

BIOLOGICAL ENGAGEMENT PROGRAMS: REDUCING THREATS AND STRENGTHENING GLOBAL HEALTH SECURITY THROUGH SCIENTIFIC COLLABORATION

Global Security Engagement|x|The government's first Cooperative Threat Reduction (CTR) programs were created in 1991 to eliminate the former Soviet Union's nuclear, chemical, and other weapons and prevent their proliferation. The programs have accomplished a great deal: deactivating thousands of nuclear warheads, neutralizing chemical weapons, converting weapons facilities for peaceful use, and redirecting the work of former weapons scientists and engineers, among other efforts. Originally designed to deal with immediate post-Cold War challenges, the programs must be expanded to other regions and fundamentally redesigned as an active tool of foreign policy that can address contemporary threats from groups that are agile, networked, and adaptable. As requested by Congress, Global Security Engagement proposes how this goal can best be achieved. To meet the magnitude of new security challenges, particularly at the nexus of weapons of mass destruction and terrorism, Global Security Engagement recommends a new, more flexible, and responsive model that will draw on a broader range of partners than current programs have. The White House, working across the Executive Branch and with Congress, must lead this effort. Global Security Engagement|x|The Cooperative Threat Reduction (CTR) Program was created in 1991 as a set of support activities assisting the Former Soviet Union states in securing and eliminating strategic nuclear weapons and the materials used to create them. The Program evolved as needs and opportunities changed: Efforts to address biological and chemical threats were added, as was a program aimed at preventing cross-border smuggling of weapons of mass destruction. CTR has traveled through uncharted territory since its inception, and both the United States and its partners have taken bold steps resulting in progress unimagined in initial years. Over the years, much of the debate about CTR on Capitol Hill has concerned the effective use of funds, when the partners would take full responsibility for the efforts, and how progress, impact, and effectiveness should be measured. Directed by Congress, the Secretary of Defense completed a report describing DoD's metrics for the CTR Program (here called the DoD Metrics Report) in September 2010 and, as required in the same law, contracted with the National Academy of Sciences to review the metrics DoD developed and identify possible additional or alternative metrics, if necessary. Improving Metrics for the DoD Cooperative Threat Reduction Program provides that review and advice. Improving Metrics for the DoD Cooperative Threat Reduction Program identifies shortcomings in the DoD Metrics Report and provides recommendations to enhance DoD's development and use of metrics for the CTR Program. The committee wrote this report with two main audiences in mind: Those who are mostly concerned with the overall assessment and advice, and those readers directly involved in the CTR Program, who need the details of the DoD report assessment and of how to implement the approach that the committee recommends. Improving Metrics for the Department of Defense Cooperative Threat Reduction Program|x|The United States uses a number of policy tools to address the threat of attack using chemical, biological, radiological and nuclear (CBRN) weapons. These include a set of financial and technical programs known, variously, as cooperative threat reduction (CTR) programs, nonproliferation assistance, or, global security engagement. Congress has supported these programs over the years, but has raised a number of questions about their implementation and their future direction. Over the years, the CTR effort shifted from an emergency response to impending chaos in the Soviet Union to a broader program seeking to keep CBRN weapons away from rogue nations or terrorist groups. It has also grown from a DOD-centered effort to include projects

funded by the Department of Defense (DOD), the State Department, the Department of Energy (DOE), and the Department of Homeland Security (DHS). This book summarizes cooperative activities conducted during the full 20 years of U.S. threat reduction and nonproliferation assistance. It also provides basic information on the Global Security Contingency Fund (GSCF) legislation. Cooperative Threat Reduction|x|The United States uses a number of policy tools to address the threat of attack using chemical, biological, radiological and nuclear (CBRN) weapons. These include a set of financial and technical programs known, variously, as cooperative threat reduction (CTR) programs, nonproliferation assistance, or, global security engagement. Congress has supported these programs over the years, but has raised a number of questions about their implementation and their future direction. The Evolution of Cooperative Threat Reduction|x|The National Academies of Sciences, Engineering, and Medicine was asked to articulate a 5-year strategic vision for international health security programs and provide findings and recommendations on how to optimize the impact of the Department of Defense (DOD) Biological Threat Reduction Program (BTRP) in fulfilling its biosafety and biosecurity mission. Because BTRP is just one of several U.S. government programs conducting international health security engagement, both the strategic vision and the success of the program rely on coordinating actions with the U.S. government as a whole and with its international partners. This report provides several recommendations for optimizing BTRP success in its current mission and the wider-looking strategic vision it proposes. A Strategic Vision for Biological Threat Reduction|x|The government's first Cooperative Threat Reduction (CTR) programs were created in 1991 to eliminate the former Soviet Union's nuclear, chemical, and other weapons and prevent their proliferation. The programs have accomplished a great deal: deactivating thousands of nuclear warheads, neutralizing chemical weapons, converting weapons facilities for peaceful use, and redirecting the work of former weapons scientists and engineers, among other efforts. Originally designed to deal with immediate post-Cold War challenges, the programs must be expanded to other regions and fundamentally redesigned as an active tool of foreign policy that can address contemporary threats from groups that are that are agile, networked, and adaptable. As requested by Congress, Global Security Engagement proposes how this goal can best be achieved. To meet the magnitude of new security challenges, particularly at the nexus of weapons of mass destruction and terrorism, Global Security Engagement recommends a new, more flexible, and responsive model that will draw on a broader range of partners than current programs have. The White House, working across the Executive Branch and with Congress, must lead this effort. Global Security Engagement|x|Worldwide political changes have presented a unique opportunity for forging a new basis of international security relations. The end of the cold war, the dissolution of the Soviet Union, and the ascending role of the United Nations in regional security affairs have transformed the driving issues of international security. These changes both heighten the demand and offer the potential for global cooperation on an unprecedented scale. Traditional security preoccupations and the foundations of past strategy—based on preparation for massive military confrontation—are no longer appropriate. Now world leaders must find alternative strategies to ensure international safety. This book brings together a prominent group of experts, including several recently appointed government officials, to examine an alternative form of security, one that emphasizes collaborative rather than confrontational relationships among national military establishment. Global Engagement offers a complete analysis of the concept of cooperative security, which seeks to establish international agreements to regulate the size, technical composition, investment patterns, and operational practices of all military forces for mutual benefit. It explains how cooperative security also aims to create mechanisms to prevent the proliferation of weapons of mass destruction and regional conflict. The contributors identify the trends motivating the movement toward cooperative security and analyze the implications for practical policy action. They examine the problem of controlling advanced conventional munitions, analyze an integrated control arraignment, discuss international principles of equity and their relationship to problems of security, and offer regional political perspectives while considering social regional security problems. With the altered security environment, cooperation has clearly become the new strategic imperative. Policymakers are challenged to dispose of large arsenals of conventional and nuclear weapons and redirect their efforts to support preventative management of security conditions. Leading the discussion of the security challenges ahead, the authors of this volume debate the utility of cooperative engagement for future strategy. Global Engagement|x|Biological engagement programs are a set of projects or activities between partner countries that strengthen global health security to achieve mutually beneficial

