

Landscape into Urbanism

Integrating landscape as an urban infrastructure
broadening functional possibilities with
reviewing the planning framework of Changxing, China.

 TU Delft
Complex Cities and Regions in Transformation

Complex Cities

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Summary

With the aim to **integrate landscape thinking** into urban transformation, a strategic framework is proposed in both spatial planning & decision-making level, which recognizes **the interactions between landscape, infrastructure and urban layers in different scalar & time dimensions**. With such landscape approach, the current plan of Changxing will be reviewed with **how to implement the planning strategies of interactive urban-landscape structure and design of multi-functional interventions**.

Key words: landscape, urban transformation, layer-approach, China

WHY

WHY 'LANDSCAPE INTO URBANISM' ?

WHAT

WHAT'S THE PROBLEM IT TARGETING AT ?

HOW

HOW DO THE STRATEGIES & DESIGN IT PROPOSE DEAL WITH THE PROBLEM ?

WHY

WHY 'LANDSCAPE INTO URBANISM' ?

-Motivation

-Theoretical background

-Concept

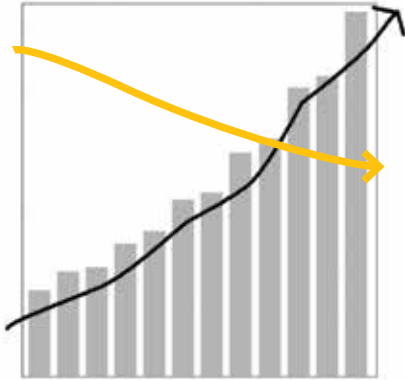
-Methods

-Context of site



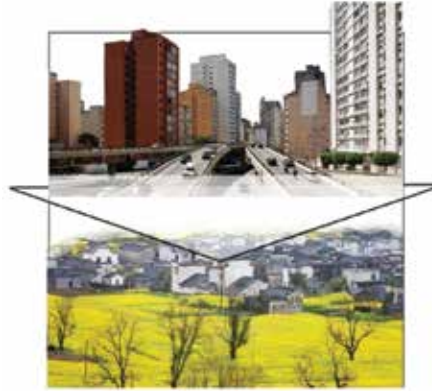
Rising environmental risk in urban area due to ...

Incomplete consideration of landscape in urban system



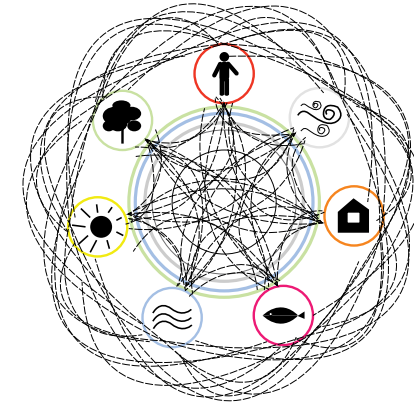
Limited natural resource

- pressure from continuous urban growth
- pressure from improper pattern of urban growth, such as urban sprawl



Not consider landscape into urban system

- ignorance of landscape structure in urban construction
- lack of exploring landscape value in urban development



Not consider landscape itself as a dynamic system

- ignorance the connection between different elements
- ignorance the efforts in long term process



Fragmented urban-landscape

- losing sustainable natural resource
- losing high quality of living environment
- losing balance in urban-landscape metabolism
- losing proper urban-rural identity

source: Benedict & McMahon, 2002; Daniels & Lapping, 2005

Could we take an alternative perspective from landscape to rethink urban issue?



WHY: Theoretical background

Sorts of theories reveal the values of Landscape responding to Urbanism in ...

Literature review on landscape related theories repending to urbanism



Complex system rely on long-term process

- a broad cross-disciplinary and multi-scale mode
- link to economic property value and social well-being
- correspond to the complexity of urban system

Diverse urban & rural experience

- provide space for development
- flexible condition for various programs
- enhance and explore local identity

Explore a new development paradigm

- explore urban & rural development
- guide for urban expansion
- support urban resilience and sustainability

Environmental consideration

- consider the environmental change on social aspect
- develop environmental responsible lifestyle and spatial structure

source: Howard, 1898; McHag, 1995; Fainstein, 2010.

Function

Regional scale

Medium

Urban ecological system for various types of landscape; Ecological strategy linked to climate adaption and urban expansion.

Structure

Urban landscape structure and infrastructure network for build-up area, green space, water system and ecological services.

Urban-rural fringe pattern and the spatial structure of urbanization's embedded into landscape

Multi-function

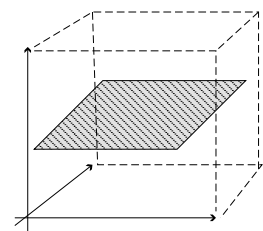
Urban green&blue infrastructure and environmental adaption strategy in urban spatial design and social integration.

Diverse urban landscape typology and programs.

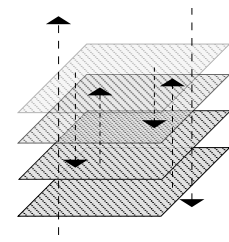
Local scale

Scale

source: Douglas & Ravetz, 2011



SCALE



RELATION

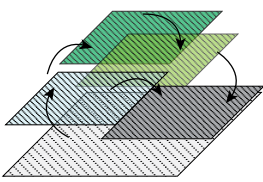
-Expressin suitable scale to clarify urban-landscape character

-Maintain supportive cooperation relationship through different urban-landscape layers

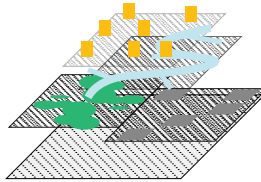
-Explore a synergic urban-landscape structure with multiple effects

-Set strategic elements as stimulating interventions with typical typology

Space

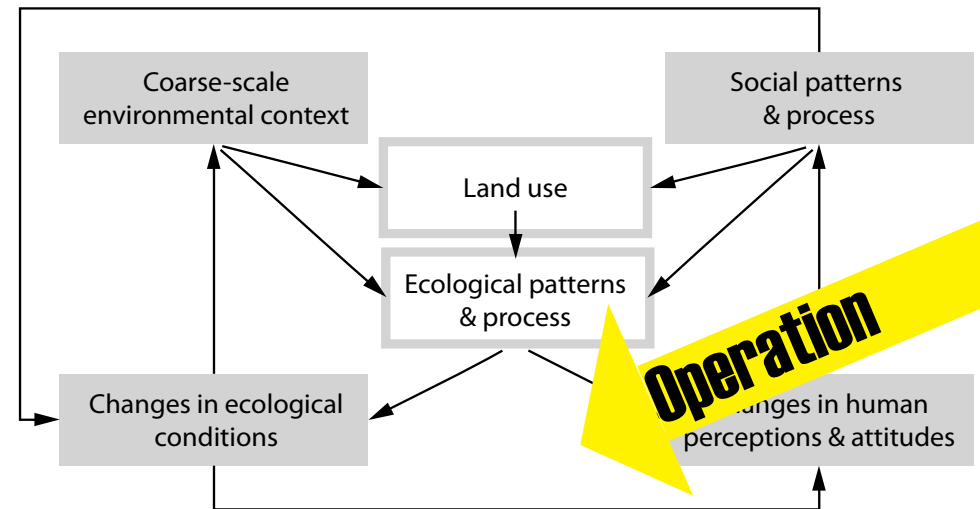


STRUCTURE



ELEMENT

source: Hough, 1984; Lichtenberger, 1998.



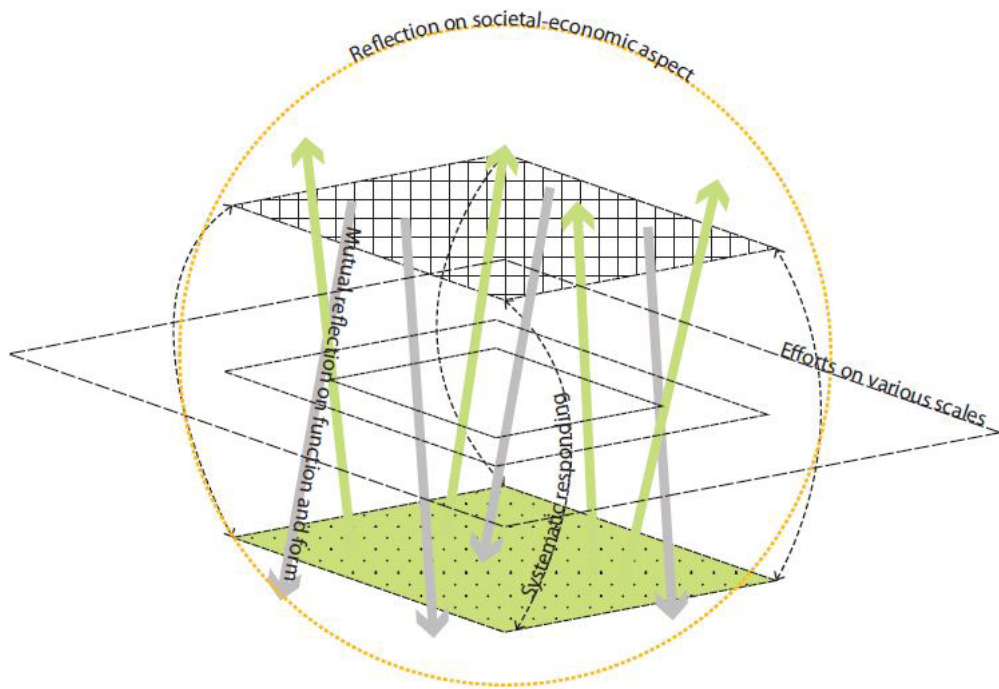
Operation

source: Douglas & Ravetz, 2011; Ravetz, 2006.

WHY: Concept

WHY

the model of balance urban-landscape system



source: Author, 2013.

- systematic spatial & functional reflection
- efforts on multi-scalar
- relation on societal-economic aspects

WHAT

HOW

Landscape into Urbanism

- recognize the **characters and values of landscape**
- build up **interactions between landscape and urban system**
- pursuit balance in **a multi-scalar urban landscape system in the long term**

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Motivation

Theoretical background

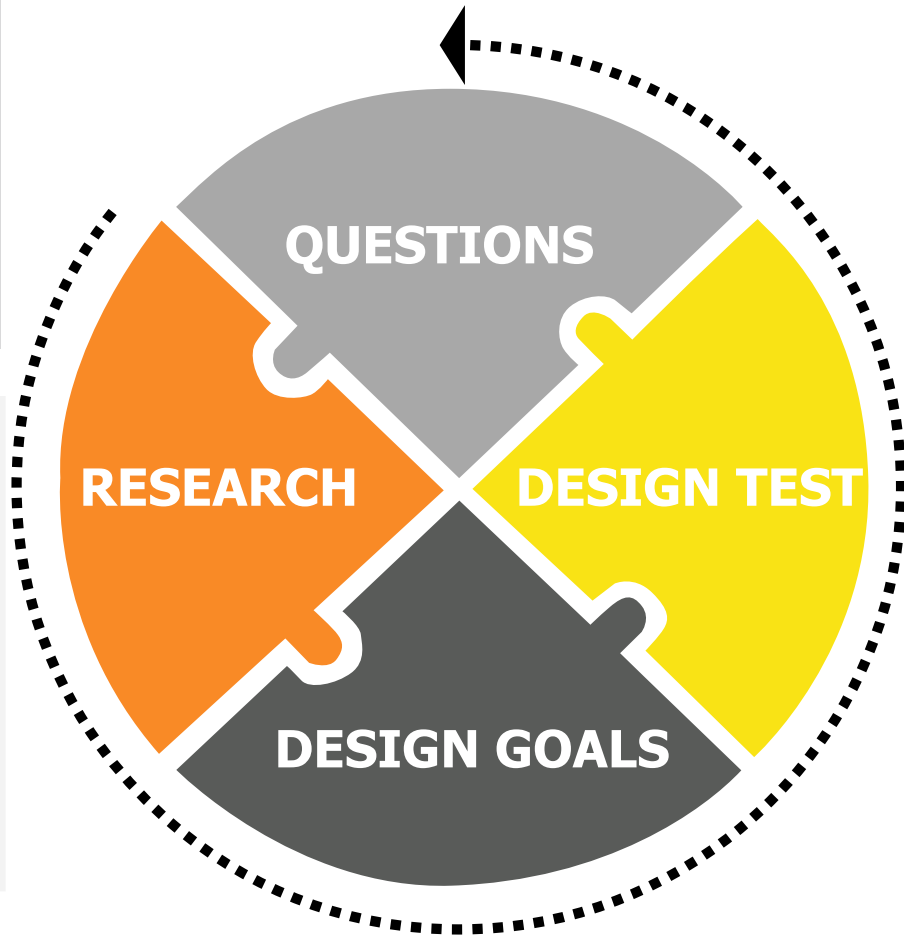
Concept

Methods

Context of site

WHY: Methods-General & Specific methods

the cycle of 'Design by research' and 'Research by design'

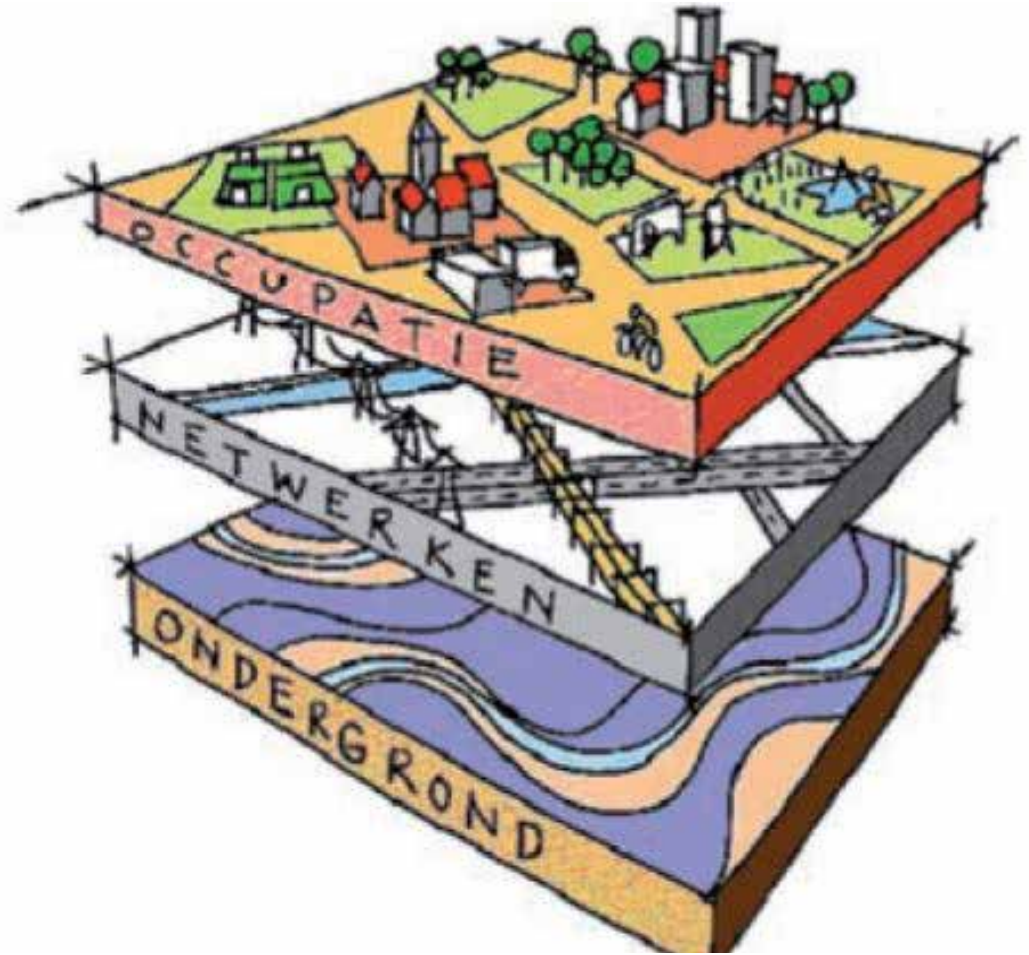


source: Author, 2013.

General method:

Design by Research, Research by Design

the diagram of Dutch Layer Approach Model



Source: www.ruimtexmilieu.nl; De Hoog & Sijmons, 1998.

Specific method :

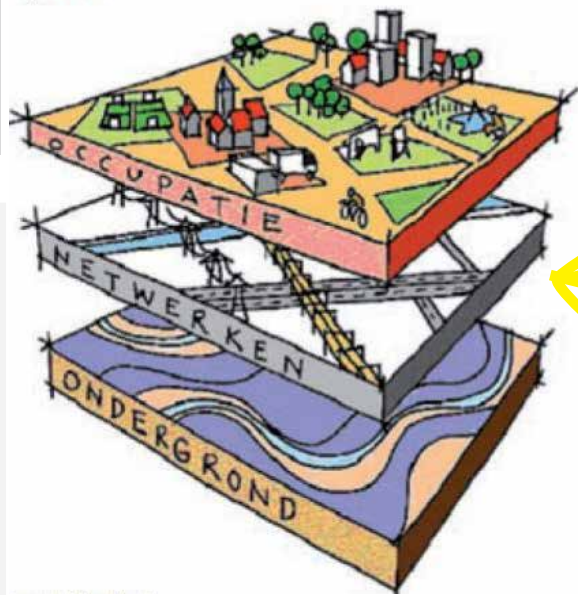
Dutch Layer Approach Model

WHY: Methods -interpretation of Dutch Layer Approach Model

WHY

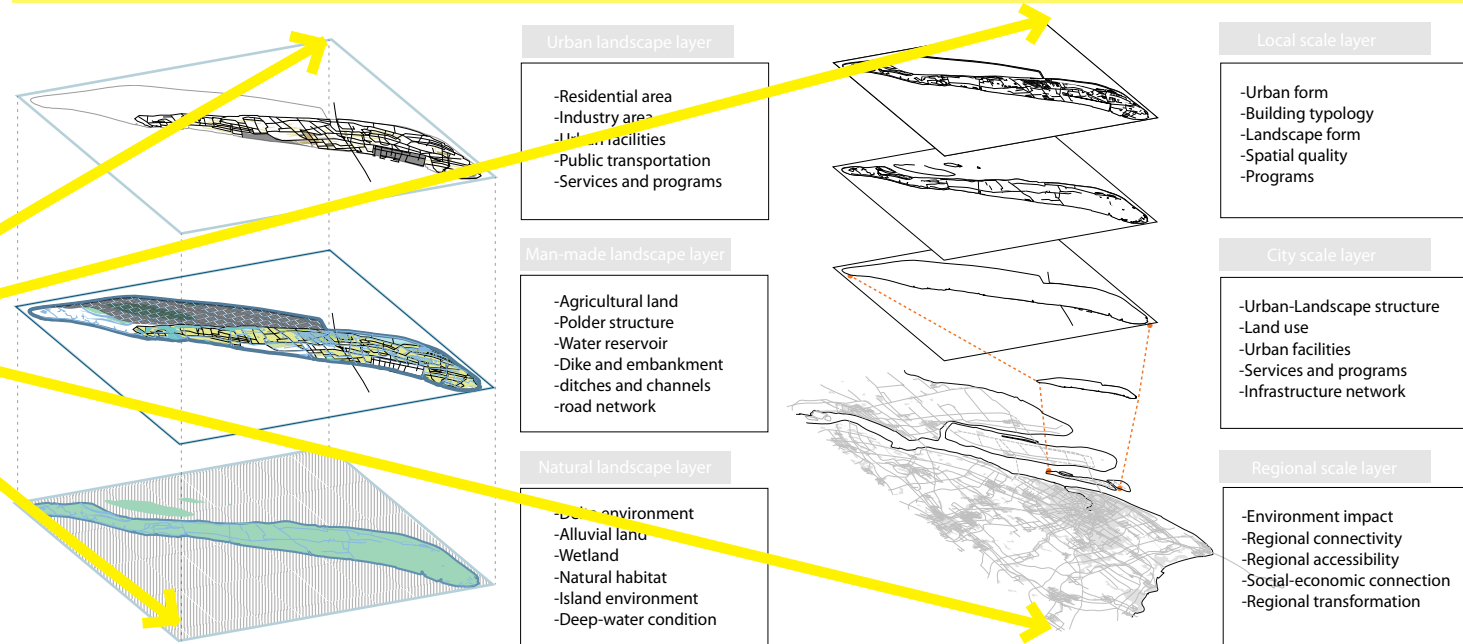
Dutch Layer Approach Model

Layer Model



...interpretate...

Translation of Layer Approach based on specific site context in Changxing



The interpretation of Dutch Layer Approach Model in Changxing's context

source: Author, 2013.

>read the landscape layer

> interactions with infrastructure and urban layers

>mutual reflection on different scales, tranformation process

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Motivation

Theoretical background

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Context of site

WHY: Regional context -location of site

50km



Changxing island

- > Shanghai metropolitan area
- > Yangtze River Delta region
- > China



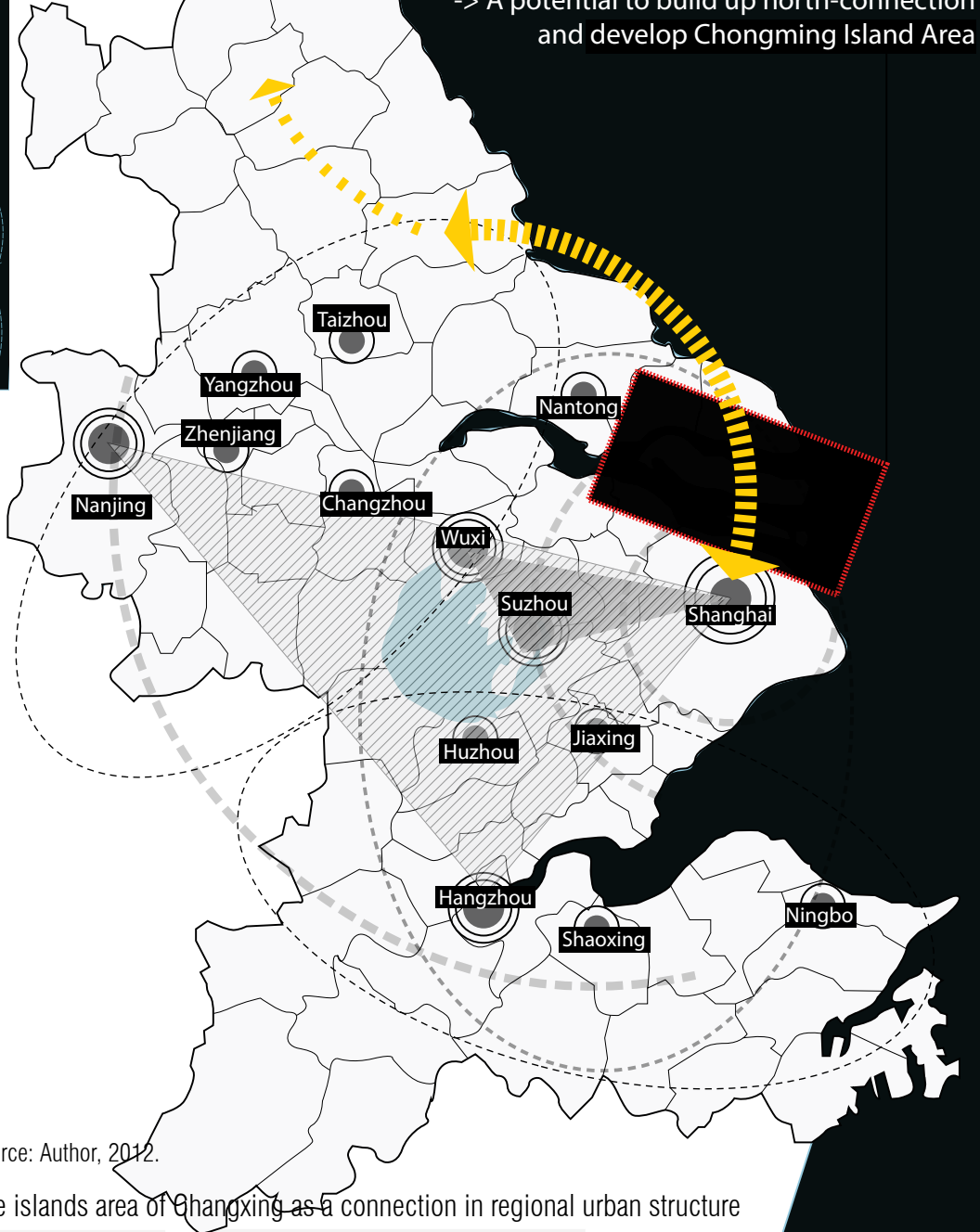
Source: Author, 2012
Location of Changxing in Yangtze River Delta region scale

WHY: Regional context: regional urbanization demand

The urban system in Yangtze Delta Region



The missing link of Shanghai Metropolitan area towards north of Jiangsu Province
 -> A potential to build up north-connection and develop Chongming Island Area



to further develop regional urban network

to extend regional infrastructure network

to use the water transport advantage

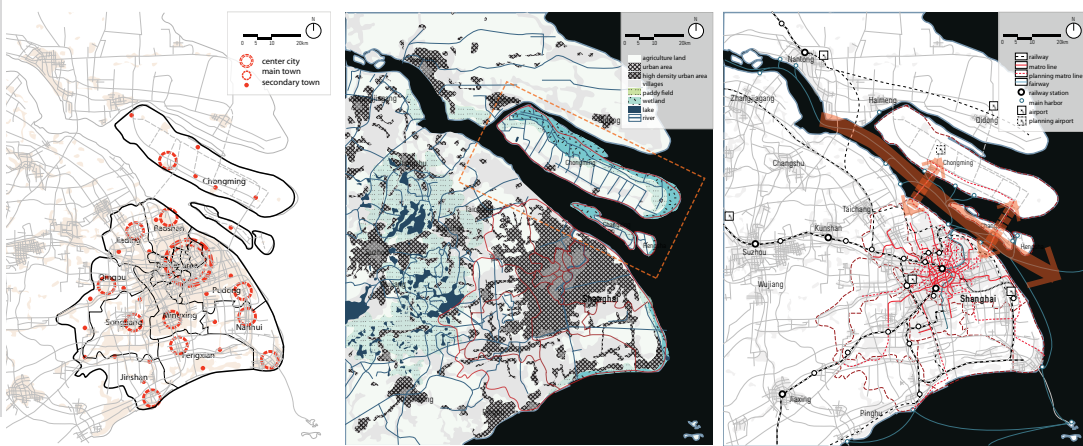
> Stimulate **urban development in Changxing**

> Connection between Shanghai and its north area

source: Author, 2012.

The islands area of Changxing as a connection in regional urban structure

WHY: Regional context - implementation of ship industry



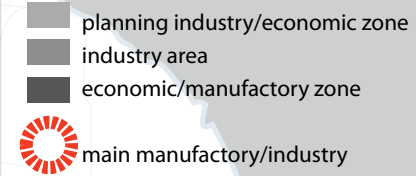
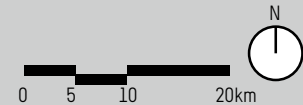
Relative low social-economic level

Good landscape quality

Good water transport condition

need stimulation for urbanization
adequate/cheap land
advantage in water transport

> Implementation of **SHIP INDUSTRY AREA**
in Changxing



source: Author, 2012.

Industry zone network in Yangtze River Delta region

WHY: Regional context -industry development as a risk

WHY

WHAT

HOW

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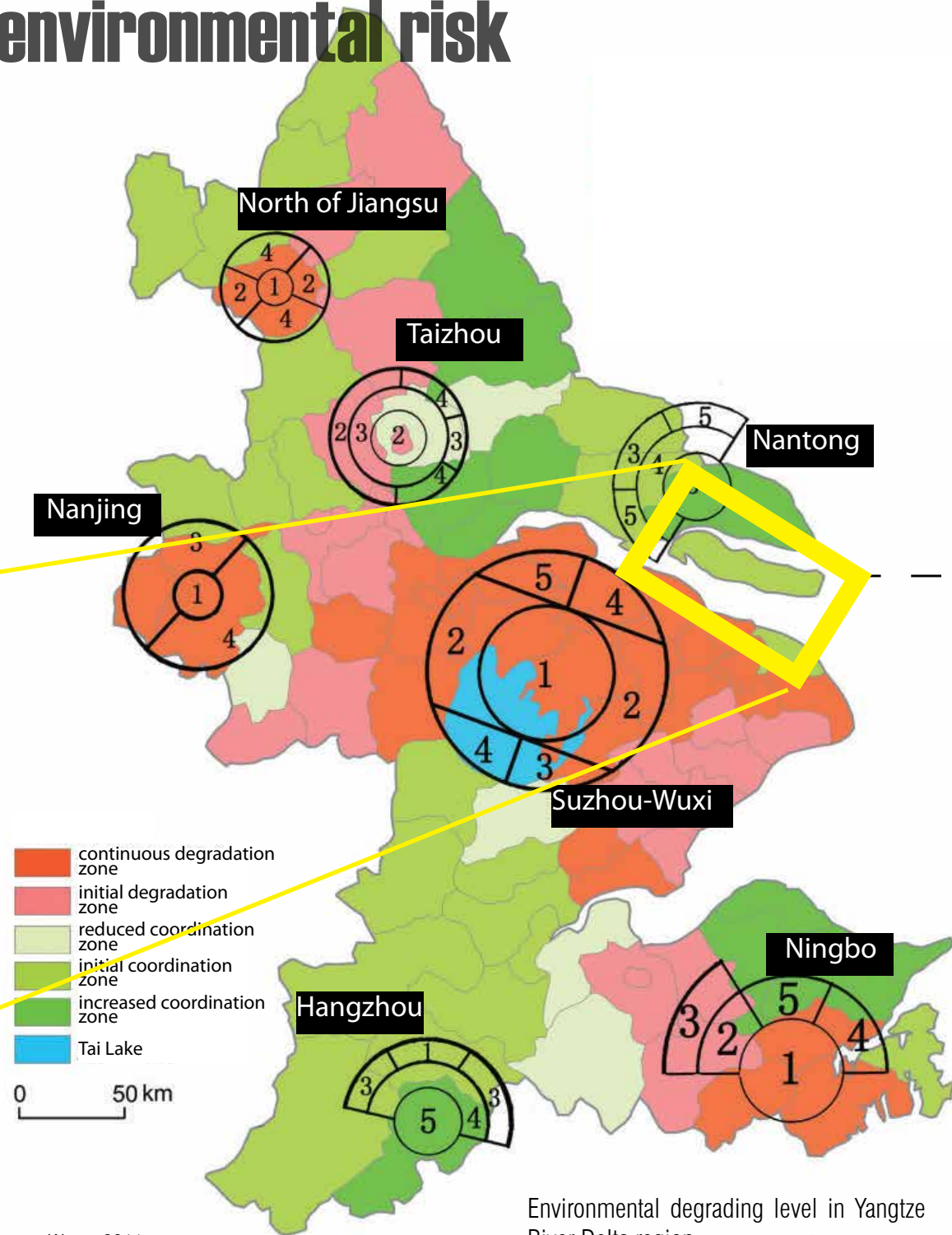
Large scale of **SHIP INDUSTRY** into the **LOCAL URBAN LANDSCAPE**

WHY: Regional context - regional environmental risk

WHY

- > regional urbanization process
- > land use transition from landscape field to town & city
- > cost of degrading environmental quality

Will Changxing follow such pattern without considering on **balance of regional urban landscape system** and **its own environmental quality?**



source: Wang, 2011.

