

**WORLD FEDERATION OF ENGINEERING ORGANIZATIONS (WFEO)
COMMITTEE ON ENGINEERING AND THE ENVIRONMENT (CEE)**

**Progress Report
September 2013 to April 2014**

Background

In September 2011 Engineers Canada was re-appointed to continue hosting and chairing the Committee for a second four year term. This term will be completed at the December 2015 General Assembly in Kyoto, Japan.

The Chair is Mr. Darrel Danyluk, FEC P.Eng., a Past President of Engineers Canada and of APEGA. The Secretariat is provided by Engineers Canada staff within the Department of Regulatory Affairs. Mr. David Lapp, P.Eng., Practice Lead – Engineering and Public Policy works part-time on this file with additional administrative support provided by Ms. Lynn Tremblay, Assistant Regulatory Affairs.

Travel and staff related expenses for the Chair and Secretariat are provided through Engineers Canada.

Membership and Organization

The membership list as of March 2014 is attached in a separate file. There are representatives from 31 countries and two international members. In addition, there are several individuals who actively support their representative and participate in committee meetings and theme-based activities. Several national members have nominated representatives to represent them on the Committee in the past three months.

Regional Representatives

Regional Representatives provide an interface and point of contact, to increase the awareness of the Committee's work throughout the world and help solicit volunteers and local support for the work of the themes in the strategic plan. The current roster is as follows:

Europe – Spyros Papagrigoriou (Greece)
Africa – Alade Ajibula (Nigeria)
Asia –TAN Seng Chuan (Singapore)
South America – Irene Campos (Costa Rica)
North America - Darrel Danyluk (Canada)

2011-2015 Strategic Plan – Theme Leaders

The CEE executes its work through a four-year strategic plan that is updated annually to reflect progress over the previous year. The plan includes five themes with Theme Leaders as follows:

Theme 1 – Adaptation of infrastructure to Changing Climate – Darrel Danyluk, FEC, P.Eng. (Canada)

Theme 2 – Climate change mitigation and engineering – Paul Jowitt, C. Eng. (United Kingdom)
Theme 3 – Engineering and agriculture – Engineer Fethi Thabet (Tunisia)
Theme 4 – Engineering and sustainable mining – Dr. Nikhil Trivedi (United States)
Theme 5 - Environmental and sustainable engineering practices for engineers – David Lapp, FEC, P.Eng. (Canada)

WFEO Meetings, Events and Teleconferences

Committee on Engineering and the Environment – Face-to-Face Meeting #6 – September 9, 2013 – Singapore City, Singapore

Thirty-nine people from all regions attended the one-day meeting. It was conducted in two sections – a business meeting and a review of progress on the 2011-2015 strategic plan. Highlights included:

- Discussion with the Standing Committee Ad Hoc Review Committee to discuss the committee's performance.
- The Chair reported on the Executive Board meeting in April, activities and discussions related to the United Nations Framework Convention on Climate Change, the Commission on Sustainable Development and the World Meteorological Organization
- Conducted a roundtable of committee members and observers reporting on their activities and issues and exchanging information
- Updated members on the search for a new host country to take over the committee after the December 2015 WFEO General Assembly
- Progress reports from the five theme leaders on their activities, accomplishments and outputs over the past year and plans for the coming year
- Discussion of relationships and project ideas with other international organizations including UNESCO, the World Meteorological Organization (WMO) and OECD
- Unanimous approval of the WFEO Model Code of Practice for Sustainable Development and Environmental Stewardship
- Reviewed the September 2013 newsletter that focused on WFEO Model Code and reviewed upcoming publication schedule and themes

United Nations Activities, Meetings and Workshops

The Committee maintains an active profile with several United Nations agencies through activities carried out under its strategic plan and working with the WFEO UN Relations Committee (WURC). These bodies include the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Environment Program (UNEP) and the United Nations Commission on Sustainable Development (UN-CSD). The focus is on supporting discussion and work around engineering, climate change and sustainable development.

UNFCCC Conference of the Parties Meeting No. 19 (COP-19) – Warsaw, Poland - November 2013

Chair D. Danyluk and Secretary D. Lapp attended this meeting. D. Danyluk was interviewed by the UN - COP Secretariat on his views on infrastructure climate change risk assessment, adaptation and resilience. Updates on the status of negotiations on climate change adaptation were witnessed.

