

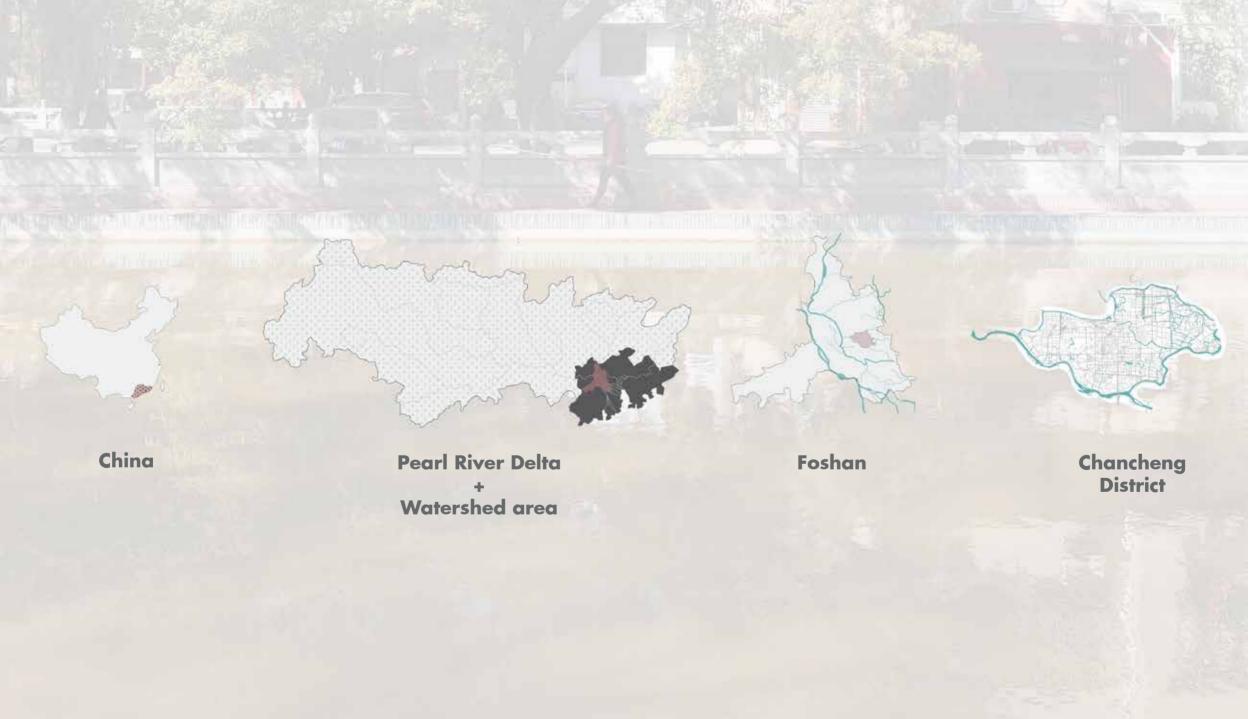
FASCINATION RE-ADAPTATION OF BIOPHYSICAL STRUCTURE











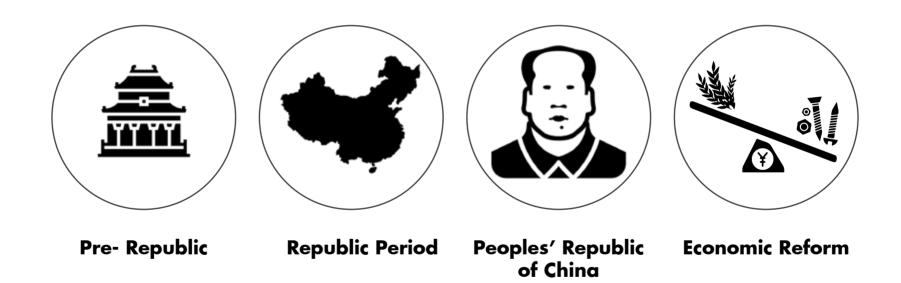






Image source: Edward Burtynsky, Manufactured Landscapes



Image source: Xinhua - Airplane parts manufacturing company high-tech zone in Wuxi

PROBLEM STATEMENT

The <u>streamlining of production due to the technological advancement</u> will result in the <u>reduction of industrial operation and labour size</u> thus leaving cities with <u>decommissioned industrial areas that would be converted to other commercial profitable land uses.</u>





HYPOTHESIS

If these decommissioned industrial areas are to be <u>redeveloped to a more</u> <u>sustainable and ecologically and water sensitive programming and land uses</u> which are <u>adaptable</u> to the delta conditions and <u>resilient</u> to climate change, the degrading impacts of industrialisation can be reversed.



Self-Sustenance



Collective Farming



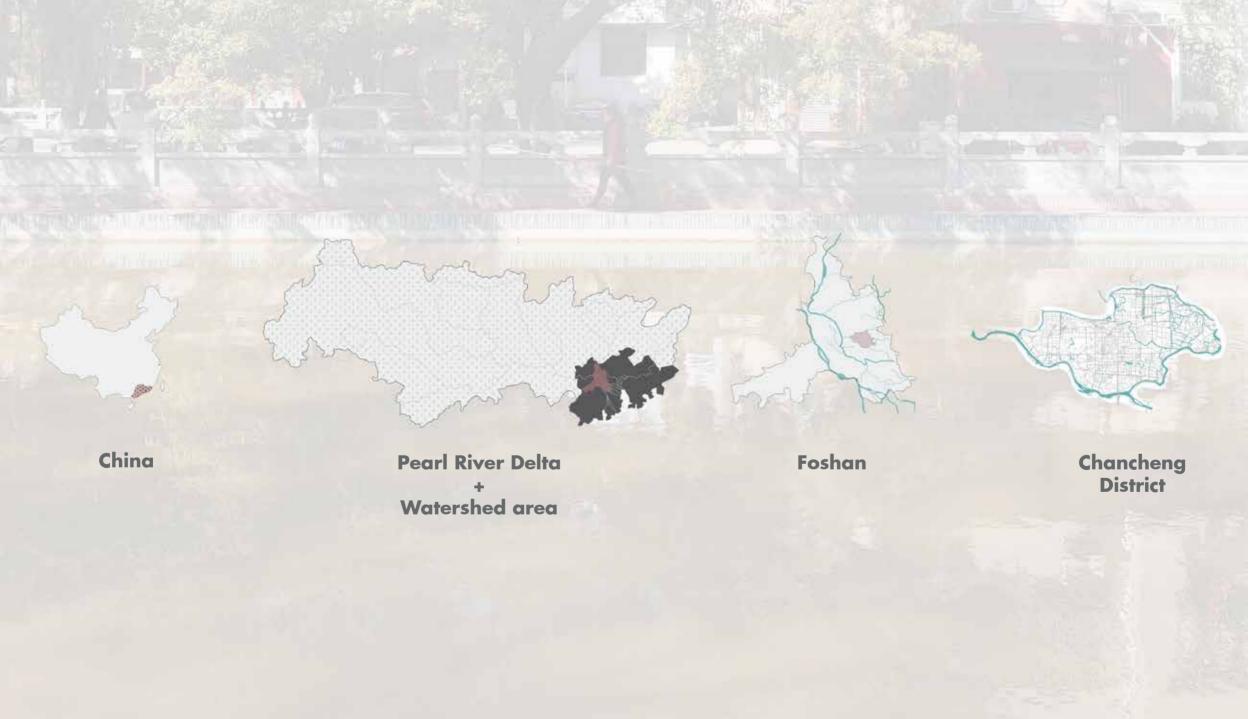
Village Industry



Manufacturing

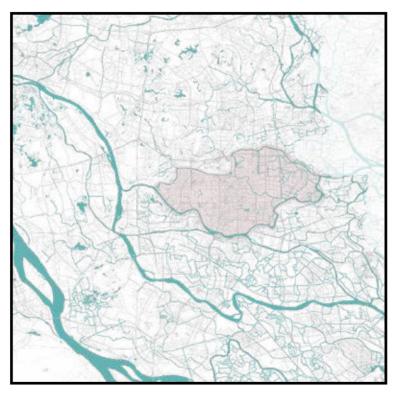


Post-industrial Landscape?

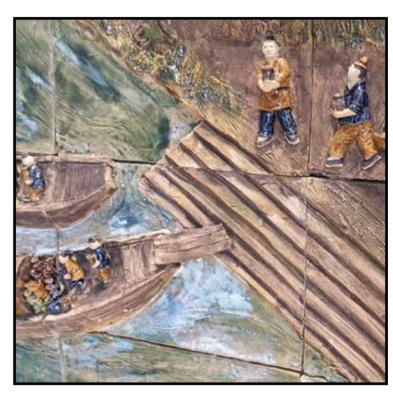




Oldest Industrial City



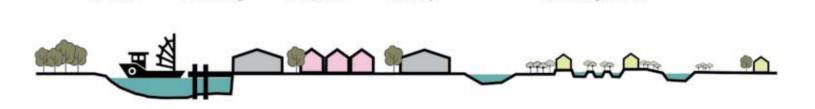
Intricate Water Network



Waterbase Society

WATER SHAPED CITY - FOSHAN

Waterways as city's boundary 1700s



Workshop

Rural Villages/ Farms

Additional Ring Roads Added and More Waterways Canalised 1990s

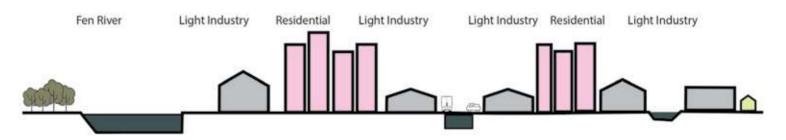
Inner ring road act as city's boundary and built area extended

Pier/Trading

Residential

- more waterway submerge

Fen River



RESEARCH QUESTION

Design Aim

Design Canvas

Goal

How can we explore spatial potential of post-industrial transformation of areas along waterways to mitigate the impacts of urban flooding and water pollution, while redefining the relationship of the nearby inhabitants?

Challenge 01

Challenge 02

Challenge 03

explore spatial potential of post-industrial transformation **Design Aim** Design Canvas industrial areas located along waterways mitigate the impacts of urban flooding and water pollution, Goal while redefining the relationship of the nearby inhabitants Challenge 01 urban flooding Challenge 02 water pollution

redefining the relationship of the nearby inhabitants

Challenge 03

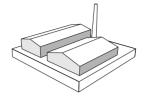
SUB-QUESTIONS

What are the challenges of these industrial areas along the waterway?

