



CAETS Discussion Group: Sustainable Development Goals
Monday, 10 September 2018
3:45 pm – 5:45 pm

Potential Questions regarding Engineering and the Sustainable Development Goals:

- Does your academy have efforts underway relating to the sustainable development goals? If so:
 - What is your focus?
 - Are you working in collaboration with other organizations?
- Does your country have a coordinated effort to contribute to achievement of the SDGs?
- How would you prioritize the SDGs in terms of the potential contributions from engineering and the technological sciences?
- Recent CAETS technical programs have focused on topics directly related to the SDGs, and the broad theme “Engineering a Better World” is well-aligned with the aims of the SDGs.
 - Should we develop a communications program to call attention to the role of engineering in achieving the SDGs?
 - Should we develop partnerships with other organizations working in this space? (e.g. World Federation of Engineering Organizations, InterAcademy Partnership, etc)
 - What are the next steps?



GENERAL BACKGROUND MATERIALS

Reference: <https://sustainabledevelopment.un.org/>

Goal 1: End poverty in all its forms everywhere

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 5: Achieve gender equality and empower all women and girls

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10: Reduce inequality within and among countries

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12: Ensure sustainable consumption and production patterns

Goal 13: Take urgent action to combat climate change and its impacts

Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

Supporting the Sustainable Development Goals: A Guide for Merit-Based Academies

InterAcademy Partnership (2017) – Free PDF: http://www.interacademies.org/37864/IAP_SDG_Guide

InterAcademy Partnership: Conference and General Assembly in April 2019, hosted by Korean Academy of Science and Technology (KAST).

<http://www.interacademies.org/46970/-2019-IAP-Conference-and-General-Assembly#tabs>

The Opening Ceremony will take place on Tuesday 9 April followed by the two-day conference on Science and the Sustainable Development Goals: The role of academies ending on Wednesday 10 April 2019.

The conference will explore how science is required to underpin and advance progress towards achieving the 17 goals of the UN 2030 Sustainable Development Agenda, and in particular, what role academies and – and should – play towards achieving these goals.

Among the specific sessions identified by the conference Scientific Committee, there will be discussions on the role of academies in the 21st Century and how academies have been, and should continue to evolve, to respond to today's challenges. There will also be more specific sessions on air pollution and health, artificial intelligence and big data, food and nutrition security and agriculture.

Input for Sustainable Development Goals from AcTI - The Netherlands

AcTI does not have specific programs targeted at the SDGs. In the Netherlands there are coordinating mechanisms set up by the government with the aim to monitor the progress and implementation that is made to deliver on the SDGs:

SDG Charter Netherlands

In the Netherlands, a growing societal movement of companies, NGOs, knowledge institutes, philanthropy, municipalities and government has committed itself to contribute to the SDGs, individually or jointly, by signing the SDG Charter. This is a unique movement in the world and a strong basis for societal action. The SDG Charter Foundation convenes these actors, catalyzes their joint actions and creates synergy in their work.

More information on the Charter can be found: <https://www.sdgcharter.nl> (in English)

Report to the UN on the implementation of the sustainable development goals (2017) – attached

Sustainable Development Goals: Situation for the Netherlands (2018). *This is a report made by the National Bureau of Statistics* - attached

Many of the initiatives on SDGs are on a regional or local level. An example is the initiative in Wageningen where sustainable solutions by or in cooperation with private companies are executed.

More information:

<http://wageningenduurzaam.nl/> (Dutch only)

<http://wageningenduurzaam.nl/wageningenwerktduurzaam/> (Dutch only)

CANADA

Efforts underway relating to the sustainable development goals: In February 2018, Doug Ruth, then President of the Canadian Academy of Engineering (CAE) confirmed the interest of the CAE in opening discussions with members of the National Council of Deans of Engineering and Applied Science (NCDEAS) on how universities might collaborate on a pan-Canadian student engagement concept for Canadian Engineering Grand Challenges. He charged the NCDEAS chair with leading this discussion and also authorized him to discuss the Canadian context for a Grand Challenge program with the NAE. At the Spring 2018 NCDEAS meeting, hosted by the University of Prince Edward Island in Charlottetown, a number of deans, as well as the President of the Canadian Federation of Engineering Students (CFES) expressed an interest in exploring this concept further.

Focus: There is strong consensus within the CAE and NCDEAS working group to address Grand Challenges within the Canadian landscape, allowing university participants with flexibility and latitude to develop their own Canada-oriented programs to address local contexts. The group expressed strong alignment with the [UN Sustainable Development Goals](#) and the vision for the engineering profession to work purposefully to advance the well-being of humanity. The thematic areas that have engaged the group include water sustainability, particularly in Indigenous communities, sustainable transportation and infrastructure, and the challenge posed at the nexus of climate change and sustainable development.

Collaborations: The academy has already developed a strong collaboration with NCDEAS, CFES and expects to develop equally strong linkages with Canadian companies at the forefront of infrastructure development and advanced manufacturing. To do so, the working group has developed the following strategy: (i) participating engineering schools will begin in fall, 2018 to develop a Canadian Grand Challenge customized to the context and circumstances of the university, (ii) participating engineering schools will sponsor students to participate in a national 'Hackathon for Change – Grand Challenges' to be organized by CFES, (iii) which will help establish cross-university student teams on the basis of the results of the hackathon. Our objective is to identify some teams to represent Canada at various international summits.