Several side events and workshops were attended to gather information and make additional contacts. Individual meetings with conference delegates, staff from GIZ and the WFEO CEE Theme 2 Co-Chair were held to discuss potential initiatives and events in 2014.

World Meteorological Organization (WMO) - WFEO Memorandum of Understanding

The Memorandum of Understanding between the Federation and WMO was signed in November 2012. It focuses collaboration on projects of mutual interest that support the implementation and effective operation of the WMO Global Framework for Climate Services to meet the climate data needs of engineers.

The WMO supported the delivery of a one day training workshop on infrastructure climate risk assessment that was delivered at WES 2013 in September 2013. WMO provided a speaker and supported a presentation on climate information needs for engineers.

In March 2014 the CEE submitted a proposal in partnership with WMO and GIZ to hold a side event at the UNFCCC June meetings in Bonn. Tentatively entitled “Climate Data Needs and Opportunities for National Adaptation Strategy Development and Implementation”, the event will discuss the range of climate data needs for National Climate Change Adaptation Strategies and Programs through to the assessment of climate risks to water, sanitation, transportation and power infrastructures.

Between 10 and 15 April 2014, Engineering and Agriculture Theme Leader Fethi Thabet will, by invitation, attend the WMO 16th Session of the Commission on Agricultural Meteorology, to be held in Antalya Turkey. This topic is an important one on the world stage. Engineering support to the production and delivery of food is a theme of our (CEE) task group on agriculture.

Daniel Favrat of Switzerland is the designated contact between WFEO-CEE and the WMO.

WFEO United Nations Relations Committee (WURC)

The Chair and Secretary continue to serve as members of the World Federation of Engineering Organizations’ United Nations Relations Committee (WURC). Both participated in a teleconference held in late January.

The WURC manages the co-chairing of the United Nations Major Group on Science and Technology (with International Science Council (ICSU) and International Social Science Council (ISSC)). The Group is one of nine civil society groups recognized by the United Nations to provide input on policies and programs related to sustainable development and the setting of post 2015 Sustainable Development Goals (SDGs).

WFEO-CEE Strategic Plan – 2011-2015

The strategic plan for the second term of the Committee was updated at the September 2013 meeting. It was revised and published on the website. There are five themes, each led by a Federation member country with a volunteer chair. The themes and lead countries include:

1. Engineering and Climate Change Adaptation – Canada
2. Climate Change Mitigation and Engineering – United Kingdom
3. Engineering and Agriculture – Tunisia
4. Engineering and Sustainable Mining – United States

5. International Code of Practice on Sustainable Development and Environmental Stewardship
– Canada

Each theme organizes a task group of volunteers that includes members from the Committee augmented by subject matter experts and other individuals that have been secured by each theme leader with support from the secretariat. Each theme leader reports to the Chair of the Committee.

Theme 1 - Engineering and Climate Change Adaptation

The work under this theme focuses on the relationship of a changing climate and existing infrastructures and to implement tools for engineers to use in assessing impacts from an engineering perspective. Knowledge development and capacity building are the two key strategies being used, with a current focus on Latin and South American countries.

Workshop on Infrastructure Climate Risk Assessment: Tools and Processes – September 10, 2013 – Singapore City, Singapore

A one-day training workshop on the PIEVC Engineering Protocol for infrastructure climate risk assessment was delivered to 16 participants. It was jointly organized and promoted by the World Federation of Engineering Organizations, World Meteorological Organization and the Institution of Engineers Singapore. The workshop was a formal part of the program for the World Engineering Summit 2013. It was the first time it was delivered in the Asian region.

The workshop team was led by Secretary D. Lapp who served as lead trainer and facilitator. Guest speakers included a representative from the World Meteorological Organization (Geneva), the Singapore Meteorological Service and the Colegio de Ingenieros Civiles de Honduras (CICH). These individuals travelled with support for their expenses paid by their respective organizations. Each person volunteered their time to support the workshop.

Participants included engineers from Ghana, Singapore, Indonesia and Brazil. The workshop was well-received. Individuals from Ghana and Singapore expressed interest to discuss more targeted workshops and possible case studies in the next few months.

Workshop on Disaster Risk Management on South American Integration Infrastructure – Santiago, Chile September 28, 2013

In this event, ministries of environment and transport of most of South American countries were present. The countries that attend this workshop were Colombia, Brazil, Argentina, Chile, Ecuador, Paraguay and Uruguay. Beside these countries, there was representation from the Inter-American Development Bank and some other invited organizations such as Engineers Canada (CFIA attended representing Engineers Canada and WFEO) and some researchers in weather matters.