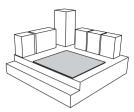
What are the elements (natural and urban structure) found in the industrial area along the waterways?

How to extract the relevant properties of existing elements to use as a foundation for the design to overcome the problems in the area?

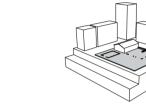
How would the design effects the area in terms of ecology, economy and society over the years?



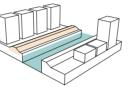
Reinforce Concrete and Steel Factory



Flatten



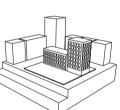
Rubbles



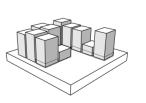


Metal Structured Factories

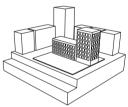
Brick



Intact & Fully Vacant



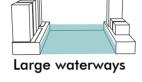
Small Scale Factory within the Urban Villages



Building

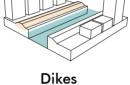


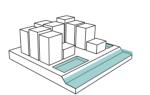
Intact & Pactial **Vacant Building**



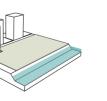
Smaller waterways

Missing waterways



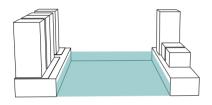


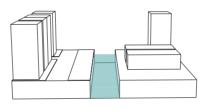
Ponds

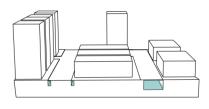


Urban agriculture

Waterways





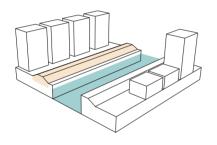


Large waterways

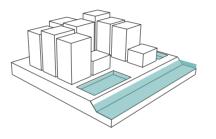
Smaller waterways

Missing waterways

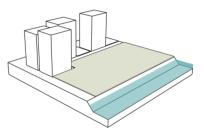
Surrounding elements





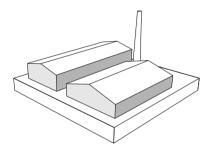


Ponds

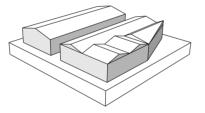


Urban agriculture

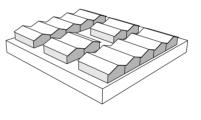
Factory Typology



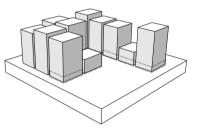
Reinforce Concrete and Steel Factory



Metal Structured Factories



Brick



Small Scale Factory within the Urban Villages

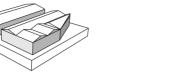
Reinforce Concrete and Steel Factory

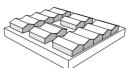


Metal Structured Factories



Small Scale Factory within the Urban Villages







LOCATION & SCALE









MATERIAL









SPATIAL CHARACTERISTIC

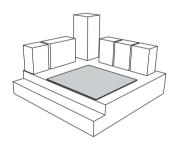




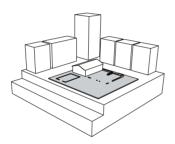




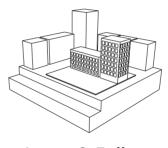
Site condition



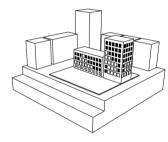
Flatten



Rubbles

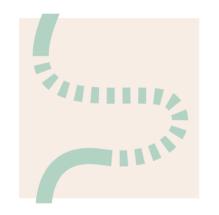


Intact & Fully Vacant Building



Intact & Partial Vacant Building

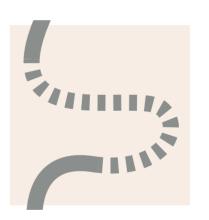
MISSING WATERWAY



URBAN FLOODING



POLLUTED WATERWAYS



City • • • • • • • District • • • • • • Neighbourhood • • • • • • Building



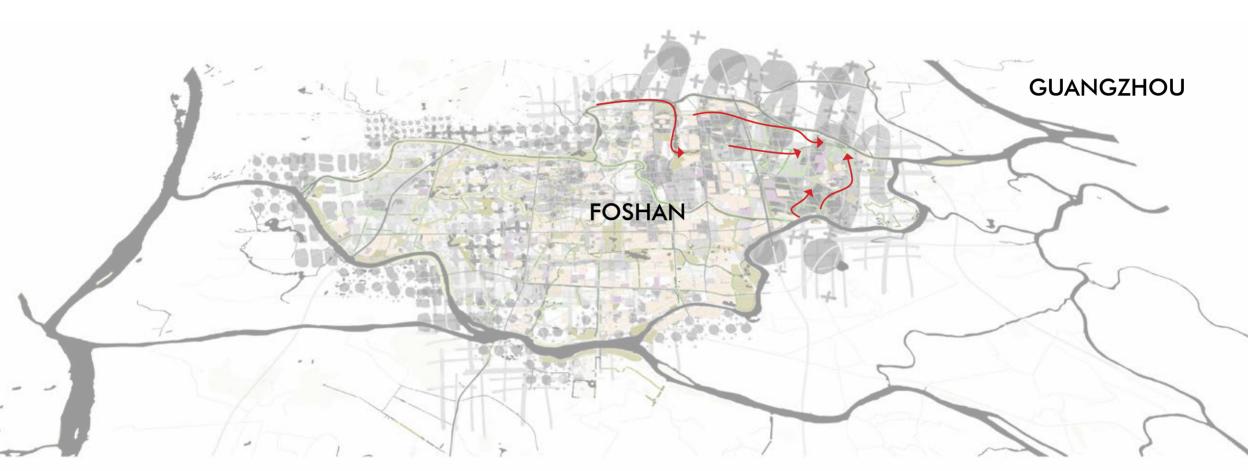
- Revitalization of waterway
 - Cleaning waterways
- Manage flood capability



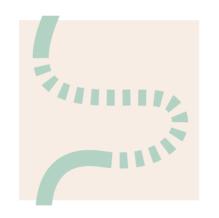
- Provide space for water retention
 - Slowing water flow
 - Water storage capability



- Ensuring clean water flowing in/outSlowing water flow
 - Water storage capability



