RISA
RegenInfraStrukturAnpassung
Leben mit Wasser

Rain InfraStructure Adaptation

in Hamburg

ELKE KRUSE

CONTENT

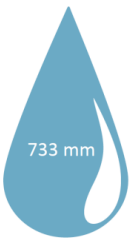
- background information about Hamburg
- funding and organisational structure of the project RISA
- results of working groups
- demonstration and pilot projects

Fig.: Elke Kruse

HCU | HafenCity Universität Hamburg

FACTS ABOUT HAMBURG

GEOGRAPHICAL SITUATION



AMOUNT OF RAINFALL

1.750.000 inhabitants
431 m² per inhabitant

DENSITY + SPACE

Fig: Elke Kruse

TOPOGRAPHY

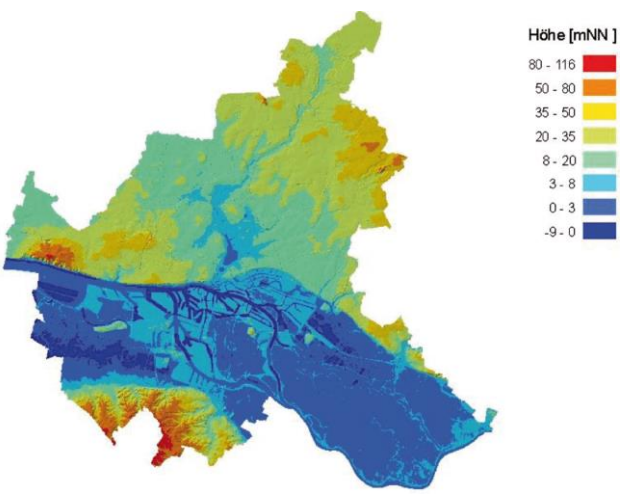


Fig.: Digitales Geländemodell des LGV, Datenaufbereitung HAMBURG WASSER

HAMBURG – A GROWING CITY

1910: 931.000 EW 1955: 1.750.000 EW 2008: 1.772.000 EW

POLITICAL DECISION:
to provide 6.000 new affordable residential units per year

Fig.: Elke Kruse

DEVELOPMENT OF SEWER SYSTEM

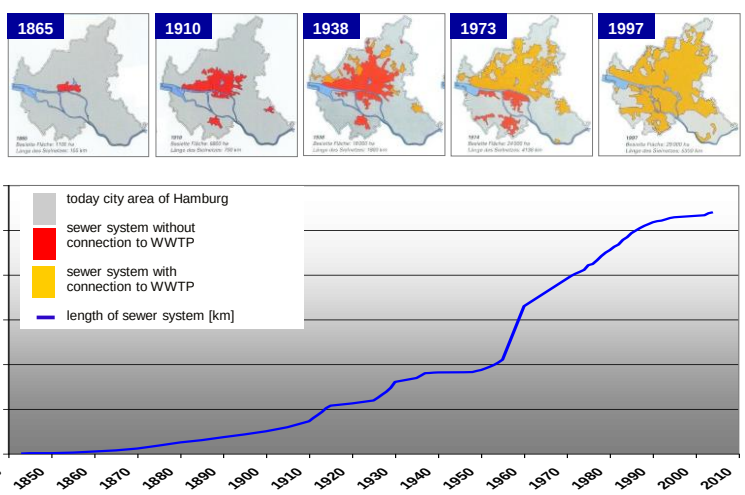


Fig.: HAMBURG WASSER

EFFECTS OF CLIMATE CHANGE

Photo: Dörthe Helen

RISA RAIN INFRASTRUCTURE ADAPTATION

FUNDING

- State Ministry of Urban Development and Environment Hamburg
  Behörde für Stadtentwicklung und Umwelt Hamburg
- Municipal Water Supply and Wasterwater Disposal Company of Hamburg
  HAMBURG WASSER

PROJECT DURATION: 2009 - 2014

INTEGRATED STORMWATER MANAGEMENT (ISWM)

