

W100 - Environmental Assessment of Buildings

The Coordinator of W100 Mr. Nils Larsson has been appointed as the CIB representative on the Task Force on Sustainable Building Market Development that has been set up by the International Energy Agency Working Party on Energy End-Use Technologies (EUWP).

The mission of the Task Force is to advise the Working Party on whether a new, more integrated initiative should be taken at the building sector level.

And now to the affairs of W100 whose third official meeting took place in Chattanooga, Tennessee, USA on 17th and 18th October 1999. With his customary thoroughness, Nils Larsson has been good enough to compile a report on what went on there. Some 14 countries sent participants.

Scope

The meeting began with a re-examination of the scope of work. This was prompted by comments from some members about the desirability of assessing the implementation of specific tools as well as building-level rating and labelling systems. The discussion led to the conclusion that if the scope were to be limited just to high-level rating and assessment systems, then only a few systems (BREEAM, HK-BEAM, EcoProfile and a few others) would be studied. On the other hand, a study of all tools that are used for detailed assessments might be too ambitious. In the end, it was agreed that some specific calculation tools are very necessary for the operation of high-level assessment systems, and should therefore certainly be evaluated.

It should be noted that many of the participants in the above discussion were unaware of the work of IEA Annex 31, which established a typology and description of assessment tools.

Steve Curwell outlined the results of the survey, which was prepared by the Survey Subgroup and carried out by a graduate student. The survey report has already been distributed to W100 members and contains reports on several existing systems.

It was suggested that more detailed case studies should be undertaken. It was agreed that the work of W100 should primarily deal with assessments of methods and systems, but that specific case studies of performance assessments might be useful to clarify the strengths and weaknesses of various methods.

Wayne Trusty suggested that a generic taxonomy was needed to generally define what the various systems and methods do. It was suggested that the typology developed by Wolfram Trinius for Annex 31 could serve the purpose.

This brought up the general topic of Annex 31 and the relationship of W100 to it. It was recognised that Annex 31 is at the end of its life and that final reports are being prepared. It was agreed that efforts should be made to maintain the currency of the work developed by Annex 31, and that W100 was the only body in existence with similar aims, and so perhaps W100 should take on the role of maintaining and updating the Annex 31 work.

BEPAMs

Caroline Mackley then presented an outline of the work on Education which she has been carrying out in New Zealand. The end result will be a central web resource for educational materials related to Building Environmental Performance Assessment Methods (BEPAMs). An extended summary from her important

Report follows this article.

Coming out of the description of her work, a discussion led to a decision that W100 should announce that it was now pro-actively promoting the idea and use of BEPAMs.

An intense discussion ensued on whether W100 should carry out critiques of existing systems, or whether this was the job of standards bodies. However, there was no definitive resolution to this issue.

Bob Lowe launched a discussion on behalf of the Implementation Committee that was mainly related to identifying drivers for the adoption of BEPAMs. Using analogies with window standards, he pointed out that the threat of regulation was always a good incentive for the industry to adopt voluntary standards.

Bob Lowe went on to say that the idea of the Implementation Committee was to carry out a survey, but the content was not clear. He also outlined several relevant issues:

- premature implementation of BEPAMs will freeze development too soon
- commercial users and regulators want stability and continuity, whereas system developers want fluidity and freedom
- a badly specified system can be worse than useless

Nigel Howard vigorously disagreed with this line of reasoning, maintaining that identifying and counting intermediate indicators is easier than assessing end states.

It was finally suggested that W100 should implement systems to the extent possible now, rather than waiting for some future ideal system.

Overview of HK-BEAM

On Day 2, Stephen Lau presented information about the HK-BEAM system. BREEAM was the inspiration, but HK-BEAM has several different features and has increasingly diverged from BREEAM.

Overview of Korean Plans

Ming-Gu Jun of Korea described Korea's interest in rating and labelling systems. The focus is on rating systems for multi-unit residential buildings (MURBS), which constitute 76% of the residential sector. New development is increasingly concentrated in new towns, such as Pun Dang, which is 97% MURB and has a population of 390,000. Apartments are normally purchased in Korea and, since there is a current surplus of units, there is a need to do lots of marketing - and this is where rating and labelling systems may prove useful.

The Korean effort in assessment and rating systems is focused on GBC, and is organised through the Korea Quality Assurance Management Association which has followed ISO recommendations in setting up the organisation. They have established separate working groups for each issue area and have translated the MURB version of GBC into Korean.

Overview of BREEAM Implementation Experience

Nigel Howard provided an overview of management issues related to BREEAM. The system has now been operational for ten years and includes versions for offices, superstores and industrial units. 25% of all new offices in the UK are covered by the system.

A survey of some 400 users was carried out recently and Nigel reviewed the results. It showed a high degree of satisfaction and also indicated considerable improvements in building performance (pre- and post-BREEAM), except in the area of staff productivity.

