

SUSTAINABLE DEVELOPMENT SUBCOMMITTEE REPORT

Luh-Maan Chang, CICHE
Jakarta, Indonesia, February 10, 2011

As reported in the 17th ECM meeting at Hanoi, Vietnam on April 19, 2009, Sustainable Development started from World Council of Environmental Development (WCED.) WCED was commissioned in 1983 by the UN General Assembly with the concern of unbalance between economic development and environmental protection.

WCED defined Sustainable Development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This implies that environment needs to be protected while economic development is underway. The essence of any form of economic development should not diminish the prospects of future generations for enjoying a quality of life as we have.

To meet the needs of the present generation without sacrificing the needs of future generations, another branch organization of UN, United Nations Educational, Scientific and Cultural Organization (UNESCO) led the efforts and launched the United Nations Decade of Education for Sustainable Development (2005-2014.) UNSECO's goal is to "help people to develop the attitudes, skills and knowledge to make informed decisions for the benefit of themselves and others, now and in the future, and to act upon these decisions." Moreover, Sustainable Development should include "populations, animal and plant species, ecosystems, natural resources and that integrates concerns such as the fight against poverty, gender equality, human rights, education for all, health, human security, intercultural dialogue, etc."

The themes of the decade education of UNSECO on sustainable development are categorized into eight general areas. They are Sustainable Urbanization, Sustainable Consumption, Peace and Human Security, Rural Development, Cultural Diversity, Gender Equality, Health Promotion and Environment.

To cope with the new challenge on sustainable development, ACECC member representatives held an Asian Summit on June 26, 2007 during the 4th Civil Engineering Conference in the Asian Region (CECAR4) in Taipei and collectively came up a resolution called "ACECC Taipei Declaration on Sustainable Development." And its action plans are as follows:

- 1) Develop short and long term strategies for achieving sustainable development.
- 2) Continue to improve the quality of life, and at the same time, protect and enhance our environment and ecosystem.
- 3) Conserve natural resources and use renewable materials.
- 4) Reduce the causes of global warming while mitigating and adapting the effects of climate change.
- 5) Encourage participation in the formulation and implementation of public policies and promote a transparent system of good governance.
- 6) Develop capacity building and transfer of knowledge of environmentally-friendly technologies.
- 7) Extend the service life of newly constructed infrastructure and advance renewable technologies for existing infrastructure and facilities.
- 8) Ensure the preservation of cultural values and heritage in the pursuit of solutions.
- 9) Encourage broad involvement in education and in research and development.
- 10) Develop the means for protecting against and mitigating the impacts of disasters and hazards.

And the resolution was declared in the world then-tallest building Taipei 101, the world tallest building at that time. In the declaration, ACECC members and other participants commit to improve the quality of life through use, innovation and discovery of appropriate technologies to meet the needs of diverse Asian populations and cultures. Meanwhile, they commit to work together for protecting and enhancing the environment, inspiring optimism, and creating a sustainable Asia as part of a sustainable world.

Comparatively speaking, the ACECC Asian Summit's resolution is very compatible with UNSECO's vision and action plans.

Furthermore, ACECC representatives reconvened at Sydney, Australia on August 8, 2010 for the CECAR5. In the Presidents' Communiqué, ACECC members re-committed to the "aims and objectives of the Asian Civil Engineering Coordinating Council and draw attention to the world wide benefits of promoting sustainable communities."

Since 2007, each ACECC member has conducted various projects/programs to substantiate their commitments under different names/titles. Nevertheless, their common goal is the same: it is Sustainable Development. The following reference

materials are collections of UNESCO' vision and commission, and each ACECC member's follow-up plans/actions directly excerpted from each ACECC member society's webpage on January 31, 2011 or other sources. Hopefully, they could be referred for further use in the area of sustainable civil engineering.

Reference Materials

UNESCO: United Nations Educational, Scientific and Cultural Organization

<http://www.unesco.org/en/esd/>

UNESCO works to create the conditions for dialogue among civilizations, cultures and peoples, based upon respect for commonly shared values. It is through this dialogue that the world can achieve global visions of sustainable development encompassing observance of human rights, mutual respect and the alleviation of poverty, all of which are at the heart of UNESCO'S mission and activities.

Education for sustainable development (ESD)

Sustainable development is seeking to meet the needs of the present without compromising those of future generations. We have to learn our way out of current social and environmental problems and learn to live sustainably.

Sustainable development is a vision of development that encompasses populations, animal and plant species, ecosystems, natural resources and that integrates concerns such as the fight against poverty, gender equality, human rights, education for all, health, human security, intercultural dialogue, etc.

Education for sustainable development aims to help people to develop the attitudes, skills and knowledge to make informed decisions for the benefit of themselves and others, now and in the future, and to act upon these decisions.

The United Nations Decade of Education for Sustainable Development (2005-2014), for which UNESCO is the lead agency, seeks to integrate the principles, values, and practices of sustainable development into all aspects of education and learning, in order to address the social, economic, cultural and environmental problems we face in the 21st century.

THEMES

Sustainable Urbanization

Cities have moved to the forefront of global socio-economic change. Globalization and democratization have increased their importance in relation to sustainable development. Half of the world's population is now living in urban areas and the other half is increasingly dependent upon cities for economic, social and political progress.

Urban areas undeniably pose potential threats to sustainable development. With responsible decision-making, however, cities also hold promising opportunities for social and economic advancement and for environmental improvements at local, national, and global levels.

Sustainable Consumption

Our choices as consumers today will impact the way people live tomorrow. Sustainable consumption means consuming goods and services without harming the environment or society. Living a sustainable lifestyle is essential to overcoming poverty and conserving and protecting the natural resource base for all forms of life. ESD promotes responsible citizenship and fights against the social and resource impacts of unsustainable lifestyle consumption habits.

Peace and Human Security

Peace and security are fundamental to human dignity and development. The sustainable development of any culture is always endangered by insecurity and conflict. Human tragedies result in overwhelmed health systems, the destruction of homes, schools and often whole communities, and increased numbers of displaced people and refugees. Education for sustainable development plays a key role in promoting values for peace.

Rural Development

In spite of rapid urbanization, three billion people or 60 per cent of the population in developing countries, and half of the world population, still live in rural areas. Education and training are essential in addressing rural poverty and ensuring sustainable development in these parts of the world.

During the Johannesburg Summit, FAO (Food and Agriculture Organization) and UNESCO jointly launched a new partnership initiative on Education for Rural People (ERP) to respond to this growing concern. Through advocacy at international level and technical support to countries, the initiative aims at:

- Increasing access to basic education for rural people.
- Improving the quality of basic education in rural areas.

- Fostering the national capacity to plan and implement basic education in a way that addresses the learning needs of rural people.

FAO is the ERP flagship partnership lead agency.

Cultural Diversity

“Our rich diversity . . . is our collective strength.” (Johannesburg Declaration, 2002)

Education must respect diversity. The values, knowledge, languages and world views associated with culture predetermine the way issues of education for sustainable development are dealt with in specific national contexts. ESD aims at promoting teaching which respects indigenous and traditional knowledge, and encourages the use of indigenous languages in education and the integration of worldviews and perspectives on sustainability into education programmes at all levels.

The preservation of cultures is linked to economic development. Tourism and cultural industries can run the risk of commodifying culture for outsiders. Cultures must be respected as the living and dynamic contexts within which human beings find their values and identity.

Indigenous knowledge

Local knowledge and languages are repositories of diversity and key resources in understanding the environment and in using it to the best advantage. They foster and promote local cultural specificities, customs and values. Indigenous knowledge is also important for the social and economic dimensions of sustainability.