Coordinated effort in Canada: In September 2015, Canada along with 192 other UN member states adopted the 2030 Agenda for Sustainable Development. The 2030 Agenda is a 15-year global framework centred on an ambitious set of 17 Sustainable Development Goals (SDGs), 169 targets and over 230 indicators. The 2030 Agenda envisions a secure world free of poverty and hunger, with full and productive employment, access to quality education and universal health coverage, the achievement of gender equality and the empowerment of all women and girls, and an end to environmental degradation.

Many of the Government of Canada's priorities and programs, both domestically and internationally, are well aligned with the 2030 Agenda. Through its focus on women and girls, Canada's Feminist International Assistance Policy supports the main principle of the 2030 Agenda for Sustainable Development, which is to ensure that no one is left behind in the

achievement of the SDGs. By prioritizing gender equality and the empowerment of all women and girls, Canada supports SDG 5 (gender equality), as well as the achievement of all other SDGs. Consistent with the Government of Canada's commitment to advance the work of reconciliation, renewing Canada's relationship with, and outcomes for, Indigenous peoples supports multiple SDGs, including SDG 1 (no poverty), SDG 3 (good health and well-being), SDG 4 (quality education), SDG 6 (clean water and sanitation) and SDG16 (peace, justice and strong institutions). Canada's 2016 to 2019 Federal Sustainable Development Strategy, which sets out Canada's sustainable development priorities, is linked to many SDGs, including SDG 7 (affordable and clean energy), SDG 13 (climate action), SDG 14 (life below water) and SDG 15 (life on land). Finally, Canada's support for the Pan-Canadian Framework on Clean Growth and Climate Change, investments in clean economic growth and investments in international climate finance all contribute to SDG 7 (affordable and clean energy), SDG 11 (sustainable cities and communities), SDG 12 (responsible consumption and production) and SDG 13 (climate action).

In Budget 2018, the Government of Canada announced that it would provide \$49.4 million over 13 years to establish an SDG unit and fund monitoring and reporting activities by Statistics Canada. This is expected to enable better coordination among government, civil society organizations and the private sector on Canada's efforts on the 2030 Agenda for Sustainable Development

Prioritizing the SDGs: From an engineering and technology perspective, we place priority on:

- SDG 6: Ensure availability and sustainable management of water and sanitation for all.
- SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all.
- SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
- SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
- SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12: Ensure sustainable consumption and production patterns
- Goal 13: Take urgent action to combat climate change and its impacts

“Engineering a Better World” communications and partnerships: The CAE encourages calling attention to the role of engineering in achieving the SDGs and partnerships that include CAETS Academies.

Next step: A critical next step is to develop a global forum for participants, including engineering students who are future problem solvers, to meet and discuss the SDGs.



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US National Academy of Engineering (Background Information)

Grand Challenges for Engineering

A diverse committee of experts from around the world, some of the most accomplished engineers and scientists of their generation, proposed the 14 challenges outlined in this booklet. The panel, which was convened by the U.S. National Academy of Engineering (NAE) at the request of the U.S. National Science Foundation, did not rank the challenges selected, nor did it endorse particular approaches to meeting them. Rather than attempt to include every important goal for engineering, the panel chose opportunities that were both achievable and sustainable to help people and the planet thrive. The panel's conclusions were reviewed by more than 50 subject-matter experts. In addition, the effort received worldwide input from prominent engineers and scientists, as well as from the general public. Since this report's release, the findings have inspired numerous events (including Global Grand Challenges Summits in London, Beijing, and Washington DC) and educational initiatives at all levels (such as the NAE Grand Challenges Scholars Program) which you can learn more about at www.engineeringchallenges.org.

Grand Challenges for Engineering	Illustrative Synergies with SDGs
Make solar energy economical	7 (Affordable and clean energy) 13 (Climate action) 11 (Sustainable cities and communities)
Provide energy from fusion	7 (Affordable and clean energy) 13 (Climate action)
Develop carbon sequestration methods	7 (Affordable and clean energy) 13 (Climate action)
Manage the nitrogen cycle	12 (Responsible consumption and production) 15 (Life on land)
Provide access to clean water	6 (Clean water and sanitation) 11 (Sustainable cities and communities)
Restore and improve urban infrastructure	6 (Clean water and sanitation) 11 (Sustainable cities and communities)
Advance health informatics	3 (Good health and well-being)
Engineer better medicines	3 (Good health and well-being)
Reverse-engineer the brain	3 (Good health and well-being)
Prevent nuclear terror	16 (Peace, justice and strong institutions)
Secure cyberspace	9 (Industry, innovation and infrastructure)
Enhance virtual reality	4 (Quality education)
Advance personalized learning	4 (Quality education) 10 (Reduced inequalities)
Engineer the tools of scientific discovery	3 (Good health and well-being) 11 (Industry, innovation and infrastructure) 13 (Climate action)