POST-INDUSTRIAL URBAN RESILIENCE

A STRATEGY FOR THE FORMER MILITARY MAINTENANCE COMPLEX IN LISBON, PORTUGAL
canal amsterdam?
The environmental crisis is a design crisis. It is a consequence of how things are made, buildings are constructed, and landscapes are used.

Design manifests culture, and culture rests firmly on the foundation of what we believe to be true about the world.

- Der Ryn, S., and Cowan, S. 1996.
Design

How to we treat the materials we no longer need
Design

How we treat our space and those who live there.
Cause
The demand to provide for our ever growing population.

Industrial landmarks are a manifestation of this culture.
HERITAGE & ARCHITECTURE

- Re-use of materials
- Cultural significance
HERITAGE & ARCHITECTURE

- Re-use of materials
- Cultural significance

ARCHITECTURE

CULTURAL VALUE

TECHNOLOGY

NEUES MUSEUM - BERLIN
HERITAGE & ARCHITECTURE
- Re-use of materials
- Cultural significance

ARCHITECTURE

REGENERATIVE DESIGN

CULTURAL VALUE

TECHNOLOGY

Landschaftspark - Duisberg
INDEX

I - STORY OF THE MILITARY MAINTENANCE COMPLEX

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III - THE PASTA & BISCUIT FACTORY
I - STORY OF THE MILITARY MAINTENANCE COMPLEX

do_co,mo.mo_

14th DOCOMOMO International Conference
Adaptive Reuse
The Modern Movement Towards the Future
Production of soft goods

- Food
- Uniforms

Social services for families

- School
- Healthcare
Southern part
Industrial site
THEMATIC RESEARCH

CULTURAL

THE HISTORIC DEVELOPMENT

SPATIAL

THE USE OF SPACE

ECONOMICAL

THE DEMOGRAPHIC AND ECONOMICAL SITUATION
CULTURAL
how the place has become to be
Monarchic period (<1900)
Republican period (1900-1933)
Dictatorial period (1934-1974)
Democratic period (1975 - Present)
. RELATION TO NATURE
. CONNECTION WITH WATER
. POWER OF RELIGION

SPIRIT OF THE PLACE.
INDUSTRIAL SETTLEMENT

CONVENT DAS GRILAS

COVENTO DO GRILHO

NEW WATERFRONT
. CONTINUOUS CHARACTER OF RUA DO GRILO
. MILITARY REFERENCES
. FIRST INDUSTRY

SPIRIT OF THE PLACE.
INDUSTRIAL LANDMARKS
DRIVING BY PRODUCTION PROCESS

SPIRIT OF THE PLACE.
GARDENS BECOME BROWNFIELDS

ILLEGAL ALLOTMENTS

MMC BECOMES SUPERFLUOUS
NEGLETANCE HISTORICAL BUILDINGS AND GARDENS
UNORGANIZED AGRICULTURE
CULTURAL VALUE

*Important aspects to consider when intervening in the Military Maintenance Complex*

- Presence of all time layers
- Production process as driving force
- Agriculture as continuous activity
- The continuity of Rua do Grilo
- The introvert character and military references
THE DEMOGRAPHIC AND ECONOMICAL SITUATION

THE HISTORIC DEVELOPMENT

THE USE OF SPACE

THE DEMOGRAPHIC AND ECONOMICAL SITUATION
SPATIAL

How the place is experienced in the present
LACK OF QUALITATIVE PUBLIC SPACE  LARGE SCALE INDUSTRY  BROWNFIELDS  AGRICULTURAL USE
CONCLUSION
ECONOMICAL

How does the context relate to the people
UNEMPLOYMENT RATE 16%

YOUNG PEOPLE LEAVE BEATO DUE TO LACK OF EMPLOYMENT AND SUITABLE HOUSING

THE AGING POPULATION (65+) HAS BECOME 28% OF POPULATION

63% OF THE PEOPLE IN BEATO DID NOT FINISH HIGH SCHOOL
LOSING PURPOSE

UNEMPLOYMENT RATE 16%

YOUNG PEOPLE LEAVE
BEATO DUE TO LACK OF
EMPLOYMENT AND SUITABLE
HOUSING

THE AGING POPULATION
(65+) HAS BECOME 28% OF
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Beato needs a new economic driver to attract young people to prevent the parish from falling in further decay
THEMATIC RESEARCH