Gender Equality

The pursuit of gender equality is central to sustainable development where each member of society respects others and plays a role in which they can fulfil their potential. The broader goal of gender equality is a societal one to which education and all other social institutions, must contribute.

Discrimination based on sex is often structurally embedded. In many societies women bear the major burden of responsibility for food production and child-rearing, they are excluded from family and community decisions affecting them, and they have little or no access to the means of income generation.

Gender issues must therefore be mainstreamed throughout educational planning – from infrastructure planning to material development to pedagogical processes. The full and equal engagement of women is crucial to ensuring a sustainable future.

Health Promotion

Issues of development, environment and health are closely entwined – ill-health hampers economic and social development.

Hunger, malnutrition, malaria, water-borne diseases, drug and alcohol abuse, violence and injury, unplanned pregnancy, HIV and AIDS and other sexually transmitted infections are just some of the problems that have enormous implications for health.

Education and basic medical information are powerful ways to drive behavioral change. The school environment itself must be safe and healthy. Schools should act not only as centers for academic learning, but also as supportive venues for the provision of essential health education and services, in collaboration with parents and the community.

Environment

Environmental perspectives cover several major themes, reflecting diverse goals and audiences, including:

Water

Climate change

Biodiversity

Disaster prevention

There can be no long-term economic or social development on a depleted planet. Teaching society how to behave responsibly towards the environment lies at the core of education for sustainable development.

Building on more than 30 years of experience in environmental education, education for sustainable development must continue to highlight the importance of addressing the issues of natural resources (water, energy, agriculture, biodiversity) as part of the broader agenda of sustainable development. In particular, ESD must encourage new behaviors to protect the world's natural resources.

ASCE

<http://www.asce.org/Sustainability/ISI-Rating-System/>

Sustainability Ratings for Engineering Projects

As a key part of its mission to advance sustainable practices, the American Society of

Civil Engineers has been working jointly with the American Council of Engineering Companies and the American Public Works Association on a new and exciting program -- a new infrastructure rating system that will verify civil engineering projects as sustainable. The rating system is based on the approach known as the "Triple Bottom Line" – economic, environmental and social impacts. The rating system will provide a uniform means of assessing sustainability benefits for practitioners, owners and regulators. Administering the new rating system will be the new Institute for Sustainable Infrastructure, formed by ASCE, ACEC, and APWA.

The rating will follow a two-pronged approach:

Pathway Contribution: “Doing the right thing” with the community as the common denominator
Performance Contribution: “Doing things right” or engineering high-performing projects.
The rating system will be scalable to accommodate projects of all sizes and complexities, adaptable for specific needs and circumstances, and offer performance-based outcomes rather than being prescriptive.

No other U.S. programs currently fulfill the need for a rating system focused on civil infrastructure, although this system will be similar to other “green” ratings systems. Many complementary programs will be developed to support the rating system, including education and training, individual certification on its use and application submissions, certification of firms to apply the rating, project awards, plus manuals, guidance and research, all directly specific to the system.

About the Institute for Sustainable Infrastructure

The Institute for Sustainable Infrastructure's mission is to provide sustainability products and services that will transform infrastructure design, construction, and operation by taking into account the Triple Bottom Line. ISI is a joint-venture, 501(c)(3) non-profit, with ASCE, ACEC and APWA as founding members, and will house all programs and products specific to the new rating system.

Code of Ethics

1 Fundamental Principles

2 Engineers uphold and advance the integrity, honor and dignity of the engineering profession by:

- a. using their knowledge and skill for the enhancement of human welfare and the environment;
- b. being honest and impartial and serving with fidelity the public, their employers and clients;
- c. striving to increase the competence and prestige of the engineering profession;

and

d. supporting the professional and technical societies of their disciplines.

Fundamental Canons

- a. Engineers shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development³ in the performance of their professional duties.
- b. Engineers shall perform services only in areas of their competence.
- c. Engineers shall issue public statements only in an objective and truthful manner.
- d. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.
- e. Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.
- f. Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession and shall act with zero-tolerance for bribery, fraud, and corruption.
- g. Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.

Guidelines to Practice Under the Fundamental Canons of Ethics

CANON 1.

Engineers shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development in the performance of their professional duties.

Engineers shall recognize that the lives, safety, health and welfare of the general public are dependent upon engineering judgments, decisions and practices incorporated into structures, machines, products, processes and devices.

- a. Engineers shall approve or seal only those design documents, reviewed or prepared by them, which are determined to be safe for public health and welfare in conformity with accepted engineering standards.
- b. Engineers whose professional judgment is overruled under circumstances where the safety, health and welfare of the public are endangered, or the principles of sustainable development ignored, shall inform their clients or employers of the possible consequences.
- c. Engineers who have knowledge or reason to believe that another person or firm may be in violation of any of the provisions of Canon 1 shall present such information to the proper authority in writing and shall cooperate with the proper authority in furnishing such further information or assistance as may be required.

- d. Engineers should seek opportunities to be of constructive service in civic affairs and work for the advancement of the safety, health and well-being of their communities, and the protection of the environment through the practice of sustainable development.
- e. Engineers should be committed to improving the environment by adherence to the principles of sustainable development so as to enhance the quality of life of the general public.

Policy Statement 360 - Impact of Climate Change

Approved by the Energy, Environment, and Water Policy Committee on March 10, 2010

Approved by the Policy Review Committee on March 23, 2010

Adopted by the Board of Direction on July 10, 2010

Policy

The American Society of Civil Engineers (ASCE) supports government policies that encourage anticipation of and preparation for possible impacts of climate change on the built environment.

Issue

Climate change could pose a potentially serious impact on world-wide water resources, energy production and use, agriculture, forestry, coastal development and resources, flood control and public infrastructure. Examples include:

Alterations to the hydrologic patterns for multi-purpose water resource projects, of particular concern to civil engineers working in the hydroelectric industry, and water supply utilities where reservoir storage capacity may need to be increased.

Climate extremes such as floods and droughts and other significant variations in hydrologic patterns that may necessitate changes or additions to flood control infrastructure to provide adequate public safety and performance.

Changes in frequency and strength of tropical storms that will require changes in coastal protection systems.

Changes in ocean levels that will require adaptation of coastal infrastructure, including ports.

Changes in permafrost conditions that require retrofitting existing foundations and alterations to foundation design.

Such impacts could require modified agricultural practices and measures to deal with rising sea levels, water supply and quality, threats to critical infrastructure facilities

and the potential for the outbreak of disease.

Rationale

Civil engineers are responsible for design and maintenance of infrastructure projects that facilitate economic development and protect human health, welfare and the environment. Climate change may result in significant impacts to this infrastructure. Civil engineers and government policy makers must work together to anticipate and plan for these impacts.