The concepts of infrastructure climate risk assessment using the PIEVC Engineering Protocol and local or country-level capacity building were presented to this group to raise awareness and eventual engagement.

Workshop Session - Role of Partnerships in Managing Climate Risks, Building Resilience and Creating Productive Business Opportunities – Barbados, November 19, 2013

An invited presentation on the potential application of the PIEVC Engineering Protocol for assessing climate risks in P3 infrastructure projects was delivered at this workshop sponsored by IADB.

Collaboration with Colegio of Engineers and Architects of Costa Rica (CFIA)

In September 2011, Engineers Canada signed a long-term license agreement with CFIA for the use of the PIEVC Engineering Protocol for infrastructure risk assessment in Costa Rica. This agreement enables CFIA to offer the Protocol to infrastructure owners in Costa Rica and to provide advisory and consulting services as required. CFIA also serves as the regional node for the WFEO-CEE to pursue and execute adaptation projects in Latin and South America.

In the fall and winter of 2013-2014 CFIA held meetings with functionaries of various local authorities in Costa Rica. The institutions which were presented the Protocol or meetings to coordinate future steps were:

- Instituto Costarricense de Acueductos y Alcantarillados (AyA – Water Agency)
- Instituto Costarricense de Electricidad (ICE – Energy and Telecommunications)
- Ministerio de Ambiente (Ministry of Environment)
- Instituto de Fomento y Asesoría Municipal (IFAM - Promotion and technical advisement for local governments)
- Empresa de Servicios Públicos de Heredia (ESPH - Public services enterprise of the province of Heredia – Drinking water, sewers and electricity)

The institutions that had previous knowledge of the Protocol were AyA and the Ministry of Environment. The meetings were to discuss next steps to apply the protocol to specific projects. For AyA the project is a medium size collection, treatment and distribution of drinking water in the central pacific area of Costa Rica. In the other cases (ICE, IFAM and ESPH) presentations were given in order to explain what the protocol is and which the typical results of its application.

National forums which CFIA participated, presenting the PIEVC protocol were:

- Climate Change seminar organized by the Ministry of Housing of Costa Rica,
- Innovation Congress organized by AyA

The objective was always to promote the protocol, show the examples of application and underline the benefits that could be obtained as result of the whole process.

From previous meetings with the Vice-Ministers of Environment of Costa Rica, it was possible to obtain contact with the Executive Director of FUNDECOOPERACION. This organization is one engaged to develop the proposal for finance from the World Bank's Adaptation Fund in close coordination with the Direction of Climate Change of the Ministry of Environment of Costa Rica.

Two meetings between CFIA and FUNDECOOPERACION were held to explain the PIEVC protocol and as result the protocol was defined as the tool to assess vulnerability of infrastructure of water distribution in coastal areas. This was stated in the Concept Note submitted to the Adaptation Fund. The Concept Note was approved on November of 2013 which authorizes the development of the final proposal. FUNDECOOPERACION will submit its proposal to the Adaptation Fund by September 2014.

Through FUNDECOOPERACION, contact was established with a Nicaraguan NGO (Aqualimpia) that is preparing an adaptation project in highways in that country. The CFIA sent general information about the Protocol for a Letter of Interest. If the Letter of Interest is accepted the contracting authorities will request a proposal to apply the Protocol to highways and bridges in Nicaragua.

Regional Workshop Training Proposal

A proposal was submitted to the International Affairs Branch of Environment Canada to develop and deliver a one –week course on the application of the PIEVC Engineering Protocol as well as methods of climate analysis and future projections. The course will be delivered in partnership with the Costa Rica Colegio of Engineers and Architects for up to 40 engineers and climate scientists flown in from up to 10 countries in Central and Latin America. The project has been recommended for funding, and a decision is expected by June 2014.

Collaboration with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

The CEE continued to develop a cooperative partnership with GIZ, the German international development organization for international cooperation. GIZ will partner with WFEO-CEE in delivery of a side event at the UNFCCC Bonn meetings in June 2014.

UNFCCC Bonn Meetings – June 4-15, 2014

Chair D. Danyluk and Secretary D. Lapp will lead a small team representing WFEO and CEE at these meetings. Activities planned include the delivery of two side events/workshops, subject to acceptance by the UNFCCC Secretariat. These events will be delivered in partnership with others e.g. WMO and GIZ.