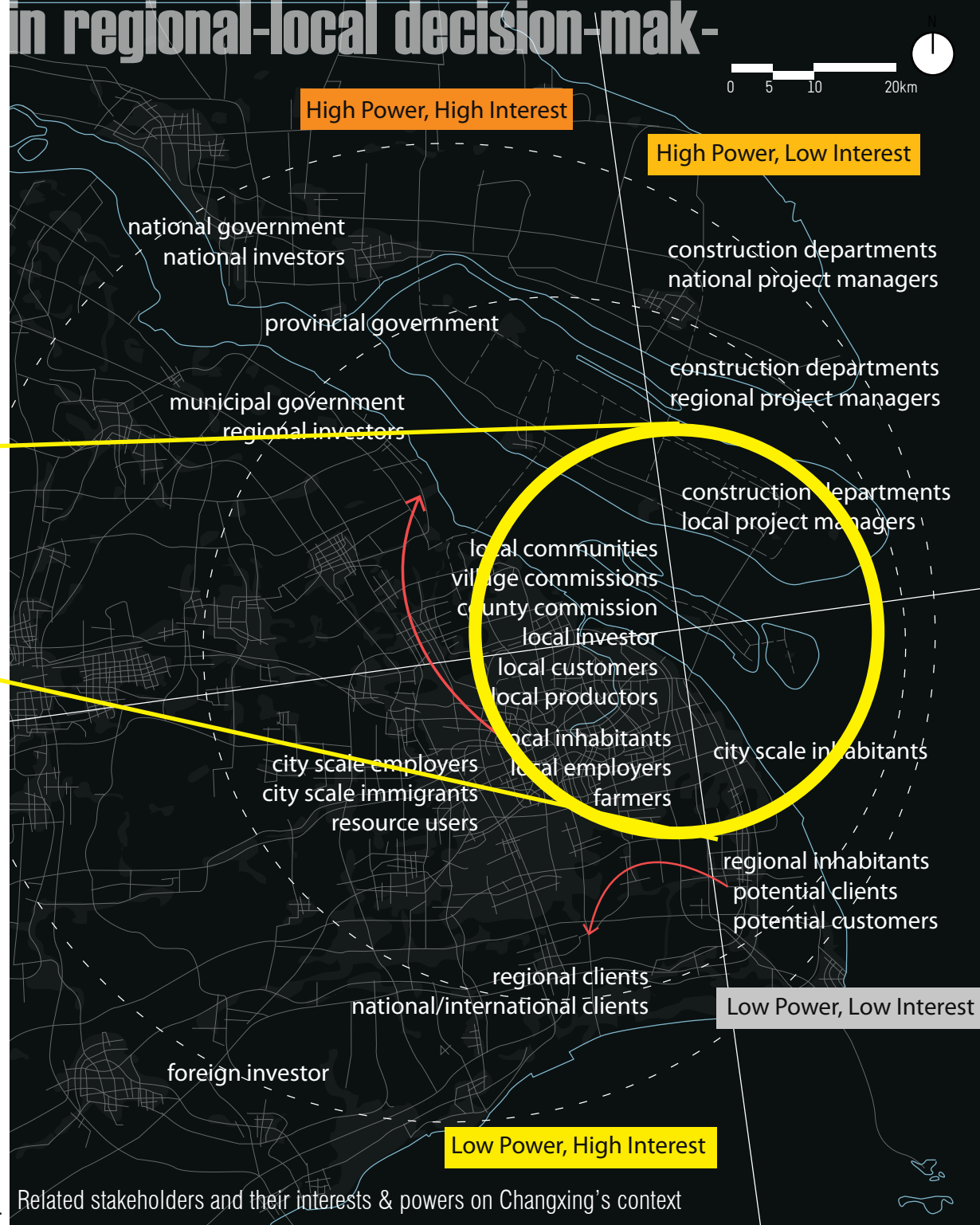
Environmental degrading level in Yangtze River Delta region

WHY: Regional context - imbalance in regional-local decision-making



WHY

Missing consideration of **local level's interests and participation** in such top-down urban development decision



source: Author, 2012.

Related stakeholders and their interests & powers on Changxing's context

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Motivation

Theoretical background

Concept

Methods

Context of site

WHAT'S THE PROBLEM IT TARGETING AT ?

WHAT

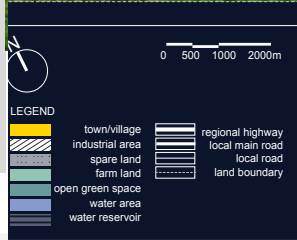
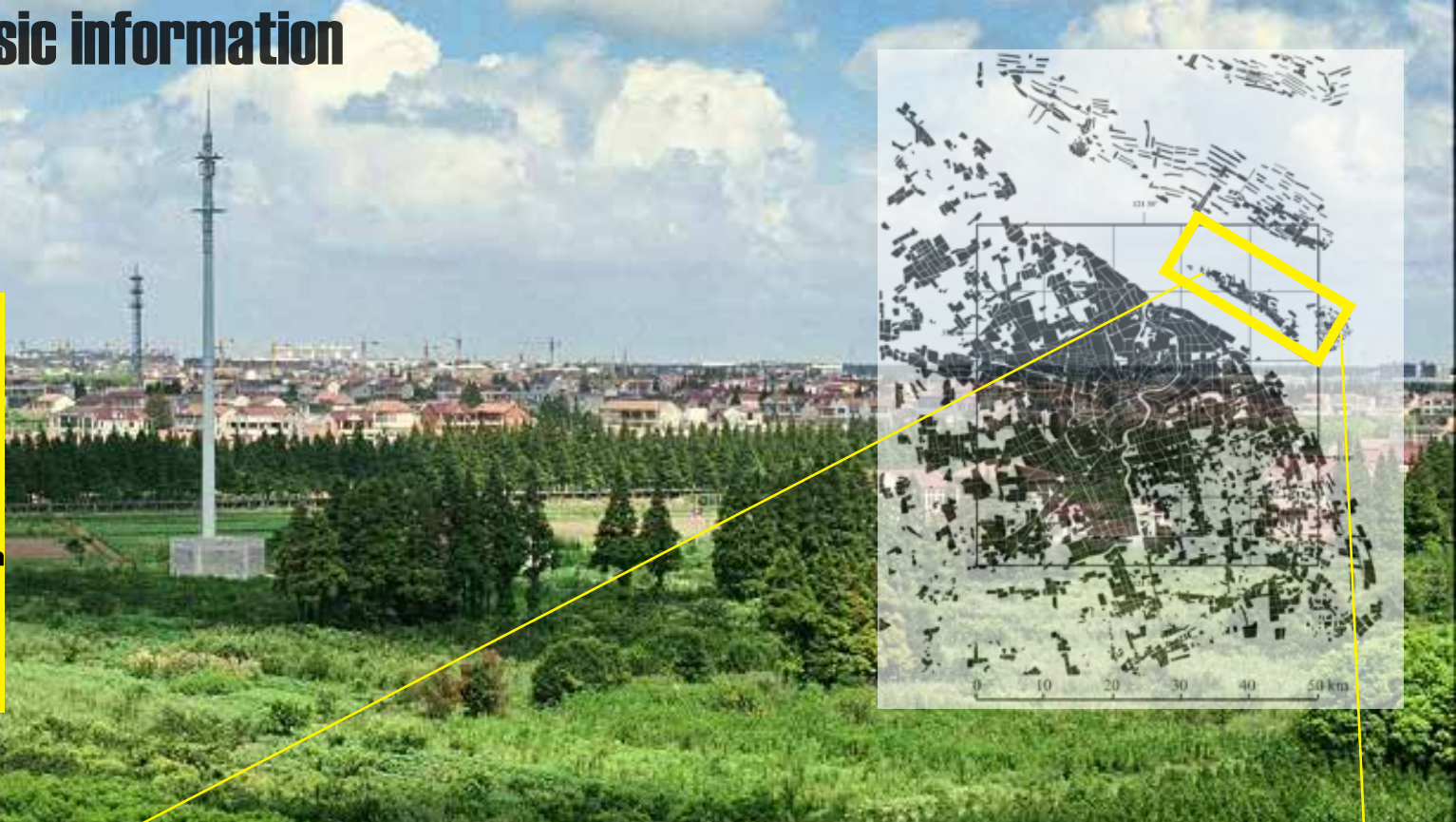
-Site diagnosis

-Conclusion on spatial conflicts

-Problem statement

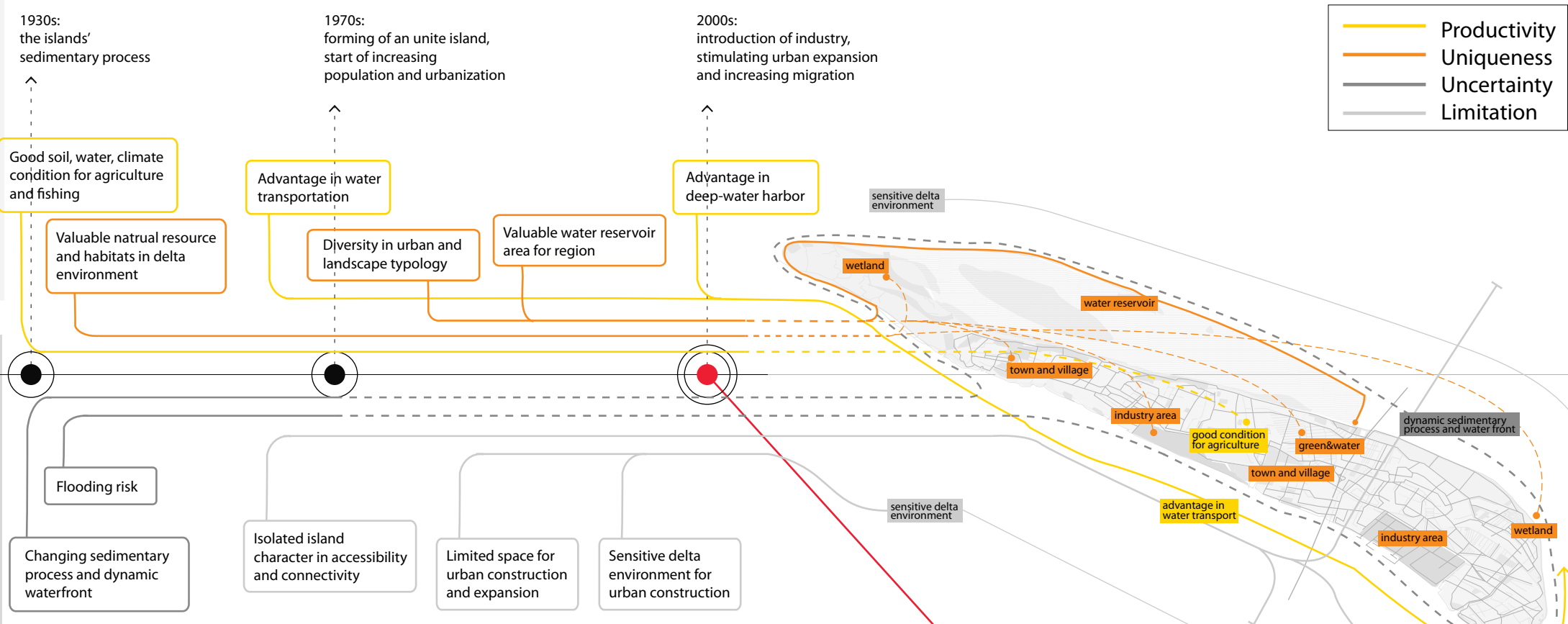
WHAT: Site diagnosis -basic information

Changxing, a county belong to SH
population: **40 thousand**
area: **155 square kilometers**
town, village, farmland, wetland
agricultural production & water transport



source: Author, 2012.
Current situation of Changxing

WHAT: Site diagnosis- landscape's effort in Changxing's transition process



and shaped Changxing's spatial & functional transformation ... before industry interrupt such relationship.

How does landscape act in Changxing's urbanization process:



natural resources

Unique delta environment holds valuable habitats for diverse creatures and natural resource for urban development.



agriculture base

The local soil, water, climate condition is suitable for agriculture and fishing, which set an essential base for population growth and urban development



urban&rural typology

The diversity of local landscape in water system and green fields reflects in original building typology and spatial organization pattern.



The advantages in water transport and harbor construction provide an opportunity for related industry.



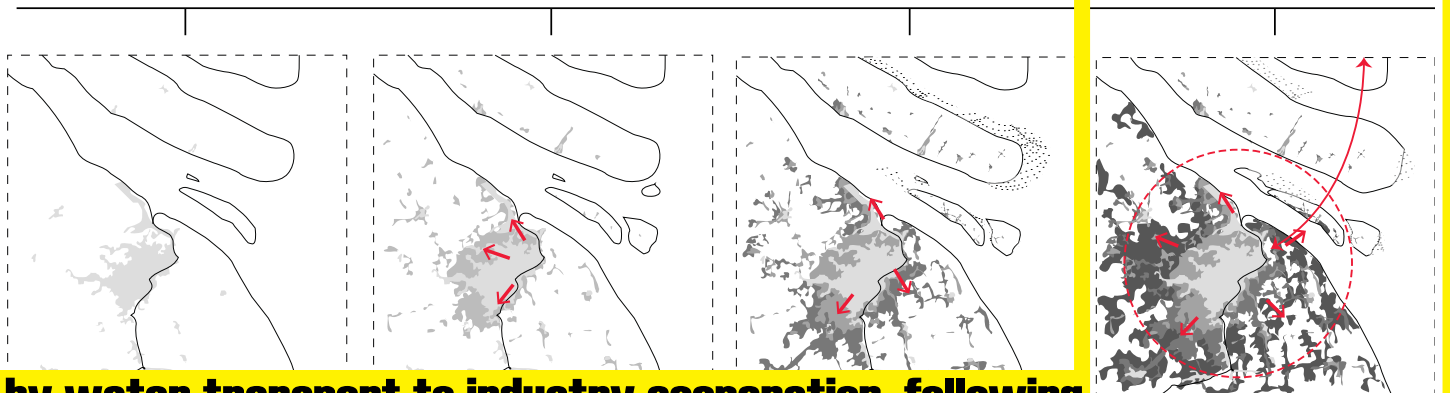
environmental risk

Risks of flooding and drought because of the dynamic sedimentary process and water issue in delta region increase the uncertainty in future.

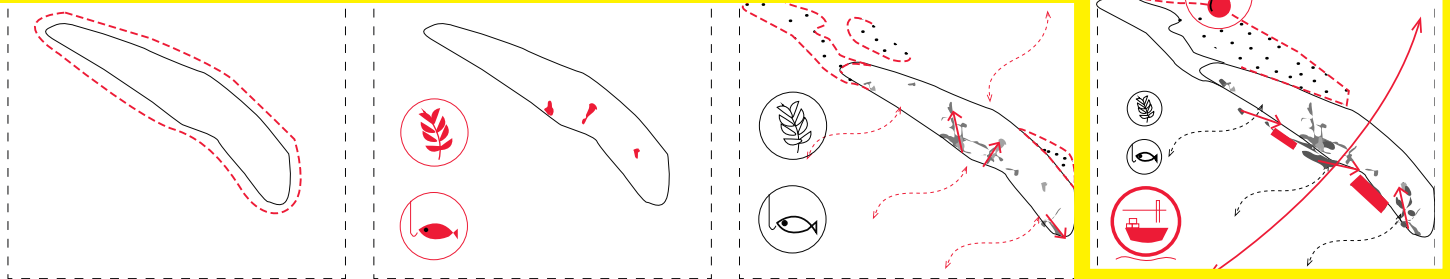
The urban landscape transformation of Changxing source: Author, 2012.

WHAT: Site diagnosis- changing local & regional relation

The introduction of industry switch the local-regional relationship



from agricultural trading by water transport to industry cooperation, following with increasing population, urbanization, and extending road infrastructure.



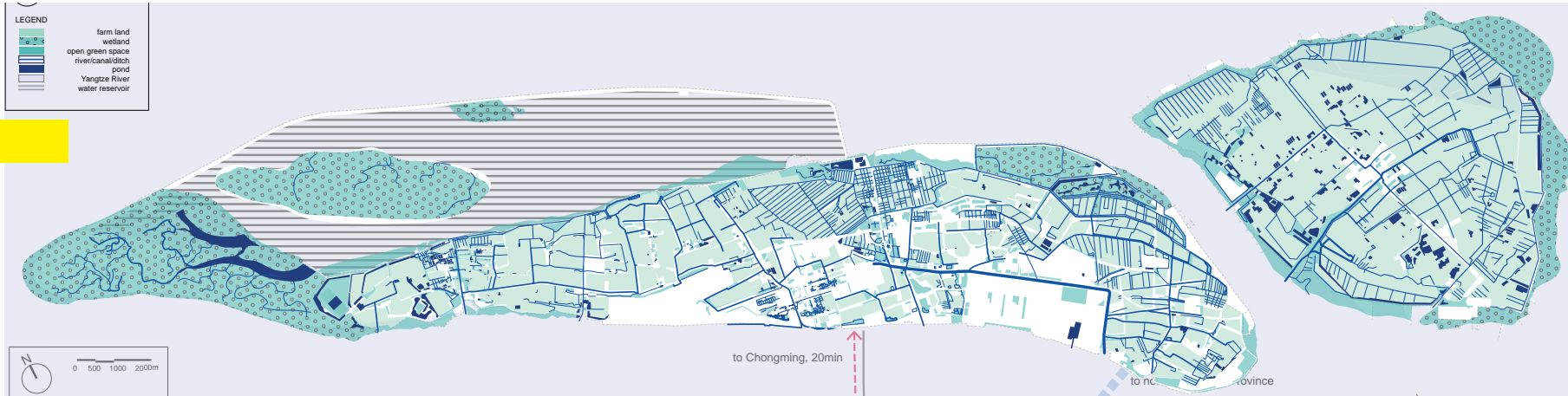
Changxing:

The changing role of Changxing in regional transformation

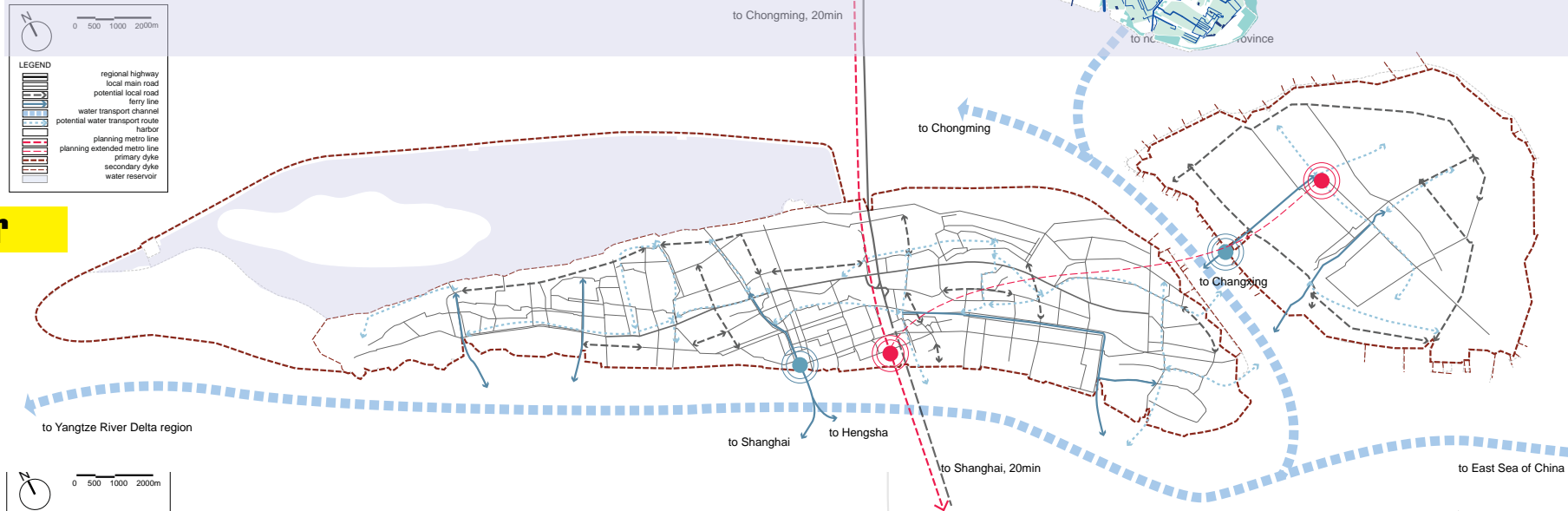
Source: Author, 2012

WHAT: Site diagnosis - multi-layer perspective of the whole island

Landscape layer



Infrastructure layer



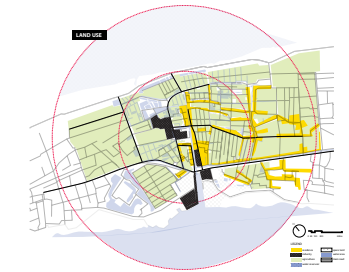
Urban layer



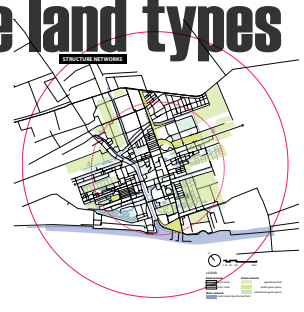
WHAT: Site diagnosis -analysis on 4 representative land types



Aggregated town



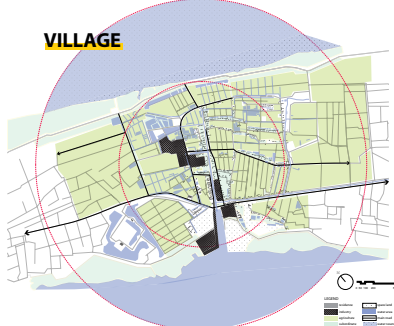
land use



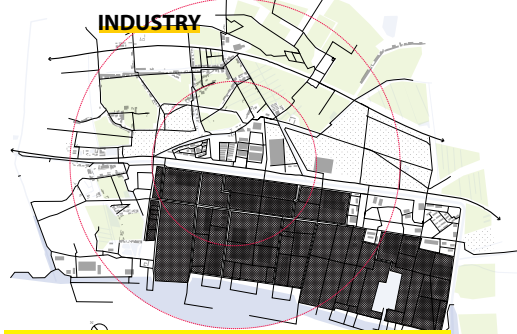
structure network



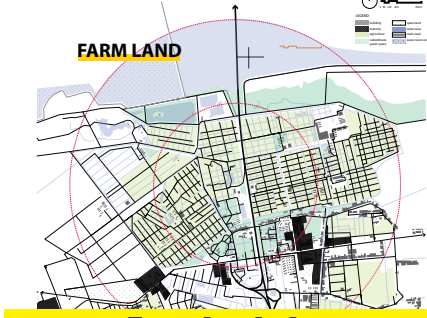
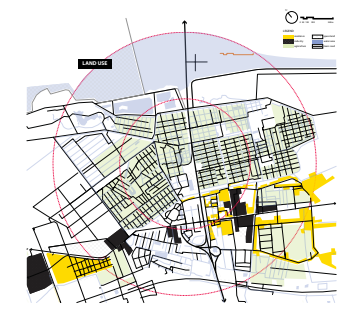
program



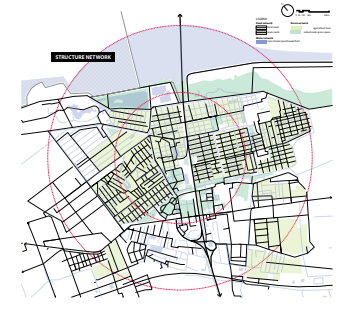
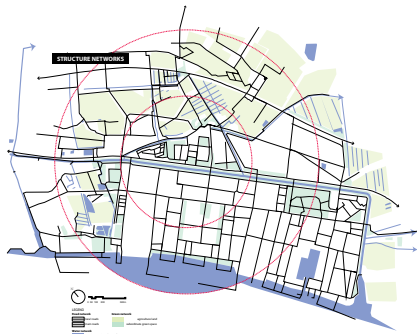
Linear village



Industrial plot



Farmland plot



WHAT

WHAT

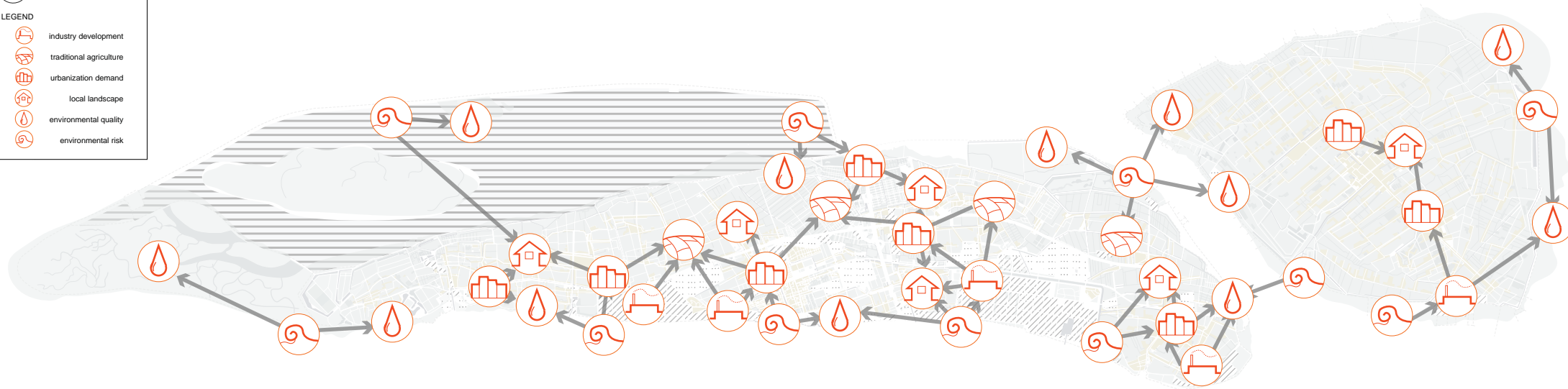
WHAT

WHAT: Site diagnosis - spatial conflicts

0 500 1000 2000m

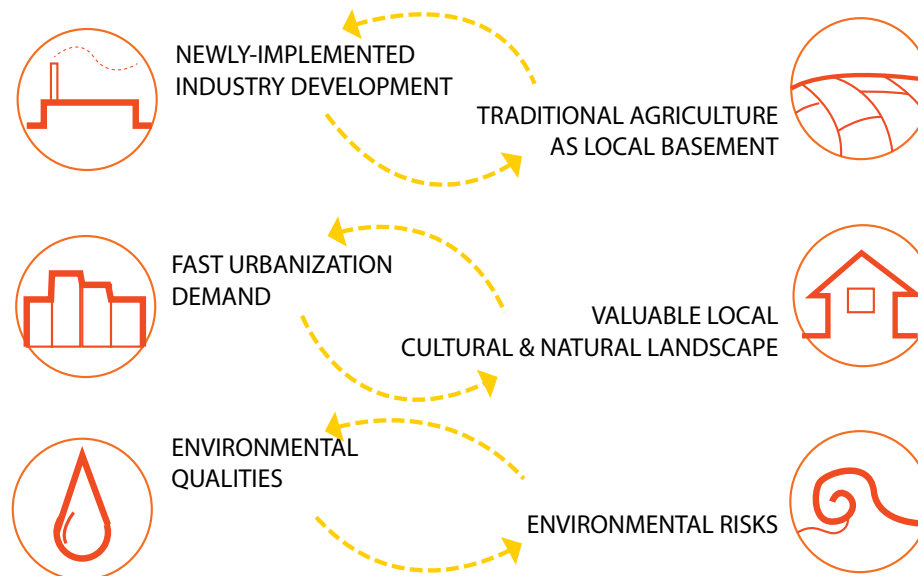
LEGEND

- industry development
- traditional agriculture
- urbanization demand
- local landscape
- environmental quality
- environmental risk



Spatial conflicts over the island

Source: Author, 2012



Source: Author, 2012

WHAT: Problem statement

WHY

WHAT

HOW



Population

total amount:

125,000

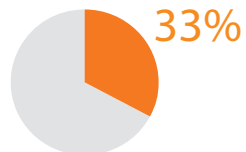
including residents:

42,000

migrants:

83,000

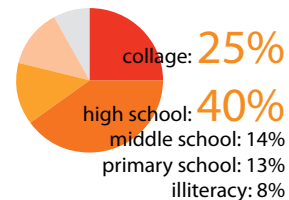
urban residents rate:



employment rate:



education rate:



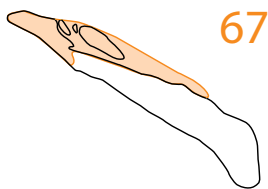
Area (square kilometer)

total area :

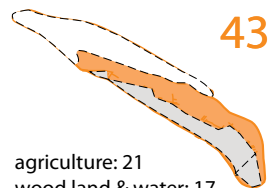
160

including

water reservoir area:

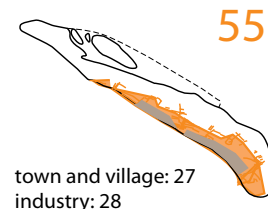


landscape area :



agriculture: 21
wood land & water: 17
wetland: 5

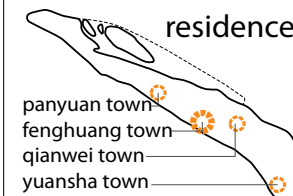
urbanized area :



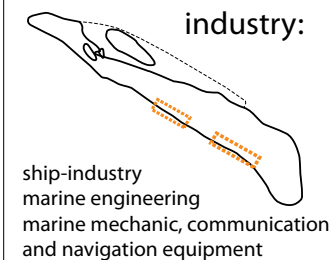
town and village: 27
industry: 28

Land use

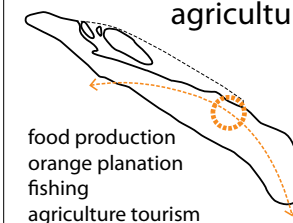
residence:



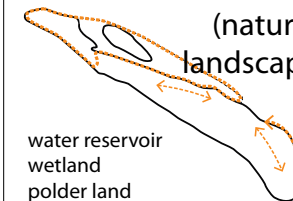
industry:



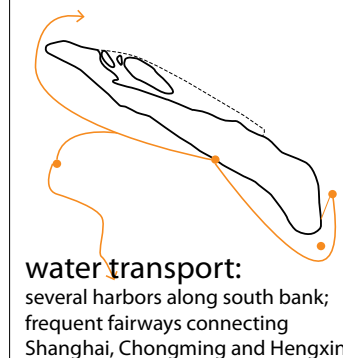
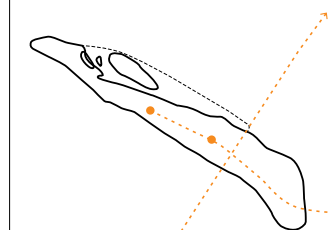
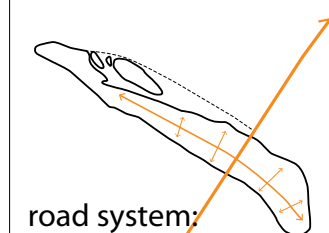
agriculture:



(natural) landscape:



Network

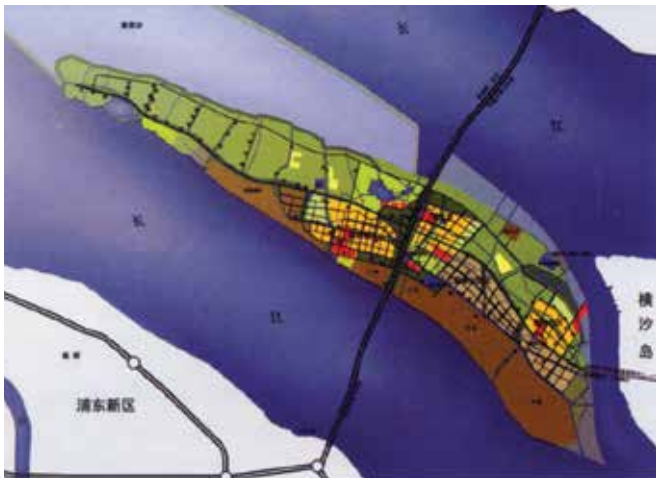


WHAT: Problem statement

WHY



WHAT

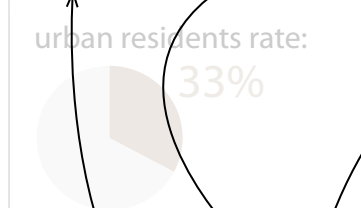


图例

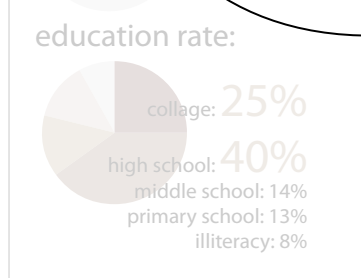
其他用地	公共服务设施用地	城镇建设备用地	中心村
二类工业用地	三类工业用地	工业备用地	公共绿地
生产防护绿地	耕地及其他用地	市政公用设施用地	对外交通用地
教育设施用地	居住用地	道路	高速公路
轨道交通及站点	水域	水库水渠	

Population

total amount:
150,000~
including
180,000
migrants
for increasing jobs:
100,000



unemployment rate:
29%
increasing jobs



Area (square kilometer)

total area:
160
including
water reservoir area:
67

landscape area:
43
decrease and remove of landscape area

agriculture: 21
wood land & water: 17
wetland: 5

urbanized area:
55
growth and densification of urbanized area

town and village: 27
industry: 28

Land use

residence:
panyuan town
fenghuang town
qianwei town
yuansha town

industry:
introduction of large scale industry area
shanghai planation
marine mechanic, communication
navigation equipment

agriculture:
ignorance of the original natural and cultural landscape
agriculture tourism

landscape:
water reservoir
wetland
polder land

Network

increasing construction on road network and regional public transportation

public transport:
extended metro line from Shanghai to Chongming is planned and under construction

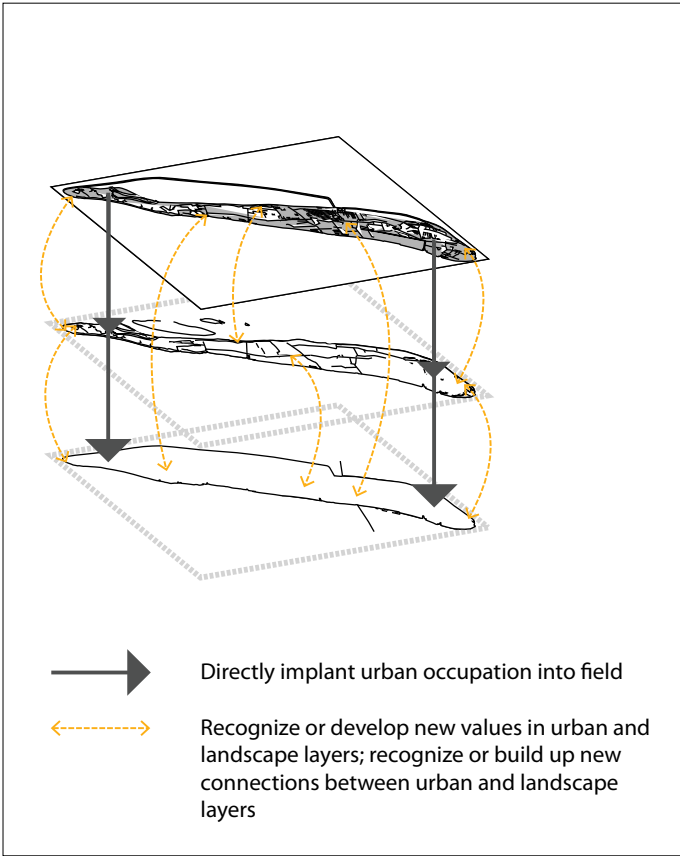
water transport:
several harbors along south bank;
frequent fairways connecting Shanghai, Chongming and Hengxing

HOW

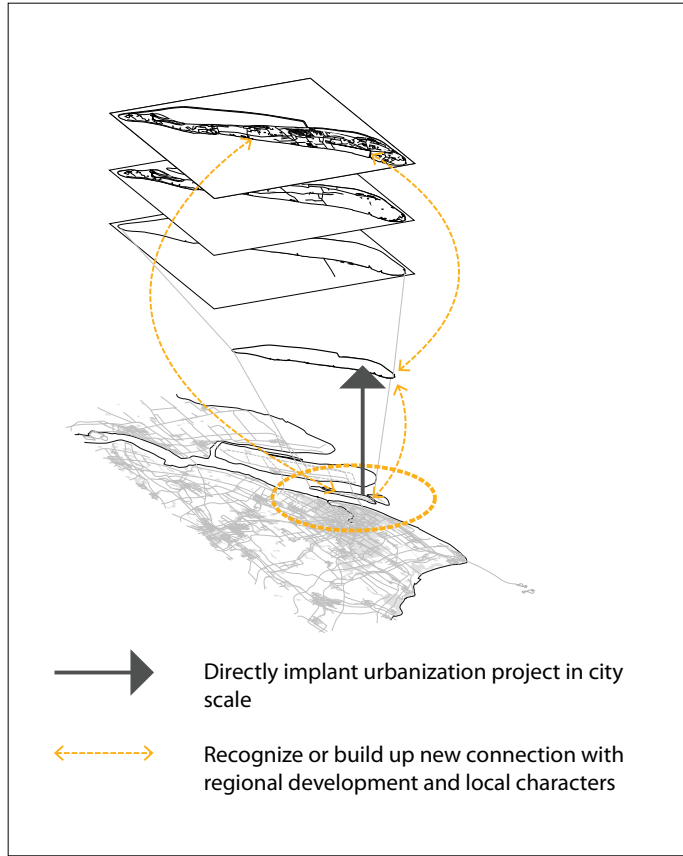
WHAT: Problem statement -3 missing links in Changxing's transformation process

WHY

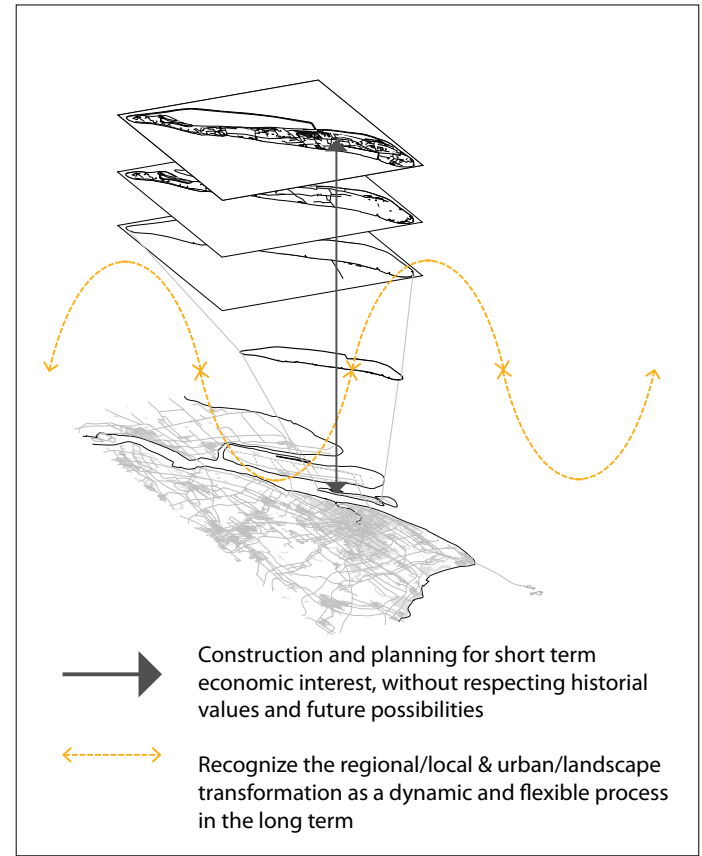
WHAT



Missing links among urban-cultural/natural landscape layers



Missing links among regional, city and local scales



Missing links among historical, current and future process

HOW

3 MISSING LINKS in Changxing's urban landscape transformation

WHAT: Problem statement -3 missing links in Changxing's transformation process



Missing link between **URBAN & LANDSCAPE** layers

> Fragmented urban landscape relationship

WHAT: Problem statement -3 missing links in Changxing's transformation process



Missing link between **LOCAL & REGIONAL** layers

> Detached local & regional relation

WHAT: Problem statement -3 missing links in Changxing's transformation process



Missing link in constant developing process

> Loss of historical values & future capacities

WHAT: Problem statement

WHY

WHAT

HOW

In a word, these missing links due to neglect consideration on Changxing's local natural & cultural landscape would **limit its dynamic urban landscape to explore further potentialities, nor to provide mutual benefits in regional development** for the long term social-economic and also environmental quality.

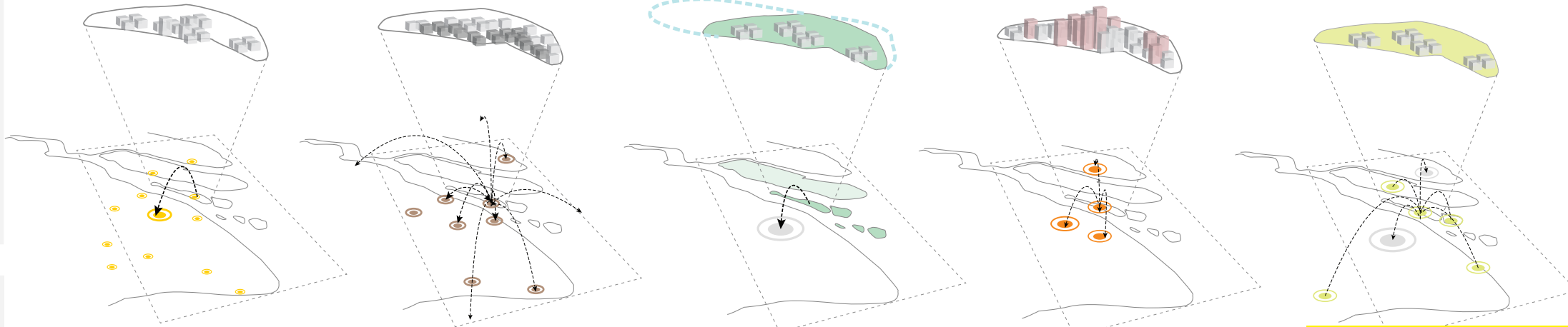
HOW DO THE STRATEGIES & DESIGN IT PROPOSE DEAL WITH THE PROBLEM ?

HOW

- Vision discussion
- Planning framework
- Planning strategies & Design guidelines
 - Design concept
 - Design actions
- From interventions to transformation

HOW: Vision discussion -5 possible future directions

SCENARIO DISCUSSION TRENDS: Subsidiary town to Shanghai/Industry island/Metropolitan Park/Another Pudong/Agriculture island



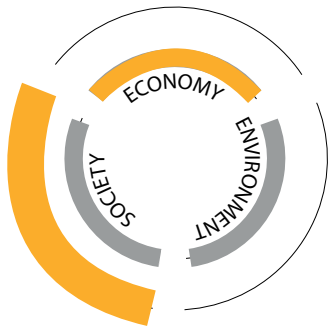
a subsidiary residential town

a ship-industrial island

a metropolitan park

a high density urban island

an agricultural island



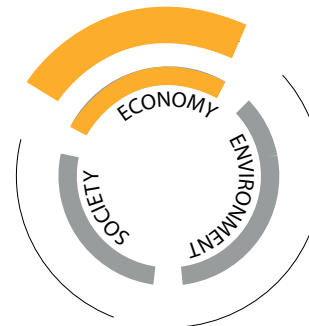
Regional Social & Local Economy Driver on Local Base



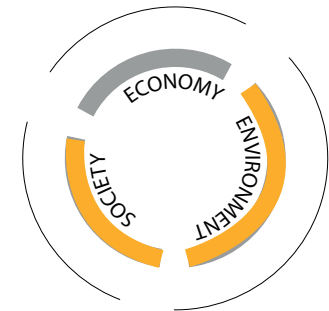
Regional Economy Driver on Local and Regional Base



Regional and Local Environment Driver on Local Base



Regional and Local Economy Driver on Local Base



Local Environment Driver on Local Base

urbanization depending on ship industry is not the ONLY SCENARIO

HOW: Vision discussion -integrating landscape into urbanization

WHAT IF ...

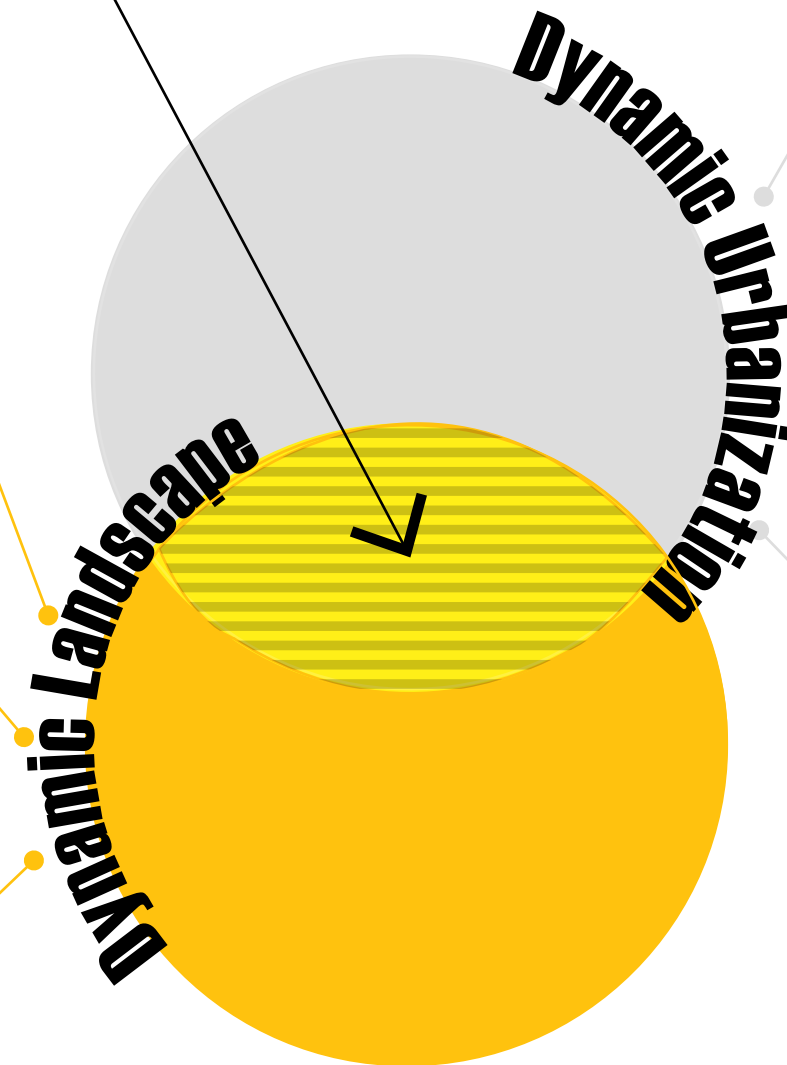
Natural habitats and resource



Local landscape structure



Local cultural landscape



Implanted large scale industry



Followed increasing population



Requirement for urbanization

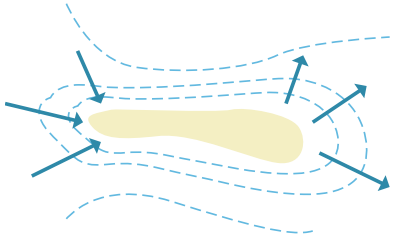


Source: Author, 2012

HOW: Vision discussion -local & regional vision

Integrating landscape in local vision

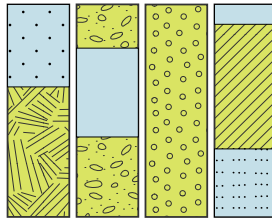
WATER'SCAPE



Dynamic Delta Environment & Island Atmosphere

- wetland area, open green space
- water system, waterfront

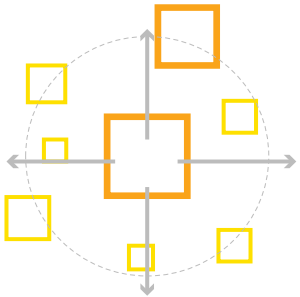
FARM'SCAPE



Agriculture as Local Identity

- green-water structure in farmland
- plantation and fishing as traditional programs

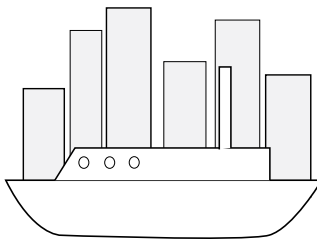
URBAN'SCAPE



Town and Village fit in with urbanization demand

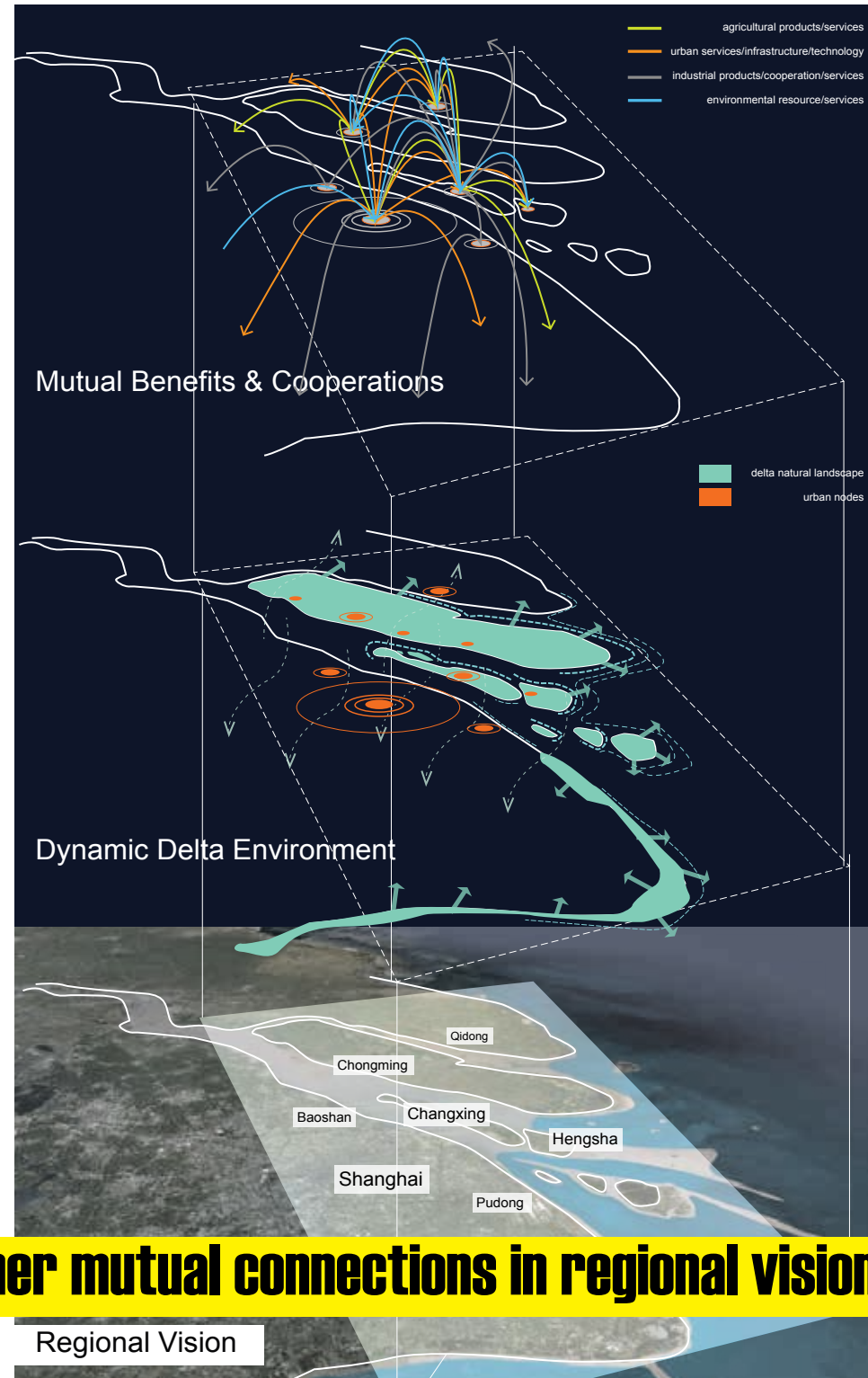
- increasing house for green
- adding /improving services

INDUSTRY'SCAPE



Ship-industry & Marine engineering as supportive economy

ports, services, infrastructures



Balance delta environment & further mutual connections in regional vision

HOW: Planning framework -planning principles

WHY

INTEGRATING : Build up interactive connections between diverse local landscape characters and urban-rural development

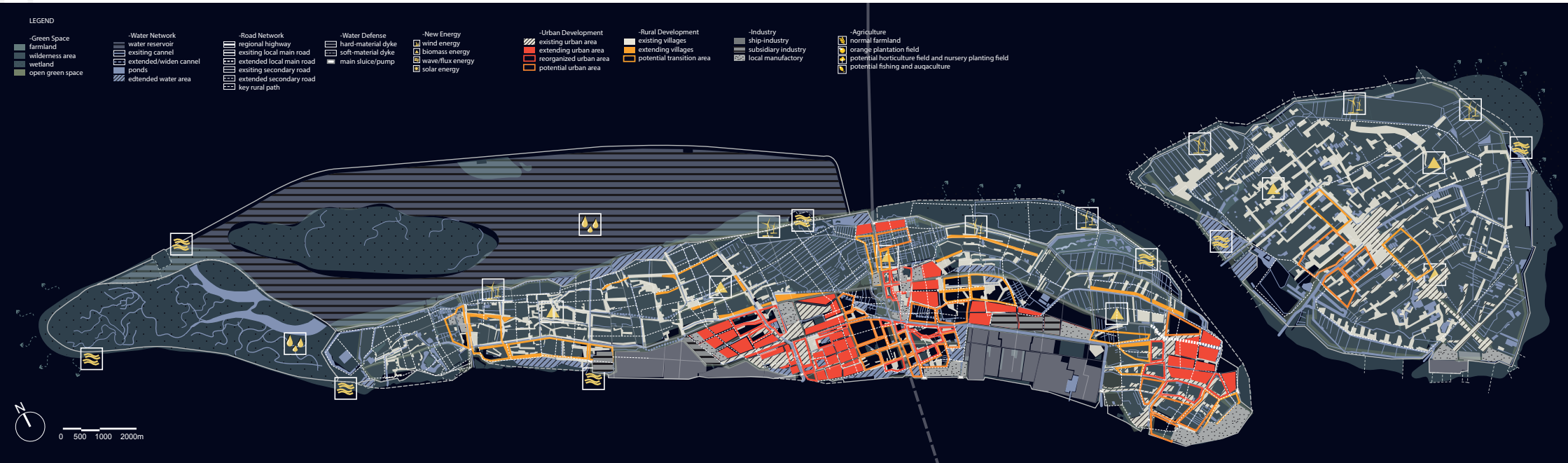
WHAT

MULTI-SCALAR: Consider local potentialities for mutual reflections on regional demand

RESILIENCE: Take flexible actions considering both natural & social-economical dynamic changes in the long-term process with broader capabilities

HOW

HOW: Planning framework -planning principles



A proposed planning framework

> **INFRASTRUCTURAL LANDSCAPE**

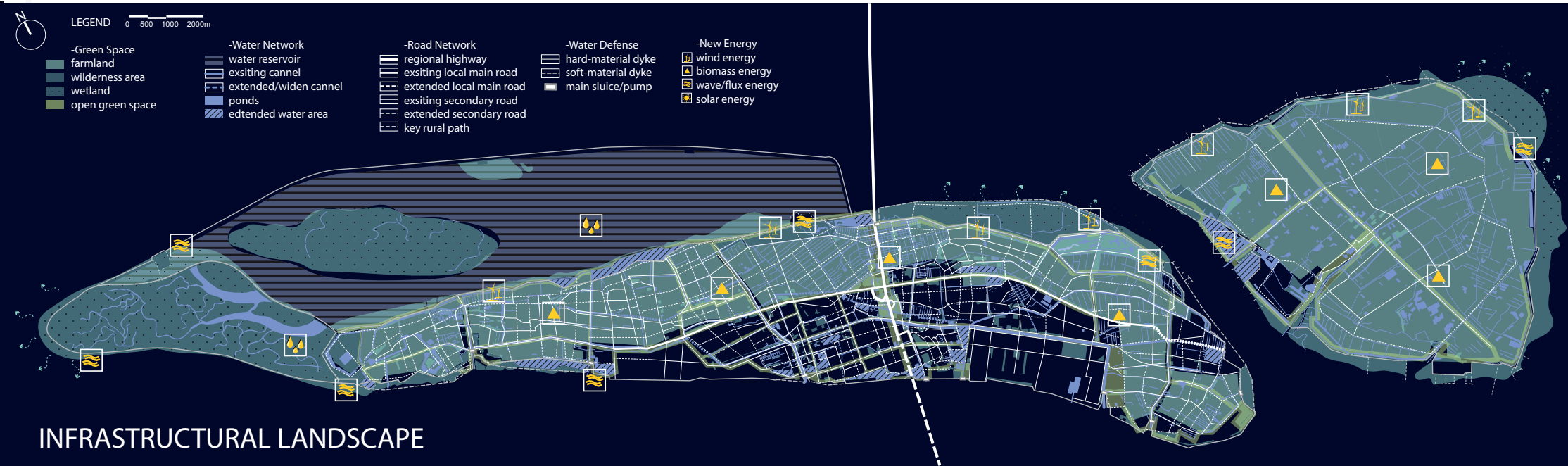
> to guide the **flexible urban & rural development**

> **opens to diverse capabilities**

> respond to regional spatial & functional connections

> guide the local spaital interventions

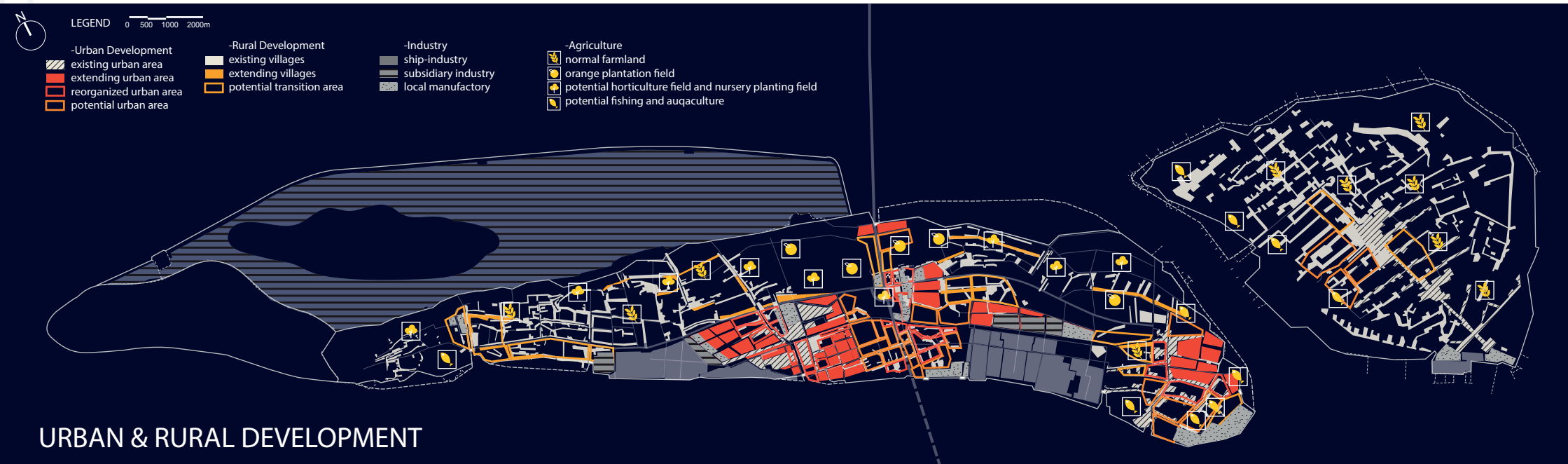
HOW: Planning framework -infrastructural landscape



Infrastructural landscape

- green space, water network, road network, water defense, new energy production
- provide relative steady spatial & functional base for urban & rural development

