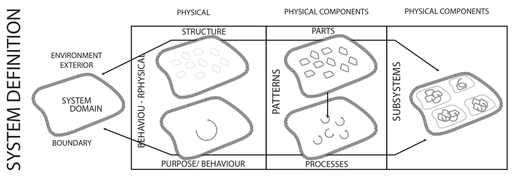
THEORY
PROCESS DESIGN + REASEACH

SYSTEM: DOMAIN, BOUNDARY - INTERIOR
ENVIRONMENT - EXTERIOR

STRUCTURE -> PARTS
BEHAVIOUR -> PROCESSES

RELATIONS PARTS, RELATIONS PROCESSES
RELATIONS PRTS-PROCESSES -> PATTERNS

SUB-SYSTEMS + SUB-PROCESSES
SUB-SYSTEMS -> PARTS
SUB-PROCESSES -> PROCESS STEPS

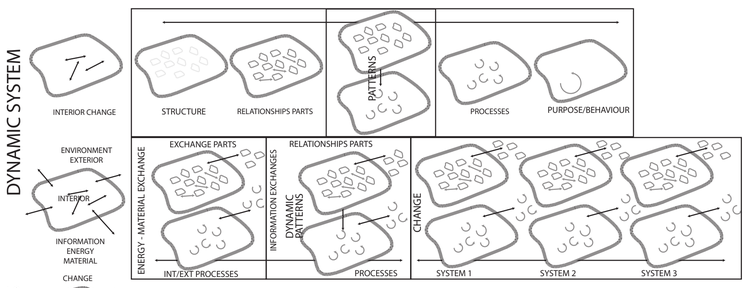


INTERIOR + EXTERIOR CHANGES

INTERIOR CHANGE
RELATIONS PARTS -> SYSTEM BEHAVIOUR
RELATION SYSTEM -> ENVIRONMENT

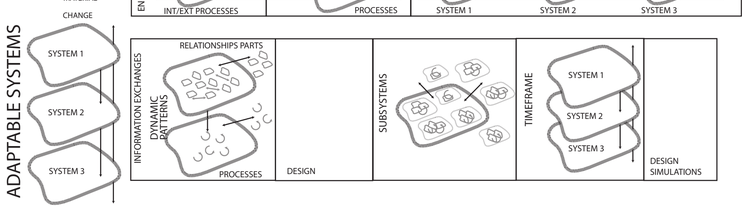
EXTERNAL CHANGE
INFORMATION, ENERGY, MATERIAL

CHANGE
STATE 1-> STATE 2 -> STATE 3 -> .....



MODELLING THE SYSTEM:
PATTERNS - conditional action depending on circumstances
ENTITIES - object respond to the action of agents
AGENT - properties, strategies & capabilities for interacting with artifacts & other agents

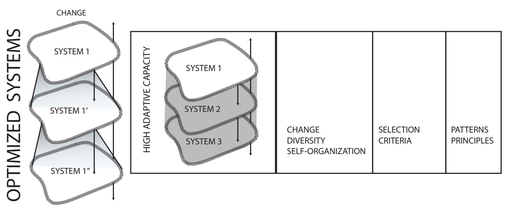
ENTITIES - SIMILAR, PARTIALLY CONNECTED
ENTITIES - STRUCTURE ADAPT -> PATTERN FORMATION