CULTURAL

SPATIAL

ECONOMICAL
OVER 100,000 m² OF VACANT SPACE
How can the rehabilitation of industrial heritage contribute to urban resilience?
II - URBAN RESILIENCE IN BEATO

design: a sustainable future for Beato

CULTURAL
GIVE BEATO A NEW CHARACTER CONSERVING THE SPIRIT OF THE PLACE

ECONOMICAL
LONG TERM EMPLOYMENT THAT IS ECOLOGICALLY SOUND, AFFORDABLE SPACES TO WORK AND LIVE

SPATIAL
QUALITATIVE PUBLIC SPACES WHERE HUMANS CAN EXPERIENCE THE QUALITIES OF NATURE
design: a sustainable future for Beato

CULTURAL
GIVE BEATO A NEW CHARACTER
CONSERVING THE SPIRIT OF THE
PLACE

ECONOMICAL
LONG TERM EMPLOYMENT THAT IS
ECOLOGICALLY SOUND, AFFORDABLE
SPACES TO WORK AND LIVE

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QUALITIES OF NATURE
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**CULTURAL**

Give Beato a new character
Conserving the spirit of the place

**ECONOMICAL**

Long term employment that is
ecologically sound, affordable
spaces to work and live

**SPATIAL**

Qualitative public spaces where
humans can experience the
qualities of nature
design: a sustainable future for Beato

CULTURAL
GIVE BEATO A NEW CHARACTER
CONSERVING THE SPIRIT OF THE PLACE

ECONOMICAL
LONG TERM EMPLOYMENT THAT IS ECOLOGICALLY SOUND, AFFORDABLE SPACES TO WORK AND LIVE

SPATIAL
QUALITATIVE PUBLIC SPACES WHERE HUMANS CAN EXPERIENCE THE QUALITIES OF NATURE
Continuous Productive Urban Landscapes proposes that Urban Agriculture can contribute to a more sustainable and resilient food system while also benefiting the Commemorative Urban Realm.

- Bohn & Viljoen, 2005.
CONTINUOUS LANDSCAPE WHILE PROTECTING THE INTROVERT CHARACTER
to UNIVERSITY (5 km)
to CITY CENTRE (4 km)
to EXPO ‘98 (4 km)
SOIL BASED

URBAN FORESTRY
PRODUCE RENEWABLE
BUILDING MATERIALS

ALLOTMENTS
INDIVIDUAL GARDEN

COMMUNIY FARMS
EDUCATIONAL PURPOSE

COMMERCIAL FARMS
SPECIALIZED PRODUCT
URBAN FORESTRY
PRODUCE RENEWABLE
BUILDING MATERIALS

ALLEOTMENTS
INDIVIDUAL OPPORTUNITY BY
FOOD PRODUCTION

COMMUNITY FARMS
EDUCATIONAL PURPOSE
TO ENHANCE COHERENT
COMMUNITY

COMMERCIAL FARMS
SPECIALIZED PRODUCT
URBAN FORESTRY
PRODUCE RENEWABLE
BUILDING MATERIALS

ALLOTMENTS
INDIVIDUAL OPPORTUNITY BY
FOOD PRODUCTION

COMMUNITY FARMS
EDUCATIONAL PURPOSE
TO ENHANCE COHERENT
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TO ENHANCE COHERENT
COMMUNITY

