







Sustainability and Resilience in Sport Constructions and Facilities

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Sustainability and Resilience



Challenges of the 21st century that will shape a new role for **Urban Planning**.

Environmentally sustainable urbanization requires:

- Greenhouse gas emissions are reduced and serious climate change mitigation and adaptation actions are implemented;
- Urban sprawl is minimized and compact cities served by public transport are developed;
- Non-renewable resources are sensibly used and conserved and renewable resources are not depleted and need to be used;
- The energy used and the waste produced per unit of output or consumption is reduced;
- The waste produced is recycled or disposed of in ways that do not damage the wider environment;
- The ecological footprint of towns and cities is reduced.

Sustainability and Resilience



Challenges of the 21st century that will shape a new role for **Urban Planning**.

A resilient Cities requires:

- Strategies and plans that concern with mitigating, reducing and even preventing the disasters and Crisis impacts;
- Characterized by its capacity to withstand or absorb the impact of hazard through resistance or adaptation;
- Enabling it to maintain certain basic functions and structures during a crisis and to recover.

Source: The United Nations Environmental Programme, 2007

Sustainability and Resilience



Challenges of the 21st century that will shape a new role for **Urban Planning**.

The Sustainable Development Goals:

- Blueprint to achieve a better and more sustainable future for all.
- They address the global challenges we face, including those related to:
 - Poverty, inequality, climate, environmental degradation, prosperity, and peace and justice.
- The Goals interconnect and in order to leave no one behind.

Source: United Nations (https://www.un.org/sustainabledevelopment/sustainable-development-goals/)

<u>Sustainable Development + Resilience = Strong and Better Future</u>



Sport Constructions need to be sustainable and resilient

<u>Sport Constructions and Facilities integrated to the environment:</u>

- Early planning of sports activities that integrate environmental issues is a fundamental principle;
- Must go through to evaluate the need to promote or not a particular event;
- Distribution of responsibilities within the framework of a plan of action to be followed from the beginning.
- All valencies related to the management of an infrastructure or to the promotion of an event must assume environmental commitments;
- Should be a transversal and non-sectorial dimension, called to act only in relation to some aspects.



Sport Constructions need to be sustainable and resilient

Sport Constructions and Facilities integrated to the environment:

 It is very important, if possible, to conduct a life cycle analysis to minimize the materials and techniques used, in particular involving the construction of infrastructures.

Key aspects in the sustainable approach of an event or sports infrastructure

ENVIRONMENTAL IMPACT

TRANSPORT

BIODIVERSITY

ACQUISITION

WATER

SOCIAL INCLUSION

ENERGY

WASTE

HEALTHY LIFE



Sport Constructions need to be sustainable and resilient

Environmental impact must be considered in the constructions of sport facilities

- Materials that can partly result from the recycling of construction and demolition waste Durability
- Materials with higher or lower emissions associated with its generation
- Location
- Adequate water consumption (decrease)
- Type and amount of energy expended (renewable resources)
- Choice of the equipment



Even a large facility or temporary facility needs to be sustainable and resilient



Olympic Park - Sydney



Even a large facility or temporary facility needs to be sustainable and resilient

From the United States to China, through France, Germany, Finland or Greece, there are numerous examples of Olympic facilities that have been laundered or simply demolished, after having cost millions.



Even a large facility or temporary facility needs to be sustainable and resilient

Abandoned Olympic facilities in ruins



Olympic Park – Pequin 2008

Olympic Park - Athens 2004



Even a large facility or temporary facility needs to be sustainable and resilient

Build sports and Olympic facilities even after the activities, continue to operate, whether for sporting purposes or for other purposes.



Olympic Park – Sydney 2000



<u>Olympic Park – Rio de Janeiro 2016</u>



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Olympic Park – Sydney 2000

- This is a model of how to use an Olympic complex after the Games
- The area has been transformed into a center that combines sport, business, culture and education



Even a large facility or temporary facility needs to be sustainable and resilient



 This project as Sidney as a example of a Olympic complex after the Games.