Policy Statement 418 - The Role of the Civil Engineer in Sustainable Development

Approved by the Committee for Sustainability on April 9, 2010

Approved by the Policy Review Committee May 7, 2010

Adopted by the Board of Direction on July 10, 2010

Policy

The American Society of Civil Engineers (ASCE) defines sustainability as a set of economic, environmental and social conditions in which all of society has the capacity and opportunity to maintain and improve its quality of life indefinitely, without degrading the quantity, quality or the availability of natural resources and ecosystems. Moreover, sustainable development is the process of converting natural resources into products and services that are more profitable, productive, and useful, while maintaining or enhancing the quantity, quality, availability and productivity of the remaining natural resource base and the ecological systems on which they depend. The civil engineering profession recognizes the reality of limited natural resources, the desire for sustainable practices (including life-cycle analysis and sustainable design techniques), and the need for social equity in the consumption of resources. To achieve these objectives, ASCE supports the following implementation strategies:

Promote broad understanding of economic, environmental, political, social, and technical issues and processes as related to sustainable development;

Advance the skills, knowledge and information necessary for a sustainable future; including habitats, natural systems, system flows, and the effects of all phases of the life cycle of projects on the ecosystem;

Advocate economic approaches that recognize natural resources and our environment as capital assets;

Promote multidisciplinary, whole system, integrated and multi-objective goals in all phases of project planning, design, construction, operations, and decommissioning;

Promote reduction of vulnerability to natural, accidental, and willful hazards to be

part of sustainable development; and

Promote performance based standards and guidelines as bases for voluntary actions and for regulations in sustainable development for new and existing infrastructure.

Issue

ASCE recognizes the leadership role of engineers in sustainable development, and their responsibility to provide effective and innovative solutions in addressing the challenges of sustainability. The ASCE Code of Ethics requires civil engineers to strive to comply with the principles of sustainable development in the performance of their professional duties. ASCE will work on a global scale to promote public recognition and understanding of the needs and opportunities for sustainable development.

Environmental, economic, social and technological development must be seen as interdependent and complementary concepts, where economic competitiveness and ecological sustainability are complementary aspects of the common goal of improving the quality of life.

Rationale

Engineers have a leading role in planning, designing, building and ensuring a sustainable future. Engineers provide the bridge between science and society. In this role, engineers must actively promote and participate in multidisciplinary teams with other professionals, such as ecologists, economists, and sociologists to effectively address the issues and challenges of sustainable development.

Policy Statement 517 - Millennium Development Goals

Approved by the International Activities Committee on May 11, 2010

Approved by the Policy Review Committee on September 1, 2010

Adopted by the Board of Direction on October 19, 2010

Policy

The American Society of Civil Engineers (ASCE) supports the internationally agreed 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. ASCE works in collaboration with other 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. In particular, organizations and engineers should be encouraged to consider the appropriate sources of investment and donations, provide guidance on infrastructure investment, and consideration of the varying abilities of persons to pay

for (and/or develop capacity for) services and infrastructure through rate structures.

Issue

In an age of interdependence, global citizenship is a crucial pillar of progress. Science and engineering can contribute answers to address many issues that are facing the developing world. In the next two decades, almost two billion additional people are expected to populate the Earth, 95 percent of them in developing or underdeveloped countries. This growth will create unprecedented demands for energy, food, land, water, transportation, materials, waste disposal, earth moving, health care, environmental cleanup, telecommunication, and infrastructure. The role of engineers will be critical in fulfilling those demands at various scales, ranging from remote small communities to large urban areas, and mostly in the developing world. As we enter the first half of the 21st century, the engineering profession must embrace a new mission statement to contribute to the building of a more sustainable, stable, and secure world. In particular, we need to train a new generation of engineers who could better meet the challenges of the developing world, and address the needs of the most destitute people on our planet. Today, an estimated 20 percent of the world's population lacks clean water, 40 percent lacks adequate sanitation, and 20 percent lacks adequate housing.

Rationale

Engineers of the 21st century are called to play a critical role in contributing to peace and security in an increasingly challenged world. The engineering profession has an obligation to provide solutions to meet the basic needs of all humans for water, sanitation, food, health, and energy, while at the same time protect cultural and natural diversity. 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 with which to meet their basic human needs and promote sustainable development in such areas as water supply and sanitation, food production and processing, housing and construction, energy, transportation and communication, income generation, and employment creation.

CICHE

CICHE Sustainable Community includes the following groups:

Sustainable Development, National Spatial Development, Water Resource

Engineering, Geotechnical Engineering, Ocean Engineering, Environmental Engineering, Landscaping Engineering, Green Construction Engineering, Energy Engineering, Natural Disaster Prevention Engineering.

International Roundtable Forum on Sustainable Disaster Management

The fast growing world population and economy place excessive demand on natural resources. The growing strains the earth's environment and ecosystem. Consequently, it results in recent intense occurrence of disasters and sufferings inflicted by natural and man-made hazards such as floods, landslides, tsunamis, droughts, typhoons, air and water pollutions, earthquakes. Therefore, to sustainably manage the disaster, civil engineers must play an active role in developing infrastructure without diminishing the prospects of future generations' needs.

With this vision in mind, CICHE sets the theme of 2010 International Roundtable Forum as "Sustainable Disaster Management." In the forum, Representatives from ASCE, CICHE, ICE, JSCE, KSCE, and MACE exchanged ideas on disaster management that spans from disaster prevention, monitoring, control, mitigation, reconstruction to the level that civil infrastructure can be sustainably operated and harmonic with the nature.

Date/Time: 15:40-17:30, December 10, 2010, Friday.

Engineers Australia-Civil College

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Asian CE Coordinating Council Joint Communiqué on Sustainability

<http://www.asce.org/Content.aspx?id=2147489612>

Below is the complete text of the communiqué.



THE ASIAN CIVIL ENGINEERING COORDINATING COUNCIL

Presidents' Communiqué
for the
5th Civil Engineering Conference in the Asian Region

Further to the 4th CECAR Taipei Declaration of 2007 we, the representatives of our respective Societies re-commit to the aims and objectives of the Asian Civil Engineering Coordinating Council and draw attention to the world wide benefits of promoting sustainable communities.

The theme of CECAR5 is "Innovative Community Building" and within its program engineers are providing a diversity of presentations related to their role in that objective. These include Climate Change and Coastal Management; Water Management; Innovative Construction; Sustainable Infrastructure; Transportation and Road Safety; Disaster Reduction and Recovery; Waste Management; Bridges and Infrastructure; Building Applications; Structural Health Monitoring and Sustainability Issues in Structures.

We believe that infrastructure of the future must be environmentally, economically and socially sustainable – the triple bottom line.

Some aspects of particular relevance demand our attention.

Sustainable Water Use -- *"Water is essential for life on earth -- yet it is a threatened and undervalued resource"* [International Institute for Sustainable Development (IISD)].

Policies must be developed that promote water consumption patterns, including better irrigation practices, that reduce our ecological footprint while meeting the needs of all people to enjoy a good quality of life. A requirement for an Environmental Impact assessment, that addresses the triple bottom line approach to sustainable development, should be made compulsory for all projects relating to water resource development. Water reuse is increasingly becoming recognized as a viable water source in national strategies and plans, even in countries where water is relatively abundant. The planning, technical, institutional, and socio-economic setting in which water reuse is practiced varies from country to country.

In urban cities, rainwater, stormwater and other alternative water sources (particularly waste water) remain a relatively untapped resource and one that has the potential to significantly supplement consumer water supplies now and well into the future. A comprehensive sustainable urban water savings program is recommended to capitalize on community awareness / support and to realize the potential of rainwater and other water sources as supplementary urban water. Such an approach has the potential to

not only save water but to also positively impact consumer attitudes and beliefs, leading to long term behavioral change.

The use of reclaimed water is an essential component of Integrated Water Resources Management (IWRM) and sustainable development not only in dry and water-deficient areas, but in water-abundant regions as well. New water sources are increasingly more expensive to maintain, requiring high capture, conveyance, and pumping costs. Reclaimed water is often an economically viable alternative.

Sustainable Transport -- There is a need to engage the public, in addition to government, in issues of transportation demand and application, including the use of more renewable energy sources, using deliberative methodologies and innovative technologies for more efficient movement in urban areas.

