



**World Federation of Engineering Organizations
Committee on Engineering and the Environment – 2015-2019
Summary Progress Report to the 2017 General Assembly in Rome
from the Committee on Engineering and the Environment (CEE)
for the period December 2016 to October 2017
by the CEE Chairman, Jean Venables**

1) Introduction

This report details the activity of the CEE from the meeting in Lima in December 2016 up to mid-October 2017, including the five themed groups that report into the CEE.

Following the CEE meeting in December 2016 in Lima, significant effort was expended to revise the strategies for the five themed Task Groups following extensive discussion of them and the overall CEE strategy at the Lima meeting. Each group has aimed to execute their programme of work to match their revised strategies, and significant progress has been made by the Climate Change Adaptation Group, the Climate Change Mitigation Group and by the Theme Leader on Engineering and Agriculture. I am also pleased to report that the Task Group on Sustainable Mining has also been able to make good progress despite a reduction in financial support from the Society for Mining, Metallurgy and Exploration.

2) Challenges during the year

As I reported again in the 2017 CEE Self-Assessment, I regret to say that the resources available for the Secretariat remained inadequate for almost all of this reporting period, because the ICE had not been able to allocate a staff member to deliver on the Secretariat service that had been promised. To help CEE make progress, my husband and business partner Roger Venables continued to assist in an Honorary Secretary role. However, his other commitments continued to severely restrict the time he was able to devote to the Committee's work, but he was able to prepare and circulate the minutes of the Lima meeting, prepared the revised group strategies for the Themes, and seek comments on them from Theme Leaders and CEE members.

I am of course pleased that my STC Self-Assessment Report has been well received but, clearly, less has been achieved than would have been the case had ICE support been available from the start of my chairmanship.

However, although it is much later than we had all hoped, I am very pleased to say that the Institution of Civil Engineers has allocated, from 4 October 2017, significant time from Rob Curd, a Project Manager in the Engineering Knowledge Department to provide the promised CEE Secretariat. Both Roger and Rob will be attending the WFEO meetings with me in Rome and Rob will be working closely with me and Roger in the coming year.

I can therefore say that there is increased confidence that the Secretariat function for WFEO-CEE will now develop as intended and the achievements of CEE overall should improve.



3) Meetings, Events and Teleconferences

3.1 Chairman's meetings and related activities

- I was very pleased to be able to again meet Fethi Thabet, Theme Leader on Engineering and Agriculture, on one of his visits to Europe. It was good to see him developing contacts and participation in a wide range of forums. My sincere hope is that WFEO members will come together to provide working members for this group and that some financial support can be found for activities in this extremely important area.
- I have also been very pleased to be able to take part in most of the meetings of the Future Climate Engineering Solutions Group (FC-ES), which fulfils the role of CEE Task group on Climate Change Mitigation. As you can see from their report, good progress is being made towards finalisation of the National Energy Plans Good Practice Framework aimed for December 2018.
- I have followed Darrel Danyluk's participation in the UNFCCC process with admiration for many years. We must not just take note of his frustration with the process as explained in his report but act through WFEO to find a better way to assess and agree actions on adaptation. CEE will consider in Rome what action it thinks it and WFEO as a whole can take to realise Darrel's plea for recognition of a "Practitioners Group" which, he stresses, "would go a long way to addressing the Adaptation challenges and the feasibility of alternative solutions".
- Finally in this short summary, I was delighted to be invited by the Institution of Engineers Singapore, in my capacity as WFEO CEE Chairman, to deliver a keynote address to the World Engineers Summit in Singapore in July this year. My topic was "*A Low Carbon and Sustainable Future: how partnership working can help us deliver our goals*" and I was pleased to connect that topic to the work of WFEO generally, and CEE and the Committee on Energy in particular. It was also helpful to gain south-east Asian perspectives on WFEO and the development of low carbon technologies.

3.2 Meetings arranged as part of work by the Theme leaders/Task Group Chairs

Significant activities by themed Task Groups as part of the Committee's Work have included the following.

