

# Global Threat Reduction and Preparedness: Strategic Tools for Contemporary Warfare

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# Texas Tech Projects

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- Zoonotic disease surveillance in Central Asia and elsewhere. (UK/MOD, ISTC)
- Redirection of weapons scientists and dismantlement of nuclear weapons facilities in Iraq. (DoS/ISN)
- Strategic planning for disablement and dismantlement of DPRK Yongbyon Nuclear Facility (US NAS & NSC)

# Threat Reduction & Preparedness

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Threat reduction is the action(s) intended to make nonproliferation a reality rather than just a political concept. Ultimately, a way to 'shape' future battlefields.

Preparedness is the activity that directly supports force protection and 'enables' the war fighter to function with adequate situational awareness.

# United States National Security Priorities

- Undetected or intentionally hidden outbreaks of unknown disease
- State sponsored weaponization of biological agents
- Transnational terrorism with infectious agents, radiological dispersion devices, or nuclear weapons
- Force protection: forecast military operations
- Forensics capability (attribution)
- Forecasting (element of preparedness, situational awareness)
- Mechanisms for elimination of nuclear facilities (disablement/dismantlement)

# National Security: What do we need?

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- Basic scientific/technical fieldwork is essential (active rather than passive defense).
- Multinational coalitions (including science diplomacy partnerships with traditional 'enemies')
- Within the USG, diplomacy (DoS) must be integrated with acquisition of technical capacity to support DoD priorities.



