

CAETS Working Group: Engineering for SDGs

Thursday 26 January 2023 | 13:30 – 15:00 GMT

Attendees:

John McGagh (Australian Academy of Technology and Engineering)
Martin Bech (Danish Academy of Technical Services)
Andreas Athienitis (Canadian Academy of Engineering)
Robert Crawhall (Canadian Academy of Engineering)
David Butler (National Academy of Engineering)
Meredith Ettridge, Ben McAlinden, Alaka Bhatt, Taylor Huson (Royal Academy of Engineering)
David Thomlinson (Royal Academy of Engineering)
Andras Szollosi-Nagy (Hungarian Academy of Engineering)
Cath Latham (Australian Academy of Technology and Engineering)
Frank Behrendt (National Academy of Science and Engineering- acatech)
Nasim Khan (Pakistan Academy of Engineering)
Pradeep Chaturvedi (Indian National Academy of Engineering)
Jiang Kejun (Chinese Academy of Engineering)
Babcsan Norbert (Hungarian Academy of Engineering)
Otis Anyaeji (Nigerian Academy of Engineering)

1. Chair's welcome (13:30 – 13:40 GMT)

David Thomlinson (Chair) welcomed all working group members.

David recapped key points from the last working group meeting on 26 September 2022, and developments since:

- After presenting to the CAETS Council in Versailles, David shared that he received positive feedback on the progress achieved by this working group.
- David stated that in line with the CAETS Council position to prioritise knowledge sharing and capacity building within the CAETS community, this working group would continue to feature updates on SDG-related initiatives from member academies. The proposal to develop an external-facing CAETS statement would be paused for now and could be revisited in the future.

Based on responses of the CAETS member survey in late 2022, David recommended that the working group should prioritize SDG 6: Clean Water and Sanitation. Working group members had no objections to this proposal.

Comment: Andras Szollosi-Nagy (Hungary) –

- Glad to see SDG 6 as a focus of this group, as the situation is critical in respect to water. It is clear now that not all SDG goals will be met by the target of 2030.
- In October and November, a special session will be held in the UN General Assembly (UNGA). The president of UNGA is Ambassador Csaba Kőrösi, who was a chief architect of the SDG project. On March 22-23, an intergovernmental conference devoted to water will be had in New York, instigated by Ambassador Kőrösi.

- Engineering is vital in achieving the SDGs, yet engineering is not always placed centrally in these processes.

Comment: David Thomlinson (UK) –

The conviction to set up this working group is based on the role of engineering in achieving the SDGs. Previous working group agendas explored the role between engineering and governments because it would be helpful if governments would see academies as actors in achieving SDGs, these ideas need to be further developed.

Action: Andras to potentially arrange a meeting between the president of CAETS and the UN General Assembly to help position CAETS in this process.

2. Presentations from member academies (13:40 – 14:30 GMT)

Representatives from selected academies presented on their national context and associated academy initiatives in relation to any or all of the working group's SDGs focus areas.

Australian Academy of Technology & Engineering – update on survey on professional engineering standards for the UN SDGs (15 mins)

Professor John McGagh FTSE, Australian Academy of Technology & Engineering.

ATSE provided an update on the Sustainable Development Goals – position statement, that was developed for assembly consideration in October 2022. The position statement sought to include ATSE's position on the SDGs, how to align policy work to the SDGs, and how to best use the SDGs as a framework for policy and advocacy work. To support this project ATSE circulated a survey with the working group to gain reflections and feedback in three areas (PEI's and Codes-of-Conduct, Academies and Code-of-Conduct, Academies mapping to SDG's) to input into the position paper.

Please see attached slides for further information.

Canadian Academy of Engineering – Ultra-low Energy Resilient Building with Integrated Renewables. (20 mins)

Professor Andreas Athienitis - Director, Concordia Centre for Zero Energy Building Studies.

This presentation focused on the Canadian Academy's roadmap to creating a resilient built environment integrated with renewable energy sources. Through the use of case studies, the presentation discussed the role of engineers in achieving these goals and five principles to help guide decarbonisation policy development.

Please see attached slides for further information.

Discussion:

Comment: Robert Crawhall (Canada) – Canada has challenges, and there is a lot of government help in trying to reduce the footprint of the energy and transport sector, but the building heating and cooling sector is not receiving any help even though it makes up 25% of Canada's footprint. It would be great to reach out to academies to look at this issue of efficient building heating.