Though situations may differ from one city to another, economic growth tends to be coupled with increased car ownership and traffic volumes. This growing factor continually undermines the benefits yielded by each step of technological progress in the field of energy efficiency, emissions or noise of road vehicles.

In order to influence travel behavior it is imperative that the future needs of a community are considered and captured through good quality planning and the introduction of innovative transportation technologies before infrastructure is put in place. An important strategy is to emphasize the role of public transportation. This is essential, especially in densely inhabited Asian Mega cities.

Energy Conservation in Communities -- In order to promote energy conservation it is necessary to improve energy conservation-related systems, develop human resources, and diverse energy-saving appliances and facilities including community infrastructure. Sustainable technologies need to be integrated more vigorously in all aspects of our cities in conjunction with the beneficial design of urban development.

Innovation in energy technology for conservation and generation is needed in all fields of construction, industrial, commercial and household infrastructure of each country. It is expected that the market size of energy-saving systems and facilities in Asian countries will substantially expand with future economic growth. Asian countries expect those who have energy-saving technology to share it with them. Responding to such expectations will contribute to energy innovation in Asia and a deepening of business exchange between countries.

Mr Blaine Leonard	<i>President American Society of Civil Engineers</i>
Prof Ching-Lung Liao	<i>President Chinese Institute of Civil and Hydraulic Engineers</i>
Prof Doug Hargreaves	<i>President Engineers Australia</i>
Mr Davy Sukamta	<i>President Indonesian Society of Civil and Structural Engineers</i>
Er Sohan Swamy	<i>President Institution of Civil Engineers India</i>
Prof Kenji Sakata	<i>President Japan Society of Civil Engineers</i>
Prof Kyung Soo Chon	<i>President Korean Society of Civil Engineers</i>
Dr Erdene Ganzorig	<i>President Mongolian Association of Civil Engineers</i>
Dr Jamie Pacanan	<i>President Philippines Institute of Civil Engineers</i>
Prof Pham Hong Giang	<i>Vice President Vietnam Federation of Civil Engineering Associations</i>
Mr Paul Mitchell	<i>Chair Asian Civil Engineering Coordinating Council</i>

EA's Code of Ethics adopted on July 28, 2010

http://www.engineersaustralia.org.au/shadomx/apps/fms/fmsdownload.cfm?file_uuid=F0647595-C7FE-7720-EA17-70AC27062E0B&siteName=ieaust

As engineering practitioners, we use our knowledge and skills for the benefit of the community to create engineering solutions for a sustainable future. In doing so, we strive to serve the community ahead of other personal or sectional interests.

Our *Code of Ethics* defines the values and principles that shape the decisions we make in engineering practice. The related Guidelines on Professional Conduct provide a framework for members of Engineers Australia to use when exercising their judgment in the practice of engineering.

As members of Engineers Australia, we commit to practise in accordance with the *Code of Ethics* and accept that we will be held accountable for our conduct under Engineers Australia's disciplinary regulations.

In the course of engineering practice we will:

1. Demonstrate integrity

- 1.1 Act on the basis of a well-informed conscience
- 1.2 Be honest and trustworthy
- 1.3 Respect the dignity of all persons

2. Practise competently

- 2.1 Maintain and develop knowledge and skills

2.2 Represent areas of competence objectively

2.3 Act on the basis of adequate knowledge

3. Exercise leadership

3.1 Uphold the reputation and trustworthiness of the practice of engineering

3.2 Support and encourage diversity

3.3 Communicate honestly and effectively, taking into account the reliance of others on engineering expertise

4. Promote sustainability

4.1 Engage responsibly with the community and other stakeholders

4.2 Practise engineering to foster the health, safety and wellbeing of the community and the environment

4.3 Balance the needs of the present with the needs of future generations

The Guidelines on Professional Conduct

The Guidelines on Professional Conduct provide a framework for members of Engineers Australia to use when exercising their judgment in the practice of engineering.

The Guidelines are not intended to be, nor should they be interpreted as, a full or exhaustive list of the

situations and circumstances which may comprise compliance and non compliance with the *Code of Ethics*.

If called upon to do so, members are expected to justify any departure from both the provisions and spirit of the Code.

Ethical engineering practice requires judgment, interpretation and balanced decision-making in context.

Engineers Australia recognises that, while our ethical values and principles are enduring, standards of acceptable conduct are not permanently fixed. Community standards and the requirements and aspirations of engineering practice will develop and change over time. Within limits, what constitutes acceptable conduct may also depend on the nature of individual circumstances.

Allegations of non-compliance will be evaluated on a case-by-case basis and administered in accordance with the disciplinary regulations.

1. Demonstrate integrity

1.1 Act on the basis of a well-informed conscience

a) be discerning and do what you think is right

b) act impartially and objectively

c) act appropriately, and in a professional manner, when you perceive something to be

wrong

d) give due weight to all legal, contractual and employment obligations

1.2 Be honest and trustworthy

a) accept, as well as give, honest and fair criticism

b) be prepared to explain your work and reasoning

c) give proper credit to those to whom proper credit is due

d) in managing perceived conflicts of interest, ensure that those conflicts are disclosed to relevant parties

e) respect confidentiality obligations, express or implied

f) do not engage in fraudulent, corrupt, or criminal conduct

1.3 Respect the dignity of all persons

a) treat others with courtesy and without discrimination or harassment

b) apply knowledge and skills without bias in respect of race, religion, gender, age, sexual orientation, marital or family status, national origin, or mental or physical handicaps

2. Practise competently

2.1 Maintain and develop knowledge and skills

a) continue to develop relevant knowledge and expertise

b) act in a careful and diligent manner

c) seek peer review

d) support the ongoing development of others

2.2 Represent areas of competence objectively

a) practise within areas of competence

b) neither falsify nor misrepresent qualifications, grades of membership, experience or prior responsibilities

2.3 Act on the basis of adequate knowledge

a) practise in accordance with legal and statutory requirements, and with the commonly accepted standards of the day

b) inform employers or clients if a task requires qualifications and experience outside your areas of competence

3. Exercise leadership

3.1 Uphold the reputation and trustworthiness of the practice of engineering

a) advocate and support the extension of ethical practice

b) engage responsibly in public debate and deliberation

3.2 Support and encourage diversity

a) select, and provide opportunities for, all engineering practitioners on the basis of merit

b) promote diversity in engineering leadership

3.3 Communicate honestly and effectively, taking into account the reliance of others on engineering expertise

a) provide clear and timely communications on issues such as engineering services, costs, outcomes and risks

4. Promote sustainability

4.1 Engage responsibly with the community and other stakeholders

a) be sensitive to public concerns

b) inform employers or clients of the likely consequences of proposed activities on the community and the environment

c) promote the involvement of all stakeholders and the community in decisions and processes that may impact upon them and the environment

4.2 Practise engineering to foster the health, safety and wellbeing of the community and the environment

a) incorporate social, cultural, health, safety, environmental and economic considerations into the engineering task

4.3 Balance the needs of the present with the needs of future generations

a) in identifying sustainable outcomes consider all options in terms of their economic, environmental and social consequences

b) aim to deliver outcomes that do not compromise the ability of future life to enjoy the same or better environment, health, wellbeing and safety as currently enjoyed.

ENGINEERS AUSTRALIA--SUSTAINABILITY CHARTER

8 August 2010

Engineers Australia believes that sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Engineers Australia believes that sustainable development should be at the heart of mainstream policy and administration in all areas of human endeavour. Selectively applying sustainable development principles to some areas but not to others is inappropriate. Similarly, sustainable development is about the balance between economic, social and environmental considerations. While from time to time, one of these elements may require additional attention to ensure that balance is achieved; persistent favouring of one element over the others is not sustainable development.

