

URBAN MINING AND WATER RECYCLE FOR ABANDONED TRANSURBAN AREAS

Data Project

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Regional Operational Programme 'Veneto' – European
Social Fund 2014 - 2020

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DESIGN



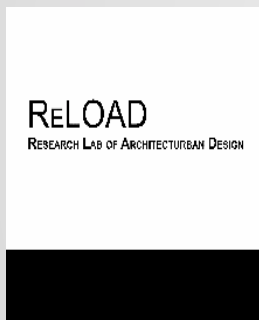
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DI PADOVA





WHAT IS DATA PROJECT

DATA: DEVELOPMENT OF ABANDONED TRANSURBAN AREAS



IT INVOLVES
DIFFERENT
SECTORS, SIX
YOUNG RESEARCH
FELLOWS, FIVE
PROFESSORS AND
TWELVE OPERATIVE
PARTNERS.

IT IS FINANCED BY
EU AND VENETO
REGIONAL
GOVERNMENT

WHY



THE NUMBER OF ABANDONED, UNDERUSED OR DISCARDED AREAS ACROSS THE TERRITORY TENDS TO INCREASE PROGRESSIVELY



AVAILABLE LANDS : INCREASINGLY SCARCE RESOURCE

DEMOLITION AND ABANDONMENT → COMMON APPROACHES TO LANDSCAPES THAT NO LONGER SERVE THEIR ORIGINAL FUNCTIONS