outcomes. Engagement programs are an effective way to work collaboratively towards a common threat reduction goal, usually with a strong focus on strengthening health systems and making the world a safer place. Cooperative programs are built upon trust and sharing of information and resources to increase the capacity and capabilities of partner countries. Biological engagement programs reduce the threat of infectious disease with a focus on pathogens of security concern, such as those pathogens identified by the U.S. Government as Biological Select Agent and Toxins. These programs seek to develop technical or scientific relationships between countries to combat infectious diseases both in humans and animals. Through laboratory biorisk management, diagnostics, pathogen detection, biosurveillance and countermeasure development for infectious diseases, deep relationships are fostered between countries. Biological engagement programs are designed to address dual-use issues in pathogen research by promoting responsible science methodologies and cultures. Scientific collaboration is a core mechanism for engagement programs are designed to strengthen global health security, including prevention of avoidable epidemics; detection of threats as early as possible; and rapid and effective outbreak response. This Research Topic discusses Biological Engagement Programs, highlighting the successes and challenges of these cooperative programs. Articles in this topic outlined established engagement programs as well as described what has been learned from historical cooperative engagement programs not focused on infectious diseases. Articles in this topic highlighted selected research, trainings, and programs in Biological Engagement Programs from around the world. This Topic eBook first delves into Policies and Lessons Learned; then describes Initiatives in Biosafety & Biosecurity; the core of this work documents Cooperative Research Results from the field; then lastly the Topic lays out potential Future Directions to the continued success of the World's cooperative science in reducing the threat of infectious diseases. Biological Engagement Programs: Reducing Threats and Strengthening Global Health Security Through Scientific Collaboration|x|The National Academies of Sciences, Engineering, and Medicine was asked to articulate a 5-year strategic vision for international health security programs and provide findings and recommendations on how to optimize the impact of the Department of Defense (DOD) Biological Threat Reduction Program (BTRP) in fulfilling its biosafety and biosecurity mission. 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year period, initially in Russia but with the intention to expand the scope of projects to include other countries. These projects will help to specify the quantities and locations of weapons and materials and ensure that stocks are held under safe and secure custody to prevent diversion to unauthorized users or inappropriate uses. If the weapons or materials are not required, this practical assistance can also help to eliminate the surplus. The G8 initiative is only one of a number of activities sharing the same basic features: tailor-made measures jointly implemented on the territory of one state by a coalition including states, international organizations, local and regional governments, non-governmental organizations and the private sector. This report reviews the current cooperative threat reduction activities with a particular focus on projects and approaches engaging European partners. It examines the organizing principles for cooperative threat reduction and the lessons learned from past project implementation. Finally, it examines how European countries might organize their cooperative threat reduction activities to increase their coherence and effectiveness.

Reducing Threats at the Source|x|Doctoral Thesis / Dissertation from the year 2018 in the subject Politics - International Politics - Topic: Peace and Conflict Studies, Security, grade: A, (Atlantic International University), course: Doctor of International Relations with a major in International Security, language: English, abstract: This paper is an attempt to deconstruct the concept of security which has been by tradition exclusively confined to the military realm. We make evident that security takes into consideration a number of fields and that its major concern is the human person. In addressing security in this work, we do not only refer to the security of states – the concept of national security –, but also to that of individuals – human security –. Governments should integrate in their security agendas not only their own security, but also the security of their nationals. Accordingly, this implies that they should protect their citizens against any threat to human life. In other words, governments or the people they rule do not merely face military threats from other states; they are as well endangered by other threats to their security, these threats are debated in this research paper. We do not mean that military issues are not to be conceptualized within security frameworks, but we do contend that they are not the unique issues to be securitized. Indeed, this paper displays that other issues should be securitized. Cooperative Security in the Post Cold-war International System|x|At the moment, the revision of security policy and the formation of a new consensus to support it are still at an early stage of development. The idea of comprehensive security cooperation among the major military establishments to form an inclusive international security arrangement has been only barely acknowledged and is only partially developed. The basic principle of cooperation has been proclaimed in general terms in the Paris Charter issued in November of 1990. Important implementing provisions have been embodied in the Strategic Arms Reductions Talks (START), Conventional Forces in Europe (CFE), and Intermediate-Range Nuclear Forces (INF) treaties. Except for the regulation of U.S. and Commonwealth of Independent States (CIS) strategic forces, however, these arrangements apply only to the European theater and even there have not been systematically developed. The formation of a new security order requires that cooperative theaters of military engagement be systematically developed. Clearly that exercise will stretch the minds of all those whose thinking about security has been premised on confrontational methods. Nonetheless, such a stretching is unavoidable. The new security problems are driven by powerful forces, reshaping the entire international context. They impose starkly different requirements. They will deflect even the impressive momentum of U.S. military traditions. The eventual outcome is uncertain. It turns upon political debates yet to be held, consensus judgements yet to form, and events and their implications yet to unfold. Fundamental reconceptualization of security policy is a necessary step in the right direction, and it is important to get on with it. Getting on with it means defining the new concept of cooperative security, identifying the trends that motivate it, outlining its implications for practical policy action, and acknowledging its constraints. These tasks are the purpose of this essay.

