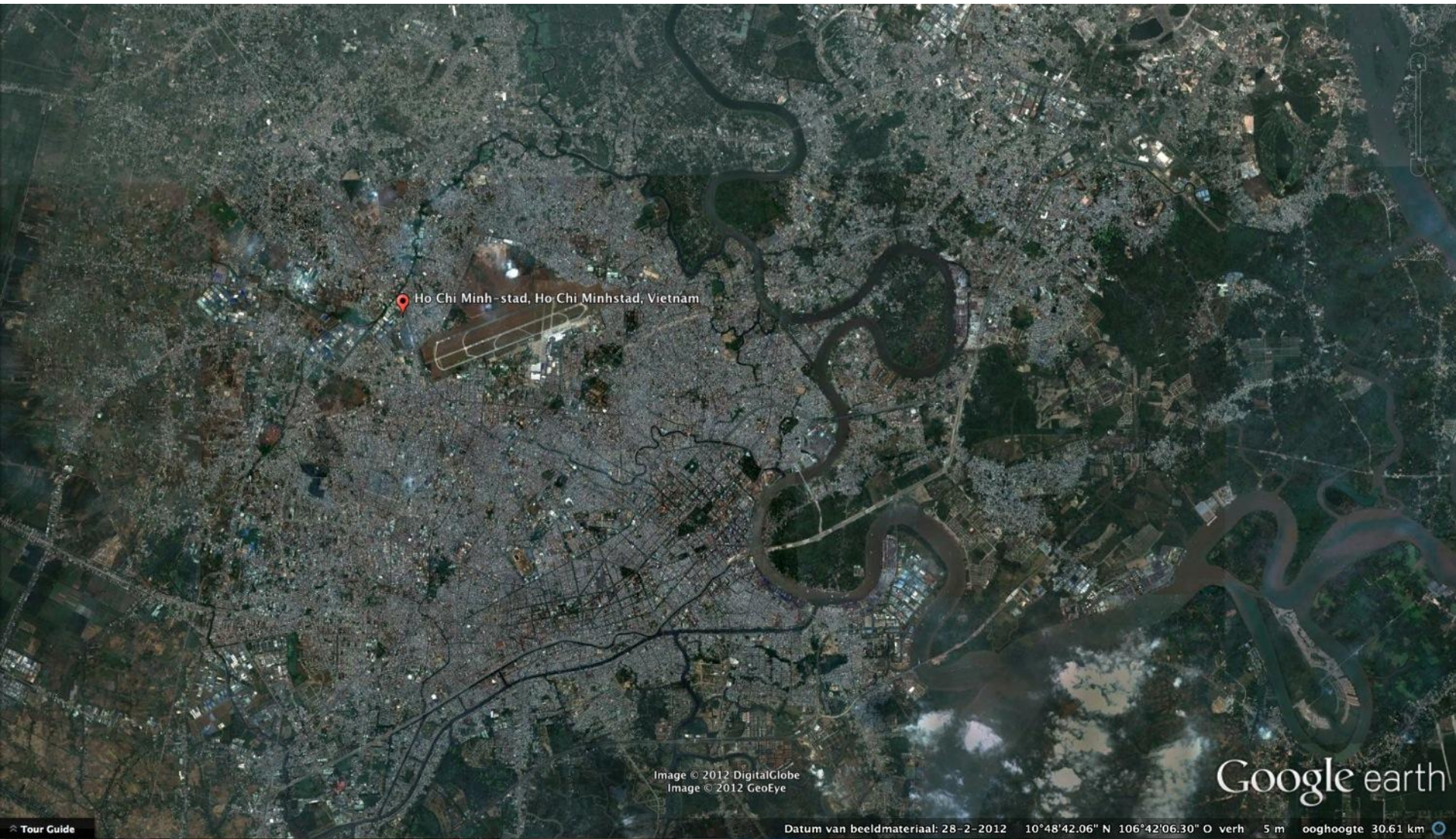


Image © 2012 DigitalGlobe  
Image © 2012 GeoEye

Google earth

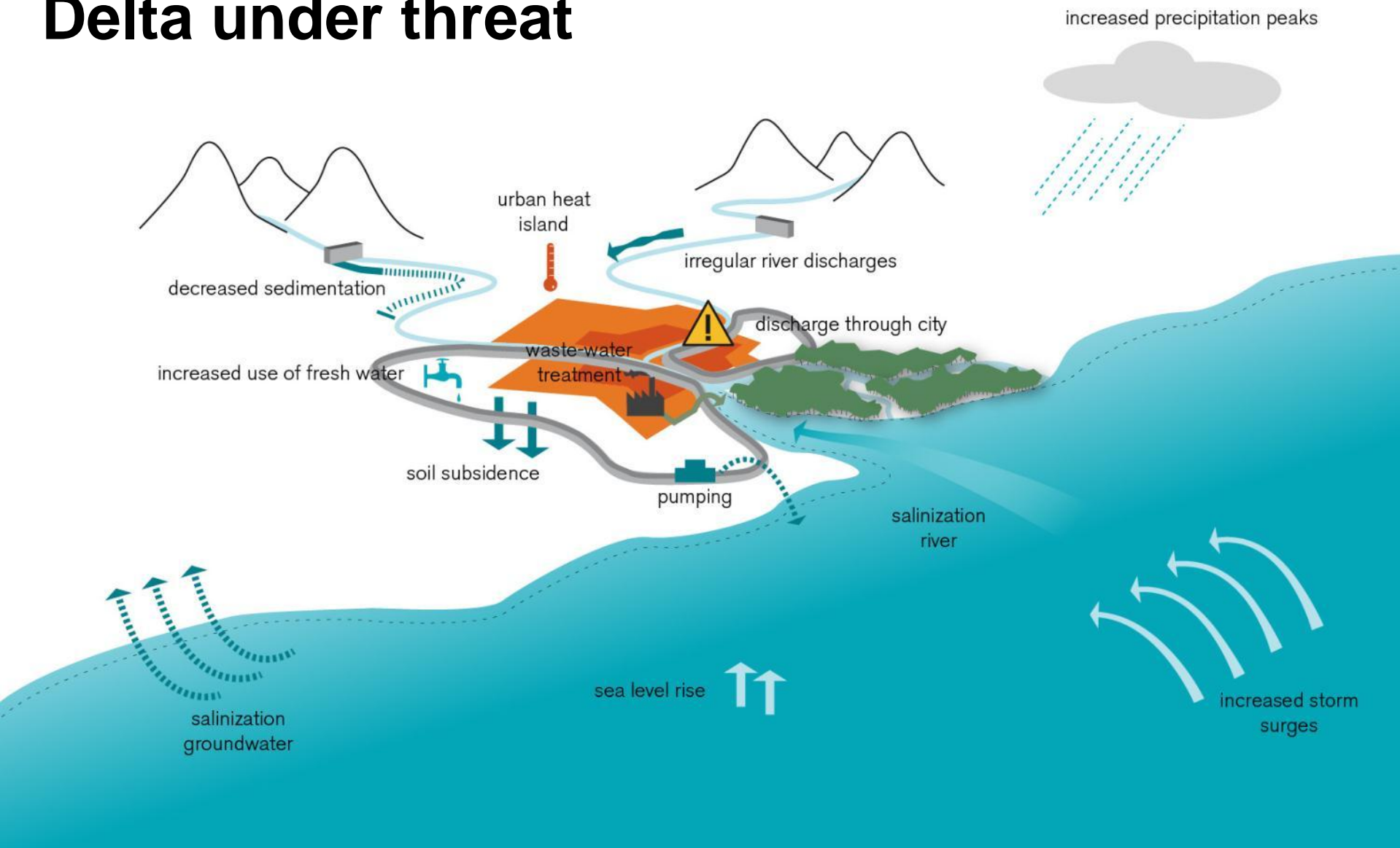
Datum van beeldmateriaal: 28-2-2012 10°48'42.06" N 106°42'06.30" O verh 5 m ooghoogte 30.61 km

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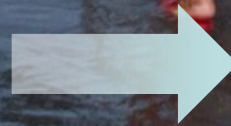
# Delta under threat







Subsidence,  
lack of water storage  
high density



Vulnerable for  
Climate Change



A photograph of a flooded street in Ho Chi Minh City. A woman in a pink patterned shirt and red pants, wearing a traditional conical hat, is walking through the water carrying a basket on her head and a lantern. In the background, there are shops, signs, and people on motorcycles.

# Connect Vietnamese expertise with Dutch experience

to:

***Enable*** and ***guide*** the

long-term sustainable socio-economic development  
of Ho Chi Minh City towards the sea

taking into account the effects of climate change and cultural  
identity



# Current characteristics of the city



# Spatial: a real delta city





# Social Economic profile: Chic





# Social Economic profile: modern / economic heart





# Social Economic profile: strong traditions



## Ho Chi Minh City is a great city with it's own characteristics:

- A mixture of western and eastern influences
- Traditions next to modern developments
- Small scale atmosphere versus megalomaniac developments
- Neighbourhood markets next to world city economics

Where **water** is *life-important* but also *life-threatening*





# Challenges

# High flood risk, low protection level





# Water nuisance caused by lack of water storage





# Poor water quality...





# Mobility in transition



# Infrastructure: transition from traditional to high tech





# Modern industrial city, economic heart of South East Asia



# Approach



# Key project objective

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Strengthen the climate proofing of the existing  
and future (urban) development plans

to

ensure the sustainable socio-economic development  
of Ho Chi Minh City

# Dutch consortium



- State of the art expert knowledge (urban and port development, adaptation)
- Local experience with urban adaptation studies through our local offices
- International adaptation networks and platforms
- Proven urban adaptation training programs
- Business networks and contacts



# Involved Departments

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- Department of Natural Resources and Environment
- Department of Agriculture and Rural Development
- Department of Construction
- Department of Transportation
- Department of Zoning and Architecture
- Flood Control Steering Centre