- Organising the attendance in May 2017, of three WFEO delegates at the UNFCCC mid-year negotiations in Bonn for COP23;
- Organising a mini side event at the Bonn event on the lessons learned from an expert panel assessment of the 2013 flooding event in Calgary
- Organising – and manning for the two-week period – an WFEO exhibit, which gave the opportunity to display and supply WFEO materials such as the Model Code of Practice for Engineers on Climate Change Adaptation and the Guidelines for Sustainable Development and Environmental Stewardship
- Organizing the WFEO delegation to COP-23 in Bonn in November 2017.
- Regular meetings of the FC-ES Steering Group, FC-ES being the Group that fulfils the role of CEE Task Group on Climate Change Mitigation.
- Attendance at a speeches by the Chairman of the Engineering and Agriculture Group at:
 - The annual meeting of Farming First in Paris in December 2016
 - A National Conference on Food security in Morocco in April 2017
 - A National workshop on adaptation to climate change impact: reality and challenges, held in Tunisia in April 2017.



- A research program presentation held in Tunis in May 2017 on : Food Sovereignty, Security and rural livelihoods in the Arab world : the cases of Egypt ,Tunisia and Morocco
- The general conference of the Arab Agricultural Engineers Union on “Engineering innovations and development in the agriculture field and its importance to ensure food security”.

Details of these and other Task Group activities are provided in Appendices A, B, C and D that follow after this overview report.

4) Strategy for the Committee 2017-19

As already indicated, the Strategy proposed by the ICE was reviewed in detail at the Lima meetings and the Theme Leaders have since endorsed and acted upon the revisions. The overall strategy for CEE is now being reviewed and revised to take account of developments during the year, in particular on the relationship between the Committee’s Themes and the UN SDGs. The revised Strategy will be discussed and, it is hoped, agreed at the CEE Meeting in Rome. It will be circulated to the Executive Council and General Assembly at the same time as it is sent to CEE Members with their Rome Agenda and other papers.

5) Prospects for the period December 2017 to November 2019

I look forward to CEE being able to deliver more against its strategy between now and our meetings in 2018 and 2019, now that a significant resource has been provided by the Institution of Civil Engineers for the CEE Secretariat.

We will be identifying in Rome the SDGs on which the Committee’s work is most closely related, and subsequently developing a communications plan to make the most effect of CEE’s work in its five important areas of work – Climate Change Mitigation, Climate Change Adaptation, Professional Practice for Sustainable Development, Engineering and Agriculture, and Sustainability and Mining.

Dr Jean Venables CBE FREng FICE
CEE Chairman, 16 October 2017



**World Federation of Engineering Organizations
Committee on Engineering and the Environment (CEE) – 2015-2019
Task Group on Climate Change Adaptation
Progress Report as at 12 October 2017 for CEE Meeting in Rome
27 November 2017**

1) UNFCCC mid-year negotiations in Bonn

In May 2017, three WFEO delegates attended the UNFCCC mid-year negotiations in Bonn where in addition to attending UNFCCC sessions we held a mini side event (1-hour) and manned an exhibit for the 2-week period.

The side event focused on the lessons learned from an expert panel assessment of the 2013 flooding event in Calgary. The exhibit provided an opportunity to display and supply WFEO materials such as the Model Code of Practice for Engineers on Climate Change Adaptation and the Guidelines for Sustainable Development and Environmental Stewardship.

In preparation for these meetings, national members were invited to nominate interested parties and to provide materials on Climate Change adaptation activities within their countries. There was little response to these requests.

After the meetings, I recorded my assessment, my feelings and frustrations of the UNFCCC process and the little influence of practitioners, as follow.

“The easy path forward towards an unclear finish drives the UNFCCC in their day to day activities.

While the world craves for leadership committed to sustaining humanity, the UNFCCC continues building upon over 20 years of dialogue by facilitating meetings on specific focused agendas, underscored by and catering to the whims of parties overwhelmed with self-worth and importance.

