



# IBCTR

INTERNATIONAL BIOLOGICAL  
and CHEMICAL THREAT REDUCTION

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## Intro to Biological Weapons

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# Ebola, and Zika, and H5N1.... Oh my



# History of Biological Weapons

1346: Tartar invaders catapulted plague-infected bodies over city walls during siege of Kaffa

1763: British soldiers distributed blankets used by smallpox victims to Native Americans during French and Indian Wars

## World War I

- Germany, France - anti-livestock sabotage

## World War II – 1972

- Japan, USSR, US, UK, Canada
  - *Japanese use against Chinese targets*
  - *Alleged USSR use against German soldiers*

Intent and effect of BW use was tactical, not strategic (influence battle, not war)



# After the BWC Entered into Force

Biopreparat: The civilian arm of the Soviet biological weapons program

- Established *after* Soviet accession into the BWC
- 40 – 50 facilities with up to 60,000 employees

Other incidents

- Iraq research program prior to 1991 Gulf War
- Assassination of Bulgarian dissident
- Alleged South Africa program to assassinate anti-apartheid activists

Other suspected BW programs since 1972

- Iran, North Korea, Syria, Sudan, Cuba

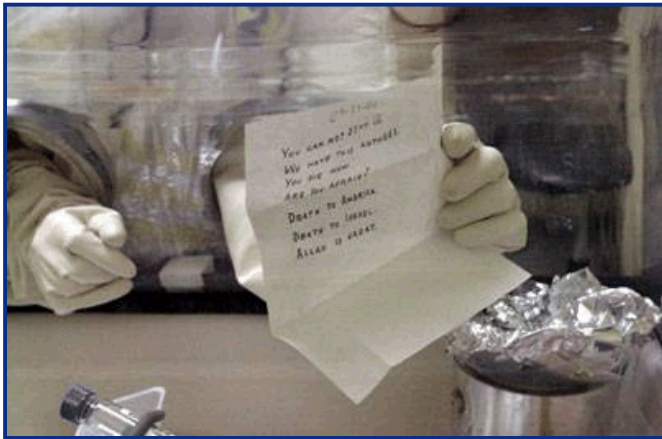


*Production Facility in Kazakhstan*

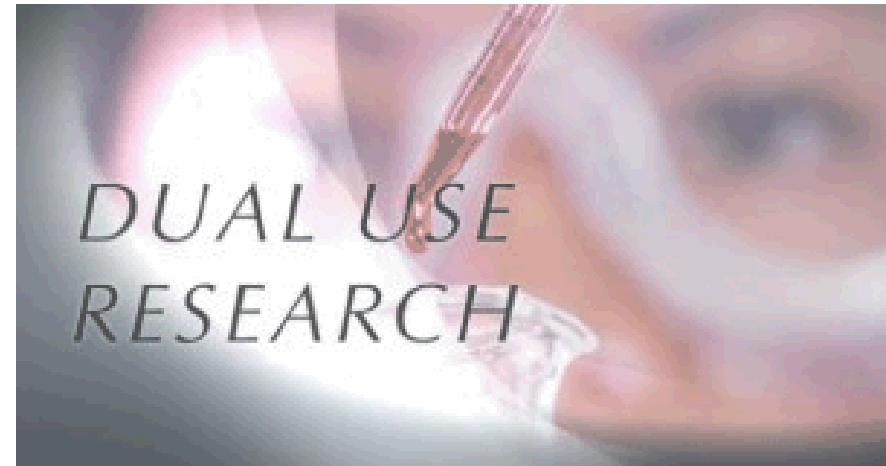
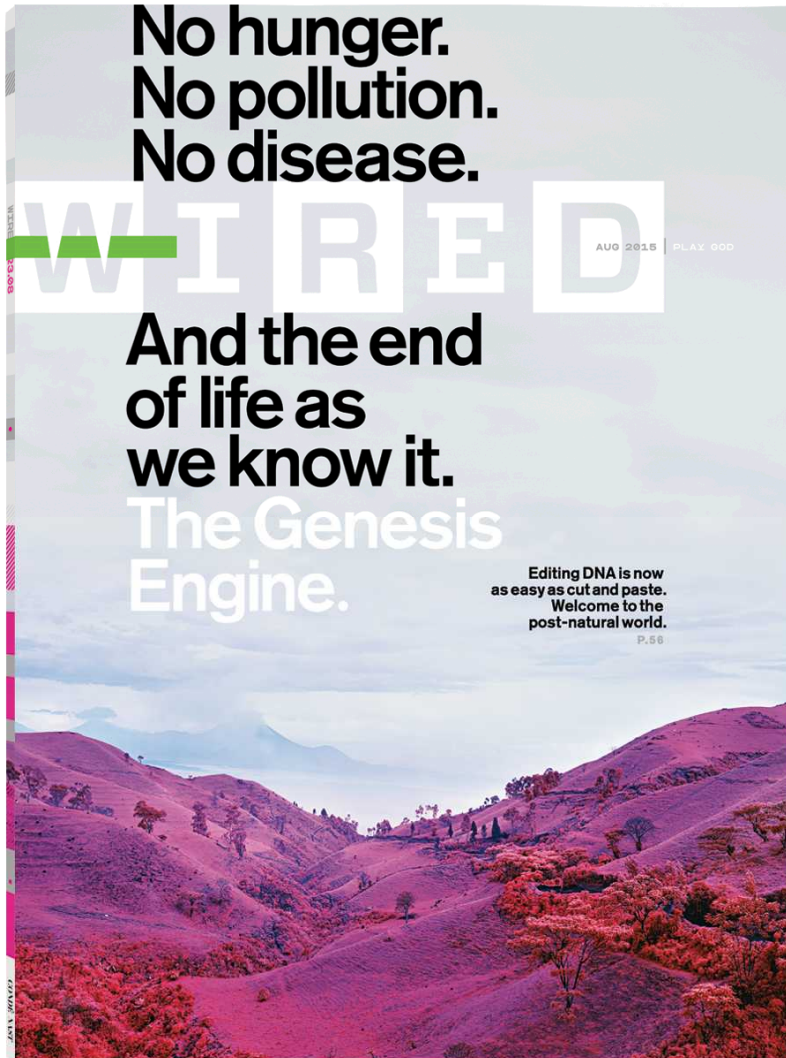