Olympic Park – Rio de Janeiro 2016



Even a large facility or temporary facility needs to be sustainable and resilient



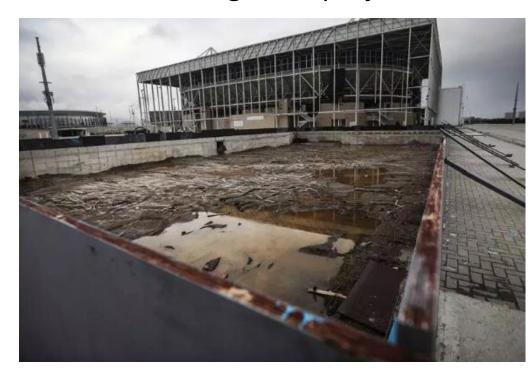
The project is transform the area into a center that combines sport, business, residential, green parks, culture and education.

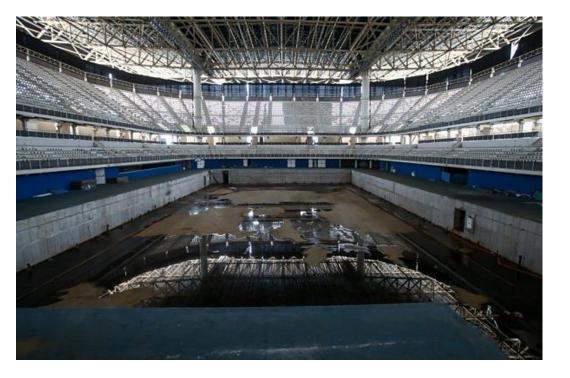
Olympic Park – Rio de Janeiro 2030



Even a large facility or temporary facility needs to be sustainable and resilient

Even with a long-term project, it is difficult to implement the legacy





Olympic Park – Rio de Janeiro after the games



Even a large facility or temporary facility needs to be sustainable and resilient

Some of the most relevant areas of the mission will be:

- Definition of the modern and 'green' stages;
- Access and transportation around the stadium area;
- Hotels and temporary accommodation;
- Sustainability and large events;
- TI and specialized technology for sports;
- Education of tourism professionals and volunteers.



Even a large facility or temporary facility needs to be sustainable and resilient

Some solutions to be able to have sustainable and resilient facilities:

- Nomadic architecture which is nothing more than a construction by modules that can be dismantled and transformed, a kind of giant lego;
- Reusing waste materials shipping container as a building structure;
- Sustainable materials;
- Use of renewable energy;
- Other use after sports activities

COC's headquarters Project



A facility that is built based on sustainability and resilience solutions

The "Comité olímpico Cabo Verdiano" headquarters

A green building that can use materials that come in many forms, for example; recycled, reused, renewable or locally sourced materials.

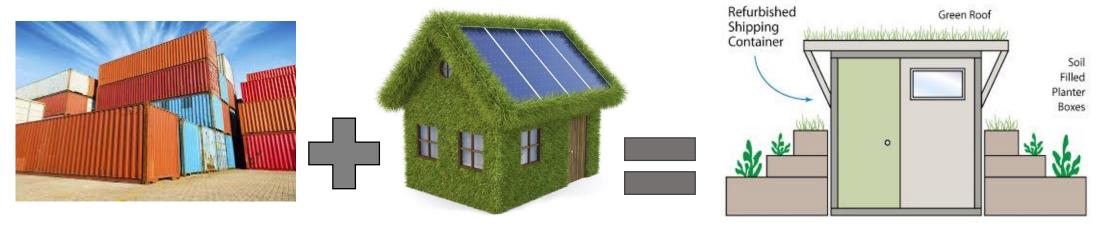
- First material for the architectural proposal of the headquarters are the shipping containers
 - Reusing a shipping container as a building structure save a lot of energy
 - A good example, as they can save on construction waste, time and money during the process.

COC's headquarters Project



A facility that is built based on sustainability and resilience solutions

The "Comité olímpico Cabo Verdiano" headquarters



Thinking about the energy efficiency of the headquarters project, we are proposing to have:

- Photovoltaic panels for own production of electric energy.
- A method that it is an example of a roof garden, but that is based on cover some parts of the containers whit earth or soil that can be used to effectively control the thermal comfort of a container.

This solution of energy efficiency can be perfect for hot countries like Cabo Verde.



If everyone starts thinking about actions of resilience and sustainability, we can achieve a better future for our planet.