

## Biographical Sketch: Professor Malcolm Dando

I trained originally as a biologist. My BSc in Zoology and my PhD in Neuroscience were both from St Andrews University. I then did post-doctoral biological research in the Universities of Michigan, Oregon and St Andrews before taking up a Ministry of Defence Research Fellowship at the University of Sussex in Operational Research from 1973-1979. During that period I investigated what might be done to help people make better decisions in crises.

In 1979 I moved to the Department of Peace Studies at the University of Bradford and worked on nuclear arms control during the 1980s. After the first Gulf War there was an increased concern about biological weapons and I turned my attention to the problem of biological arms control and disarmament. I wrote an early study of the impact of biotechnology on the proliferation of biological weaponry in 1994 (*Biological Warfare in the 21<sup>st</sup> Century*) and followed that with a study of the dangers from new weaponry that could attack the nervous system in 1996 (*A New Form of Warfare*).

When Graham Pearson retired as Director and Chief Executive of Chemical and Biological Defence Establishment at Porton Down he joined us as a Visiting Professor and we concentrated our work on the problem of strengthening the Biological and Toxin Weapons Convention (BTWC). To that end we produced many briefing papers on the negotiations in Geneva (see [www.brad.ac.uk/acad/sbtwc](http://www.brad.ac.uk/acad/sbtwc)), and a series of books based on NATO Advanced Research Workshops and Advanced Studies Institutes that we organised during the latter half of the 1990s.

Following the failure of the negotiations on the Verification Protocol in 2001 States Parties to the BTWC turned their attention to trying to reach common ground on smaller steps forward: for instance meeting in 2005 to discuss "Codes of Conduct for Life Scientists" as part of an overall web of policies designed to uphold the prohibition of biological warfare and bioterrorism. As I had been carefully following the impact of the biotechnology revolution on future warfare (*New Biological Weapons: Threat, Proliferation and Control*, 2001) as well as the negotiations on the BTWC (*Preventing Biological Warfare: The Failure of American Leadership*, 2002) I found this new approach a useful area for research. Together with Dr Brian Rappert of Exeter University I have therefore sought and received a number of grants to investigate what scientists think about the possible malign misuse of their benignly-intended research.

To date we have carried out a specially designed interactive seminar with over 2,500 people in 13 different countries. The results were both very surprising and consistent. Practicing life scientists, with few exceptions, have hardly thought about the "dual-use" issue and their possible ethical responsibilities. However, driven by the BTWC meetings (and United Nations Security Council Resolution 1540) many States Parties to the BTWC are systematically improving the implementation of the Convention in new national measures - including the consideration of codes of conduct for life scientists. Following the National Academics reports *Biotechnology Research in An Age of Terrorism* (2004) and *Globalization, Biosecurity, and the Future of the Life Sciences* (2006) - for both of which I was an external reviewer - this process is most advanced in the United States with the work of the government's National Science Advisory Board for Biosecurity, but it is also in progress in other countries we have visited such as the Netherlands where the National Academy has published a code of conduct. In accordance with the second of these US reports, and influenced by Whitman's analysis of converging technological systems, Kelle and I have been amongst those arguing that the problem extends far beyond work with just pathogens and toxins (see *Controlling Biochemical Weapons*). For example, I remain concerned about the lack of attention given to the dual-use dilemma by bioethicists in general and neuroethicists in particular. So my current interest is in bridging the gap between the scientific community and the policy community on this issue in the expectation that the engagement of the scientists will improve the eventual outcomes. To that end I have been working with international colleagues on an educational module resource that might be widely used.

