



## HERITAGE SITES AND ENVIRONMENTAL PROTECTION

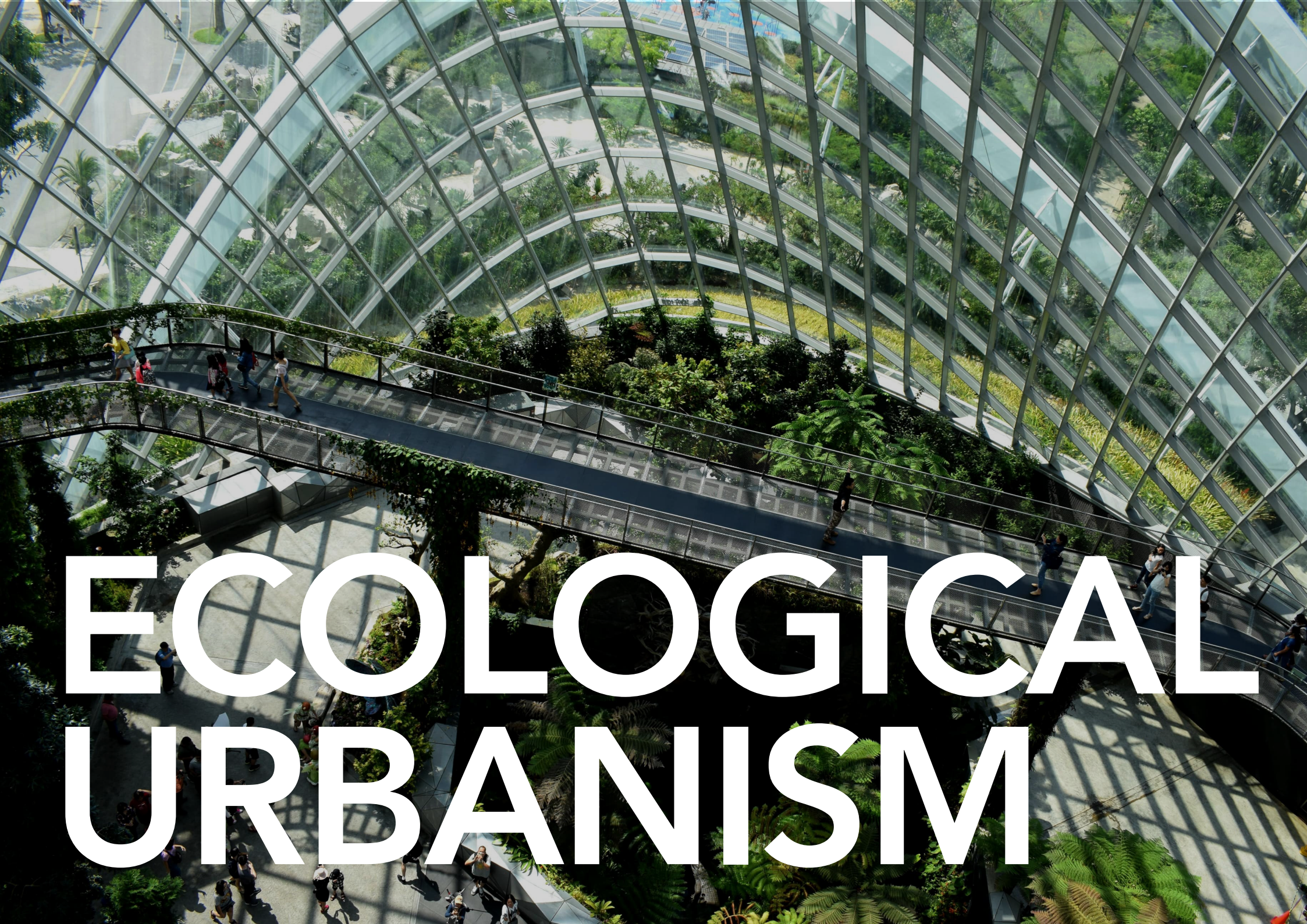


# Erasmus+

# HERITAGE SITES AND ENVIRONMENTAL PROTECTION

## W2.3

Ecological Urbanism: case studies.