The overriding benefit of international dialogue and forward thinking for our collective benefit is soon lost in the self-serving demands of parties and individuals within the actors of the UNFCCC. The secretariat charged with organization and facilitation has little if any motivation for the COP to reach consensus and conclusion. A body growing in size has no interest in resolution of Climate Change, a result that reduces the need for the secretariat.

Developing countries seek and continuously demand the resources to address the impacts of Climate Change without the prerequisites of "for what" and the supporting information to validate their need.

The Climate is changing and there will be impacts on human establishments worldwide. Climate Science on its own will not change this, but in cooperation and collaboration with those who ensure daily that essential infrastructures allow society to exist and flourish, humanity can adapt.

The practitioners need to be engaged. Engineers, lawyers, planners and other professional bodies clearly understand how societies work and are best positioned to address the needs demanded by the changing climate. WFEO has attempted to fill this void with marginal if any



success. Recognition of a “Practitioners Group” would go a long way to addressing the Adaptation challenges and the feasibility of alternative solutions.

It's time to act, to put words into action and to ensure a sustainable global environment for our children.”

Darrel Danyluk May 2017

2) UNFCCC COP23 in Bonn

- The UNFCCC COP23 will be held in Bonn, November 06 to November 17 with Fiji assuming the chair.
- We will have 2 WFEO CEE members and a representative of FIDIC attending on our behalf.
- National members were again solicited for interested individuals and several inquiries were responded to. One nominee withdrew prior to the meetings.
- A couple of requests for accreditation were received well beyond the UNFCCC nomination deadline dates.
- An update of COP23 and a request to revisit the WFEO involvement in this process will be presented to the chair at the CEE meeting in Rome in November.

3) German Development Agency (GIZ) initiative to add an Infrastructure Adaptation component to their Climate Services Initiative

- Progress on the German Development Agency (GIZ) initiative to add an Infrastructure Adaptation component to their Climate Services Initiative continues. After receiving notice that the initiative was cancelled, Engineers Canada was contacted to determine if the protocol developed by the Canadian Public Infrastructure Engineering Vulnerability Committee (PIEVC) could be available for assessments and to build the local capacity in Viet Nam, Brazil, Costa Rica, and the Nile Basin Initiative.
- An update will be provided at the CEE meeting in Rome.

Darrel Danyluk P.Eng FEC, FEIC, FCSCE, FCAE
Prepared October 07, 2017



**World Federation of Engineering Organizations
Committee on Engineering and the Environment (CEE) – 2015-2019
Task Group on Climate Change Mitigation
Progress Report as at 12 October 2017 for CEE Meeting in Rome
27 November 2017**

1) Introduction

The CEE Task Group on Climate Change Mitigation is fulfilled through the Future Climate Engineering Solutions Group (FC-ES). FC-ES has operated since 2008, originally under the auspices of the Danish Society of Engineers IDA, with involvement from the UK's Institutions of Mechanical Engineers, Institution of Engineering and Technology, and the Institution of Civil Engineers. It has established a network of over 20 nations. See <https://fc-es.net/> for details.

FC-ES has two main functions

- To develop best practice in the endeavour to create and implement National Energy and Climate Plans through collaboration between professional engineers globally. National Energy and Climate Plans are strategic energy supply and demand plans at national level that set out to meet the needs of the present without compromising the ability of future generations to meet their own needs.
- To share this best practice and to facilitate its implementation globally, to ensure consistency between countries, and to avoid conflicting solutions (e.g. double-counting shared energy resources).

FC-ES has two mechanisms to deliver these functions:

- A network of national professional energy institutions. These institutions are the bodies that connect individual professional engineers, and provide impartial advice on engineered systems to national policy makers.
- A Framework Report, which has been updated and published three times so far, that describes the best practice approach to national energy and climate planning. The Framework is essentially an evolving guide to national energy and climate planning, and incorporates the transition engineering approach and the best in engineering thinking germane to the climate change challenge.

2) Progress Report 2017

2.1 Framework Report update

Chairmanship of the FC-ES group passed from Daniel Kenning to Andrew Webster (Shell) and Alex Howe (UK BEIS) at the end of 2016. Throughout 2017, there have been regular steering group meetings and a plan of work to develop the latest framework report has been put into action.