MISSING WATERWAY



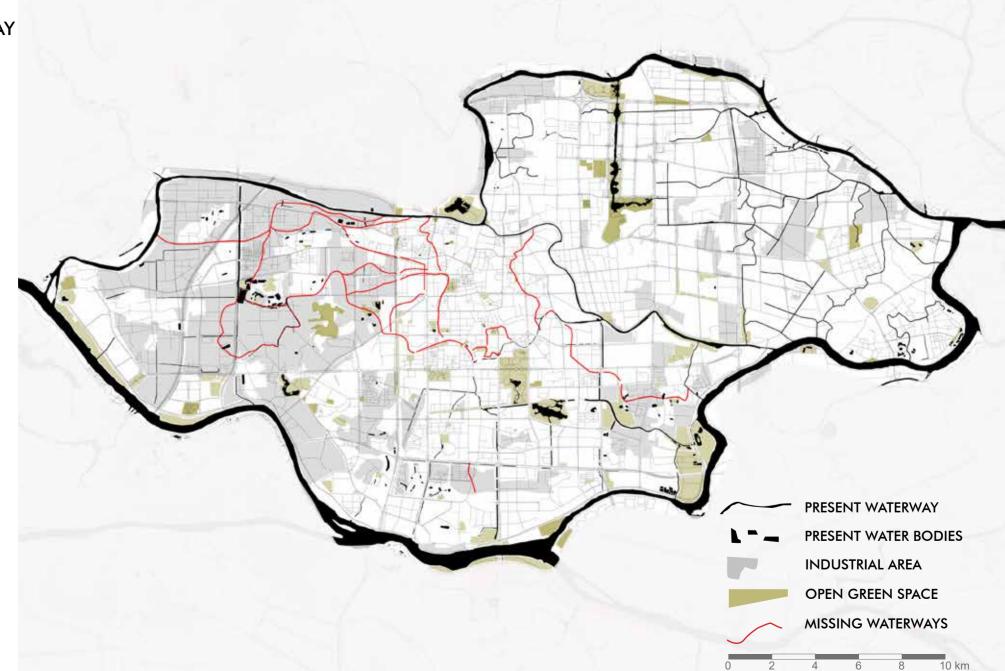
URBAN FLOODING



POLLUTED WATERWAYS

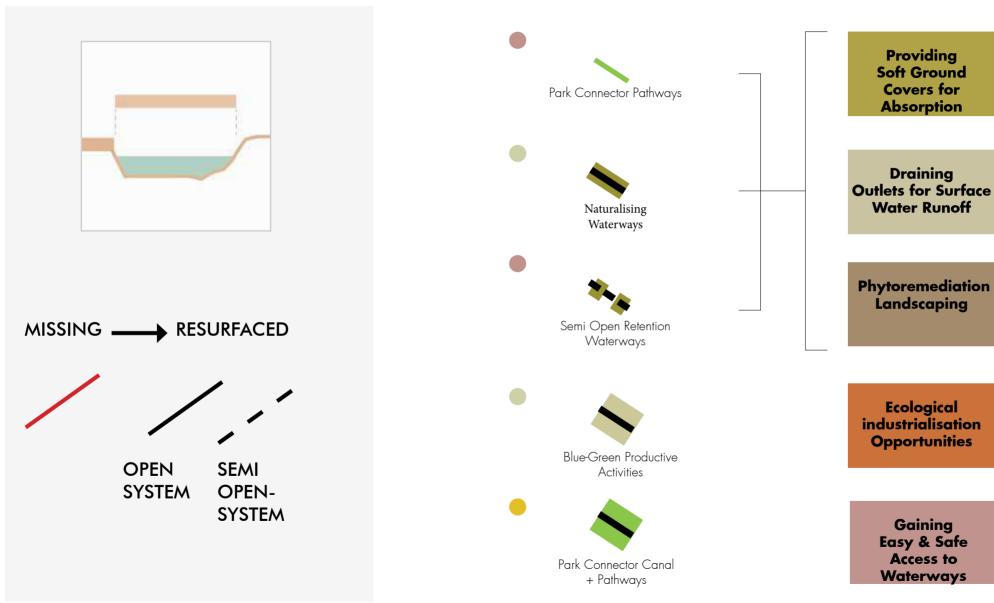


MISSING WATERWAY

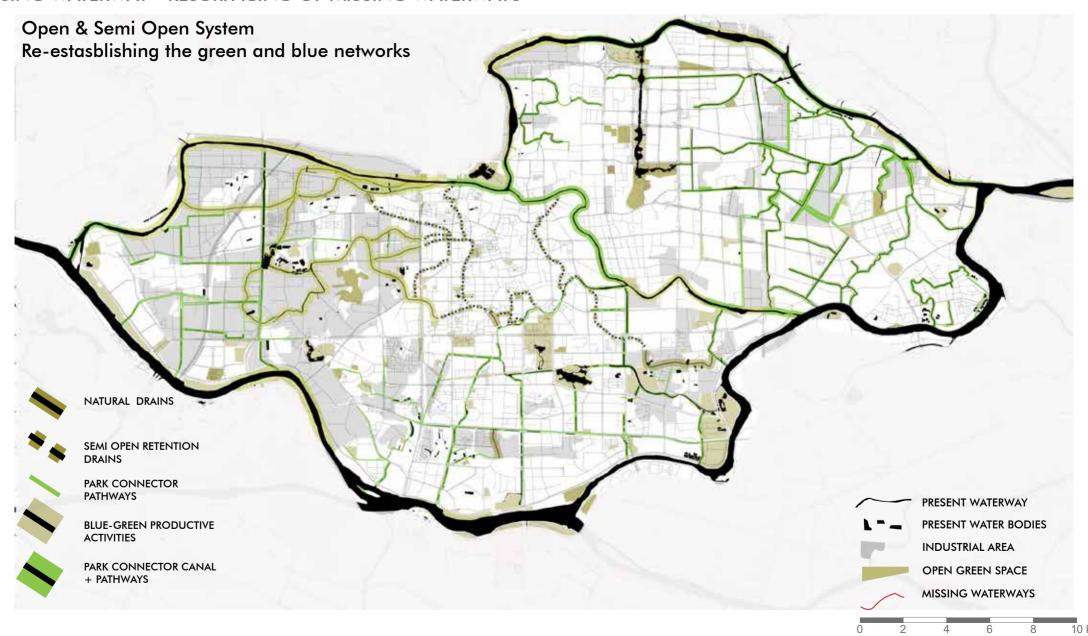


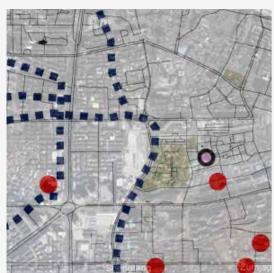


MISSING WATERWAY- RESURFACING OF MISSING WATERWAYS



MISSING WATERWAY - RESURFACING OF MISSING WATERWAYS





SEMI OPEN SYSTEM

Location:

Zumiao,

Old historical center of Chancheng District

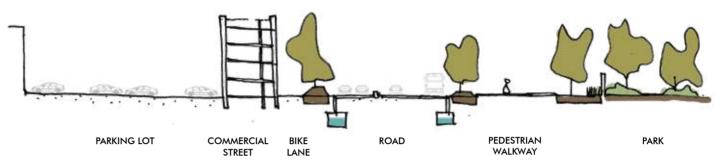
Site Description:

- Highly dense
- Historical public buildings, commercial high-rise residential apartments, parks.

Situation:

- highest point of the island
- flood prone
- hidden waterway
- lack of space for big design implementation

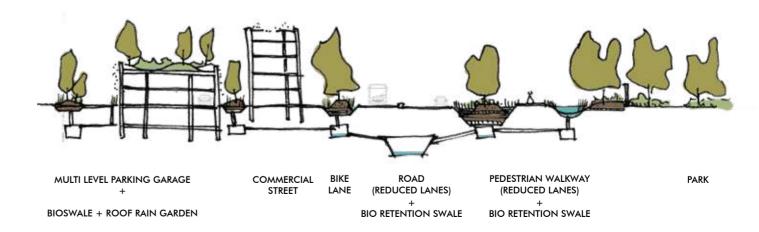
Existing Condition



Semi Open System Design



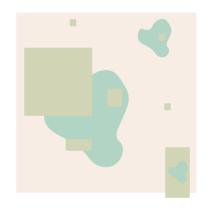
Park Connector Pathways



MISSING WATERWAY



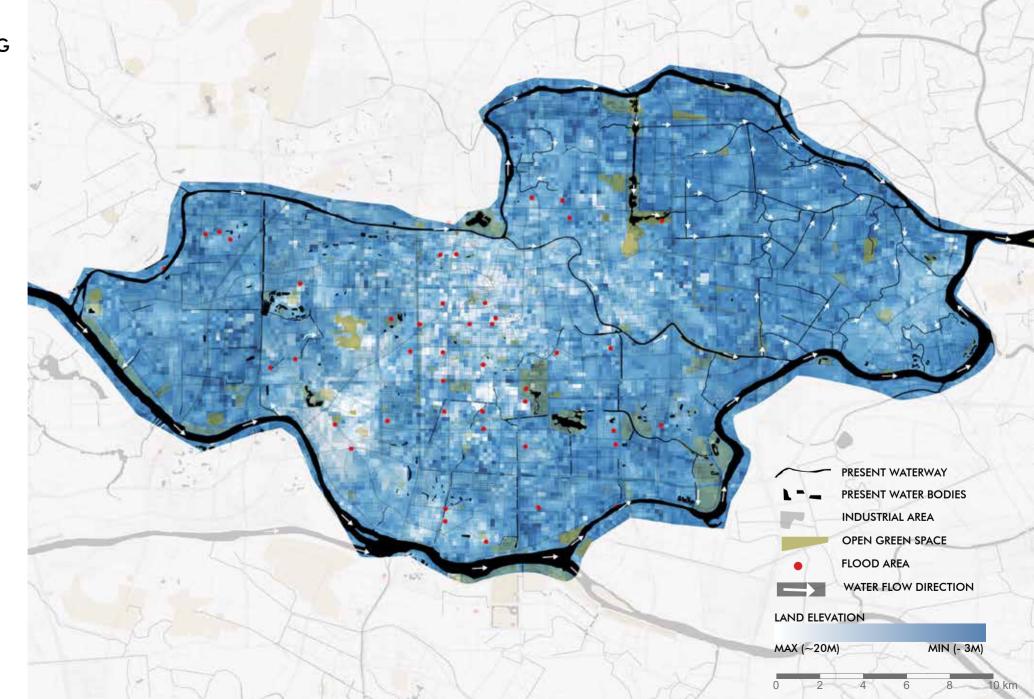
URBAN FLOODING



POLLUTED WATERWAYS

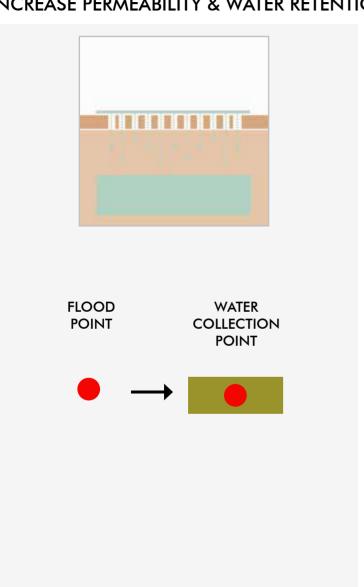


URBAN FLOODING





URBAN FLOODING INCREASE PERMEABILITY & WATER RETENTION





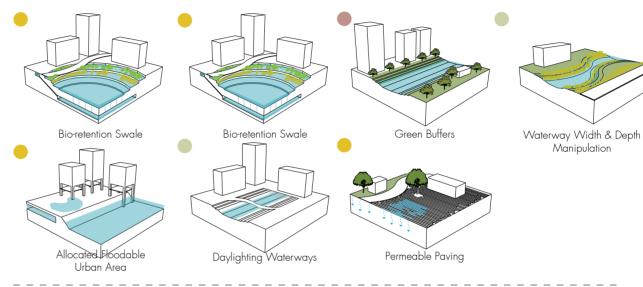
Neighbourhood Scale

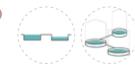
Building Scale

Draining
Outlets for Surface
Water Runoff

Providing
Soft Ground
Covers for
Absorption

Manipulating Waterflow





Modifying or using existing structure to contain, carry and cleanse water found on site.



Modifying or using existing biophysical elements to contain, carry and cleanse water found on site.

