

## Student Statement

### 1. Introduction

How can we build a sustainable future? This question has motivated students from all over the world in the first Student Session of the Sustainable Building conferences. Students have joined a series of workshops and activities that addressed key themes within the current agenda of sustainable built environment. This process revealed the potential that a multicultural and interdisciplinary collaboration has to generate new thinking for sustainable design action.

The main goal of the Student Session was to create a fruitful atmosphere for linking students, researchers and experts through a range of activities that enabled discussion, interaction, learning and sharing of knowledge related to the various aspects associated with sustainable buildings.

In total, there were 130 participants from 36 different countries taking part in the activities held at the National Olympics Memorial Youth Center, in Tokyo - Japan, prior to the main SB conference. The programme included design, activity and discussion based workshops, walking tours and poster sessions. Several professors and experts from different countries contributed to the Student Session providing support during discussions.

One of the main outcomes of the Student Session was the Student Statement. This was intended to present a new way of thinking about issues of sustainability, stimulated by the activities. The Student Statement was discussed during the design and discussion based workshops:

- Sustainable Building Design
- Bio-climatic Design in Tropical and Subtropical Regions
- Energy Use in Buildings
- Urban Regeneration
- Sustainable Construction
- Sustainable Building Education

Although the other activities such as activity based workshops were not directly related to the Student Statement, they were also intended to generate new ways of thinking.

The Student Statement is a way of presenting what the Student Session hoped to achieve. The Student Session hoped to bring together people with a passion for sustainability; by gathering

people with a diverse range of interests and specialisations, to take part in a new movement towards a sustainable future.

Due to the limited time of activities a simple framework was adopted for the Statement. Each workshop produced its own statement. Each statement was composed of a goal, which represented what should be done to reach a better future scenario, and a few key questions specific to the workshop's topic.

The Student Statement is a compilation of the questions and answers which were generated and addressed in the design and discussion based workshops. The statements from each workshop are presented in the following document.

### 2. Topics

#### A) Bio-climatic Design of Sustainable Buildings in Tropical and Subtropical Regions

Sustainable building must put the concept of symbiosis on the foundation of green building. The interface between human beings and the nature for sustainable life is defined by recycling the wastes produced by human activities in the building and leaving the Mother Nature untouched. All aspects including biological, physical, ecological, economic and social requirements must be fulfilled. Different disciplines must be included in study of Sustainable Building, especially the recycle system to achieve energy saving, waste reduction, comfort and safe environments for living. The concept is expressed as the following equation as:

$$GB + Symbiosis = SB$$

GOAL - To achieve Green Building + Symbiosis = Sustainable Building

- Carry out meteorological, permacultural, arthropod-surveillance and micro organism-identification applications for "Symbiosis"
- Promote localization, Teamwork

QUESTION 01 - What are the most important issues or limits to fulfil the idea of Sustainable Buildings?

- Climatic conditions: high temperature, high humidity
- Socioeconomic conditions: unsustainable development model

- Environmental constraints: limited resources but biodiversity, dense and increasing population, urban heat island (UHI) effect, etc.

QUESTION 02 - What factors hinder the application of sustainable building practice in developing countries?

- Lack of involvement of professionals from all disciplines in current building industry.
- Lack of in-depth awareness of sustainable buildings.
- Lack of incentives from planning regulatory systems

QUESTION 03 - What kind of action should be taken and by whom?

- National-wide campaign must be promoted by the government.
- Legislation and regulatory systems should be set up by the government.
- Public participation should include all stakeholders.
- Research and design must be carried out by universities and other research institutes in association with the industry.
- Public education must be carried out by media and the education system.
- Long-term evaluative/monitoring system such as labelling system should be set up by government and industrial sectors.

QUESTION 04 - How can you contribute to the vision in the future?

- Public propaganda: architects should speak louder.
- Collaborative design: work closely with professionals of different disciplines.
- Bridge the gaps between design practices and research.
- Multiple roles: some architects can actively involve in policy making and regulation.