RECOVERY AND VALORIZATION → CHALLENGE AND OPPORTUNITY FOR SUSTAINABLE URBAN DEVELOPEMENT



WHY



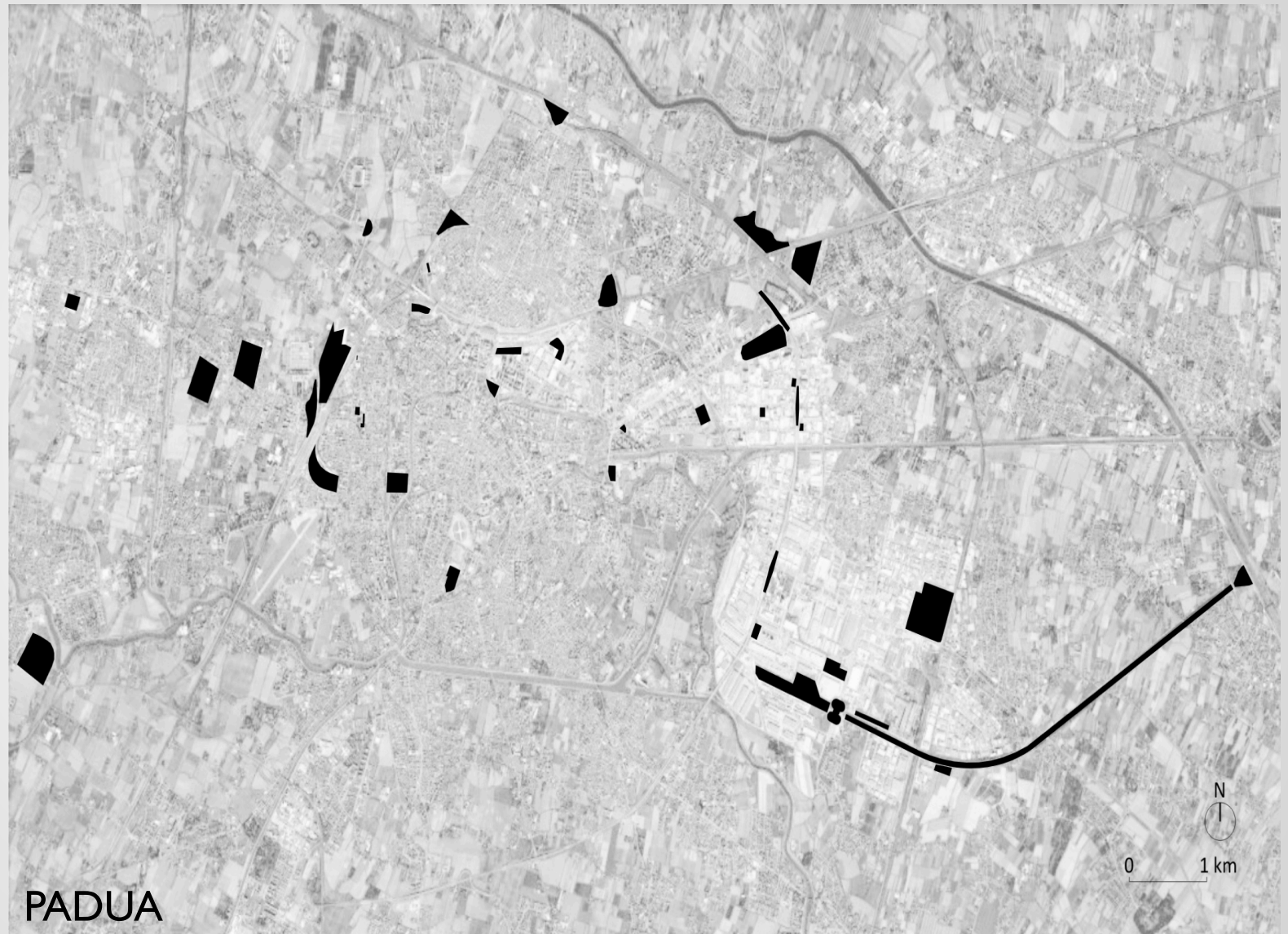
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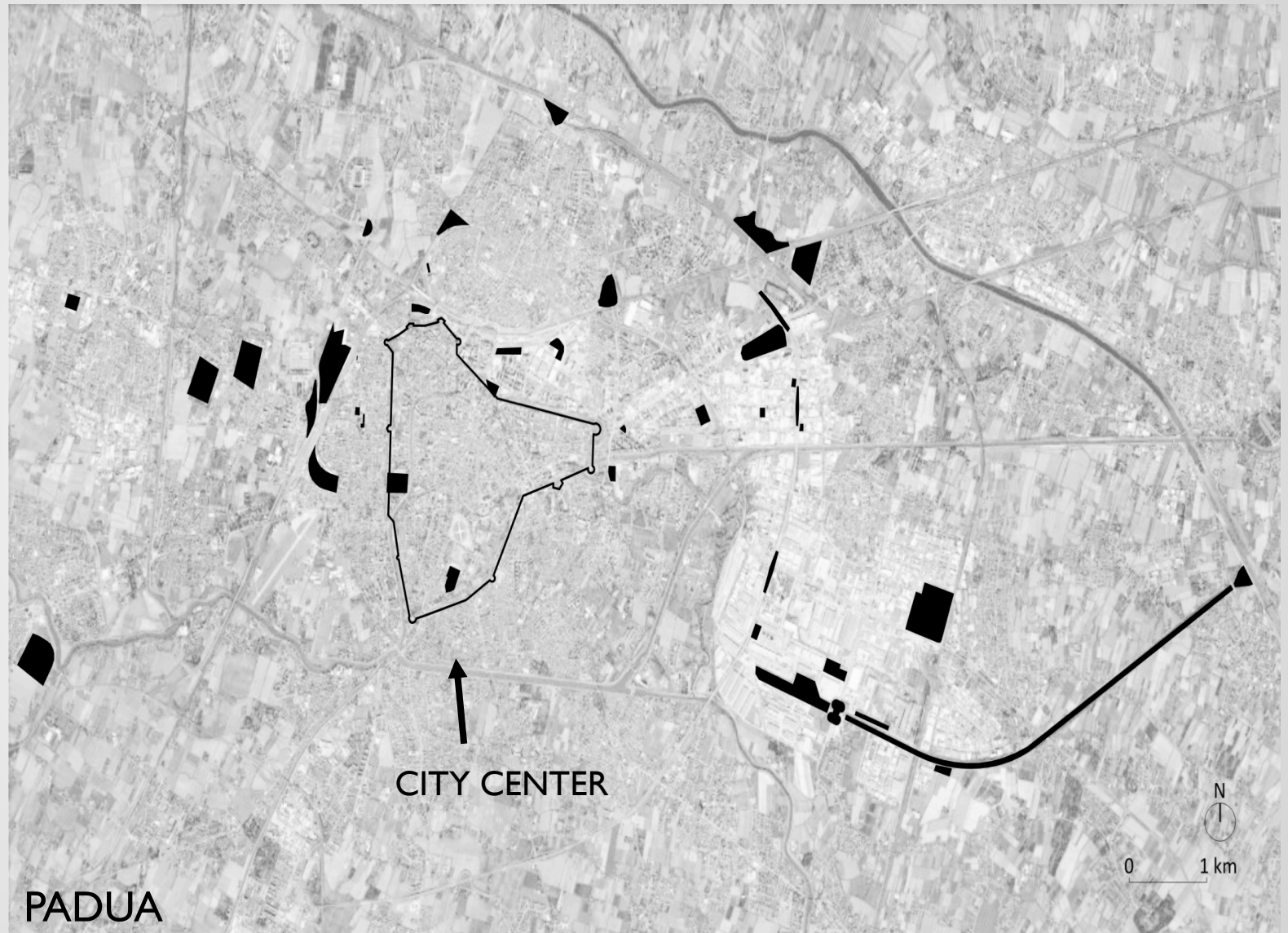
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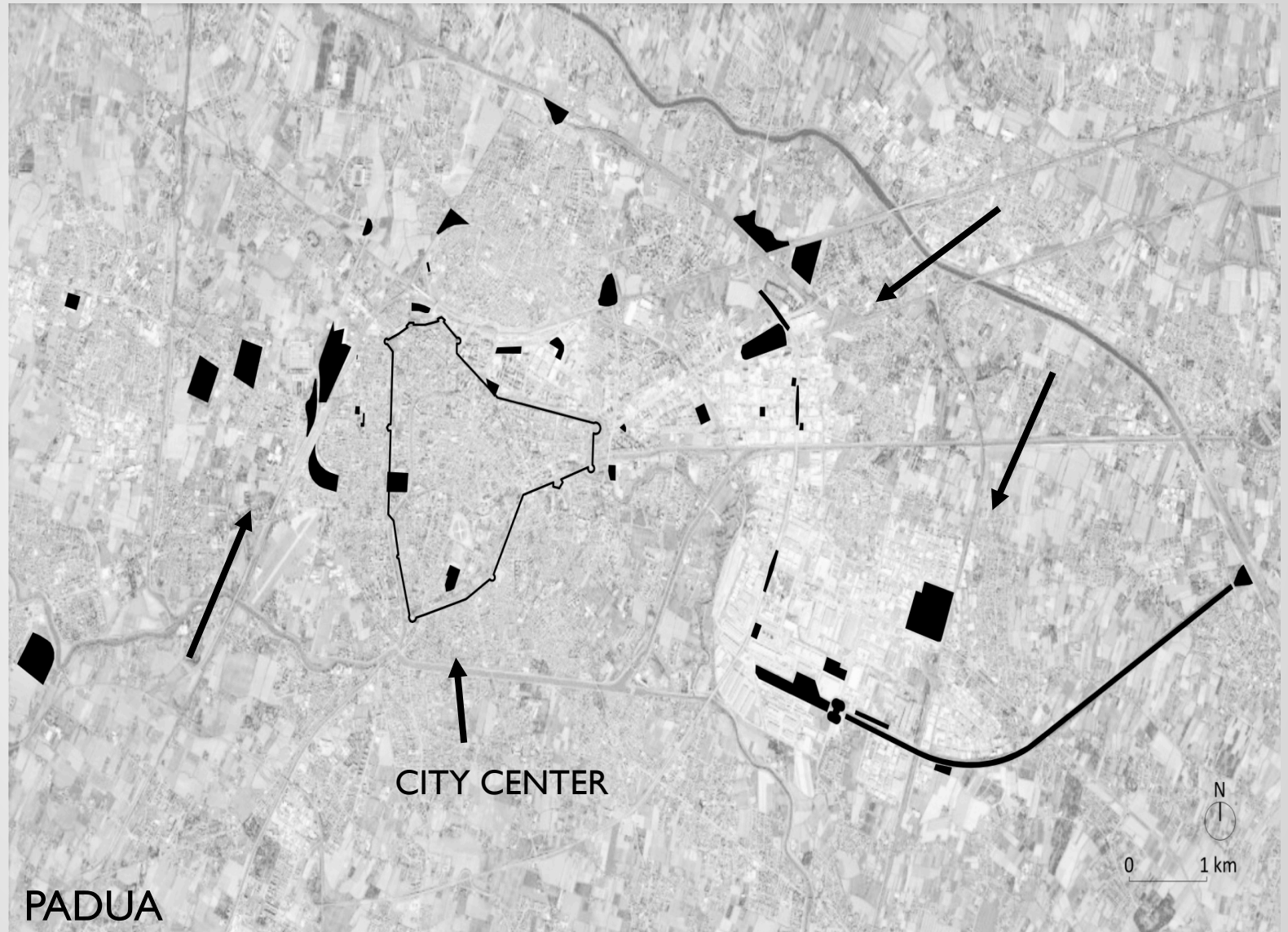
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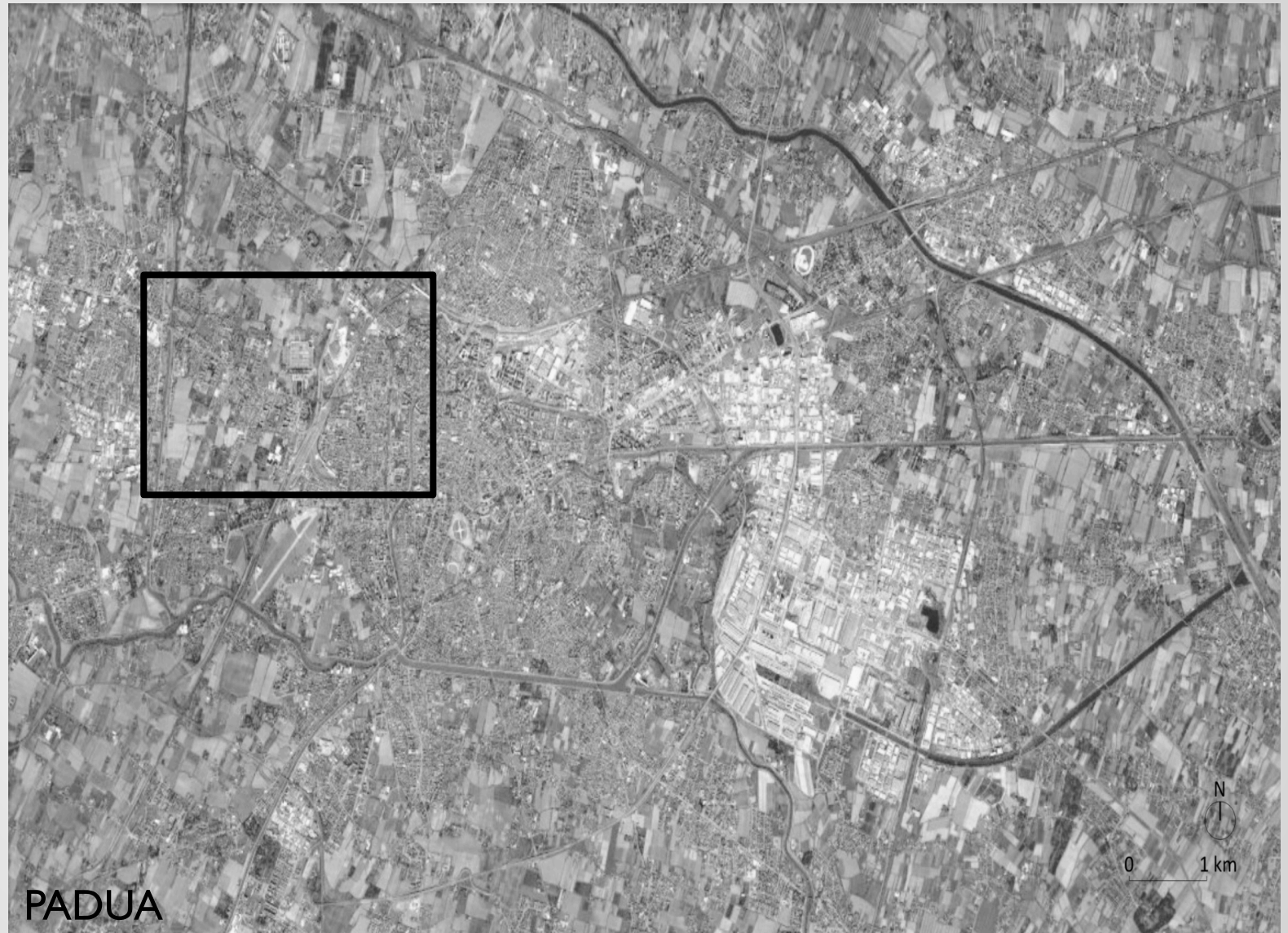
RESULT