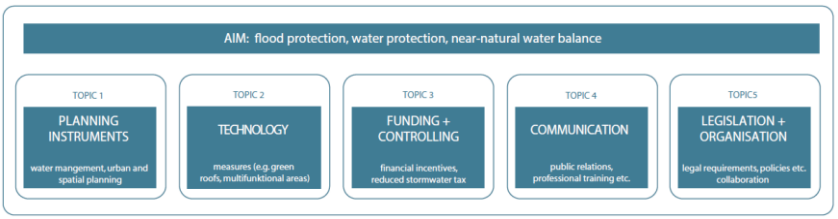


Fig: Elke Kruse

RISA Regeninfrastruktur Anpassung Leben mit Wasser

ORGANISATIONAL STRUCTURE

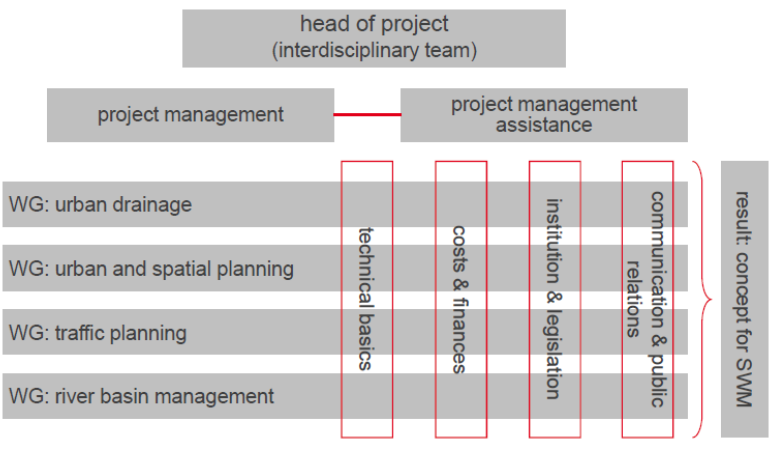


Fig: HAMBURG WASSER

ORGANISATIONAL STRUCTURE

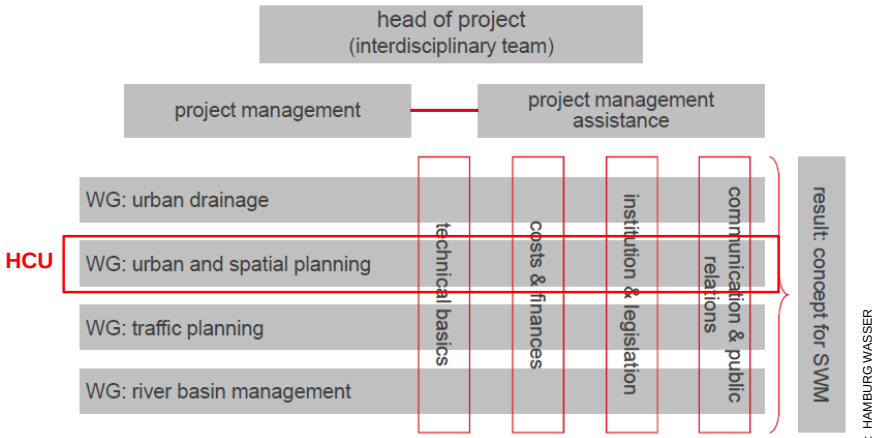


Fig: HAMBURG WASSER

RESULTS: WG „URBAN AND SPATIAL PLANNING“

PROBLEMS DURING THE PLANNING PROCESS

- complex arrangement of responsibilities
- too little awareness of issues concerning water + the necessity to consider climate change (urban/landscape planning, traffic management)
- the belated involvement of water-related expertise and too close boundaries of project areas
- too little reference to topographic issues
- insufficient political backing
- insufficient monitoring of the implementation, too few human resources

BEST PRACTICE ???

RESULTS: WG „URBAN AND SPATIAL PLANNING“

RECOMMENDATIONS

1. To reinforce the value and significance of the topic „(storm-)water“ within the planning process through the introduction of new interdisciplinary planning instruments:

   - develop an integrated city-wide plan for Hamburg with focus on the aspects „City-Water-Landscape“ as a basic concept for new development

   - develop additional water-related planning instruments at the level zoning plans - *„Wasserwirtschaftlicher Begleitplan“*

HCU HafenCity Universität Hamburg
ROTTERDAM 2014 . Elke Kruse

RESULTS: WG „URBAN AND SPATIAL PLANNING“

RECOMMENDATIONS

2. to encourage multifunctional use of areas (open space + traffic areas)

3. to offer training and the possiblity for exchange for members of the local administration

4. to create clear lines of responsibility between ministry, local authorities and agencies

Hamburgs needs a competent and centralized administration for water management!