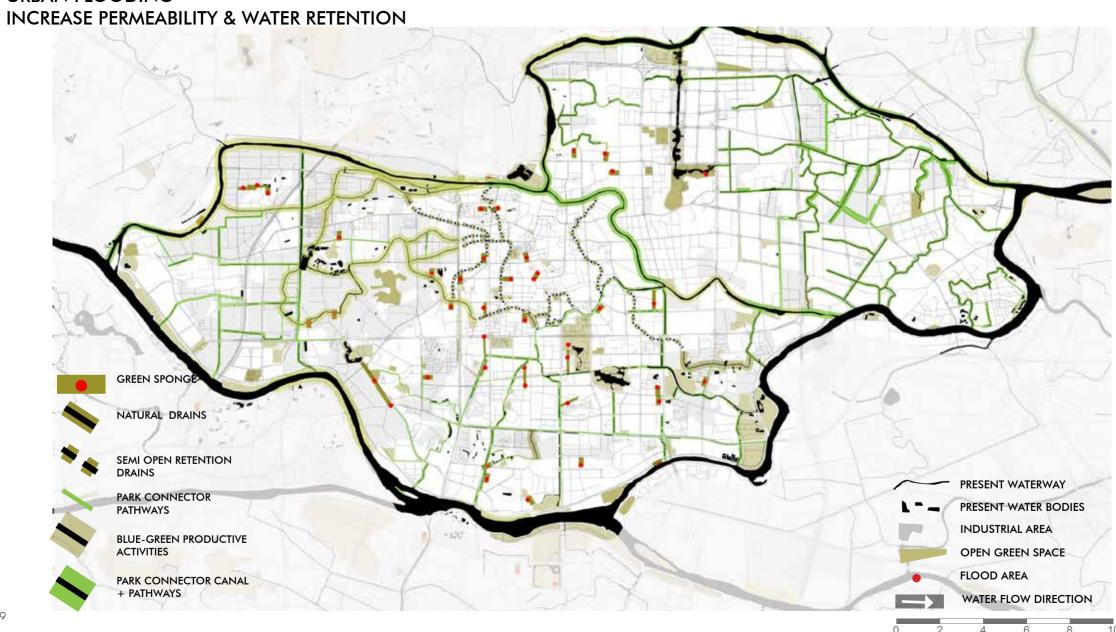


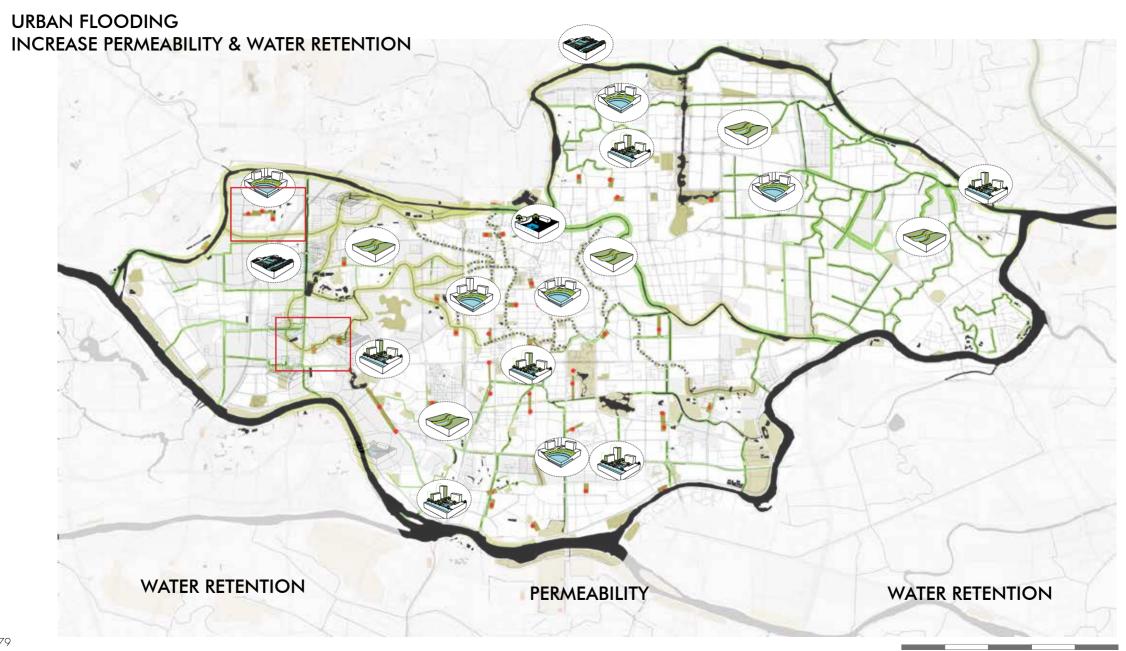
Adding threshold to oxygenate water.



Using natural energy and processes to contain, carry and cleanse water.

URBAN FLOODING







ALONG SMALL WATERWAY

Location:

Urban Villae in the South

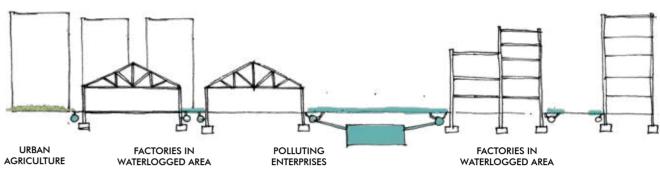
Site Description:

- Highly dense
- Small clusters of Urban Village
- Dense industrial sprawl

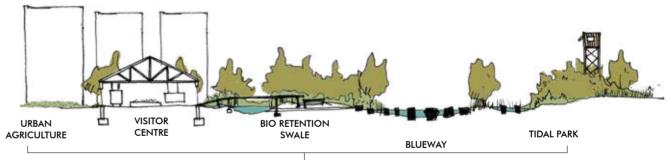
Situation:

- Two flooding area
- Extremely polluted (small) waterway

Existing Condition

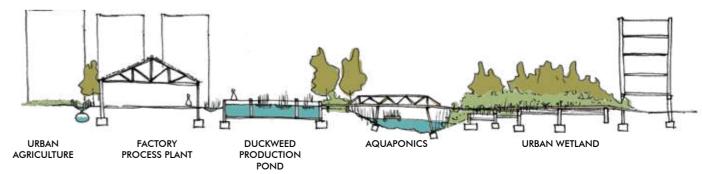


Nature Oriented Transformation



(Ecological) Industrial Transformation









ALONG SMALL WATERWAY

Location:

Urban Villae in the South

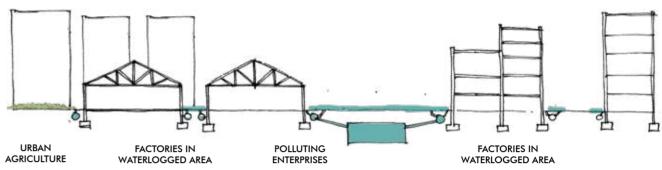
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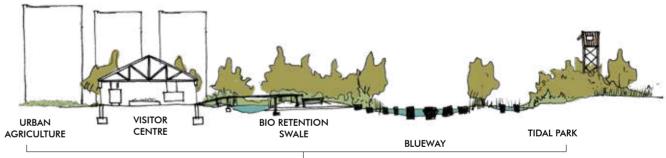
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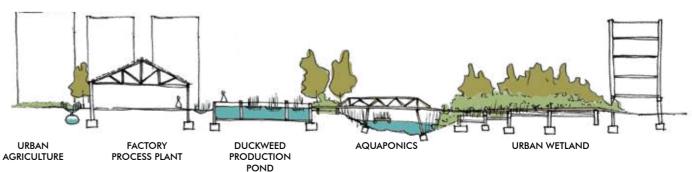


Nature Oriented Transformation



(Ecological) Industrial Transformation





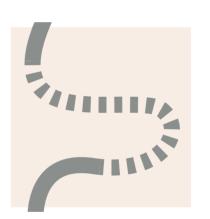
MISSING WATERWAY



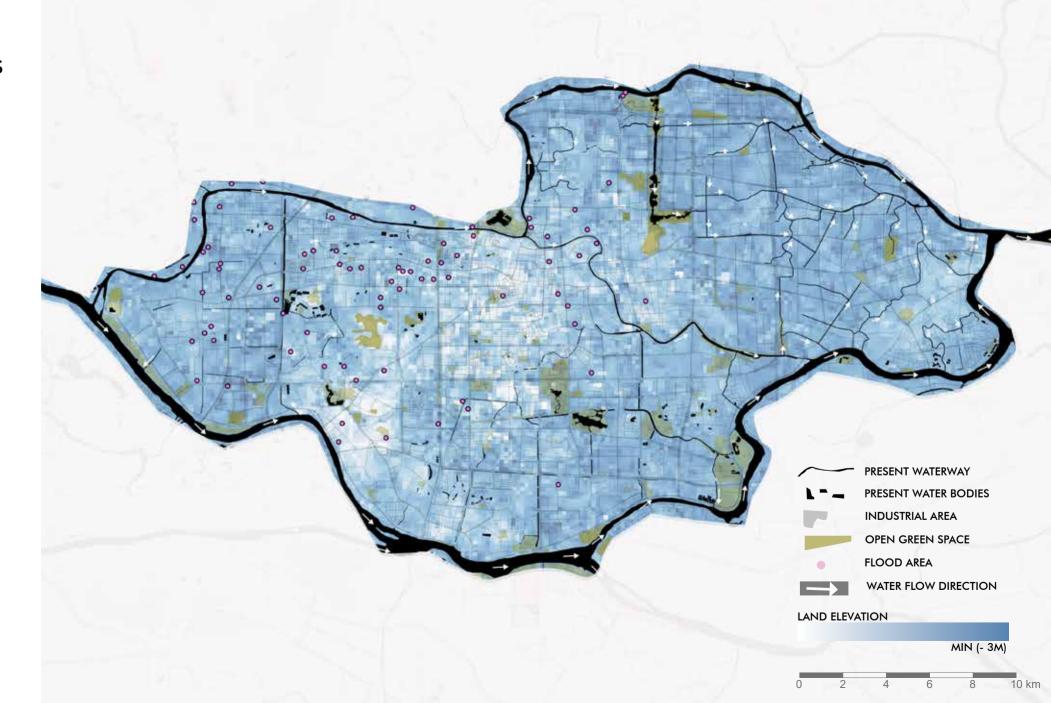
URBAN FLOODING



POLLUTED WATERWAYS

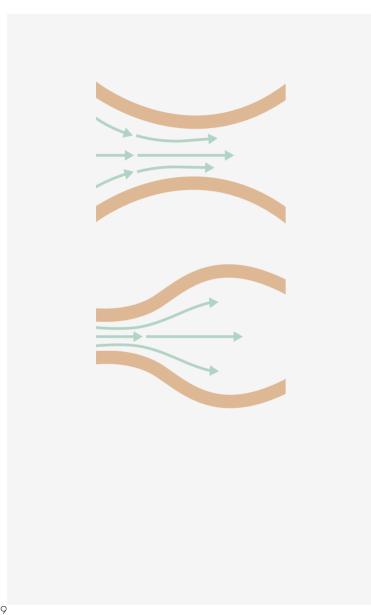


POLLUTED WATERWAYS





POLLUTED WATERWAY - WATER FLOW MANAGEMENT & PHYTOREMEDIATION



WATER POLLUTION



Using natural energy and processes to contain, carry and cleanse water.



Adding threshold to oxygenate water.

Manipulating Waterflow



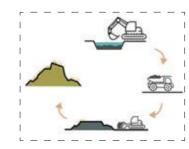
....

Increasing permeable surfaces.

Phytoremediation Landscaping

Adding vegetation to phyto-remediation site and purify water.

