LEnSE

Methodology Development
towards a Label for
Environmental, Social and Economic Buildings

Setting the Scope

Identification of issues

Overview and aims

Achieve a ***representative*** and ***practical*** assessment method

- » Review and analysis of existing methods
- » Production of the 'long list'
- » Boundary definition
- » Issue selection
- » National and regional variation

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Review and analysis of existing methods

- LCA tools
- Building rating systems
- Also:
  - » Cost calculation tools
  - » Energy performance calculation tools
  - » Infrastructure tools
  - » Sustainability incentives
  - » Existing review reports
  - » Previous European projects
  - » Existing and draft standards

Analysis of existing tools

- Why are existing tools successful and others not?

Strengths	Weaknesses
LCA methods	
Standardised	Limited to environmental issues
Verifiable	Lack of harmonisation across Europe
Rating tools	
Potential for wider scope	Difficulties with qualitative issues
User friendly and widely used	Variation between tools

The ‘long list’

- From the analysis of existing methods

1. Three ‘pillars’
   - » Environmental, social and economic
2. 22 themes
   - » Resource use, cultural heritage, life cycle costs
3. 120 issues
   - » Primary energy use, architectural aesthetic, operational costs

Setting the scope - methodology

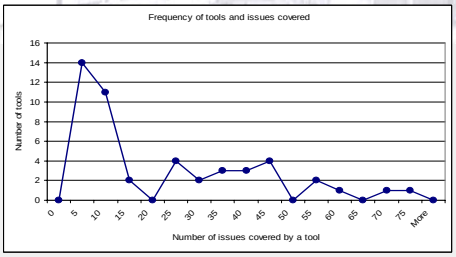
- Questionnaires
- Frequency analysis of existing schemes
- National stakeholders meetings
- Case studies and interviews

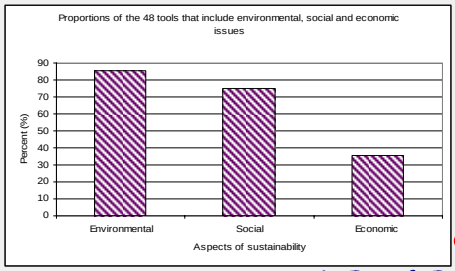
Boundary definition

- Building type
  - Residential, industrial, office/commercial
- Life-cycle stage
  - From design to disposal
- Scale of application
  - Building and associated site
  - Scope for broader scale issues

Size of methodology

- 10 key themes
  - » Issues and metrics within each
  - » Balance between three pillars of sustainability (economic, social and environmental)
  - » Matches with existing methods
- Highlights social and economic sustainability as areas to develop.



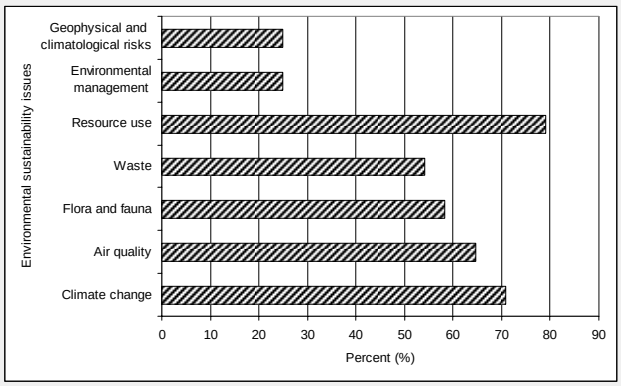


Theme and issue selection – statistical method: aims and method

- Aim – select issues that are:
  - *i. Representative:* broad and thorough
  - *ii. Practical:* straightforward to carry out and interpret
- Methodology
  - » Frequency analysis of existing schemes
  - » Questionnaire of trans-European experts

