EXECUTIVE SUMMARY

This international CIB W82 Project aimed to answer the following question:

"What will be the consequences of sustainable development on the construction industry by the years 2010?"

The study focused on investigating the relationship, and clearly defining the links, between the principles of sustainable development and the construction sector.

The (Kibert) definition for sustainable construction: "*the creation and responsible management of a healthy built environment based on resource efficient and ecological principles*" was taken as a starting point in 1995 when the project was launched. The objective was to interpret and describe its meaning in different participating countries and, if appropriate, to give it a better definition from their national point of view.

The project has involved the collaboration of experts from countries in Western and Eastern Europe, North America, South Africa and Asia, with the objective of producing this CIB Publication in time for the CIB Gävle Congress. The publication resulting from this project comprises fourteen national reports and an international synthesis, which give a comparison between visions from various countries on what comprises the notion of "sustainable construction".

The publication comprises:

Project Overview
Definitions of Sustainable Construction
Answers to Five Questions
Strategic Recommendations
Examples of Better Practice
Conclusion
The Country Reports
Belgium
Finland
France
Hungary
Ireland
Italy
Japan
Malaysia
Netherlands
Romania
South Africa
Spain
United Kingdom
United States of America

Definitions of Sustainable Construction

The word *sustainable* (suggesting the idea of constant, permanent or continuous) is translated to some languages as *durable*. The concept of "durable construction" may change the vision on the intended objectives, laying stress on resistance in time.

Sustainable construction has different approaches and different priorities in various countries. Some of them identify economic, social and cultural aspects as part of their sustainable construction framework, but it is raised as a major issue only in a few countries.

The main emphasis in national definitions lies on ecological impacts to the environment (biodiversity, tolerance of the nature and resources). The problems of poverty and underdevelopment or social equity are sometimes ignored in the definitions of sustainable construction and in addition to economic prerequisites or social questions, numerous other variables and their importance range from country to country.

Such features as density and demography of population, national economy and standard of living, geography and natural hazards, availability of land and water, energy production and supply, the structure of the building sector or the quality of the existing building stock etc. have also an influence and interpretation in national definitions.

The Five Questions

The content of this synthesis is based on answers given to the five questions that formed the main body of the national reports.

1. What kind of buildings will we built in 2010 and how will we adapt existing buildings?
2. How will we design and construct them?
    - What does this entail for **initiating, designing, constructing, maintaining, operating and demolishing** buildings?
3. What kind of materials, services and components will we use then?
    - What does this entail for manufacturers of building products and systems?
4. What kind of skills and standards will be required?
    - What does this entail for **human resources and skills** needed in the construction industry?
5. What kind of cities and settlements will we have in 2010?
    - What does this entail for **city planners** and the built environment?

Strategic Recommendations

The challenge the construction sector is facing today is not only to find the best balance between the various contemporary constraints of the act of building (technical, architectural, social or economic constraints) but also to endeavour to favour "decisions without regret" at every moment in the life cycle of a building, and especially in the construction phase. This chapter summarises the main recommendations given in the national reports towards:

- Building owners and clients should have a very important role in disseminating sustainable construction since they represent the demand of the building sector.
- Initiatives which involve planning, industry and constructors through adapted regulations, standards or fiscal measures and incentives.
- Education and training which should be largely used to have sustainable development concepts well known and accepted by all people.
- Developing a common language.
- Designers adopting a more integrated approach to design.
- Manufacturers of building products assessing the life cycle considerations as the basis of product development.
- Building users should see the environmental issues as one aspect of productivity.
- Building maintenance organisations should see environmental consciousness as a factor of competitiveness.
- The development of adapted tools to help in decision making.
- The improvement of the building process itself

Finally, a general recommendation which is stated is to take action at once to act preventively and to prepare the building sector to changes which are needed in the building process.

Examples of Better Practice

This section presents extracts of the case studies which are presented in the national reports. The full case studies provide an insight into the many approaches people have taken to putting the theory of sustainable construction into practice. It is hoped that these examples will help shape and define our own vision of sustainable construction and encourage the wider application of sustainable construction practices.

In total there are 59 examples presented in this section as follows:

Urban Planning - which includes examples of community planning.
Product development and design - including new uses of traditional materials.
Manufacturing and construction - looking also at new partnerships for construction.
Operation - including integrating new technologies for greater efficiency.
Deconstruction - looking at the long term use of the building.

Final Conclusion

There are many issues presented in this publication all of which illustrate the constraints, policies, influences, recommendations and best practice which help describe sustainable construction. It is therefore of interest for all the actors of the sector (designers, industry, constructors, users, authorities,…) to get a global view on the concept and to evaluate how their action can contribute to this challenge.

Current practices are widely different depending on how well the concept of sustainable building is developed in the various countries. There is also a marked difference between the developed market economies, transition economies and developing economies. The more mature economies pay more attention to the creation of a sustainable building stock either by new developments or by upgrading their existing building stock. In the transition economies the emphasis is on new developments (reduction of housing shortage), by learning from Western experience, and making improvements to their transport networks. In the developing economies social equity is much higher on the agenda than environmental concerns. Social and economic sustainability (e.g. job creation) is given much more thought.

The industry will have to adapt to these new and emerging construction markets which have environmental and social dimensions. Construction businesses will be expected to integrate into, and consider more fully, the issues valued by others at national, regional and community level where the driving forces will be a mixture of political, social and market forces, requiring products which respond to genuine need and concerns.

Finally, this work must be seen as a living study and is open to an updating process. Input from additional countries, not already involved, is strongly encouraged.