INCORPORATING SUSTAINABILITY INTO TENDERING PROCEDURES FOR CONSTRUCTION WORKS IN AUSTRIA WITH A SPECIAL FOCUS ON THE HEALTH CARE SECTOR

Johannes Wall
City of Graz

Capital of Styria
UNESCO world heritage
City of Design
European Capital of Culture 2003

Facts:
269,997 inhabitants
599,000 metropolitan area
127.56 km²
55,000 students
4 Universities
2 Universities of Applied Sciences

Source: Graz Tourismus
Smart City Graz

Source: http://www.smartcitygraz.at | Graz Tourismus

25.11.2014
Workshop on environmental sustainability in the health sector
Overview

- Motivation
- Procurement of construction works
- Products
- Processes
- Situation in Austria
- Conclusion
Political frameworks for sustainable public procurement

- Lead market Initiative sustainable construction (2007)
- Roadmap to a resource efficient Europe (2011)
- Thematic strategy for cities (2006)
- Roadmap 2050 (2011)
- Directive 2010/31/EU on energy performance of buildings
- Directive 2012/27/EU on energy efficiency
- Directive 2014/24/EU on public procurement
- procure_inno (2007)
- Action plan sustainable public procurement (2010)
- Concept for innovative public procurement (2012)
- IÖB - innovative public procurement (2014)
How can we make construction more sustainable???

- Bill of quantities
- Selection criteria
- Pre-qualification
- ...

Workshop on environmental sustainability in the health sector
Challenges - Need for action

- Project development
- Technical Design
- Detail planning
- Construction
- Usage

- Architectural competition
- Planning
- Tendering
- Transfer
Challenges - Need for action

Project development → Technical Design → Detail planning → Construction → Usage

- Influence
- Costs/effort on adaption

Level of influence on cost vs. project stages
Requirements based on building certification systems

**Pre-check**

**Pre-certificate**

**Certificate**

**Integral approach**

1. **Project development**
2. **Architectural competition**
3. **Preliminary design**
4. **Engineering**
5. **Detailed design**
6. **Tendering**
7. **Awarding**
8. **Final design**
9. **Construction**
10. **Transfer**

**Information relevant for tendering**

- **Products**
- **Products**
- **Products**
- **Products**
Procurement of construction works

Implementing sustainability aspects in:

Processes

Products

Source: © lego.com | © Creative Uncut | Concrete LEGO Blocks by Andrew Lewicki
Procurement of construction works

Product Level

- Product properties
  → Ecological performance indicators
- Support during design stage
- Specification in tendering
- Monitoring at construction site
EcoBuy Vienna | ökokauf Wien

- Environmental Protection Department (MA22) City of Vienna
- Suited for public calls for tender
- Strong interaction with city administration and buyers
- EU commission mentioned as one of the most effective projects to promote resource efficiency
- Awarded as “Best Practice”
- Health Care Without Harm - to support procurement in the health care institutions (WIDES)
EcoBuy Vienna | overview

Procurement of construction works

Process level:

- Tender evaluation
  
  Lowest acquisition costs vs. most economically advantageous tender (MEAT)

- Functional and technical specifications:
  - Descriptive specification
  - Functional specification
  - Performance-related specification

- Sustainable Issues - ongoing research at TUG
Experiences from Austria

Vienna Hospital North

MED Campus Graz

KAGes

Source: Vienna Hospital North 2014; Picture: H.Dimko | ÖGNI / © Riegler Riewe Architekten ZT Ges.m.b.H. | © KAGes
Vienna North Hospital

**Facts**

- Site: 111,579 m² Gross floor area: 214,910 m²
- Healing garden: 46,709 m²
- App. 800 beds
- Project launched 2006 - Preliminary draft 2009
- Start of construction works 2012 - Completion 2016

Source: KAV/Health Team KHN - Albert Wimmer ZT GmbH | © Hubert Dimko
Charta on sustainability

- 31 criteria gathered in 4 thematic blocs
  - Outdoor design
  - Interior design
  - Energy aspects
  - Construction

- Each criterion contains a goal definition and planned measures

→ Overall 200 single measures
Charta on sustainability - GOALS

1. Accounting to energy efficiency criteria concerning construction and building
2. Integration of life cycle cost accounting on all investment decisions
3. Providing for flexibility of use and subsequent expandability of the building
4. Creating good working conditions for the staff
5. Creating a high degree of identification of the staff with the Vienna North Hospital
6. Planning and implementing efficient lightning concepts
7. Implementing an efficient management and logistics concept
8. Ensuring short routing for all processes

Source: Vienna Hospital Association (2009) Quality Criteria for planning and construction
MED Campus Graz

Source: H.Schober (2013) case study of the MED CAMPUS Graz | © Paul Ott
Building certification systems

Source: Core System DGNB/ÖGNI
Adapted for laboratory buildings by TUG
MED Campus Graz

New mixed-use buildings:

- 92.0% environmental quality
- 84.0% economic quality
- 91.9% socio-funct. quality
- 74.9% technical quality
- 95.4% process quality
- 86.7% property valuation
- 84.9% site quality

Further Information:
Graz University of Technology
Working group sustainability assessment
Alexander.Passer@tugraz.at

Source: ÖGNI (2013) Vorzertifikat in Gold MED Campus Graz

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Sustainable Construction KAGes

Facts:

- 16,000 Employees
- 6,100 Beds
- 22 Healthcare Facilities on 28 Locations
- TDZ Technisches DL-Zentrum (client/owner)

Source: © Steiermärkische Krankenanstaltengesellschaft m.b.H
Sustainable criteria check list KAGes

Source: B. Hasiba (2013) Status quo der Nachhaltigkeit im Baubereich der KAGes

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Further aspects of sustainability at KAGes

- Year targets on energy reduction in their facilities to reduce the overall energy consumption
  - Transformation projects on energy savings in terms of organisation and user motivation
  - Energy project in terms of operational optimization

- Considering sustainability aspects in architectural competitions

- E-procurement (2013)
Conclusion / Challenges

- Political framework for implementation
- General statements | insufficient itemisation
- Focus on single products | prohibition | holistic approach
- Missing basis for assessment | monitoring
- Competence/responsibility of the client | “Bauherrnkompetenz”
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- Vienna Hospital Association (2009): Quality Criteria for planning and construction
- H. Schober (2013): Integration of sustainability targets into the planning process and their effects on project results – case study of the MED CAMPUS Graz
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