## Science Diplomacy Amman, Jordan, February 2006

Texas Tech, Department of State, US CRDF, Royal Scientific Society, MoST,  
MoEn

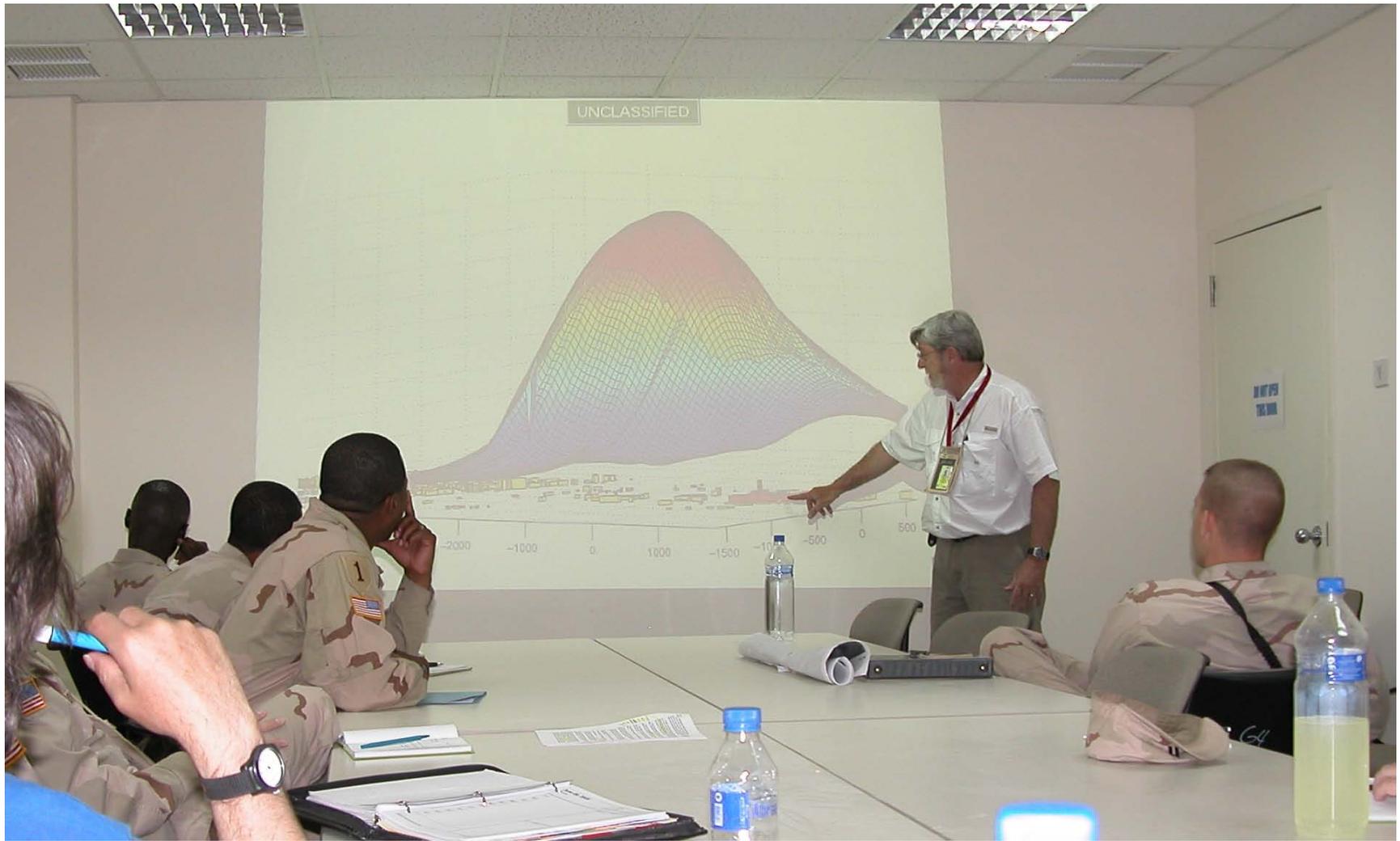
# Nuclear Facilities

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- Disable and dismantle facilities in Iraq
- Preparedness and strategic planning for other opportunities, such as DPRK
- Lessons from Iraq
  - TTU project conducted under combat conditions—thus valuable to long-term preparedness
  - War fighter & chain of command decision making
  - Situational awareness
  - Time-frame for dismantlement with international supervision and application of standards
  - Multinational cooperation (Ukraine and Russia)
  - Application to DPRK, Iran



Civilian-Military team work is critical: Iraq 2005-present.  
TTU-CENTCOM-CBRNe-Department of State (ISN)-EMB (Pol-Mil)



c.j.phillips photo

Training seminar at Camp Victory, Iraq: Prof Chesser explaining radiation dispersion model based on research in the city of Pripjat, near Chernobyl, Ukraine.



TTU Iraq nuclear weapons facility project: 2005-present.  
Typical logistical support.





Russian IRT-5000 Reactor at Tuwaitha



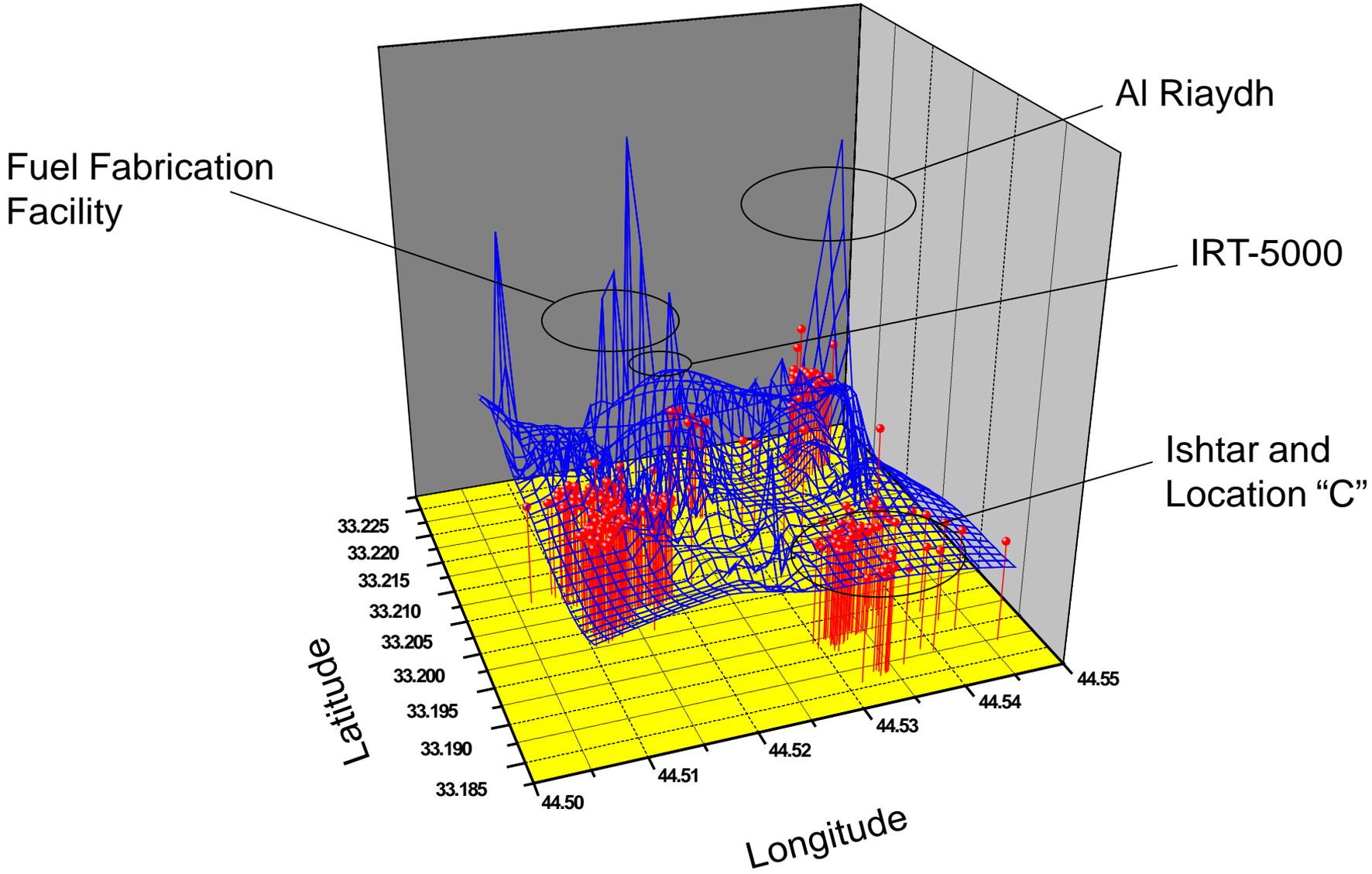
Atop the cooling tower (IRT 5000)