THE SUM OF ABANDONED AREAS IS ALMOST EQUAL TO THE AREA OF THE CITY CENTER

0 1 km

WHERE

The project focuses the attention on the North West part of Padua city



WHERE



The project focuses the attention on the North West part of Padua city:

- FROM THE HISTORIC CITY WALLS



WHERE



The project focuses the attention on the North West part of Padua city:

- FROM THE HISTORIC CITY WALLS
- ALONG THE RAILWAY LINE, THE MAIN ROADS AND THE INDUSTRIAL AREAS SCATTERED ON THE SUBURBAN TERRITORY



WHERE

The project focuses the attention on the North West part of Padua city:

- FROM THE HISTORIC CITY WALLS
- ALONG THE RAILWAY LINE, THE MAIN ROADS AND THE INDUSTRIAL AREAS SCATTERED ON THE SUBURBAN TERRITORY
- TILL BRENTELLA RIVER INCLUDING MILITARY SITES





DATA

STRATEGY | ARCHITECTURAL VIEW

FROM:
**CLOSED
SISTEMS...**



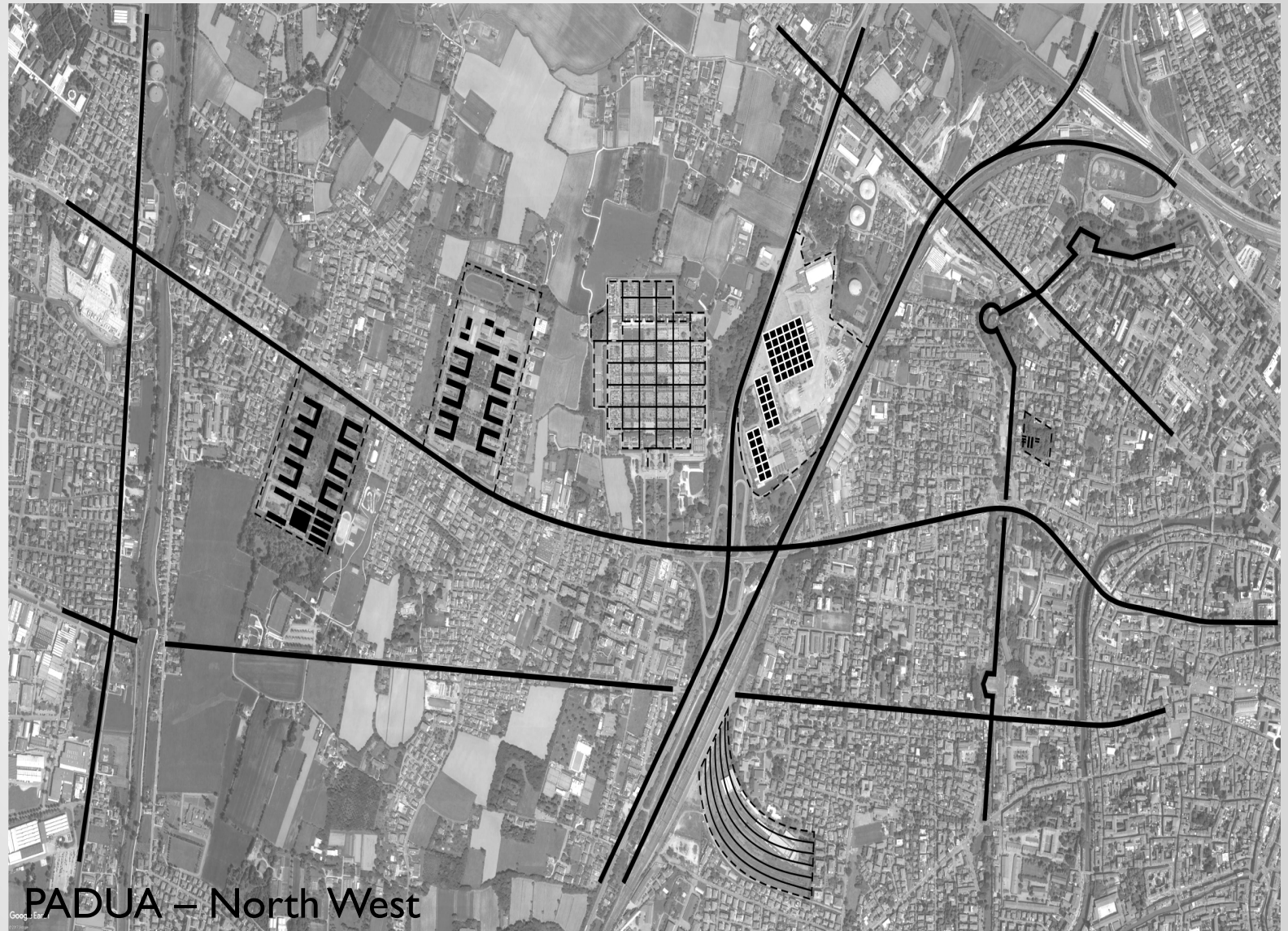
PADUA – North West



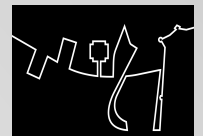
STRATEGY | ARCHITECTURAL VIEW

FROM:
**CLOSED
SYSTEMS...**

... TO:
**OPEN
SYSTEMS.**



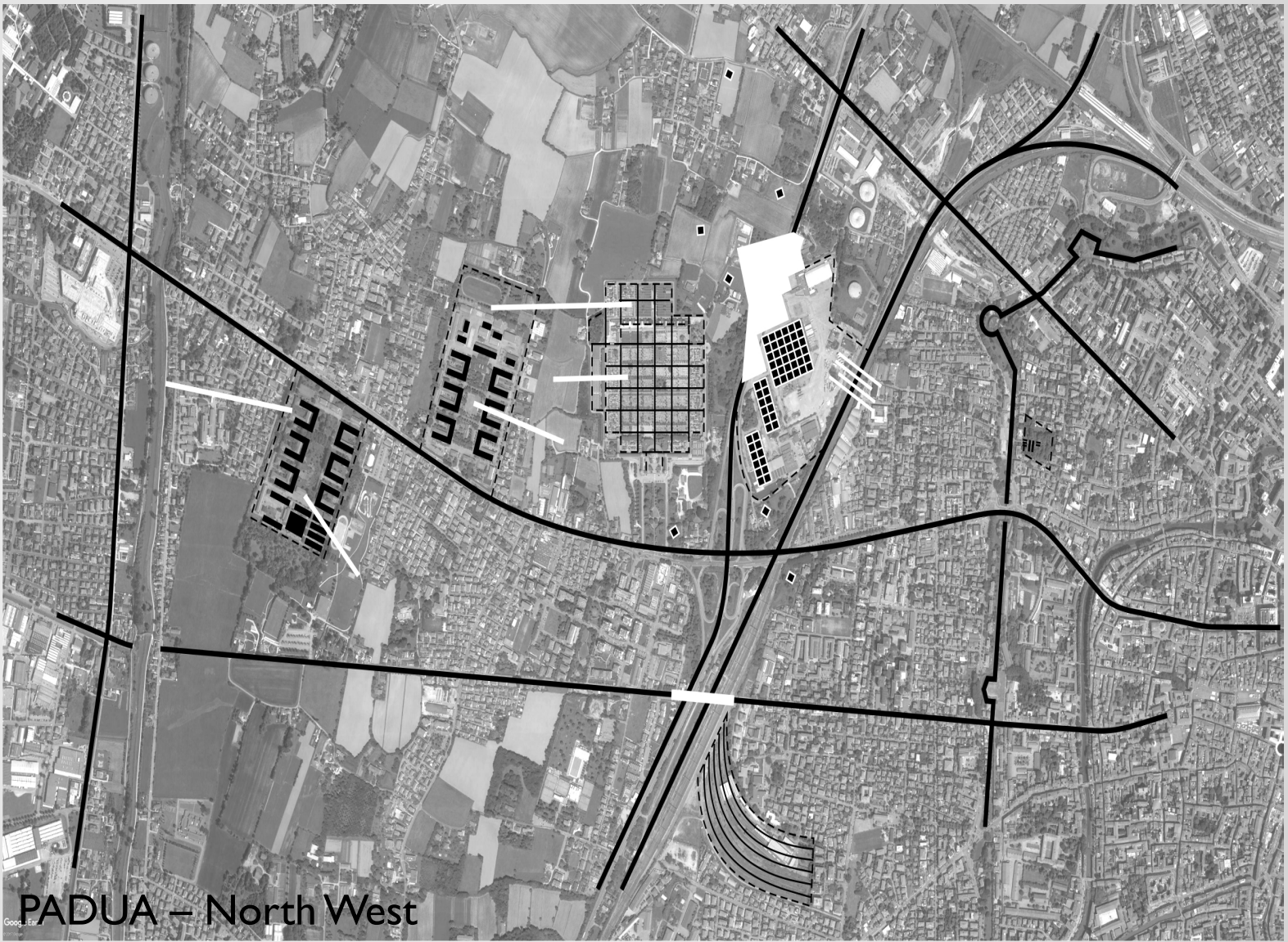
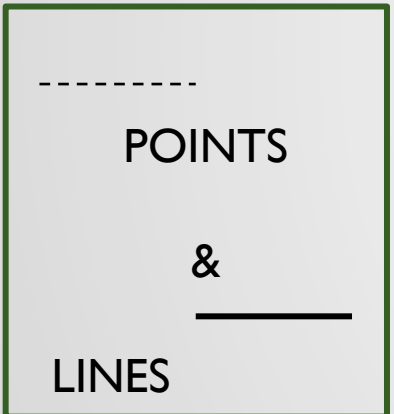
PADUA – North West