Global Security, the Number One Dilemma of the World Community: the Case of the United States|x|This Congressionally-mandated report identifies areas for further cooperation with Russia and other states of the former Soviet Union under the Cooperative Threat Reduction (CTR) program of the Department of Defense in the specific area of prevention of proliferation of biological weapons. The report reviews relevant U.S. government programs, and particularly the CTR program, and identifies approaches for overcoming obstacles to cooperation and for increasing the long-term impact of the program. It recommends strong support for continuation of the CTR program.

A New Concept of Cooperative Security|x|Until Russia and the United States experience a change on government in 2008, the prospects for additional strategic arms control agreements, limits on destabilizing

military operations, and joint ballistic missile defense programs appear unlikely. Yet, near-term opportunities for collaboration in the areas of cooperative threat reduction, third-party proliferation, and bilateral military engagement do exist. The Biological Threat Reduction Program of the Department of Defense|x|Non-state threats and actors have become key topics in contemporary international security as since the end of the Cold War the notion that state is the primary unit of interest in international security has increasingly been challenged. Statistics show that today many more people are killed by ethnic conflicts, HIV/AIDS or the proliferation of small arms than by international war. Moreover, non-state actors, such as non-governmental organizations, private military companies and international regimes, are progressively complementing or even replacing states in the provision of security. Suggesting that such developments can be understood as part of a shift from government to governance in international security, this book examines both how private actors have become one of the main sources of insecurity in the contemporary world and how non-state actors play a growing role in combating these threats. Russian-American Security Cooperation After St. Petersburg|x|In 2008, the iconic doomsday clock of the Bulletin of the Atomic Scientists was set at five minutes to midnight—two minutes closer to Armageddon than in 1962, when John F. Kennedy and Nikita Khrushchev went eyeball to eyeball over missiles in Cuba! We still live in an echo chamber of fear, after eight years in which the Bush administration and its harshest critics reinforced each other's worst fears about the Bomb. And yet, there have been no mushroom clouds or acts of nuclear terrorism since the Soviet Union dissolved, let alone since 9/11. Our worst fears still could be realized at any time, but Michael Krepon argues that the United States has never possessed more tools and capacity to reduce nuclear dangers than it does today - from containment and deterrence to diplomacy, military strength, and arms control. The bloated nuclear arsenals of the Cold War years have been greatly reduced, nuclear weapon testing has almost ended, and all but eight countries have pledged not to acquire the Bomb. Major powers have less use for the Bomb than at any time in the past. Thus, despite wars, crises, and Murphy's Law, the dark shadows cast by nuclear weapons can continue to recede. Krepon believes that positive trends can continue, even in the face of the twin threats of nuclear terrorism and proliferation that have been exacerbated by the Bush administration's pursuit of a war of choice in Iraq based on false assumptions. Krepon advocates a "back to basics" approach to reducing nuclear dangers, reversing the Bush administration's denigration of diplomacy, deterrence, containment, and arms control. As he sees it, "The United States has stumbled before, but America has also made it through hard times and rebounded. With wisdom, persistence, and luck, another dark passage can be successfully navigated." New Threats and New Actors in International Security|x|Globalization and technology have created new challenges to national governments. As a result, they now must share power with other entities, such as regional and global organizations or large private economic units. In addition, citizens in most parts of the world have been empowered by the ability to acquire and disseminate information instantly. However this has not led to the type of international cooperation essential to deal with existential threats. Whether governments can find ways to cooperate in the face of looming threats to the survival of human society and our environment has become one of the defining issues of our age. A struggle between renewed nationalism and the rise of a truly global society is underway, but neither global nor regional institutions have acquired the skills and authority needed to meet existential threats, such as nuclear proliferation. Arms control efforts may have reduced the excesses of the Cold War, but concepts and methodologies for dealing with the nuclear menace have not kept up with global change. In addition, governments have shown surprisingly little interest in finding new ways to manage or eliminate global and regional competition in acquiring more or better nuclear weapons systems. This book explains why nuclear weapons still present existential dangers to humanity and why engagement by the United States with all states possessing nuclear weapons remains necessary to forestall a global catastrophe. The terms of engagement, however, will have to be different than during the Cold War. Technology is developing rapidly, greatly empowering individuals, groups, and nations. This can and should be a positive development, improving health, welfare, and quality of life for all, but it can also be used for enormous destruction. This book reaches beyond the military issues of arms control to analyze the impact on international security of changes in the international system and defines a unique cooperative security agenda. Better Safe Than Sorry|x|Marshall Center Paper #3 provides two views on Cooperative Security. Richard Cohen presents a compelling and highly original Cooperative Security model. Michael Mihalka broadens the analysis and traces its history. These contrasting essays explore the prospects for a new era of international relations,

