SUE-MoT: Sustainable Urban Environment – Metrics, Models and Toolkits

Summary Report of the Workshop on Urban Sustainability Assessment

(Held on 30th November 2007 at The Royal Statistical Society)

December 2007

CONTENTS

1. INTRODUCTION

This report provides an overview of the Workshop on Urban Sustainability Assessment organised by the SUE-MoT project (Sustainable Urban Environment – Metrics, Models and Toolkits) which was held on the 30th of November 2007 at the Royal Statistical Society, London. The overall vision of the SUE-MoT project is to develop a comprehensive and transparent framework that encourages key decision-makers to systematically assess the sustainability of urban developments taking account of scale, life cycle, location, context and all stakeholder values. The programme is being executed by a consortium comprising Dundee, Glasgow Caledonian, Loughborough and St Andrews Universities and over 20 partner organisations. The aim of the workshop was to inform built environment practitioners of our research findings to date and to obtain their feedback. The workshop participants represented a diverse range of stakeholders with varying levels of experience and differing interests in addressing urban sustainability assessment.

At the workshop the researchers provided an overview of SUE-MoT research on three of the key themes: 1) Developing an Integrated Sustainability Assessment Toolkit; 2) Environmental Equity Assessment; and 3) Common Units of Measuring Sustainability. The report gives a summary of the key issues discussed at the Workshop and how these will inform the research project. Copies of the slides presented at the Workshop will be provided separately.

The workshop provided much useful feedback on these three important themes of our research. The researchers will now build on the feedback received from the practitioners at the workshop (as outlined in this report).

The future plans for the SUE-MoT project include further interaction with practitioners including case studies, focus groups, interviews and further workshops. We look forward to your continued involvement in these.

For further information about our project including future events please visit our website:
www.sue-mot.org

2. THE WORKSHOP PROGRAMME

10:00-10:30	Registration and Tea/Coffee
FIRST SESSION	
10:30-10:40	Welcome – Professor Malcolm Horner, Dundee University
10:40-12:15	Presentation and discussion on Developing an Integrated Sustainability Assessment Toolkit– Dr. Mohamed El-Haram, Dundee University and Dr. Craig Thomson, Glasgow Caledonian University
12:30-13:15	Lunch and Tea/Coffee
SECOND SESSION	
13:15-14:00	Presentation and discussion on Environmental Equity and its Assessment – Dr. Jonathan Walton, Glasgow Caledonian University
THIRD SESSION	
14:00-15:00	Presentation and discussion on Common Units of Measuring Sustainability– Dr. Yan Xing and Alexandros Gasparatos, Dundee University
15:00-15:30	Plenary discussion and summary - Prof. Malcolm Horner, Dundee University
15:30	Close

3a. LIST OF WORKSHOP PARTICIPANTS

Name	Organisation
Toby Atkin-Wright	University of Dundee
Rym Baouendi	Buro Happold Ltd
Birte Berlemann	London Sustainability Exchange
Jo Carris	Laing O'Rourke
Shuo Chen	RMJM Cambridge
Nick Corker	Building Research Establishment Ltd
Mohamed El-Haram	University of Dundee
Doug Forbes	University of Dundee
Alexandros Gasparatos	University of Dundee
Dave Holtum	EPSRC
Malcolm Horner	University of Dundee
Frances Madders	Turley Associates
Meabn Bean	Davis Langdon LLP
Alex Michelsen	Laing O'Rourke
Gordon Mitchell	The University of Leeds
David O'Rorke	Imperial College
Primali Paranagamage	Loughborough University
Carol Pettit	The University of Manchester
John Piggott	Arup
James Sutherland	University of Dundee
Craig Thomson	Glasgow Caledonian University
Andrew Venn	Bernard Williams Associates
Jonathan Walton	Glasgow Caledonian University
Yangang Xing	University of Dundee

