The Royal Academy of Engineering

Engineering and Environmental Ethics

A philosophy of engineering seminar

The Royal Academy of Engineering
3 Carlton House Terrace, London SW1Y 5DG

Monday 10th December 2007, 2pm for 2.30pm

The responsibility of engineers to consider the effect of their work on the environment is an issue of critical importance. Climate change has meant that the wider impact of technology on the environment cannot be ignored. However, protecting the environment is a complex matter involving balancing different values and priorities. The questions to be addressed at this seminar include: what duties does the engineer have to the environment? Where does the precautionary principle belong in engineering? Should engineers intervene when unsustainable engineering methods are used in developing countries? Do we have a greater duty to future generations, or current generations in poor countries?

Programme

Chair: Dr Keith Guy FREng

2pm: Registration, tea and coffee

2.30pm: Chair's introduction

2.35pm: ***Engineering Sustainability: some links between science, precaution and participation***
Professor Andy Stirling, Director of Science at the Science Policy Research Unit, University of Sussex

3.15pm: ***Children of Martha: on being an engineer in the environment***
Professor Roland Clift CBE FREng, Distinguished Professor of Environmental Technology, University of Surrey

4.05pm: Coffee

4.30pm: ***Engineering and Environmental Values***
Professor John O'Neill, Department of Philosophy, the University of Manchester

5.15pm: Discussion

5.55pm: Closing remarks by chair

6-7pm: Reception

To register for this event, or for further information about the seminar or series, contact Natasha McCarthy on 0207 766 0675 or natasha.mccarthy@raeng.org.uk

Professor Andy Stirling

Andy Stirling is Director of Science at SPRU (science and technology policy research) and a co-Director of the ESRC 'STEPS' Centre (social, technological and environmental pathways to sustainability) at the University of Sussex. He has a background in natural science, a Masters in Archaeology and Social Anthropology (Edinburgh) and a D.Phil in science and technology policy (Sussex). His own work focuses on issues of uncertainty, precaution, participation, sustainability and diversity in science and innovation strategies. He has served on a number of UK and EC advisory committees, including the UK Advisory Committee on Toxic Substances, GM Science Review Panel and Science Advisory Council and the EC Expert Groups on Energy Policy, Science in Society and Science and Governance.

Engineering Sustainability: some links between science, precaution and participation

Risk management in engineering is conventionally based on quantitative expert techniques, often referred to as 'science based' risk assessment. These methods are typically presented in stark contrast to what are often held to be relatively ambiguous, unscientific (and even 'politically correct') 'precautionary' or 'participatory' approaches. Likewise, current high-level debates in areas like energy policy and nano-engineering tend to view innovation as a matter of linear technological progress. Engineers have in the past characterized innovation as a 'race' along a path that is essentially predetermined by science. In this view, precaution and participation can again appear as distractions or obstacles. Drawing on recent interdisciplinary understandings of risk and uncertainty and the nature of the innovation process, this paper will critically examine these well-established assumptions and explore some practical policy implications. Far from being in tension with scientific rigour or technological excellence, precaution or participation are argued to provide necessary elements of a more robust approach to the governance of technology.

Professor Roland Clift CBE FREng

Roland Clift is Distinguished Professor of Environmental Technology and Founding Director of the Centre for Environmental Strategy (CES) at the University of Surrey. His research specialisation is in the broad field of Environmental System Analysis, including Life Cycle Assessment, Industrial Ecology and Sustainable Energy Systems. Professor Clift is also Visiting Professor in Environmental System Analysis at Chalmers University, Gothenburg, Sweden and a Director of the Merrill Lynch New Energy Technologies investment trust. In 2003, he was awarded the Sir Frank Whittle medal of the Royal Academy of Engineering “in recognition of an outstanding and sustained engineering achievement contributing to the well-being of the nation”. In 2005 he completed a 9 year term as a member of the Royal Commission on Environmental Pollution, and acted as Expert Adviser to an enquiry by the House of Lords Science and Technology Committee in “Energy Efficiency”. In 2006, he was appointed a member of the Science Advisory Council of the Department of the Environment, Food and Rural Affairs (Defra). Professor Clift was honoured in the 2006 New Year's Honours as a Commander of the British Empire (CBE) for services to the environment.

Children of Martha: on being an engineer in the environment

Engineers have a different relationship to environmental issues than scientists: engineering implies a commitment to action rather than analysis. This contribution will focus on the responsibility of the individual engineer rather than the profession as a whole. The resulting concept is that the engineer should be a technical expert who acts as a social agent, not merely a technician.

Professor John O’Neill

John O'Neill is Hallsworth Professor of Political Economy at Manchester University. He has written widely on philosophy and political economy, political theory, environmental policy and philosophy, ethics and the philosophy of science. His books include *Markets, Deliberation and Environment* (Routledge, 2007), The *Market: Ethics, Knowledge and Politics* (Routledge, 1998) and *Ecology, Policy and Politics: Human Well-Being and the Natural World* (Routledge, 1993). He has recently co-authored a new book *Environmental Values* (Routledge, 2008) with Alan Holland and Andrew Light. He is co-editor with Tim Hayward of *Justice, Property and the Environment: Social and Legal Perspectives* (Ashgate, 1997) and with Ian Bateman and Kerry Turner of *Environmental Ethics and Philosophy* (Edward Elgar, 2001).

Engineering and environmental values

The use of the concept of engineering in the biological sphere often elicits strong negative ethical responses. Practices such as ‘bio-engineering’ and ‘genetic engineering’ are criticised on the grounds that they are ‘unnatural’ or involve humans ‘playing god’. This paper examines whether there is a reasonable basis for such responses. In doing so I consider some parallels that can be found between arguments against ‘bio-engineering’ and arguments that have been articulated in political theory against the concept of social engineering. I will also raise some questions about the assumptions about the nature of engineering that both sets of argument involve.