# ECOLOGICAL URBANISM



**A VERTICAL FOREST /  
UN BOSCO VERTICALE**  
instructions booklet for  
the prototype of a forest  
city / *libretto di istruzioni*  
per il prototipo di una  
città foresta

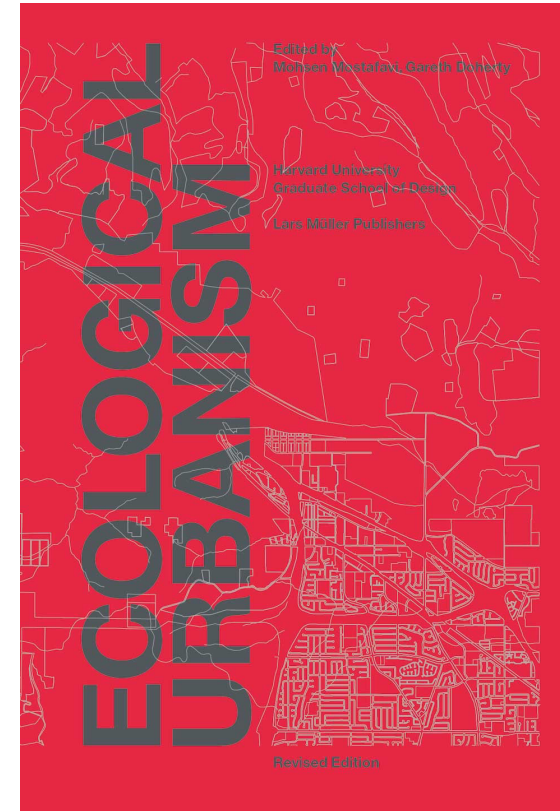
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**ECOLOGICAL URBANISM**

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“...until recently, much of the work produced as sustainable architecture has been of poor quality. Early examples were focused mainly around the capacities of simple technologies to produce energy and recycle waste. Sustainable architecture, itself rudimentary, often meant an alternative lifestyle of renunciation, stripped of much pleasure.”

“Because the challenges of rapid urbanization and limited global resources have become much more pressing, there is a need to find alternative design approaches that will enable us to consider the large scale differently than we have done in the past.”

# **ECOLOGICAL URBANISM**

"...can the city, with all its mechanisms of consumption - its devouring of energy, its insatiable demand for food - ever be ecological?"

The fragility of the planet and its resources is an opportunity for speculative design innovation

Imagining an urbanism that is other than the status quo requires a new sensibility - one that has the capacity to incorporate and accommodate the inherent conflictual conditions between ecology and urbanism.

**THIS IS ECOLOGICAL URBANISM.**

A large, dense pile of waste paper and cardboard is shown under a clear blue sky. The waste is composed of various types of paper, including crumpled sheets, torn pieces, and flattened cardboard boxes. The colors are primarily white and light brown, with some splashes of red, blue, and yellow. The word "WASTE" is overlaid in large, white, bold, sans-serif capital letters across the center of the image. The background shows a clear blue sky and a glimpse of a paved area at the bottom right.

WASTE



# INFORMALITY



# ALTERNATIVE FORMS OF URBANISM



**ADVANCEMENT**

***VS APOCALYPSE***

## CASE STUDY 1

# Resist, Delay, Store, Discharge: A Comprehensive Urban Water Strategy for Hoboken

OMA, AMO, Royal HaskoningDHV,  
Barlmore Associates, and HR&A  
Advisors

Year 2013 - ongoing

Type of project Urbanism

Part of the HUD Rebuilding by Design Competition - a desire to understand and quantify flood risk within New Jersey's city of Hoboken, a sandy-affected region.

### How?

With an approach that analyses the context, stimulates a different community of beneficiaries and defends the entire city.

## Objectives

- manage water for both disaster mitigation and for long-term growth
- enable reasonable flood insurance
- deliver benefits to the city

## Communication Systems

Before, during and after a flood event

A profusion of information is essential for all stakeholders to share and understand (risks and implications).