3b. List of Apologies

Name	Organisation
Tim Broyd	Halcrow Group
Rachel Carless	London Borough of Tower Hamlets
Barbara Carroll	enfusion Ltd
Colum Halforty	Scottish Enterprise Glasgow
Poul Wend Hansen	Vita Lend Lease
Andres Luque	Arup
Lee Marks	Laing O'Rourke
Edwina McKechnie	Davis Langdon LLP
Fayyaz Ali Memon	University of Exeter
Alessandra Oppio	Politecnico of Milan
Chris Shirley - Smith	Water Works UK Ltd
George Stilgoe	City of London

4. SUMMARY OF THE FIRST SESSION: DEVELOPING AN INTEGRATED SUSTAINABILITY ASSESMENT TOOLKIT (ISAT) AND ASSOCIATED KNOWLEDGE MANAGEMENT SYSTEM (KMS)

Professor Malcolm Horner opened the event, and presented an outline of the aims and objectives of the SUE-MoT research programme highlighting the relationship between the eight work packages involved. Central was the development of the ISAT and its supporting KMS. Dr. Mohamed El-Haram and Dr. Craig Thomson followed this with a presentation outlining the requirements for the development of the ISAT and KMS, and raising a number of questions. The response of participants who had practical experience would benefit the research. Two groups were established and a number of individual and group based tasks issued in order to provoke feedback on the intended system, and to stimulate debate and discussion.

Key issues raised/discussed in the session

What are the differences between the structure of our process and the sustainability assessment process in practice?

The participants were asked to consider the structure of the modules of the ISAT in relation to the stages of sustainability assessment processes found in practice. Following discussion regarding the role played by the ISAT during sustainability assessment, participants responded warmly, and requested no changes or additions to the structure.

The presented structure-

- Assessment context (input)
- Issues selection
- Tools selection
- Assessment
- Integrator
- Output assessment

In your view, what approach should be adopted to prioritise the issues during sustainability assessment?

Participants were asked to consider the activity of prioritising sustainability issues during sustainability assessment. This was outlined as a necessary part of the tools selection process within the ISAT, and input from practitioners was sought in order to inform its development. A discussion amongst the groups raised a number of issues which the team will consider. They were:

1. It isn't always possible to prioritise the issues because they are already prioritised within the tool, i.e. LEED and BREEAM.
2. Does the ISAT aim to incorporate tools that provide design guidance? If not it should do as it was felt that many of the tools used are selected for this purpose, i.e. BREEAM
3. The selection of issues requires to be conducted quickly at the start of a project
4. It needs to be used early on, as it needs to influence the design
5. An ethereal process, as it may not be like that

6. The use of case studies should aid the consideration in the practical selection of issues
7. Consideration should be given to enter the tool at different points
8. Consideration should be given to the context of trying to achieve a standard i.e. BREAM

What additional tools should be included in the tools database?

Participants were asked to suggest any tools that they could identify from their practice that should be included in the database. Several additional tools were suggested for consideration by the team for inclusion in the tools databases, they are; Design Quality Indictor, Envest, GLA (Greater London Authority) checklist, Code for Sustainable Homes, Green Print

Have we identified the right criteria for tool selection?

Participants were presented with a table to complete individually, and to then discuss this with the group. Overall it was noted that the existing tool criteria were understandable and should be retained. However several suggestions were made for the team to consider as additions.

The criteria identified for tool selection

1. Spatial scale
2. Building type
3. The lifecycle stage
4. The tool coverage
5. The intended primary user of the tool
6. Geographical location the tool is intended to be used in
7. New or refurbished
8. Compatible with the "Assessments Integrator"

Others suggested during workshop

- Intended user of end result (end user)
- Validity of the tool (established or fully tested)
- Resources required
- Intended outcome
- Stakeholder preference
- Planning or regulation requirements
- Project type
- Knowledge and skills required for use
- Data requirements
- Overall usefulness
- Greenfield/ Brownfield
- Purpose of the tool
- Peer review
- Transparency