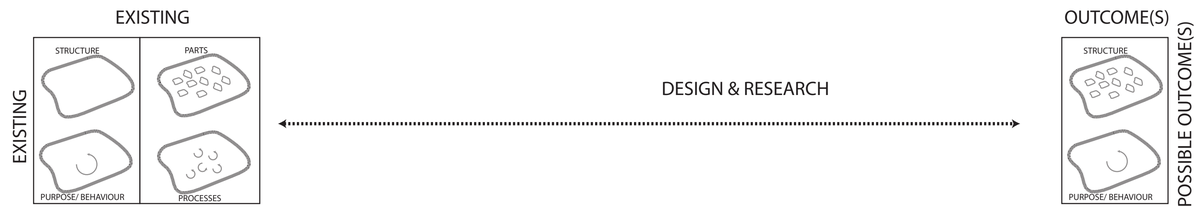


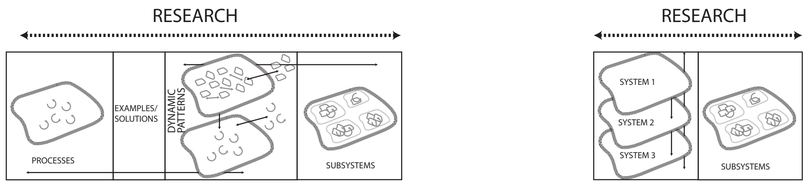
HIGH DEGREE OF ADAPTIVE CAPACITY
live with change and uncertainty
nurturing diversity for resilience
creating opportunity for self-organizatio

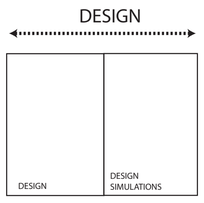
SELECTION - increase/decrease in types of patterns
CRITERIA OF SELECTION: high adaptive capacity
PERFORMANCE - successful/ unsuccessful patterns

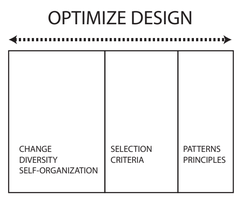
PATTERNS - PRINCIPLES



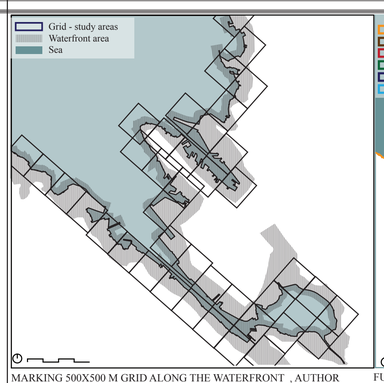




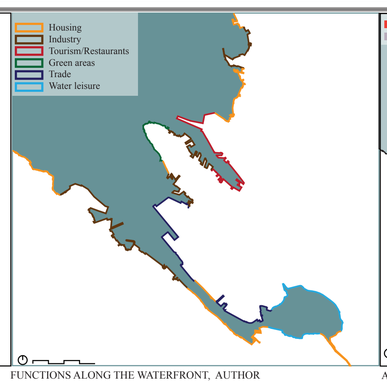




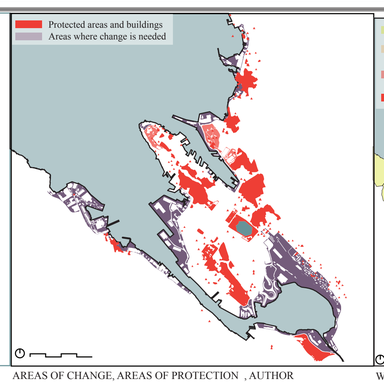
SUBSYSTEMS WATERFRONT
DEFINE, COUNDARIES, STRUCTURE, PROCESSES



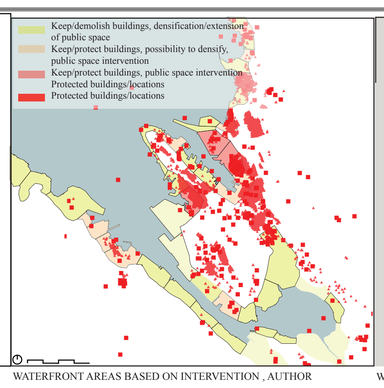
MARKING 500X500 M GRID ALONG THE WATERFRONT , AUTHOR



