From Vision to Actions with Impact:

Climate Change Education in Small Island Developing States (SIDS) through Curriculum Development and Teacher Training in Schools

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President, World Federation of Engineering Organisations, 2017-2019
National President, Engineers Australia, 2013

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The World Federation of Engineering Organizations (WFEO):

- The peak international body for professional engineering institutions
- Founded in 1968, under the auspices of UNESCO
- 100+ national professional engineering institutions, 12 international and continental/regional professional engineering institutions, representing 30 million engineers
- Co-Chair - Major Science and Technology Group at UN
- Representation at major UN Organisations

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Since November 2017, WFEO has a vision and message that every one of the UN Sustainable Development Goals can be advanced through engineering.
WFEO – UNESCO
Declaration, signed on March 7, 2018

Paris Declaration
Advancing the United Nations Sustainable Development Goals through Engineering

The World Federation of Engineering Organizations (WFEO) is the main body for engineering globally, representing nearly 100 nations and some 30 million engineers.

The members of WFEO are the national and regional professional engineering institutions of the world. WFEO is a member of the United Nations Scientific and Technological Community (UN STC) Major Group and has an official Associate status with UNESCO.

UNESCO, as the United Nations agency for education, science and culture, supports engineering through its Natural Sciences Sector, and acknowledges engineering as a powerful means to achieve sustainable development, capacity-building in engineering education and gender equality in developing countries, as well as the safeguarding of world heritage.

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Increase the number and quality of engineering graduates…

Inform global standards for engineering education, support the development of a range of engineering education systems to comply with agreed standards…

Support Capacity Building through strong institutions for engineering education…

Note: “standards” used in 2018, Since 2019, using “benchmarks” to align with IEA definitions
WFEO has an on-going commitment to addressing Climate Change through Education

“WFEO has been continuously advocating in favor of training more engineers, technicians, educators so they can have the right skills to be up to the task of fighting, mitigating and adapting to climate change, especially in countries which face the most consequences of it.

Training the educators, and mentoring the engineering education national system, in order to bring harmonization in standards, are the main pillars of this strategy, and this workshop sets a perfect example of its implementation.”

Message to Opening of Climate Change Education Workshop, Mauritius, 22 November 2022

WFEO President 2021-2023, Prof. Jose Vieira
Partnerships for Climate Change Education in Primary and Secondary Schools

- UNESCO
- World Federation of Engineering Organisations (WFEO)
- Office of Climate Change Education (OCE)
- National Environment Agency Singapore (NEA)
- Mauritius Ministry of Education, Tertiary Education, Science and Technology
- Mauritius National Commission to UNESCO
- Mauritius Institute of Education (MIE)
- Institution of Engineers Mauritius (WFEO National Member)

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Objective: Curriculum development and Teacher training for world class climate change education for primary and secondary schools in Mauritius.

Planning: Commenced in September 2019 but in-person delivery was delayed due to COVID:
- second session – 22-25 November 2022, in person in Mauritius

Funding: Donation of US$10,000 World Federation of Engineering Organizations Innovation Prize in Nov 2019 from National Environment Agency Singapore

Timing: The project took three years to deliver and remained focused as a result of the passion and dedication of all the representatives of the partners that were involved.
Office of Climate Change Education
A Category II UNESCO Centre

- **The Office for Climate Education (OCE)**, created in 2018 at the initiative of La main à la pâte Foundation and the scientific community, as a response to the global need for climate change education.
- Eric Guilyardi, President of the OCE, is a climatologist and lead author of the IPCC.
- In 2020, the Office for Climate Education became a category 2 center under the auspices of UNESCO.
- OCE aims to promote climate change education at the international level, with a special focus on emerging countries.
- The OCE has a mission to promote climate change education worldwide through:
  - Quality educational resources, based on the IPCC reports (OCE is an official observer) which emphasize interdisciplinarity and active pedagogy;
  - a professional development program to familiarize teachers with climate science, active pedagogy and project design;
  - design and implementation of national - or international- operational projects

See: [https://www.oce.global/en/about-us](https://www.oce.global/en/about-us)
Partners in the Climate Change Education Project

• **The Institution of Engineers Mauritius** is the national professional engineering institution for Mauritius. It is a national member of the World Federation of Engineering Organizations and provides professional development for engineers in Mauritius. See: [https://www.iemauritius.com/](https://www.iemauritius.com/)

• **The Mauritius Institute of Education (MIE)** is a degree-awarding teacher education institution of higher learning, with the mandate for Educational Research, Curriculum Development and Teacher Education, responsible for pre-primary, primary, secondary and tertiary Education in the Republic of Mauritius, and operating under the aegis of the Ministry of Education and Human Resources, Tertiary Education and Scientific Research. See: [http://web.mie.ac.mu/about-us-5/](http://web.mie.ac.mu/about-us-5/)

• **The National Environment Agency (NEA), Singapore**, is the leading public organisation responsible for ensuring a clean and sustainable environment for Singapore. Its key roles are to improve and sustain a clean environment, promote sustainability and resource efficiency, maintain high public health standards, provide timely and reliable meteorological information, and encourage a vibrant hawker culture in Singapore. NEA works closely with its partners and the community to develop and spearhead environmental and public health initiatives and programmes. See: [https://www.nea.gov.sg/](https://www.nea.gov.sg/)
Climate Change Education Project Part 1 Virtual
29-30 June 2021, Mauritius

Mr Shyam Roy, President of the Institution of Engineers Mauritius, welcomes delegates at the opening of the Climate Change Education Workshop, 29 June 2021

Dr Ravhee Bholah, Associate Professor, Head, School of Science and Mathematics, Education for Sustainable Development Coordinator Mauritius Institute of Education.
Dr Simon Klein presents information from the Office of Climate Change Education, UNESCO Category II Centre

Interactive session with teachers from Mauritius, Ms Rauma Imrit asks a question, 29 June 2021
Sandwatch is a volunteer network of children, youth and adults working together to enhance their beach environment and build resilience to climate change. Supported by a well-illustrated manual, in various languages, Sandwatch groups can select to investigate different aspects of the beach such as: beach erosion and accretion, sediment composition, impact of human activities on the beach, beach debris, pollution, water quality, waves, currents, plants and animals. See: https://en.unesco.org/sids/sandwatch; https://www.sandwatchfoundation.org/
Office of Climate Change Education (OCE)
Training Materials for Teachers from World Class Experts

See: https://www.oce.global/en/ressources

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Climate Change Education Project – Workshop
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Climate Change Education Project – Workshop
Climate Change Education Project – Mauritius - Outcomes

- Training for primary and secondary school teachers, from Mauritius and Rodrigues
- Training for Teacher Trainers
- Curriculum development for ongoing teaching of climate change – causes and effects
- Demonstration of the use of UNESCO SANDWATCH and OCE teaching resources
- Ongoing long term benefits for the people of Mauritius

Teachers, teacher trainers and trainers/speakers from OCE, Mauritius Institution of Education and Institution of Engineers Mauritius at closing session of teacher training workshop, Mauritius, 25 November 2022
Engineering for Sustainable Development

- Participation
- Influence
- Representation
The world’s engineers united in rising to the world’s challenges. For a better, sustainable world.