HOW: Planning framework -urban & rural development



Urban & Rural development

-urban /rural/agriculture/industry development

-mutual reflection between local characters and regional demand

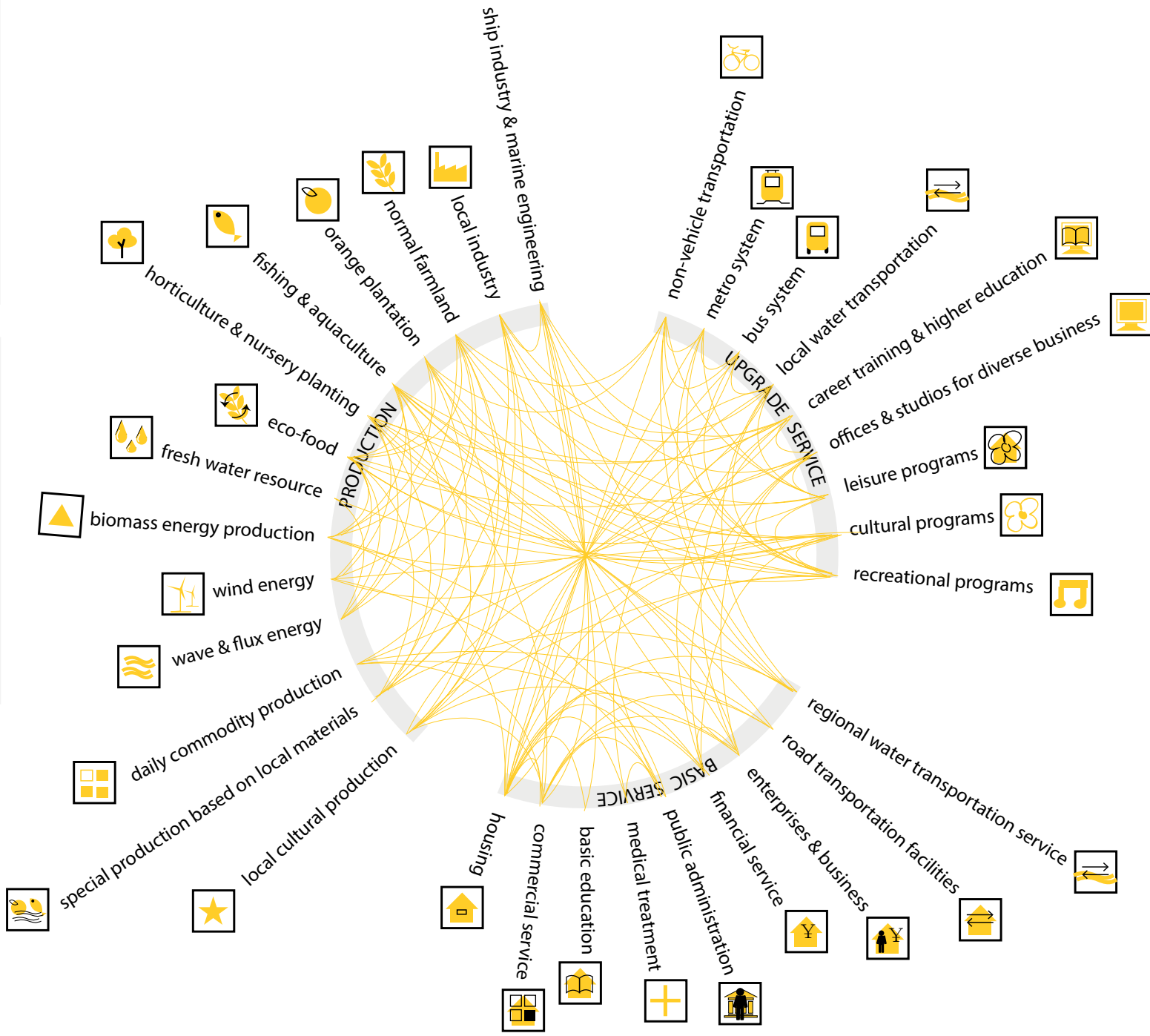
-open to future changes

HOW: Planning framework -services & programs

WHY

WHAT

HOW



Services & Programs

-production program, living & working service, transportation service

-serve /activate through different actors in both local & regional scales

HOW: Specific concerns -delta environment



Delta environment

delta ecosystem

delta water & sedimental movement

regional water transport

waterfront area

HOW

40

Vision discussion

Planning framework

Strategies & Guidelines

Planning approaches

Design concept

Design actions

HOW: Specific concerns -local natural & cultural landscape

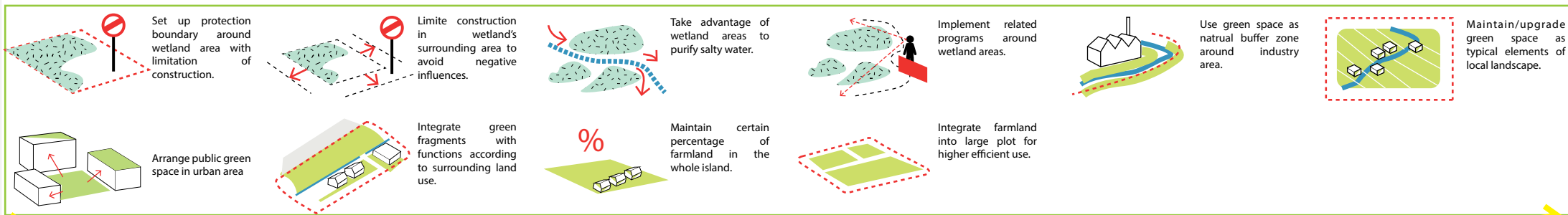


Local natural & cultural landscape

- natural resources & habitats
- island atmosphere
- cultural & historical heritage
- productive landscape

HOW: Planning strategies -Infrastructure landscape--green space

GREEN SPACE



- Set up limited-construction area to protect natural habitats & resources
- Provide spatial framework for compact urbanization
- Function as buffer zone/public space/functional base



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Vision discussion

Planning framework

Strategies & Guidelines

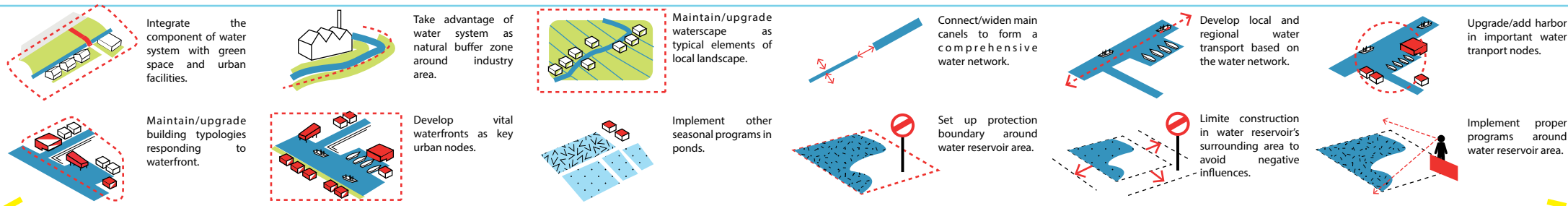
Planning approaches

Design concept

Design actions

HOW: Planning strategies -Infrastructure landscape--water network

W
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-Connect canals, ditches, organize ponds and water areas to integrate water system

-Revise waterfront border for further spatial potential

-Develop local & regional water transport depending on water network and waterfront



LEGEND 0 500 1000 2000m

- Green Space
- farmland
- wilderness area
- wetland
- open green space

- Water Network
- water reservoir
- existing canal
- extended/widen canal
- ponds
- extended water area

- Road Network
- regional highway
- existing local main road
- extended local main road
- existing secondary road
- extended secondary road
- key rural path

- Water Defense
- hard-material dyke
- soft-material dyke
- main sluice/pump

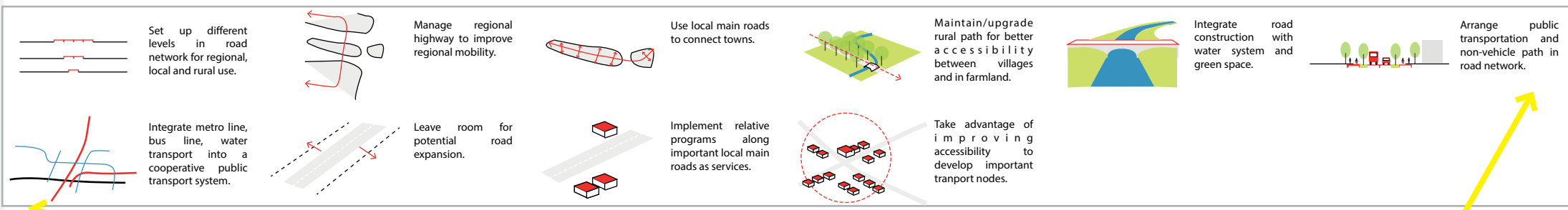
- New Energy
- wind energy
- biomass energy
- wave/flux energy
- solar energy



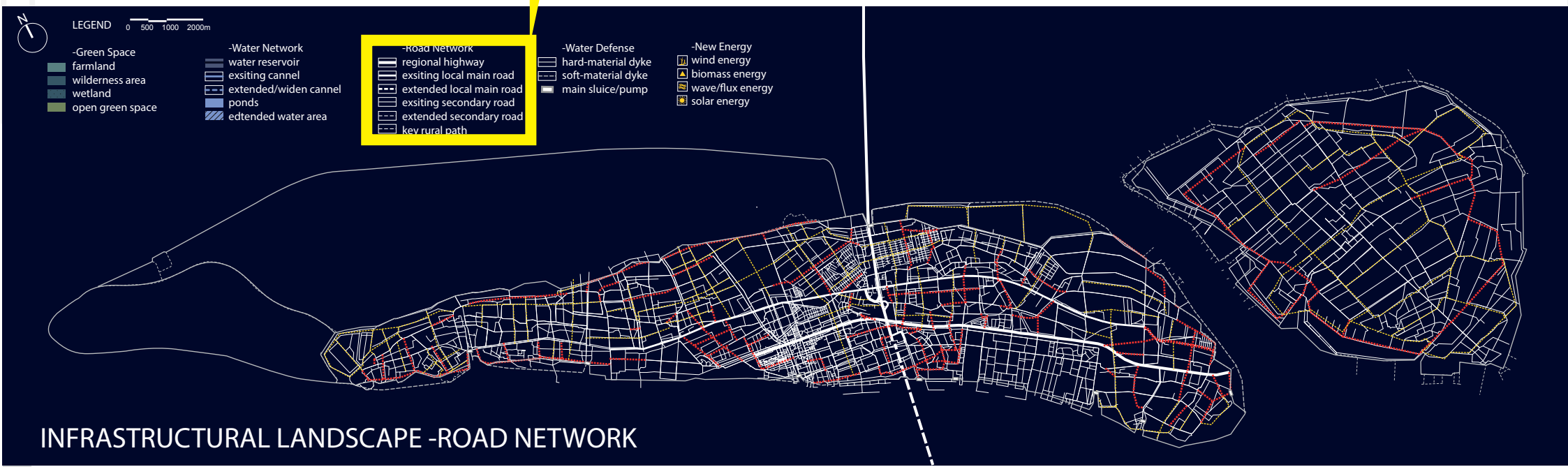
INFRASTRUCTURAL LANDSCAPE -WATER NETWORK

HOW: Planning strategies -Infrastructure landscape--road network

ROAD NETWORK

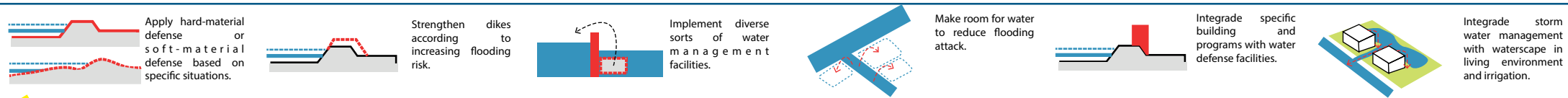


-Extend road network with balance on both urban & landscape demand
 -Provide spatial condition for multi-methods of public transportation



HOW: Planning strategies -Infrastructure landscape--water defense

WATER DEFENSE



-Set up /strengthen dikes in both hard & soft material around shorelines

-Organize stormwater management through local water network

-Make natural water container to reduce flooding attack



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Vision discussion

Planning framework

Strategies & Guidelines

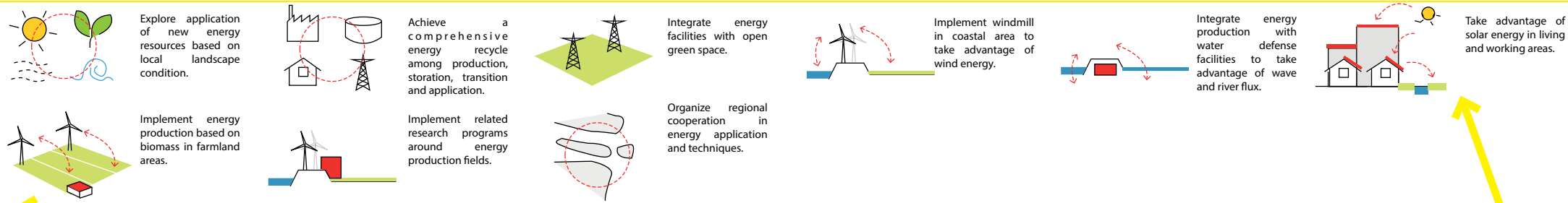
Planning approaches

Design concept

Design actions

HOW: Planning strategies -Infrastructure landscape--new energy production

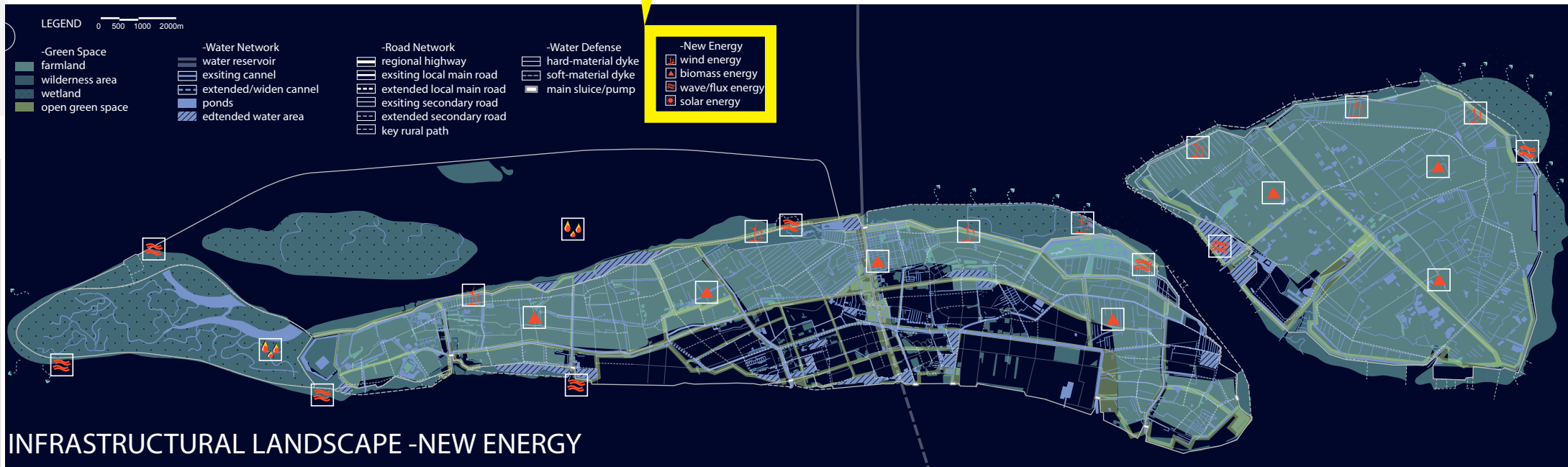
NEW ENERGY



-Encourage the development of new energy system from production to application

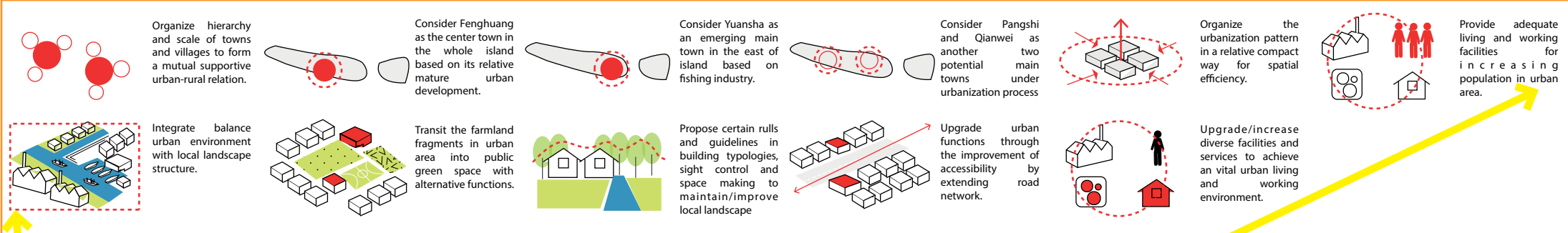
-Take advantage of diverse energy resources from local landscape

-Build up regional cooperation on new energy production and research

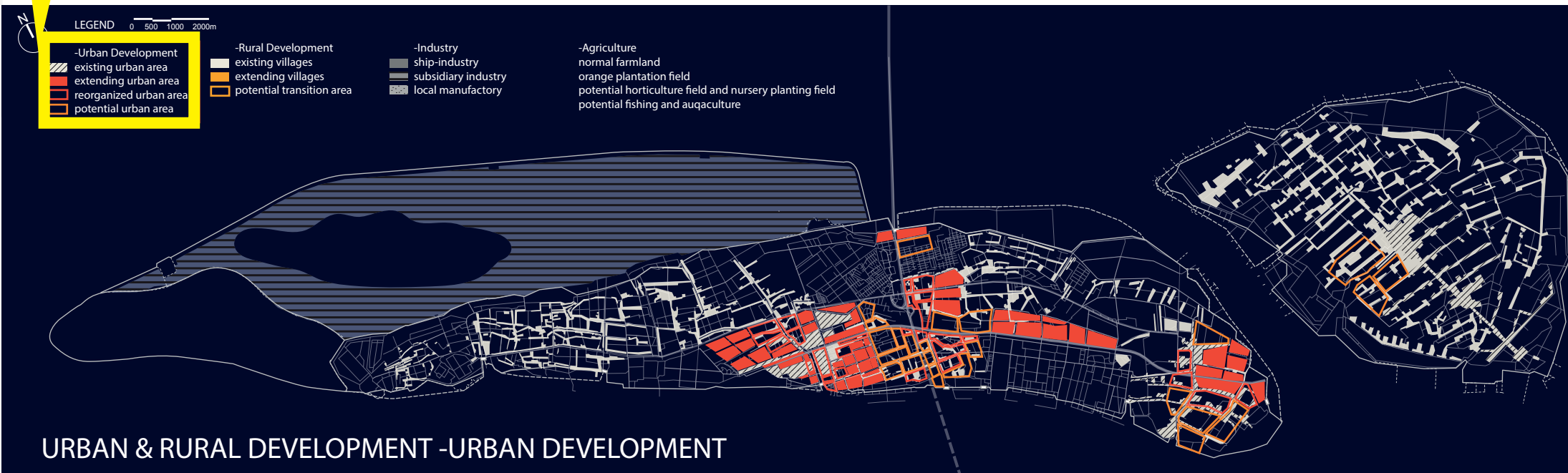


HOW: Planning strategies -Urban&rural development --urban development

URBAN AREA

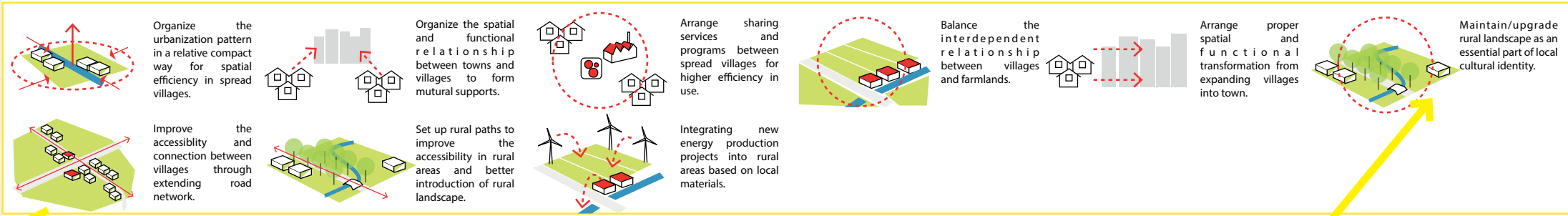


- Set up basic urban structure of two main towns with subsidiary villages
- Organize revised/potential/possible urbanization area for flexible planning
- Provide and improve living & working facilities and services for increasing population



HOW: Planning strategies -Urban&rural development --rural development

RURAL AREA



-Conserve linear village structure and rural characters

-Organize flexible urban-rural transformation according to changing demands

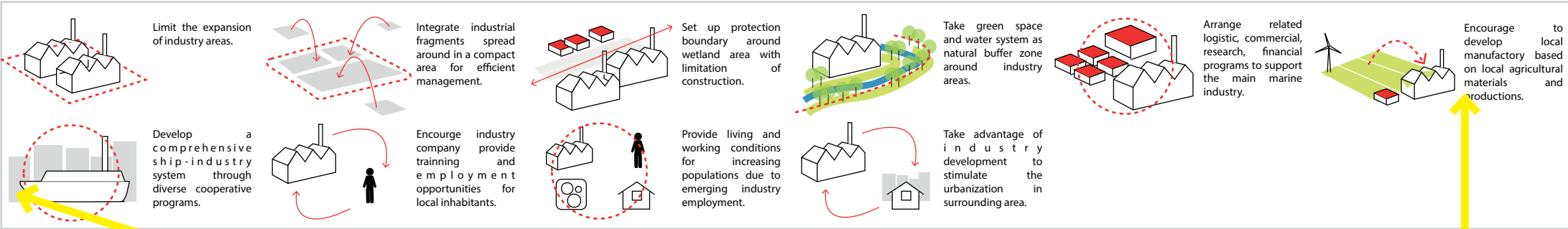
-Provide/improve living & working facilities and services in rural area



URBAN & RURAL DEVELOPMENT -RURAL DEVELOPMENT

HOW: Planning strategies -Urban&rural development --industry development

INDUSTRY

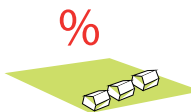
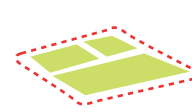


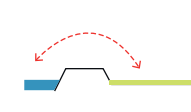

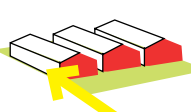
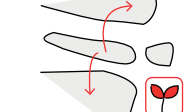
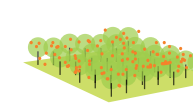




-Organize fragmented industry plots into integrating area
 -Encourage the development of local manufactory based on landscape resources
 -Implement industry-related programs and living & working serives



HOW: Planning strategies -Urban&rural development --agriculture development

AGRICULTURE

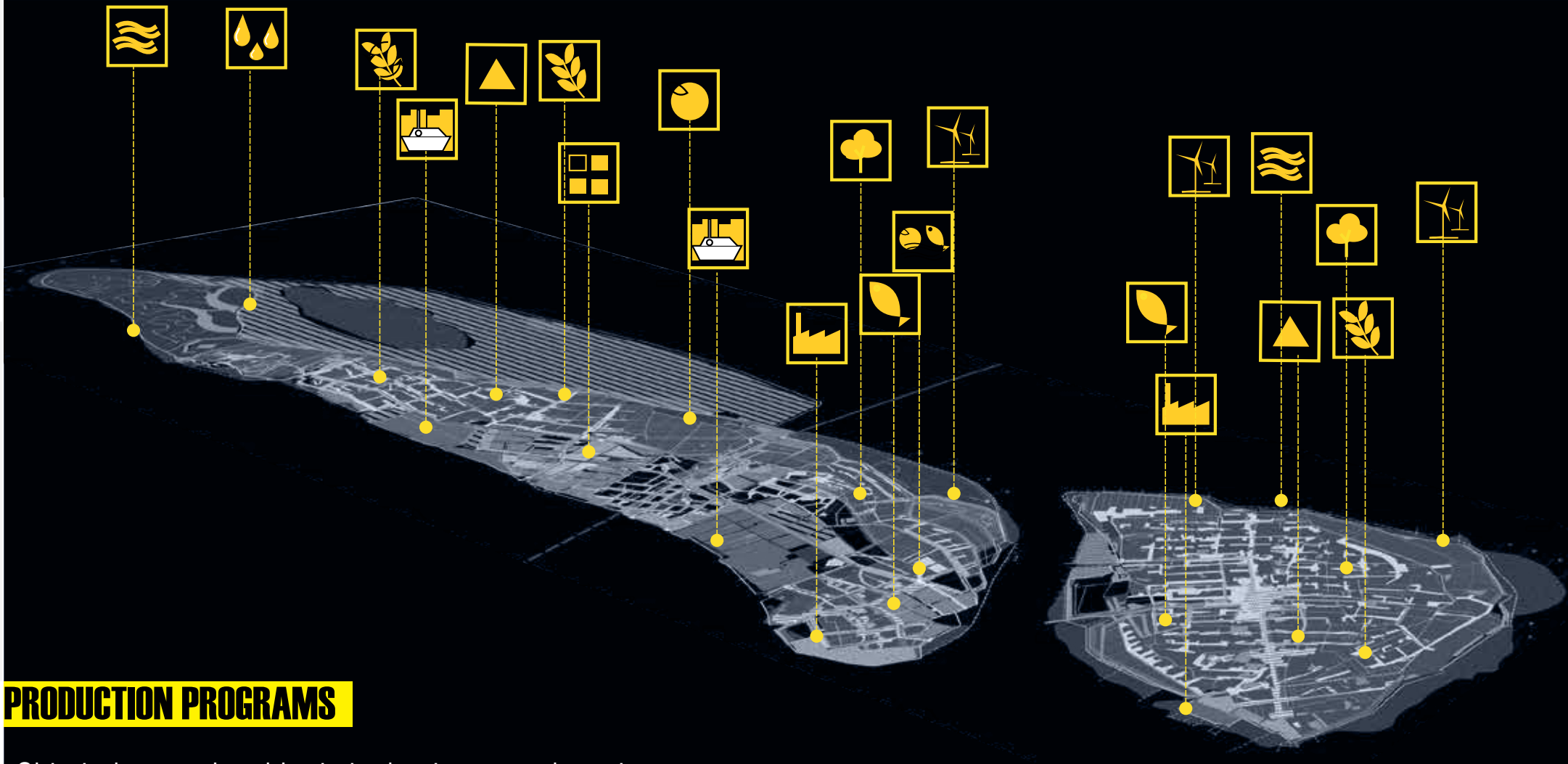
<p>%</p>  <p>Maintain certain percentage of farmland in the whole island.</p>	 <p>Maintain/integrate large scale of farmland for more efficient agriculture activity.</p>	 <p>Transit the farmland fragments in urban area into public green space with alternative functions.</p>	 <p>Integrating new energy production projects into rural areas based on local materials.</p>	 <p>Integrate irrigation for farmland from surrounding water system.</p>	 <p>Improve the accessibility and mobility in farmland through extending road network and related facilities.</p>
 <p>Transit certain traditional agriculture into horticulture, eco-food production, plants nursery etc.</p>	 <p>Encourage the trading and research on eco-food in regional scale.</p>	 <p>Maintain/upgrade large scale of orange plantation as a unique local landscape.</p>	 <p>Implement related tourism, recreation, education, leisure programs and public events towards agriculture activities.</p>	 <p>Upgrade fishing industry with harbor development and related services and programs.</p>	

-Maintain the percentage of farmland in large integrating plots
 -Upgrade traditional agriculture with new production programs & related services
 -Conserve and develop unique spatial & functional characters of farmland as part of local cultural landscape



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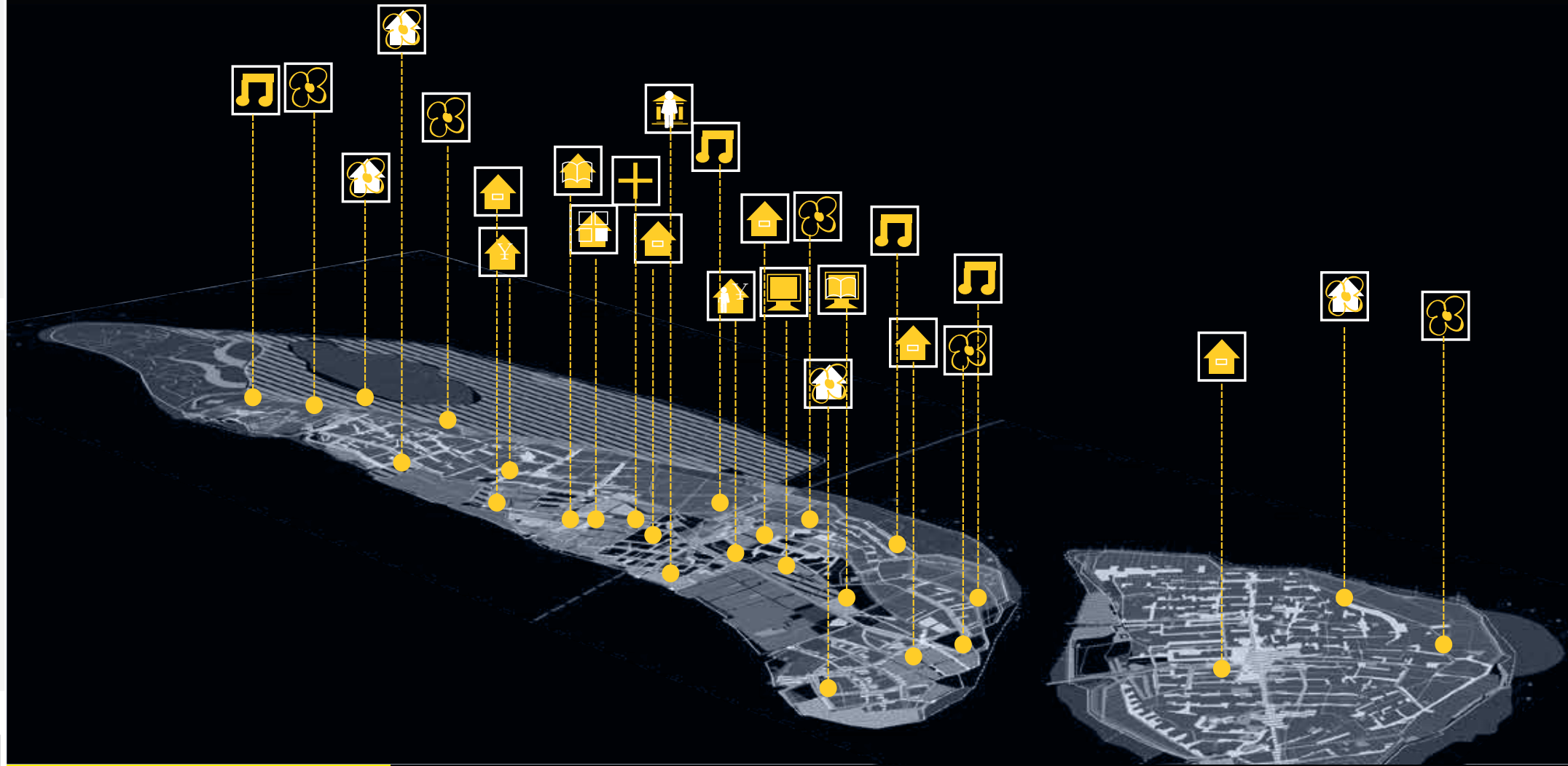
HOW: Planning strategies -Programs --production programs



PRODUCTION PROGRAMS

- Ship industry related logistic, business, and services
- Local manufactory based on landscape resources and agricultural products
- New agricultural productions on eco-food, aquaculture, horticulture, planting nursery
- Wind energy, wave energy, solar energy, bio-mass energy

HOW: Planning strategies -Programs --living & working services



Living & Working services

- Housing, commercial, primary education, medical care
- Agricultural related tourism, recreation, research, leisure
- Cultural activities and public events