characterized by reassurance instead of deterrence, cooperation as opposed to confrontation, and mutual benefit in place of unilateral advantage. Approaching the Nuclear Tipping Point|x|\"The protection of nuclear material and facilities involves a broad range of activities at the international level as well as in individual countries. International law recognizes that each state has responsibility for implementing these measures and for providing adequate protection for the material in its possession. At the same time, the international community has established a set of arrangements that help to create and maintain the nuclear security regime. This study presents an overview of the elements of the international nuclear security regime and discusses proposals to strengthen its accountability arrangements, as well as the challenges of expanding the scope of the regime and creating a framework for global nuclear security efforts.\"--P. [4] of cover. Cooperative Security|x|In response to a request from the U.S. Congress, this book examines how the unique experience and extensive capabilities of the Department of Defense (DOD) can be extended to reduce the threat of bioterrorism within developing countries outside the former Soviet Union (FSU). During the past 12 years, DOD has invested \$800 million in reducing the risk from bioterrorism with roots in the states of the FSU. The program's accomplishments are many fold. The risk of bioterrorism in other countries is too great for DOD not to be among the leaders in addressing threats beyond the FSU. Taking into account possible sensitivities about a U.S. military presence, DOD should engage interested governments in about ten developing countries outside the FSU in biological threat reduction programs during the next five years. Whenever possible, DOD should partner with other organizations that have well established humanitarian reputations in the countries of interest. For example, the U.S. Agency for International Development, the Centers for Disease Control and Prevention, and the World Health Organization should be considered as potential partners. Global Nuclear Security|x|This volume offers a complete analysis of the concept and implications of cooperative security and also identifies the trends motivating this global movement. Countering Biological Threats|x|Until Russia and the United States experience a change on government in 2008, the prospects for additional strategic arms control agreements, limits on destabilizing military operations, and joint ballistic missile defense programs appear unlikely. Yet, near-term opportunities for collaboration in the areas of cooperative threat reduction, third-party proliferation, and bilateral military engagement do exist. Global Engagement|x|The Globalization of Security is an important rethinking of the connections between globalization and security, focusing on a conceptual examination of the role of the state combined with key case studies. The book provides an analysis of the changing nature of security issues through three interlinking ways of conceptualizing the globalization of security: the expansion of the scope of threat, thinking about security in \"global\" terms, and the development of transnational networks of power. Three cases are examined to provide potential examples of the globalization of security: nuclear weapons and the globalization of threat, the globalization of the arms industry, and the global security aspects of migration and citizenship. The book provides a novel historical sociological approach to the globalization of security, advancing both the understanding of security and the theory of state power in international relations. Russian-American Security Cooperation After St. Petersburg|x|The Cooperative Biological Engagement Program (CBEP) is the biological threat component of the Cooperative Threat Reduction program. It grew out of efforts to address risks associated with legacy biological agents, related materials, and technical expertise developed as part of the biological weapon program in the former Soviet Union. CBEP now partners with about 20 countries in different regions around the world and works with them to address diverse threats to international security, including terrorist organizations seeking to acquire pathogens of security concern; human, animal, and agricultural facilities operating with inadequate safety and security safeguards; and the spread of diseases with potential security or economic consequences. As the program has evolved since its inception two decades ago, so too have its content and approaches to performance measurement. The objective of the research reported here was to build on existing work to develop a comprehensive evaluation framework and recommend metrics for assessing and communicating progress toward CBEP's goals. The report ultimately recommends a number of qualitative and quantitative indicators of CBEP performance, some that can be implemented immediately, some to be implemented later. The Globalization of Security|x|\"The ongoing COVID-19 pandemic marks the most significant, singular global disruption since World War II, with health, economic, political, and security implications that will ripple for years to come.\" -Global Trends 2040 (2021) Global Trends 2040-A More Contested World (2021), released by the US National Intelligence Council, is the latest report in its series of reports starting in 1997 about

megatrends and the world's future. This report, strongly influenced by the COVID-19 pandemic, paints a bleak picture of the future and describes a contested, fragmented and turbulent world. It specifically discusses the four main trends that will shape tomorrow's world: - Demographics-by 2040, 1.4 billion people will be added mostly in Africa and South Asia. - Economics-increased government debt and concentrated economic power will escalate problems for the poor and middleclass. - Climate-a hotter world will increase water, food, and health insecurity. - Technology-the emergence of new technologies could both solve and cause problems for human life. Students of trends, policymakers, entrepreneurs, academics, journalists and anyone eager for a glimpse into the next decades, will find this report, with colored graphs, essential reading. Nominations Before the Senate Armed Services Committee, Second Session, 111th Congress|x|This report describes a project to develop a comprehensive evaluation framework for the Cooperative Biological Engagement Program and recommends metrics for assessing and communicating progress toward the program's goals. Measuring Cooperative Biological Engagement Program (CBEP) Performance|x|This is a thoroughly revised second edition of a book that we published in 2010. Exporting Security is about the US military's role in military-to-military partnerships, such as helping to support and train foreign militaries, and about the US military's role in missions other than war, ranging from diplomacy, to development, to humanitarian assistance after disasters or during epidemics. Reveron is a proponent of these non-warfighting missions because he views them as an economical way to promote human security and regional security in trouble spots, which he says is in the US national interest. He also sees these efforts as making it less likely that the US will feel compelled to intervene directly in hot spots around the globe if our partners can maintain their own security or if humanitarian disasters can be averted. This second edition will take into account the Obama administration's foreign policy, the poor legacy of training the Iraqi army, the implications of more assertive foreign policies by Russia and China, and the US military's role in recent humanitarian crises such as the Ebola epidemic in West Africa-- Global Trends 2040|x|This book develops the idea that since decolonisation, regional patterns of security have become more prominent in international politics. The authors combine an operational theory of regional security with an empirical application across the whole of the international system. Individual chapters cover Africa, the Balkans, CIS Europe, East Asia, EU Europe, the Middle East, North America, South America, and South Asia. The main focus is on the post-Cold War period, but the history of each regional security complex is traced back to its beginnings. By relating the regional dynamics of security to current debates about the global power structure, the authors unfold a distinctive interpretation of post-Cold War international security, avoiding both the extreme oversimplifications of the unipolar view, and the extreme deterritorialisations of many globalist visions of a new world disorder. Their framework brings out the radical diversity of security dynamics in different parts of the world. Journal of the American Veterinary Medical Association|x|The Nuclear Non-Proliferation Treaty has long been key in non-proliferation and disarmament activities. The Treaty is the major international legal obstacle for states seeking nuclear weapon capabilities. In retrospect, and despite setbacks, the overall impact of the Nuclear Non-Proliferation Treaty has been significant and gratifying. Its continued success is by no means guaranteed. As old nuclear dangers persist and new ones evolve, policies to halt nuclear proliferation are more disparate than at any other time. Nuclear weapons remain an essential part of the security policies of leading states and many developmental states maintain strong nuclear weapon ambitions, while terrorists have actively been seeking nuclear capabilities. In search of an overarching strategy that recognizes both the flaws of the existing non-proliferation regime, and the value of some of the corrections proposed by regime critics, this volume assesses contemporary efforts to stem nuclear proliferation. In doing so, Nuclear Proliferation and International Security examines a number of cases with a view to recommending better non-proliferation tools and strategies. The contributors comprise renowned international scholars, who have been selected to obtain the best possible analyses of critically important issues related to international non-proliferation dynamics and the future integrity of the Non-Proliferation Treaty. Nominations Before the Senate Armed Services Committee, First Session, One Hundred Twelfth Congress|x|The interwoven futures of humanity and our planet are under threat. Urgent action, taken together, is needed to change course and reimagine our futures. Measuring Cooperative Biological Engagement Program (CBEP) Performance|x|In July 2005, the National Academies released the report Biological Science and Biotechnology in Russia: Controlling Diseases and Enhancing Security. The report offered a number of recommendations that could help restore Russia's ability to join with the United States