Engineers Australia believes that achieving sustainable development requires a fundamental change in the way that resources are used and in the way that social decisions are made. Accordingly, change will require time and a transitional process towards an aspirational outcome. This means that the process for achieving sustainable development becomes as important as the outcomes themselves. Regular reporting of progress towards sustainability outcomes is vital and should be conducted openly and transparently.

Engineers Australia does not accept its sustainable development policy means accepting major disruption to life in general and to the economy. There are sound economic underpinnings for sustainable development which show that disruptions and economic and social damage are more likely to occur when externalities are ignored, rather than internalised. Engineers Australia favours the application of market principles to ensure the most appropriate allocation of resources, providing externalities and subsidies are properly addressed. Market mechanisms will in some circumstances be inappropriate.

Objectives for Sustainable Development

- . Development should enhance individual and collective well-being while maintaining the viability of the planet.
- . Development should ensure equity within the present generation as well as for future generations.
- . Development issues and problems should be solved holistically and proactively.

Realisation of these Aspirational Objectives

- . Sustainable development requires balanced improvement across economic, social and environmental objectives in an integrated short term and long term decision making process.
- . In circumstances where scientific information is incomplete, the precautionary principle and risk management practices should be used to ensure irreversible consequences are avoided and not passed on to future generations.
- . Renewable resources should be utilised within the limits of natural regeneration and non-renewable resource use should be limited to levels which can be offset by substitution with renewable sources or

other forms of capital.

. The release of hazardous or polluting substances to the environment should be limited by the capacity of the environment to assimilate them and in all instances such releases should be fully costed and attributed.

. A strong, diversified and internationally competitive economy provides the basis for Australian participation in the global movement towards sustainable development.

. Adjustment towards sustainability requires competitive neutrality in the Australian and international economies. Achieving competitive neutrality is already a major feature of Australian competition policy but has not been applied uniformly in all situations resulting in unsustainable outcomes. A precondition for sustainable development is that such implied subsidies are removed.

. Policy, program and project solutions should be needs-based and

HAKI

National Environment and Health Action Plans

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<http://www.searo.who.int/en/Section23/Section1318/Section1792.htm>

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- Acknowledgements

United Nations Development Programme-Indonesia

<http://www.undp.or.id/programme/environment/>

CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT

UNDP is supporting Indonesia in maintaining and managing the country's rich environment, including Indonesia's vast marine and terrestrial biodiversity and energy

resources. UNDP is working for a sustainable environment and development policy, which integrates climate change concerns and at the same time provides poverty reduction and human development.

Climate change is a reality and urgent actions on climate change adaptation and mitigation are required. With an over 80,000 km long cost line and 17,000 islands, many people in Indonesia are depending on climate sensitive sectors such as agriculture, forestry and coastal community economies. Consequently, Indonesia is especially vulnerable to climate change, with the severe impacts of a changing climate already being felt in various parts of the country. Unreasonably, it is the poor and vulnerable communities that are being hardest hit by the changing climate. As a result, climate change is directly threatening Indonesia's recent achievements on poverty reduction and other Millennium Development Goals (MDGs).

In addition to being strongly affected by climate change, Indonesia is also one of the world's largest emitters of Green House Gasses (GHGs), thus contributing significantly to climate change. Indonesia's largest emissions originate from deforestation and land degradation and conversion. In addition to causing climate change, these practices threaten livelihoods, biodiversity, peace and stability.

Given the implications of climate change for Indonesia and vice versa, the Indonesia UNDP Country Office considers climate change a top priority issue. Concrete climate change action is required if the Government is going to reach Indonesia's ambitious emission reduction targets. UNDP is therefore engaging closely with the Government to pursue climate change adaptation and mitigation in the context of an environmentally sound and sustainable development framework.

Advocacy, Policy Support and Financial Mechanisms on Climate Change

UNDP is working through national and local policy support, piloting and advocacy work on the grassroot level, as well as financial mechanisms, for both mitigation and adaptation to climate change in Indonesia.

Second National Communication to the UNFCCC

UNDP supports the Government of Indonesia in preparing the Second National Communication (SNC) to the UN Framework Convention on Climate Change (UNFCCC). The SNC is a highly strategic document, including how the Government can reduce Indonesia's GHG emissions with 26% by 2020, as announced by the President as well as a full assessment of national programs for mitigation and adaptation to climate change. UNDP is facilitating a sound consultation process, in addition to ensuring that GHG emissions from each key sector are documented and

agreed upon. The SNC report was launched during the National Dialogue on Climate Change on the 23rd of November 2009.

UN-REDD: Reducing Emissions from Deforestation

Indonesia holds the world's third largest tropical rainforest, but has the world's second largest deforestation rate. In fact, approximately 70% of Indonesia's GHG emissions are related to land degradation, inappropriate land uses, and land conversion. UNDP is therefore assisting Indonesia in preparing for large scale reduction of GHG emissions through the UN Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD Programme). UN-REDD is a collaboration initiative between FAO, UNDP and UNEP, funded by Norway, aiming to assist tropical forest countries in establishing a fair, equitable and transparent regime for reducing emissions from deforestation and forest degradation. Core initiatives include national and local capacity and consensus building on the REDD architecture and establishment of Measurement, Assessment, Reporting and Verification system.

Building local capacity for climate change adaptation

One example of UNDP's local climate change work is UNDP's focus on the vulnerable Aceh province. UNDP will, in cooperation with the International Centre for Aceh and Indian Ocean Studies (ICAIOS) and supported by the Ford Foundation, train local researchers in the Indonesian province of Aceh to become experts on climate risk management, including adaptation and mitigation in relation to poverty. This thorough training will enable the researchers to provide information and policy advice on climate change and poverty to the local government, as well as map the future challenges of Aceh in relation to these issues. The aim is to strengthen the local government's capacity to develop environmentally sound and sustainable policies in a changing climate.

Indonesia Climate Change Trust Fund (ICCTF)

Effective financial mechanisms are critical in order to attract resources on climate change mitigation and adaptation. Indonesia is currently in the process of operationalizing the 'Indonesia Climate Change Trust Fund' (ICCTF), a Multi-Donor Trust Fund (MDTF) intended to fund climate change initiatives in Indonesia. The ICCTF is, in fact, the first nationally owned, led and administered MDTF in Indonesia. UNDP has been appointed as the transitional fund manager for ICCTF, and assists the Government in the operationalization of the fund. Several donors are already committed to contribute to ICCTF, such as DFID, AusAID, Norway and the US

Department of Energy. Please see the ICCTF website for further details:
<http://www.icctf.org/>

Climate benefits through Ozone Layer Protection

UNDP has been the lead agency in assisting Indonesia in ratifying and implementing the Montreal Protocol, which concerns the reduction and phasing out of substances that both threaten the ozone layer and/or cause climate change. The aim of an elimination of chlorofluorocarbons (CFCs) is particularly important, and notably the Government of Indonesia banned all CFC imports from January 2008. The reduction and phasing out of hazardous and toxic substances from industrial pollution is an equally important aim. UNDP is additionally on track to generate large scale GHG emission reductions from the private sector with over 300 private companies involved in the Montreal Protocol project. UNDP has together with UNIDO and the World Bank reduced approximately 50 000 000 CO₂ equivalent (GWP tons) emissions since 2003. In the future, the project will reduce approximately 4000 MT Hydrofluorocarbons (HCFCs), substances that can damage the ozone layer and cause climate change.