Future W100 Work

Nigel Howard suggested that a structure should be established for a final report and suggested headings included:

- Local context and priorities
- Markets, policies and regulatory framework
- Stakeholders and decision makers as BEPAM clients
- Implementation and commercial strategies
- Case studies from different countries
- Future trends and developments
- Awareness, promotion and education

Among other decisions that were made was that Wayne Trusty would coordinate the development of a tools typology. This may closely follow the typology developed in Annex 31.

Further discussion took place on the subject of a survey. It was agreed that respondents would have to be carefully targeted but that detailed information was necessary if a meaningful report was to be produced. The survey should include information about sub-variants of major local systems and also specific calculation tools.

Next Meeting

After the meeting further discussions took place, and the proposed dates and place are:

Monday 20 March and Tuesday morning, 21 March
(GBC will be Tuesday afternoon and Wednesday)

Location to be decided, but Paris looks like the front-runner

Nils Larsson



Preliminary Research Report

(This Report was presented to the meeting of W100 in Chattanooga, Tennessee, USA on 17th October 1999.)

Web Based Education Resource for ESD & The Built Environment - A Survey of Participant Needs

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Overview

At the first meeting of W100 in Vancouver on 25th October 1998, the following primary objective was identified and agreed to by all in attendance.

To facilitate the production of and accessibility to, educative materials in a Web based format that demonstrate and provide a good understanding of best practice for Environmental Performance

Assessment and their assimilation into tertiary and professional development education programs.

In accordance with the actions and goals set in the 1st Progress Report, dated April 1999, funding for the carrying out of an industry need survey has been sought and raised.

The funds are to enable research to be conducted with construction industry participants, to determine their interest in and potential use of an internet based information resource about environmental performance assessment of buildings. Issues relating to user charges and content of the resource will also be addressed.

Research results could form the basis of a feasibility study into the establishment and ongoing maintenance of a comprehensive Internet based resource that contains the most current information and research in relation to environmental performance assessment of buildings.

Survey Design

Much of the data to be collected will be nominal and ordinal in nature pertaining to the measurement of attitudes and perceptions. Categories of questions include:

- Interest in and awareness of the impact of buildings on the environment
- Relevance of this issue for respondents' own specific industry focus/activities
- Interest in access to a comprehensive, single point, information resource base
- If they are to use it, how should the information be packaged in order to fit their needs best
- Perception of value of a resource such as this
- Whether perception of value is affected by the sponsorship of the resource (e.g. CIB/IEA/GBC/University sponsors)
- Whether they would perceive a greater value in a regional resource as opposed to a global resource

The working population for the survey is the construction industry and associated service providers.

Preliminary Results

It must be noted that these are preliminary results based on only half the total sample. The project's final results may differ from these preliminary results as data generated from the balance of the sample is analysed.

We would also promote caution in generalising globally from these preliminary results, due to a small sample size from one distinct region. However, as New Zealand's capital city, Wellington does provide a good industry cross section with all sectors, including central Government being represented. The Wellington population has higher income and education levels than other New Zealand centres, and as a result is more likely to be aware of environmental issues.

An assessment of the likely regional bias and its potential impact on the results is to be completed after all interviews are finished.

The preliminary results to date appear to be suggesting that:

- * All respondents believe that the initiative is a good idea.

The major factors behind this include:

- Environmental sustainability is an important issue.
- Education of industry is seen as paramount in importance if environmental impacts are to be

reduced. However, most respondents perceive that this area is currently poorly serviced and therefore, a resource of this nature would assist in advancing environmental sustainability objectives.

- o The benefit of a central source of information.

* Almost all respondents believe the Internet to be the ideal medium in which to base this resource. However this endorsement is strongly conditional on there being associated non-internet based marketing and backup. Respondents identified a desire to have access to a hard copy material such as a manual explaining the resource, an index or instruction documentation.

* Marketing needs to occur in other media such as trade magazines and trade publications. Personal contact and face to face support are also considered important.

* Results to date seem to suggest that most stakeholders consider primary responsibility in this area (i.e. education) to lie with professional associations. Businesses in particular appear to look towards their industry associations to take the lead in advocacy in Environmental Performance Assessment (EPA).

* Results to date suggest that industry associations themselves are reluctant to accept this responsibility. Associations see their primary function as university course development and industry promotion. However our preliminary analysis suggests that because association administrators have limited awareness of this area they are not advocating the inclusion of EPA education in course development or industry CPD.

* Each association has their own CPD programs however, as the environment is not seen as a core function, development of education for CPD is seen as a risk and cost. This may explain some of their reluctance to take the initiative in promotion.

* All respondents demonstrated some awareness of the impact of buildings on humans and the environment. However, there appears to be almost no awareness of EPA of buildings. Information collected to date suggests industry across the board has no clear concept or understanding of this area and consequently places little value on it.1

* All respondents indicated that they would be interested in learning more about EPA. It should be noted that respondent interest does not necessarily equate to action.

