Threats to Global Water Security
NATO Science for Peace and Security Series

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Series C: Environmental Security
Threats to Global Water Security

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The UN designated the decade 2005–2015 as the International Decade for Action – Water for Life. The move was initiated at the third World Water Forum in Kyoto, 2003, and it could prove the most significant and effective outcome of the triennial series of World Water For a yet. Its major aims are: (1) to promote efforts to fulfil recent international commitments, especially in the Millennium Goals, (2) to advance towards a truly integrated, international approach to sustainable water management, and (3) to put special emphasis on the role of women in these efforts.

Even so, it faces tremendous and, as I write, increasing obstacles. The intense season of hurricanes and tropical storms in 2008 illustrated yet again not only the power of nature, but also the vulnerability of the poorer nations, like Haiti and Jamaica. New Orleans and Texas fared better, not because of the efforts of the International Decade for Natural Disasters (1990–2000) to increase preparedness, but more because the USA had learnt from its own experiences in Hurricane Katrina.

The biggest obstacle of all is the burgeoning world population. It took off last century, but it is predicted to reach unimaginable heights this century: at least 10 billion by 2050, maybe 20 billion by 2100. Governments are powerless to halt it, even the Chinese. Achieving water security globally against this backdrop will be a Herculean task.

Thus far, the 21st century has also seen three major additions to the problems facing attempts to improve water security: international conflicts, accelerating climate change and seismic shifts in global financial systems. The tremendous effort to install the new hydropower plant at Kajaki Dam in Afghanistan and the continuing cost of protecting it, seemingly in perpetuity, are just one illustration of the new threats from war and terrorism. The arrest of terrorists bent on poisoning Rome’s water supply in 2002, and the daily conflicts over water in Israel and Palestine are lower profile, but remind us of the new global nature of terrorism and ideological clashes, and their potential to disrupt water security. In a remarkable gamble for a man with the scientific kudos of Lord Martin Rees, President of the Royal Society and British Astronomer Royal, he laid a bet of $1,000 in 2002 in the computer magazine Wired that by 2020 an instance of bio-error or bio-terror will have killed a million people. One has to hope that he loses his money, but he just has to be taken seriously.

The impacts of climate change are becoming more apparent, not only from climate change models, but now also from daily experience. The ten warmest years on record have occurred in the last two decades: normal
statistical theory tells us this is not random. The 2007 reports from the International Panel on Climate Change predict more rapid and extreme changes than previous predictions. Melting glaciers and ice sheets reinforce this prospect. More rainfall and less snow in the world as a whole, more intense and frequent storms, floods and droughts and above all the gross redistribution of global water resources are set to radically change our assessment of risk. The time-honoured methods of risk assessment based on records from the recent past, as advocated in the World Meteorological Organization’s *Guides to Hydrological Practices* and used by every professional designer of dams and public water supplies in the world, will no longer be applicable.

The climatic changes will be far from egalitarian, providing more water where it is least needed and ravaging “The South” with drought and the occasional extreme rainfall. More than a quarter-century since Willy Brandt’s seminal report drew attention to the fragility of life in the developing world, coining the term “The South”, and its sequel the UN Special Conference on the Least Developed Countries, began an explosion of Western aid for agriculture and water management, most of The South is even more fragile and faces a steadily worsening situation.

But this is not just due to climate change. A large part of the problem is poor governance and corruption: diversion of aid funds to political pockets, megaprojects aimed at prestige rather than improving living standards and creating unsustainable levels of national debt, disinheritance of the peasantry by agri-business, and straightforward design faults and failures.

And so we come to the third new challenge: financing the water. The nature of the problem has been changing rapidly in recent years. Problems began with the globalization of water companies, first, with the profit motivation of multinational enterprises and subsequently with the loss of national control. Tanzania had a bad experience. It then appeared that loss of control might be exacerbated by the proliferation of takeovers by sovereign wealth funds that might be politically motivated as well. Then just as calls for greater transparency in the operation of these funds seemed to be being heeded by some key players, the credit crunch and one of the most dangerous meltdowns in global financial institutions hit. Its full impact on the flow of international aid and on the financing of bank loans for water-related projects has yet to be felt. But it has the potential to set back all targets, possibly at least for the medium term.

The research papers presented in this volume arise from the NATO Advanced Research Workshop on Global Water Security held in Yerevan, Armenia, in October 2007. Over 40 scientists and water managers attended from Nato countries, Nato-partner countries and the Mediterranean Alliance.
Delegates shared the latest information on both natural and man-made threats to the security of water resources, focusing especially on issues of risk assessment, emergency response and environmental restoration. During the workshop, three Working Groups also discussed the key issues of terrorism, climate change and governance, and summaries of their deliberations are included here.

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