SOIL POLLUTION

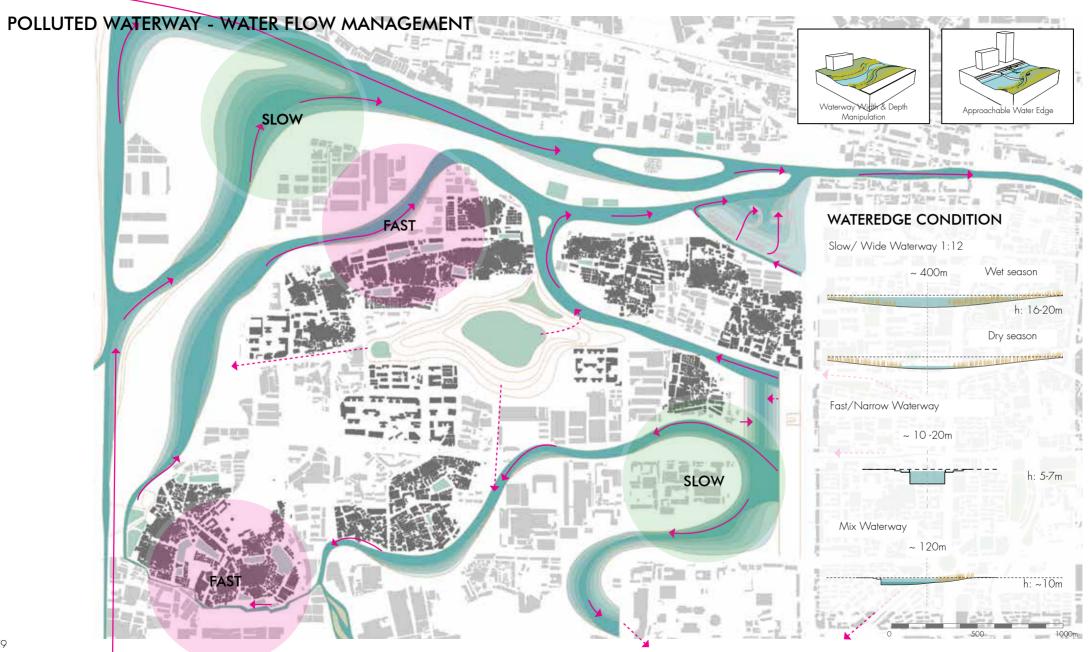


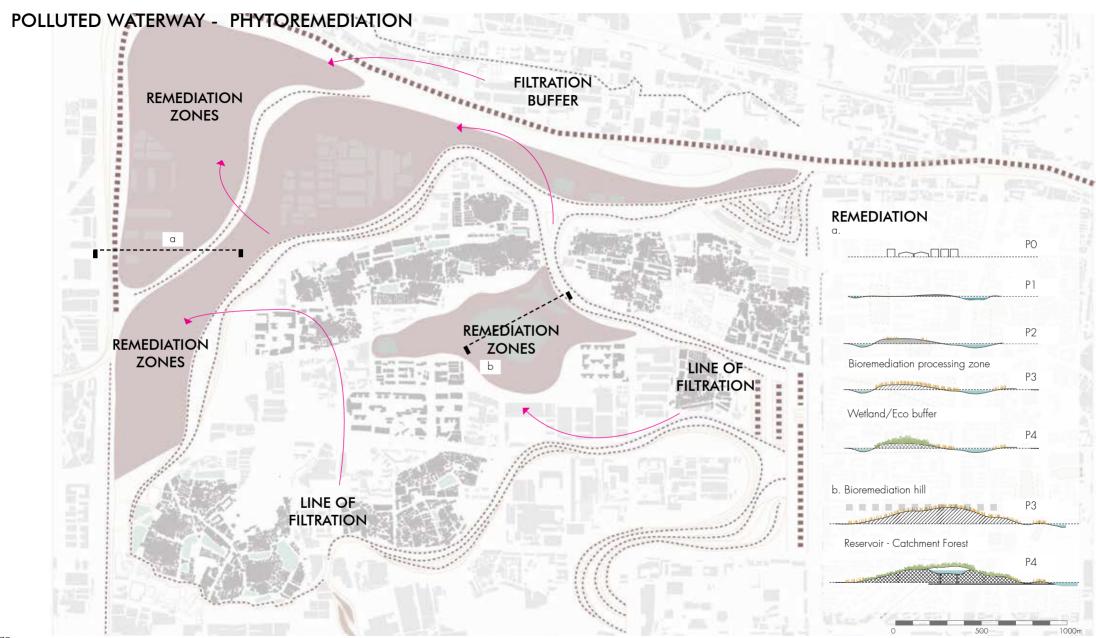
Phytoremediation Landscaping

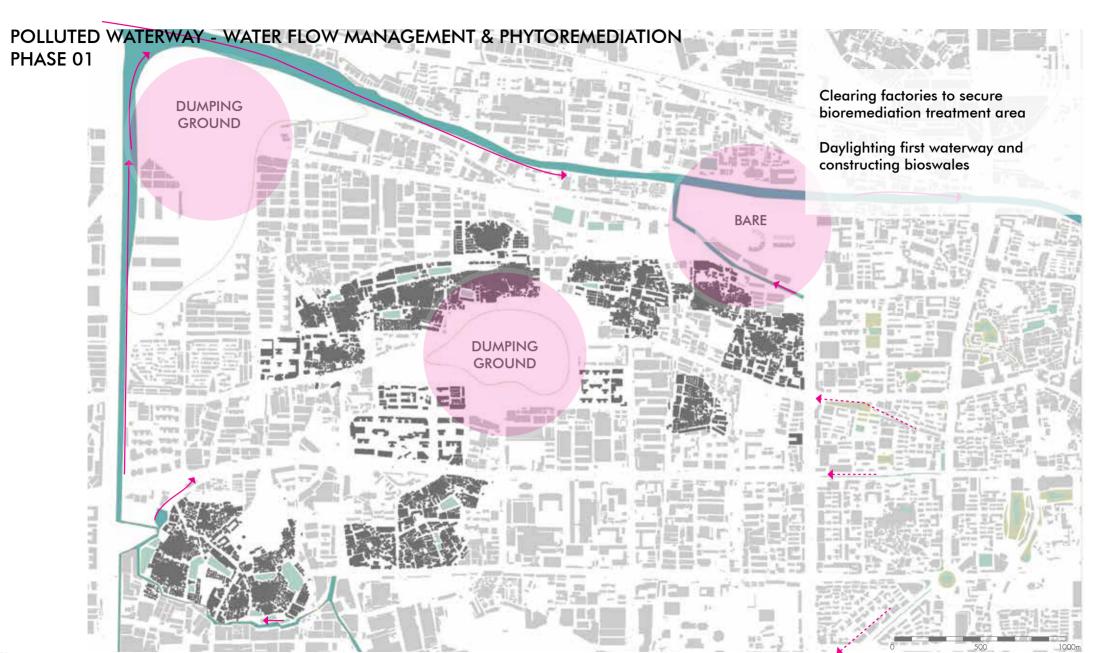
Manipulating Waterflow

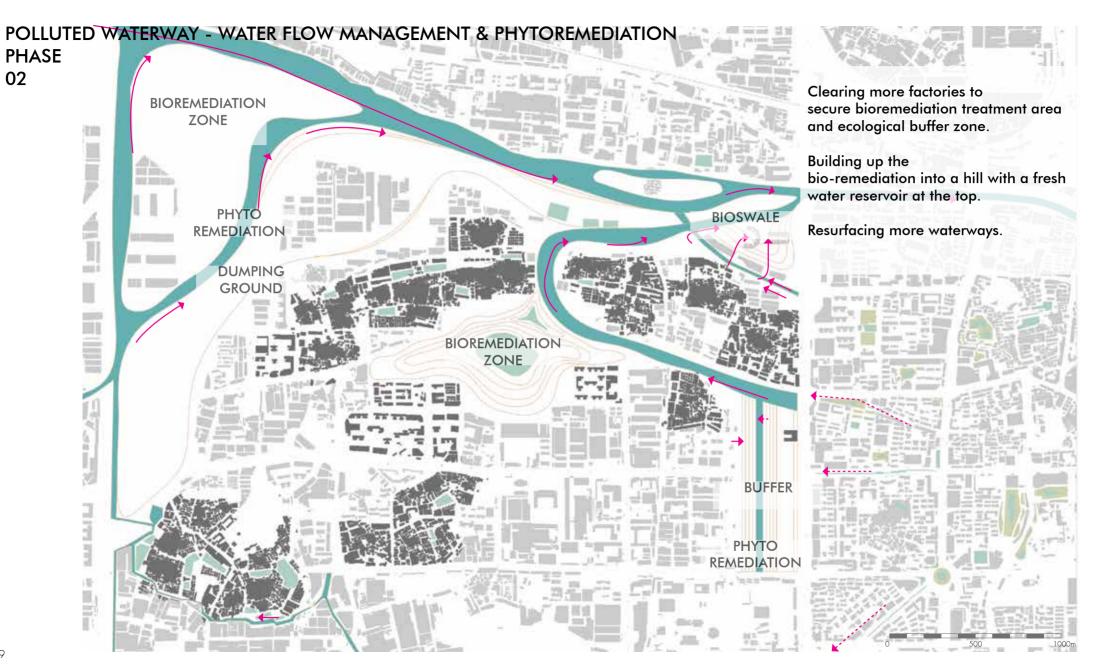
POLLUTED WATERWAY - WATER FLOW MANAGEMENT & PHYTOREMEDIATION

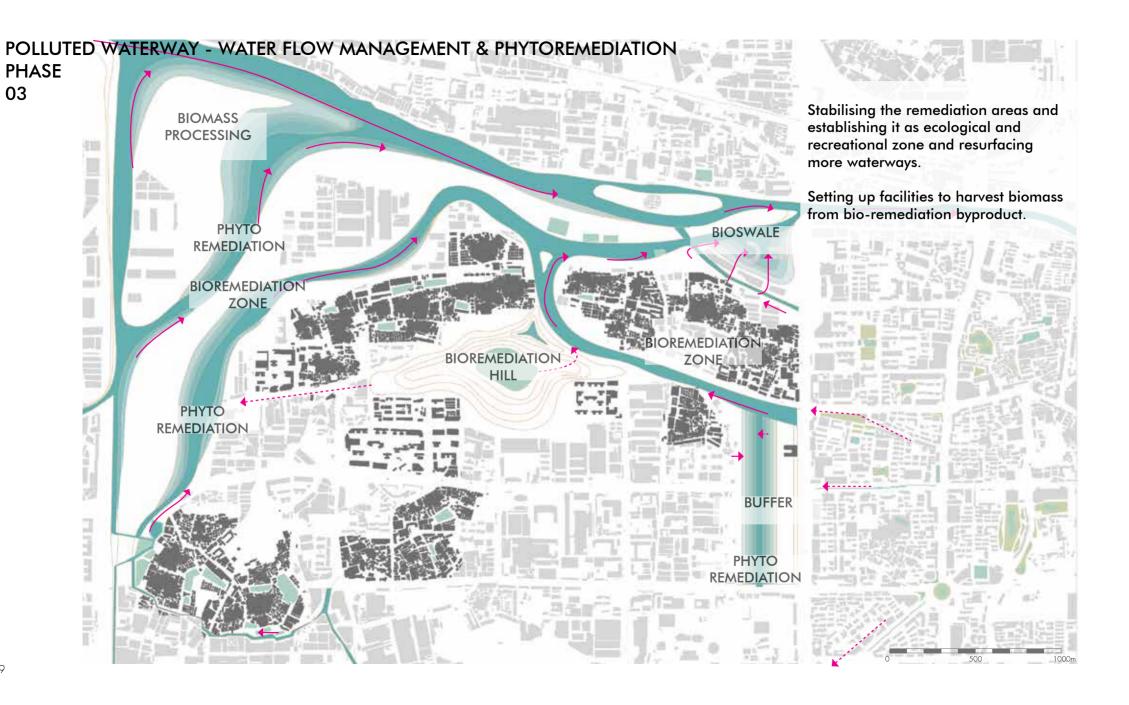


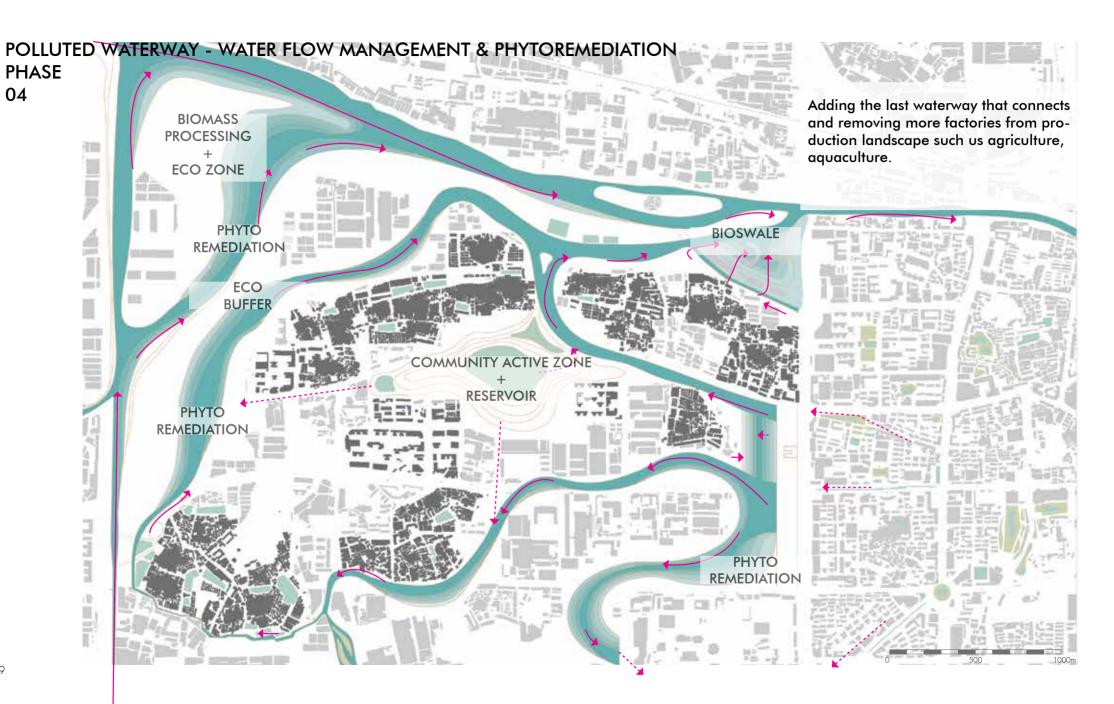




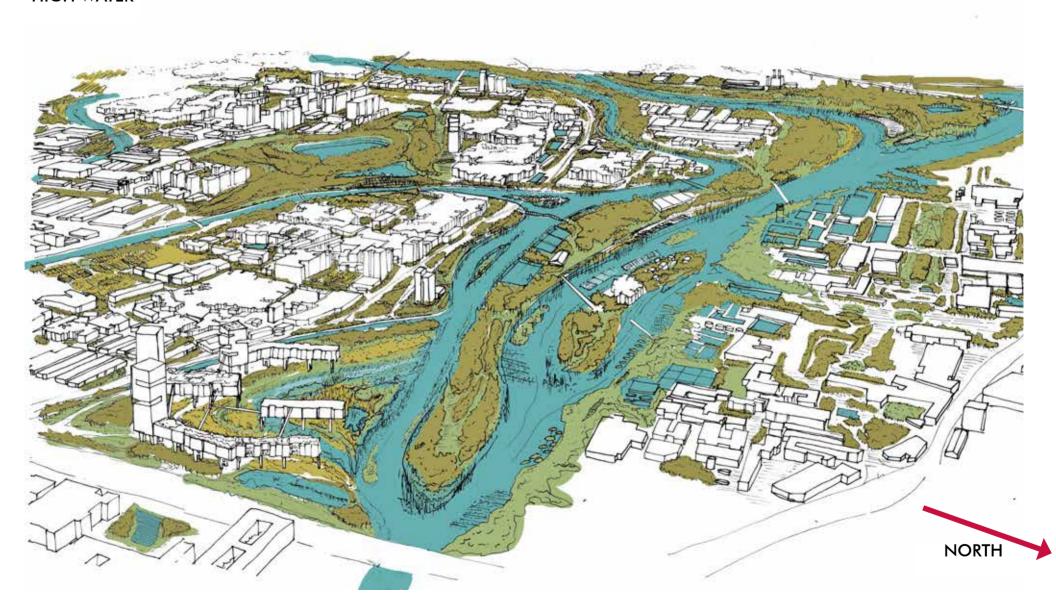


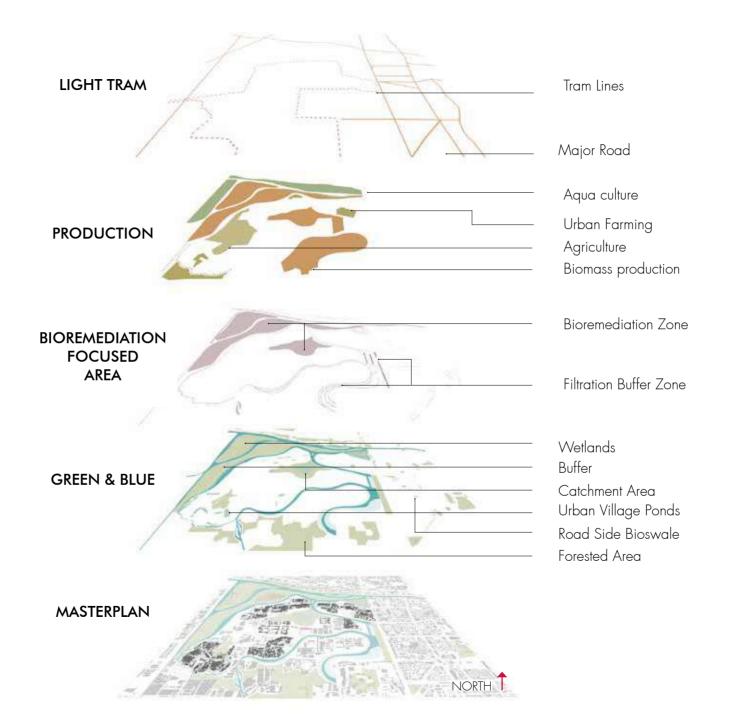


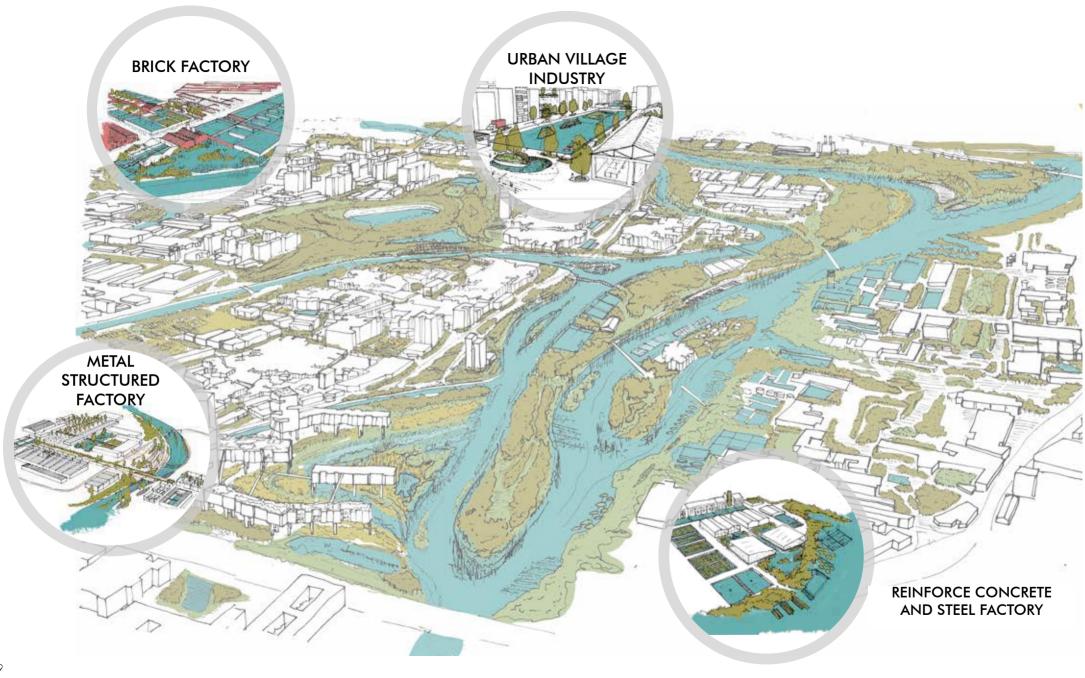




HIGH WATER



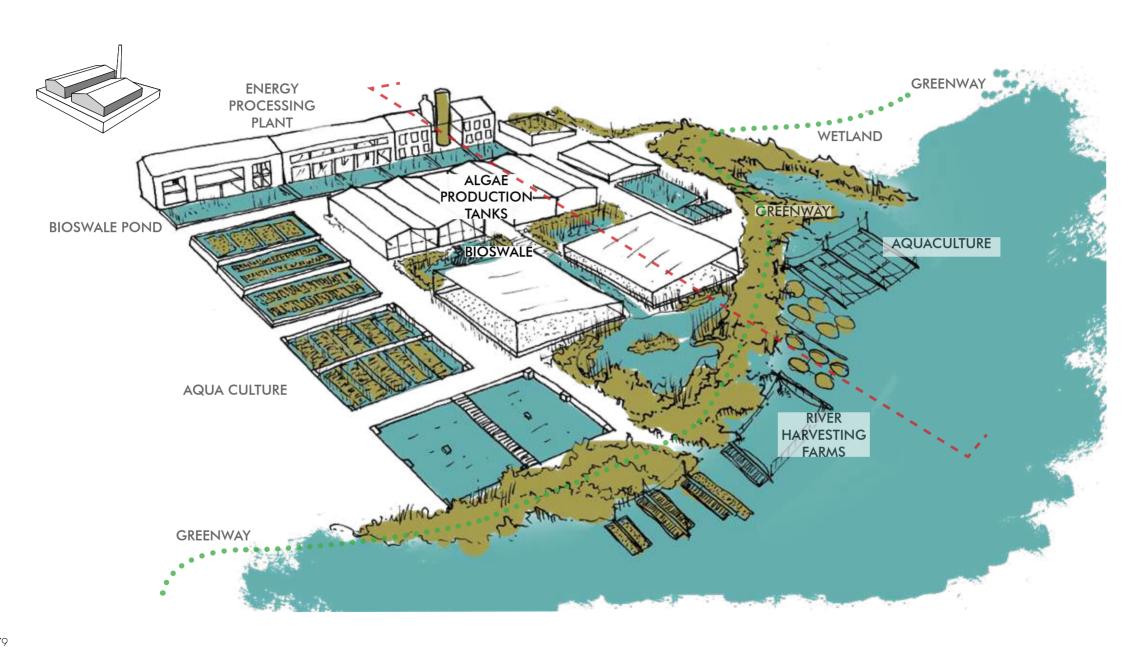


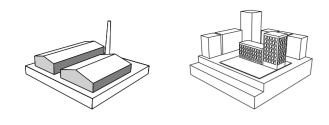