DATA

STRATEGY | ARCHITECTURAL VIEW

**CROSSING
BOUNDARIES**



PADUA - North West



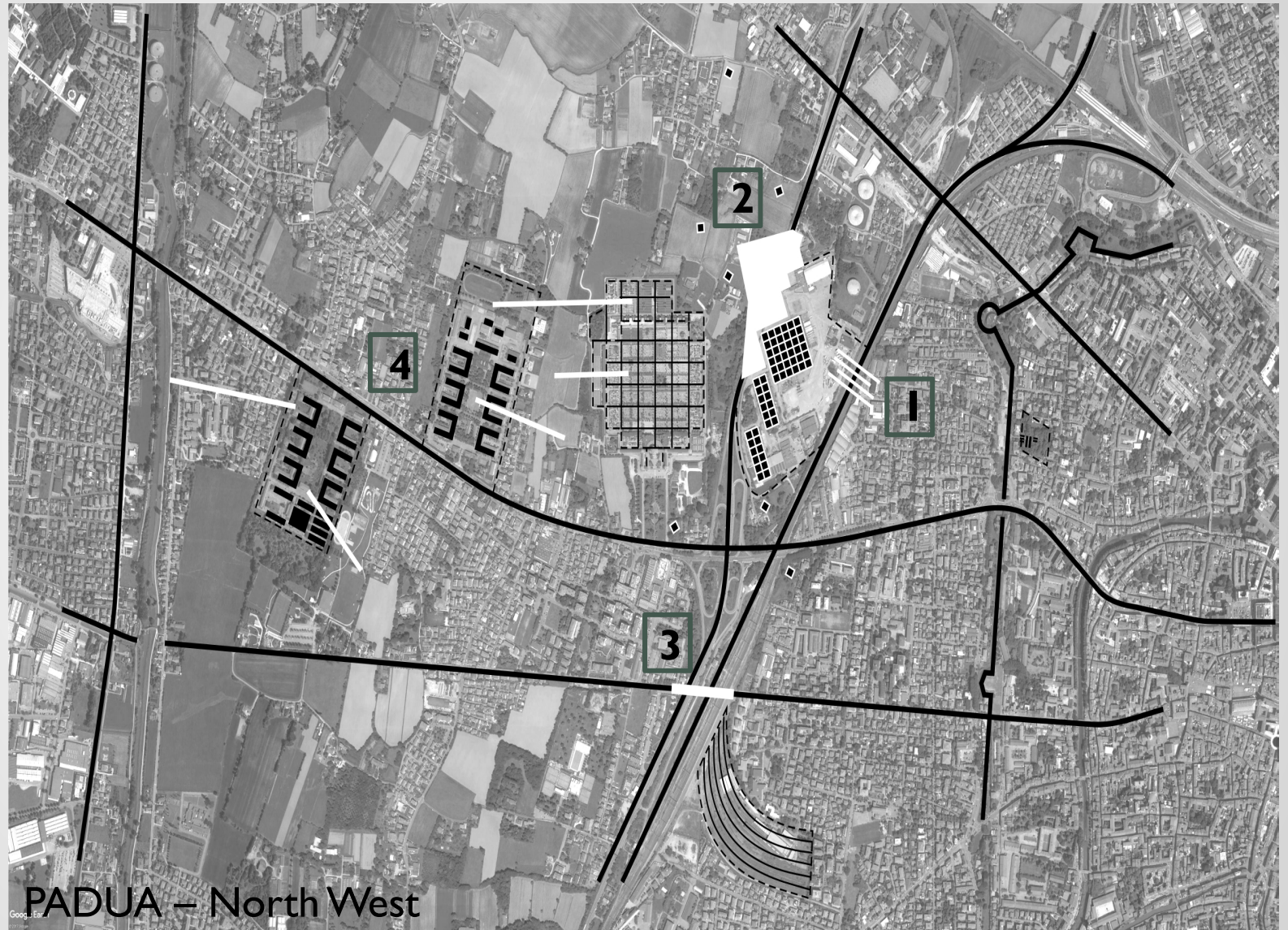
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STRATEGY | ARCHITECTURAL VIEW