# Working Methodologies

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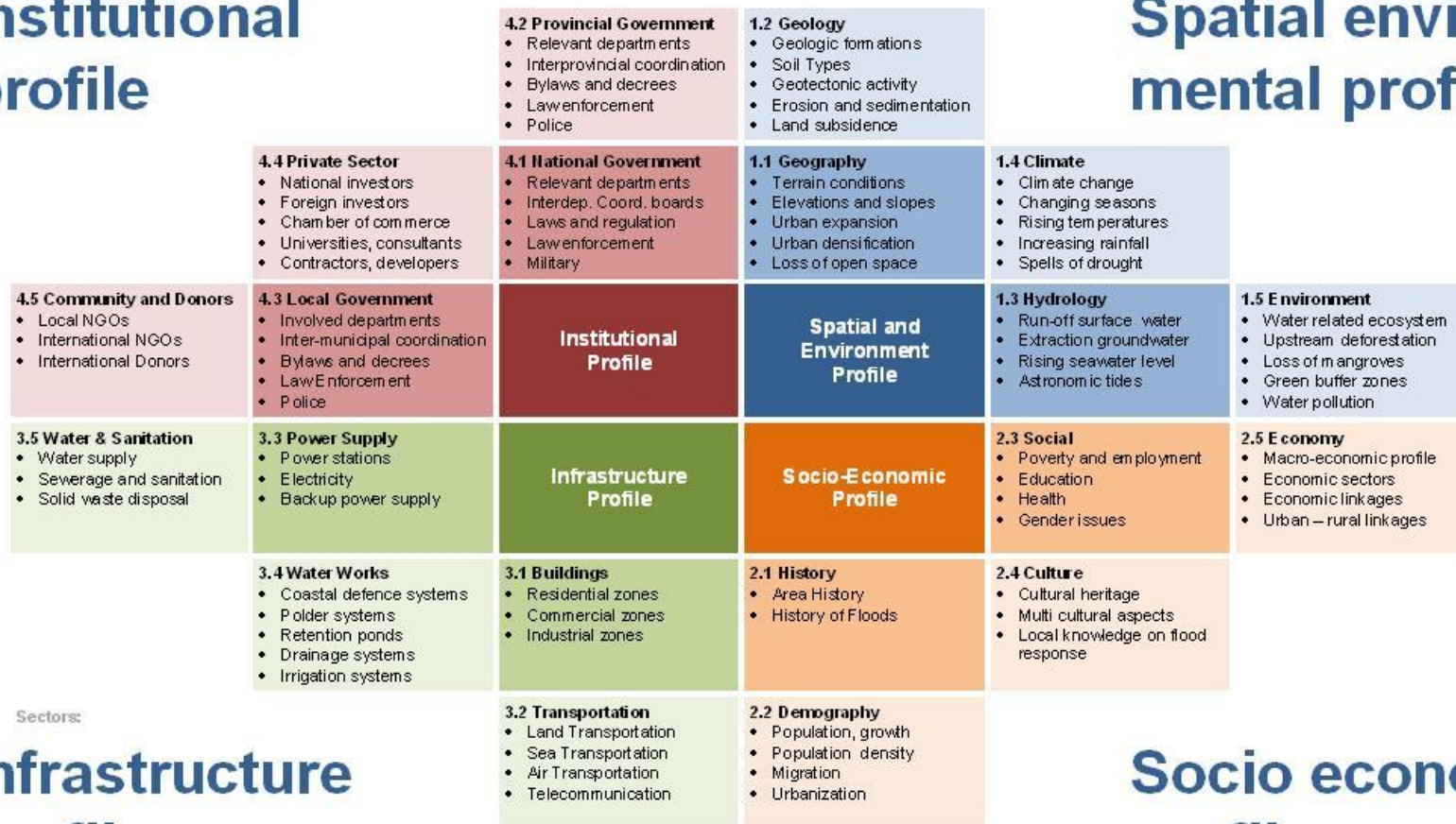


- Vietnamese Ownership, Dutch Partnership - Cooperation
- Vietnamese / Dutch working groups – Information Exchange
- On-the-job Training – Capacity Building
- Intensive workshops – Charrettes and Esperanto
- Stakeholder involvement – Local Expertise



## Institutional profile

## Spatial environmental profile



Sectors:

## Infrastructure profile

## Socio economic profile









# Adaptation Strategy



# Integrated Strategy

We have developed:

... ONE integrated strategy

... which consists of six strategic directions

... within three different timeframes

Together they transform HCMC into a unique climate proof deltacity

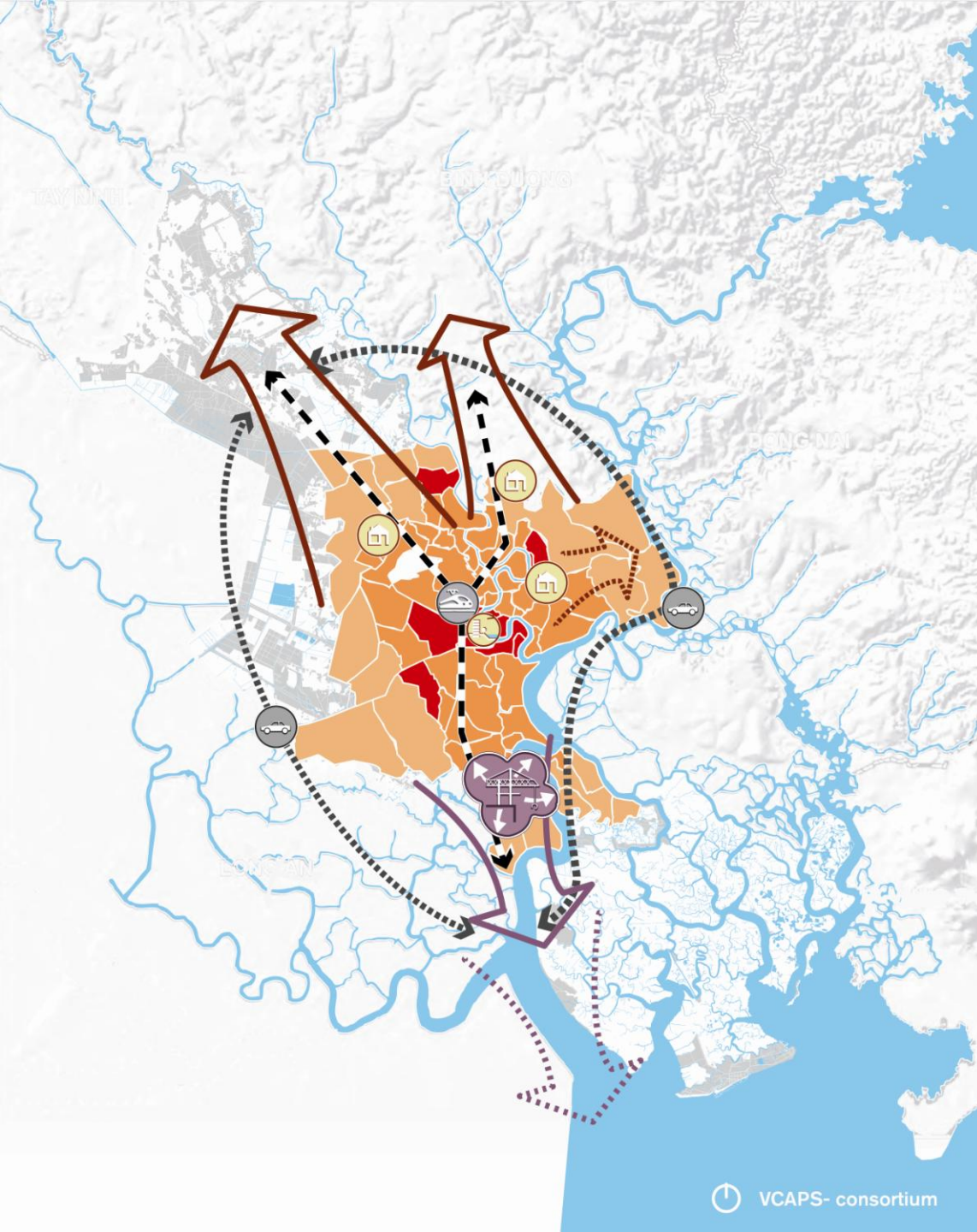


# Direction 1

Create urban density

Base development direction on:

- flood risk
- soil and water system



Residential development



Adaptive harbor development



Redevelop old harbors



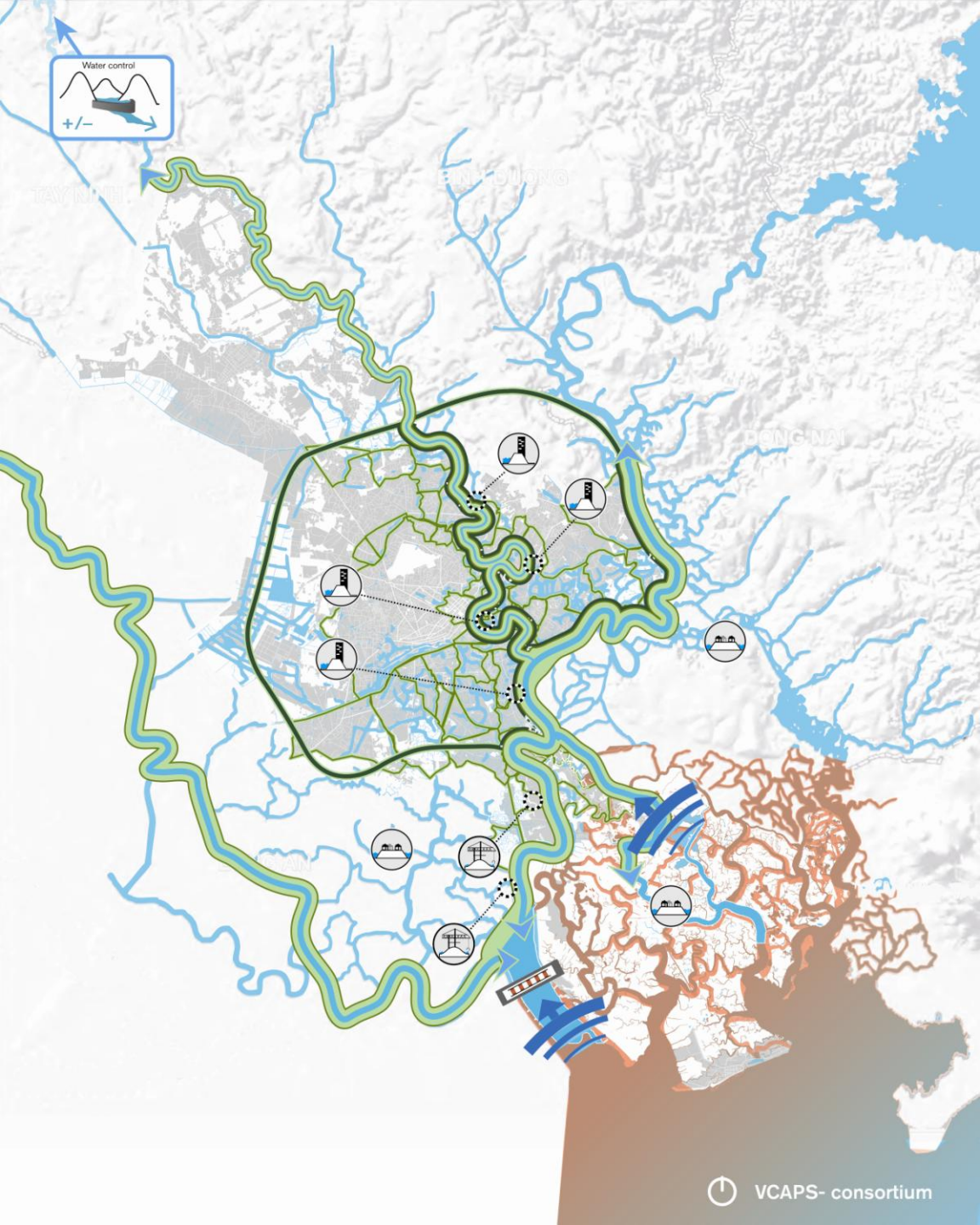
Increase density inner city



Develop north-south infrastructure

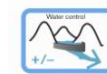






## Direction 2

Use a stepwise approach for flood protection



Optimize reservoir management



Room for the river