and the broader international community in leading an expanded global effort to control infectious diseases. A proposed bilateral intergovernmental commission could play a pivotal role toward that end as cooperation moves from assistance to partnership. The report proposed the establishment of two model State Sanitary Epidemiological Surveillance Centers in Russia, more focused support of competitively selected Russian research groups as centers of excellence, the promotion of investments in biotechnology niches that are well suited for Russian companies, and expanded opportunities for young scientists to achieve scientific leadership positions in Russia. Also, the report highlighted the importance of U.S. programs that support the integration of former Soviet defense scientists with civilian researchers who had not been involved in military-related activities.

Exporting Security

During July 10-13, 2011, 68 participants from 32 countries gathered in Istanbul, Turkey for a workshop organized by the United States National Research Council on Anticipating Biosecurity Challenges of the Global Expansion of High-containment Biological Laboratories. The United States Department of State's Biosecurity Engagement Program sponsored the workshop, which was held in partnership with the Turkish Academy of Sciences. The international workshop examined biosafety and biosecurity issues related to the design, construction, maintenance, and operation of high-containment biological laboratories- equivalent to United States Centers for Disease Control and Prevention biological safety level 3 or 4 labs. Although these laboratories are needed to characterize highly dangerous human and animal pathogens, assist in disease surveillance, and produce vaccines, they are complex systems with inherent risks. Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories summarizes the workshop discussion, which included the following topics: Technological options to meet diagnostic, research, and other goals; Laboratory construction and commissioning; Operational maintenance to provide sustainable capabilities, safety, and security; and Measures for encouraging a culture of responsible conduct. Workshop attendees described the history and current challenges they face in their individual laboratories. Speakers recounted steps they were taking to improve safety and security, from running training programs to implementing a variety of personnel reliability measures. Many also spoke about physical security, access controls, and monitoring pathogen inventories. Workshop participants also identified tensions in the field and suggested possible areas for action. Regions and Powers

The Center for Global Security Research (CGSR) was founded in 1994 to serve as a bridge between the technical and policy communities. Its core mission is to ensure that each community has some understanding of the perspectives and priorities of the other. In its first decade, the Center focused heavily on defining the realm of the necessary and possible for cooperative threat reduction with the post-Soviet states. In its second decade, the Center's interests expanded to include proliferation and nonproliferation. In 2015, it set out on a new course. In order to come to terms with a changed and changing security environment, it re-focused on the new issues of deterrence, assurance, and strategic stability. This change followed in part from the conviction of Lawrence Livermore National Laboratory leadership that the Laboratory needed to do more to strengthen "the bridge" on these topics. In 2015 we framed a new analytical approach built around five thrust areas: 1. Major Power Rivalry and Deterrence 2. Regional Challengers and Challenges 3. Toward Integrated Strategic Deterrence 4. The Future of Cooperative Measures to Reduce Nuclear/Strategic Dangers 5. The Future of Long-Term Competitive Strategies In each area, we then sketched out some high-level framing questions. Over the following five years, CGSR convened 45 two-day workshops and hosted 116 speakers. It issued 20 major publications and scores of research surveys and workshop summaries. It has built a student program and put more than 100 research associates to work. It has kept stakeholders involved in defining and executing its program of work. It also expanded its mission to put a new focus on encouraging the development of emerging communities of interest. This report summarizes key insights gained over this five-year period. It is comprehensive in approach. But it is not exhaustive. Instead, this report attempts to provide a coherent set of answers to the high-level framing question, as derived from that work. These should be thought of as initial hypotheses, subject to further inquiry and analysis. The report backs these up with a select discussion of aspects of our work bearing on those answers. Responding to War, Terrorism, and WMD Proliferation

Nuclear Proliferation and International Security

Reimagining our futures together

Biological Science and Biotechnology in Russia

Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories

Toward New Thinking about Our Changed and Changing World

\$ Frontiers Research Topics. Biological Engagement Programs: Reducing Threats and Strengthening Global Health Security Through Scientific Collaboration. *Frontiers in Public Health*. Front. Public Health. Editorial: Biological Engagement Programs: Reducing Threats and Strengthening Global Health Security Through Scientific Collaboration. The U.S. Department of Defense and Beyond. A Strategic Vision for Biological Threat Reduction. *GET Journal of Biosecurity and One Health*. GJOBH. Communiqué of 8th African Conference on One Health and Biosecurity Theme: Strengthening Health Security and Mitigating Biological Threats in Africa.

The 8th African Conference on One Health and Biosecurity with the theme Strengthening Health Security and Mitigating Biological Threats in Africa was held Wednesday, 2nd November- Friday 4th November, 2022. The 8th edition of the annual conference was organized by the Global Emerging Pathogens Treatment Consortium (GET Africa) with the support of Lagos State Ministry of Health, and in partnership with major non-state institutions across the World. The conference focused on ways of improving health security in the African Continent and addressing emerging biological threats. The 3-day conference present a unique forum to raise National, Regional and Continental awareness and engage in deep introspection and robust interactions on existing health security measures and how to strengthen them, as the first urgent step toward mitigation of emerging biological threats in Africa. The conference, attended by professionals and stakeholders across the various strata of the health and allied sectors of the society, received presentations from resource persons in the healthcare sector and related fields. The following observations and recommendations emerged from exhaustive deliberations

. NATO Security through Science Series, Chemicals as Intentional and Accidental Global Environmental Threats. ENVIRONMENTAL PROTECTION AND PUBLIC HEALTH PROJECTS. EDUCATIONAL AND TRAINING PROGRAMS. Health Security. Health Security. Strengthening the US Medical Countermeasure Enterprise for Biological Threats. Weekly releases (1997–2007). Strengthening international collaboration to improve global health security.