HOW: Planning strategies - programs -- transportation facilities



Metro system



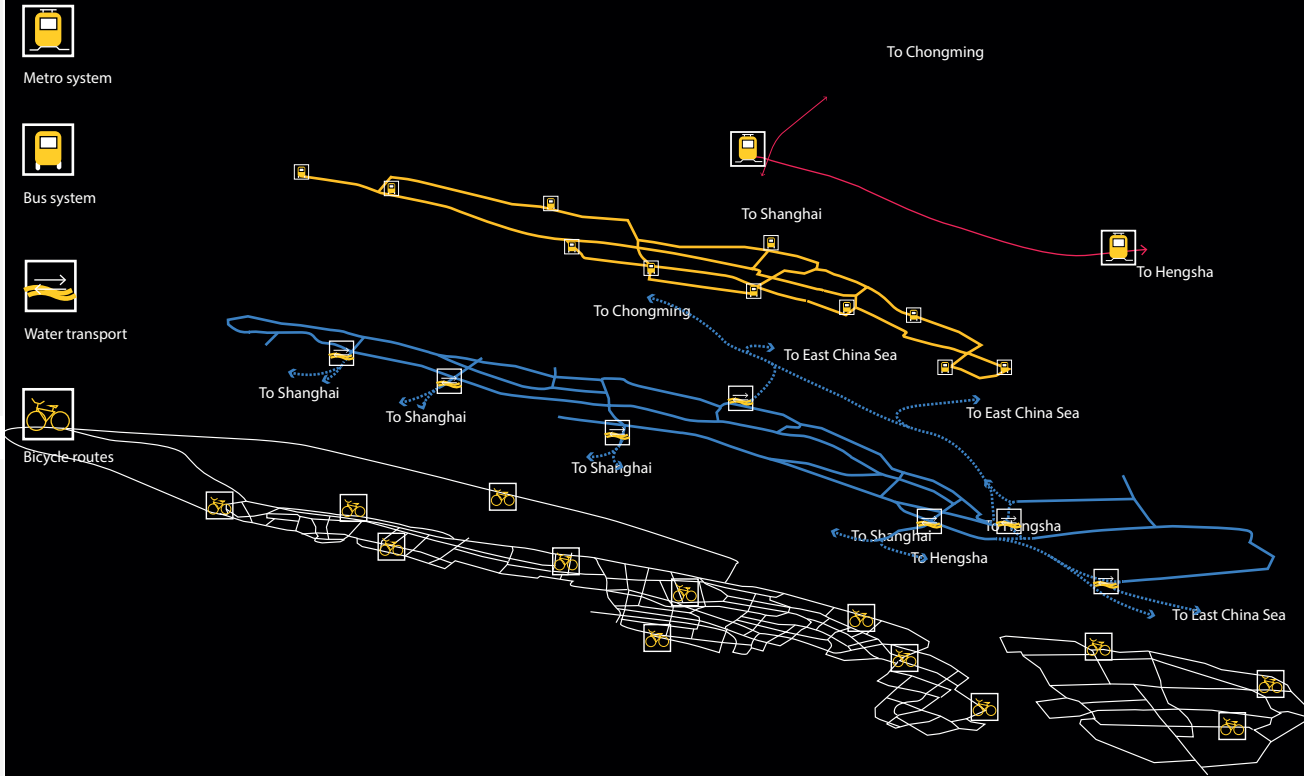
Bus system



Water transport



Bicycle routes



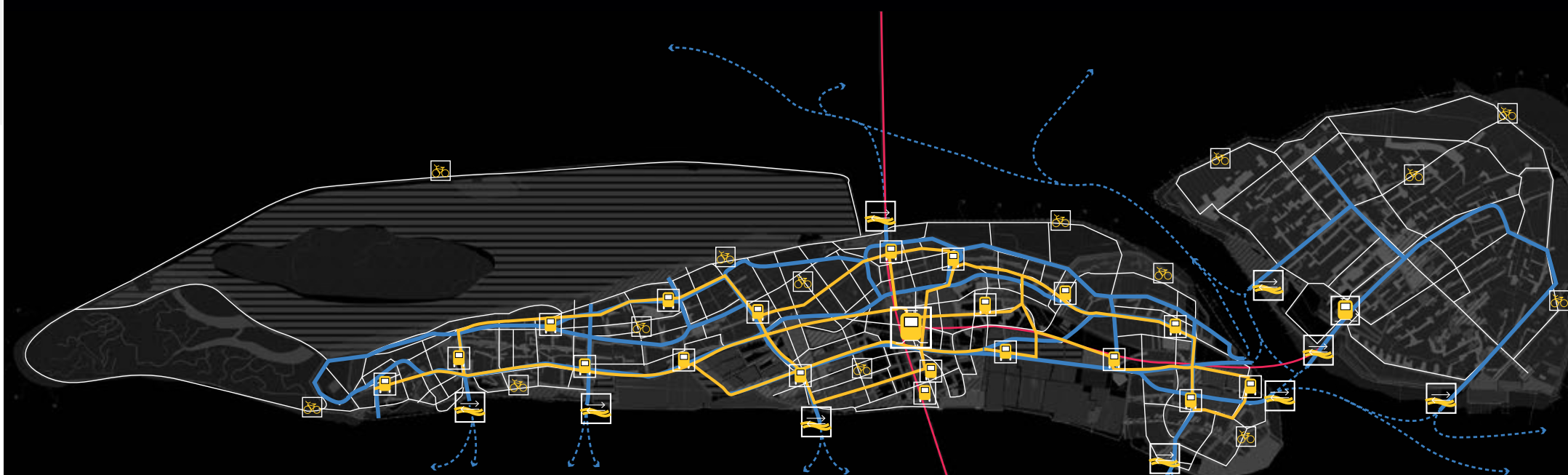
Transportation facility

-different levels of road network

-ferry lines, harbor, piers

-metro line, bus line, bicycle

routes, walking paths



HOW

53

Vision discussion

Planning framework

Strategies & Guidelines


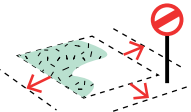
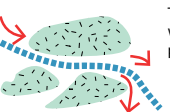


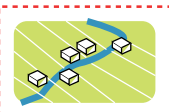
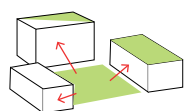
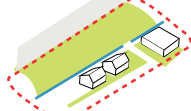
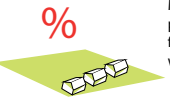
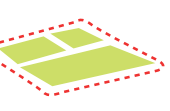
Planning approaches

Design concept

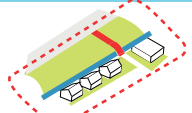

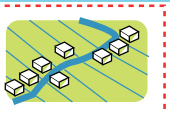
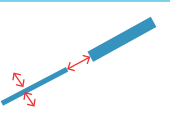
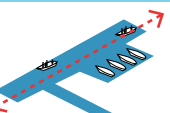

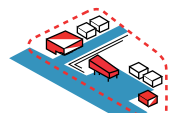
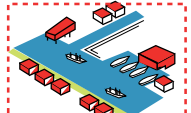
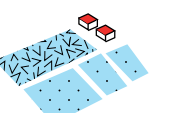

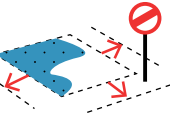
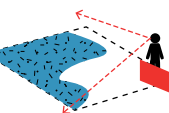
Design actions

HOW: Design guidelines for infrastructure landscape

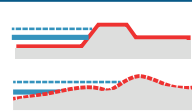
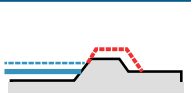
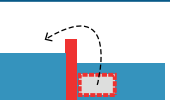

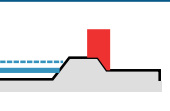
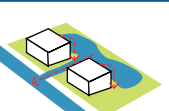
GREEN SPACE

 <p>Set up protection boundary around wetland area with limitation of construction.</p>	 <p>Limite construction in wetland's surrounding area to avoid negative influences.</p>	 <p>Take advantage of wetland areas to purify salty water.</p>	 <p>Implement related programs around wetland areas.</p>	 <p>Use green space as natural buffer zone around industry area.</p>	 <p>Maintain/upgrade green space as typical elements of local landscape.</p>
 <p>Arrange public green space in urban area</p>	 <p>Integrate green fragments with functions according to surrounding land use.</p>	 <p>Maintain certain percentage of farmland in the whole island.</p>	 <p>Integrate farmland into large plot for higher efficient use.</p>		


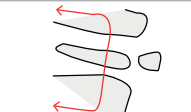
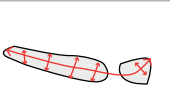
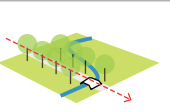


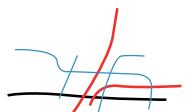
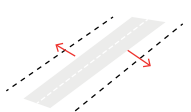
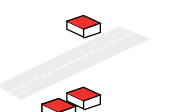
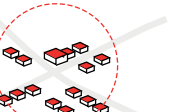
WATER SCAPES

 <p>Integrate the component of water system with green space and urban facilities.</p>	 <p>Take advantage of water system as natural buffer zone around industry area.</p>	 <p>Maintain/upgrade waterscape as typical elements of local landscape.</p>	 <p>Connect/widen main canels to form a comprehensive water network.</p>	 <p>Develop local and regional water transport based on the water network.</p>	 <p>Upgrade/add harbor in important water transport nodes.</p>
 <p>Maintain/upgrade building typologies responding to waterfront.</p>	 <p>Develop vital waterfronts as key urban nodes.</p>	 <p>Implement other seasonal programs in ponds.</p>	 <p>Set up protection boundary around water reservoir area.</p>	 <p>Limite construction in water reservoir's surrounding area to avoid negative influences.</p>	 <p>Implement proper programs around water reservoir area.</p>

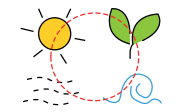
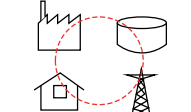

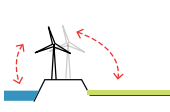
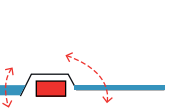

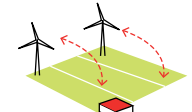

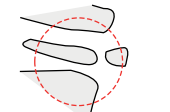
WATER DEFENSE

 <p>Apply hard-material defense or soft-material defense based on specific situations.</p>	 <p>Strengthen dikes according to increasing flooding risk.</p>	 <p>Implement diverse sorts of water management facilities.</p>	 <p>Make room for water to reduce flooding attack.</p>	 <p>Integrate specific building and programs with water defense facilities.</p>	 <p>Integrate storm water management with waterscape in living environment and irrigation.</p>
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ROAD NETWORK

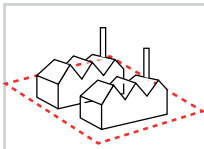
 <p>Set up different levels in road network for regional, local and rural use.</p>	 <p>Manage regional highway to improve regional mobility.</p>	 <p>Use local main roads to connect towns.</p>	 <p>Maintain/upgrade rural path for better accessibility between villages and in farmland.</p>	 <p>Integrate road construction with water system and green space.</p>	 <p>Arrange public transportation and non-vehicle path in road network.</p>
 <p>Integrate metro line, bus line, water transport into a cooperative public transport system.</p>	 <p>Leave room for potential road expansion.</p>	 <p>Implement relative programs along important local main roads as services.</p>	 <p>Take advantage of improving accessibility to develop important tranport nodes.</p>		

NEW ENERGY

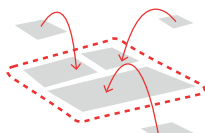
 <p>Explore application of new energy resources based on local landscape condition.</p>	 <p>Achieve a comprehensive energy cycle among production, storage, transition and application.</p>	 <p>Integrate energy facilities with open green space.</p>	 <p>Implement windmill in coastal area to take advantage of wind energy.</p>	 <p>Integrate energy production with defense facilities to take advantage of wave and river flux.</p>	 <p>Take advantage of solar energy in living and working areas.</p>
 <p>Implement energy production based on biomass in farmland areas.</p>	 <p>Implement related research programs around energy production fields.</p>	 <p>Organize regional cooperation in energy application and techniques.</p>			

HOW: Design guidelines of urban & rural development

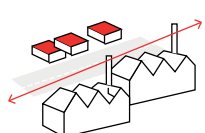
INDUSTRY



Limit the expansion of industry areas.



Integrate industrial fragments spread around in a compact area for efficient management.



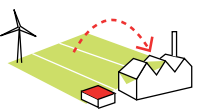
Set up protection boundary around wetland area with limitation of construction.



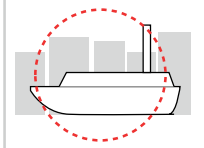
Take green space and water system as natural buffer zone around industry areas.



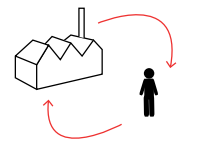
Arrange related logistic, commercial, research, financial programs to support the main marine industry.



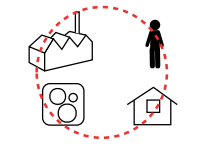
Encourage to develop local manufacturing based on local agricultural materials and productions.



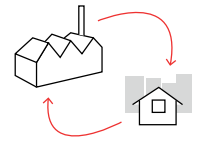
Develop a comprehensive ship-industry system through diverse cooperative programs.



Encourage industry company provide training and employment opportunities for local inhabitants.

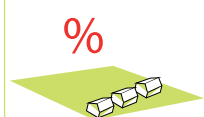


Provide living and working conditions for increasing populations due to emerging industry employment.

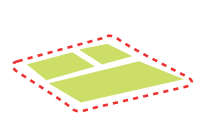


Take advantage of industry development to stimulate the urbanization in surrounding area.

AGRICULTURE



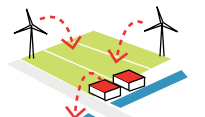
Maintain certain percentage of farmland in the whole island.



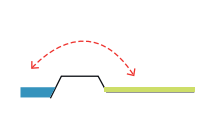
Maintain/integrate large scale of farmland for more efficient agriculture activity.



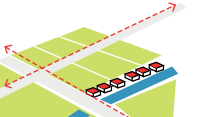
Transit the farmland fragments in urban area into public green space with alternative functions.



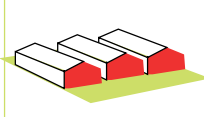
Integrating new energy production projects into rural areas based on local materials.



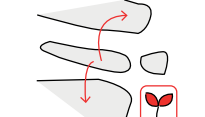
Integrate irrigation for farmland from surrounding water system.



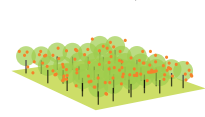
Improve the accessibility and mobility in farmland through extending road network and related facilities.



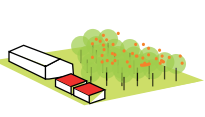
Transit certain traditional agriculture into horticulture, eco-food production, plants nursery etc.



Encourage the trading and research on eco-food production in regional scale.



Maintain/upgrade large scale of orange plantation as a unique local landscape.

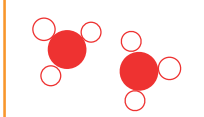


Implement related tourism, recreation, education, leisure programs and public events towards agriculture activities.

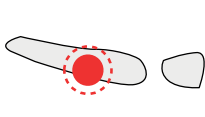


Upgrade fishing industry with harbor development and related services and programs.

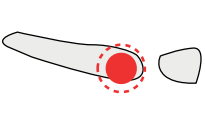
URBAN AREA



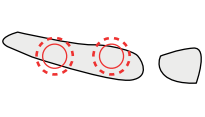
Organize hierarchy and scale of towns and villages to form a mutual supportive urban-rural relation.



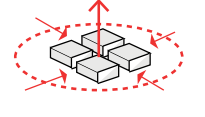
Consider Fenghuang as the center town in the whole island based on its relative mature urban development.



Consider Yuansha as an emerging main town in the east of island based on fishing industry.



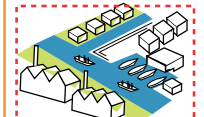
Consider Pangshi and Qianwei as another two potential main towns under urbanization process.



Organize the urbanization pattern in a relative compact way for spatial efficiency.



Provide adequate living and working facilities for increasing population in urban area.



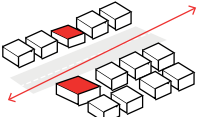
Integrate balance urban environment with local landscape structure.



Transit the farmland fragments in urban area into public green space with alternative functions.



Propose certain rules and guidelines in building typologies, sight control and space making to maintain/improve local landscape.

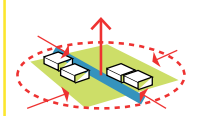


Upgrade urban functions through the improvement of accessibility by extending road network.

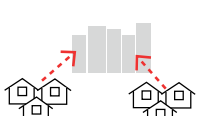


Upgrade/increase diverse facilities and services to achieve a vital urban living and working environment.

RURAL AREA



Organize the urbanization pattern in a relative compact way for spatial efficiency in spread villages.



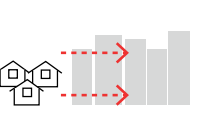
Organize the spatial and functional relationship between towns and villages to form mutual supports.



Arrange sharing services and programs between spread villages for higher efficiency in use.



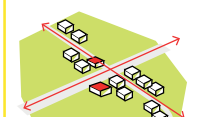
Balance the interdependent relationship between villages and farmlands.



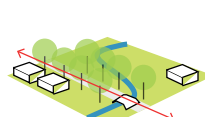
Arrange proper spatial and functional transformation from expanding villages into town.



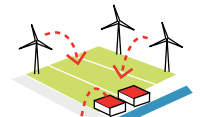
Maintain/upgrade rural landscape as an essential part of local cultural identity.



Improve the accessibility and connection between villages through extending road network.

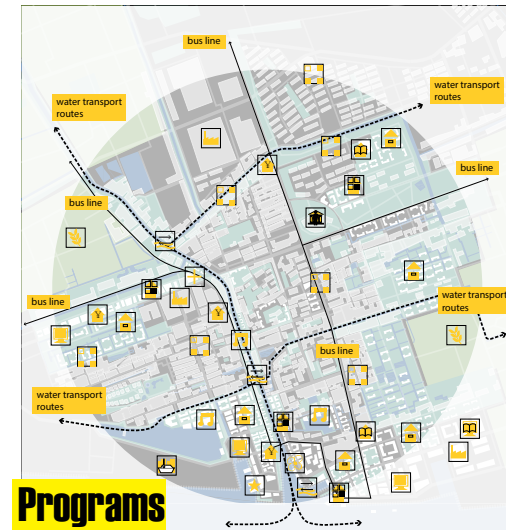
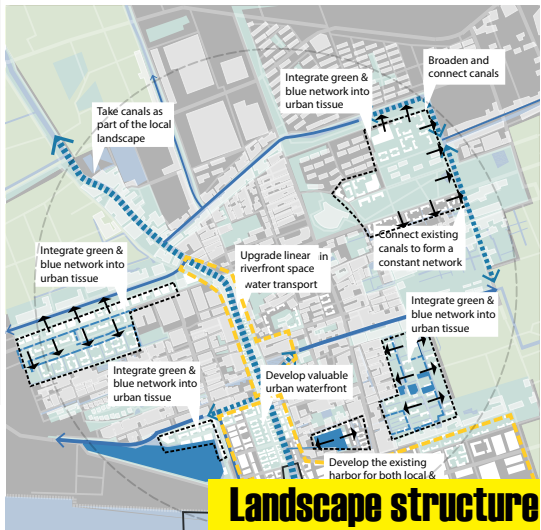
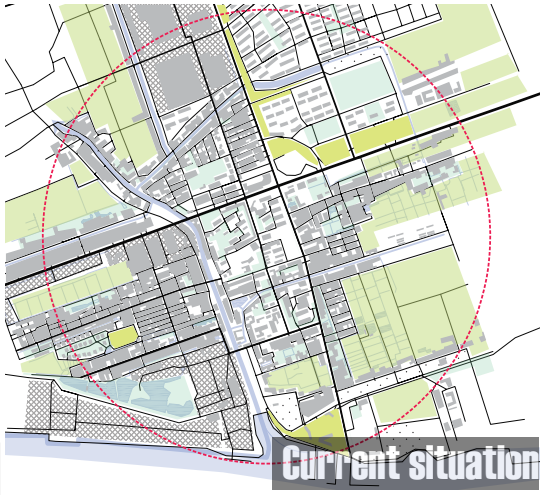


Set up rural paths to improve the accessibility in rural areas and better introduction of rural landscape.



Integrating new energy production projects into rural areas based on local materials.

HOW: Planning approaches-aggregated town

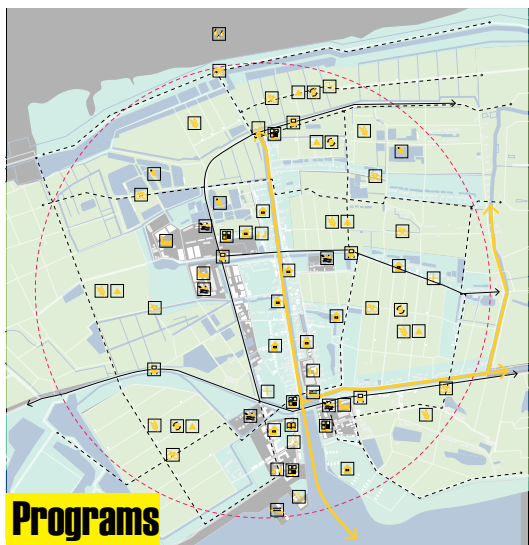
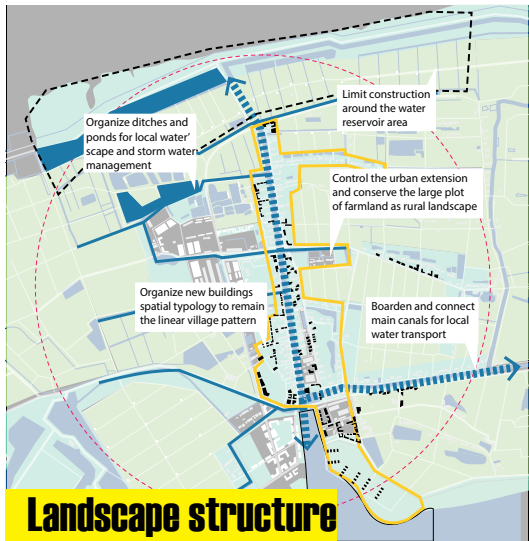


AGGREGATED TOWN

-Urban development based on landscape structure

-Townscape with landscape characters

HOW: Planning approaches-linear village



LINEAR VILLAGE

-Rural development

-Unique rural landscape

HOW

57

Vision discussion

Planning framework

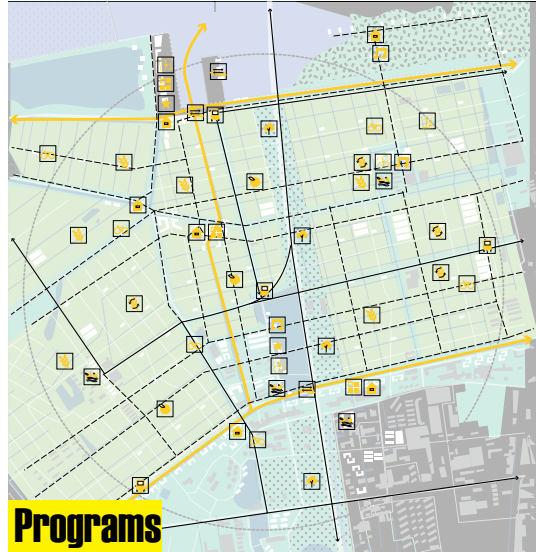
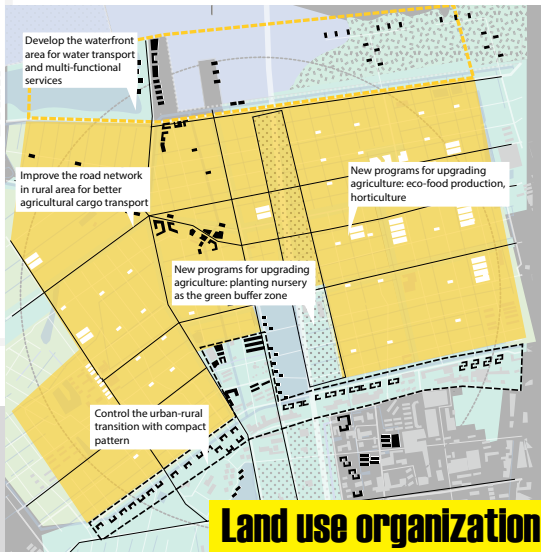
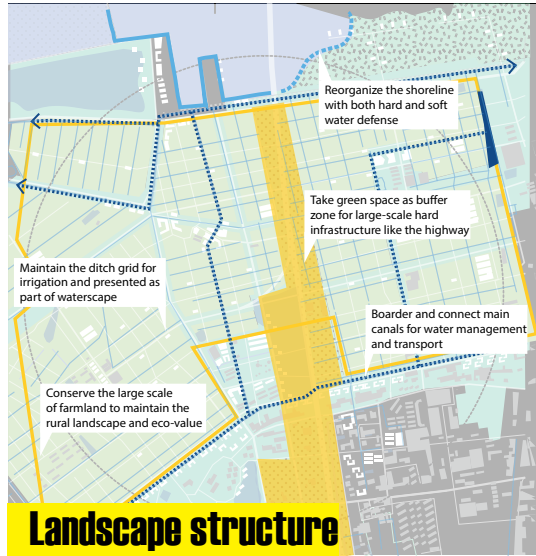
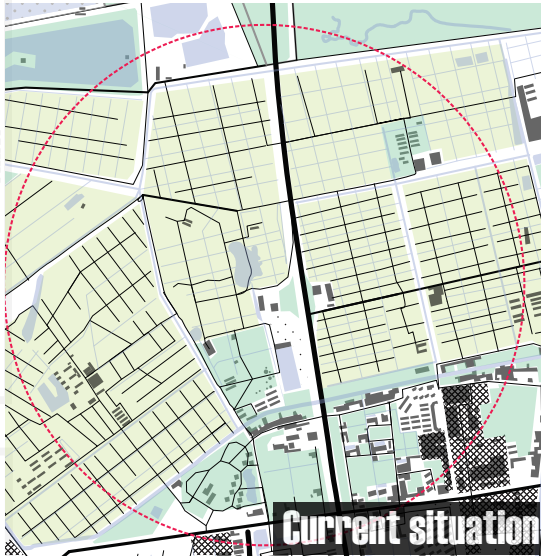
Strategies & Guidelines

Planning approaches

Design concept

Design actions

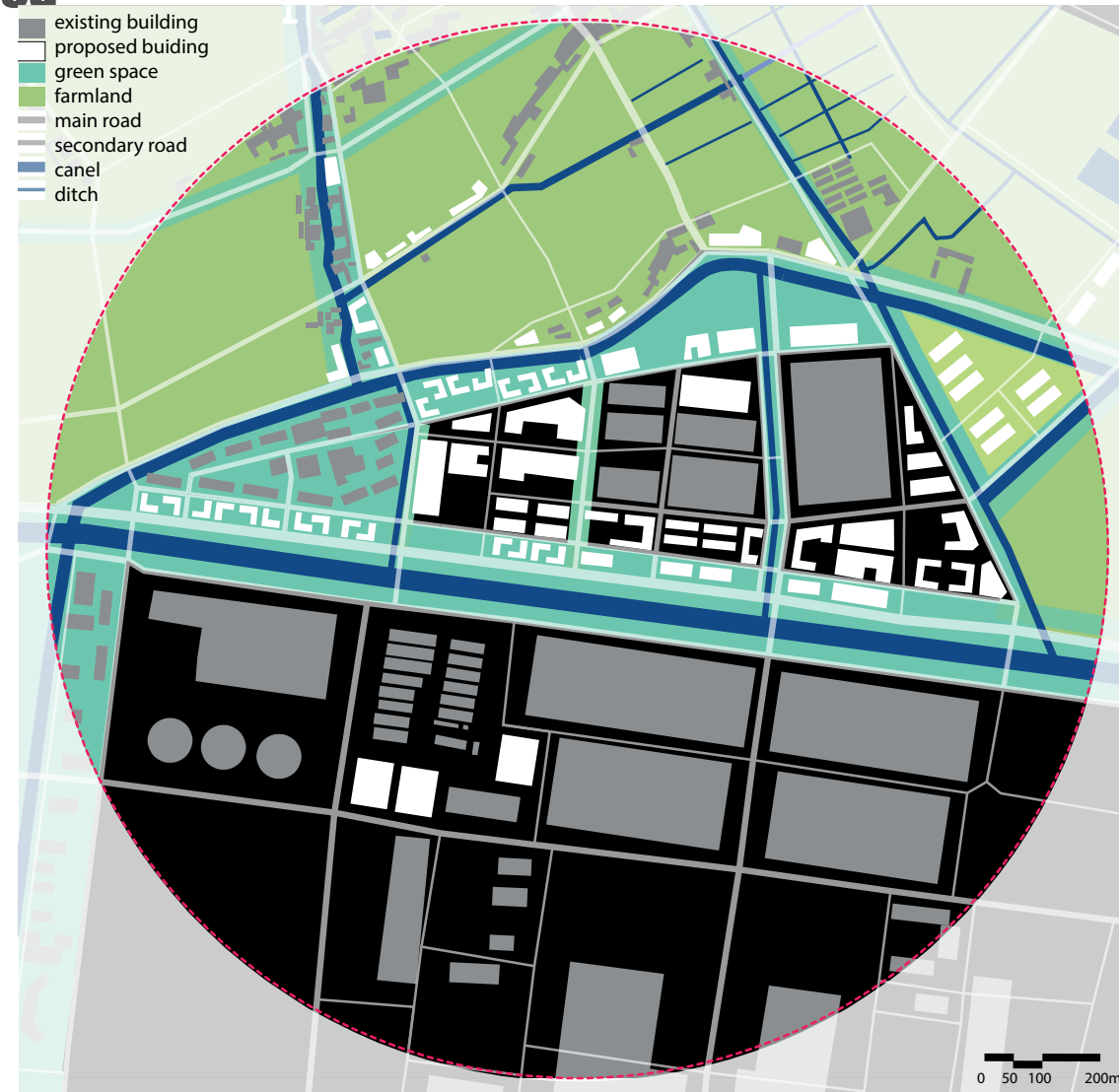
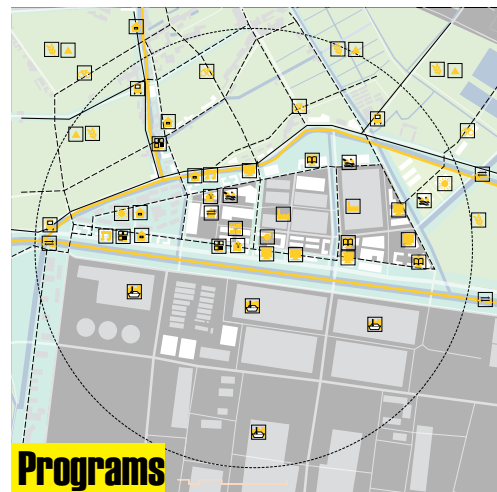
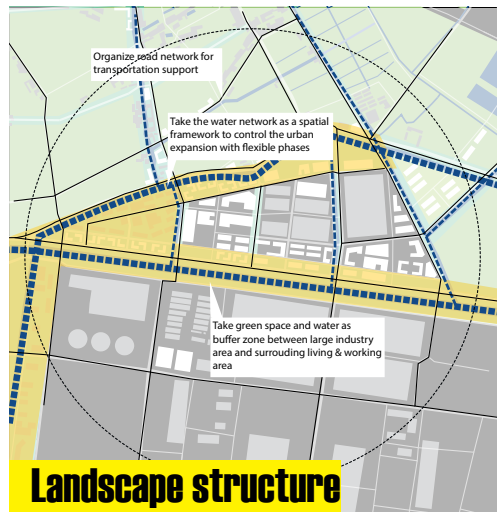
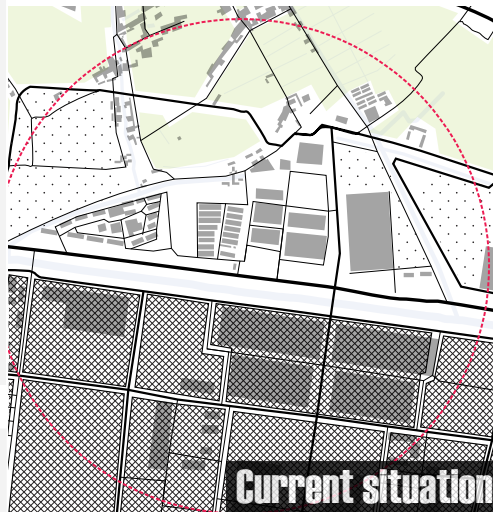
HOW: Planning approaches -farmland



FARMLAND

- Upgrading agriculture
- Unique rural landscape

HOW: Planning approaches -industry area

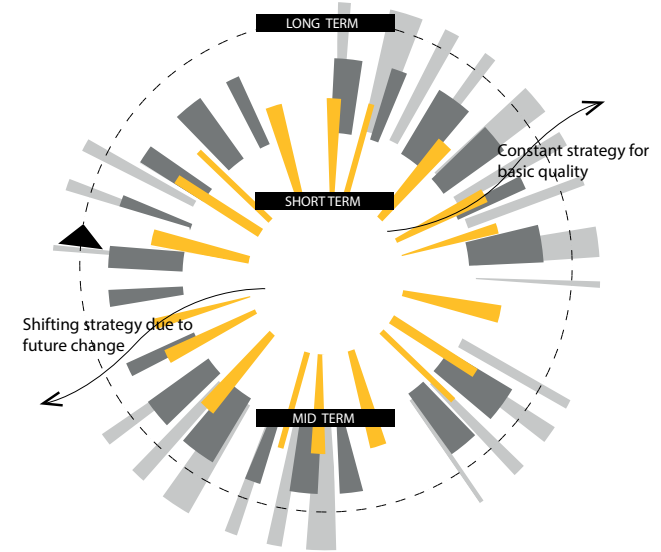
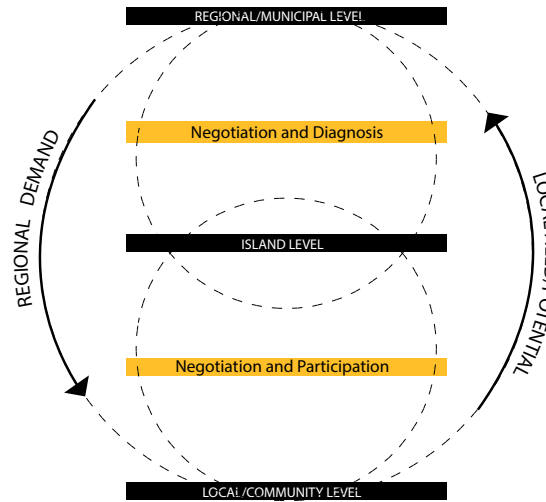
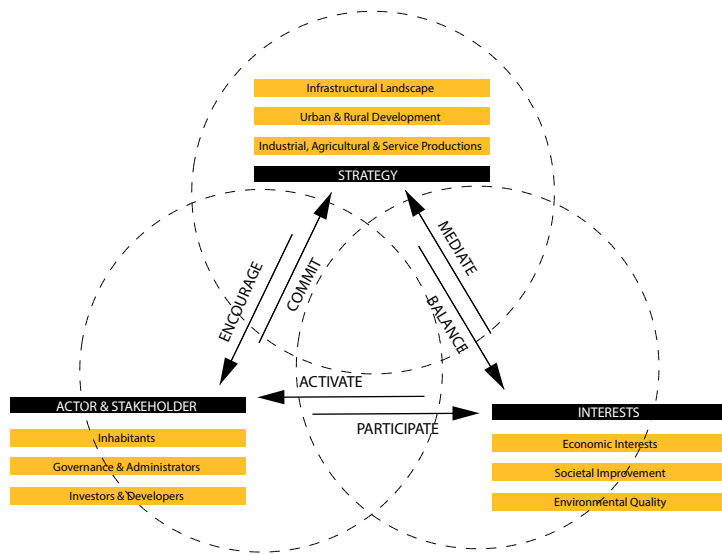


INDUSTRY AREA

-Supportive programs for ship industry

-Living & working facilities for increasing population

HOW: Operation links -actors in decision-making process

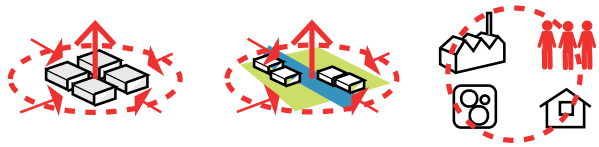


The proposal planning strategies help to recognize and activate various actors and stakeholders to discuss possible spatial interventions related to their interests & actions in the decision-making process.