Alternative methods of distributing information could utilize existing signage to communicate instant updates or adapt existing amenities to respond to emergency needs

### PROJECT CONSULTATION

<https://oma.eu/projects/resist-delay-store-discharge-comprehensive-urban-water-strategy>

## CASE STUDY 2

### Agronica

Andrea Branzi

Year 1995

Type of project Urbanism

Branzi's work proposes urbanism in the form of an environmental, economic, and aesthetic critique of the failings of the contemporary city.

#### How?

Use of nonfigurative urban projection as a form of social and political critique.

"Weak urbanism"

Conception of contemporary urbanism as a field of potentials, shaped by weak forces and spontaneous programmatic eruptions.

## 20TH CENTURY ARCHITECTURE

INDUSTRIAL WORLD  
(rational logic + constructive technologies)



STRATEGIC ALLIANCE



ARCHITECTURE RENEWS ITSELF CONSTANTLY



RESULTING AS A MODEL OF  
TRANSFORMATION OF THE WORLD

# TODAY

POST-INDUSTRIAL ECONOMY CONTEXT



FACTORY IS NOT CENTRAL = OTHER PRODUCTIVE LOGICS

*New models that break  
the foundations of modern  
architecture*



## NEW MODELS OF ADVANCED SERIAL PRODUCTION

- *Discover agriculture as a **universe of complex natural technologies***
- *Agriculture as an environmental transformation system that supplies edible products*
- *New models of production capable of adapting and to provide a self regulated model of **industrial production based on natural controllable energy***

TODAY

POST-INDUSTRIAL ECONOMY CONTEXT



FACTORY IS NOT CENTRAL = OTHER PRODUCTIVE LOGICS

**AN AGRICULTURE THAT NO LONGER REPRESENTS  
THE WORLD OF PRE-INDUSTRIAL TECHNOLOGIES**



NEW MODELS OF ADVANCED SERIAL PRODUCTION

**OCCUPIES A NEW SPACE OF EXTREME MANAGERIAL  
AND PRODUCTIVE SOPHISTICATION**

- *Agriculture as an environmental transformation system that supplies edible products*
- *New models of production capable of adapting and to provide a self regulated model of industrial production based on natural controllable energy*

PROJECT CONSULTATION

<http://architettura.it/>

## CASE STUDY 3

# Vertical Forest: "Basic Radicality"

Stefano Boeri

Year 2015 - ongoing

Urbanism

Green is not domesticated by architecture, it adds a sense of proportion and does not take one extreme forms: Basic style.

## IT IS A MULTIDISCIPLINARY EXPERIMENT

Active on different levels:  
Architecture, Urbanism,  
Biological and Ethological.

It is hoped to derive in  
procedures, results and  
applicatiосn for the future.

**It makes flora and fauna an integral part of the urban landscape accessible to everyone. It helps diminish the sense of "limits" between private building and public space.**

Creates an **urban ecosystem**: different types of vegetation create a habitat that can be colonized by birds and insects.

Recolonization of the city by plant and animal life

- Supports species
- Supports animal life
- Monitoration and data collection for scientific observations

### PROJECT CONSULTATION

Book "A Vertical Forest" by Stefano Boeri

# Big Tree

In methaforical and conceptual terms, the Vertical Forest can be compared to a big tree, where the balconies are the branches, all the plant species are the leaves, the central body of the building is the trunk and the roots are water supply systems.

# Towards a Forest City

The Forest City is a complex and integrated ecosystem that combines

**environmental sustainability,**

*anti-carbon strategy*

**biodiversity**

*reproduction and cohabitation of living species*

and **social empathy.**

*development and promotion of the exchange of social capital - culture, traditions, etc*

## CASE STUDY 4

# One Airport Square

Mario Cucinella Architects

Year 2010-2015

Architecture Design

A multifunctional building in Accra, Ghana that hosts commercial spaces on the ground floor and a 10-floor office block on the southeast corner.

# The DESIGN

A design process that carefully considered the building's functional, structural, and energy requirements: *lighting and natural ventilation in the interior.*

The building connects the project area with the surrounding townscape: *Exhibition space and commercial activities will bring to life both day and night.*

---

Lighting and natural ventilation to the interior, movement generated by the projecting terraces, which gradually recede as they rise, floor by floor.