Health ministers met in London on 14 March to make progress with the coordinated international initiative to improve global health security (<http://tap.ccta.gov.uk/doh/intpress.nsf/page/2002-0132?OpenDocument>). The aim is to better prepare for and respond to acts of chemical, biological, and radionuclear terrorism. Ministers, secretaries, and senior officials from the European Union, Germany, France, the United Kingdom, Italy, the United States, Canada, Mexico, and Japan were involved.

. Addressing Inaccurate and Misleading Information About Biological Threats Through Scientific Collaboration and Communication in Southeast Asia. *Global Food Security*. *Global Food Security*. Strengthening the engagement of food and health systems to improve nutrition security: Synthesis and overview of approaches to address malnutrition. *Health Security*. *Health Security*. Reducing Global Catastrophic Biological Risks. *Understanding Global Security*. Health threats to security. *Global Security: Health, Science and Policy*. *Global Security: Health, Science and Policy*. Assessing chemical, biological, radiological and nuclear threats to the food supply chain. *Annals of Global Health*. Strengthening Global Health Outreach Programs Through Pharmacy Services. *Understanding Global Security*. Health threats to security. *Understanding Global Security*. Health threats to security. *Health Security*. *Health Security*. Strengthening Surveillance for Health Security Threats: The Time Is Now. *Understanding Global Security*. Health threats to security. *Navigating the Nexus of Bioethics and Geopolitics: Implications for Global Health Security and Scientific Collaboration*.

Bioethics plays a pivotal role in guiding ethical decision-making within the realm of medical research and healthcare. However, the influence of geopolitics on bioethical considerations, particularly regarding gain-of-function research on viruses, remains an underexplored area. This study delves into the uncharted territory of how international political interests can intersect with bioethical principles, potentially shaping collaborative medical endeavors and global health policies related to gain-of-function studies. Through a hypothetical scenario involving a hypothetical Virus GGG, a collaborative effort between unspecified countries, we examine the implications of such cooperation on global health governance, with a specific focus on gain-of-function research. Ethical dilemmas surrounding responsible virus research, potential risks and benefits, equitable distribution of findings, and biosafety measures are explored. This analysis underscores the

importance of transparent and responsible practices in gain-of-function research amidst geopolitical tensions. By striking a balance between national interests and international solidarity, we advocate for robust bioethical frameworks to navigate such collaborations for the collective well-being of humanity and to mitigate potential risks associated with gain-of-function research.

. Global Health and Security: Threats and Opportunities. Southern Medical Journal. Rethinking the International Response System to Global Health Threats: Strengthening International Collaboration to Ensure Vaccine Equity and Combat Vaccination Hesitancy

SOALAN SAINS TAHUN 2 HAASUI

Soalan Sains Tahun 2: Haasui

Haasui merupakan salah satu konsep penting dalam sains yang perlu difahami oleh murid tahun 2. Berikut adalah beberapa soalan dan jawapan tentang haasui yang boleh membantu murid memahami topik ini dengan lebih baik.

1. Apakah yang dimaksudkan dengan haasui? Haasui adalah bahan yang membenarkan haba dan elektrik mengalir melaluinya dengan mudah. Beberapa contoh haasui termasuk logam seperti tembaga, aluminium, dan besi.

2. Apakah contoh haasui? Contoh haasui yang biasa terdapat di rumah termasuk:

- Wayar elektrik
- Periuk dan kualiti
- Sudu logam
- Radiator

3. Bagaimanakah kita boleh menguji sama ada sesuatu bahan adalah haasui? Terdapat dua cara mudah untuk menguji sama ada sesuatu bahan adalah haasui:

- **Ujian ketahanan haba:** Pegang bahan tersebut di atas api. Jika bahan tersebut terasa panas dengan cepat, ia adalah haasui.
- **Ujian ketahanan elektrik:** Sambungkan bahan tersebut ke sumber elektrik. Jika lampu menyala, bahan tersebut adalah haasui.

4. Apakah perbezaan antara haasui dan bahan penebat? Bahan penebat tidak membenarkan haba dan elektrik mengalir melaluinya dengan mudah. Contoh bahan penebat termasuk plastik, kayu, dan getah. Berbeza dengan haasui, bahan penebat tidak akan terasa panas jika dipegang di atas api dan tidak akan menyalakan lampu jika disambungkan ke sumber elektrik.

5. Mengapakah haasui penting? Haasui digunakan dalam banyak aplikasi, termasuk:

- Menghantar elektrik dalam wayar
- Memasak makanan dalam periuk dan kualiti
- Mendinginkan kereta dalam radiator

THE MAGIC KNOT AND OTHER TANGLES A MAKING TALE COMEDY STARRING PINE CONE AND PEPPER POT AND THE LOVELY TIPTOES

The Magic Knot and Other Tangles: A Making-Tale Comedy for the Young

Q: What is "The Magic Knot"?

A: "The Magic Knot" is a children's play by Barbara Barber that follows the adventures of Pine Cone, Pepper Pot, and the delightful Tippy Toes Lightly. It's a making-tale comedy that explores the power of imagination and the importance of working together.

Q: Who are Pine Cone, Pepper Pot, and Tippy Toes Lightly?

A: Pine Cone is a tall and brave mouse, Pepper Pot is a quick-witted and adventurous frog, and Tippy Toes Lightly is a graceful and artistic butterfly. Together, they embark on a journey to find the magical knot that will grant them their wishes.

Q: What happens on their journey?

A: Along the way, the trio encounters various obstacles and challenges. They meet a wise old owl, a tricky fox, and a mischievous squirrel. Through these encounters, they learn the value of perseverance, kindness, and teamwork.