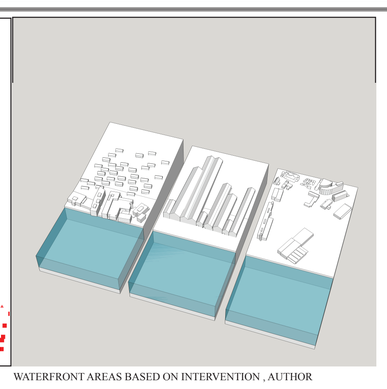
FUNCTIONS ALONG THE WATERFRONT, AUTHOR



AREAS OF CHANGE, AREAS OF PROTECTION , AUTHOR

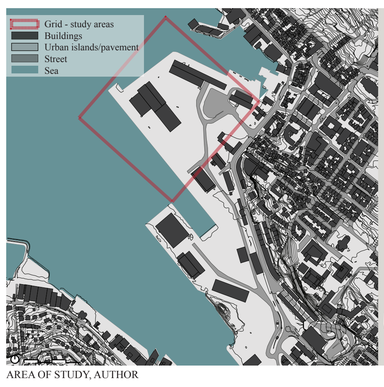


WATERFRONT AREAS BASED ON INTERVENTION , AUTHOR

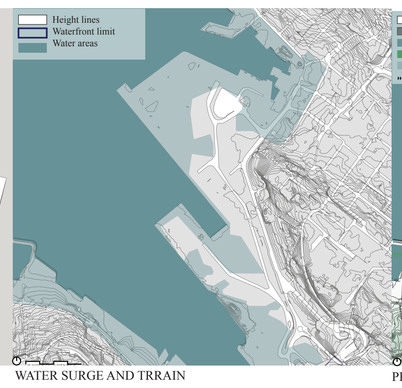


WATERFRONT AREAS BASED ON INTERVENTION , AUTHOR

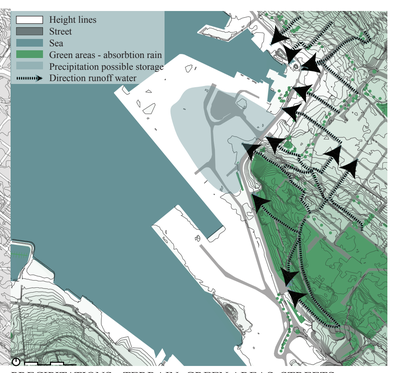
SUB-SYSTEM SITE
DEFINE, COUNDARIES, STRUCTURE, PROCESSES



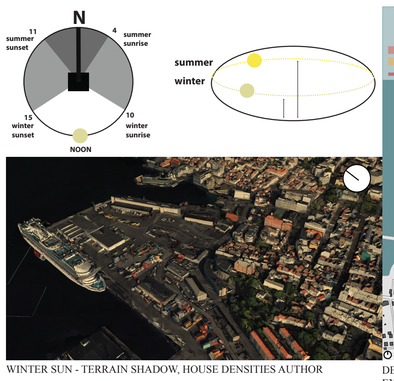
AREA OF STUDY, AUTHOR



WATER SURGE AND TRRAIN

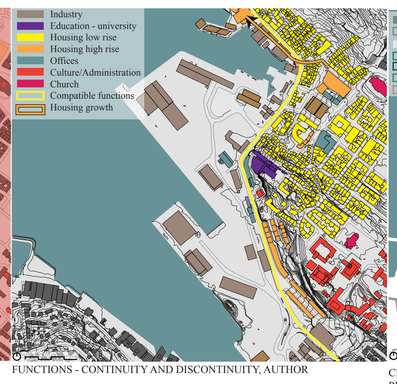


PRECIPITATIONS - TERRAIN, GREEN AREAS, STREETS



WINTER SUN - TERRAIN SHADOW, HOUSE DENSITIES AUTHOR

DENSIFICATION/INTENSIFICATION - PROTECTED AREAS/BUILDINGS, EXISTING BUILDINGS, AUTHOR



FUNCTIONS - CONTINUITY AND DISCONTINUITY, AUTHOR

CITY CONNECTEDNESS - STREET INTENSITIES, STREET CONNECTIONS, PEDESTRIAN AREAS, PARKING, AUTHOR

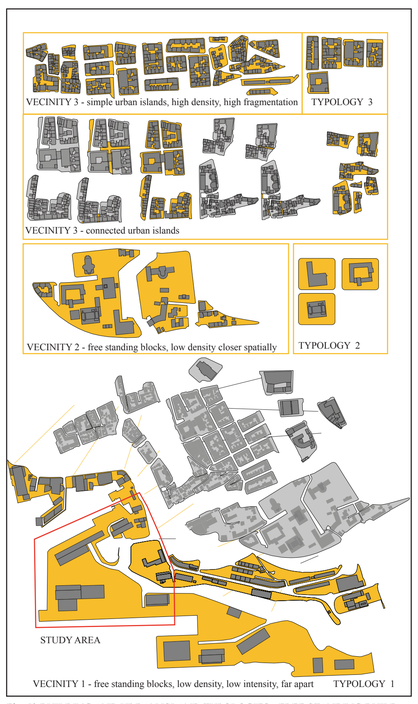


Fig. 52 BUILDING AND URBAN ISLAND TYPOLOGIES - FREE STANDING BUILDINGS, URBAN BLOCKS, FRAGMENTED TISSUE, AUTHOR

PROBLEM DATA INPUT & BASIC SOLUTION RESEARCH

WATERSURGE - platform 0-5 m above the waterlevel (depends on tide value as well)
Tide value: high tide 1.5 m - low tide 0.4 m