The Group identified a number of practitioners and academics that had been involved in producing an energy plan for their country. Interviews were carried out throughout 2017 to capture best practice and lessons learned in energy plan production.

This research will go into the latest National Energy Plans Good Practice Framework which we hope to publish by December 2018.

2.2 Global Calculator

In September, FC-ES met with members of the UK Government's Department for Business, Energy and Industrial Strategy and of Cambridge University to offer ongoing support in the further development of the global calculator.

The Global Calculator is an open-source model of the world's energy, land and food systems that allows you to design your own version of the future up to 2050 and see the implications for the climate.

The Global Calculator is a joint project between the UK's Department for Business, Energy and Industrial Strategy (which took over the responsibilities of the Department of Energy and Climate Change in 2016), Climate-KIC, the World Resources Institute, the Energy Research Institute of the National Development and Reform Commission, Energy R&D International (China), E&Y (India), the London School of Economics, Imperial College London, Climact the Climate Media Factory, and the International Energy Agency.

2.3 COP23

FC-ES will also have a presence at COP23 this November and will be holding a workshop to offer an insight into approaches for meeting sustainable development goals relating to affordable clean energy and climate action. Panellists will present tools and guidance available to policy makers in developing effective energy and emissions reduction strategies.

Representatives from Future Climate-Engineering Solutions will present the fourth iteration of the group's National Energy Planning Good Practice Framework providing a template and good practice guidelines for the development of country-specific national climate and energy plans. Speakers will also discuss the role of systems planning in balancing sustainability and security across water, food, and energy sectors.

3) Rome 2017

FC-ES representatives will be present at Rome 2017 to promote the work they are doing and to seek contributions from national organisations that have also created energy plans.

Rob Curd
16 October 2017



**World Federation of Engineering Organizations
Committee on Engineering and the Environment (CEE) – 2015-2019
Task Group on Engineering and Agriculture
Progress Report as at 12 October 2017 for CEE Meeting in Rome
27 November 2017**

1) Progress Report 2017

The following paragraphs outline the principal activities of the Task Group since our Lima meeting.

1.1 Workshop on engineering role to achieve food and water security in Africa

- Terms of reference have been completed
- The ministry of agriculture of Benin have agreed in principle to host the event. Logistics are currently under discussion with WFEO and the Benin Ministry of Agriculture to clarify roles and responsibilities.
- The Farming First coalition, the World Farmers' Organisation and some private individuals have expressed their support to this event.

1.2 WFEO -FAO

One of the main goals of our Task Group is to develop a working relationship with the United Nations Food and Agriculture Organisation (FAO). It is hoped that a meeting will take place in the coming weeks to prepare a memorandum of understanding between WFEO and FAO.

1.3 WFEO -Farming first

The Task Group chair attended the annual meeting of the global coalition for sustainable agriculture steering committee, Dec 16, 2016 in Paris. The main policy issues emphasised included: How to engage with a younger more diverse audience, innovation, the SDGs and rural/urban future trends.

1.4 National Conference on Food Security - Morocco

In April 2017, the Task Group chair attended a national conference on food security in Morocco organised by the national union of Moroccan engineers with the partnership of the ministry of agriculture a FAO. More than 50 experts attended.

It was a good opportunity to present the WFEO strategic plan and Task Group terms of reference. I promoted an engineering approach to ensure a sustainable and resilient agriculture sector to achieve a zero hunger world.

1.5 National workshop on adaptation to climate change impact: reality and challenges

The Task Group chair attended this event which took place in Tunisia during April 2017. It was organised by the Tunisian ministry of agriculture and UNDP. Agriculture was taken as an example of a vulnerable sector in Tunisia due to the risk of flooding and droughts, especially in the southern part of the country where a dangerous degradation of water resources has occurred, affecting palm trees and future date production.



1.6 Food Sovereignty, Security and Rural Livelihoods in the Arab world: the cases of Egypt, Tunisia and Morocco.

This event took place in Tunisia, May 19th, 2017. There were many presentations from the UK, France and the US showing how the world agriculture is hegemonic, and how farmers are demonstrating innovative practices.