General comment and questions regarding the previous questions

During the discussions surrounding the previous questions, a number of observations were made by the participants for the team to consider further. These are detailed in no particular order below:

1. Who is the primary user of the tool? Debate as to whether this was important or could it be used by multiple users
2. Compatibility with the integrator- concern that the integrator may vary from area to area
3. Skill level and expertise would be a big consideration in the level of use
4. The characterisation of the project is vital in aiding the selection of tools considered during the assessment
5. The relationship between the scale and time of assessment needs to be considered
6. An understanding of the purpose of the tool requires to be demonstrated, but need for all to be housed in the database, i.e. engagement, benchmarking, communication
7. Comparability of outputs requires to be considered
8. Need for the process behind the assessment to be understood
9. 3rd party validation of the assessment process and its outputs is something that requires to be identified and acknowledged within the system
10. Time and cost are significant issues facing the selection of tools.
11. The nature of the tool used and its validation are important considerations during selection
12. Are we considering standards or tools?

What is the best way of representing the outputs of an assessment?

Managing the outputs of an assessment presents many challenges, and the variety of tools available makes interpreting their outputs in a meaningful manner difficult. The participants were asked to consider the best way within the system to represent these outputs. The provoked a lively discussion raising many considerations that the team require to consider. They are:

1. Ease of understanding
2. Simplicity was identified as key in presenting outputs from the tools, although there is a need to support simple outputs with the narrative that surrounds it in order to deliver an understanding of its richness
3. A number of options exist in order to consider the outputs- numbers, comparisons, impact on design change.
4. Transparency, ease of use, capability- these were identified as presenting many challenges
5. Colour as a means for highlighting levels for comparison
6. Developing an understanding of how planners conceive and receive data is required
7. Form of output can be very subjective particularly when it comes to a visual representation
8. Visual map has the potential to provide lessons through its use of molecules
9. Signatures should be considered
10. Spiders web was suggested as a means of considering the output in relation to targets set
11. Negotiation discussions should surround the consideration of outputs

12. Problem of interpretation caused by diversity of users who want different things from the outputs due to their varying focus and priorities.
13. Need to consider in close relation to the stages of the project
14. Will it influence the decision makers?
15. A warning was given as to the potential of certain types of outputs to be seductive to those who consider them. A need was identified to consider the influence that certain styles of outputs can have on perception
16. Suggestion for the research to select particular issues, get the outputs and then understand the nature and influence of the outputs
17. The style of presentation contained in the visual map was suggested as something that the team should consider, especially the use of pop ups to provide a narrative around each of the issues displayed in a monocular structure.
18. Consideration of LEED's on-line tool was suggested, as it provides formulated documents that users can fill in and therefore achieve consistency
19. A requirement was observed to be able to update the assessment over the course of the project, as it may change. It was suggested that having outputs presented for different stages of the project may allow a traceable signature to be developed.
20. The use of INSIGHTS as a means of presenting outputs
21. Need to reflect the diversity of users that will consider the outputs. They may have different preferences, abilities in interpreting the data
22. Value of the importance of the outputs may vary depending who is considering it
23. Use of spider diagram to illustrate the distance from the clients values may prove useful
24. DEFRA close the net was identified as something to consider

What information/ knowledge should be captured for future assessment?

Participants were asked to consider the knowledge that they felt was required to support the user of the system, and to then think of whhat would be beneficial to capture for future users of the system. A discussion provided a number of observations which will be considered by the team. These were:

1. What information has been useful during the assessment? A means of recording, the nature and experience of using and considering knowledge during assessment would be useful.
2. How the process was for you? Which part of the assessment did individuals benefit from
3. Which tools are good for what, strengths and weaknesses
4. A transparent assessment is important, and therefore access to the knowledge that surrounds assessment is recognised as valuable
5. Adjustments should be possible to the knowledge that is contained in the system
6. It is important to present the user with an interpretation of the process of assessment, and link it into their everyday activities within a development project
7. Assessment of the assessment. How well do the assessment tools actually consider the sustainability issues and the requirements of the assessment? There is a need to consider how well sustainability is actually being considered.
8. How effective is the ISAT in helping the user to assess sustainability
9. Consideration of the use of pop-ups around the issues and tools during their selection, to provide definition etc

