

JAKARTA PROTOCOL CIVIL ENGINEERING FOR A SUSTAINABLE FUTURE

BACKGROUND

The American Society of Civil Engineers (ASCE), the Chinese Institute of Civil and Hydraulic Engineering (CICHE), the Engineers Australia (EA), the Indonesian Society of Civil and Structural Engineers (HAKI), the Institution of Civil Engineers (ICE India), the Japan Society of Civil Engineers (JSCE), the Korean Society of Civil Engineers (KSCE), the Mongolian Association of Civil Engineers (MACE), the Philippine Institute of Civil Engineers (PICE) and the Vietnam Federation of Civil Engineering Associations (VIFCEA), who together form the Asian Civil Engineering Coordinating Council (ACECC) believe that emerging global challenges over the last decade, including the financial crisis, population migration, food and energy crises, and natural disasters, have reinforced the need to secure and fulfill internationally agreed commitments to sustainable development. ACECC also believes that sustainable progress toward achieving the UN Millennium Development Goals is necessary to address water and food scarcity.

For such commitments to be realized, critical infrastructure must be adapted to the impacts of climate change and resilient to natural and man-made disasters.

THE ROLE OF CIVIL ENGINEERS

The ten societies/institutions commit to lead internationally on the delivery of sustainable infrastructure. Civil engineers of the 21st century are called on to play a critical role in contributing to peace and security in an increasingly challenged world. Civil engineers have an obligation to protect cultural and natural diversity, and they are central to the planning, design, construction, operation, maintenance and decommissioning of infrastructure networks that underpin civil society and economic activity and protect human health and welfare. Emerging challenges have reinforced the key role of these networks in enabling global societal resilience.

Approximately 75% of the issues outlined in Agenda 21, the main action document from the 1992 Earth Summit, involve engineering and technical issues. Action by civil engineers is essential. Society needs the skills of civil engineers to attain sustainable development, yet civil engineers require global political will to enable them to apply their knowledge and expertise to appropriately adapt infrastructure to attain meaningful progress.

While the members of ACECC are committed to a civil engineering profession able to address the global challenge of sus-

tainable development, they recognize that engineers cannot deliver this vision on their own. Civil engineers must develop new skills for a changing world, foster greater collaboration with other professionals, and promote multidisciplinary approaches. Civil engineers are committed to provide the tools and advice to governments and policymakers at national and supranational levels on the skills and infrastructure required for a sustainable future.

ENGINEERING PRIORITIES AND ACTION

Recognizing the central role of their profession in addressing global challenges, ACECC members developed a Taipei Declaration on Sustainable Development in 2007 and President Communiqué in 2010.

ACECC members have since adopted and regularly reviewed action plans and undertaken a range of activities to advance sustainability in civil infrastructure. Progress in line with commitments is exemplified in adapting critical infrastructure, utilizing environmental accounting tools, addressing the water crisis and delivering on the UN Millennium Development Goals, as well as protecting our societies from natural disasters.

ENVIRONMENTAL, SOCIAL AND ECONOMIC IMPACTS, AND COSTS - THE TRIPLE BOTTOM LINE

The ten societies/institutions are committed to improving methods for identifying and considering all of a project's environmental, social and economic costs and impacts throughout its life cycle. Practical approaches should be developed that would alter conventional accounting practices to factor in the direct and indirect environmental costs of a facility through its life-cycle of operations.

CONDITION AND CAPACITY OF INFRASTRUCTURE

Civil engineers create and maintain society's infrastructure. Recognizing this responsibility, ACECC members are committed to collecting data on infrastructure both nationally and, through collaboration, internationally and to providing informed opinion on the condition and requisite capacity of infrastructure for sustainable development.

ADAPTATION OF INFRASTRUCTURE TO CLIMATE CHANGE

To address climate change the engineering profession is applying the principles of sustainability, energy efficiency and innovation to the design, durable materials, construction, operation and maintenance of infrastructure. Civil engineers must develop infrastructure capable of adaptation to the impacts of climate change.