REINFORCE CONCRETE AND STEEL FACTORY

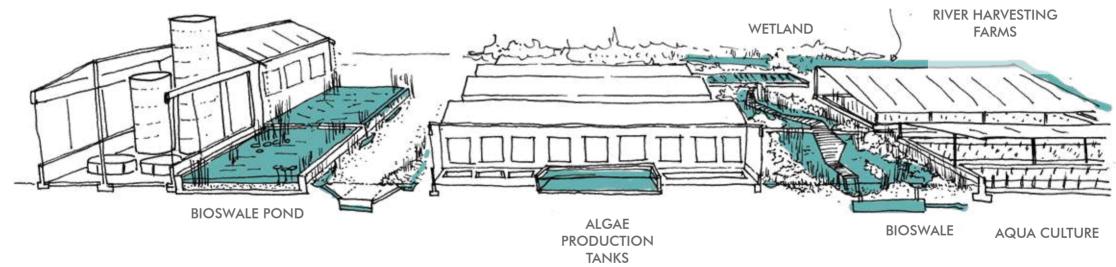


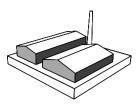
- Large factories are common along the main water on the north and south side,
- Heavy industries; cement production and heavy metal works.
- Reinforced concrete columns
- Typically with high ceiling to accommodate their heavy industrial equipments.





ENERGY PROCESSING PLANT





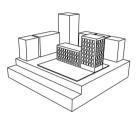
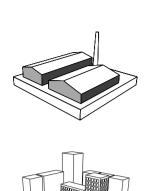
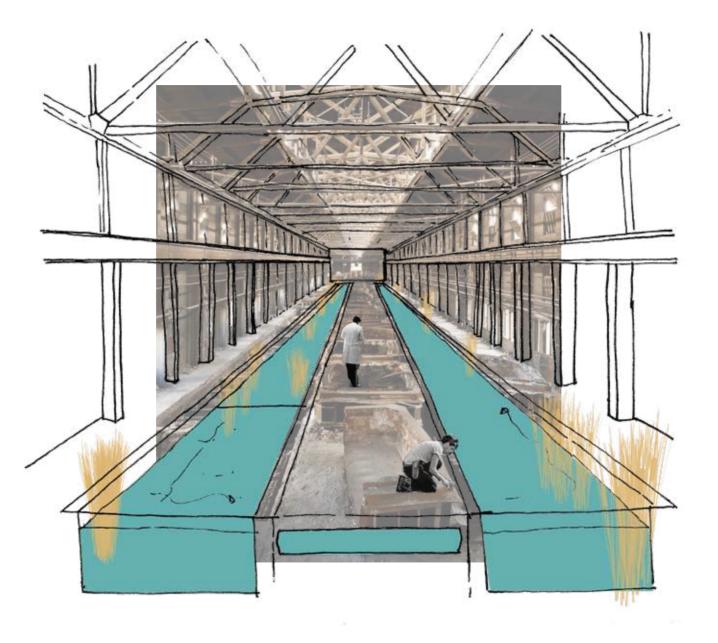


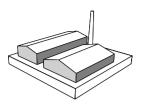


Image: Edward Burtynsky