RESULTS: PLANNING TOOLS + INFORMATION SYSTEM

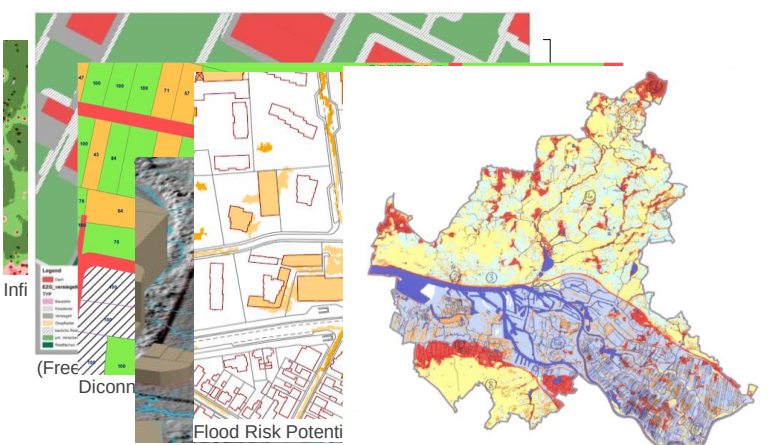


Fig.: BSU + HAMBURG WASSER

DEMONSTRATION PROJECT: Trabrennbahn, Farmsen

DEMONSTRATION PROJECT: Kleine Horst, Ohlsdorf

Type: Residential Housing

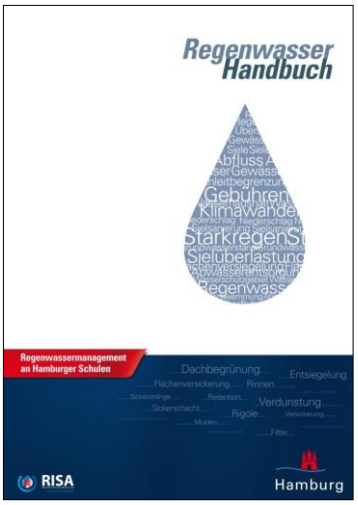
Year of construction: 2009

Size: 9,3 ha

PILOT PROJECT: Primary School Wegenkamp, Stellingen

PILOT PROJECT: Primary School Wegenkamp, Stellingen

GUIDELINES FOR DESIGN + CONSTRUCTION



Thank you

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Axel Waldhoff, Juliane Ziegler / HAMBURG WASSER

RISA
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Leben mit Wasser

COMBINED SEWER SYSTEM + HOT SPOTS

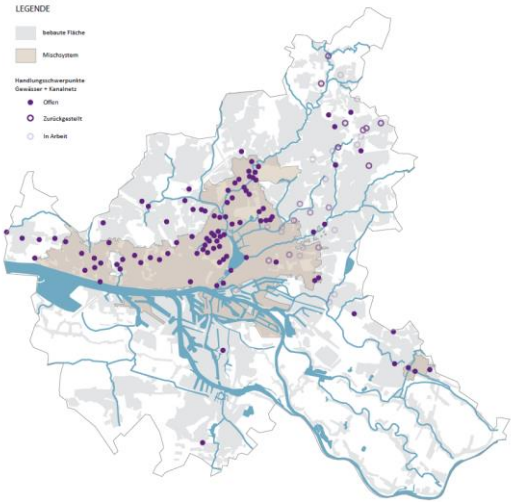

Fig: Elke Kruse based on information of HAMBURG WASSER

STORMWATER TAX

UP TO 2012:

Water Charge	2,75 € / m³

SINCE 2012:

Separated Stormwater Charge

• Stormwater	0,73 € / m² impervious surface
• Waste Water	2,09 € / m³
• Tap Water	1,77 € / m³

Source: HAMBURG WASSER

EXAMPLES FOR REDUCTION OF STORMWATER TAX

AREA	TYPE (material or measure)	Percentage
impervious surface	e.g. concrete, asphalt, pavement	100 %
partly impervious surface	e.g. pavement with joints for infiltration	50 %
pervious surface	e.g. gravel, sand, lawn	0 %
roof		100 %
green roof		50 %
sealed areas with connection to infiltration measure with emergency water outlet	e.g. bioswale, raingarden (with emergy water outlet)	50 %
sealed areas without connection to infiltration measure with emergency water outlet	e.g. bioswale, raingarden (without emergy water outlet)	0 %

Source: HAMBURG WASSER