International Workshop on Sustainable Development and Concrete Technology

Beijing, China
May 20–21, 2004

Introduction

In the past few decades, growing concern over global warming and other significant ecological changes has spurred much debate in all fields of science and engineering. The concrete industry has increasingly been considered one of the largest contributors to these ecological changes. Presently, annual worldwide concrete production is about 12 billion tons, consuming approximately 1.6 billion tons of portland cement, 10 billion tons of sand and rock, and 1 billion tons of water. The production of one ton of portland cement generates approximately one ton of carbon dioxide and requires up to 7000 MJ of electrical power and fuel energy. It is evident that the concrete industry significantly impacts the ecology of our planet.

An International Workshop on Sustainable Development and Concrete Technology was held at Beijing, China, May 20-21, 2004. The workshop addressed the role of portland cement concrete materials and construction in sustainable development. It was to promote global interaction and research collaboration for a better understanding of sustainable development as applied to concrete technology.

The workshop was sponsored by the National Science Foundation, USA, and cosponsored by American Concrete Institute International, USA; the Center for Advanced Cement-Based Materials, Northwestern University, USA; and many distinguished organizations in the People's Republic of China. The workshop was organized by Iowa State University, USA, and Tsinghua University, PR China, and hosted by Tsinghua University.

The workshop included two major themes: (1) critical issues of sustainable development and emerging technology for "green" concrete and (2) concrete durability and sustainable system. About 30 technical papers were presented at the workshop, a half of which were keynote and invited papers from eminent international experts. In addition to the paper sessions, the workshop included a panel discussion on the future directions of sustainable development and international collaborations. Over 70 people attended the workshop.

A field trip to the Three Gorges Dam was arranged at the end of the workshop, sponsored by China Yangtze Power Corporation Ltd. The project to build the world's largest dam combines a huge amount of construction material consumption with energy generation, natural disaster control, and environment protection issues. It provides a unique case study of sustainable development.

Attached is some information on the workshop, including a presentation of the Three Gorges Project. The workshop proceedings are available online:
http://www.ctre.iastate.edu/pubs/sustainable/index.htm.