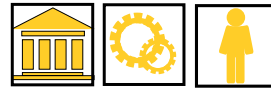
STRATEGY

STAKEHOLDER & ACTIONS

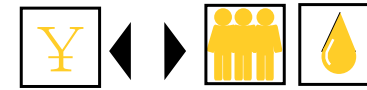
INTERESTS & MEDITATION



control the pattern and speed of urban expansion within the landscape framework, renew the urbanization phases depending on future demand

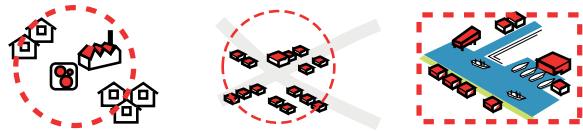


Local government as main operators make urbanization plan & actions depend on both regional demand and local condition, with the investment from private developers, and cooperation with local community that representing inhabitants' interests

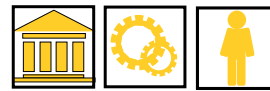


conflicts between short-term economic interests and long-term social steady and balance urban-landscape relationship

The urban-transition should consider ensuring the living & working condition of original inhabitants for social steady with compensation on housing, job and services; The remained buffer land could be invested with other public services or profitable programs as compensation for investors



implement upgrading urban-rural infrastructure, facilities and services



With the cooperation of related regional department, local government as main manager to organize the investment and construction, together with public & private investors, the local inhabitants are also encouraged to participate in such investment for their own needs

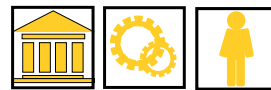


conflicts between short-term economic interests and long-term social steady and sustainable economic profits

The local community shall play as a negotiator to balance the practical local needs and regional requirements from upper level with detail actions about removing, investment and compensation



develop strategic urban/rural area with diverse function for further regional connection



Based on specific regional demand such as water transport or recreational service, local governance could emphasize certain strategic urban/rural development projects such as urban public waterfront, riverfront green space, recreational park etc. which targeting also with regional market to encourage further investment and participation of local inhabitants to develop innovative/spontaneous programs



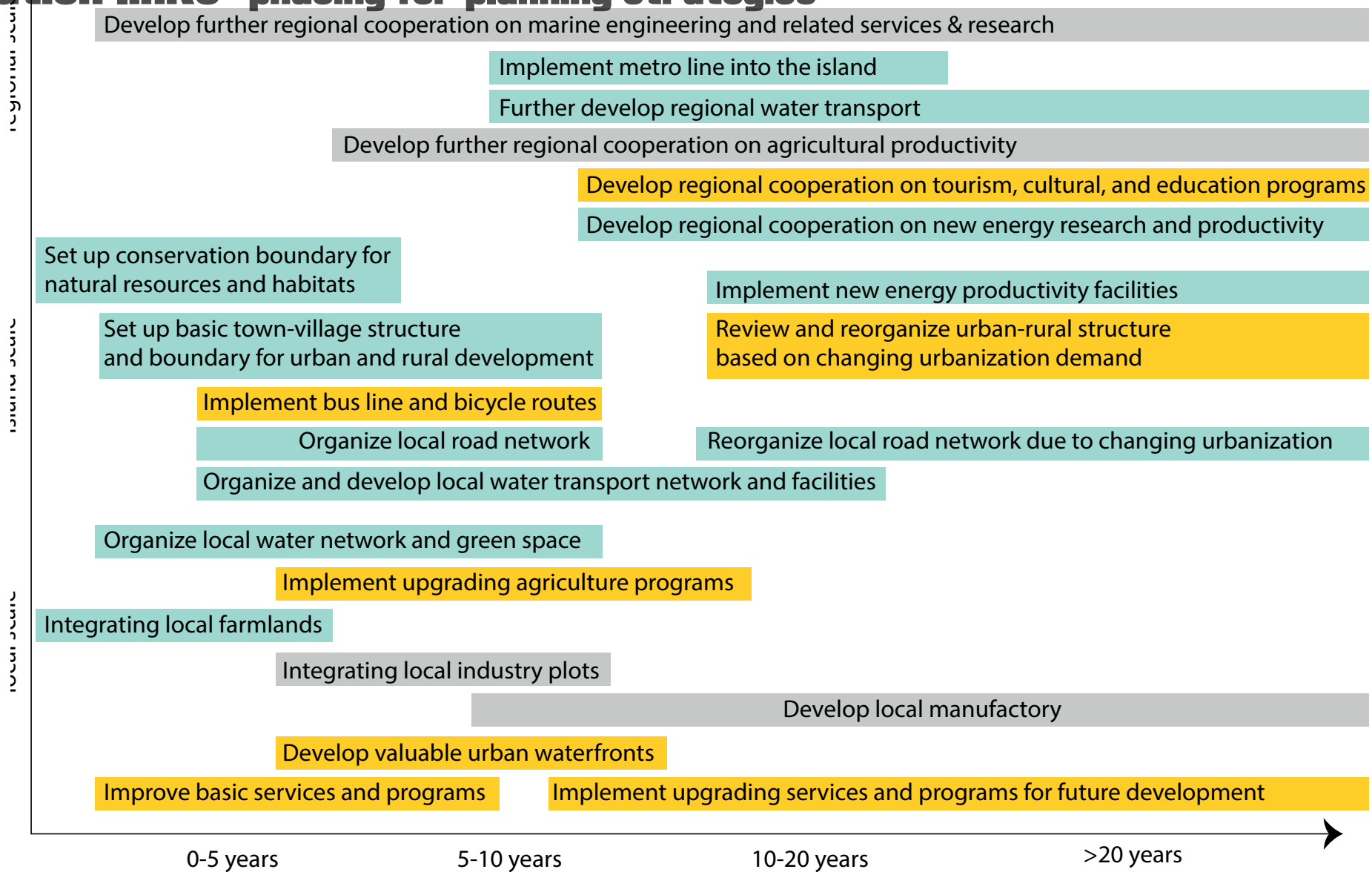
conflicts between short-term economic, social interest and long-term profits

Not only local investors but also regional developers shall be encouraged to cooperate with such projects, which lead to further development on unique local character such as cultural landscape, rural living experience as attractions to regional users, which on the other hand, also provide opportunity for local inhabitants to participate in the development projects with management their own programs

URBAN & RURAL DEVELOPMENT

	PROCESS & ROLE	NATIONAL LEVEL	REGIONAL & MUNICIPAL LEVEL	ISLAND LEVEL	LOCAL COMMUNITY LEVEL	
WHY	Define common territorial cooperation issues	Complete of polycentric urban network in YRD region	North towards of Shanghai metropolitan area through Changxing & Chongming islands, development of ship-industry network	Extending of regional infrastructure network, regional cooperation on agriculture, tourism and energy production		
	Define key local issues and indicators		Regional infrastructure network, water transport, ship-industry, water reservoir area/ local natural & cultural landscape	Local land use transition, upgrading local urban-landscape, developing productions and services	Balance social interests during urban rural transformation	
WHAT	Define interconnected actions and partners in cooperation		Cooperation on infrastructure, transport, industry	Cooperation on natural resources, agricultural production and potential energy & services productions		
	Set up regulations for diagnosis and manipulate the cooperation condition		Negotiation urban spatial planning on local condition	Connecting regional target with local urban-landscape condition	Detail local diagnosis on spatial and functional conflicts	
	Design participatory plan		Provide financial & technique support on regional projects	Manage practical constructions	Negotiation on local inhabitants' interests during the process	
	Manage funding, financing & economic input	Provide policy, financial & technical support	Manage regional public and private investment	Manage local public and private investment	Encourage the participation on local inhabitants on private investment	
	Implement local actions & interventions			Organize developers and operators on different aspects	Manage participation of local inhabitants in land-use transition, program development and spontaneous actions	
HOW	Organize impact assessment and revise on plan		Review the plan from regional perspective	Review the plan from local perspective	Reflect local inhabitants' demand to higher levels	
62	Vision discussion	Planning framework	Strategies & Guidelines	Planning approaches	Design concept	Design actions

HOW: Operation links -phasing for planning strategies



Phasing of strategies targeting in different scales will be arranged in different developing periods due to their unique efforts and dynamic future demands.

HOW: Design concept - Introduction of design site



Urban Waterfront



Townscape



Urban-Rural Transformation Area



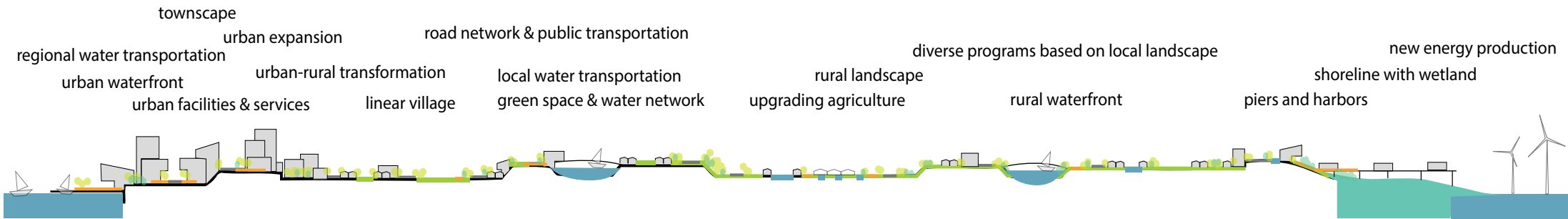
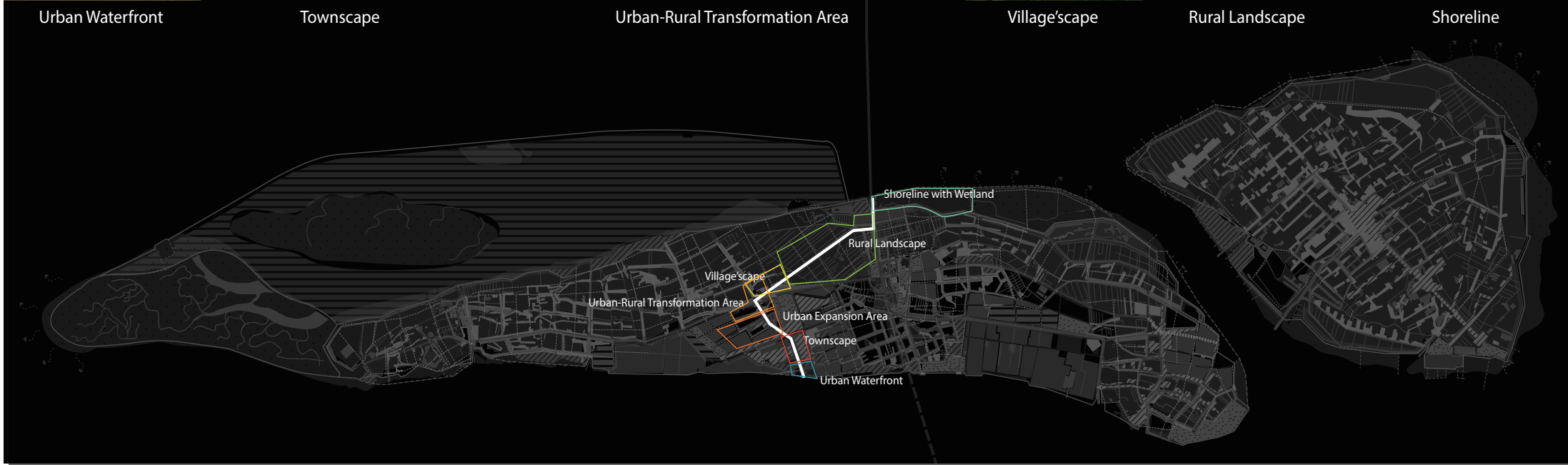
Village'scape



Rural Landscape

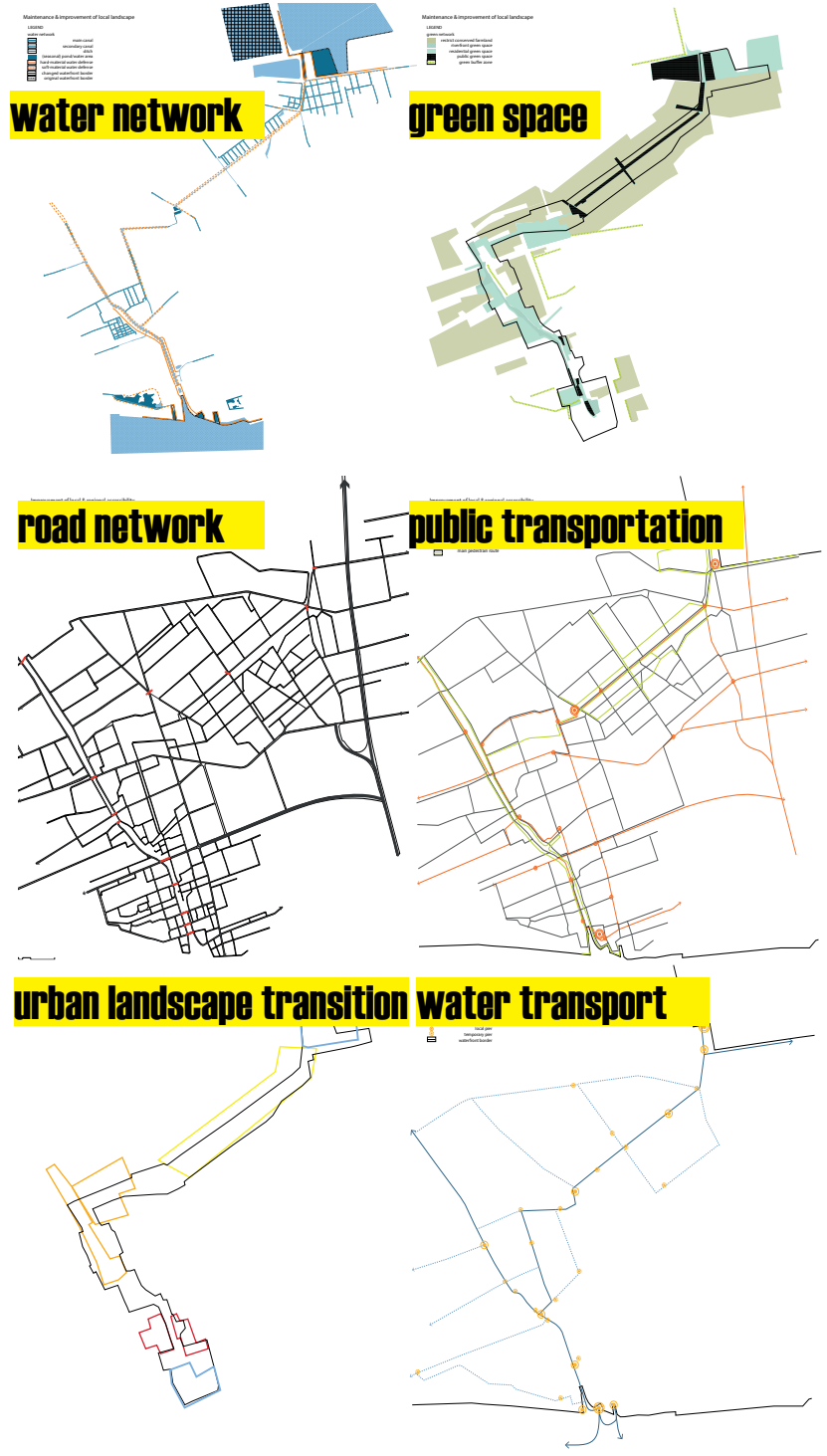


Shoreline

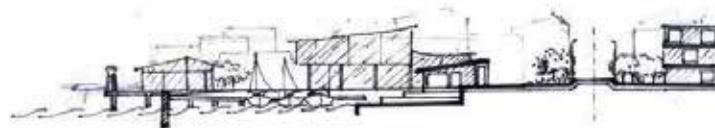


Design site:

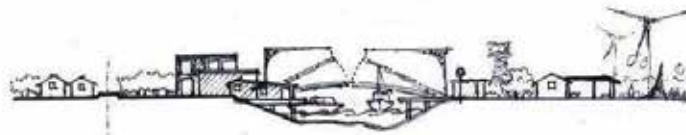
a constant linear space crossing the island presenting typical urban landscape characters



Section I-1: Interaction between urban area and infrastructure > harbor area



Section I-2: Interaction between rural area and infrastructure > riverfront



Section II-1: Interaction between urban area and landscape characters >urbanized green space



Section II-2: Interaction between rural area and landscape characters >extended rural construction



Section III-1: Urban-rural transition area >junction area between town and village



Section III-2: Rural-urban transition area >new developing rural waterfront



AREA

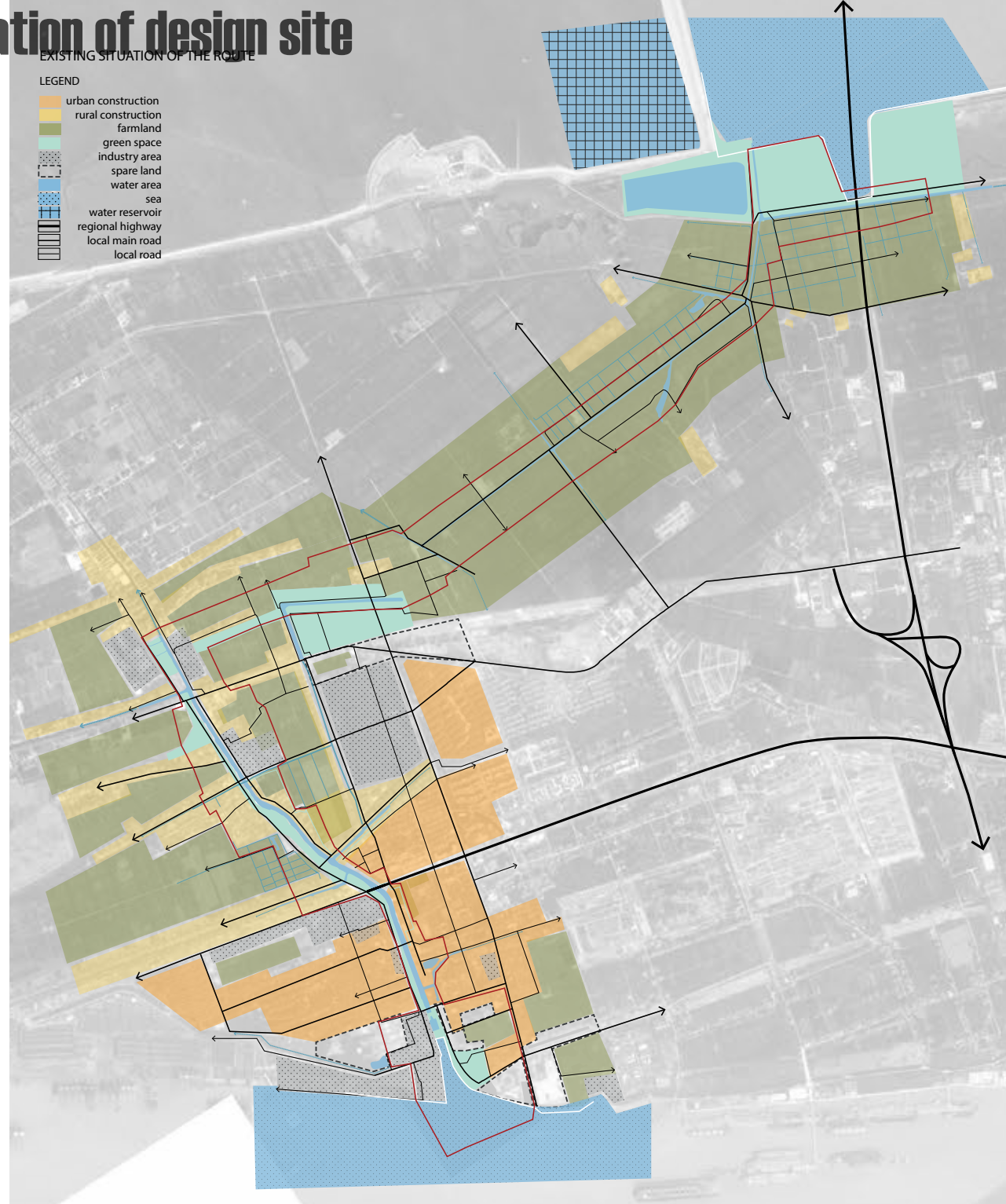
AREA

HOW

current situation

- > urban waterfront attached with the center town
- > rural transition area along canal
- > rural landscape of large farmland

- > reintroduce local natural & cultural landscape into the urban and rural tissues.



HOW: Design actions -set up interactive structure for basic quality

basic urban landscape structure of site



AREA

WHAT

HOW



HOW: Design actions -key areas for spatial interventions



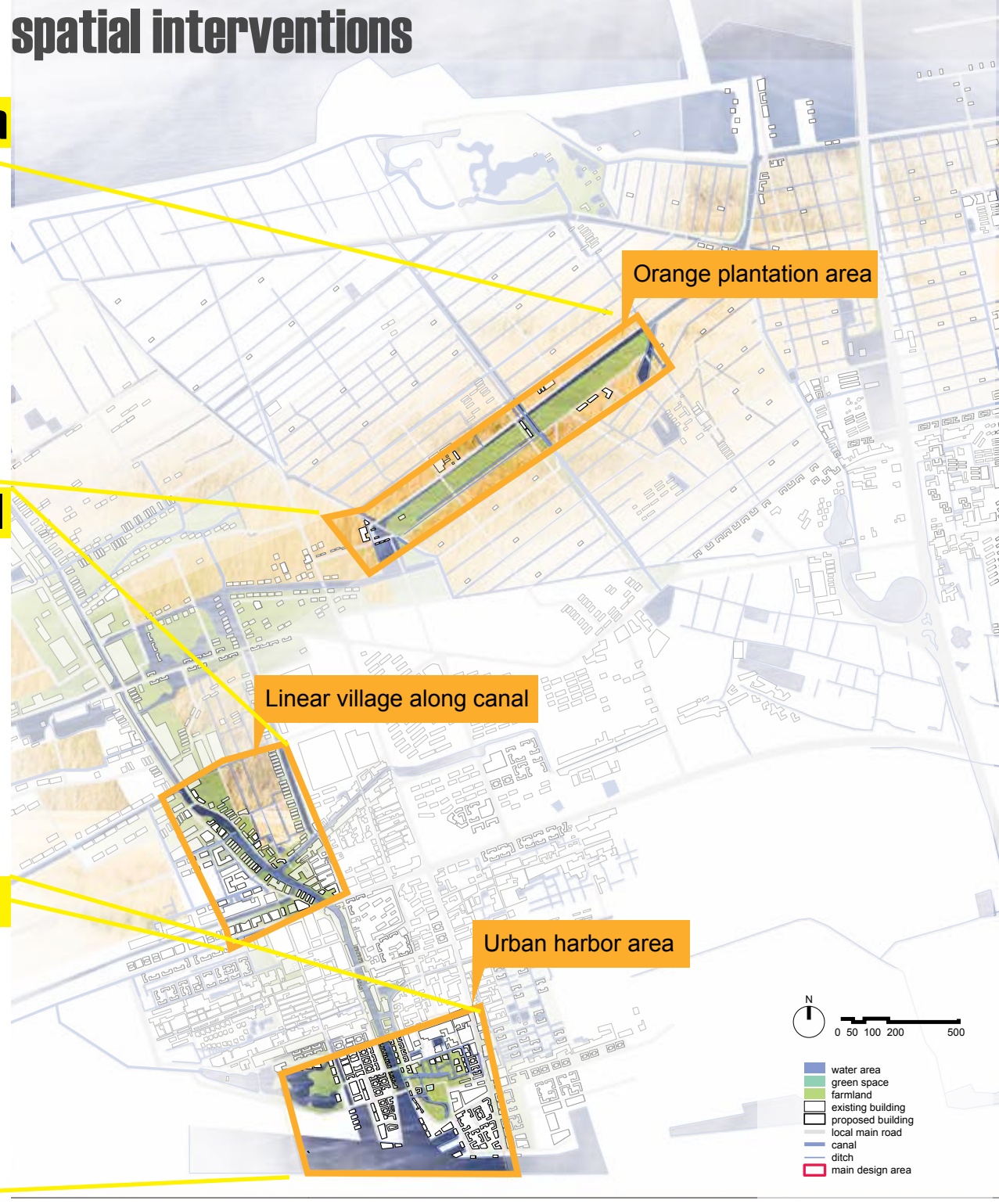
orange plantation area



linear village along canal



urban harbor area



HOW: Design actions -urban harbor area

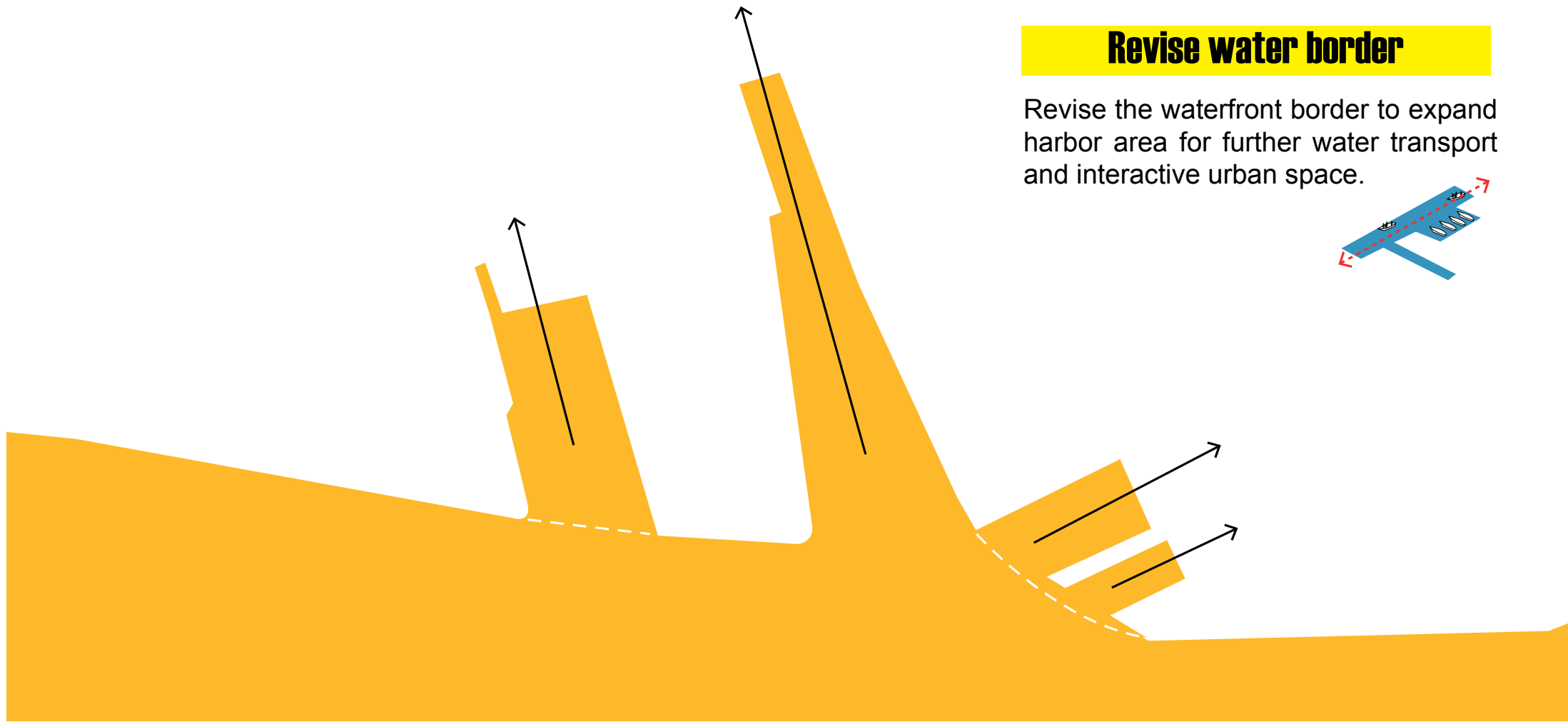
URBAN HARBOR AREA

Key words:

urban waterfront, public space, further urbanization
demand in transition

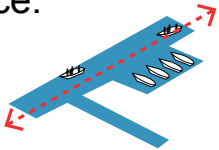


HOW: Design actions -urban harbor area



Revise water border

Revise the waterfront border to expand harbor area for further water transport and interactive urban space.