Theme 2 – Climate Change Mitigation and Engineering

This theme focuses on the application of existing technologies and engineering practices towards the mitigation of climate change through Greenhouse Gas (GHG) reduction. The Institute of Civil Engineers and Institute for Mechanical Engineers Co-Chair this theme area through a cooperative understanding.

The climate change mitigation working group aims to promote the key role of civil engineering and clean technologies efforts to mitigate climate change and thus reduce GHG emissions. The group strives to create an international pool of knowledge and collaborative group, building upon the extensive network and resources of the Future Climate Engineering Solutions project (<http://www.fc-es.net/>) .

The Danish Institute of Engineers led a project entitled Future Climate -Engineering Solutions which evaluated options for GHG reduction using existing technologies and engineering solutions. Thirteen countries participated in the initial Phase 1 and each produced a country assessment.

The United Kingdom Institute of Mechanical Engineers (IMECHE) is now the lead organization for the project, which is now in Phase 3. This phase is focusing on the development of frameworks for country energy plans that focus on GHG reductions as a key objective.

The aim is to expand the number of countries undertaking national reports and use them to advocate engineering solutions for climate change mitigation to the United Nations and Federation member governments. There is a great need to inform and educate policy and decision-makers.

Best practices will be developed. Continuing professional development for engineers, other professionals and policy makers will be facilitated.

Theme 3 – Engineering and Agriculture

This theme is focusing on issues related to elements of the agricultural supply chain in selected regions of the world (focusing on Africa) that can benefit from engineering. Activities underway and completed include:

1. Organization of a workshop on engineering and food security in Africa

A concept note that describes the main themes as well as budget, timing and expected outcomes was completed. This note will be used to solicit funding and sponsorship support. A meeting was held with the African Development Bank directors to explore collaboration with World Federation of Engineering Organizations. Subjects discussed included the action plan as well as the engineering and food security workshop proposal.

Next steps include informing African National members of WFEO about workshop themes and expected outcomes. This will include a request to see if their government is interested in hosting this event. The objective is to finalize a location by the end of April 2014. Letters will be sent to sub-Saharan countries who are not members of WFEO.

2. Continuing collaboration with Farming First

Theme Chair F. Thabet attended two Farming First steering committee meetings in Paris. At the first meeting held September 24, 2013, Farming First agreed to support the organization of the workshop on engineering and food security by identifying and helping to secure speakers as well as assist in social media outreach. The second meeting held January 14, 2014 focused on the subjects of climate, food security and sustainable agriculture, family farming with an emphasis on small farmers in rural areas.

Farming First main themes for 2014 include sustainable agriculture productivity, resilience/capacity building, supporting the international year of family farming and commenting on UN Sustainable Development Goals post-2015. The Task Group will support these efforts on request and as opportunities arise.

3. Participation in the FAO near east regional multi-stakeholder workshop on food security and nutrition

This event was held in Tunis from November 4 to 7, 2013 with 80 participants from 20 countries. A report on this workshop was recently issued. There is an urgent request to reduce food losses and waste by 50% over ten years.

4. Sixteenth session of the WMO Commission on Agricultural Meteorology

This meeting will take place in Turkey in April 2014. In preparation F. Thabet initiated a consultation with the experts of the Institution of Agricultural Research and higher education belonging to the Tunisian Ministry of Agriculture and their colleagues from the national meteorology institute. There was discussion around forming a task group on climate change. The difficulty of access to climate data by small farmers was raised.

5. Other Meetings

A meeting was held with the President of the Institution of Engineers Malaysia, who agreed to nominate Mr. Vasan Mariappan to join the engineering and agriculture task group.

A meeting was held in Paris with the Chief of Science Policy and Reform Section within UNESCO who provided their draft medium-term strategy 2014-2021. A concept note and draft conclusions from a meeting of the EU-Africa High Level Policy Dialogue on science, technology and innovation was also provided.

Engineering inputs for implementing sustainable agriculture solutions are crucial to ensure worldwide food security and sustainable food supply especially in Africa and South Asia.

Theme 4 – Engineering and Sustainable Mining

The Society for Mining, Metallurgy and Exploration, part of the American Association of Engineering Societies, leads this theme and has a substantial working group that has wide geographical and regional representation. The group is executing a four year action plan with five themes:

1. Environmentally Sound Engineering Practices and Technology
2. Best Practices in Social Sustainability and Responsibility
3. Best Practices in Eco-Efficient Use of Resources
4. Engineering Solutions to Reuse, Recycle and Repurpose Minerals
5. Risk Analysis, Mitigation, and Management Techniques

The action plan focuses on capacity-building for mineral producers, particularly the smaller ones which have less experience with sustainability practices and need to be more locally and culturally sensitive.