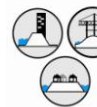
Tidal barriers



Ringdike protects inner city



Levees on district level



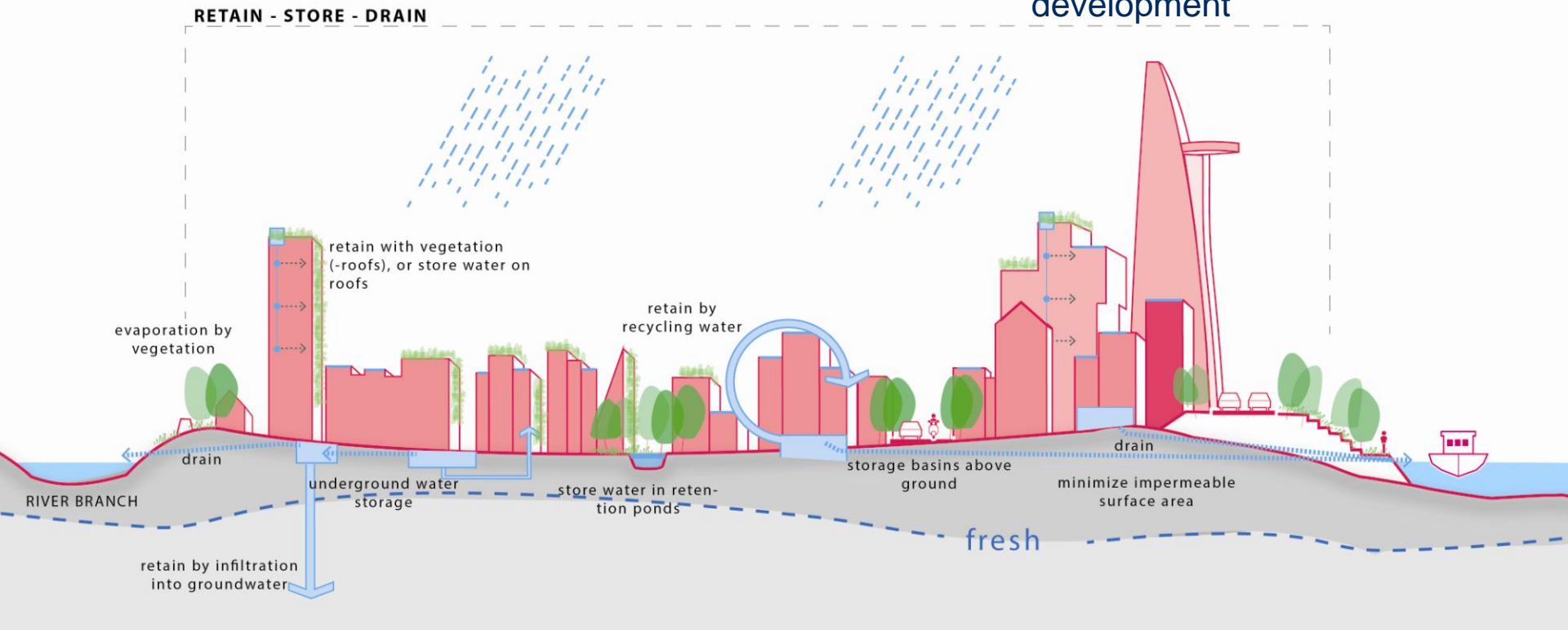
Adaptive building



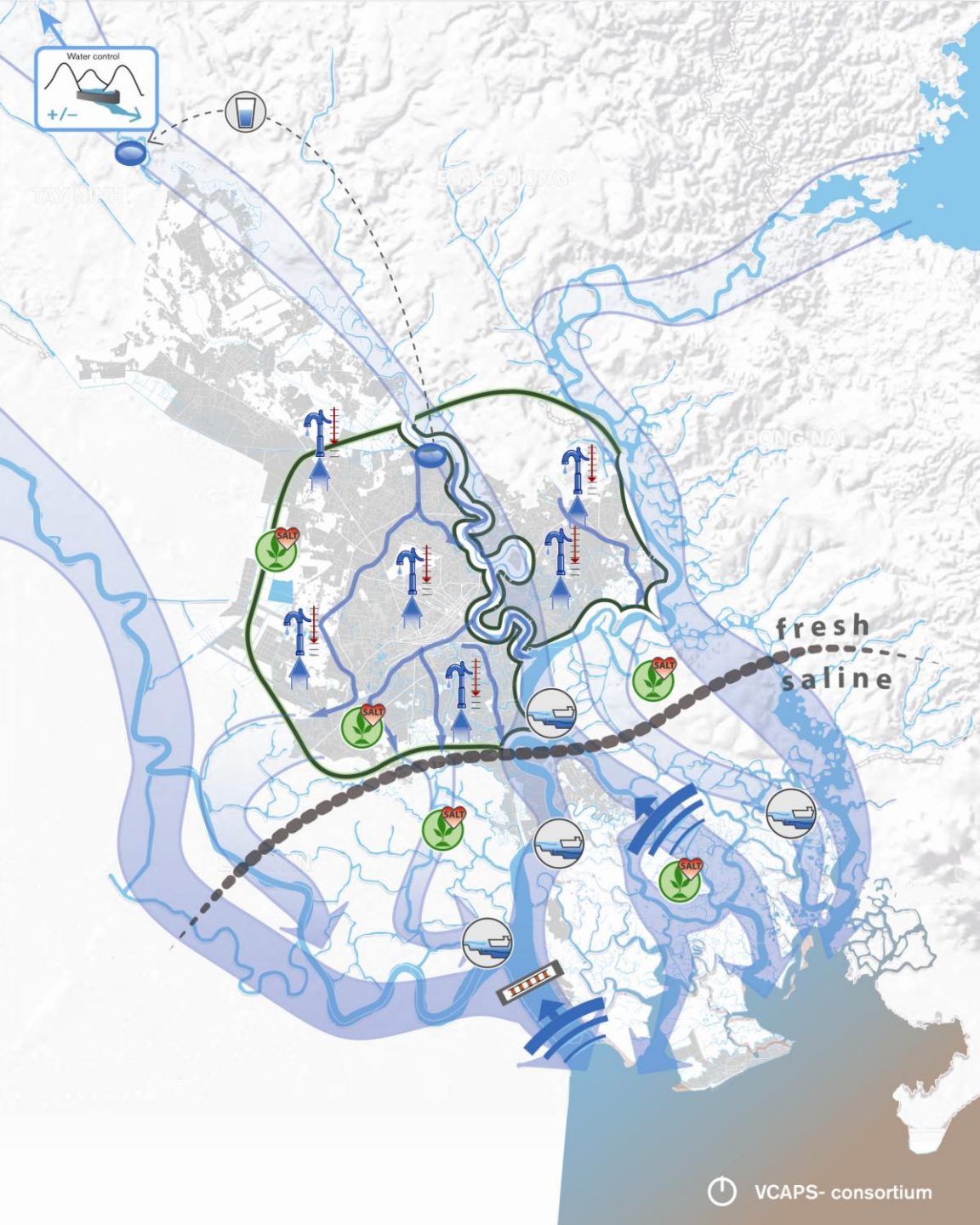
# Direction 3

## Avoid local nuisance

- Redesign the drainage system
- Create more water storage
- Build rainwater proof
- Elevated harbor and housing development