C.J. Phillips photos



Soil sampling at Al-Tuwaitha: more than 390 samples collected by the team.

# Graphical Representation of Uranium contamination at Al-Tuwaitha



# Bio-warfare and Bio-security

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- Precedent set by Soviet weaponization of zoonotic agents and legitimate research.
- Force protection, detection, forecast, forensics, chain of command are issues with national security and DoD priorities.
- Preparedness on geospatial distributions, molecular genetics of agents, vectors, and reservoir species is essential.
- Multinational coalitions and technical collaborations are essential pathways to stabilization, creating stakeholders, & preparedness.

# Iraq: ODS 1991, OIF 2003

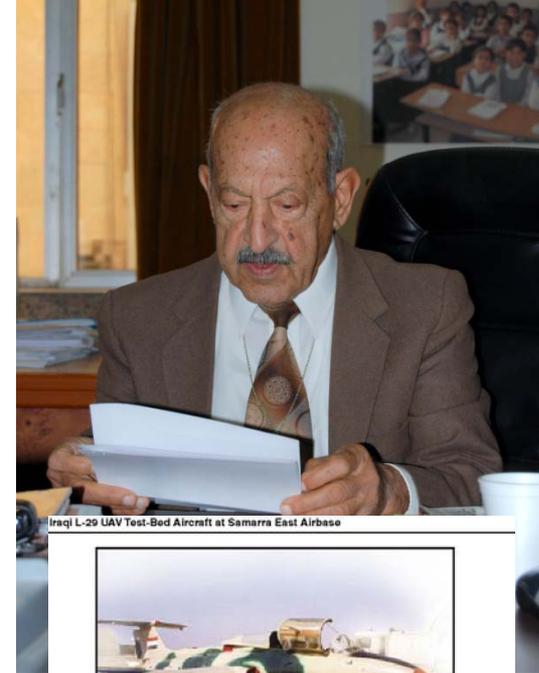


ODS: 1991 concern about Iraqi use of CBN

Gulf War Syndrome: natural or intentional or accidental? Solved in 2009 (18 years later)

OIF, 2003, would (could) Iraqis use BW—such as weaponized anthrax? Anticipation & rush to vaccine