Theme Leader Nikhil Trivedi attended the General Assembly meeting in Singapore in September 2013 and reported on the progress made by the task force to-date. He specifically mentioned that the meeting in July 2013 which was held in Milos, Greece was very successful. It dealt with Sustainable Development in the Mining industry. It was attended by 150 participants from 30 countries. World Federation of Engineering Organizations CEE Chair Darrel Danyluk was a participant in a panel

discussion. Additionally, after the conference in Milos, five new volunteer members stepped forward to participate on the task force.

In 2014, the task force is planning to develop a prototype for a capacity building workshop on mining and sustainable development. This exercise will be carried out in conjunction with the 25th anniversary meeting of the Society of Mining Professors (SOMP). SOMP will meet in Johannesburg, South Africa 26 June to 1 July in cooperation with the University of Pretoria and the University of the Witwatersrand.

The focus of the capacity building workshop is small to medium sized mining companies that do not have resources or focus on sustainability. Other target groups include government authorities, NGOs and the general public. The goal is to have a prototype for a workshop reasonably ready for beta testing by August/ September 2014 timeframe. The task force is aware that UNESCO has asked WFEO to identify opportunities for cooperation. A global roll out of the proposed workshop on training small and medium mining companies on sustainable engineering practices in cooperation with UNESCO would be a great example of such collaboration.

We continue to receive administrative support from the Society for Mining, Metallurgy and Exploration, Inc. (SME) based in Englewood, Colorado (USA).

We periodically review locations of our task force members in order to identify gaps in geographic coverage and reach of our activities. The task group is open to new representatives from the WFEO or CEE members or arranged through national members.

Theme 5 – WFEO Model Code of Practice on Sustainable Development and Environmental Stewardship for Engineers

The Model Code was unanimously approved by the General Assembly in September 2013. In late October it was published and distributed electronically to all national and international members of WFEO. It was placed in a prominent location on the opening page of the WFEO website.

The Code has a one-page listing of ten principles, similar in format to the Code of Ethics. An Interpretive Guide accompanies the listing and provides additional amplification and guidance on how engineers should interpret and implement the principles. National members may adopt it as their own guide or use it to develop their own.

During the reporting period, the Model Code and Interpretive Guide were translated into Spanish. Thanks to national member Costa Rica for completing that task. The one-page listing is also available in French. Translation into Arabic by national member Bahrain was recently completed and now posted on the WFEO website. Negotiations to translate into several other languages are in progress.

A presentation on the Model Code and guidance on the principles was completed in March 2014. The presentation is approximately 30 minutes long, and includes speaking notes so that others may deliver the presentation. The presentation is the first of a series of communication and training products to increase awareness and uptake of the Model Code over the next few months. It may be delivered in person or via webinar. The CEE will work to facilitate speaking opportunities in the coming months.

Target audiences include national members of WFEO and their engineers as well as United Nations agencies.

Succession Planning

An important element of the 2011-2015 strategic plan is to find a successor to host and chair the Committee when Engineers Canada term ends in December 2015.

In the fall of 2013, formal and informal discussions were held with a few national members who expressed interest. These discussions continue and have not yet reached a conclusion.

WFEO-CEE Newsletter

The newsletter is one of the primary means of communication of the committee's work within WFEO and the international community.

Newsletter #10 was published just prior to the September 2013 General Assembly in Singapore. It focused on the WFEO Model Code of Practice for Sustainable Development and Environmental Stewardship.

Newsletter #11 is scheduled for publication in April 2014. It will focus on the Future Climate - Engineering Solutions Project. This project is part of Theme 2 – Climate Change Mitigation. It addresses GHG reduction through the development of national energy plans that include the application of existing technologies.

Newsletter #12 will be published in the fall of 2014.

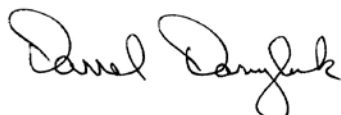
WFEO-CEE Website

Updates to the CEE's portion of the website were provided on a periodic basis. Many of these were related to the WFEO Model Code of Practice.

Prepared by:

WFEO-CEE Secretariat
March 10, 2014

Approved by:



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