Civil engineers have relied upon historical data to design in-

infrastructure. Such data are often incomplete and limited in duration. Now they must develop design and operational practices to withstand future climate conditions — both extremes and gradual changes. They must accommodate uncertainties because the forecasts of future climate will never be precise. This creates a challenge to existing infrastructure design approaches and practices.

TO MAKE OUR SOCIETIES RESILIENT TO NATURAL DISASTERS

Since antiquity, the world has faced a great number of natural disasters: earthquakes, tsunamis, floods, typhoons, hurricanes, tornados and volcanic eruptions. Recently, we have become aware of rapid climate change that might lead to much larger-scale natural disasters. Civil engineers are required to play important roles in creating safe and secure infrastructure, resilient to natural and man-made disasters by sharing and growing knowledge and experience through collaboration.

MILLENNIUM DEVELOPMENT GOALS

ACECC members support the internationally agreed upon development goals contained in the Millennium Declaration as they apply to improving the quality of people's lives around the world through science and engineering. The ten societies/institutions will work with each other and with domestic and international organizations to engage engineers in addressing the needs of the poor through capacity building and the development of sustainable and appropriate solutions to poverty. By helping meet the goals of the Millennium Declaration, the engineering profession contributes to a world where all people have access to the knowledge and resources to meet their basic human needs and promote sustainable development.

Included are such areas as water supply and sanitation, food production and processing, housing and construction, energy, transportation and communication, income generation, and employment creation.

COMMITMENTS

Within the following areas of leadership with respect to sustainable infrastructure, the ACECC members commit to:

- Developing and collaborating on national sustainable infrastructure and resilient development strategies and action plans in their economic regions;
- Encouraging civil engineers to engage in building sustainable engineering capacity in the developing world through active collaboration with development organizations such as USAID – US Agency for International Development, Asian Development Bank, and other related assistance organizations in their economic regions;
- Working through representatives of their economic to coordinate civil engineering views within the World Federation of Engineering Organizations to enable WFEO to effectively influence programs on sustainable infrastructure and communities within UNESCO, the United Nations, the World Bank, international financial institutions and other bodies.



•• President Sim Signing the Jakarta Protocol

25th ACECC Executive Committee Meeting (ECM)

Before the opening of the CECAR6, on August 18-19, 2013, ACECC's 25th ECM was also held at the conference venue. The meeting was organized by the ACECC and sponsored by HAKI. The KSCE representatives were Prof. Jongsung Sim (KSCE President, Hanyang University), Prof. Jae-Woo Park (KSCE Chair for International Affairs Committee, Hanyang University), Prof. Seok-Won Lee (KSCE Secretary for IAC, Konkuk University), Prof. Sang-Ho Lee (Yonsei University), Prof. Ho-Kyung Kim (Seoul National University), and Ms. Hyunsun Song (KSCE Secretariat). Prof. Sang-Ho Lee has

presented a progress report for TC13 on BIM, which will be chaired by KSCE and co-chaired by CICHE from the next meeting. The JSCE has presented a progress report for TC15 on River Environment, which has been co-chaired by Prof. Jin-Hong Kim (Chung-Ang University) of KSCE. As part of the TC activity, Prof. Kim will be organizing an international roundtable meeting under the theme, "Environmental Design of Aquatic Plants in Urban Streams" at the KSCE 2013 CONVENTION. The KSCE has also participated in the progress report for TC16 on ITS-based Solutions for Urban Traffic Problems in Asia Pacific Countries, and for TC18 on Long Span Bridges (co-chaired by Prof. Ho-Kyung Kim). Written proposals for

TC19 on Asian Concrete Model Code, and TC20 on Renewable Energy, were submitted by the KSCE and approved unanimously. As for the membership, the Institution of Engineers, Bangladesh (IEB) has joined the council, totalling eleven member societies in ACECC. The 26th ECM will be held on March 7-8, 2014, in Honolulu, Hawaii.



•• President Sim and Prof. Park at the 25th ECM