## B) Energy Use in Buildings

GOAL - Promote the understanding of principles of low energy building design

QUESTION 01 - Is it possible to have a universal benchmark?

No. It is not possible to have a universal benchmark because different countries have different cultures, climates and therefore requirements

QUESTION 02 - Can a low energy building be high tech?

It is necessary to define the term high tech. Buildings should incorporate energy efficient technologies.

QUESTION 03 - How do we avoid conflicts in low energy design solutions?

To avoid conflicts in low energy design solutions we need to involve all the stakeholders in particular the end users.

## C) Urban Regeneration

GOAL - Identify urban areas that should maximise their capacity to sustain its systems in a sustainable perspective.

QUESTION 01 - What do we understand as "Urban Sustainability"?

To have a city or part of it that has different functions, uses and characteristics which can reduce transportation, heat island effect, energy waste and other environmental issues.

QUESTION 02 - What criteria should be used to identify areas within the city to undertake urban regeneration?

Areas to be regenerated are those where land cost is lower that it should be according the theory of land cost. In the areas that are good spots for investments the regeneration will be reliable or sustainable

QUESTION 03 - What are the factors that influence the promotion of urban regeneration (e.g. economic, socio-cultural, political, etc.)?

- Political will.
- Market niche,
- Non-governmental organization promotions.

QUESTION 04 - To what extent recentralization processes are important for urban sustainability?

All the process can help to optimize the land use in central areas.

QUESTION 05 - Which experiences and lessons of urban sustainability can we share among cities?

- Less car transportation.
- Densification.
- Recentralization.
- Business strategies for urban regeneration.
- Detonation points of re-generation.

## D) Sustainable Construction

GOAL - Accelerate the promotion of sustainable construction activities.

QUESTION 01 - Nowadays sustainable construction efforts are concentrated mainly on a building level. Thus, the question that remains is what measures and strategies should be taken to scale-up sustainable building efforts to a surrounding/ urban level and to scale it down into a materials and components level?

Buildings exist as a single unit of production but are composed of several materials and combined with other buildings and infrastructure form the urban environment. As such, buildings are not isolated.

At an urban level, consideration over local natural systems is essential. That is, the need to consider the balance use of land, water, energy, materials and ecosystems, since construction systems do not operate only within artificial human defined boundaries. It is also important for social sustainability.

In a material/components level two important issues are:

- To produce materials that can be locally available, renewable or recyclable;
- To have local and regional skills as well as knowledge and expertise to use, develop and utilise those materials.

Measures and strategies to scale efforts to the urban and materials level are four tiered:

1. Top-level - appropriate policies/ supportive and directive legal framework/ appropriate taxes, subsidies and incentives/ regional engagement and benchmarking;
2. Technological level - have the commitment to innovation and the technology to enable sustainable solutions;
3. Implementation - supportive planning and approval systems/ have enough human capacity (skills, knowledge and motivation to actually design and construct
4. Management level - continuing benchmarking, assessment, asset management and adaptation

QUESTION 02 - What strategies can be used to increase the capacity of buildings in closing material loops so as to reduce environmental impacts from resource extraction and disposal (e.g. for production and recycling)?

As building components are consisted of single or sandwiched materials and are affected by different types of degradation and aging, processes that identify the type of materials and life span of building components are fundamental. Designers are not the only body responsible for the material usage. Governments, engineers, developers and owners should also take responsibility for it, under the shade of government umbrellas' regulation. Intensive cooperation should be promoted to accommodate the different language of parties, which are:

- Manufacturers have to produce green label materials;
- Designers have to follow and employ green labelling and specific as well as localized design practices.
- Owners have to increase their concern over sustainable construction
- Developers have to follow government regulations and design practice

Acknowledging people regarding the importance of sustainable construction is a prior agenda for long-term achievements.