HOW: Design actions -urban harbor area

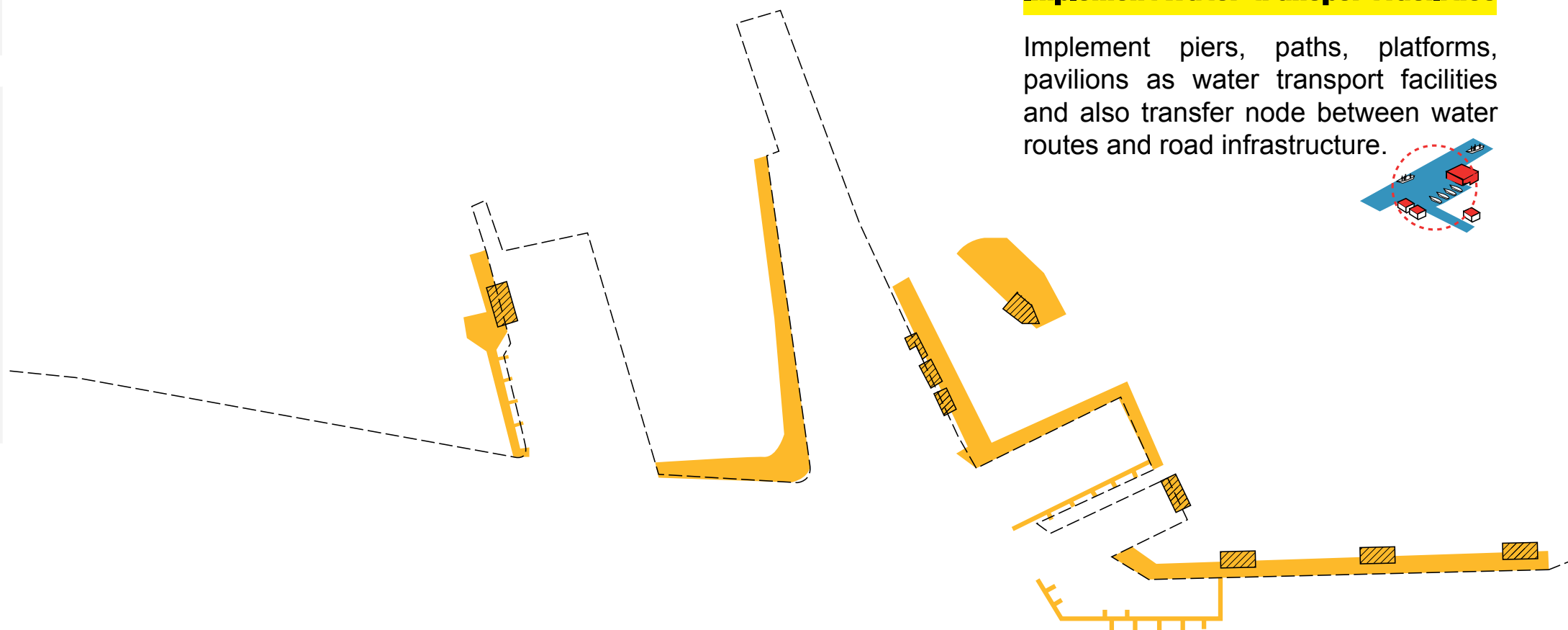
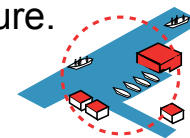
WHY

WHAT

HOW

Implement water transport facilities

Implement piers, paths, platforms, pavilions as water transport facilities and also transfer node between water routes and road infrastructure.

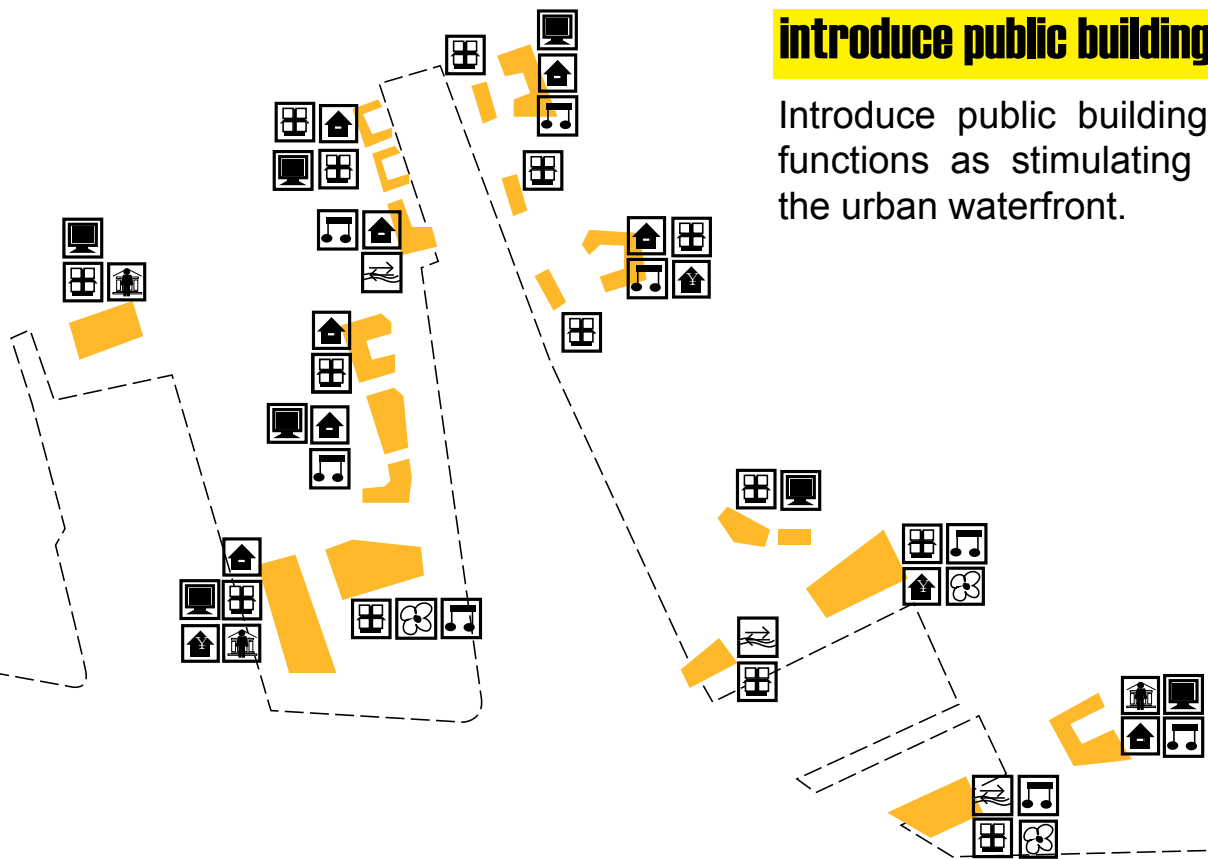


HOW: Design actions -urban harbor area

WHY

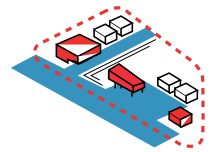
WHAT

HOW



introduce public building & programs

Introduce public buildings with mixed functions as stimulating programs for the urban waterfront.

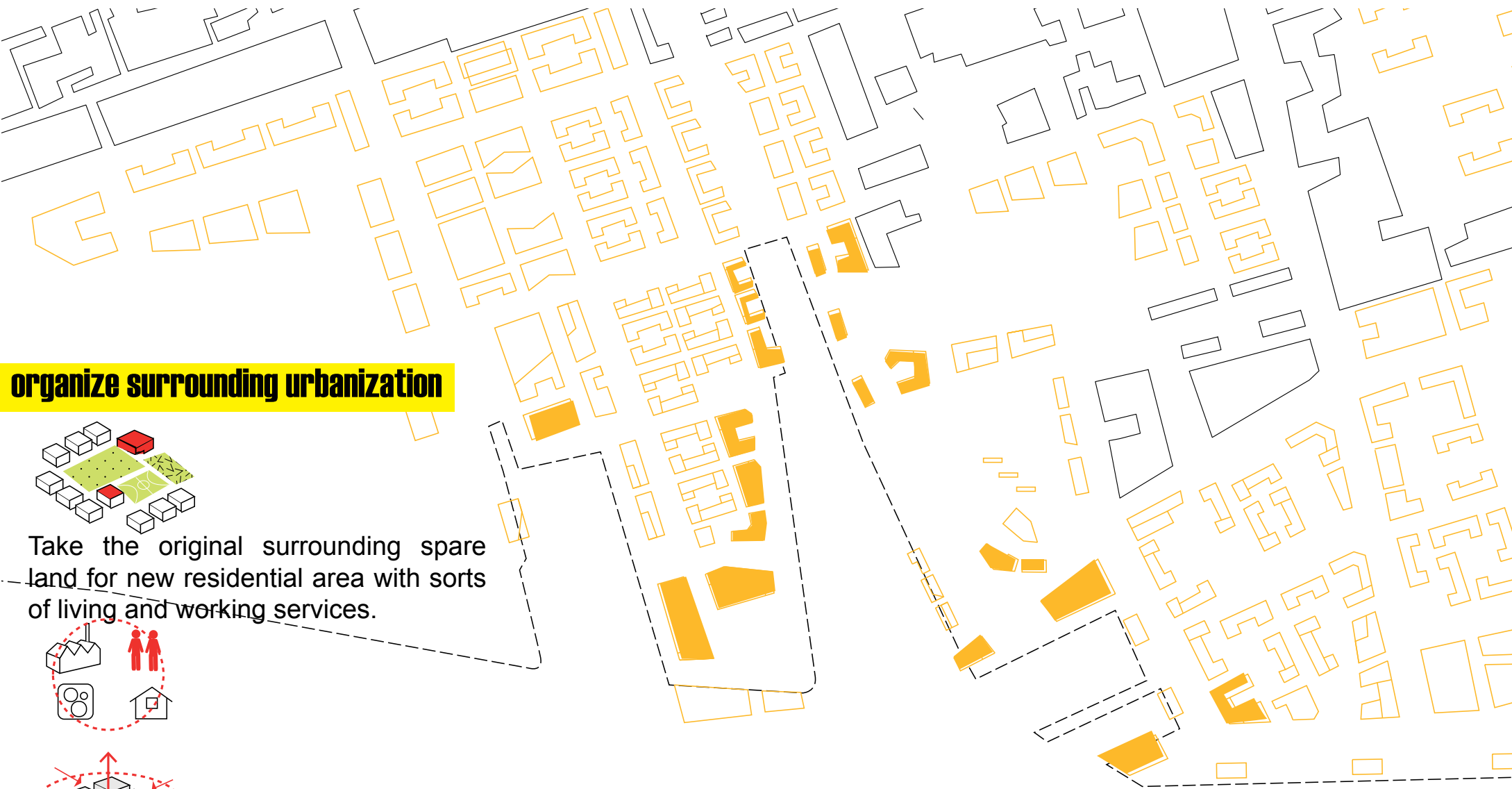


HOW: Design actions -urban harbor area

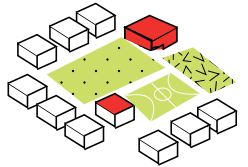
WHY

WHY

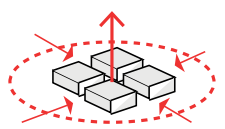
HOW



organize surrounding urbanization



Take the original surrounding spare land for new residential area with sorts of living and working services.



HOW: Design actions -urban harbor area

0 10 20 50

LEGEND

- original building
- new proposed building
- water area
- public space
- public green space
- residential green space
- public pavement/facility
- road



URBAN HARBOR AREA

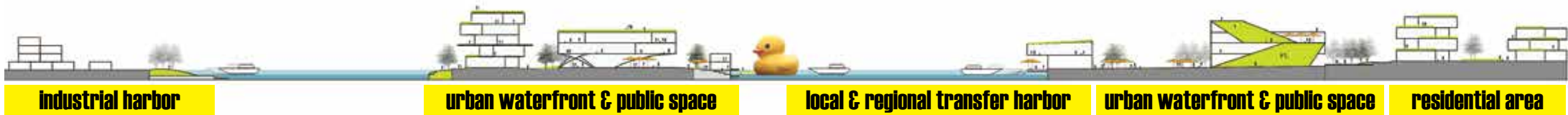
layer: 'landscape' enhance 'urban'

scale: local urbanization responding to regional influence

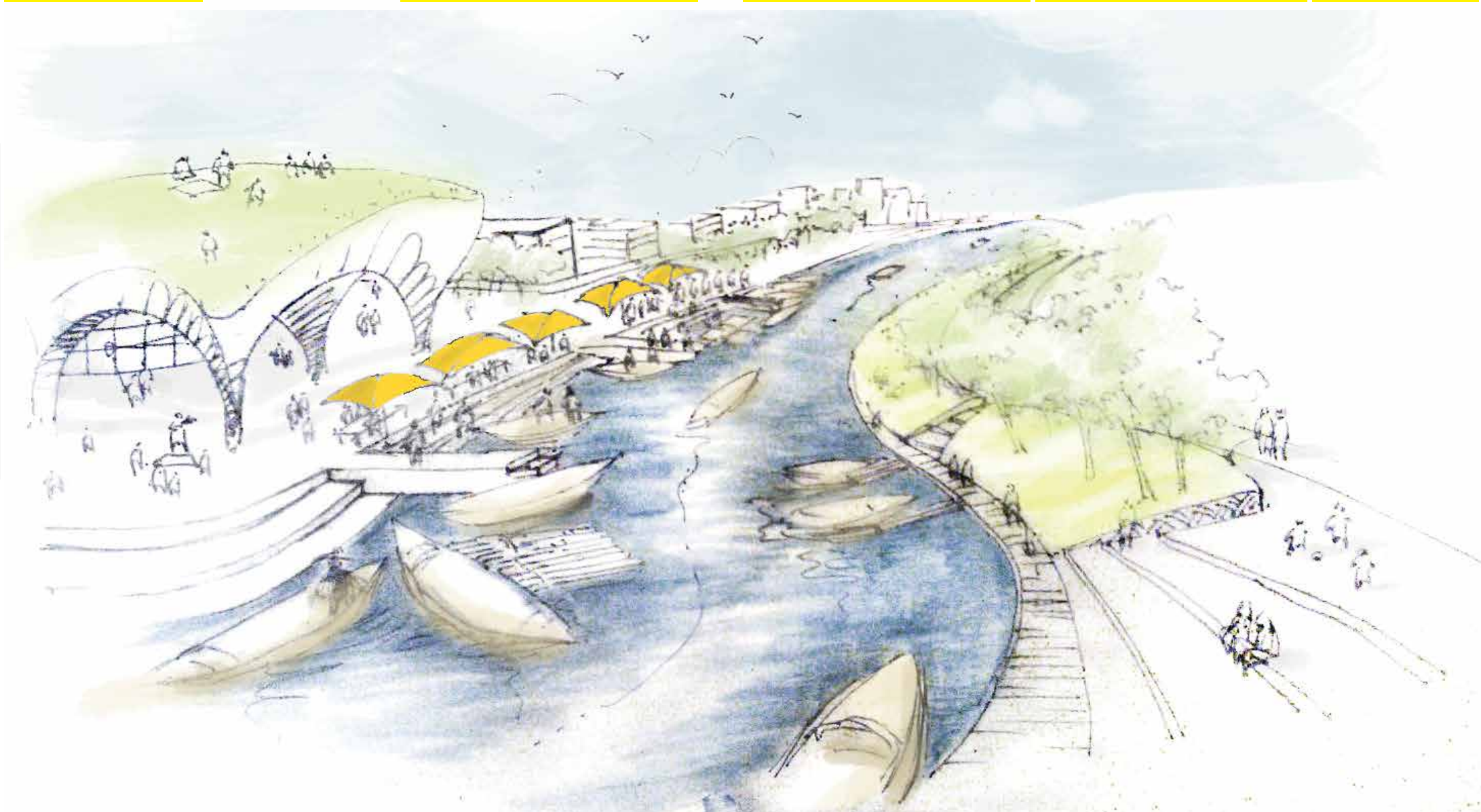
actor: increasing migrations, local inhabitants, investors

HOW: Design actions -urban harbor area

AIM



WHY



HOW

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Vision discussion

Planning framework

Strategies & Guidelines

Planning approaches

Design concept

Design actions

HOW: Design actions -linear village along canal

ARM

WAT

LINEAR VILLAGE ALONG CANAL

Key words:

riverfront space, urban-rural transition, rural landscape typology

HOW

77

Vision discussion

Planning framework

Strategies & Guidelines

Planning approaches

Design concept

Design actions

HOW: Design actions -linear village along canal

WHY

WHY

combine hard water defense with road

Combine road infrastructure with hard-material water defense along the canal; Take green space along riverfront as soft defense/buffer zone to reduce flooding attack.



HOW

HOW: Design actions -linear village along canal

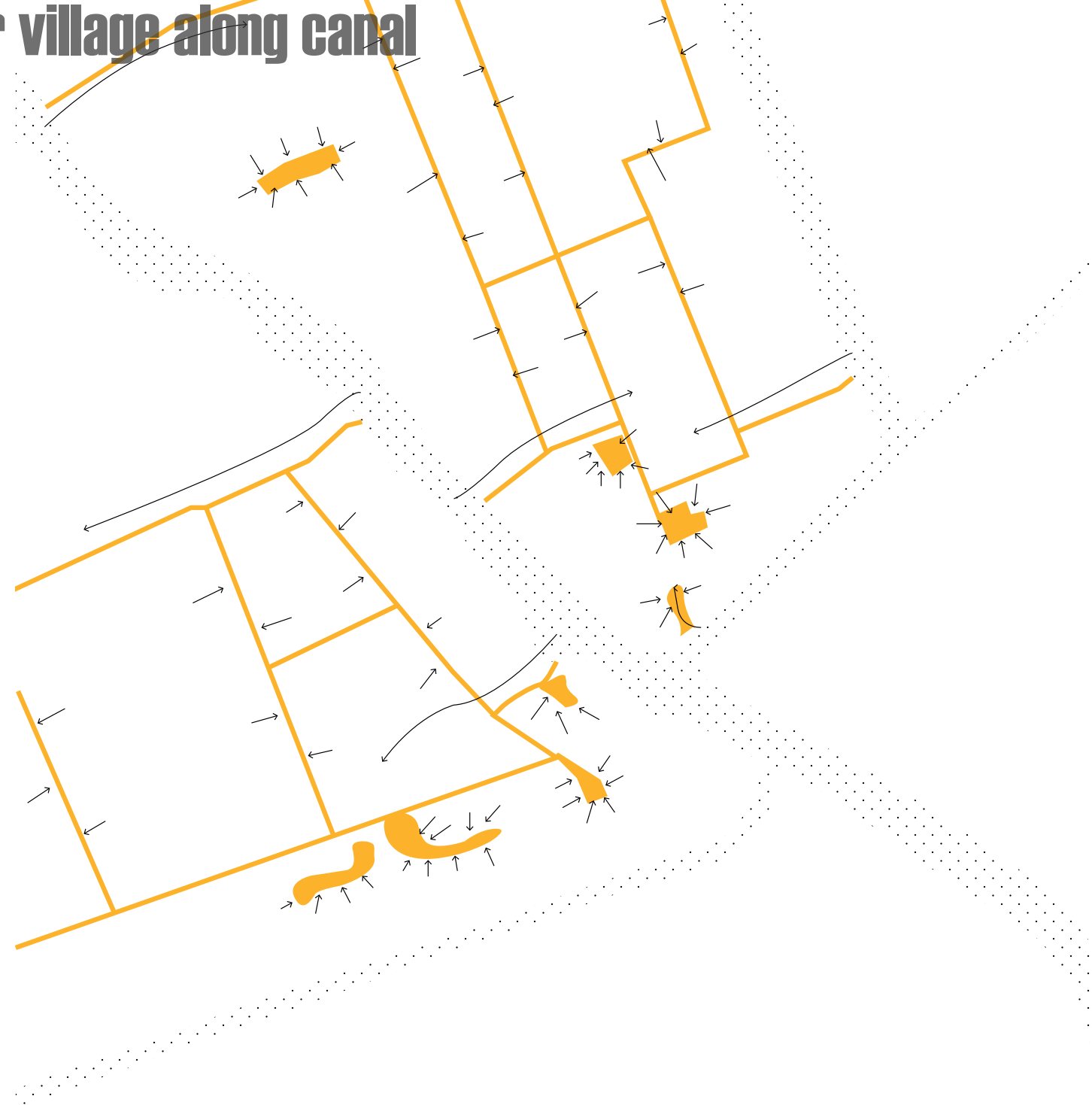
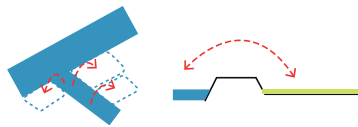
WHY

WHAT

HOW

Integrating ditches, ponds, canals for water management & irrigation

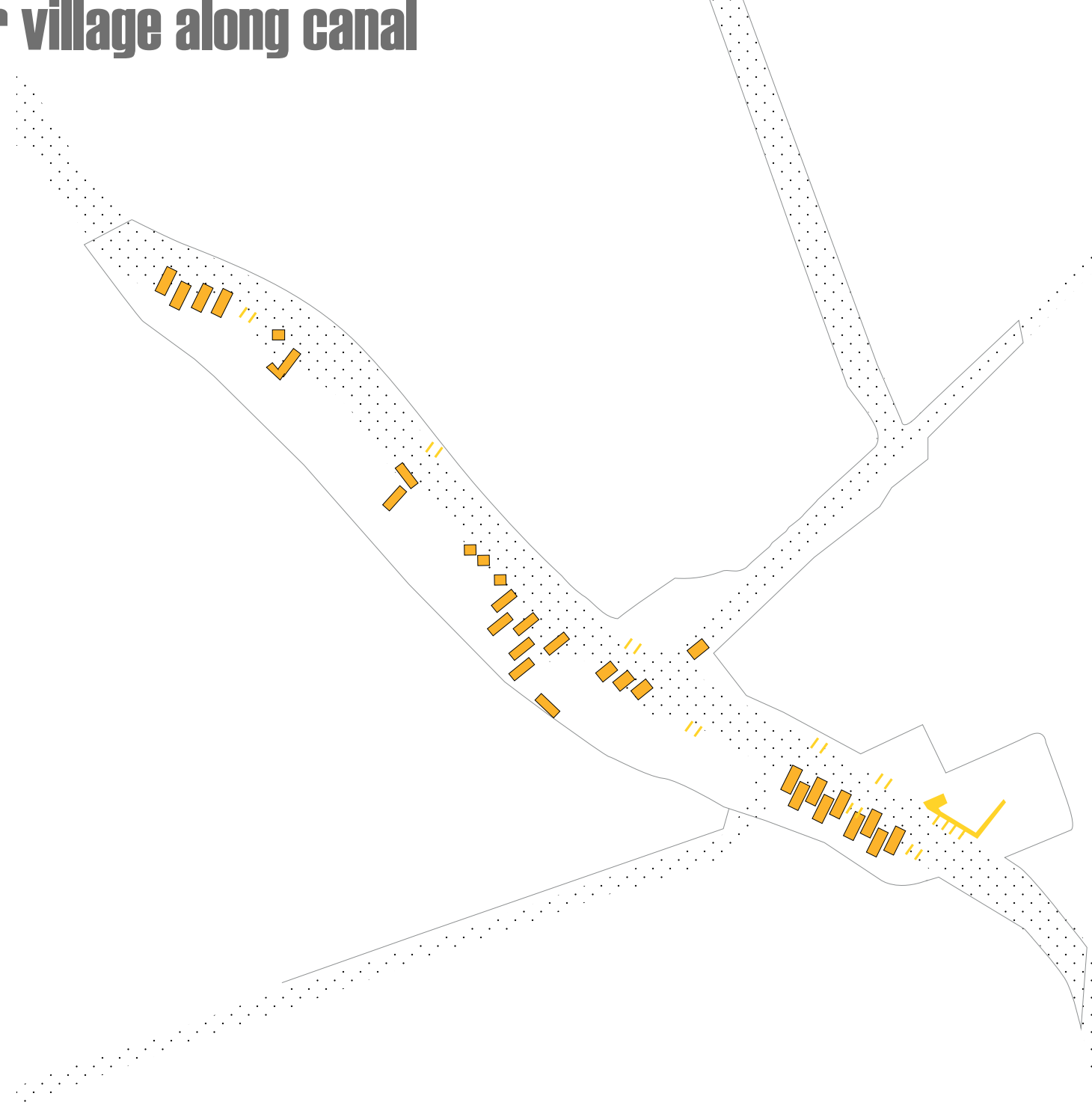
Connect the ditches, creeks, ponds along main canal as seasonal water container for storm water management and agricultural irrigation.



HOW: Design actions -linear village along canal

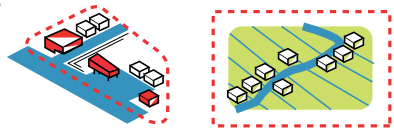
WHY

WHAT



maintain flexible water typology

Remain/create flexible typology in riverfront constructions, with floating house, temporary facilities, piers etc.



HOW

HOW: Design actions -linear village along canal

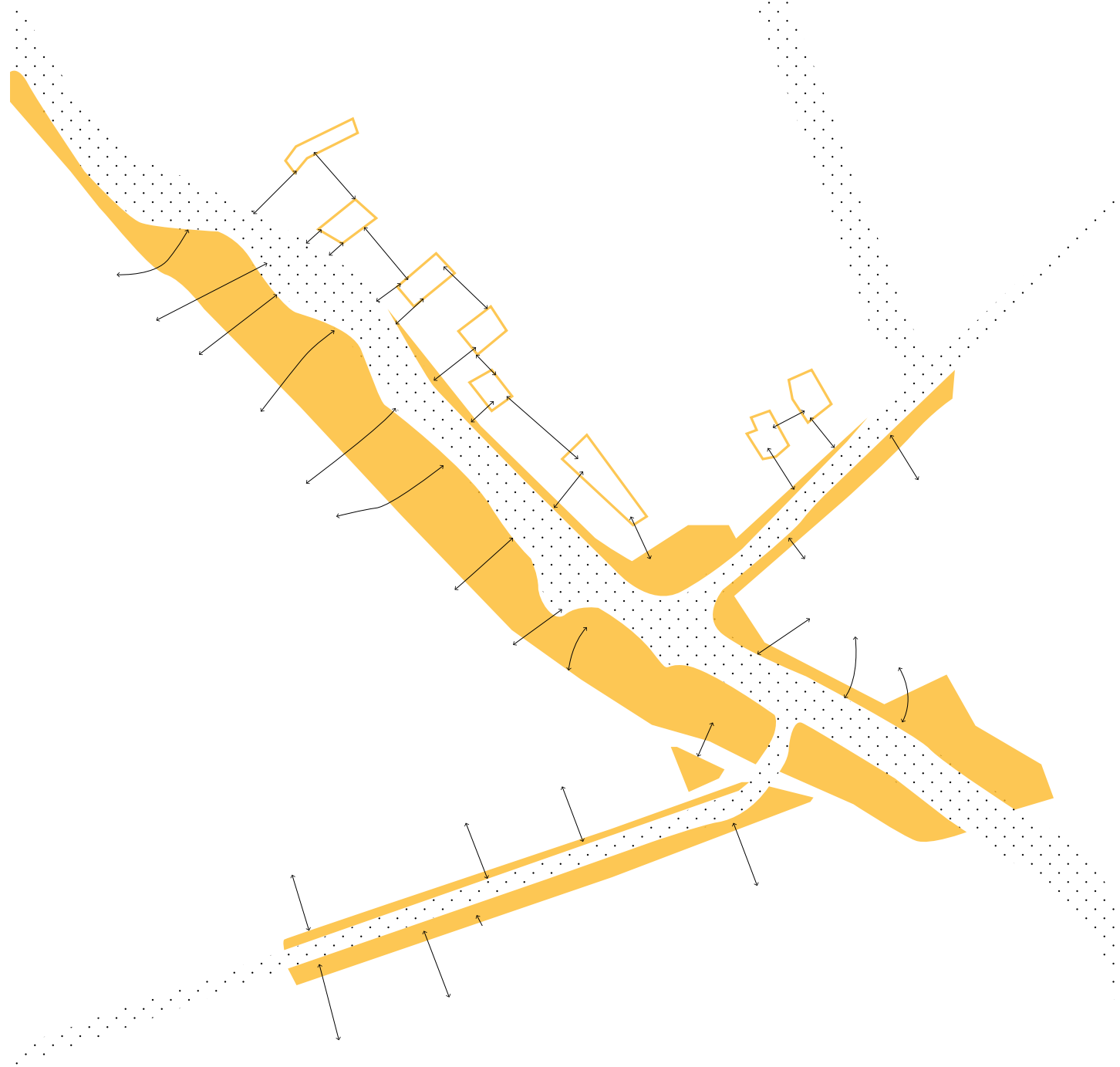
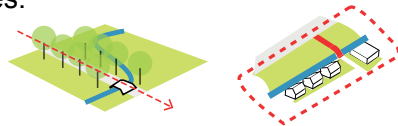
WHY

WHAT

HOW

upgrade riverfront space

Upgrade riverfront green space as open public domain with more easier access to surrounding residential communities.