10. Consider the pros and cons of using weightings/ratings when reviewing tools etc. Potential value as an aid, but concern over its reliance on effective evaluation and up to date knowledge
11. Concern over bias seeping into the knowledge held in the system- i.e. the client may influence this heavily

How these will inform our research

- The team will consider how best the ISAT process aligns with processes such as RIBA
- The research team will learn more about the tools which were mentioned by the workshop participants and if necessary include them in the tools database.
- The team will identify and test the key drivers in prioritising the sustainability issues/impacts and implement them within the system.
- The team will test the suggested criteria for the selection of sustainability tools.
- The team will consider how best the individual assessment outcome can be integrated.
- The team will consider how best to address the observations raised by the participants to develop the knowledge management system

5. SUMMARY OF THE SECOND SESSION: ENVIRONMENTAL EQUITY ASSESSMENT

Dr. Jonathan Walton (Glasgow Caledonian University) provided a presentation outlining the theory and existing policy in relation to environmental equity and in light of these proposed an EIA based framework for its assessment in relation to urban development in the UK. Subsequent discussion is summarised below:

Key issues raised / discussed in the session

Issues and Indicators

10 headline environmental equity indicators were introduced. Attendees felt that:

- The team could provide more clarification on how the indicators were identified.
- It is worth considering if it is possible and desirable to aggregate these indicators.
- There may be value in presenting the indicators in a visual format.
- The framework should also make mention of the benefits that a proposed project may bring and not just focus on the burdens.

Current evidence and practice

Attendees were asked to provide their views on the barriers to, and incentives for, introducing the proposed framework in practice:

- There was some discussion regarding the extent to which environmental equity issues exist and will exist in the UK and accordingly the requirement for its assessment. However, while it was felt that some environmental equity issues are likely to become less of a concern into the future, others are projected to become more of a problem.
- Attendees wondered to what extent environmental equity was considered indirectly during existing processes such as planning and EIA.
- The team were advised that any proposed framework needs to fit into existing practice and not attempt to substitute for it.

How these will inform our research.

The team greatly value the observations made and will consider the research in light of these. In particular:

- The team is now identifying the possible benefits associated with a proposed project and considering how these can be incorporated into the framework.
- The team will consider the form that the indicators take including issues of aggregation and visual communication.
- Research by the team and others suggests that currently in the UK no systematic and predictive assessment of environmental equity (directly or indirectly) is undertaken in relation to urban developments and consequently the team feel that the proposed framework will be of value in providing quantitative data to inform decisions on the equity of such developments.
- The team share the concern of the attendees that any framework needs to be compatible with existing practice and are currently examining how the framework can be adapted to reflect proposed changes to the planning system.

6. SUMMARY OF THE THIRD SESSION:
COMMON UNITS OF MEASURING SUSTAINABILITY

Prof Malcolm Horner provided a presentation outlining the different methodological procedures that can be employed and the challenges arising when attempting to capture the progress towards sustainability with a single metric (biophysical models "emergy, exergy, ecological footprint", sustainability indicators and composite indices and monetary tools (Full Cost Accounting) Subsequent discussion is summarised below.

Key issues raised/discussed in the session

Participants were presented with two options of impacts categories for Urban Sustainability Assessment (see option 1 below). Participants were asked to consider the most important impacts that should be considered in Full Cost Accounting. Preference was given for the 1st as opposed to the 2nd option diagram for sustainability impacts (see presentation slides). Overall it was noted that the impacts categories were comprehensive, however several suggestions of impacts were made for the team to consider as additions.