Rising sea levels: till 2050 - 10 mm/year
Storm level rise: till 2050 - 57 mm/year
SOLUTIONS
Water Barrier (54 MIL EUROS - 100 MIL KRN)
Elevated Platform - ? 10810 euros/m
Park Terrain Barrier/ Absorbtion - 75 euros/sqm
Elevated Buildings/Floating Buildings- 10810 euros/m
PRECIPITATION
Runoffwater from the area itselft (206 000 sqm, average 5-10 mm runoff - 2cbm):
winter (70 mm max daily value - 14 cbm)
autumn (76 mm max daily value - 15 cbm)
spring (66 mm max daily value - 13 cbm)
summer (23 mm max daily value - 5 cbm)
Runoffwater from the elevated area pavement(188 000 sqm - 2cbm)
Absorbion area elevated area (green areas 47 000 - 0.5 cbm - infiltration rate medium 12 mm/h)
Total runoff probable in the area: minimum of 3.5 cbm/day
SOLUTIONS
Direct Towards the Sea/ Storage (Gravity-fed pipe flow),
Store(Depth of water storage), Absord
WIND INTENSITY: winter (maximum 21.8 m/s), autumn (maximum 14.8 m/s), spring (maximum 17 m/s), summer (maximum 12 m/s)
SOLUTIONS:
Urban elements: wind breakers (small elements attached to buildings), deviating elements
Urban configurations: avoiding long street corridors, tall buildings; change building accesses, small grain urban islands, building groupings