Q: How does the story end?

A: In the end, Pine Cone, Pepper Pot, and Tippy Toes Lightly find the magic knot. However, they discover that their real wish is not for grand gestures but for happiness and lasting friendships.

Q: Why is "The Magic Knot" a valuable play for children?

A: "The Magic Knot" teaches important values such as imagination, collaboration, and resilience. It encourages children to explore their creativity, embrace challenges, and appreciate the power of friendship. The play's humor and engaging characters make it a delightful and memorable experience for young audiences.

CLEARED FOR TAKEOFF ENGLISH FOR PILOTS BOOK 2

Is it clear for takeoff or cleared for takeoff? CLEARED FOR TAKEOFF- ATC authorization for an aircraft to depart. It is predicated on known traffic and known physical airport conditions. CLEARED FOR THE OPTION- ATC authorization for an aircraft to make a touch-and-go, low approach, missed approach, stop and go, or full stop landing at the discretion of the pilot.

What is the first book for pilots? 1. Pilot's Handbook of Aeronautical Knowledge (FAA-H-8083-25B) The Pilot's Handbook of Aeronautical Knowledge is a comprehensive guide to the principles and practices of aviation.

How do you respond to cleared for takeoff? This is how FAA recommends (PDF): A typical takeoff clearance may state, for example, "(Callsign) 123 RNAV to MPASS, Runway 26L, Cleared for Takeoff". The expected pilot response is, "(Callsign) 123, RNAV to MPASS, Runway 26L, Cleared for Takeoff".

What does cleared for immediate takeoff mean? Description. When given the instruction 'cleared for immediate takeoff', the pilot is expected to act as follows: At the holding point: taxi immediately on to the runway and begin a rolling take off without stopping the aircraft.

What is a pilots first flight called? The first solo flight is when a new aircraft pilot completes a takeoff, and usually a short flight and safe landing, by themselves. Flying such a flight is a milestone known as soloing.

Can pilots read books in the cockpit? Pilots don't get to read books or watch movies when they fly—they are on the clock! By the time they land, they could be very tired and not have time or energy to see the places they travel to. Many airlines have deals with hotel companies, so pilots can go to crash for the night in one nearby.

What is the first rule of piloting? What we are saying is that these five areas are most significant from our perspective for both safety and the basic foundations of many critical flying skills. Rule #1: When calculating the weight and balance for a flight, fuel should be added last.

What do pilots say before takeoff? “Line up and wait” (taxi onto the runway and wait for a takeoff clearance) “Cleared to cross runway two seven” (taxi across runway 27) “Fly heading two three zero, Runway two seven Left, Cleared for takeoff” (After takeoff, fly a magnetic heading of 230°.

What does ATC say to pilots for takeoff? CLEARED FOR TAKEOFF—ATC authorization for an aircraft to depart. CLEARED FOR THE OPTION—ATC authorization for an aircraft to make a touch and go, low approach, missed approach, stop and go, or full-stop landing at the discretion of the pilot.

What does clear takeoff mean? 1) Cleared for takeoff, or (2) Hold Short, other traffic. Other traffic could mean another Aircraft is landing or, there may still be Aircraft on the runway that just landed. If the Aircraft is “Cleared For Takeoff” they taxi onto the runway and line up with the centerline of the runway.

What is the clearance for takeoff? When issuing a clearance for takeoff, first state the runway number followed by the takeoff clearance. RUNWAY (number), CLEARED FOR TAKEOFF. “Runway two seven, cleared for takeoff.” Turbine-powered aircraft may be considered ready for takeoff when they reach the runway unless they advise otherwise.

What is the time limit for takeoff clearance? ATC will normally advise the pilot of the time allotted to notify ATC that the aircraft did not depart prior to the clearance void time. This time cannot exceed 30 minutes.

What speed is a rejected takeoff? The Significance of Speed in respect of the decision to reject a take off. Most aircraft manufacturers specify an airspeed - usually 80 knots or 100 knots - which defines the transition between the low speed and the high speed part of a takeoff roll and represents a change in the expected use of a "stop" call.

What does cleared for liftoff mean? Other traffic could mean another Aircraft is landing or, there may still be Aircraft on the runway that just landed. If the Aircraft is “Cleared For Takeoff” they taxi onto the runway and line up with the centerline of the runway. Then, after running up the engines and checking all instruments, they take off.

What does cleared mean in aviation? Definition. Authorization for an aircraft to proceed under conditions specified by an air traffic control unit. Note 1. — For convenience, the term “air traffic control clearance” is frequently abbreviated to “clearance” when used in appropriate contexts.

Who clears planes for takeoff? Air traffic control tower (ATCT) - An ATCT is located at every airport that has regularly scheduled flights. Towers handle all takeoff, landing, and ground traffic.

What is the clearance for takeoff? When issuing a clearance for takeoff, first state the runway number followed by the takeoff clearance. RUNWAY (number), CLEARED FOR TAKEOFF. “Runway two seven, cleared for takeoff.” Turbine-powered aircraft may be considered ready for takeoff when they reach the runway unless they advise otherwise.

THE WONDERFUL FARM

The Wonderful Farm: A Haven of Nature and Learning

Nestled amidst rolling hills and vibrant greenery, The Wonderful Farm beckons visitors into a world of agricultural enchantment. This sprawling property offers a captivating blend of education, recreation, and an immersive farm experience.

Q: What educational opportunities are available at The Wonderful Farm?

A: The farm hosts a variety of educational programs designed for all ages. Guided tours provide a comprehensive overview of farm operations and animal husbandry. Hands-on workshops and field trips engage students in experiential learning about agriculture and the environment. Visitors can also attend lectures and demonstrations by industry experts.

Q: What recreational activities are offered at The Wonderful Farm?

A: In addition to its educational offerings, The Wonderful Farm provides a range of recreational activities. Visitors can explore the picturesque grounds, feed farm animals, and take scenic tractor rides. Playgrounds and park benches offer spaces for relaxation and picnicking. The farm also hosts special events such as farm-to-table dinners and seasonal festivals.