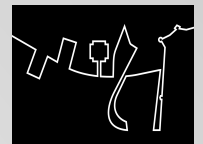
CROSSING BOUNDARIES

THAT ARE

1. New superficial light metro station
2. Urban outposts
3. Living bridges
4. Connection plugs



PADUA – North West



DATA

STRATEGY | ARCHITECTURAL VIEW

**CROSSING
BOUNDARIES**



SURFACES

BACKGROUND:
URBAN PARK



PADUA - North West

PILOT SCENARIOS



URBAN OUTPOST

METRO STATION

SPRAWL OF
ARCHITECTURBAN
ELEMENTS

COUNTRY FIELDS

PRECAST MODULAR OBJECTS



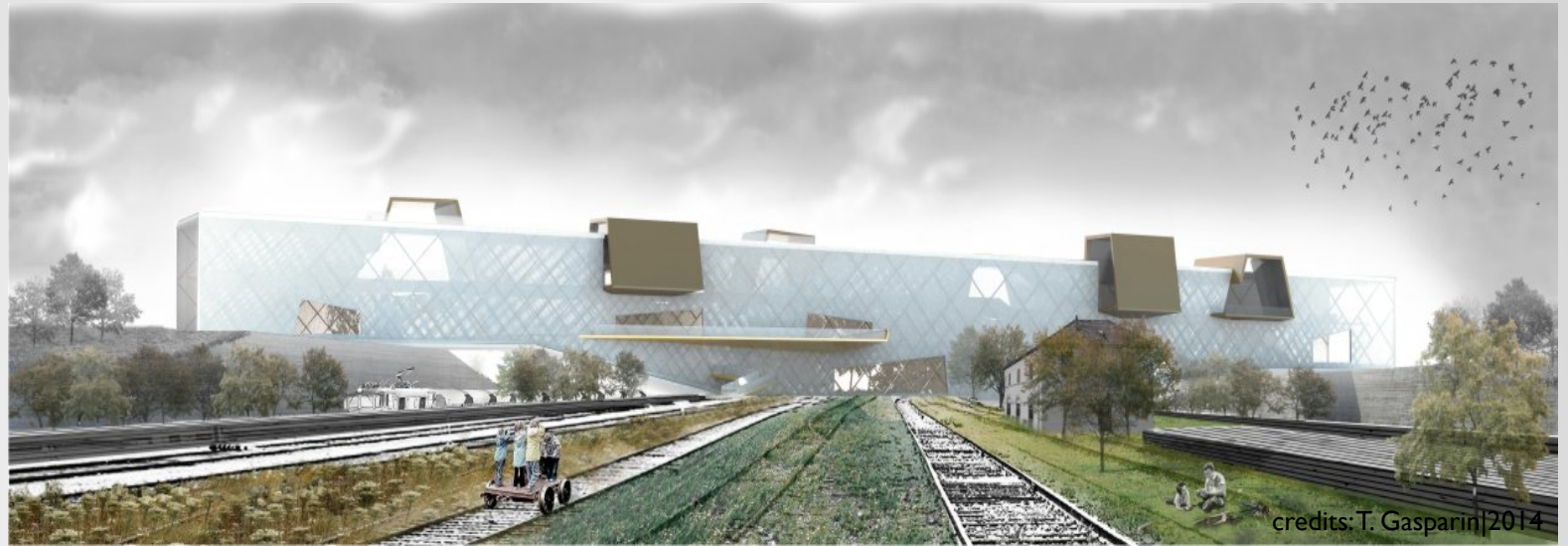
credits: M. Boran, S. Farcas, L. Lazzari, R. Righetti, S. Vianello|2013

PILOT SCENARIOS



LIVING BRIDGE

INFRASTRUCTURE
PARK



ACTORS



INTERDISCIPLINARY PROJECT

ARCHITECTS ↔ ENGINEERS

SCIENTIFIC BOARD

Luigi Stendardo | principal Investigator
Massimo De Marchi | data mining & survey implementation
Andrea Giordano | building and land information modelling
Luigi Stendardo | pilot scenarios design
Michelangelo Savino | urban planning and feasibility studies
Maria Cristina Lavagnolo | URBAN MINING
Luigi Stendardo | data management and ICT

RESEARCH FELLOWS

Guglielmo Pristeri | data mining and survey implementation
Davide Barbato | building and land information modelling
Stefanos Antoniadis | pilot scenarios design
Enrico Redetti | urban planning and feasibility studies
Rachele Malesani | URBAN MINING
Giulia Pettoello | data management and ICT

OPERATIVE PARTNERS

Archetipo srl
Federico Gianoli
LTS Land Technology & Service srl
Orienta+Trium srl
CZ Studio
Favaro I srl
Duff & Phepls REAG spa
Impresa Costruzioni Edili Garbo Ing.
Giampietro
ACMO spa
Ravagnan
Advertendo srl
Pallino & Co. srl

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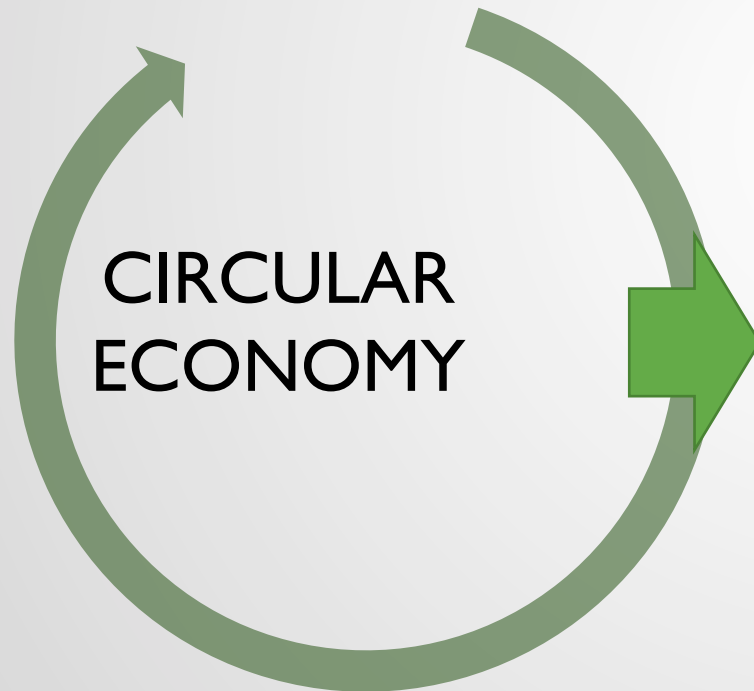
RAVAGNAN

WASTE



ENVIRONMENTAL
ISSUES

RELATED TO REQUALIFICATION OF WASTED LANDSCAPES



WASTE PRODUCED

SOLID
WASTE

WASTE
WATERS

PRODUCED DURING DIFFERENT
PHASES OF THE PROJECT, FROM
CONSTRUCTION ACTIVITIES TO
POST OPERATIVE PERIOD

ANALYZED IN ORDER TO RECOVER AND
REUSE AS MUCH AS POSSIBLE SOLID
MATERIALS AND WATERS

WASTE



SOLID WASTE

COMING FROM:

- DEMOLITION ACTIVITIES
- CONSTRUCTION ACTIVITIES

WASTE WATER

- CONSTRUCTION SITE SURFACE RUNOFF
- VEHICLE WASHING and BORING WORKS
- PLANT MAINTENANCE FACILITIES
- CIVIL WASTE WATER PRODUCED INSIDE THE NEW BUILDINGS



WASTE

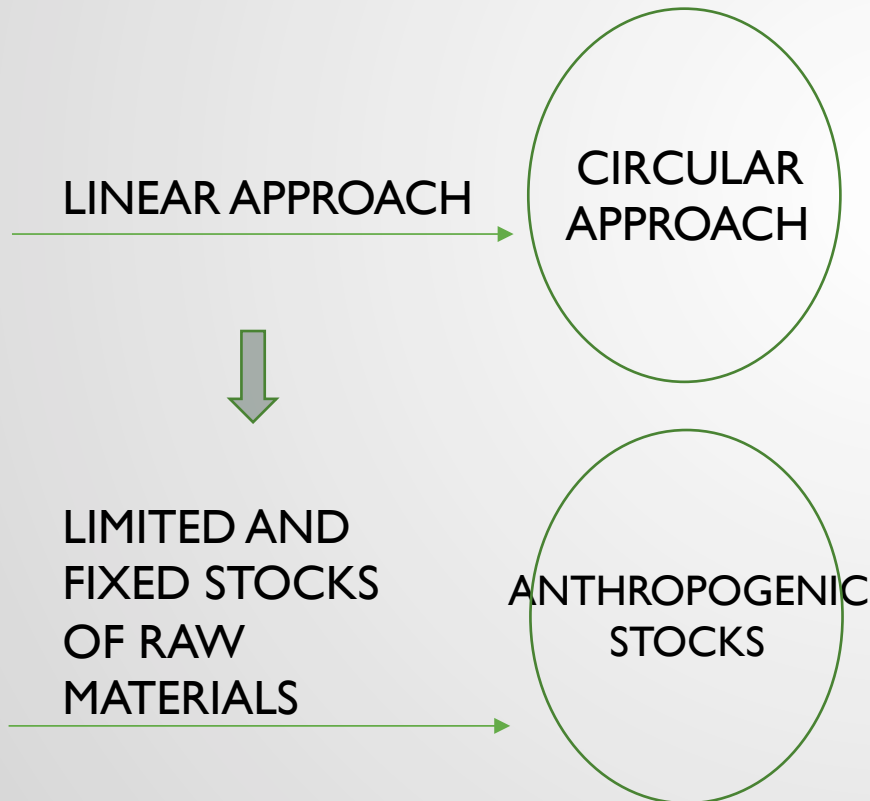


SOLID WASTE

DATA PROJECT AND URBAN MINING ACTIVITIES



RECOVERY OF SECONDARY RAW MATERIALS



- **REEVALUATION OF ALREADY EXISTENT BUILDINGS**
- **PRODUCTION OF MATERIALS THAT REPLACE VIRGIN RAW MATERIAL FOR LESS NOBLE USE**

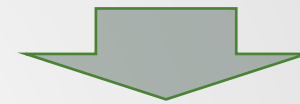
long term environmental protection, resource conservation, economic benefits

WASTE



WASTE WATER

DATA PROJECT AND DECENTRALIZATION



PRODUCTION:

- DURING **CONSTRUCTION**
- DURING SERVICE LIFE OF NEW **STRUCTURES**

KIND OF WW
PRODUCED

construction site: HIGH
SUSPENDED MINERAL
PARTICLES,
HYDROCARBONS,
CONCRETE
requelified structures: COD,
N, P

SEPARATE MANAGEMENT OF DIFFERENT WW

- **PHYTOTREATMENT PLANTS FOR RAINY WATERS**
- **ACCUMULATION TANK FOR TREATED WATER**

AESTHETICALLY PLEASING under an
ARCHITECTURAL point of view

WASTE

CIRCULAR
ECONOMY



PROBLEMS

GIVE NEW LIFE TO THESE WASTED LANDSCAPES



HIGHWAY

RAILWAY
LINE

MILITARY
SITES

WATER COLLECTION SYSTEMS

PRIVATE AND CLOSED AREAS

WATER TREATMENT SYSTEMS

WORK IN PROGRESS BETWEEN ARCHITECTS AND ENGINEERS

WASTE



SOLUTIONS

GREEN CORRIDORS FOR WATER TREATMENT



NEW KIND OF STRUCTURES AND NEW WAYS TO CONNECT ISOLATED AREAS



CONTACTS WITH MUNICIPALITY:
WORKSHOP FOR CITIZENS



NEW MULTIFUNCTIONAL SPACES

WORK IN PROGRESS BETWEEN ARCHITECTS AND ENGINEERS



CONCLUSIONS



DATA PROJECT

INTERDISCIPLINARY PROJECT

ABANDONED AND UNDERUSED AREAS REGENERATION

WASTED LANDSCAPES

SUSTAINABLE MANAGEMENT OF SOLID
WASTE AND WASTE WATERS PRODUCED
DURING REQUALIFICATION





REFERENCES

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ON