Scientists for Global Responsibility
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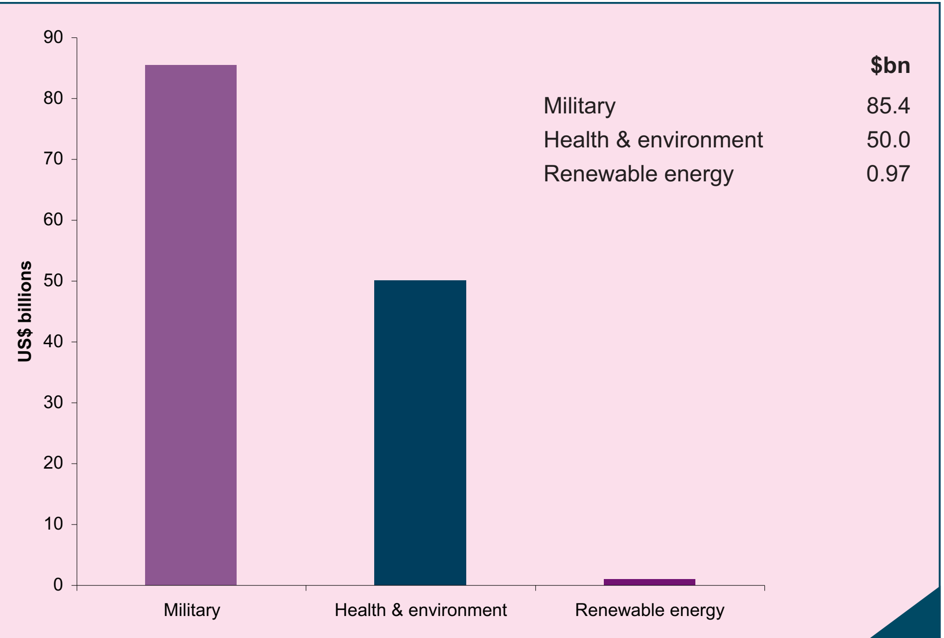

Figure 1 - Comparison of government R&D spending in industrialised countries, 2004.
Figures are in US$ (purchasing power parity). Those for military and health/environment R&D are for OECD (most industrialised) countries. Figures for renewable energy are for IEA countries (OECD minus four minor countries). Further details are given in the text.

Military R&D 85 times larger than renewable energy R&D

Stuart Parkinson and Chris Langley outline SGR's latest research whose revelations include statistics from across the industrialised world showing the massive imbalance between government R&D spending for military purposes and that for social and environmental purposes.

In August, SGR published a new briefing, *More Soldiers in the Laboratory*[1], which updates the arguments concerning the military influence over science and technology provided in our previous report[2] from January 2005. The briefing charts the most recent developments in this field, especially in the UK and USA, and argues that flawed government thinking is continuing to drive the expansion of this military influence.

In the USA, government spending on military research and development (R&D) is expected to reach a massive $78 billion in 2007, a 57% increase since 2001[3]. In the UK – third in the world rankings in terms of government spending on military R&D – the changes have been more qualitative, with two new national programmes rolled out in the last two years: the Defence Industrial Strategy and the Defence Technology Strategy. The latter in particular marks an expanded effort to involve universities more deeply in military R&D.

The briefing argues that this increasing military involvement in R&D continues to drive a narrow weapons-based security agenda. This is despite major shortcomings in this approach being apparent – not least in current conflicts such as the Iraq war. The briefing argues that this marginalises a broader approach to security, which would give much greater priority to supporting conflict prevention by helping to address the roots of conflict. As part of this case, the briefing points out how R&D that aims to help tackle poverty, climate change and ill-health – and thus help to provide basic security for human populations – is under-funded compared with military R&D. As an example, in 2004, governments in the wealthier,

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Instead we have wording which, in short, is trying not to offend any current professional group.

Restoring public trust

But even if the code is generally quite weak in certain respects, perhaps overall it will make a positive difference? Speaking about the code last March, David King emphasised that one of the beneficial effects of the code that he intended would be an improvement in public trust of science[4]. He highlighted some recent cases that had shaken public confidence, particularly the MMR vaccine-autism scare, arguing that in this case professional misconduct combined with bad journalism were mainly to blame. The universal ethical code, he argued, would at least help to tackle the professional misconduct.