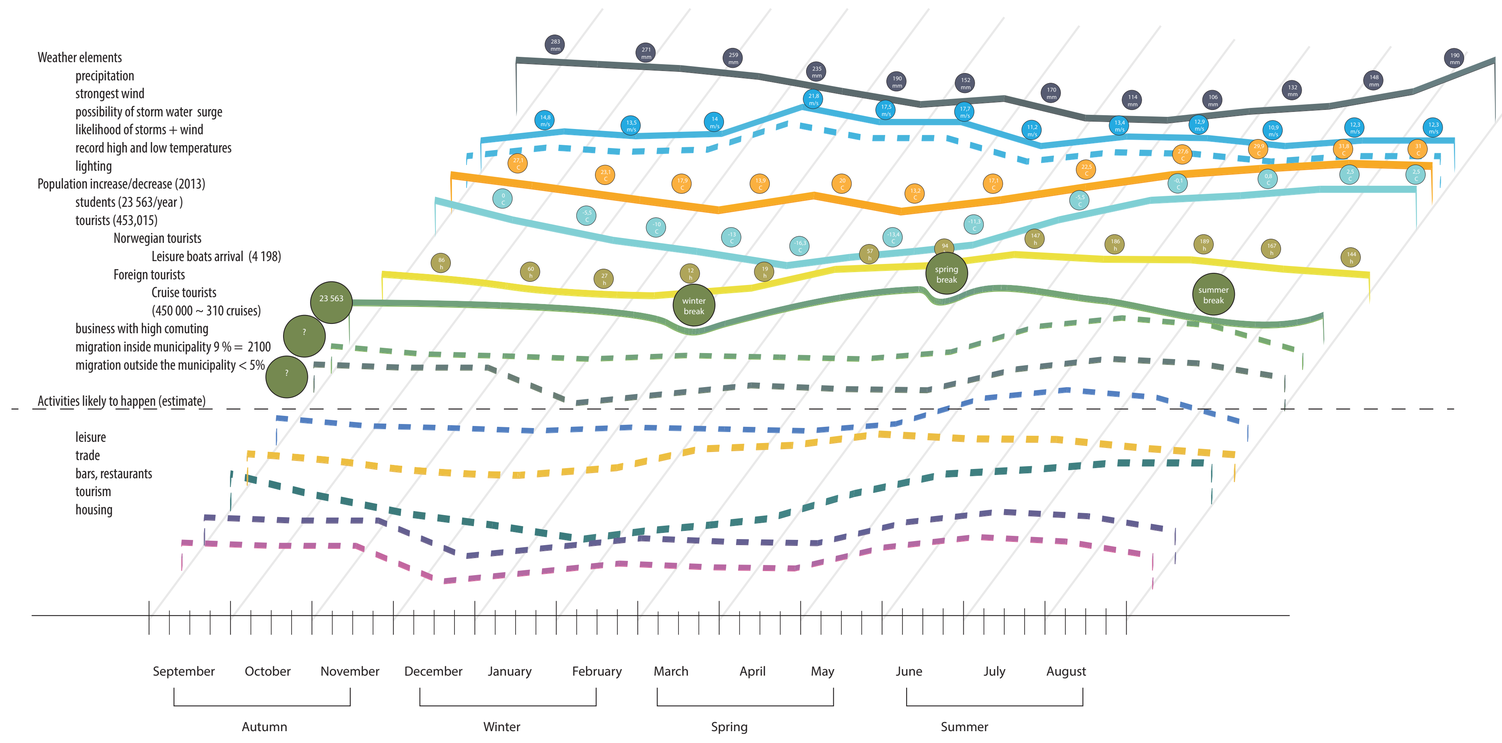
CHARACTERISTICS THAT INFLUENCE THE INTERVENTION
FUNCTIONAL CHARACTERISTICS - function of buildings and areas, uses
SPACE, FORM, MATERIAL - terrain gradient
WEATHER EVENTS - wind direction, water surge, precipitation runoff, sun illumination

WEATHER CONDITIONS

USE CHANGES

SUMMER USES
LEISURE - parks, sports fields, swimming pools, water sports
HOUSING - summer houses
TOURISM - cruises
AUTUMN USES
HOUSING - student housing, high end houses
WINTER USES
TRADE - container trade
HOUSING - student housing
SPRING USES
TOURISM - cruises
LEISURE - sport fields
HOUSING - student housing

SUMMER
LEISURE - parks, sports fields, swimming pools, water sports
FLOATING ELEMENTS, SHIFTING TERRAINS, WATER INLETS
HOUSING - summer houses
FLOATING HOUSES, TEMPORARY STRUCTURES
TOURISM - cruises
FLOATING PLATFORM
AUTUMN
HOUSING - student housing, high end houses
FLOATING HOUSES, TEMPORARY STRUCTURES
WINTER
TRADE - container trade
PLATFORM AND STORAGE
HOUSING - student housing
FLOATING HOUSES, TEMPORARY STRUCTURES
SPRING
HOUSING - student housing
FLOATING HOUSES, TEMPORARY STRUCTURES

FUNCTIONS

SEASONAL CHANGE