*Munitions in Iraq*

# What is the biggest threat: State or non-state actors?



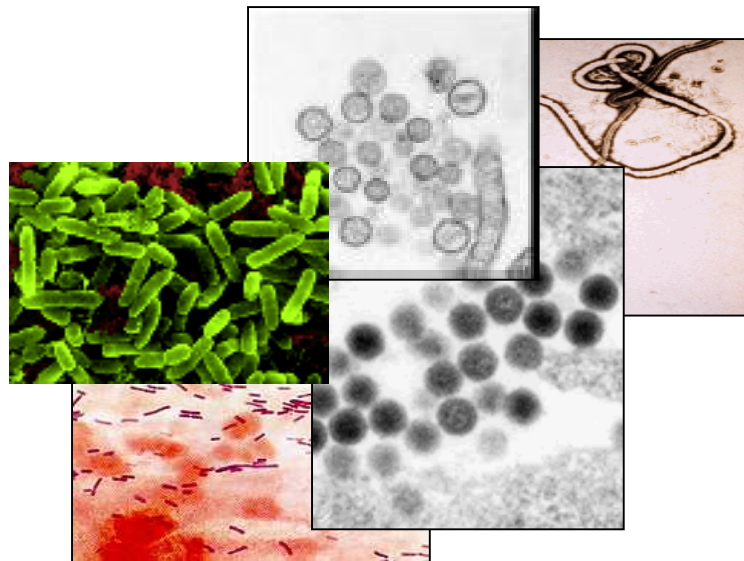
# Does Dual Use Research Change the Threat?



# Biological Weapons

“Microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes.”

“Weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict.”



# International Obligations

## Biological Weapons Convention

- Prohibits the development, production, and stockpiling of biological weapons agents, toxins, equipment, and means of delivery by State Parties
- Opened for signature April 1972; entered into force March 1975
- No provisions for verification of compliance
- Focus is on confidence building measures

## UNSCR 1540

- “Take and enforce effective measures to establish domestic controls to prevent the proliferation of . . . biological weapons . . .; including by establishing appropriate controls over related materials”
- Requires States to report efforts to 1540 Committee



*Fermentation Vessels*



# BW is Different Than Other WMD

## Naturally-occurring

- With only a few notable exceptions:
  - *Variola major virus*
  - *1918 Influenza virus*

## Dual-use

- Materials
- Technologies
- Expertise

## Wide variety of materials

- Deadly to incapacitating
- Human, animal, zoonotic, plant

## Self-replicating

- Minute quantities of concern

## Not detectable at a distance

## Present in many types of facilities

- Research laboratories, clinical laboratories, hospitals
- Private and public sector

## Present at multiple locations within a facility

- In laboratory, in storage, in animals, in waste stream

## Synthetic biology

- De-novo synthesis
- Turning non-pathogenic material into virulent organism

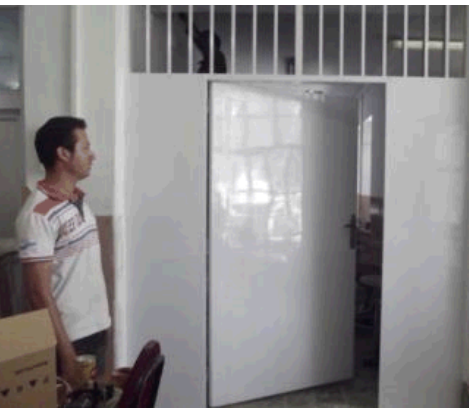
Source: Jonathan B. Tucker, "Biosecurity: Limiting Terrorist Access to Deadly Pathogens," Peaceworks No. 52, United States Institute of Peace, November 2003.



# Innovative solutions for countering biological and chemical threats globally

Strengthen capacities to safely, securely, and responsibly detect, handle, and control dangerous biological and chemical agents

- Promote the responsible use of biological and chemical agents, equipment, and expertise globally
- Improve understanding and management of the risks associated with accidental and deliberate misuse of biological and chemical agents.
- Encourage global partnerships and adherence to international risk management standards



# IBCTR core capabilities



*Human Capacity Development*



*Risk Management*

*Analysis*

*Health Security*



# IBCTR's global experience



# Key IBCTR partners



# Summer Intern Posting #652479

Risk Management Technical Undergrad Summer Interns – 3 positions

- Technical support to Iraq chem and bio engagement programs
- Literature based research

The student intern(s) will work with department staff to perform a variety of duties in support of the IBCTR department. These duties may include, but are not limited to: conducting research (including conducting literature searches and analyzing peer-reviewed publications, websites, and other publicly-available literature) on domestic and international biological and chemical safety and security regulations, norms, standards, and best practices; preparing and reviewing materials for international training and engagement projects; working with technical databases; and other duties as assigned in support of current IBCTR projects. The successful candidate(s) will be mentored on all required methodologies

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