

Engineering for Humanity, Sustainability and the SDGs

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Engineering should serve the needs of humanity, in terms of providing sustainably for our present needs and those of future generations. These needs relate to such areas as housing, water supply, sanitation, transport, communications, infrastructure, industry, energy use, employment, health, education, to reduce poverty and enhance quality of life, with regard to responsible consumption, production and resource use, climate change reduction and equitability. These areas map closely to the 17 UN Sustainable Development Goals, and also to various areas of engineering. Engineering will be essential and vital to achieve the SDGs, and needs to be emphasised as such. Without such recognition, and the appropriate orientation and application of engineering, no SDGs will be achieved. Engineering, engineering education, professional practice and CPD also needs to recognise this. Unfortunately, engineering and technology are part of the problem of unsustainability and anthropogenic climate change - engineering and technology have enabled richer countries to over-consume, in terms of unsustainable resource use, with consumers showing little evidence of change. The selfish gene has become the selfish generation. We live on one planet but currently are using the resources of two. As David Attenborough noted at WEF2019 "Unless we sort ourselves out in the next decade or so, we are dooming our children and our grandchildren to an appalling future." This policy-oriented presentation will review this situation, the political economy of engineering, development and growth, lessons learnt from the UN MDGs and mapping of the SDGs and engineering. There will be particular reference to issues, challenges and prospects for change, success factors for engineering and sustainable development, the importance of indigenous, humanitarian and sustainable engineering, education and professional practice and the policies, pathways and actions required by the engineers of today and tomorrow.