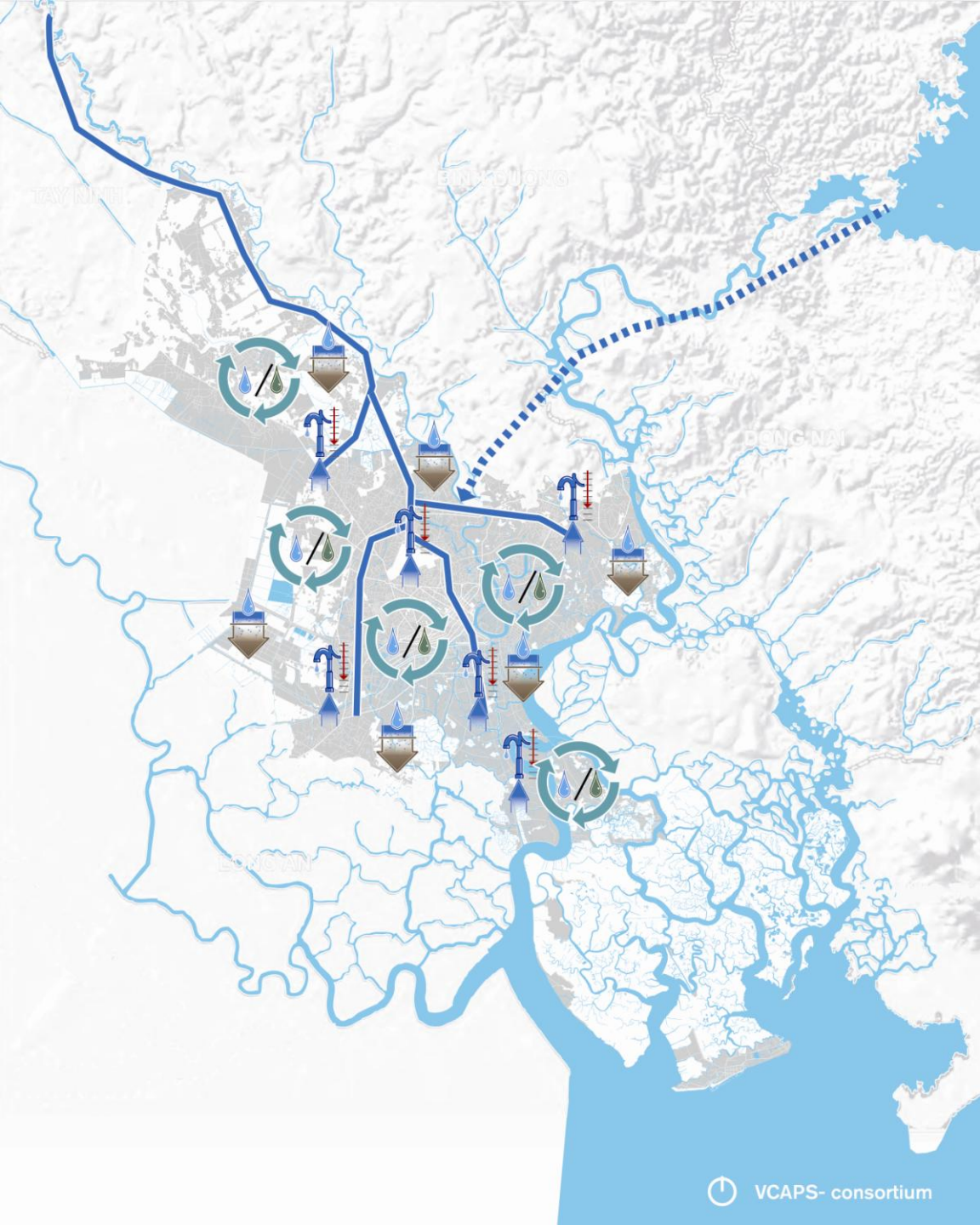


# Direction 4

Flood protection and reduction of salinization nuisance

-  Optimize reservoir management
-  Ringdike protects inner city
-  Relocate drinking water intakes
-  Decrease groundwater extraction
-  Flush urban water system
-  River mouth sluices
-  Use salt resistant vegetation
-  Dredge smart





## Direction 5

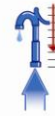
Reduce subsidence, create alternatives for groundwater use