Sustainable Energy

In 2008, the electrification rate in Indonesia was only 65% in average among provinces, making access to new energy an important development goal. It is however crucial that the new energy is sustainable, meaning that it is clean and renewable, in order to address both mitigation and adaptation to climate change.

Rural development with renewable energy

UNDP is, in cooperation with the Indonesian Government, implementing a number of community managed climate friendly microhydro power projects throughout Indonesia. The aim is to promote increased use of microhydro technology in both small-medium enterprises and community-based applications. Sites across remote Indonesia are being particularly addressed in order to improve rural electrification and local livelihoods. Until October 2009, the project had trained 344 microhydro stakeholders national-wide thus stimulating further implementation of new microhydro power plants, such as provincial government's plan to install 200 microhydro in East Java. To date, the project has been able to reduce 280 ktons CO₂eq out of 304 ktonnes CO₂eq as targeted by the end of next year.

'SWITCH to BIOGAS'

Dairy farming has acted as a lift out of poverty for many farmers in East Java. However, current practices of dealing with dairy cattle manure is a significant source of methane emissions, contributing to climate change. UNDP's biogas project aims to improve technology and accessibility of biogas units and sludge management, especially for small-scale farmers. UNDP will develop and test sustainable and durable biogas units together with improved sludge management in pilot provinces. A pro-poor financing scheme for biogas will further be developed through broad stakeholder participation. This will provide villagers with affordable renewable energy while reducing GHG emissions and improving environmental practices. Furthermore, climate change adaptation is an integrated part of the project.

Sustainable Energy

In 2008, the electrification rate in Indonesia was only 65% in average among provinces, making access to new energy an important development goal. It is however crucial that the new energy is sustainable, meaning that it is clean and renewable, in order to address both mitigation and adaptation to climate change.

Energy Efficiency Standards and Labeling

A recent regional initiative for sustainable energy use is the BRESL programme, aiming to enable consumers to easily identify energy efficient household appliances through a national labeling scheme. Since Indonesia has no existing consumer oriented guidance or labeling on energy efficient appliances, UNDP is assisting the Government to set up a standardization and labeling programme, so that consumers can easily choose energy efficient home appliances. Overall, the BRESL regional project will reduce carbon emissions by an estimated 23.4 million metric tons (MMT) per year by the end of the project.

Reducing CO₂ emissions by effective Micro turbine Co-generation Technology

Indonesia's new national energy policy encourages increased use of the country's vast natural gas resources. UNDP is in this context working on the MCTAP (Micro turbine Co-generation Technology Application Programme) programme, which is promoting the utilization of natural gas based power generation, together with co-generation technology. Micro turbines generate electricity with only 65 percent of the CO₂ emissions of a conventional system. UNDP is therefore assisting Indonesia in promoting co-generation technology for small to medium sized industries. By the end of the project, MCTAP targets to stimulate 200 MW microturbine cogeneration installations, which means saving 3,20 BOE of energy and reducing 1.5 million tonnes CO₂eq.

Sustainable Natural Resource Management

Finally, capacitating communities and local governments to manage natural resources in an efficient and equitable manner greatly increases the resilience of the poor against the potential effects of climate change.

Helping the climate through strengthening community-based forest and watershed management.

This project is designed to enhance and upscale the Government's programmes on Community-Based Forest and Watershed Management. UNDP is working to improve forest conditions and degraded land, thus contributing significantly to climate change mitigation, while empowering community involvement in forest and watershed management. This is done by addressing the inequitable distribution of benefits from forest resources and by developing models of community based watershed management. The initiative will take place in six provinces in Sumatra, Java, Sulawesi, Lombok and the Timor islands. The most successful management models and practices will later be replicated in other areas.

Reducing CO2 emissions through sustainable local resource management

UNDP is through the GEF Small Grants Programme assisting local communities to play a leading role in finding local solutions to sustainable natural resource management. Community-generated knowledge, which can provide innovative approaches to environmental conservation, is now filtering up to policy makers, helping to strengthen national efforts to promote sustainable development. Support to community-based freshwater, coastal and marine resource restoration and management, and assistance to community-based renewable energy projects are particularly important parts of the project. UNDP Indonesia has through this initiative supported more than 30 projects related to climate change.

Developing a sustainable management of marine resources in a context of climate change

The tropical Arafura and Timor Seas (ATS) is a region extremely rich in marine resources, being part of the Coral Triangle zone considered to have the highest marine biodiversity in the world. The region sustains several valuable transboundary fish stocks that provide livelihoods for millions of people in the region. A serious decline of the marine environment in the ATS region is however taking place, primarily as a

result of overexploitation of fisheries, in addition to climatic stress. As the ocean resources are crucial for development of Indonesia, UNDP contributed substantially to the World Ocean Conference (WOC) held in Manado in May 2009. Resulting in the Manado Ocean Declaration, WOC agreed to push ocean issues at the agenda of the COP15 in Copenhagen. UNDP is through this project assisting the development of an integrated, cooperative, sustainable, ecosystem-based management of the marine resources shared by all the countries in the ATS region. The project is an important initiative in the work of linking a sustainable management of the marine resources to mitigation and adaptation to climate change.

Mangroves for the Future (MFF)

Mangroves are considered as important 'forests' in coastal areas, providing livelihoods and anti erosion eco-services. However, over 80 % of Indonesia's mangrove forest are believed to be severely degraded. The MFF uses mangroves as the flagship species but works to conserve and improve all types of natural coastal ecosystems. This project is a unique multi-partner initiative to promote investment in coastal ecosystem conservation and restoration. Moreover, mangrove forest planting and conservation contribute to climate change mitigation, while building community resilience to natural disasters and adaptive coastal management is directly related to addressing climate change adaptation needs.

Promoting Community Livelihoods through Sustainable and Integrated Management of the Mahakam Delta

The unsustainable and rapid conversion of mangroves to shrimp ponds/farms has caused large scale degradation in the Mahakam Delta region in Kalimantan. The high dependence of the local economy on unsustainable shrimp farming is problematic on various fronts including biodiversity loss and water pollution, but particularly worrying are the potential adverse effects of climate change. Specific project activities include: (a) Advocating for reduced pollution and contamination of the Mahakam Delta, (b) Helping communities to find safe and sustainable Mahakam Delta resource management solutions, (c) Supporting the development of comprehensive policies on shrimp pond development and mangrove conservation, and (d) Assisting the resolution of Mahakam Delta-related land use conflict.

ICE-India

<http://www.iceindia.org/index.html>

Civil Engineering is an age-old profession and has been defined traditionally as "a great art, on which the wealth and the well-being of the whole of society depend. Its essential feature, as distinct from science and the arts, is the exercise of imagination to fashion the products processes and people needed to create a sustainable physical and natural environment. It requires a broad understanding of scientific principles, knowledge of materials and the art of analysis and synthesis. It also requires research team work, leadership and business skills." A Civil Engineer is someone who practices all or part of this art. Our old monuments and structures speak a lot about practical development of Civil Engineering in this country.

Looking to the importance and development of this profession, most of the countries including UK, USA, Australia, Japan, China etc. created their separate societies to help ensure and maintain high standards among its members, a role that they continue to play even today.

The Institution of Civil Engineers (India) is one such Institution of its kind for Civil Engineering and Architectural Engineering Education in this country which provides avenues for quality education in these disciplines. It also contributes to the strengthening of resources for Civil Engineering as well as Architectural Engineering.