QUESTION 03 - Until which extent can we integrate local ecosystems with the built environment, so as to use nature's potential to

assist in the functioning of buildings (e.g. thermal efficiency, water collection and waste water treatment)?

The extent depends not only on local ecosystem capabilities and cultural expectations, but also in our ability to translate these into coherent policies that are both structured and flexible to the area in question as well as adaptable for short and long-term needs.

QUESTION 04 - What lessons can be learned from nature's wisdom in its processes and materials used (e.g. energy and material use, form & function relationships, resource production, disposal & recycling)?

Buildings should be integrated with nature. They should be designed with a natural form and shape that follow the natural landscape and climate conditions. It should be built from natural materials and all components should be used to avoid waste production.

The building services should be natural systems harnessing localized energy supplies, wind, water and solar gain without damaging the earth. A building should be designed to decompose, so what is finished with it returns to nature (i.e. design for deconstruction).

QUESTION 05 - What is the role of technology in the promotion of sustainable construction and how can it meet with other types of knowledge (i.e. vernacular and local traditions)?

Sustainable construction should be resource efficient, environmental friendly and healthy. Although technology has a fundamental role in construction, it can also have negative impacts. We should be able to extract the positive effects of technology to apply on local conditions for reducing global impacts.

We have to understand and learn from traditional technologies to modify today's practices and meet current and future needs.

## E) Sustainable Building Education

GOAL - Our point of view is that sustainable building education is not only an academic issue. In the new millennium, sustainable building education should care more about how to educate the citizen, or being encouraged in the whole country. How to achieve this goal? In this workshop discussion, we hope to think this topic from the research students' point of view.

QUESTION 01 - Should "sustainable building education" be a topic of education for the potential professionals only or for the entire community?

Sustainable Building Education topic is not only related to the academic or professional institutions but also is for all society, with the objective to increase the environmental awareness among the stakeholders sustainability

must be introduced in all levels of education with different approaches according to educational level, culture background and other factors. At the university, there is no need to create an exclusive lecture on this topic. Instead of this, it is important to focus lectures' subjects on sustainability.

QUESTION 02 - What are the different views on the concept of sustainable building education in developed and developing countries?

The current approach in developed countries, in terms of sustainable building education, is to decrease energy consumption, pollution as well as CO2 emissions. Nevertheless it focuses mainly on social sustainability.

In developing countries, increase environmental awareness is a priority issue. It also aims to decrease energy consumption and pollution effects, although the current focus is to create an educational policy for all stakeholders.

QUESTION 03 - How sustainable building education can happen throughout our daily life?

Public Buildings with sustainable technology applied to set up a context for citizens to experience these innovations;

Set up a website/telemarketing as a font of information about sustainable technology for citizens. (What type of technology is available? & How to use it?);

Promote the interaction of all stakeholders at the urban cycle through environmental policies;

Create TV programmes to increase public debate about environmental issues;

Improve the quality of public transportation system as an alternative to decrease car use;

Increase environmental education among children through educational games and reviving traditional customs.

## F) Sustainable Building Design

QUESTION - How can we create designs that express various views of sustainability in a local context?

Consider three main factors: ecology, economy and social aspects, while linking them with local conditions. This could be done through a redefinition of public and private spaces by changing landscape.

## 3. Conclusion

The framework developed for the Student Statement was effective for delivering simple and direct answers from participants at the end of each activity. Most responses to the questions are generalised which helps to increase the debate about sustainability in a broader sense.

The Student Statement covered a range of issues, from social, environmental, economic and institutional perspectives of Sustainable Building.

Participants reached a consensus to adopt the Student Statement at the end of the Closing Session, so as to express their voice in the sustainability debate.

We hope this statement will be continued in future SB Student Sessions as a catalyst for student contribution to building a sustainable future.

The final message from the Student Session of SB05 is that in order to engage in a new way of thinking about our built environment, we should strengthen the strategy that has always been the best way to solve our problems: collaboration.

## SB05Tokyo Student Session

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Tokyo - JAPAN