DISCUSSING SUSTAINABILITY IN BUILDING CONSTRUCTION: the potential of SBTool for Brazilian Public bidding in FIOCRUZ

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1. INTRODUCTION
2. SUSTAINABILITY IN BRAZILIAN PUBLIC BIDDING
3. ENSURING SUSTAINABILITY OF BUILDINGS WITH SBTOOL
4. CHALLENGES AND OPPORTUNITIES FOR THE USE OF SBTOOL IN FIOCRUZ-BRAZIL
5. CONCLUSIONS

ACKNOWLEDGMENT

This research deals with the analysis of the potentialities of SBTool in Brazilian’s public biddings in order to conduct development assessment of sustainable projects in FIOCRUZ which is a public health institution of Brazilian Ministry of Health.
Introduction

The path to sustainability has not been regular nor straightforward, it forms a complex net.
Introduction

1990 rating systems
1991-9 HQE BEAM GBTool LEED


2006 GBTool changes to SBTool

2007 LEED first certification in Brazil

2008 AQUA-HQE first certification in Brazil

2010 New regulation: Exigency of sustainability for Public Buildings in Brazil

2014 Exigency of PROCEL certification in Public Buildings

Timeline
Introduction

• Projects for the production of public buildings in Brazil are selected by bidding governed by Federal Law.
• Since 2010, it became necessary to incorporate to the edicts the exigency to meet environmental quality requirements.
• However, it is still unclear which benchmark can be adopted in verifying compliance with environmental performance requirements.
Sustainability in Public Bidding in Brazil

Consequences:

• In the beginning of 2016, a medical laboratory linked to FIOCRUZ has obtained the pre-design AQUA-HQE certification.

• The Laboratory Facility is located on Belo Horizonte City (Minas Gerais State – Brazil) and this case study has been presented last year on CESB16.
Sustainability in Public Bidding in Brazil

• However, despite the successful adoption of the AQUA tool for this laboratory project, it is desirable to explore other alternatives.

• **SBTool assessment** has been developed and is provided by iiSBE – International Initiative for Sustainable Development – is **freely available** to the public and, for this reason, can be, to a certain extent, easily adapted and integrated in public procurement bidding processes.
Sustainability in Public Bidding in Brazil

Among others aspects, bidding contracts in Brazil must especially respect the following:

• I - adequate final disposal for solid waste generated by the contracted works;
• II - mitigation of environmental damage through constraining measures and environmental compensation;
• III - use of products, equipment and services that are proven to reduce the consumption of energy and natural resources;
• IV - assessment of neighborhood impacts.

The large range of environmental exigencies leads the discussion about guidelines for architecture design - hence the interest on SBTool.
Sustainability in Public Bidding in Brazil

SBTool has a generic structure that allows users to edit data according to different technologies, priorities, constructive styles and even cultural values. SB Tool is applicable in any type of building.
SBTool criteria

- The SBTool system allows assessments to be made in four distinct phases.
  - Pre-design phase: this phase is relevant to the selection of a project site and its characteristics. In SBTool, this is a separate assessment and it is assumed that there is no information available about the nature of the subsequent project development.
  - Design phase.
  - Construction phase.
  - Operations phase.
SBTool criteria

• Issues and Categories S, Pre-design phase only
  • S Site Location, Available Services and Site Characteristics

• Issues and Categories A to G, Design, Construction and Operations phases
  • A Site Regeneration and Development, Urban Design and Infrastructure
  • B Energy and Resource Consumption
  • C Environmental Loadings
  • D Indoor Environmental
  • E Service Quality
  • F Social, Cultural and Perceptual Aspects
  • G Cost and Economic Aspects
**File A** is used to establish regionally relevant benchmarks, and one or more **File Bs** allow assessment to be made for a specific project.

### Table 1: Brazilian public bidding modes

<table>
<thead>
<tr>
<th>Types of Brazilian public procurement</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Invitation</td>
<td>Those bidding modes <strong>select the architecture office</strong> that will develop the design project.</td>
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<tr>
<td>• Public competition</td>
<td></td>
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<tr>
<td>• Live reverse auction</td>
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<td>• Virtual reverse auction</td>
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<tr>
<td>• Public, Joint stock companies and its Subsidiaries’ law</td>
<td></td>
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<tr>
<td>• RDC</td>
<td></td>
</tr>
<tr>
<td>• Design competition</td>
<td>This bidding mode <strong>selects the architecture design.</strong></td>
</tr>
</tbody>
</table>
Table 2: Public bidding modes and the potential for SBTool

<table>
<thead>
<tr>
<th>Types of Brazilian public procurement</th>
<th>Potential for adoption of SBTool</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Invitation</strong></td>
<td>SBTool must be previously determined in the procurement announcement / “Edital”.</td>
</tr>
<tr>
<td><strong>Public competition</strong></td>
<td>The use of SBTool must occur during the contract supervising phase, (during design phase).</td>
</tr>
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<td><strong>Live reverse auction</strong></td>
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</table>

| **Design competition**                | SBTool must be previously determined in the procurement announcement / “Edital”. |
|                                      | The use of SBTool on this modality must occur during the architecture design selection phase. It could help in the classification of competing projects and guide detailing options after the competition. |
Public bidding modes and the potential for SBTool

• Except for the mode Design Competition, which selects the design project itself, all the other bidding modes aim to select the architecture office that will be in charge of the project.

• That means that, in the majority of cases, the assessment of projects with environmental quality will only be asked during the contract phase, after the bidding process is over.
Therefore, "Design Competition" is an interesting alternative for the selection of projects with architecture solutions that allows high environmental performance of building:

- in this mode of public bidding, the architecture projects presented by competitor are compared by a jury of specialists that will analyse how environmental requisites has been incorporated to the design solution;
- after the evaluation, the "best project" wins the bidding (and not the best “architecture office”, as occurs in other bidding types).
Conclusions

SBTool positive aspects considering public biddings in Brazil:

• It is a flexible tool and can be adapted for Brazilian buildings;

• It is able to guide the development and evaluation of design projects;

• It can be applied in all modes of Brazilian procurement (both during procurement phase / contract phase).
Conclusions

SBTool negative aspect:

- The level of coverage and information required by SBTool (LCA data, economic performance) extrapolates the availability of consolidated data in Brazil.

Despite this, it is understood that the positive aspects outweigh the negative one, and SBTool can be adopted in Brazilian's public biddings.
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Thank you

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