JSCE

(Promulgated on May 7, 1999, by the Board of Directors, the Japan Society of Civil Engineers)

Code of Ethics for Civil Engineers

Preamble:

1. In March of 1938, the Japan Society of Civil Engineers promulgated "the Beliefs and Principles of Practice for Civil Engineers." This had initially been prepared in February of 1933 and was later codified by an entrusted committee on mutual rules of the Japan Society of Civil Engineers (the Chairman was Dr. Akira Aoyama, an ex-president of the Society). In 1933, Japan declared its withdrawal from the League of Nations, a turning point prior to the later Lukouchiano (Marco Polo Bridge) Incident that led to War with China and the Pacific War. Despite the trends of such

an era, the Japan Society of Civil Engineers is proud of its insight to stipulate its "Beliefs and Principles of Practice for Civil Engineers".

2. The Japan Society of Civil Engineers is composed of engineers who carry out civil engineering work and researchers who study the relating subjects. Its members are obliged to strive for: 1) mutual collaboration among its members; 2) contribution to the progress of science and technology; and 3) direct contribution to civil societies.

The Society has renewed "the Beliefs and Principles of Practice for Civil Engineers" into the Code of Ethics, solely because the Society has recognized the increasing importance of the mission and the emerging responsibility shouldered by civil engineers today and in the future.

Basic Perceptions:

1. From the dawn of human history till the present day, civil engineering has contributed to ensuring human beings' safety and enriching their quality of life through constructing, maintaining, and managing social overhead capital. The current industrial civilization has especially been supported by great technological achievements, which has remarkably improved the lives of mankind. However, along with the expansion and diversification of technological advancement, the influence caused by these phenomena upon nature and societies has drastically increased in its complexity and magnitude. Civil engineers should deeply recognize these facts and adhere to the ethical principles of self-disciplined moral obligation when applying advanced technology.

2. The present generation is responsible for ensuring the sustainability of life-supporting conditions for generations to come. It is an honorable mission for the present civil engineers to create and preserve the environment that enhances the coexistence of nature and mankind.

Code of Ethics

A Civil Engineer Shall

1. Apply his/her technical skills to create, improve, and maintain "beautiful national land," "safe and comfortable livelihood," and "prosperous society", thus contributing to society through his/her knowledge and virtue with an emphasis upon his/her dignity and honor.

2. Respect nature while giving the highest priority to the safety, welfare, and health of generations today and in the future, and shall endeavor to preserve and work with nature and the global environment for the sustainable development of mankind.

3. Value traditional technology rooted in indigenous cultures, engage in research and development of advanced technology, promote international cooperation, deepen mutual understanding of other cultures, and enhance welfare and safety of human

beings.

4. Perform civil engineering work from a broad perspective based on his/her specialized expertise and experience regardless of his/her organizational affiliation.
5. Publish reports and express opinions based on his/her accumulated expertise and experience, and live up to his/her own beliefs and conscience.
6. Disclose all relevant information concerning public safety, health, welfare, and sustainable global development, in an effort to carry out irreversible civil engineering work that is of long-term and large-scale in nature.
7. Keep a fair and impartial attitude to the public, clients of civil engineering work, and himself/herself while performing work sincerely.
8. Act as an honest agent or trustee of the employer or client in regard to technical work.
9. Treat everyone fairly without any discrimination against race, religion, sex, or age.
10. Perform work in compliance with applicable laws, ordinances, rules & regulations, contracts, and other standards, and shall not give, ask, nor receive directly or indirectly any undue compensation.
11. Understand the function, forms, and structural characteristics of civil engineering facilities and structures. In their planning, design, construction, maintenance, and disposal, apply not only advanced technology but traditional technology as well while preserving the ecosystem and the beauty it contains, while staying mindful to preserve historical heritage.
12. Strive to enhance his/her own expertise, study diligently concepts and engineering methods, and contribute to technological development through informing academic societies of the results of these efforts.
13. Endeavor to cultivate human resources by effectively utilizing his/her own personality, knowledge, and experience while providing support for others to enhance their professional proficiency.
14. Actively explain the significance and role of his/her own work and respond sincerely to any criticism of such explanation. Further, evaluate objectively the work completed by himself/herself and by others, and express positively individual opinions.
15. Live up to the Code of Ethics stipulated by the Society while continuously seeking to enhance the social status of civil engineers. In particular, members of the Society shall take the initiative of professional dignity by observing this Code of Ethics.

(Promulgated on May 7, 1999, by the Board of Directors, the Japan Society of Civil

Engineers)

Year 2000 Declaration of Sendai on Social Infrastructure and Civil Engineering Technology (http://www.jsce-int.org/ethics/sendai_declaration.shtml)

- Civil Engineer's Resolution -

Infrastructure is the fundamental element to ensure public safety and welfare. Since the beginning of human history to present, civil engineering technology has made significant contributions to the expansion of economic activities and improvement of living standards along with the development of infrastructure. We are proud that the country has developed infrastructures rapidly than anywhere else in the world after the World War II, that it has made a great effort to overcome the problems due to a fragile land of the country, and that a number of civil engineers in field, laboratory and others have contributed to the enhancement of human welfare and have strived to build communication with the general public.

However, as it is continuously advanced and diversified into other forms of engineering, civil engineering technology has happened to make more severe and complicated influences upon not only the environment, but also the human society. Meanwhile, civil engineers have not gained the public's full understanding of their social and historical contributions and responsibilities for infrastructure improvement; as a result, they have faced criticism for failing to respond to the public's needs.

Japan Society of Civil Engineers (JSCE), consisted of civil engineering practitioners, researchers and others affirmed its noble mission and tremendous responsibility to the society and announced "the Beliefs and Principles of Practice for Civil Engineers" in March 1938. This was the first ethical code announced ever by a professional engineering society in Japan. It was a statement of civil engineers that they should be the persons of wisdom and highest integrity, who employ their expertise and skills to harmonize between the environment and human community.

Also, in May 1999, JSCE revised the above code and established the "Code of Ethics for Civil Engineers," which defines civil engineer's professional conducts and describes the integrity, honor and dignity of the civil engineering profession. Clause 4 states that a civil engineer shall "perform civil engineering work from a broad perspective based on his/her specialized expertise and experience regardless of his/her organizational affiliation." Clause 14 advises that a civil engineer shall "actively

explain the significance and role of his/her own work and respond sincerely to any criticism of such explanation. Further, evaluate objectively the work completed by himself/herself and by others, and express positively individual opinions."

Being aware of the public's demand for reconsideration of further infrastructure developments, JSCE responded to it by issuing this Sendai Declaration 2000: It, containing the Society's philosophy, mission and strategies to enhance the welfare of society, was a pledge to enforce the Code of Ethics among civil engineering professionals.

A Civil Engineer shall:

(Significance of Infrastructure Development)

Engage in building, maintaining and utilizing infrastructures to create "a beautiful national land," "a safe and comfortable life," and "a prosperous society."

(Principle 1 - Harmonization with Nature and Sustainable Development")

Respect the nature while giving the highest priority to the safety, welfare, and health of generations today and in the future, and shall endeavor to preserve and work with nature and the global environment for the sustainable development of mankind.

(Principle 2 - Respect for Regionality)

Give due respect for regionality, and encourage a local community to govern itself in accordance with its own characteristics without forcing a standardized strategy for development on it.

(Principle 3 - Respect for Historical Heritage and Tradition)

Show due respect for historical, archeological and cultural heritage, local characteristics, culture, climate and tradition and also promote new cultures and civilizations.