FISH PRODUCTION



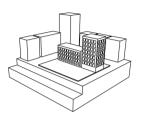
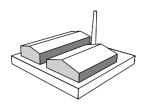
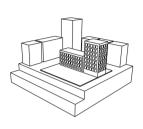
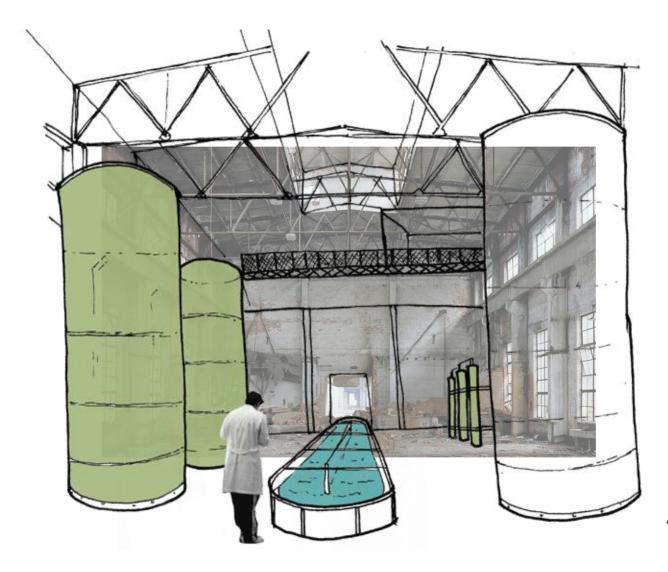




Image: Edward Burtynsky



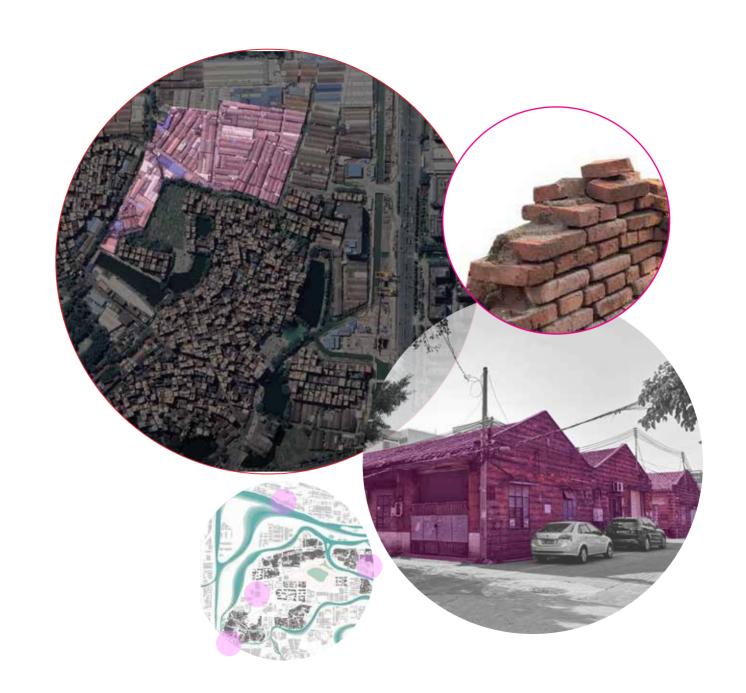




ALGEA PROCESSING PLANT

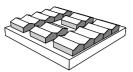
BRICK FACTORY

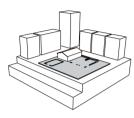
- Oldest type of factory building
- Garment production
- Generally found adjacent to urban villages, part of rural industrialisation era
- Converted their agriculture plots
- Red or grey brick with red tiled roof
- Single storey structure



