

# Book Review

## THE NEW BIOLOGICAL WEAPONS: THREAT, PROLIFERATION AND CONTROL

Reviewed by

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The title Chosen by the author is unequivocal enough to decipher the ultimate purpose he had in mind while writing this book. The purposes are to make familiar the readership and policy circles about the latest developments in Biotechnology and its potential for novel and unprecedented ways of weaponization of biological agents (virus, bacteria, fungi, plant sources, human proteins or peptides, neurotransmitter fluids etc.), how this phenomenon can generate new security threats, why the existing non-verifiable arrangements of Biological and toxin weapons convention (BTWC) is a toothless tiger, and how a creative, integrated and obligatory approach of nonproliferation and counterproliferation can help to achieve the goals of biological arms control without hampering the legitimate and constructive scientific research and development.

Being a trained biologist and security expert, the author was exposed to the ongoing Research and Development in various fields of sciences and to the undeniable fact of uncontrollable technological advancement of the twenty-first century. Moreover, the tendency of progressive fusion among multiple technological arenas such as Biotechnology-Information Technology-Neuroscience (B-IT-N) precisely attracted his attention. On top of that, the historical precedent of research, development, stockpiling and employment of chemical, biological and toxin weapons in wars despite the existence of international norms against their usages such as BTWC, confirmed his conviction of looming insecurity.

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This book is divided into ten chapters. Based on the correlated themes they (Each chapter) deal with, the ten chapters can be rearranged into four sections. Section-1 (consisting chapter-1) analyses the concepts of arms control, nonproliferation, disarmament along with concrete initiatives initiated on that regard in the past. It then exposed the loopholes of those past initiatives in the light of contemporary new developments. Section-2 (Consisting of chapters 2,3,4 and 5) raises security concerns spawned by rapid technological changes in the fields of biotechnology, nanoengineering, genetic engineering, neuro science and information technology. Here the author made perturbing observations on the probability of the misuse of these technological fusions for the purpose of development and stockpiling of highly advanced, refined, hardly detectable 'New biological weapons (NBWs) of both tactical and strategic in nature. This section describes in detail, albeit in non-technical language, the fine line that distinguishes the benevolent scientific research and development from a malevolent one especially in biotechnology and neuroscience, the probable processes of weaponization undertaken to develop the NBWs. Various types of NBWs such as bioregulatory peptides, biological toxins, bioweapon specifically designed to kill or harm particular ethnic group (while innocuous for others while exposed, at the same time) their efficacy level, cost-effectiveness have been adeptly analysed. The author himself observed, "Here, I have tried to deal more fully with new (mid-spectrum) agents that fall between living biological agents and classical chemical agents on the spectrum of chemical and biological threats" Section-3 (consisting chapters 6,7 and 8) provides insights of how genetic engineering, military engineering and information technology might be jointly harnessed to achieve swift, stealthy and targeted delivery of those NBWs without minimum incidence of failure. Various kinds of battlefield tactics have been discussed as well. Most importantly, the author cited concrete empirical evidences from recent historical events to support his contentions. Finally, section-4 (consisting of chapters 9 and 10) dwells into the normative questions such as what should be done to refurbish the BTWC referring the recommendations of multiple national level expert committees and multilateral scientific and technical advisory bodies. The author presented his personal evaluative opinion on the control of New biological weapons. He opined that, in conjunction with popularizing international norms against bioweapons through refurbished BTWC, state level tighter national legislation, export control agreements of dual use biological agents at bilateral plus multilateral level might contribute to arms control of new biological weapons.

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The commendable qualities of this book are many. Firstly, it is written with free flow of language and minimum use of technical jargons making itself an engaging and interesting read. Secondly, the employment of physiological diagrams of protein cell structure, charts and tables of lethal peptides and toxins according to their potency, human vulnerability and weaponizability helps higher internalization and retention of complex facts. Thirdly, this book has dealt not only with 'what is' but also 'what it ought to be' that means in addition to presenting the problems, it attempted to figure out certain solutions for the same.

Judging by its subtitle 'Threat, proliferation and control', the author has invested much effort and time to provide minute details on 'threat and proliferation' section but emphasised much less rigour on the 'control' part. The incidence of unequal treatment is clear. Obviously, the author mentioned the harmonised approach of international norms, national legislation and export control regimes as an effective mechanism but he stayed away from further elaborating how all these could be fruitfully harmonised in greater detail. Another major deficiency of this work is its underlying physical-material dimension. Soon after reading, it might appear to the reader that, access to physical resources such as research information from research papers, equipment, biological agents and a high-end research facility might easily lead to development of New biological weapons by a group scientist belonging to a State or terrorist organization. Surprisingly enough nonetheless, Sonia Ben Ouagrham-Gormley convincingly argued that "H..the success of a bioweapons program also depends on "intangible factors," such as work organization, program management, structural organization, and social environment, that affect the acquisition and efficient use of scientific knowledge" These factors put severe constraints on development of bioweapons especially for non-state actors and states with concealed bio-weapon program. Consequently, readers may begin to harbour unreasonable fear about the prospect of rampant spread of bioweapons.