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Nuclear is not the Answer

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Published by Oxford Research Group. Written by Chris Abbott, Paul Rogers and John Sloboda.

Nuclear Power

(...) The response to global warming should not, as some suggest, be the increased use of nuclear power. Even some environmentalists are now promoting the idea that nuclear energy could be the environmentally sound solution to the problem of rising levels of atmospheric carbon dioxide. Aside from the obvious environmental, economic and safety issues associated with dealing with radioactive waste, there is a very serious global security issue that many seem to ignore.

This 'nuclear renaissance' will involve the development of facilities - reactors, waste tanks and reprocessing plants - that are potential terrorist targets, as well as encouraging the spread of technology and materials that can also be used in the development of nuclear weapons by 'rogue states' or terrorist networks. The peaceful atom and the military atom are what the Swedish physicist Hannes Alven, a Nobel Prize laureate, called "Siamese twins". Civil nuclear activity and nuclear weapons proliferation are intimately linked: one of the 'twins' cannot be promoted without the other spreading out of control. This is where much of the current concern over Iran's nuclear programme comes from, but it is important to note that the development of nuclear power in other countries - for example, China, the USA or Japan - is just as worrying in terms of global security.

There are serious dangers associated with producing plutonium in large quantities for civil use in conditions of increasing world unrest; conditions made worse by the possible social impacts of climate change already outlined. In particular, there is real concern over the potential use of plutonium in a terrorist weapon - a radiological dispersal device (so-called 'dirty bomb') or a crude nuclear weapon.

This would have a devastating impact if detonated, for example, in a capital city, but also if the threat of detonation were used to blackmail a government. The problem of safeguarding society against these hazards would become formidable in a 'plutonium economy' (that is, an economy significantly dependent on nuclear reactors using mixed oxide fuel and/or plutonium to meet its energy demands).

The security measures that might become necessary could seriously affect personal freedoms and have genuine consequences for democracy.

It is also important to note that nuclear energy is not a carbon free technology. Electricity is used in many stages of the nuclear cycle - from building reactors to waste disposal and decommissioning - and this electricity will mainly have been produced from fossil fuels. Even under the most favourable conditions, the nuclear cycle will produce approximately one-third as much CO₂ emission as gas-fired electricity production. Furthermore, nuclear power could only supply the entire world electricity demand for three years before sources with low uranium content would have to be mined. Given that one of the main factors is the amount of carbon dioxide produced by the mining and milling of uranium ore, the use of the poorer ores in nuclear reactors would produce more CO₂ emission than burning fossil fuels directly, and may actually consume more electricity than it produces. Furthermore, the problems of the depletion of uranium mineable at economic prices would become as serious as the depletion of oil and gas if a significant nuclear renaissance were to occur.

Therefore, while some may argue that nuclear energy could provide a 'solution' to climate change, the implications of such developments would be disastrous. In fact, the UK Government's own advisory body, the Sustainable Development Commission, concluded in March 2006 that nuclear power was dangerous, expensive and unnecessary. The House of Commons Environmental Audit Committee reached similar conclusions the following month, raising serious concerns relating to safety, the threat of terrorism, and the proliferation of nuclear power across the world. So, rather than constructing new nuclear reactors, attention should be focused on the protection and security of existing facilities and options for phasing out their use altogether. This, combined with an accelerated implementation by the nuclear weapon states of their "unequivocal commitment" to nuclear disarmament under Article VI of the Nuclear Non-Proliferation Treaty (NPT), the negotiation of a Fissile Material Cut-Off Treaty (FMCT) to ban the further production of fissile materials for use in nuclear weapons, and the development of policies designed to increase confidence in the nuclear non-proliferation regime, would go a long way to making the world a safer place.

Nuclear Weapons (From Chapter on WMD)

On the nuclear side, Britain, France and China are all engaged in processes to modernise their nuclear systems. In the case of the UK and France, their modernised systems are more flexible, have a longer range and are more accurate than older systems, and both countries have policies of first use, not just against nuclear-armed opponents but against the use or even the potential use of chemical and biological weapons. Russia is trying to reconstitute an effective strategic arsenal and is beginning to modernise some strategic systems and, in the context of weak conventional forces, is more committed to nuclear first-use. Israel maintains a substantial nuclear force, and India and Pakistan are both vigorously developing their smaller forces. North Korea now probably has a very small stock of nuclear weapons and Iran is developing a civil nuclear power programme that would at least give it the potential to break out into nuclear weapons status.

The USA has already modernised one nuclear system, the B61-11 earth-penetrating warhead and is researching the Robust Nuclear Earth Penetrator, a system with much greater potential for use against deeply buried targets such as command centres or nuclear or biological weapon development facilities. More generally, the US nuclear posture is evolving into an outlook that envisages the pre-emptive use of nuclear weapons against states that may be seeking to acquire their own nuclear arsenals, but it goes further than this. What is clear is that the United States is moving towards a nuclear posture that envisages a range of small, lower yield, precise and more 'useable' nuclear weapons that are particularly suited for operations against deeply-buried targets. Moreover, this includes the maintenance of such weapons on a high alert status in a posture that envisages pre-emptive strikes.

The overall impact of nuclear weapon modernisations in existing nuclear weapons states is likely to serve as a substantial encouragement to nuclear proliferation, as states such as Iran, with their perceptions of vulnerability, deem it necessary to develop their own deterrent forces.

In broad historical terms, the first 50 years of the nuclear age, 1945 to 1995, saw the proliferation of nuclear weapons to just six countries (USA, USSR/Russia, UK, France, China and Israel), even if the USA and USSR deployed nuclear weapons in many countries. During this era, Brazil and Argentina withdrew from a mutual potential nuclear arms race in the 1980s, South Africa gave up its small arsenal in the early 1990s, and three post-Soviet countries (Belarus, Ukraine and Kazakhstan) returned Cold War-era nuclear arsenals to Russia. In the sixth decade of the nuclear age, 1995 to 2005, India has weaponised its nuclear capabilities, Pakistan has gone nuclear, North Korea probably now has a small cluster of nuclear warheads and there is a possibility that Iran may follow suit. Countries including Japan, Saudi Arabia and Egypt may now also become

candidates for nuclear proliferation.

In this environment, the 2005 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) in New York achieved nothing of note, and there are no prospects of bringing into force an effective Comprehensive Test Ban Treaty. The current situation is quite different to that at the height of the Cold War. In that era there was a small but clear risk of an all-out central nuclear exchange that would have been an utter global catastrophe, what has been described as "into the abyss". The situation is now more akin to a "slippery slope" in which there is an increasing risk of smaller scale use of nuclear weapons. This might be in circumstances that do not lead on to global nuclear war but have the dangerous effect of breaking the 60-year nuclear threshold, taking us into an era in which nuclear weapons are seen as available weapons of war, with all the attending consequences.

Moreover, these dangerous trends may well be exacerbated by developments in directed energy weapons (lasers) and a race towards the weaponisation of space, as the United States remains determined to maintain its dominance there, along with its commitment to a national missile defence system and its interest in promoting regional missile defence in East Asia, even if this incites an escalatory Chinese reaction. States such as China and Russia will not accept a situation in which the USA will have the unique combination of offensive nuclear forces and defensive systems, nor will they accept a US dominance of space, as this would represent a near-revolution in warfare and geo-politics. An enhanced and renewed nuclear arms race is one likely outcome, combined with the competitive and uncontrolled weaponisation of space.