- Waste
- Pollution to soil /land
- Built heritage and aesthetic value was observed as significant also
- Concern regarding the limitation of the discussion to fossil fuels was noted. Where is Uranium etc?
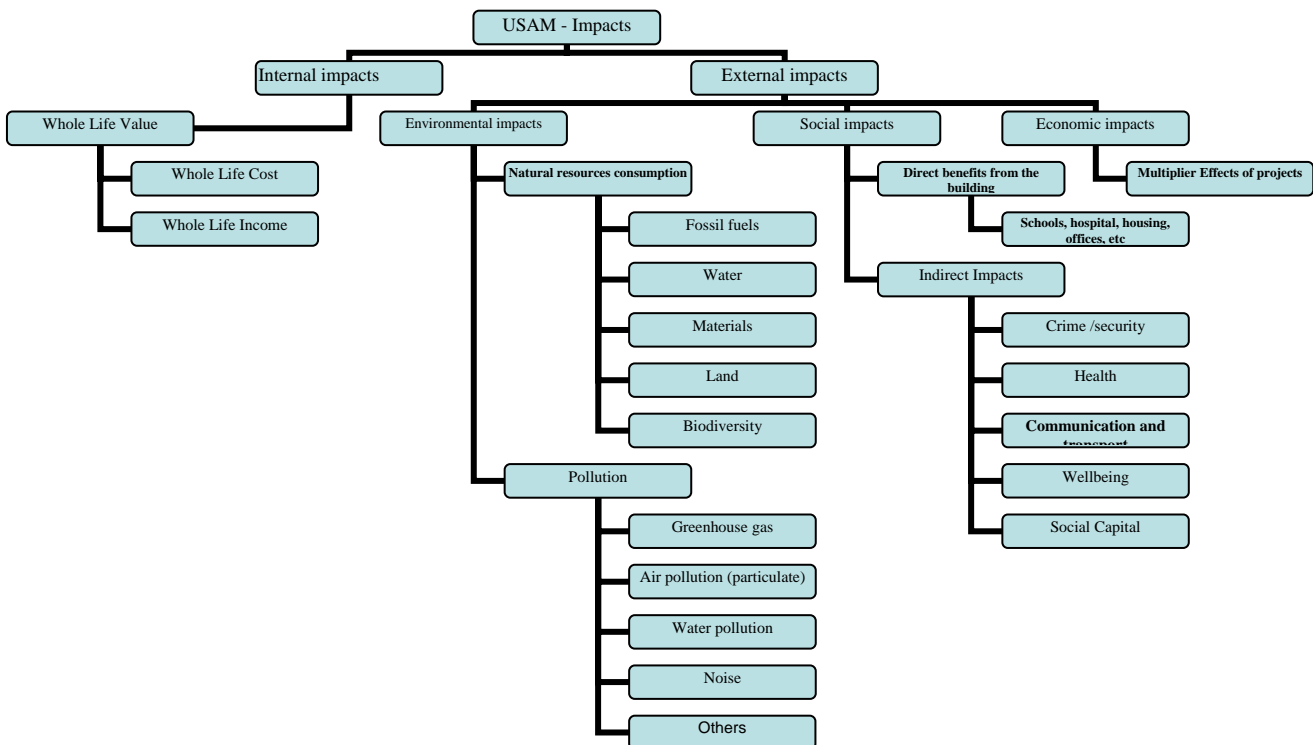- Values as well as costs require to be considered

Figure 1: Impacts Categories for Urban Sustainability Assessment (Option 2)

Participants were also asked to suggest most likely approach "emergy, exergy, ecological footprint", sustainability indicators and composite indices and full cost accounting to be of use to practitioners.

1. Different people may use a different approach. It was recognised that this may be background dependent.
2. The stigma associated with money was observed to be a concern

<u>How these will inform our research</u>

- The research team will consider how best to include the suggested impacts into the Urban Sustainability Assessment framework
- The research team share the concern over the difficulty of quantifying social issues.

THANKS AGAIN TO ALL WHO PARTICIPATED