COMMERCIAL FARMS
SPECIALIZED PRODUCT
BUILDING INTEGRATED

URBAN AGRICULTURE

POP UP SPACES

FARMER’S MARKET

COMMENORATIVE GARDENS

RENEWABLE ENERGY
BUILDING INTEGRATED

URBAN AGRICULTURE

POP UP SPACES

FARMER’S MARKET

COMMEMORATIVE GARDENS

RENEWABLE ENERGY
BUILDING INTEGRATED

URBAN AGRICULTURE

POP UP SPACES

FARMER’S MARKET

COMMEMORATIVE GARDENS

RENEWABLE ENERGY
BUILDING INTEGRATED

URBAN AGRICULTURE

POP UP SPACES

FARMER’S MARKET

COMMEMORATIVE GARDENS

RENEWABLE ENERGY
BUILDING INTEGRATED

- URBAN AGRICULTURE
- POP UP SPACES
- FARMER’S MARKET
- COMMEMORATIVE GARDENS
- RENEWABLE ENERGY
ARCHITECTURE AND TECHNOLOGY

Important aspects to consider when intervening in the Military Maintenance Complex

ARCHITECTURE

CULTURAL VALUE

TECHNOLOGY
OPEN SPACE AND LANDMARKS - DEFINE PUBLIC SPACES
SPATIAL TYPOLOGY

OPEN PLAN  VERTICAL SPACES  LINEAR SPACES  HUMAN SCALE
SPATIAL QUALITY

Important aspects to consider when intervening in the Military Maintenance Complex

OPEN SPACES
LANDMARKS

INDUSTRIAL
VISTA’S

INTROVERT
CHARACTER

DIFFERENT
TYPOLOGIES
CULTURAL VALUE

Important aspects to consider when intervening in the Military Maintenance Complex

- PRESENCE OF ALL TIME LAYERS
- PRODUCTION PROCESS AS DRIVING FORCE
- AGRICULTURE AS CONTINUOUS ACTIVITY
- THE CONTINUITY OF RUA DO GRILO
- THE INTROVERT CHARACTER AND MILITARY REFERENCES
CONCLUSION
PHASE II

RESIDENTIAL COMMUNITY GARDENS

ENLARGE SQUARE

CAFE

COMMUNITY GARDENS

ASSEMBLY

RESIDENTIAL

RESIDENTIAL
FOCUS ON FIRST STEPS IN ARCHITECTURAL DESIGN

URBAN AGRICULTURE
POP UP SPACES
FARMER’S MARKET
COMMEMORATIVE GARDENS
RENEWABLE ENERGY
III - THE PASTA AND BISCUIT FACTORY
CULTURAL
THE SPIRIT OF THE PLACE

ECONOMICAL
SUSTAINABLE LIVING

SPATIAL
QUALITATIVE PUBLIC SPACES
CULTURAL VALUE

PRESENCE OF ALL TIME LAYERS

PRODUCTION PROCESS AS DRIVING FORCE

AGRICULTURE AS CONTINUOUS ACTIVITY

THE CONTINUITY OF RUA DO GRILLO

THE INTROVERT CHARACTER AND MILITARY REFERENCES
CULTURAL VALUE

PRESENCE OF ALL TIME LAYERS

PRODUCTION PROCESS AS DRIVING FORCE

AGRICULTURE AS CONTINUOUS ACTIVITY

THE CONTINUITY OF RUA DO GRILÓ

THE INTROVERT CHARACTER
PRESENCE OF ALL TIME LAYERS

Architectural manifestation of modernism in the production process
After 1974

1960

Before 1911

Typography

Pasta Factory

Silo’s

Biscuit Factory

Offices
Asbestos cement corrugated roof

Concrete element roof

Monolith concrete floor

Non-structural facade
- Load-bearing capacity
- Flexibility
- Modularity
- Architectural expression
PRODUCTION PROCESS AS DRIVING FORCE

Architectural manifestation of modernisation in the production process
STORAGE
VERTICAL SPACE