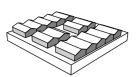


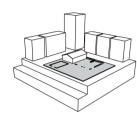


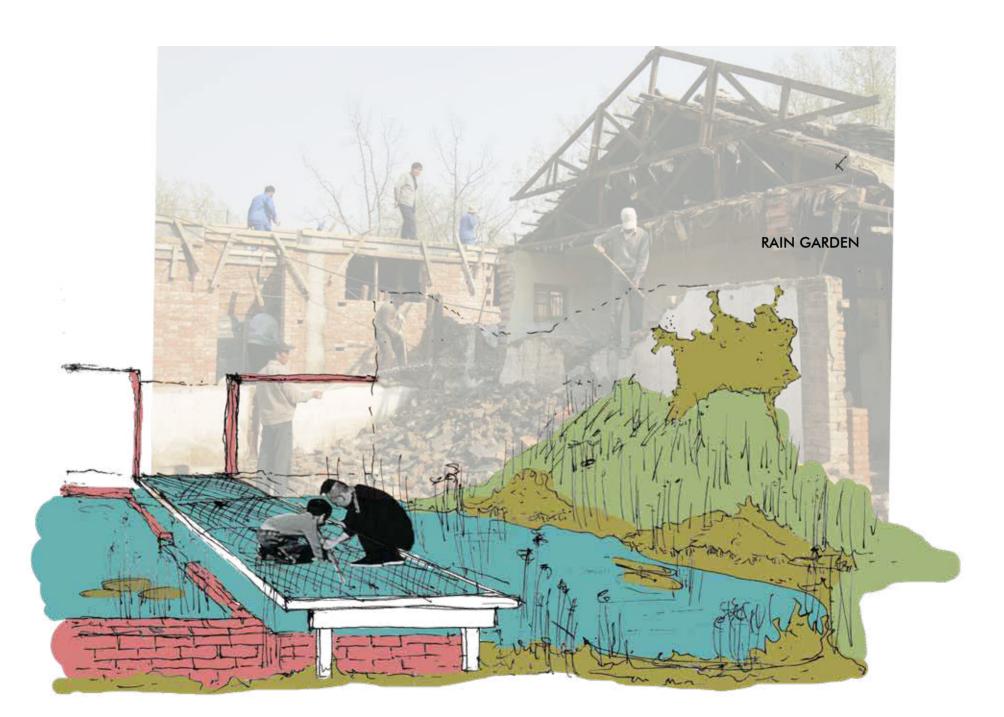










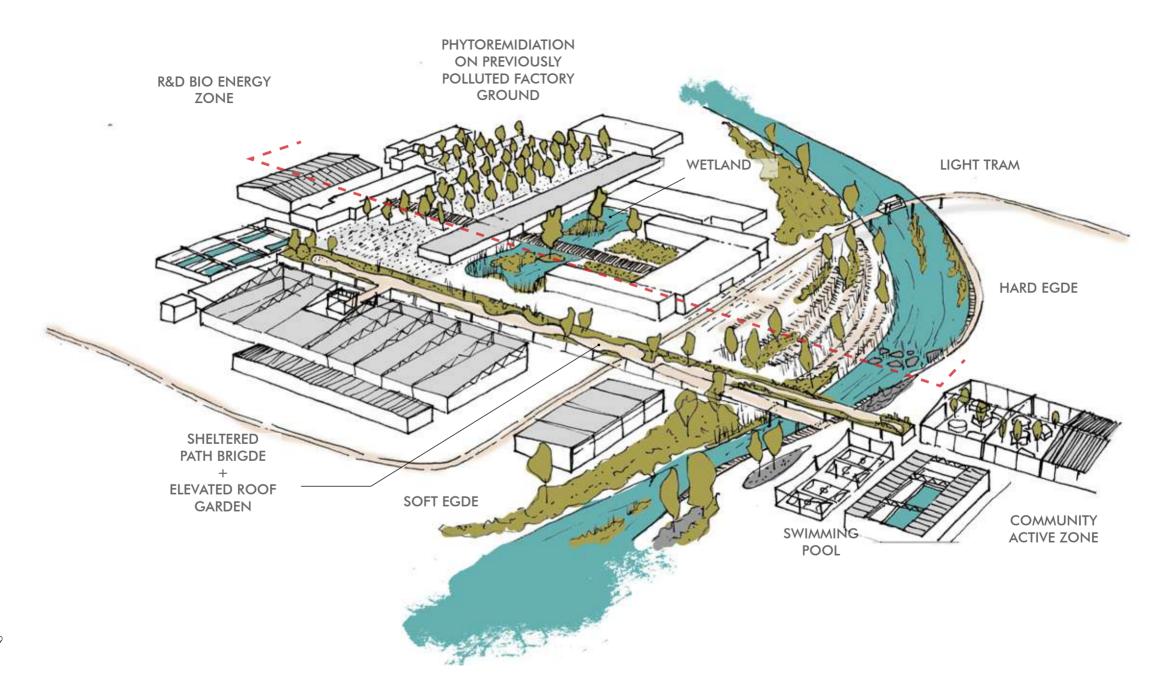


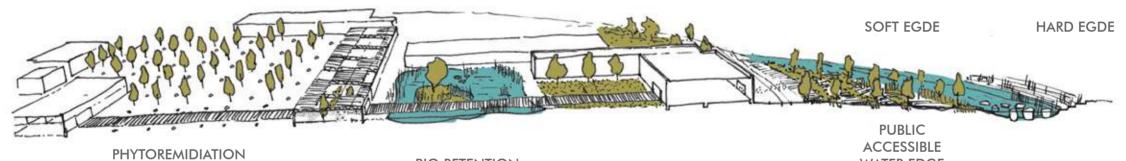


METAL STRUCTURED FACTORIES



- Largest and continuous sprawl
- Steel structure with truss spanning allowing for wide span for uninterruption ground surface
- Aluminium cladded façade and roof.



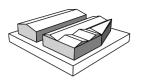


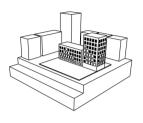
ON PREVIOUSLY POLLUTED FACTORY GROUND

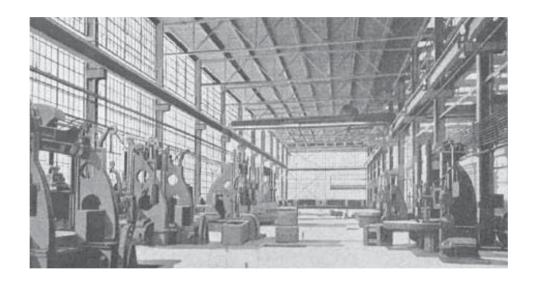
BIO RETENTION SWALE

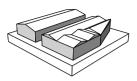
WATER EDGE

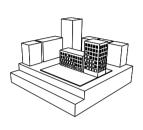
ON-GOING **PHYTOREMEDIATION**





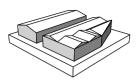


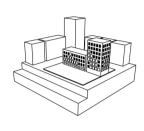






DRAGON BOAT TRAINING POOL ROCK CLIMBING WALLS





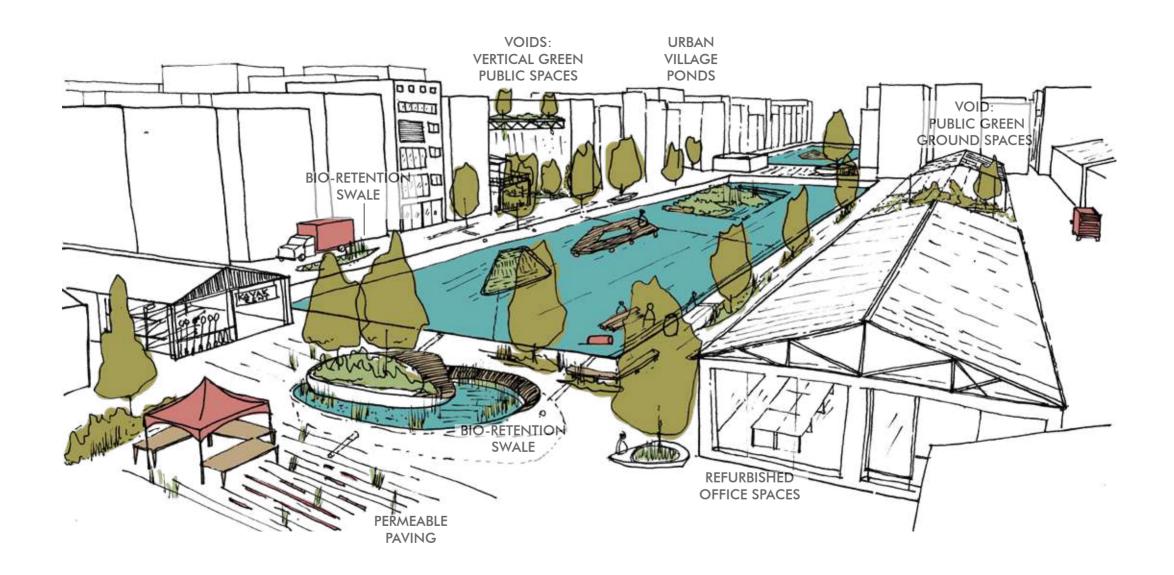


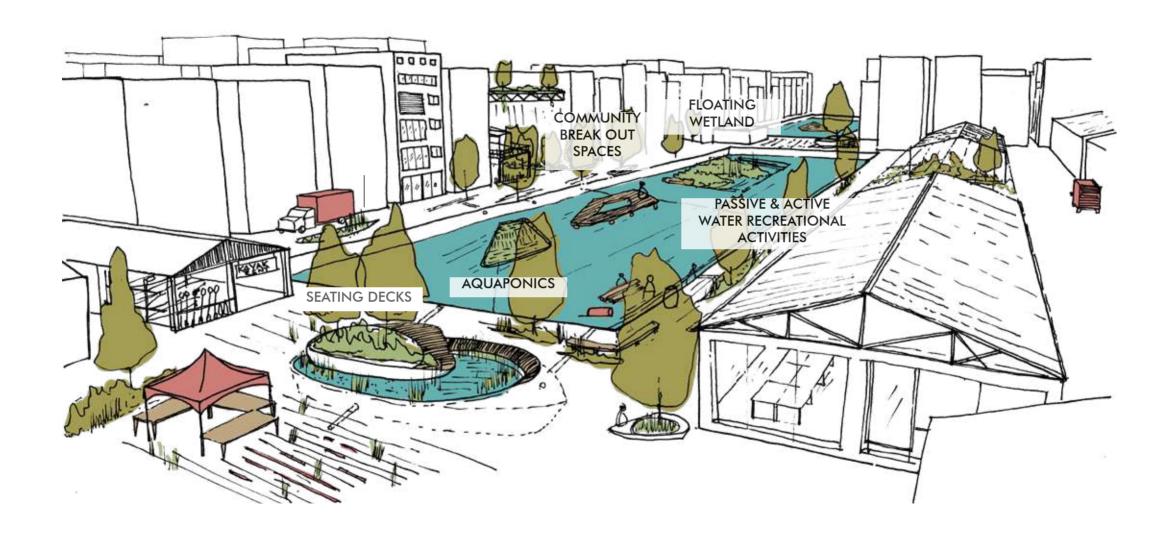
SHELTERED WALKWAY

WITHIN URBAN VILLAGE

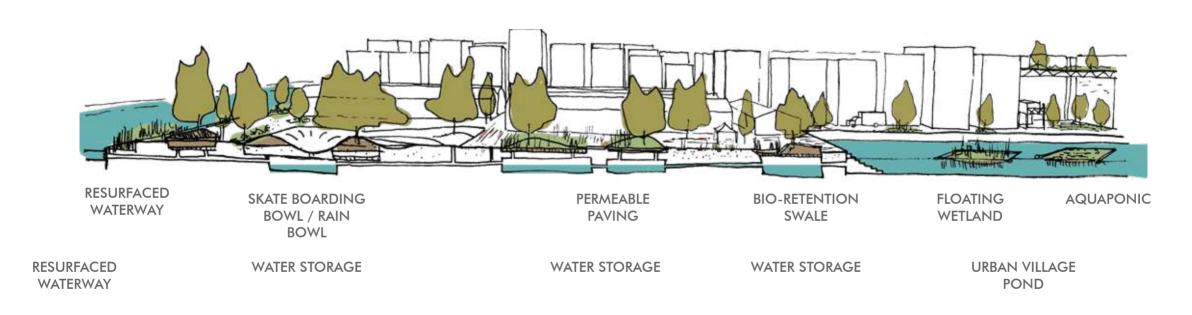
- Small scaled manufacturing activities
- Embedded inside the village among the residential apartments
- Whole ground floor of the block or the entire multi-story building.







WATER FRONT URBAN VILLAGE VILLAGE SQUARE POND



REFLECTION AND CONCLUSION

- The importance of understanding and working through a problem through the various scale involved. (multi-scale)
- Knowing that it whatever we do has a ripple effect, especially over time. (temporarily)
- Design programmes in relations to time and scale

- Ultimate to dissolve the boundary line between human and nature and now understanding how to incorperate and accomoadate our living urban structure together with landscape to make a city and the live an even better place then what it was before