* When questioned about the range of impacts that buildings do have, results suggest that respondents have an awareness of a narrow range of impacts. The most common impacts identified were those that relate to impact on humans (i.e. indoor air quality), health, wellbeing and the physical impact of buildings.

In terms of the categories identified by the GBC framework, comments generally are:

- o Resource Inputs - most commonly identified were materials and land use
- o Environmental Loading - waste generation
- o Indoor Environmental - were all equally acknowledged
- o Cost - only identified by the QS
- o Secondary Factors - safety, physical impact and design for use

* Respondents to date have expressed a clear preference for material to be regionally focussed. However, at this stage we qualify this by noting that it is possible that this response reflects the limited understanding of the nature and global implication of this area. It is likely that if global material can be presented in such a way as to be relevant and immediately applicable regionally this response may change.

- * The vast majority of respondents had not been involved in projects where EPA's had been used.
- * Many respondents reported having looked for information about the environmental impact of buildings from a variety of sources. A common theme was frustration with the lack of co-ordination of the material that was sought. Business particularly identified a cost-benefit concern relating to the availability and use of this sort of information.
- * Most of these people said the information was difficult to find, problematic to access and hard to apply. Many respondents found that the material available applied primarily to other countries and climates and was difficult to rationalise in a regional context.
- * Most respondents said that they and their organisations would be likely to use a central resource like the one proposed.
- * The majority of respondents expressed a preference for an Internet based resource.
- * All respondents use the Internet in the course of their business. The most common uses are e-mail and data exchange. Most respondents reported a desire to utilise the internet more in the course of their business activities.
- * When asked what would prompt them to seek information about EPA, respondents identified in order of importance: Client request, personal interest, cost savings, government policy, general research and funding.
- * Specific types of information likely to be sought included: education, research, case studies, cost-benefit analysis.
- * In relation to potential frequency of use, results varied significantly among respondents. However, a common theme was that use is likely to be project related as opposed to general education. For example, if an organisation was working on a project where EPA was a component then resource use is likely to be more frequent and significant than if EPA was not a factor.
- * Numbers of users also varied across respondents, although, most indicated between 1-10 likely users within their organisation. However, this may be a reflection of the size of the organisations as opposed to interest.
- * Approximately half of the respondents indicated a willingness to pay for access to this resource providing that there was some guarantee of quality and that there was some direct and measurable cost-benefit or competitive advantage in doing so.
- * Without further development and demonstration it is difficult to be able to gain a firm view of access value. The most important point discovered however, is that most people were not opposed to the idea of a user pay access.
- * Those respondents who said they would not be prepared to pay to access such a resource, did not see this area as their responsibility.
- * Respondents were questioned about payment preferences. The results do not seem to provide a clear indication of preference. However, given that use of the resource is likely to be project specific a modular fee structure may be most appropriate.

A suggested approach is free access to the site and introductory information and then a variety of fee options for specific components.

* Most respondents perceived there to be a greater value in information that was compiled by recognised and established individuals and organisations.

* When questioned about appropriate organisations to take responsibility for the development of the resource, no clear pattern emerged. However, a number of respondents have suggested that a semi-government organisation such as BRANZ (Building Research Association of NZ), (a BRE, NRCAM equivalent etc.) would be appropriate. A number of respondents also felt it was important that the resource was independent of government and university.

* The majority of respondents felt that their own sectors should take some responsibility for feeding into the development process.

Preliminary Conclusions

Results to date are generally positive and indicate that the proposed resource will be a useful and effective tool for the dissemination of education materials.

It is clear that there is a need for a resource of this nature and this seems to be supported through Government's broad policy directions. At present, in New Zealand there are no initiatives which address the gap between the actions of industry and the objectives of Government in relation to sustainable building concepts and this project would appear to be timely.

There are a range of challenges which will need to be overcome if the resource is to achieve its full potential. In particular, issues of audience variation, promotion, funding and management will need to be addressed.

It appears that industry has limited understanding of EPA and the range of positive cost-benefits associated with it. The development, promotion and content of any final resource must take this into account.

Future Directions

The current project is a preliminary study to scope the potential demand for an Internet based EPA information resource.

Assuming that the final research findings demonstrate industry interest and demand for the proposed resource, additional research and development work will need to be undertaken.

Results from the preliminary study should be used to inform the nature and direction of future work.

Key areas of interest are likely to include:

- Identification and recruitment of contributors
- Further assessment of industry awareness, attitudes and behaviours in relation to EPA
- Approaches to influencing industry attitudes and behaviours
- Resource development, design and content
- Development of a demonstration module for testing
- Assessment of short and long term funding strategies and responsibility
- Assessment and development of appropriate marketing strategies and methods
- Replication of preliminary survey research in other regional centres and countries