PRODUCTION
BOX IN BOX PRINCIPLE
LINEAR SPACE

PACKAGING
EMPTY
LINEAR SPACE
DRAWING UP FIRST CONCEPT _ TRANSFORMATION FRAMEWORK
LOAD BEARING STRUCTURE

BOX IN BOX DESIGN

PRESERVE LINEAR SPACES

QUALITATIVE PUBLIC SPACES
FARMERS' MARKET
BUILDING INTEGRATED URBAN AGRICULTURE
POP-UP SPACES TO WORK AND LIVE
FLEXIBILITY ALLOW GROWTH OVER TIME
LOCAL
FARMERS’ MARKET
 DEMOUNTABLE ARCHITECTURE

MINIMALISE WASTE
CLOSE ENERGY FLOWS

INCREASE BIO DIVERISTY
DESIGN WITH NATURE

USE RENEWABLE MATERIALS

DELMOUNTABLE ARCHITECTURE
CULTURAL VS. ECONOMICAL VALUE

How to create a feasible project without destroying the story of the production process.
Understanding the production process

BEGIN

????

LENIGHT OF THE PROCESS

END
Identify the begin and end of each step in the process.
Architectural expressions of these places.
Used for vertical transportation of goods
Used for vertical transportation of goods
. Different steps of the process
. Vertical transportation of goods
. Preserving the linear space
CULTURAL VS. ECONOMICAL VALUE

How to create a feasible project without destroying the story of the production process.
The introvert face of the MMC

.homogeneous appearance
.visually introvert
98 modules
Optimizing use of structure
ECONOMICAL VALUE
(98) 65 modules
Identifying production process

CULTURAL VALUE
(65) 75 modules
Clustering of functions
Transport of modules
CULTURAL
THE SPIRIT OF THE PLACE

ECONOMICAL
SUSTAINABLE LIVING

SPATIAL
QUALITATIVE PUBLIC SPACES
CULTURAL
THE SPIRIT OF THE PLACE

ECONOMICAL
SUSTAINABLE LIVING

SPATIAL
QUALITATIVE PUBLIC SPACES
SHARING WITH YOUR NEIGHBOUR
Everyone should have at least one (shared) outdoor space attached to their home.
(75) 61 modules
Clustering of functions
Transport of modules
TINY HOUSE
How does one live on a 26.8 m² footprint (3.2m x 8.4m)
DEMONTABLE ARCHITECTURE

MINIMALISE WASTE
CLOSE ENERGY FLOWS

INCREASE BIO DIVERISTY
DESIGN WITH NATURE

USE RENEWABLE MATERIALS

DEMOUNTABLE ARCHITECTURE
. Optimizing the use of space
. Using standard dimensions
. Demountable detailing
. Consider margins and assembly
Waterproof membrane
3-layer plate 19 mm
Heat insulation 140 mm
Vapor Barrier
OSB flat plate 15 mm
Existing column 720 x 400 mm

Carbon Fiber Reinforcement Strip

Existing beam 250 x 520 mm

Removeable plate

Filter layer

Waterproof membrane

Intensive garden

New prefab element

Drainage 35 mm

Polymer bitumen membrane 1st layer
Polymer bitumen membrane 2nd layer
LIGNATUR Element 160 mm
Existing concrete beam 520 mm
Adjustment block 40 mm

Composite flooring board 40 mm
Composite underfloor 40 mm

Aluminium profile
RAINWATER COLLECTION

GREY WATER TOILET AND GARDEN

WATER RETAINING ON ALL FLOORS

SPLIT BOX

BIOWASTE

GREY WATER

BLACK WATER

CLEAN WATER FROM GRID

BLACK WATER TO FILTERS

SECTION
SOLAR ENERGY

INLET AIR

AIR HANDLING UNIT

MODULES VENTILATED WITH CONDITIONED AIR

ENERGY PRODUCTION

BIOFUEL

HOT WATER
DOMESTIC USE

NATURAL SHADING

SECTION
GREENHOUSE ROOF

SUMMER

WINTER
Water enters tube

Prefab (recycled) concrete

Design variations

Preheated water leaves tube
How can the rehabilitation of industrial heritage contribute to urban resilience?
A network of public spaces where humans can interact and appreciate the qualities of nature, experience and protect the extensive history of Beato while living and working in an ecologically sound environment.