

## JSCE Concrete Committee Forum on “Concrete and Environment”

JSCE Concrete Committee organized a forum on “Concrete and Environment” at Hiroshima University (Higashi-Hiroshima city) on 12 September 2007 in conjunction with JSCE 2007 Annual Meeting. The coordinator and panelists were as follows:

Coordinator: Prof. Koji SAKAI (Kagawa University)

Panelists: Mr. Hiroshi OHTA (Kumagai Gumi)

Ms. Minori TAKADA (Taiheiyo Cement Corporation)

Mr. Shinri SONE (Ministry of Land, Infrastructure and Transport)

Prof. Tomonari YASHIRO (The University of Tokyo)



First, the current status of global environmental issues was presented by Prof. Sakai. The necessity of new technologies and systems for the environmental management in concrete industry was indicated by the data of its huge amount of resources and energy consumption and CO<sub>2</sub> emission.

From the standpoint of construction industry, Mr. Ohta introduced the recent trend of structure maintenance, the activity on concrete recycling and ecological conservation though he emphasized that the practical systems have not been well developed. The international activity of cement industry by Cement Sustainability Initiative (CSI) organized by 18 cement companies, which is a section of World Business Council for Sustainability Development (WBCSD), was introduced by Ms. Takada. She also described that the CSI announced “CSI Agenda for Action” in 2002 for the sustainable development of cement industry that aimed to improve the environment and social influence and Task Force 7 on sustainable concrete has started their activity focusing on concrete recycling.

Mr. Sone explained the outline of the new guideline for the public project planning, Strategic

Environment Assessment (SEA), which includes the effect of socio-economic environment at planning stage. Starting next year, the guideline will be applied to project planning of river, road, port, railway, urban planning, etc. Further discussion was started on improvement of the guideline. Life Cycle Assessment (LCA) will be adopted in the future, in which the environmental influence is considered in the life cycle. The quantitative evaluation of the various influence factors in LCA is an issue to be resolved.

The current state on the evaluation of environmental performance in architectural industry was introduced by Prof. Yashiro. In the architectural field, a building is dealt with as an assembly of “components, the energy input-output system, and a place providing the living environment”. The existing environmental performance evaluation tools were introduced. The details of several evaluation tools used in some countries were described (e.g. CASBEE, BREEAM). Considering such situations, ISO is now developing international standards on sustainability in building construction.

The forum had an animated discussion on how to incorporate environmental aspects into the concrete industry.

/ The difficulty of quantitative evaluation of environmental effect like CO<sub>2</sub> emission (manufacturing process, use of by-product, transport etc.) at the project planning stage was pointed out.

/ As a result of the publication of the guideline by the ministry, the industry will develop new technologies for their businesses. It means that the technological development is promoted by the guideline.

/ The environmental performance will be incorporated into the new bidding system, Comprehensive Evaluation Method, in the near future.

/ With regard to international standards, it was recognized that more effort should be made to incorporate Japanese standards or concept into ISO standards.

Finally, Prof. Sakai concluded the forum with the following proposals.

1. Development of environmental load reduction technology in material and design and execution
2. Establishment of environmental load reduction systems
  - Strategic Assessment (society, economy and environment)
  - Comprehensive evaluation bid system
  - ISO standard
3. Re-establishment of JSCE Standard Specifications of Concrete Structures
  - Incorporation of environmental aspects, such as resources and energy consumption and CO<sub>2</sub>, SO<sub>x</sub>, and NO<sub>x</sub> emissions