



Online Ethics Center
FOR ENGINEERING AND SCIENCE

Engineering: Issues, Challenges and Opportunities for Development

Description

This is the first UNESCO report on engineering, and indeed the first report on engineering at the international level. With a focus on development, the report has been produced in response to calls to address what was perceived as a particular need and serious gap in the literature.

Body

It was developed by UNESCO, the intergovernmental organization responsible for science, including engineering, in conjunction with individual engineers and the main international engineering organizations: the World Federation of Engineering Organizations (WFEO), the International Council of Academies of Engineering and Technological Sciences (CAETS) and the International Federation of Consulting Engineers (FIDIC).

The Report is a platform for the presentation and discussion of the role of engineering in development, with particular reference to issues, challenges and opportunities. Overall global issues and challenges include: the need to reduce poverty, promote sustainable social and economic development and address the other UN Millennium Development Goals; globalization; and the need to bridge the digital and broader technological and knowledge divides. Specific emerging issues and challenges include: climate change mitigation and adaptation and the urgent need to move to a low-carbon future; the recent financial and economic crisis and recession – the worst since the 1930s; and calls for increased investment in

infrastructure, engineering capacity and associated research and development. At the same time, many countries are concerned about the apparent decline in interest and enrolment of young people, especially young women, in engineering, science and technology. What effect will this have on capacity and development, particularly in developing countries already affected by brain-drain?

The Report sheds new light on the need to:

- develop public and policy awareness and understanding of engineering, affirming the role of engineering as the driver of innovation, social and economic development;
- develop information on engineering, highlighting the urgent need for better statistics and indicators on engineering (such as how many and what types of engineers a country has and needs – which was beyond the scope of this Report);
- transform engineering education, curricula and teaching methods to emphasize relevance and a problem-solving approach to engineering;
- more effectively innovate and apply engineering and technology to global issues and challenges such as poverty reduction,
- sustainable development and climate change – and urgently develop greener engineering and lower carbon technology.

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