There were also many presentations about the cereal production and import in the Arab world putting the finger on the huge waste of bread observed in many countries of the region. The average cereal yield is very low whilst consumption is increasing rapidly these challenges show engineers having a key role to play to reduce losses in the agricultural supply chain.

1.7 Attendance at the 41st Session of the General Conference of Arab Agricultural Engineers Union (May 2017)

The theme was: Engineering innovations and development in the agriculture field and its importance to ensure food security. Many engineers and businesses presented.

1.8 WFEO meetings

The Chair has had face to face meetings with CEE chair Mrs Jean Venables in London and met with the WFEO executive director in Paris during last June 2016. He would like to thank them very much for their support and assistance.

2) Related activities at the WFEO Rome 2017 Meeting

An update will be provided to CEE members at the Rome meeting.

Fethi Thabet
WFEO Engineering and Agriculture
Task Group leader

ft/rc/rkv

16 October 2017



**World Federation of Engineering Organizations
Committee on Engineering and the Environment (CEE) – 2015-2019
Task Group on Sustainable Mining
Progress Report for CEE Meeting in Rome
27 November 2017**

1) Introduction

Task Group activities (see www.community.smenet.org/wfeotaskforce/home for details) have centred on two main areas: first, creating a web-based platform for disseminating information to mining community stakeholders and, second, organizing and/or participating in conferences and workshops focused on sustainable development in the minerals industry.

Both activity areas align with and support the Task Group strategic goals, which focus on advocacy, capacity building and sharing information about engineering and its contribution to a sustainable minerals industry. Providing information to stakeholders with interests in sustainability as it applies to both the formal as well as informal mining sectors is a key aspect of the task-force's mission.

2) Progress Report 2017

This year we reached a milestone by creating a web presence on the Society for Mining, Metallurgy and Exploration website that provides a platform for Task Group members to interact and conduct business as well as a place to make information available to our stakeholders and the general public. The site is developed and we are in the process of posting content. (This addresses goals 2, 4, 6 and 7).

Conferences and workshops are effective venues for disseminating information to targeted groups. In 2017, Task Group members participated in:

Engineering Solutions for Sustainability: Materials and Resources 3: Toward a Circular Economy, Denver, CO, February 19-19, 2017

- a. Society for Mining Metallurgy and Exploration Annual Meeting, Feb, Denver, Co (Task Group Meeting).
- b. The Five College Geology Symposium, Mineral Resources for a Sustainable Future,, March 24-26' Northampton, MA
- c. Society of Mining Professors, Torino Italy, July 3-6
- d. Occupational Health and Safety in Formal and Informal Mining, August 22-25, 2017, Odense Denmark.
- e. Stanford Symposium on Mineral Resources and Their Sustainable Development, December 7-9, Palo Alto, CA

Finally Task Group members provided technical input into a series of Spanish language health and safety webinars that primarily target the formal mining sector and which will be modified in the future for the *informal* mining sector through a NIOSH-PAHO partnership.

Because of a general downturn in the global minerals industry, the Task Group budget has been significantly reduced and SME, which has generously sponsored the Task Group since its creation in 2010, is no longer able to provide staff support for Task Group activities. Despite these obstacles, the Task Group continues to actively pursue its strategic plan. However, the lack of funding and staff support means that Task Group organized workshops are no longer possible. We had one such event planned for 2017 at the



Sustainable Development in the Minerals Industry Conference held in Beijing, China that had to be cancelled due to these circumstances. In the absence of funding and staff support, the Task Group will have to find new ways to accomplish its mission and this will largely fall on individual member's ability to contribute their time. The commitment and passion of Task Group members are the engine that drives our results and I am very grateful for the time and energy that they devote to this important work.

3) Rome Meeting

Jessica Kogel regrets that she is unable to attend the CEE Meeting in Rome but is available to answer by email any questions that may arise- write to her at Jessica Kogel (kqy7@cdc.gov).

jk/rc/rkv

17 October 2017