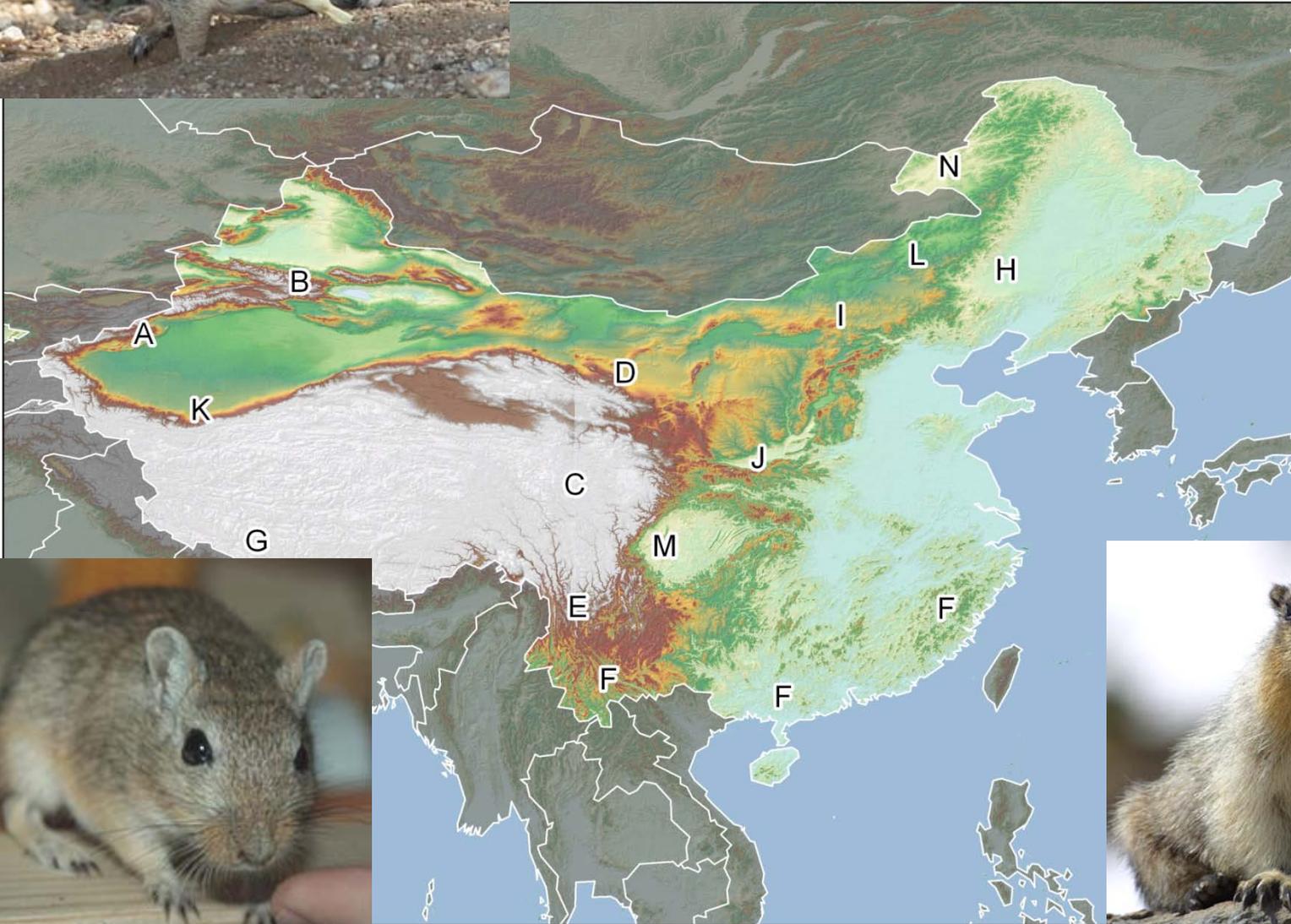
What about viruses? What about ‘engineered’ pathogens? Concern about molecular genetic capabilities and smallpox—all Soviet influenced



Iraqi L-29 UAV Test-Bed Aircraft at Samarra East Airbase



# Preparedness: Chinese Army Medical Research on Plague Foci, Vectors, Mammal Reservoir Species, and Rapid Diagnostic Systems



# Multinational Partnership in Central Asia: Kyrgyz Republic

Teamwork in former Soviet BW lab



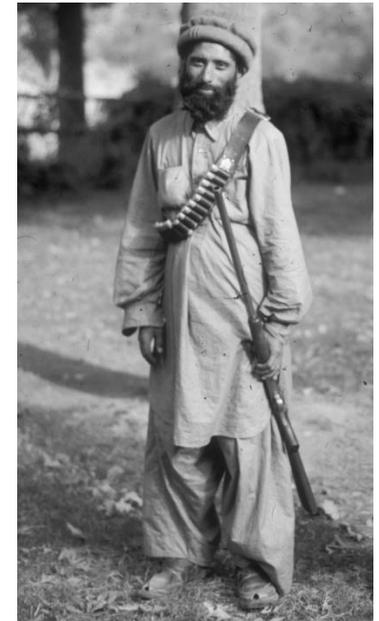
# SUMMARY

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- TTU is involved in 3 national security-related projects relevant to contemporary warfare.
- Active preparedness is essential, especially in nuclear and biological arenas.
- Civilian scientific teams, science diplomacy, and coordination with military (CNRNe), DTRA, and DIA are required.
- Multinational coalitions in Central Asia and the Middle East could shape the potential battlefield.



Col. Robert Traub



BW countermeasures fieldwork in NW Pakistan, 1966.