---

Reinforced concrete structure confers a greater rigidity on the building , while also serving as a decorative motif:

## Inspired by traditional art and the bark of the pal trees typical of the area.

Architecture design linked to environmental strategies for providing a viable solution to climate challenges.

**It is the first building in Ghana awarded four stars (design stage) by the Green Building Council of South Africa**

PROJECT  
CONSULTATION

<https://www.mcarchitects.it/>



## CASE STUDY 5

# Uppsala Power Plant

BIG

Year 2014

Architectural Design

A biomass cogeneration plant to supplement existing energy infrastructure at times of peak load in the dark and cold seasons.

### IMPORTANT

Carefull consideration with Uppsalas beautiful old town: **it was required to integrate a vast new structure into the historical skyline.**

### HOW?

**Hybrid:  
powerplant + greenhouse**

# Compact layout

Rather than the conventional agglomeration of boxy enclosures, organization of the mechanisms of a combined heat and power plant three-dimensionally. As opposed to a linear organization, this makes the design compact as possible.

# Dome: more with less

By enclosing the ideal organization of mechanisms within a “squeezed” geodesic dome we can combine maximum enclosure with a minimum envelope.

# Completely transparent

This allows residents and visitors an educational glimpses of what happens within.

Rather than the conventional alienating power plant, the crystal-line volume serves as an invitation for exploration and education.

It will also serve as a cultural space for the city during the summer months.

### PROJECT CONSULTATION

<https://www.archdaily.com/603259/big-s-unconventional- uppsala-power-plant-to-host-summer-festivals>

## CASE STUDY 6

### Almere Oosterwold

MVRDV

Year 2011  
Public and Urban Landscaping

A development project in Almere, Holland: Space for living, working and recreation, with a green and rural character.

#### How?

Low building density and highly urban developments on the west side of the city.

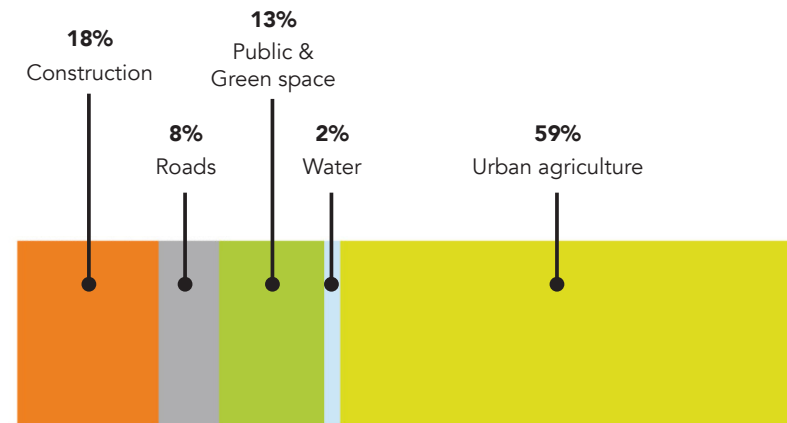
# Less of a design proposal and more of a strategic development proposal.

Offers maximum freedom for individual and collective initiatives and will grow organically over a long period of time.

One main concept: You are able to do everything you want, but you have to arrange everything yourselves. The initiators will develop all elements of their plots according to a predefined programmatic division.

Calls for a bottom-up collaboration among residents, who will draw the map towards a shared future.

**New urban model that will transform the area into a district that breathes diversity, experimentation, and surprises.**



#### PROJECT CONSULTATION

<https://www.mvrdv.nl/projects/32/almere-oosterwold>  
<https://www.youtube.com/watch?v=NSwtduhoHOU>

## CASE STUDY 7

# Assunción Open Lab: Master Plan for the Revitalization of the Historical Center of Asunción

Ecosistema Urbano Architects Ltd.  
(partners: Jose Luis Vallejo, Belinda  
Tato)

Year 2010  
Urbanism

Top-down strategies with bot-  
tom-up initiatives: Improve the  
city by developing large-scale  
projects.