Q: What animals reside at The Wonderful Farm?

A: The farm is home to a wide variety of animals, including cows, sheep, goats, pigs, horses, and an array of poultry. Visitors can interact with these friendly creatures and learn about their unique characteristics, diets, and behaviors. The farm also houses exotic animals such as llamas and alpacas.

Q: How does The Wonderful Farm contribute to the community?

A: The Wonderful Farm not only provides educational and recreational opportunities but also plays a vital role in its surrounding community. The farm sources produce locally, supporting local farmers and reducing food miles. Its educational programs engage students in the importance of agriculture, fostering environmental stewardship and an appreciation for the origins of food.

Q: What makes The Wonderful Farm a must-visit destination?

A: The Wonderful Farm is a unique and unforgettable destination for its combination of educational and recreational experiences. It offers an immersive insight into the world of agriculture, promotes sustainable practices, and fosters a connection to nature. Whether you're seeking hands-on learning, family fun, or a serene retreat, The Wonderful Farm has something for everyone to enjoy.

BIOTERRORISM AND INFECTIOUS AGENTS A NEW DILEMMA FOR THE 21ST CENTURY EMERGING INFECTIOUS DISEASES OF THE 21ST CENTURY 1ST EDITION BY FONG IW PUBLISHED BY SPRINGER HARDCOVER

What are the emerging infectious diseases of the 21st century?

Which of the following infectious diseases is the most likely biological terrorism agent? Viral Hemorrhagic Fevers (VHFs). Along with smallpox, anthrax, plague, botulism, and tularemia, hemorrhagic fever viruses are among six agents identified by the Centers for Disease Control and Prevention (CDC) as the

most likely to be used as biological weapons.

What are the Category A Bioterrorism agents?

What is meant by Bioterrorism? "Bioterrorism refers to the intentional release of biological agents or toxins for the purpose of harming or killing humans, animals or plants with the intent to intimidate or coerce a government or civilian population to further political or social objectives." INTERPOL Bioterrorism incident pre-planning and response ...

What infectious diseases are the most concerning in the 21st century? One of the important challenges for the 21st century is the development of safe and effective vaccines for the 3 greatest microbial killers worldwide: HIV/AIDS, malaria, and tuberculosis. These 3 diseases account for one-third to one-half of healthy years lost in less developed countries [3].

What are the top 3 infectious diseases in the world? "Big Three" Infectious Diseases: Tuberculosis, Malaria and HIV/AIDS.

What are the emerging diseases of bioterrorism? However, emerging infectious diseases and most of the potential bioterrorism agents cause uncommon illnesses, such as inhalational anthrax, tularemia, monkeypox, and MERS CoV, and most facilities do not have the laboratory capability to test for these agents. This makes case finding very difficult.

What are the three agents causing bioterrorism?

What are the most common infectious agents used in bioterrorism?

Why is bioterrorism especially threatening? Some biological agents are designated Tier 1 agents because they have the highest risk of being used for a terrorist event. They can cause many deaths or harm the economy or important infrastructure. They pose a severe threat to public health and safety.

What is an example of bioterrorism? In October 2001, bioterrorism in the U.S. became a reality again when four letters laced with anthrax were sent through the U.S. Postal Service. The attacks resulted in the illness in 22 people, the death of 5, and fear and anxiety in millions of others.

What is the deadliest biological weapon? Special vaccines have been created, tested, and approved to deal with the two most lethal biological agents that can also be most easily weaponized: anthrax and smallpox.

Why is bioterrorism controversial? The consequences of the deliberate release of biological agents or toxins by state or non-state actors could be dramatic. In addition to the tragic loss of lives, such events could cause food shortages, environmental catastrophes, devastating economic loss, and widespread illness, fear and mistrust among the public.

Is bioterrorism a felony? Criminal use of a chemical weapon or biological weapon in the second degree is a class A-II felony.

How does bioterrorism affect humans? A biological attack is the intentional release of a pathogen (disease causing agent) or biotoxin (poisonous substance produced by a living organism) against humans, plants, or animals. An attack against people could be used to cause illness, death, fear, societal disruption, and economic damage.

What is the emerging disease of the 21st century? Seven agents that have made a significant appearance, particularly in the 21st century, are reviewed, including: Ebola and Marburg hemorrhagic fevers, human monkeypox, bovine spongiform encephalopathy, severe acute respiratory syndrome (SARS), West Nile virus, and avian influenza.

What is the most important thing that leads to an emerging infection in people? For an emerging disease to become established at least two events have to occur – (1) the infectious agent has to be introduced into a vulnerable population and (2) the agent has to have the ability to spread readily from person-to-person and cause disease.

What is the deadliest disease in history?

What disease has no cure?

What is the deadliest contagious disease? Each year, tuberculosis (TB) kills about 1.3 million people worldwide—that's more deaths than HIV/AIDS and malaria combined. TB is the world's deadliest infectious disease (though briefly eclipsed by COVID-19), killing someone every 20 seconds. But, despite its massive fatality rate, TB rarely makes headlines.

What disease has the lowest survival rate? Rabies. Rabies, likely the most well-known of the highly rated diseases, is almost always fatal, with less than 20 cases of human survival from it reported, according to the CDC.

What are current emerging infectious diseases?

What is an example of an emerging infectious disease? Influenza (or flu) is an example of an emerging disease that is due to both natural and human factors. Influenza virus is infamous for its ability to change its genetic information.

What are new emerging viral infections? Newly emerging viruses such as the Ebola virus, severe acute respiratory syndrome (SARS)-, Middle East respiratory syndrome (MERS)-coronavirus, and the avian influenza virus are serious threats to public health and have become a global concern.

What are emerging diseases new or newly identified infections in a population? Emerging infectious diseases are diseases that (1) have not occurred in humans before (this type of emergence is difficult to establish and is probably rare); (2) have occurred previously but affected only small numbers of people in isolated places (AIDS and Ebola hemorrhagic fever are examples); or (3) have occurred ...