

## Emerging technologies: are the risks being neglected?

SGR conference and AGM 2011, 21 May 2011

The Gallery, Alan Baxter and Associates, London EC1

Review by Tim Foxon

Stuart Parkinson, SGR's Executive Director, welcomed the 55 participants to the conference. He introduced the theme of the event, explaining some of SGR's historical concerns about emerging technologies, including the high uncertainties related to environmental and social effects, and the power of vested interests – especially large corporations and the military – in driving the policy agenda in this area.

### Geoengineering the climate

The first presentation was given by Professor Joanna Haigh of Imperial College London, who discussed the challenges raised by proposals for 'geoengineering the climate'. These come in two main forms: Carbon Dioxide Removal (CDR) techniques, which remove CO<sub>2</sub> from the atmosphere through enhancing biological or chemical uptake processes; and Solar Radiation Management (SRM) techniques, which reduce the amount of solar energy that is absorbed by the Earth's surface by enhancing global albedo (reflectivity) and thus returning some solar radiation back to space. She discussed the potential undesirable environmental and social side-effects of these ideas, and problems of global governance that they raise. For example, if solar radiation management techniques were adopted, then they would probably need to be maintained indefinitely, as any sudden cessation would plunge the world very fast into the much warmer state associated with higher CO<sub>2</sub> concentrations. An ethical aspect that is frequently cited is 'moral hazard', whereby the potential existence of geoengineering schemes discourages other actions to reduce CO<sub>2</sub> emissions, such as identifying alternative sources of clean energy and using existing energy sources as efficiently as possible.



Professor Joanna Haigh

### Robots on the battlefield: ethical and humanitarian implications

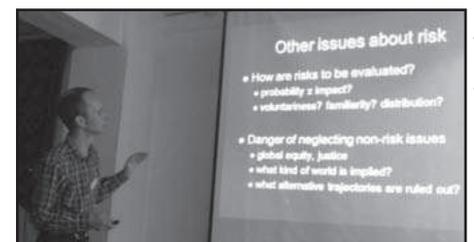
The second presentation was given by Professor Noel Sharkey of Sheffield University, who discussed the ethical and humanitarian implications of automating warfare through 'robots on the battlefield'. He noted that the use of robotics platforms for carrying weapons is coming on track at an increasing rate, and that the US, UK and other militaries are increasingly pushing for autonomous systems, with an end goal of robots operating autonomously to locate their own targets and kill them without human intervention. He passionately argued that this raises serious ethical and legal problems. For example, autonomous robots or artificial intelligence systems cannot discriminate between combatants and innocents, including civilians or wounded or captured soldiers, or judge levels of appropriate or proportionate force. Furthermore, their use risks the situation of nobody being held accountable for the lethal mishaps of a robot. Prof Sharkey ended by calling on others to support the International Committee for Robot Arms Control (ICRAC)<sup>1</sup> that he is involved with. (SGR has already signed up in support of this organisation.)



Professor Noel Sharkey

### Emerging technologies and risk: the social, cultural and political dimensions

The third presentation was given by Dr Bronislaw Szerszynski of Lancaster University, who discussed the social, cultural and political dimensions of emerging technologies and risk. He argued that narrow technical assessments of risk are not appropriate under conditions of high social and technological uncertainty, and that a precautionary approach is necessary in order to reduce the possible impact of surprises. He discussed the dangers of the 'technological fix', which is often presented as the 'silver bullet' solution to complex challenges such as food security, health inequalities and climate change. He argued that the growth-based economic system means that capital's endless need for profit has a perverse effect on the course of technological innovation, with consequences for risk. He ended by arguing for greater roles for the public and civil society in shaping the direction and pace of technological change in order to incorporate relevant lay knowledge. This can help scrutinise the robustness of knowledge bases, reduce blind spots, introduce a wider set of values and framings, and help to reduce institutional obstacles to learning.



Dr Bronislaw Szerszynski



Questions from the floor

## Poster session

Following lunch, the poster session stimulated further discussion of these issues, with posters ranging from the potential hazards of shale gas and GM crops to the inspiration of the Luddite uprisings, which aimed to ensure that the benefits of new technologies were shared equitably by the workers.

### Posters

Technologies: their emergence, crises and decay in logarithmic time  
Alan Cottey

The 200th anniversary of the Luddite uprisings: implications for radical scientists  
David King

GM crops: known problems and future risks  
Eva Novotny

Can you indict a robot?  
Jason Leake

Shale gas: climate change cure or curse?  
Martin Quick

The potential hazards of light at night  
Paul Marchant

Adverse effects of electro-magnetic radiation on humans, animals and plants  
Patty Hemingway

Ethical and environmentally safe investing: how do we stop misleading promotion and the flow of money to dangerous and unethical ideas?  
Tessa Burrington



Poster session

## Annual General Meeting

The final session of the day was SGR's AGM. This included discussions on SGR's activities since the last conference and future plans, as well as the election of the new National Co-ordinating Committee (NCC). Stuart Parkinson reported on the high levels of activity, including: completing and publishing a new report entitled Science and the Corporate Agenda; giving a large number of presentations on science and ethical issues to academic, campaigner and policy audiences; and working with other organisations to lobby policy-makers. An example of the latter was our support for the Renewable Energy Tariff Coalition, whose actions led to the introduction of the Renewable Heat Incentive for small-scale renewable heat projects. One especially high profile activity was an open letter to the Prime Minister on spending cuts, which was signed by 36 professors, arguing for any cuts in the science budget to come from Ministry of Defence's R&D budget, especially that related to nuclear

weapons. Philip Webber closed the meeting by thanking again the staff and officers for their work over the last year, and looking forward to continuing to raise SGR's profile and effectiveness over the coming year with the active assistance of the members.

*The conference was the subject of a three-page article in the June 2011 edition of Professional Engineering.*

*Articles based on the three main presentations can be found on p.6, p.10 and p.12*

**Dr Tim Foxon is a Reader in Energy Policy at the University of Leeds, and a member of SGR's National Co-ordinating Committee.**

### References

1. <http://www.icrac.co.uk>