One has to question, however, whether such a broad code (and a voluntary one at that) is an appropriate way of dealing with professional misconduct. Arguably, much more detailed – profession-specific – codes are far more suitable. But there is a more insidious issue here. While cases such as plagiarism and data falsification are relatively straightforward to deal with through codes of conduct, situations where a scientist obtains results which seem to contradict accepted orthodoxy are far more complex. In the latter, there is a real risk that legitimate scientific debate could be stifled.

And is King right to believe that public trust could be restored by the universal ethical code? I believe he is missing the point. Public trust in science is largely determined by the extent to which it is seen to be acting in the public interest and, critically, whether it is seen to be serving those who might be acting against the public interest. It is notable, for example, that opinion polls show that industry scientists and government scientists are generally trusted much less than those based at universities[5]. However, with universities being strongly encouraged to be involved in more commercial work, trust in academics is being eroded. Perhaps what is really needed are much clearer boundaries between academics and industrialists?

Will the code make any difference?

Another argument King has put forward for the code is its use in the education of scientists. True, a broadly-based ethical code could make a useful contribution – but one has to question if the current flawed document is the right approach. Back in 2003, a report[6] from a working group of the UN Educational, Scientific and Cultural Organisation (UNESCO) recommended that all university students should take at least an elementary course in ethics. This is where the educational effort should really be focused so that in-depth learning of the range of ethical issues and practices can take place.

In conclusion, it is hard to be enthusiastic about this code. It is very weak on issues of 'public good', and hence fails to challenge many of the ethically questionable activities in which some scientists and engineers are involved. Furthermore, it is open to abuse through the potential for it to be used to stifle legitimate – but uncomfortable – scientific debate. Its value for dealing with professional misconduct or making a significant contribution to education is also questionable. In short, it is more a product of messy political compromise than a clear statement of principles, and hence is likely to do little to encourage the professions to pursue more ethical activities.

Indeed, this case neatly demonstrates the need for organisations like SGR – to stimulate the debate that the 'scientific establishment' shies away from, to carry out educational work on key ethical issues, and to provide a support network for ethically-concerned professionals.

Dr Stuart Parkinson is Director of Scientists for Global Responsibility and co-ordinates SGR's work on ethical careers.

References

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2. As note 1.
3. There is, in any case, a question about the legality of the UK's nuclear weapons that arises, for example, from the advisory opinion of International Court of Justice in 1996. See: World Court Project website - http://wcp.gn.apc.org/
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5. p.84 of: Office of Science and Technology and The Wellcome Trust (2000). *Science and the public: a review of science communication and public attitudes to science in Britain.* http://www.wellcome.ac.uk/doc_WTD003420.html
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Military R&D

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industrialised countries spent a total of $85 billion on military R&D, but only $50 billion on R&D for health and environmental protection, and less than $1 billion on R&D for renewable energy – see Figure 1 on p.1. The data for later years is less complete, but that which is available indicates that this huge imbalance is continuing. In making this comparison, we compiled statistics from three sources: the Organisation for Economic Co-operation and Development (OECD); the International Energy Agency; and the American Association for the Advancement of Science (AAAS). Full references are given in the SGR briefing.

The situation in the UK is similarly disturbing. In 2004/05, government spending on R&D for 'defence' purposes was approximately £2.6 billion compared with only £1.4 billion for health and environmental protection. Government spending on renewable energy R&D climbed to only £37 million in 2005 – equivalent to less than 2% of the government's military R&D budget. Meanwhile, figures from the UK's Department for International Development show that its research budget was less than £100 million in 2005 – equivalent to less than 4% of the military spend. Again full references are given in the SGR briefing.

The briefing also highlights the fact that, despite the entry into force of the new UK Freedom of Information Act, the ability to obtain detailed information on military involvement in R&D, especially within universities, remains highly problematic and further reform is needed. SGR's is pursuing further research in this area – see p.3.

In conclusion, the briefing argues that a major shift in scientific and engineering resources away from the military and towards areas that support social justice and environmental protection is long overdue.

Dr Stuart Parkinson is Executive Director, Scientists for Global Responsibility. Dr Chris Langley is SGR's principal researcher.

References

1. Langley C., Parkinson S., Webber P. (2007). *More soldiers in the laboratory: the militarisation of science and technology – an update.* Scientists for Global Responsibility. http://www.sgr.org.uk/ArmsControl/MilitaryInfluence.html
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3. AAAS (2007). *Guide to R&D funding data – historical data.* Historical table 2. http://www.aaas.org/spp/rd/hist08p2.pdf