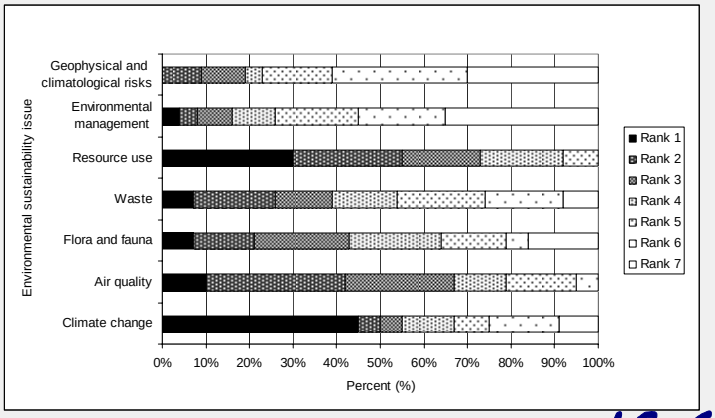
Theme selection – statistical method: results

Frequency analysis of existing schemes



Theme selection – statistical method: results

Ranking of issues by trans-national experts



Theme selection – statistical method: results

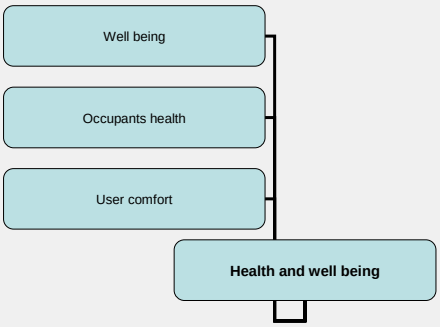
Reduced list of ten themes:

- ***Environmental theme***
  - » Resource use
  - » Climate change
  - » Biodiversity
  - » Air quality
- ***Social theme***
  - » Well being
  - » User comfort
  - » Occupants' health
- ***Economic theme***
  - » Life cycle costing
  - » Support for the local economy
  - » Externalities

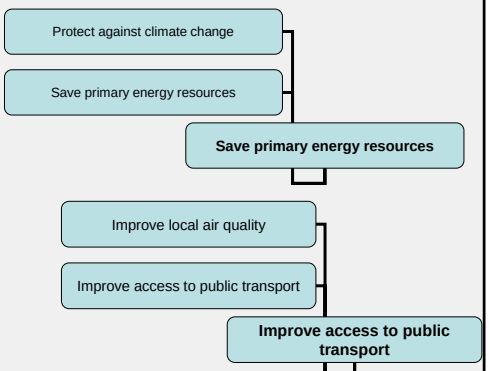
Limitations?

Theme selection – reductionist approach

- Areas of overlap
  - » between themes:



And between issues:



Theme selection – reductionist approach

Restructured list of themes

- ***Environmental theme***
  - Climate change
  - Air quality
  - Biodiversity
  - Resource use and waste
  - Environmental and geophysical risk
- ***Social theme***
  - Health and well being
  - Security and safety
  - Social and cultural value
- ***Economic theme***
  - Life cycle costs and value
  - Financing and management
  - Support for local economies
  - Externalities

List of environmental themes and issues

Climate change	Reduce greenhouse gas emissions
Air Quality	Improve local air quality (reduce toxic emissions)
Biodiversity	Protect waterbodies (from pollution and eutrophication)
	Protect woodland and reduce acidification
	Protect biodiversity
	Improve soil pollution (and reduce toxic emissions)
Resource use and waste	Limit raw material use and source renewable/recycled materials
	Save primary energy resources (embodied, operational and renewability)
	Save water resources (reduce use and maximise use)
	Reduce land use (reduce total use and maximise reuse of contaminated land / brownfield sites)
	Reduce final waste (solid and sewage)
	Reduce hazardous and radioactive waste
Environmental management and geophysical risk	Provision of environmental policy, management and training
	Manage risk of earthquake / subsidence / erosion / wildfire / weather extremes
	Limit flood risk (susceptibility and storm water drainage)

National and regional variation

Country	**Aspect of sustainability**	**Issue of regional / national priority**
France	Environmental	Water resources (specific to different regions)
Germany	Social	Demographic change (specifically, fluctuating city size)
		Reducing social cohesion
		Problems of function versus aesthetics / culture
		Possibility to differentiate between old and new buildings in the assessment
Switzerland	Environmental	Impacts of climate change: avalanche risk, alpine permafrost thaw, flooding...
	Social	Localisation of buildings
		Land use
		Indigenous resource use
		Mobility / accessibility
		Access to workplaces
Czech Republic	Economic	Life-cycle costing
		Primary energy use
		Resource use
	Social	Maintenance
		Occupants' health