Sanitation and water quality improvement



Water supply from Dau Tieng



Reduce demand, regulate use



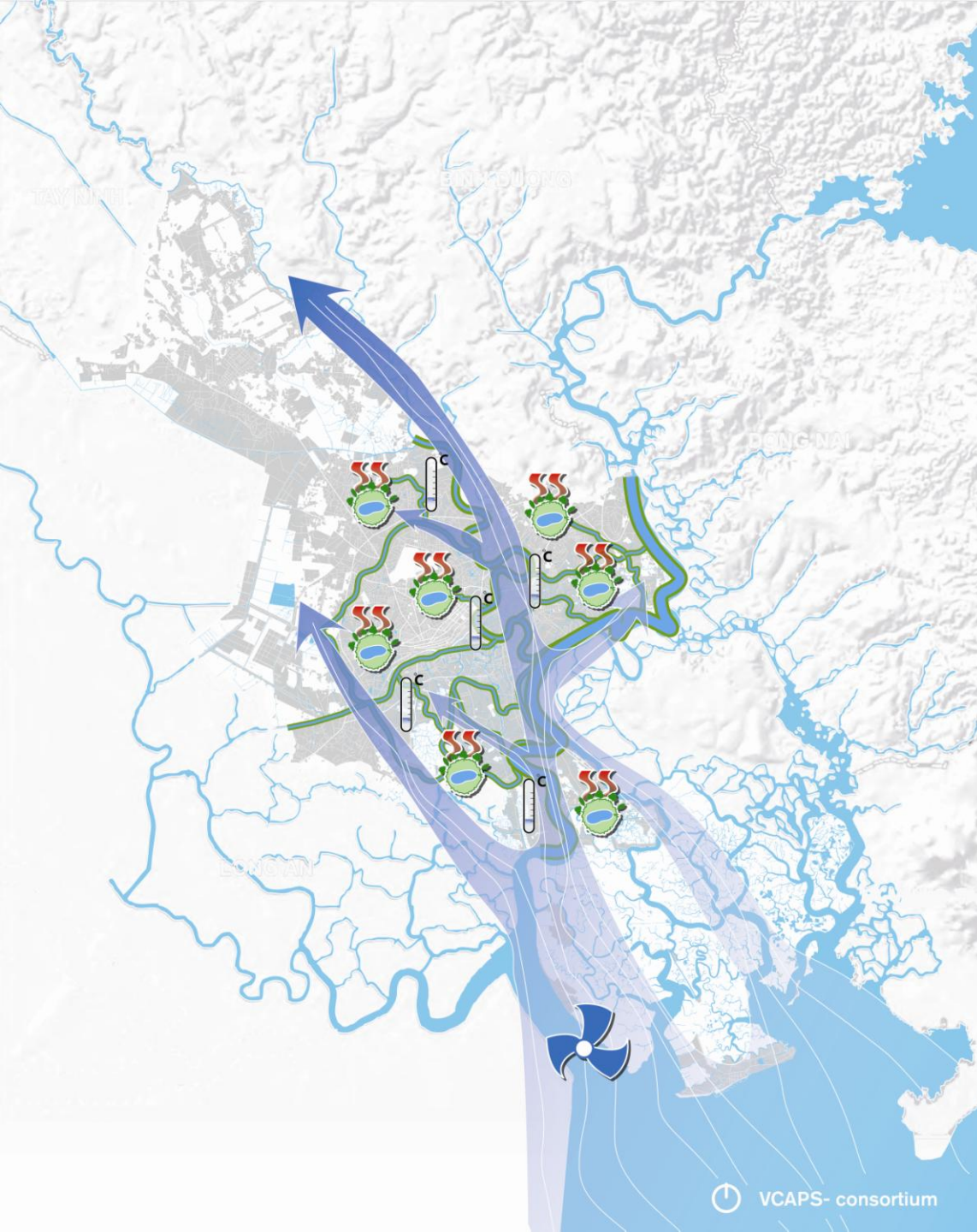
Groundwater recharge





## Direction 6

Reduce heat stress, bring coolness into the city



Improve natural ventilation



Use existing water structures to create green-blue areas



Reduce temperatures by adding vegetation



Improve microclimate

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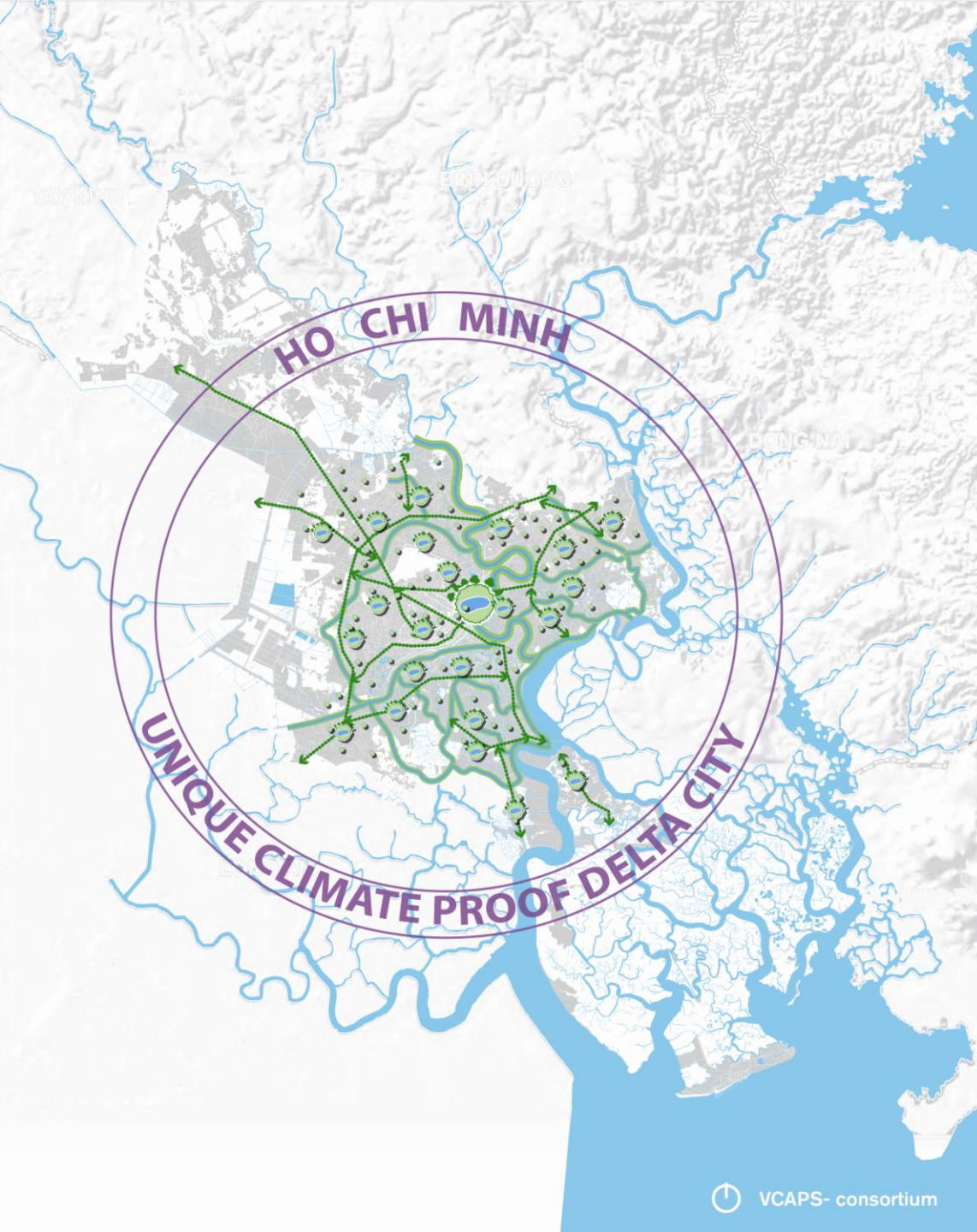


# Unique climate proof Delta city

Integral climate adaptation measures add spatial quality to your city

The city should develop based on a strong green-blue structure

- A central park for the city as a whole
- Transform main roads to green avenues
- District scale parks combined with waterstorage
- Let water define the city





# Pilots

**The proof of the pudding is in the eating of it**



# Charrettes

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# Testing Strategy on Pilot Study Areas

## District 4

Highly urbanized area with existing port planned for relocation towards the sea





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# Testing Strategy on Pilot Study Areas

## Nha Be district

(Hiep Phuoc) – Low lying rural area being developed for port activities and industrial infrastructure







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*Project information:*  
**[www.vcaps.org](http://www.vcaps.org)**

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