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Vision discussion

Planning framework

Strategies & Guidelines

Planning approaches

Design concept

Design actions

HOW: Design actions -linear village along canal

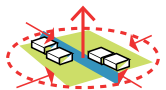
WHY

WHY

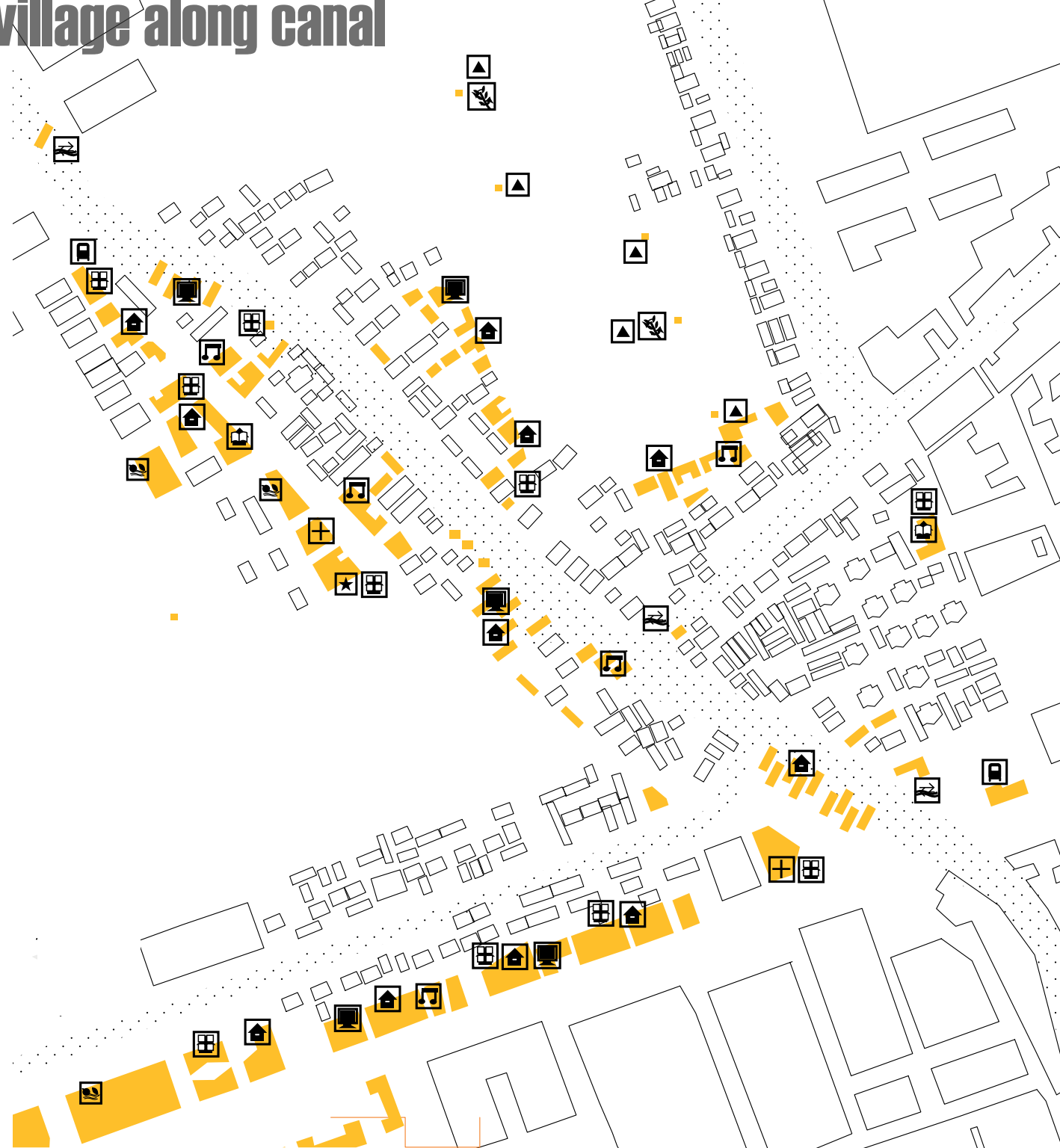
HOW

82

organize compact urban expansion



Organize urban expansion & densification in a compact way with respect to village's original morphology pattern. Implement living & working facilities and services, encourage the development of local manufactory or workshop.



Vision discussion

Planning framework

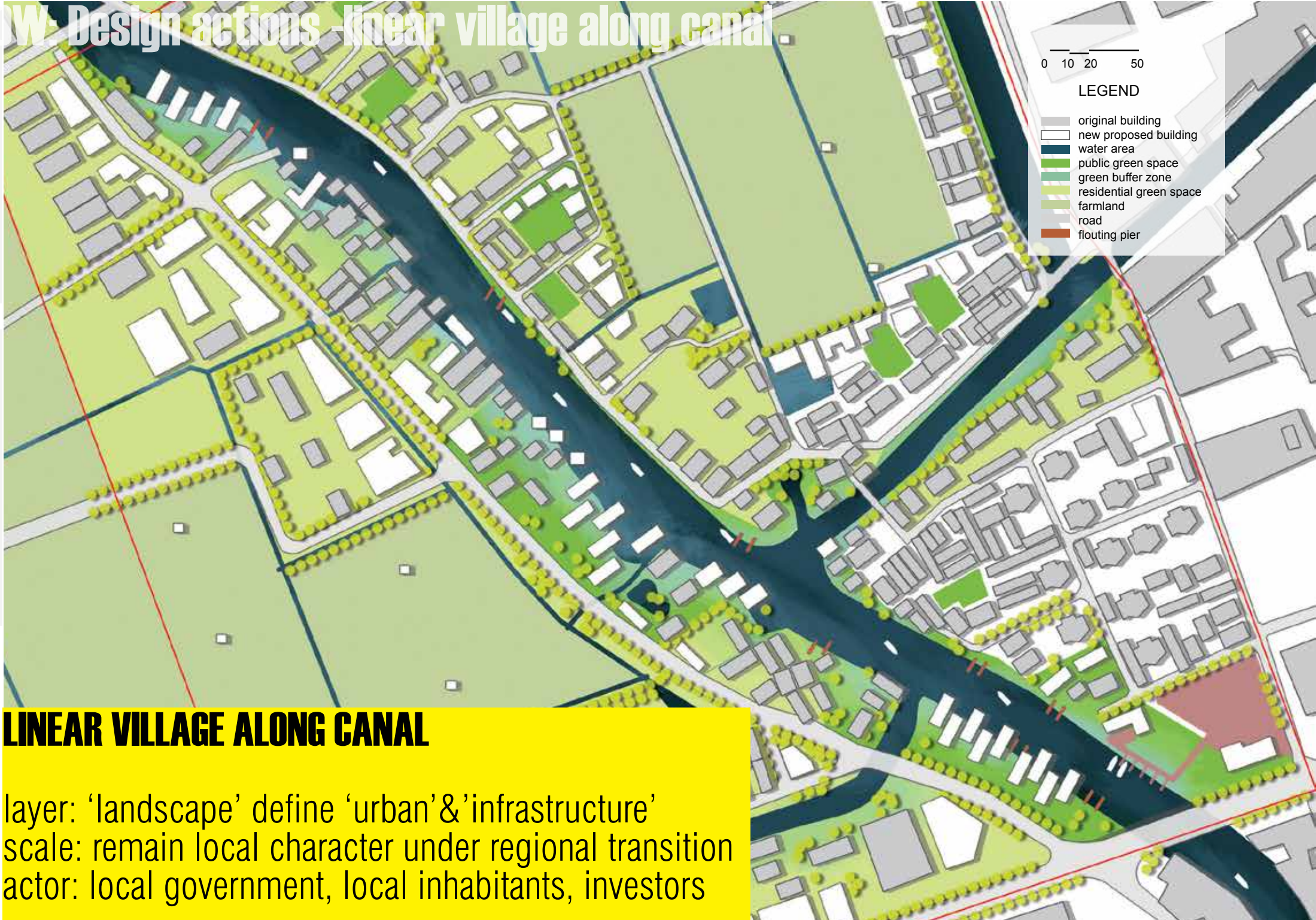
Strategies & Guidelines

Planning approaches

Design concept

Design actions

W: Design actions - linear village along canal



0 10 20 50

LEGEND

- original building
- new proposed building
- water area
- public green space
- green buffer zone
- residential green space
- farmland
- road
- floating pier

LINEAR VILLAGE ALONG CANAL

layer: 'landscape' define 'urban' & 'infrastructure'
scale: remain local character under regional transition
actor: local government, local inhabitants, investors

HOW: Design actions -linear village along canal

AIM



farmland

linear villages

canal & riverfront space

linear villages

farmland

WHAT



HOW

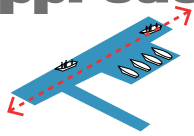
HOW: Design approaches -orange plantation zone

ORANGE PLANTATION ZONE

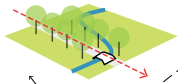
Key words:

recreational landscape, productive landscape,
upgrading agriculture

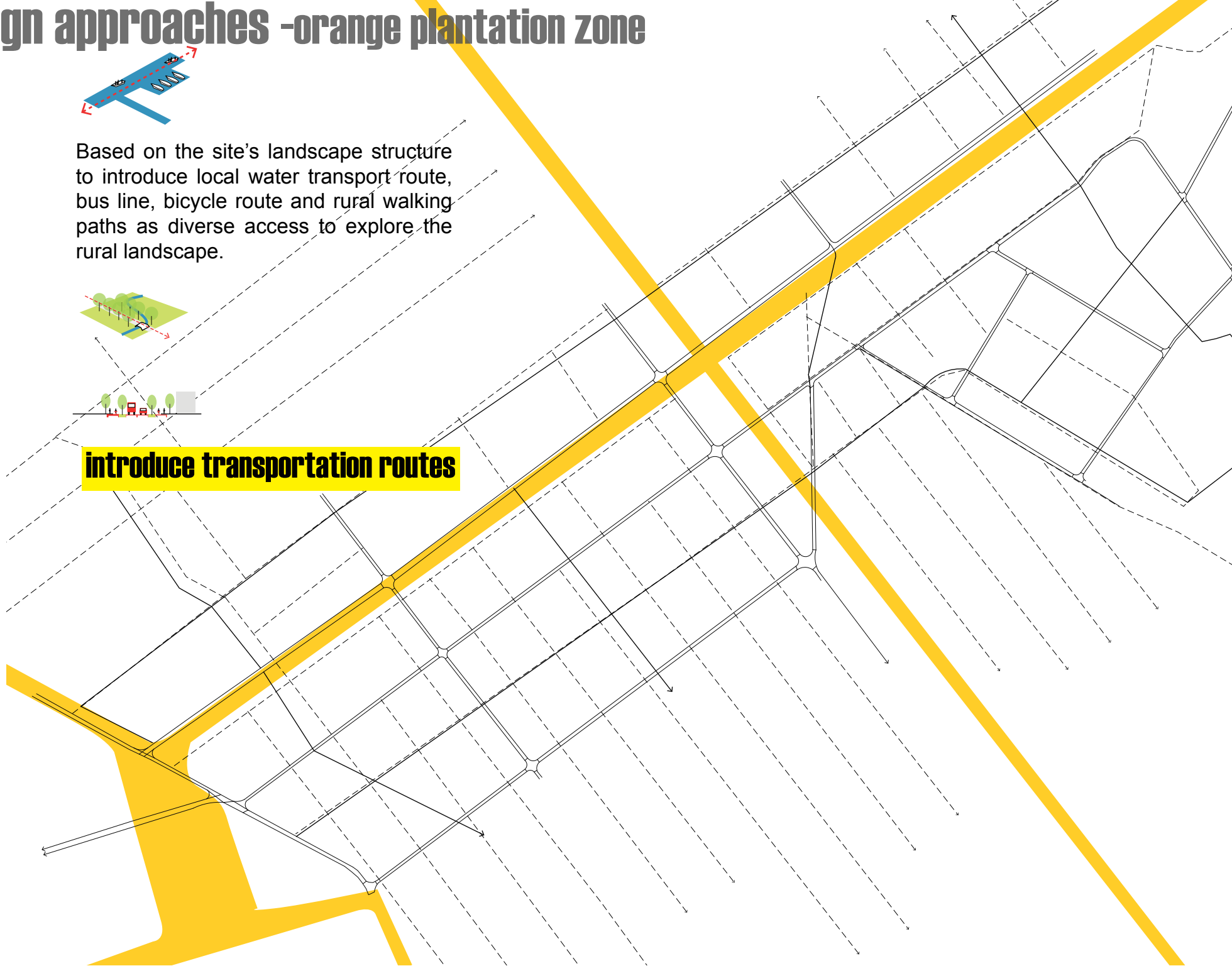
HOW: Design approaches -orange plantation zone



Based on the site's landscape structure to introduce local water transport route, bus line, bicycle route and rural walking paths as diverse access to explore the rural landscape.



introduce transportation routes



WHY

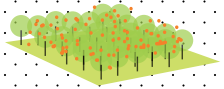
WHY

HOW

HOW: Design approaches -orange plantation zone



Transit the riverfront landscape with public green space with supportive facilities that could open to diverse recreational functions.



add linear open green space



AREA

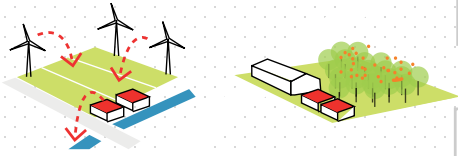
VIEW

HOW

87

HOW: Design approaches - orange plantation zone

Implement upgrading agricultural productions such as eco-food, wind energy, bio-mass energy, horticulture etc, and also encourage the development of related recreation, tourism, education, research programs and innovative cultural activities.



implement upgrading programs



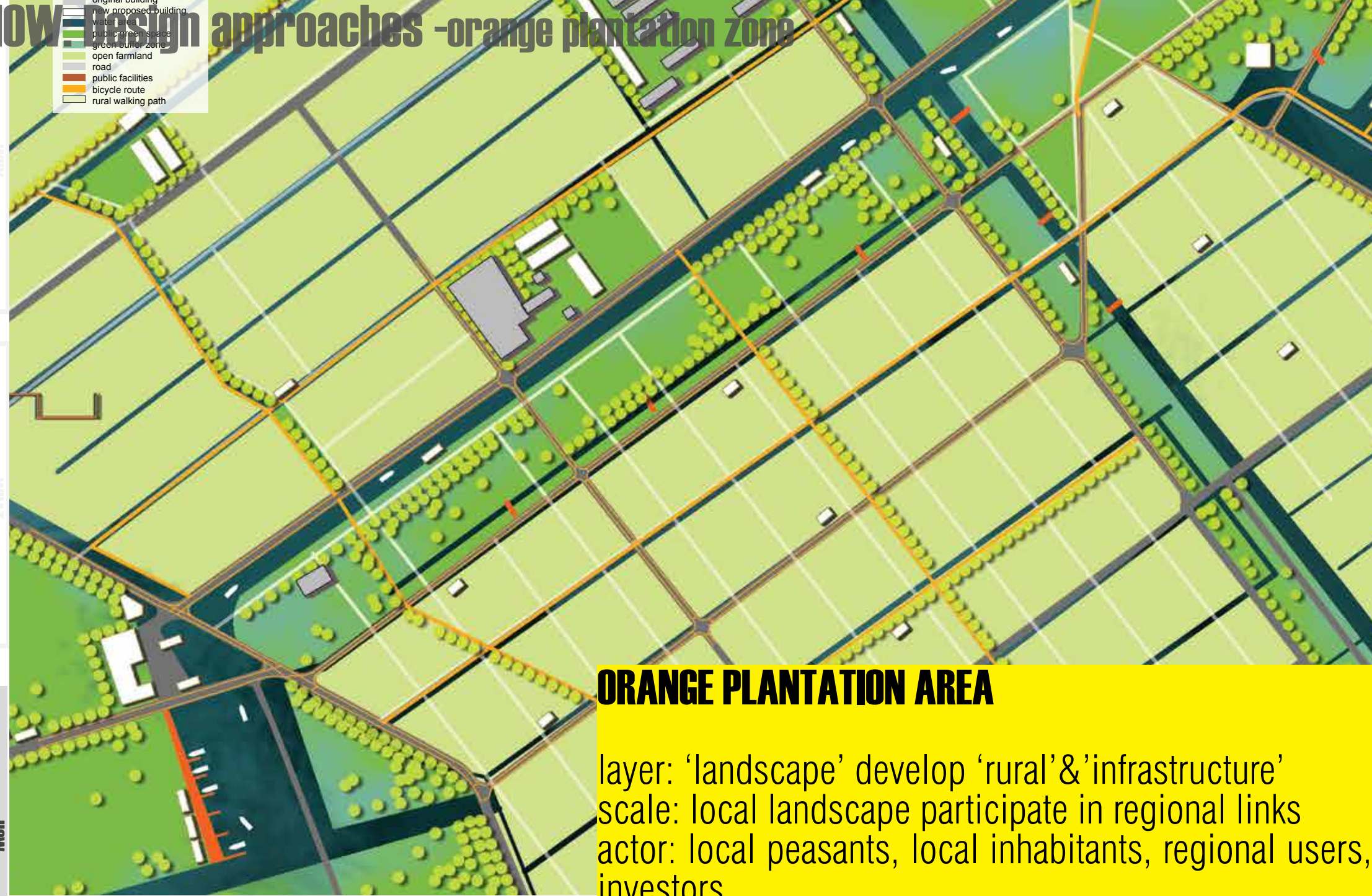
WHY

WHY

HOW

HOW Design approaches -orange plantation zone

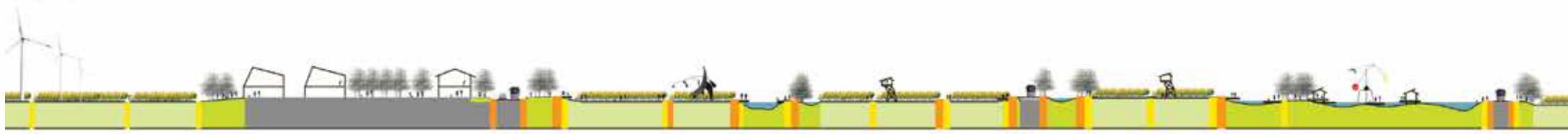
- original building
- new proposed building
- water area
- public green space
- green buffer zone
- open farmland
- road
- public facilities
- bicycle route
- rural walking path



ORANGE PLANTATION AREA

layer: 'landscape' develop 'rural' & 'infrastructure'
scale: local landscape participate in regional links
actor: local peasants, local inhabitants, regional users, investors

HOW: Design approaches -orange plantation zone



productive farmland

local manufactory & service programs

recreational open space

recreational farmland

recreational green space



Conclusion: From intervention to transformation



Design intervention provide broader possibilities in the site's urban landscape transformation process...

Conclusion: From intervention to transformation: urban expansion



which could respond to further urban expansion ...

CONCLUSION: From intervention to transformation -changing delta environment



which could respond to changing delta environment demand. . .

CONCLUSION: From intervention to transformation -productive landscape



which could respond to **local & regional demand on productive landscape . . .**

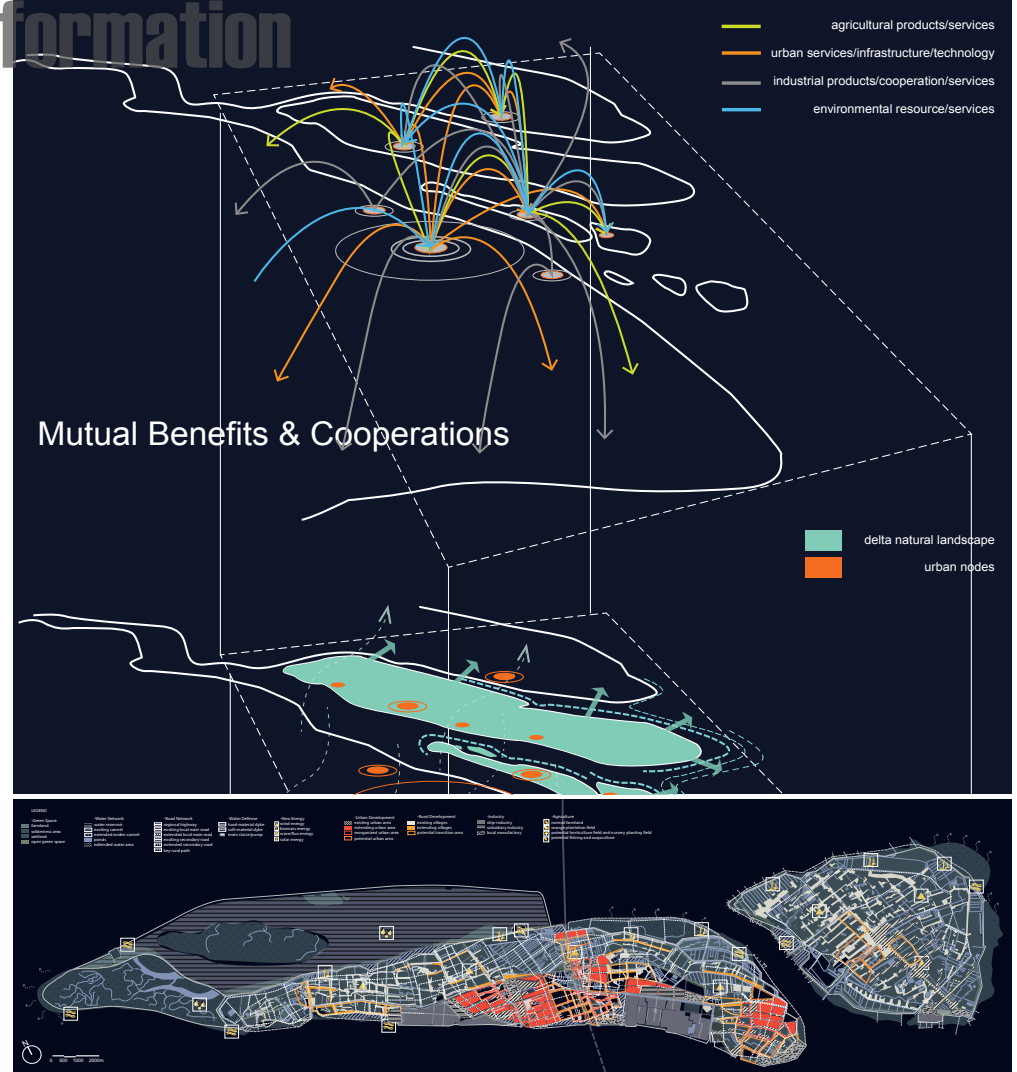
CONCLUSION: From intervention to transformation



or it could be a balanced integrating vision . . .

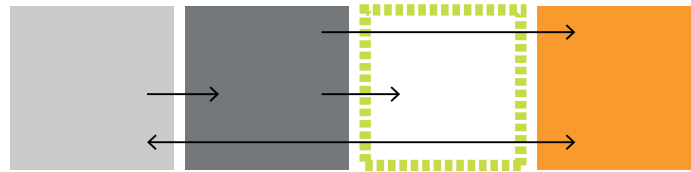
CONCLUSION: From intervention to transformation

The proposed planning framework provide an opportunity to implement the visionary urban landscape system in local & regional scales through **the combination of top-down strategies and bottom-up design actions.**

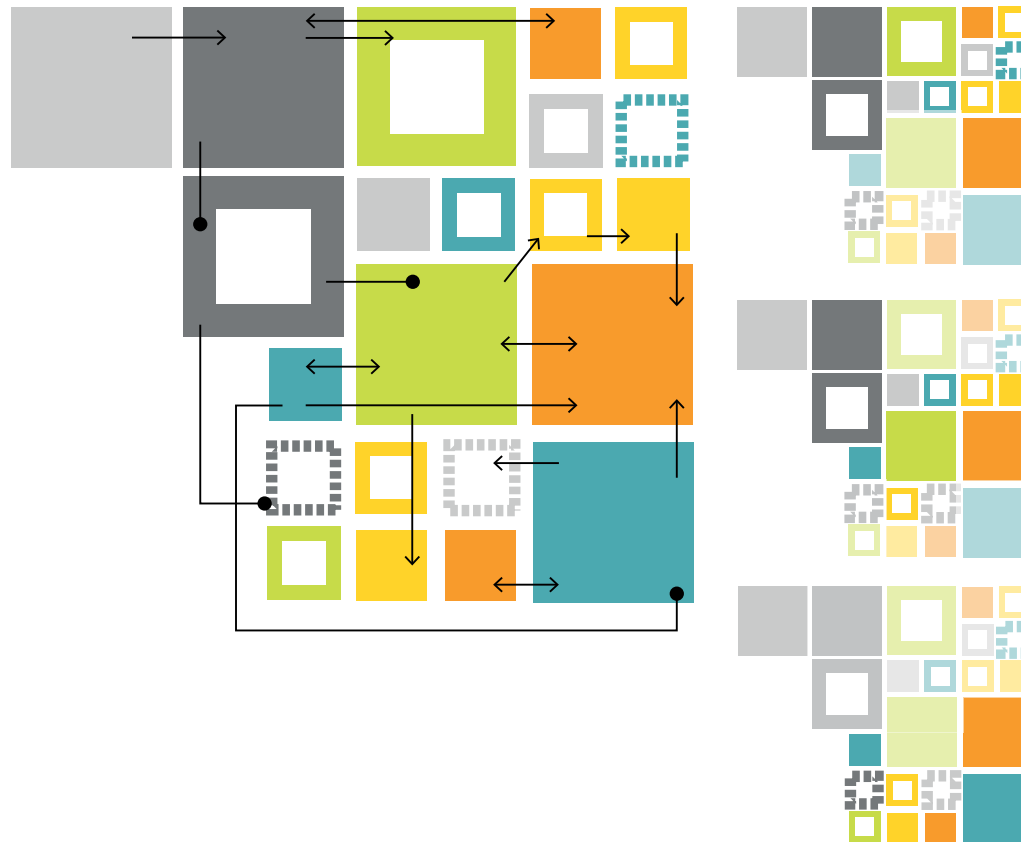


Conclusion: explore the vision with landscape approach

The Development Pattern based on Government's plan:
Urbanization depending on ship-industry development



A review of Government's plan and diverse possible
Future Changes through the proposed planning framework:
Boarder Urban-Rural Development possibilities based on the
infrastructural landscape system



a relatively RIGID & LIMITED vision

Lack of further consideration on local productions other than ship-industry; Lack of consideration on local landscape's value and dynamic environment change;

CURRENT GOVERNMENT'S PLAN

+

POSSIBLE FUTURE CHANGES

+

PROPOSED PLANNING FRAMEWORK

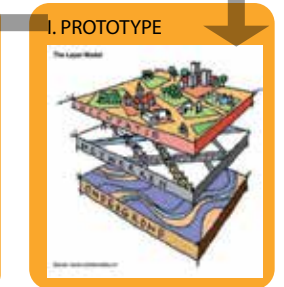
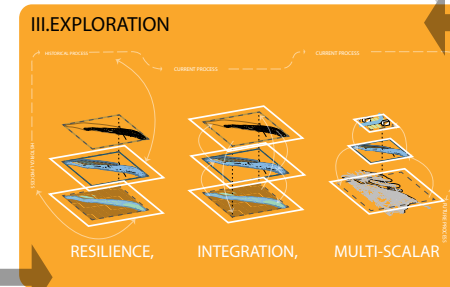
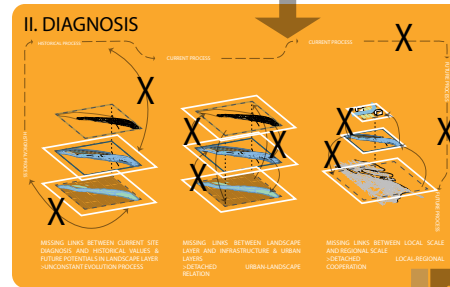
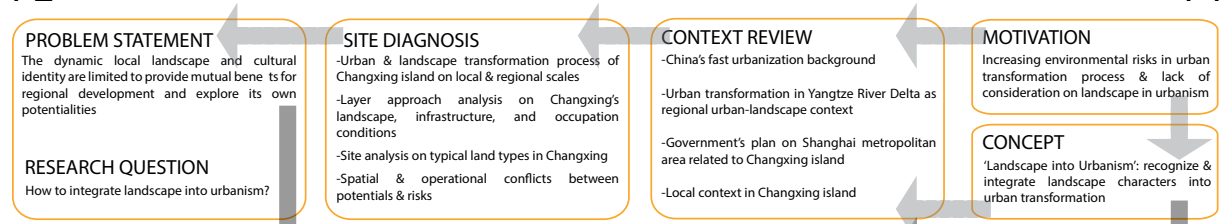
a relatively FLEXIBLE & OPEN vision

Consider the value of local natural & cultural landscape, and the dynamic change of regional delta environment and social-economic trends; Not merely depending on ship-industry development, but bordering diverse potentialities for also societal & environmental interests.

METHODOLOGY FLOW

P2

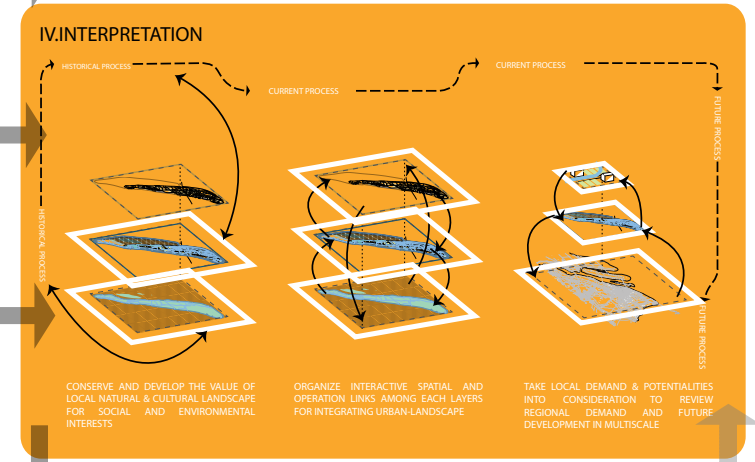
P1



SCENARIO DISCUSSION
Five possible urban-landscape transformation direction for Changxing:
-subsidiary town to Shanghai/metropolitan park/ship-industry island/urbanized island /agricultural island

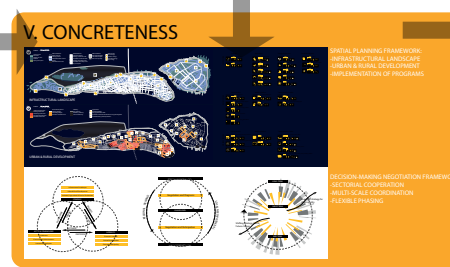
PLANNING PRINCIPLES & VISION
-Integration, Resilience, Multi-scalar
-Local scale: A multi-functional island with diverse upgrading local natural and cultural landscape to achieve a balance relation with urban development and industry zones.
Regional scale: A mutual beneficial local-regional relation within the dynamic urban-landscape delta context

PLANNING FRAMEWORK
-Strategic spatial & functional framework based on layers of infrastructural landscape, urban & rural development, and implementation of programs
-Specific concerns on delta environment and local natural & cultural landscape
-Planning strategies on aspects of infrastructural landscape, urban & rural development, and programs
-Design guidelines and concrete planning approaches on typical land types
-Proposals for decision-making negotiation framework



P3

DESIGN FRAMEWORK
-Design concept: basic structure + potential qualities
-Design actions on basic structure: landscape structure, infrastructure network, urban & rural settlements
-Concerns on detail organization of interactions between landscape, infrastructure and occupations
-Representative spatial interventions on urban waterfront, urban-rural transition area and rural landscape area
-Reflection from spatial intervention to urban-landscape transformation



EVALUATION
-Reflection on content through the comparison between current government's plan and the proposed planning framework
-Review on design & research process and development of methodology flow
-Academic & societal relevance of the project
-Conclusive synthesis

P5

THANK YOU !

QUESTIONS?