### How?

Implementing developments  
plans, and creating  
comprehensive urban policies  
to guide the city towards a new  
future.

## GOALS OF THE INITIATIVE

- Stop the depopulation of the Historical Center  
- revitalizing the city center.
- Make the city center attractive again to all.
- Promote the use and improvement of public  
space and promote new urban experiences.
- Reuse and enhance the historical heritage of  
the city and urban environment, most of which  
are empty, abandoned or underused.
- Design strategies for sustainable mobility.
- Promote the creative economy, tourism and  
cultural industry.
- Promote citizen and institutional participation.

## THE INITIATIVE

The proposal also selects local initiatives that  
have to do with:

- urban development
- participation
- entrepreneurialism
- creative activism
- care of public space

**Giving them relevance and  
institutional support.**

**Proposal of temporary urban actions focused on:  
tactical urbanism, environmental improvement, urban  
landscape, climatic comfort, social interaction and  
innovative economic development.**

### PROJECT CONSULTATION

<http://www.larawaked.com/project/masterplan-for-the-revitalization-of-the-historic-downtown-of-asuncion/>

## CASE STUDY 8

# Lagos Water Communities

NLÉ

Concept design and urbanism

Makoko is a floating water community that provides over a third of Lagos's fish supply and most of its wood.

It is a highly dense and urbanized area, with no roads, no land, and no modern infrastructure.

### PROJECT

- Affordable and flexible housing prototypes
- Mitigate urban flood risks and disasters
- Rapid urbanization
- Promote development of renewable and low energy consumption
- Offers maximum urbanization with minimum means

**The impact of climate change is now a day-to-day reality.**

**Lagos suffers from increases of sea levels, rainfall, and flooding, in addition to a housing shortage.**

**"Adaptation costs for climate change are much lower than the damage costs without adaptation for most developed coasts, even considering only property losses and human deaths."**

United Nations Intergovernmental Panel on Climate Change, 2017

PROJECT CONSULTATION

<http://www.nleworks.com/case/lagos-water-communities-project/>

## CASE STUDY 9

### Bank of America

Cook + Fox Architects

Year 2008  
Architecture Design

One of the most environmentally responsible buildings in the world.

#### **Vision:**

Create a healthy, daylit work environment that would help the bank attract and retain the best employees.

**Raises the the profile of green design in the United States.**

# Bank of America combines innovative design and advanced technologies:

- Under-floor ventilation system
- 4.6 megawatt cogeneration plant
- thermal storage system
- graywater recycling

combines to conserve energy and reduce water usage by nearly 50%

#### PROJECT CONSULTATION

<http://cookfox.com/project.php?id=One-Bryant-Park>

## CASE STUDY 10

### Holding Pattern

Interboro Partners

Year 2011  
Urbanism

Recycling and strengthening connections between a large, powerful institution (MoMA PS1) and its neighbors.

#### How?

Ensuring that all of the project's components would have a home when the installation was taken down.

# Operation:

Making things that the institutions in the neighborhood needed and things that would enhance the experience of the MoMA PS1 courtyard.

Selection of items, building them and when Holding Pattern was deinstalled, **delivered 79 projects and 84 trees to more than 50 organizations in Long Island City.**

#### PROJECT CONSULTATION

<http://www.interboropartners.com/press/holding-pattern-on-architect>

## CASE STUDY 11

# From “Sustain” to “Ability”

JDS Architects

Sustainability

The first generation of architects to whom sustainability was embedded in their education.

**Firm belief that architecture must shift its focus from “sustain” to “ability”, abandoning the ambiguity, guilt, and compromise characteristic of too much “sustainable” design today, and demanding instead precise, beautiful, and systematic instigations for a change.**

## “Brussels Loop”

Engages many urban components: small industrial, commercial, agricultural, cultural, sport, residential, public space, and even park space...

All in one project.

It aims to reestablish urban biodiversity within the city, extending the green promenade of the canal onto its rook and back into the city.

### PROJECT CONSULTATION

Book “Ecological Urbanism”, Revised Edition, Graduate School of Design, Harvard University



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