Andreas Athienitis (Canada) - I'm always surprised by how much more developed North America is in terms of HVAC due to societies like ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers). ASHRAE is the most influential of any society we work with in Canada and the US. It has the credibility to work on many planning policies.

Very often one of the biggest challenges is communicating with different communities of engineers, particularly at the planning stage. Urban planners don't speak the language of engineers, they speak in qualitative terms.

Question: David Butler (USA) - *We've been dealing with the tension between energy efficiency and a healthy indoor environment. I think ASHRAE has been behind in the past and is only now starting to catch up. I was wondering how public health and indoor air quality issues play into what we're discussing?*

Andreas Athienitis (Canada) - In Canada we waste a lot of energy heating fresh air in schools, universities, shopping malls, etc. The biggest part of energy consumption is providing heat to fresh air. This is linked to the amount of CO₂ in buildings and indoor air quality. There is a serious move in North America to make this a central to city planning and how we spend energy. We should be placing greater emphasis on the indoor environment, since 99% of our time is spent indoors. There is a need for HVAC to become more sophisticated and to improve the efficiency of natural ventilation.

Question: Martin Bech (Denmark) - *When talking about buildings, there is a before and an after, circular economy and materials that are used. To what extent does this factor into the project you are developing?*

Andreas Athienitis (Canada) - This is the first phase of the roadmap. In Canada we have been emphasizing the use of low carbon concrete and wood in the construction of buildings up to twenty stories high and using techniques to reduce CO₂ levels of different materials. This is something that will be looked at more carefully in the next phase.

[GLOBE](#) – Global Consensus on Sustainability and the Built Environment

3. CAETS collaboration with other entities engaging with the SDGS (14:30 – 14:55 GMT)

David invited Professor Andras Szollosi-Nagy, incoming member of CAETS Board, to present ideas on how CAETS could strengthen its links with the UN system.

Andras Szollosi-Nagy (Hungary) - It is difficult to explain why sustainability is still in the hands of politicians, social scientists, finance sector, etc. I hope the linking of the UN and this working group would be an opportunity to rejuvenate the place of engineering within UNESCO and would be an opportunity for win-win collaboration. There is concern from the UN that the SDG targets will not be met by 2030, therefore the UNGA is looking for “game changers” to advance progress SDGs by ahead of two key meetings in March and October 2023.

Discussion:

John McGagh (Australia) - Andras makes some very interesting points regarding connecting Engineering with UNESCO. It is logical that engineering systems are vital in achieving the UNSDGs.

David Thomlinson (UK) - I think CAETS should and could have a very loud voice. CAETS is largely inward looking, we organize meetings, etc, but there is great potential for the influence we could have. The CAETS Board has identified this as an opportunity.

Robert Crawhall (Canada) - Met with UNESCO in Paris in September to talk about the possibility of establishing an engineering centre for indigenous engineering, particularly surrounding the issue of water. UNESCO seemed open to engaging with engineering dialogue.

[UNESCO Institutes and Centres in Natural Sciences](#)

Martin Bech (Denmark): From the Danish Academy perspective, an effort towards working with UNESCO would be interesting and we would have many members willing to engage with this.

[UNESCO Archives AtoM Catalogue](#): Agreements for the establishment of the Aalborg Centre for a Problem-based Learning in Engineering Science and Sustainability as a Category 2 Centre under the auspices of UNESCO. [Danish Category 2 Centre](#).

Meredith Ettridge (UK): [This report](#) offers some background, that could be shared more widely.

Frank Behrendt (Germany): Next steps should be taken cautiously with regards to capacity and resources. UNESCO may have a different perspective and background than CAETS, as we don't have a mandate.

David (UK): I agree that there is need for CAETS to define its voice around these issues. There appears to be a sense of support amongst this group for making this connection and creating an opportunity to do something important. For people in this group, the role of engineering in achieving the SDGs is evident.

Action: David and Andras to follow up with the group following the UN meetings to agree on next steps towards CAETS's approach towards UN.

4. AOB and next meetings (14:55 – 15:00 GMT)

Nasim Khan (Pakistan) - The Pakistan Academy of Engineering will be holding a Symposium on SDG 6 Clean Water and Sanitation on 18 March 2023 at 10:00 (Pakistan Standard Time). Speakers from all four major provinces of Pakistan will participate, Nasim Khan will share further information.