(Strategy 1 - Communication and Accountability to the Public)

Acknowledge their professional responsibility for infrastructure development and build communication with the public in order to acquire its understanding and support and to fulfill accountability for their duties and services to the public.

(Strategy 2 - Clarification of Visions and Plans)

Define medium and long-term visions for national and local developments and take initiative in mapping out the directions toward these visions.

(Strategy 3 - Introduction of Time Management Concept)

Introduce the time management concept in all stages of infrastructure project development, from planning to operation, taking into account the opportunity losses of delayed projects and the benefits of early completion.

(Strategy 4 - Fair Evaluation and Competition)

Strengthen interdisciplinary and internationally competitive technologies and human resources, improve JSCE Civil Engineers' Qualification System, and promote competitive selections between individual engineers and between organizations on the basis of fair and just evaluation of skill, expertise and creativity.

(Strategy 5 - Technology Development for Infrastructure Development)

Improve their professional skills, knowledge and competence on a continuing basis. In particular they shall exert all efforts to improve their performance of project management, cost saving, development of new technologies including recycling ones to contribute to the benefits of the global community.

Japan Society of Civil Engineers shall:

In pursuance of the aforesaid purpose, offer suggestions for further improvements of institutions, systems and other rules concerning infrastructure development and give all possible assistance to maintain and advance civil engineers' skills, knowledge and competence.

(Promulgated on November 22, 2000 by the Board of Directors, Japan Society of Civil Engineers)

Year 2000 Declaration of Sendai  (33KB)

KSCE

KSCE International Forum on “Trends & Prospects of Construction Industry-Strategy for green construction” was held Songdo Convensia, Inchon, Korea on October 21, 2010.

The Four Major Rivers Restoration Project

http://en.wikipedia.org/wiki/The_Four_Major_Rivers_Project

The Four Major Rivers Restoration Project of South Korea is the multi-purpose green growth project on the Han River (Korea), Nakdong River, Geum River and Yeongsan River. This restoration project will provide water security, flood control and ecosystem vitality. This project was first announced as part of the “Green New Deal” policy launched in January 2009. It was later included in the South Korean five-year national plan released by the government in July 2009 and its funding, a total of 22.2 trillion won (Approximately 17.3 billion USD), is reflected in the five-year plan total investment.

The overall project consists of three sets of projects: 1) Main projects – the Han, Nakdong, Geum and Yeongsan rivers revitalization projects; 2) projects on the 14 tributaries of the four major rivers; and 3) refurbishment for other smaller-sized streams. The Four Major River Restoration Project has five key objectives: 1) securing abundant water resources against water scarcity; 2) implementing comprehensive flood control measures; 3) improving water quality and restoring ecosystems; 4) creation of multipurpose spaces for local residents; and 5) regional development centred on rivers.

More than 929 km of national streams will be restored as part of the Four Major River Restoration Project. A follow-up project will be planned to restore more than 10,000 km of local streams. More than 35 riparian wetlands will also be reconstructed.

Background

The Four Rivers Restoration Project of Korea is a packaged project that aims to resolve water-related problems such as floods and droughts and renew Korean territory centering on water. It is also a comprehensive pan-government project that consists of various plans set up by diverse ministries with massive investment over a short-term period.

Korean government estimated an adequate amount of water resources to prepare for future water scarcity. (800 million m^3 in 2011, and one billion m^3 in 2016 expected) Excessive amount of budget has been spent in recovering water-related damages that could have been saved through investment in disaster prevention measures. (Average annual investment in flood prevention: 1.1 trillion KRW / Recovery expenses: 4.2 trillion KRW) Korea is to strengthen the management of pollutants to improve water quality due to the increase of Chemical oxygen demand that takes a long time for degradation and Total Phosphorus that results in eutrophication.

Existing spaces and programs for water sports and cultural activities cannot meet the rising demand from the rise of income levels.

This river restoration plans are to be congruous and comprehensive since rivers have diverse functions related to water storage and control, environment, development, and leisure.

The Four Major Rivers Restoration Project is to contribute to recovering the real economy from the recession through job creation and local economic revitalization.

Policy Direction

The Four Major Rivers Restoration Project has the following policy directions

Proactive response against climate change

Secure water resources in various ways to deal with droughts

Convert from investment centered on disaster recovery into investment focused on prevention

Diversification of ways to secure water resources

Dredging sediments, Elevation of banks around agricultural reservoirs

Expansion and connection of existing water resources facilities

Continuous development of new water resources

Paradigm shift in river management policies

River management policies such as dredging sediment will expand the flood spilling capacity

Initial investment for prevention measures to minimize flood damages will be augmented.

Utilization of river areas as multipurpose spaces for the co-existence of the people and environment

Gradual adjustment of riverside farmlands

Creation of new areas for leisurely activities utilizing rivers

Improvement of the access to waterfronts

Enhance the value of the riverside as scenic areas

Pursue regional development

PICE

PICE held an International Roundtable Forum. The theme of the forum was “DISASTERMITIGATION ADAPTATION PREPAREDNESS STRATEGIES.” The

forum was held in the 36th National Convention at Cebu, Philippines on November 26, 2011.

MACE

http://www.mace.org.mn/index.php?module=menu&sub=0&cmd=content&menu_id=68&smid=68

MACE held her International Roundtable Forum on June 18, 2010. MACE is seeking better strategies of sustainable development on “Construction Business Environment Renovation.”

Energy Conservation Center:

Energy efficiency means to consume energy intelligently and carefully. Saving energy does not only mean saving money, it also contributes to improving health, reducing environmental pollution and creating a healthier living environment.

INTRODUCTION

The three Energy Conservation Centres based in UB, Darkhan and Erdenet were established by MACE as open centres for the public and professionals from the construction field (engineers, technicians, and workers). Main activities undertaken by the center are:

- Organization of professional trainings
- Consulting services
- Provision of information about energy efficiency
- Research work on energy conservation
- Middle man for the supply of energy efficient products

The goals

- To establish an adequate legal environment for the spreading of energy efficiency technologies
- To educate people and private and public institutions on the importance of energy efficiency and ways to save energy
- To introduce energy efficient materials and advanced technologies
- To establish its own position on the construction and energy markets, gain a good reputation among customers and become the leading Mongolian professional energy efficiency institution

VFCEA

<http://www.tonghoixaydungvn.org/Default.aspx?Tab=305&Tinfo=3141>

2009 VFCEA Annual National Scientific Seminar on Incident and Incident Prevention for Construction Works," on December 10' 2009 at *International Convention Center at Hanoi, Vietnam*

“Vietnam has great demands in the development of infrastructures, buildings, houses, factories and other type of projects in difficult subsoil conditions and limited resources. The engineering solution and new technology need to be developed in foundation engineering and construction to achieve high engineering value, by increasing the quality and reducing the cost.”

“In Hanoi and Hochiminh cities, a lot of highrise buildings are under construction. The basements of 1 to 5 floors are excavated. Failures and collapsed of nearby buildings are occurred. The reasons of a failure are the mistakes from soil investigation, design and construction of diaphragm wall, protection of water flow and soil movement as well as management, quality control, quality assurance and monitoring. The consulting services in many cases are not professional and lack of ethic codes.”

Activities of ACECC for Harmonization of Design Codes in the Asian Regions

Kenichi Horikoshi

[http://www.vncold.vn/Modules/CMS/Upload/13/News_Events/Introduction_250409/Introduction\(Horikoshi\).pdf](http://www.vncold.vn/Modules/CMS/Upload/13/News_Events/Introduction_250409/Introduction(Horikoshi).pdf)